

A man with glasses, wearing a blue sweater and a green apron, is shown in profile, working on a wall. He is using a tool to work on a rectangular hole in a wall covered with light-colored tiles. The background is a plain, light-colored wall.

The purchasing of maintenance service delivery in the Dutch social housing sector

Optimising commodity strategies
for delivering maintenance services
to tenants

Johan Hendrik van Mossel

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Optimising commodity strategies
for delivering maintenance services to tenants

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The purchasing of maintenance service delivery in the Dutch social housing sector. Optimising commodity strategies for delivering maintenance services to tenants

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1 Introduction

1.1 The purchasing of maintenance services by Dutch housing associations

1.1.1 Introduction

Well-maintained housing can have a positive effect on society. Ensuring that buildings are attractively kept and function properly can significantly add to tenants' appreciation of their living space.

The construction of new buildings receives a lot of attention, both in theory and in practice. The quality of the housing stock as a whole, however, is much more influenced by maintenance and improvement activities. Not only are the results important, but also the process of maintenance plays a key role. Maintenance service delivery is an opportunity for interaction with tenants. It is an important opportunity for housing associations to promote tenant satisfaction and to visibly prove that they care for their tenants. Despite this, maintenance was, until recently, predominantly perceived as a technical and financial issue. While housing associations would like to use maintenance to increase tenant satisfaction, they appear to have had difficulties succeeding in this. Part of the responsibility for service delivery has been transferred to external service suppliers. Despite this, housing associations appear to be dissatisfied with the quality of service delivery, which in turn, can have a negative impact on tenant satisfaction. This indicates a need to improve the purchasing of maintenance. The desire for professionalisation is underpinned by the recent and ongoing consolidation of the social rented sector, which is leading to greater demand for rational decision-making. Because of the need for further professionalisation of maintenance purchasing in the social rented sector of housing this research focuses on the linkage between purchasing (part of the discipline of business administration), construction and housing sciences. The scientific relevance of this research thus lies in the application of business administration in these two fields of research.

Before introducing the research aim and questions, we look at the key concepts used in this thesis. First, we offer an overview of the significance of housing associations and maintenance. Next, we turn to the focal (maintenance) services and markets, after which the concepts of maintenance and purchasing are introduced.

1.1.2 Housing associations

The significance of this study is underscored by the significant size of the Dutch social rented sector, and the large amounts of money spent on maintaining it. In 2006, 492 housing associations were affiliated with Aedes, the branch association of Dutch housing associations. These housing associations are together responsible for managing more than 2.4 million dwellings,

and have a total annual turnover of around 13.5 billion euros. Together, Dutch housing associations spend over 4 billion euros annually on maintenance and improvement of dwellings (CFV, 2006); 2.8 billion euros is spent on maintenance per year. 65% of this is related to planned maintenance, and the remaining 35% to reactive maintenance and void repairs. External suppliers account for approximately 89%. 96% of planned maintenance is conducted by external services suppliers; for reactive maintenance and void repairs, this amounts to 82% (Vijverberg and Straub, 2003).

In the Netherlands, the Housing Act of 1901 provides the public framework for housing associations' activities. These social enterprises fulfil a public function combined with what are more-or-less commercial activities. This public function is not only related to housing individuals and families with modest incomes and other special groups, but also to fostering variety in the housing stock and reducing spatial segregation.

With a market share of about 33% of the entire Dutch housing stock, the size of the Dutch social rented sector is gradually decreasing (CFV, 2007). Nonetheless, relatively speaking, it is the largest in the European Union, followed at a distance by Denmark (27%), Sweden (24%) and the United Kingdom (21%) (Norris and Shields, 2004).

1.1.3 Housing services and markets

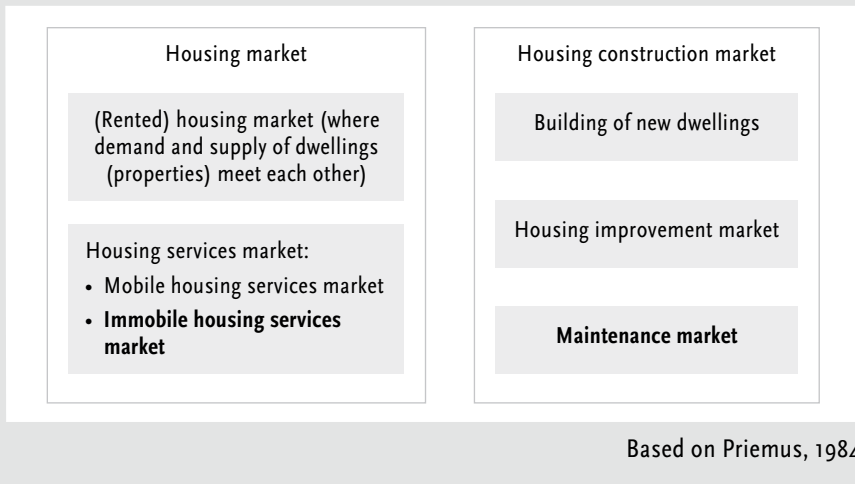
This research focuses on the owners, the users and the 'adaptators' of the housing stock. The housing market, the housing services market and the maintenance market are different concepts. In order to get a good understanding of the position of the different markets within the overall housing market, a brief overview will be given, based on Priemus (1984). See Figure 1.1 for an overview of the relevant markets for housing associations' maintenance services.

A first distinction can be made between the housing market and the housing construction market. The concept of the housing market is related to the current housing stock. The housing market refers to the totality of demand and supply relations that occur between (candidate) owners and (candidate) occupants of once-realised dwellings, where demand and supply of housing services and dwellings (properties) meet each other.

The concept of the housing construction market is used to indicate demand and supply relations related to housing construction capacity. With regard to the housing construction market, depending on the type of construction, a distinction can be made between:

- the building of new dwellings;
- the housing improvement market;
- the housing maintenance market.

Figure 1.1 Relevant markets for housing associations' maintenance services



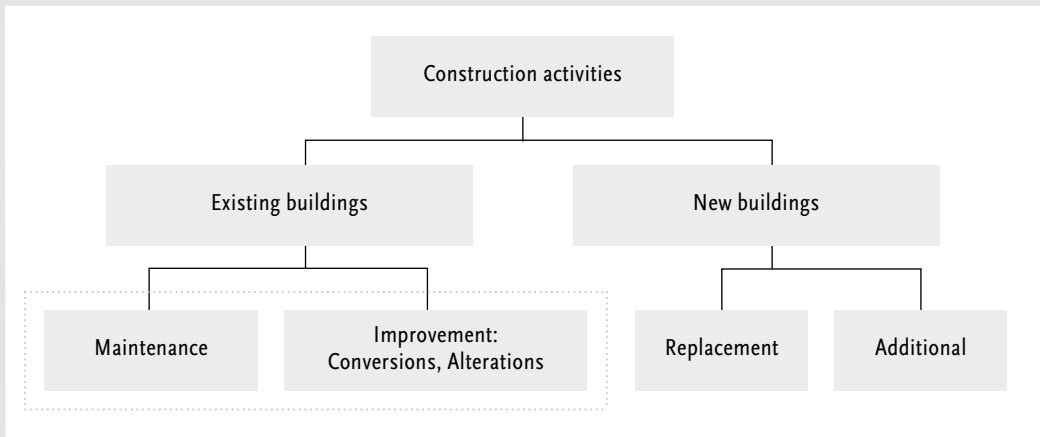
According to this arrangement (Priemus, 1984), maintenance is part of the housing construction market. Section 2.2 below examines the characteristics of the maintenance sector. Together, maintenance and housing improvement are often defined as technical management.

Priemus (1984) divides the concept of the housing market into a market where dwellings are traded, and a housing services market. Housing services are traded in the housing services market, and customers in the social rented sector are part of this market. For owner-occupiers, the markets for property and housing services are combined.

Within the housing services market, Priemus (1984) makes a further distinction between the mobile housing services market and the immobile housing services market. A mobile housing services market is a market with more proprietors, with unoccupied dwellings and more residents (candidate tenants). In principle, this implies some competition between proprietors as well as between residents. Priemus (1984) indicates that the market situation is essential, creating either pressure or suction. In the case of pressure, supply exceeds demand, and proprietors have to compete for tenants. In the case of suction, demand exceeds supply, and candidate tenants have to compete for housing (Kornai, 1971). Given the restrictedness of the market to a specific area, and the low mobility of residents, Priemus indicates that the mobile housing services market can be best referred to as an oligopoly. Moves by residents implicate adaptations to the mobile housing services market.

When a tenant occupies a dwelling, there are many barriers to his or her residential mobility. Priemus (1984: 34) therefore indicates that because of these barriers, 'this immobile housing services market could be theoretically and practically distinguished from the mobile housing services market (low cross elasticity)'. According to Priemus (1984), market relations in an immobile housing services market are centred on negotiations concerning maintenance and rent developments.

Maintenance affects the mobile housing services market and is part of the immobile services market. Good maintenance can positively affect a dwell-

Figure 1.2 Construction activities within the overall building process

Based on Wordsworth, 2001

ing's market position, and thus the mobile housing services market. In this thesis, attention will primarily be given to the immobile housing services market. This implies we explicitly consider service delivery (the process of service supply), and do not deal with maintenance carried out during turnover of tenants (void repairs).

Although we refer to housing services as such, most housing services are also strongly related to the characteristics of goods. Given the challenges posed to technical management services by this combination of goods and services, the management of such services needs to have an understanding of both the technical and the social interaction aspects of such services.

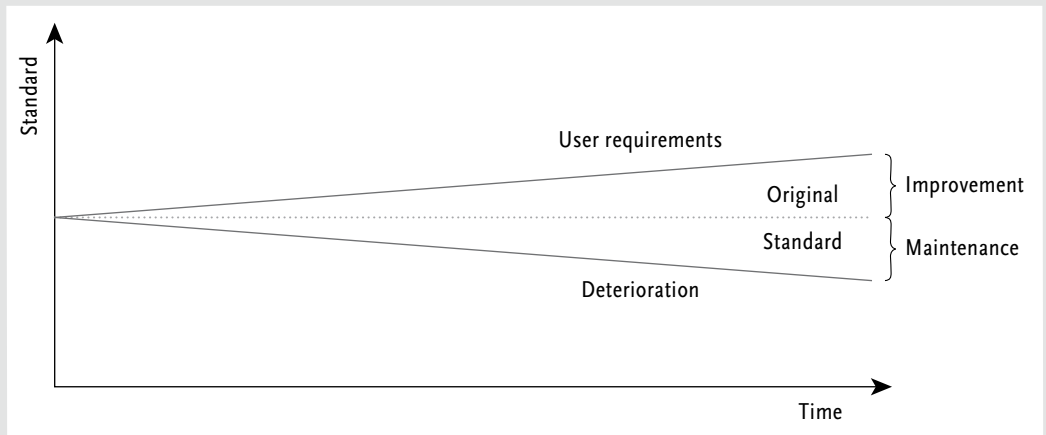
The primary reason for the existence of housing associations is related to the delivery of housing services. Technical management services, including maintenance services, are an important aspect of these housing services.

1.1.4 Maintenance

Technical management relates to construction activities for the building stock; that is, the distinctive activities of maintenance and improvement. On the contrary, construction activities for new buildings involve replacement and additional building. Wordsworth (2001) defines these various construction activities as follows:

- maintenance: work necessary to keep or restore a building to an acceptable standard, including minor associated improvements;
- alterations: work involved in providing improved facilities to make a property more suitable for existing use;
- conversions: work involved in rearranging internal spaces and/or providing new facilities to make a building suitable for a new functional use;
- replacement: erection of a new building of the same functional type as one demolished, usually on the same site;
- additional: erection of a new building, usually on a virgin site.

Figure 1.3 The distinction between maintenance and improvement within technical management



Source: Wordsworth, 2001

Figure 1.2 shows the classification of the different construction activities.

This research focuses on the maintenance of dwellings. Figure 1.3 shows the relationship between maintenance and improvement, which are together defined as technical management. Maintenance means the neutralisation of the loss of performance of a building due to ageing, use, and external causes, to the extent that this loss of performance is acceptable. Whether this loss of performance is 'acceptable' or not depends, in turn, on the demands set by the proprietor and the user (Straub, 2002). Over a period of time, the gap between the standards demanded by the user and those provided by the building is likely to widen, as shown in Figure 1.3. However, the representation is a very simplified one, as in reality, the relationship between the growth of user requirements and the deterioration of the performances of a building (dwelling) is usually non-linear. Moreover, cleaning activities may slow down the deterioration in performance. Acceptable performance loss and the implementation of appropriate maintenance activities depend on legal requirements, technical and functional motives, and environmental motives. Different performance levels may apply to different target groups (such as the elderly or students) identified in the strategic stock policy (Straub, 2002). This assumes that there is a maintenance policy that is related to housing associations' strategic (housing stock) policy.

Maintenance services can be divided into four organisational types:

1. planned maintenance;
2. reactive maintenance (also termed responsive maintenance) – maintenance that is usually realised following tenants' complaints;
3. void repairs – maintenance that is realised during tenancy turnover in order to maintain the quality of the dwelling at a satisfactory level and to relieve tenants of the inconveniences of maintenance activities; and
4. service maintenance – tenants pay a fee to subscribe to a maintenance service.

Service maintenance, however, consists of either planned maintenance activities, or reactive maintenance activities. In other words, it is included in planned and reactive maintenance. As we explained in Sub-Section 1.1.3, this research focuses on planned maintenance and reactive maintenance. These maintenance services form by far the majority of all maintenance expenses.

Planned maintenance often has a preventive purpose. It is undertaken to prevent problems in the performance of a building component or installation. Reactive maintenance (or responsive maintenance) is usually conducted after a breakdown.

More attention is given to differences between various maintenance services in Chapters 3 and 7.

Responsibilities

Not all maintenance falls under the responsibility of housing associations. When it comes to maintenance in the Netherlands, how are the responsibilities divided between tenants and housing associations? These responsibilities are set out in the 'Besluit kleine herstellingen' [Small repairs decree] (2003), derived from the Dutch Civil Code (7: 240). In general, tenants are responsible for small repairs. Tenants' obligations regarding maintenance are conditional on the accessibility of the building component to be repaired, and restricted costs relating to the repair. All other repairs fall under the housing association's responsibility, with the exception of adaptations and additions made by tenants, and defects that are resolved by tenants. The tenant may ask a housing association to perform small repairs that fall under the tenant's responsibility (service maintenance). In that case, the housing association is allowed to charge the tenant for the costs of making these repairs. In order to stimulate housing associations to perform maintenance, the 'gebrekenregeling' [arrangements relating to defects] was set up in 1999. This arrangement enables a rent committee – that is, an independent arbitration board that is in charge of settling disputes between tenants and housing associations – to decide on rent decreases in the case of a certain defect. These decreases may amount to 20% of the statutory maximum rent. The actual size of the rent decrease is dependent on the severity of the defects.

1.1.5 Purchasing maintenance

This research uses the following general definition of purchasing: 'obtaining from external sources all goods, services, capabilities and knowledge which are necessary for running, maintaining and managing the company's primary and support activities at the most favourable conditions' (Van Weele, 2002: 14). A distinction is made between primary purchasing and facility purchasing. The purchase of products and services for the benefit of primary processes is called primary purchasing. The purchase of the other remaining products and

services is called facility purchasing (Jongerius and Lennartz, 2000: 16). Housing maintenance is part of housing associations' primary processes of housing associations, and is therefore considered a primary purchase.

In this research, the term 'purchasing strategy' relates to the specific actions the purchasing function may take to achieve its objectives (Carr and Smeltzer, 1997). For example, a management team might decide on a purchasing strategy of establishing long-term relationships with its key suppliers. More specifically, this research focuses on Dutch housing associations' commodity strategies with regard to maintenance services. Handfield *et al.* (2005) define commodity strategy as follows: 'The term "commodity" is used in supply chain management to refer to a general class of purchased items, so a commodity strategy covers the specific decisions concerning sources of supply, number of suppliers, number of stocking points and relationship with suppliers that a company makes concerning any single commodity, staying within the boundaries defined by the purchasing strategy.'

Why focus on Dutch housing associations' commodity strategies relating to maintenance? Maintenance and improvement activities are, as in manufacturing environments, often viewed as Maintenance, Repair and Operating services (MRO, purchased by an organisation to run its operations), rather than either production services (part of the production process for a (set of) product(s)) (Jackson, Neidell, and Lunsford, 1995) or component services (Axelsson and Wynstra, 2002, see Chapter 7). If maintenance services were to be considered component services in commodity strategy development, then this might increase tenant satisfaction with maintenance service delivery.

1.1.6 Purchasing process

Van Weele (2002) discerns six phases in the purchasing process. The specification phase, the selection phase, and the contracting phase together form tactical purchase decisions. The ordering phase, the expediting and evaluation phase, and the follow-up and evaluation phase together form the operational order function.

The tender process is an important part of tactical purchasing. The tender, which is part of the selection phase of the purchasing process, is a procedure by which a principal announces that an assignment is to be offered to potential suppliers. In this procedure, the principal demands that potential suppliers provide a tender, that is, a proposal for service supply. Governments and other institutions (such as hospitals) have to publicly justify their expenses, and tenders are used for this purpose.

At a certain moment, the registration is closed and the principal selects a supplier to undertake the assignment, which is often the tendering firm with the lowest tender. This assignment is known as an allocation or allotment. In the case of public tenders, relatively large assignments can be involved. In the

case of smaller assignments, a restricted number of suppliers are usually invited to submit a quotation (known as a private tender). Sometimes a simple invitation will be used to give an assignment directly to a supplier without first putting it to tender, and sometimes this will be followed by one-to-one negotiations. This is known as a single tender.

It is currently unclear whether European public procurement regulations are obligatory for Dutch housing associations.

1.1.7 The purchasing of maintenance by Dutch housing associations

Forms of tendering

Vijverberg (2005) has studied the market shares of the different forms of tendering. In 2004, 89% of Dutch housing associations used multiple private tenders, the most popular form of tender. Of these, 20% put all planned maintenance to multiple tenders. 84% of housing associations use single tenders. However, not more than 20% of housing associations use a single private tender for more than 50% of the entire load of planned maintenance. According to Vijverberg, public tenders are scarcely used by Dutch housing associations. Only 9% use public multiple tenders for parts of contracts, and only 3% use public multiple tenders for all planned maintenance.

Contracts

When an external party provides service delivery, it enters into a contract with the principal after the tender has closed. A wide range contract types is in use. Vijverberg (2005) has made an inventory of the use of different maintenance contracts. Contracts for breakdown maintenance, which is often reactive maintenance, are the most frequently used contracts. Almost 75% of housing associations use such contracts. All-in contracts, including breakdown maintenance and preventive (often planned) maintenance, are used by 54% of housing associations. Contracts for preventive maintenance of building components are used by 42% of housing associations.

Housing associations' (executive) maintenance

Housing associations' maintenance departments are responsible for 9% of housing associations' total maintenance expenses. The work of housing associations' own maintenance departments is focused on non-planned maintenance. Maintenance workers employed by housing associations conduct 18% of non-planned maintenance, whereas for planned maintenance, this figure amounts to only 4% (Vijverberg, 2005).

Why do housing associations choose to retain their own maintenance departments? The following aspects are mentioned (Vijverberg, 2005: 36):

- service to tenants (66%);

- quick intervention is possible (65%);
- image/reputation (47%);
- flexibility (38%);
- costs (15%);
- quality (11%);
- other (8%).

Most of the aspects listed above are related to the interaction between maintenance workers and the end-customer, the tenant. However, when one looks at why housing associations choose not to have maintenance departments, then one particularly encounters economic reasons (OTB, 2000; OTB, 2002). Obviously, housing associations' maintenance departments appear to be more geared to the provision of high-quality services than external suppliers. When it comes to developing housing associations' commodity strategies, it is a challenge to get high-quality service delivery for external service supply.

1.2 Relevance

1.2.1 Scientific relevance

The research of this thesis is primarily conducted in the discipline of business administration. The focus is in particular on purchasing, marketing and service management, with the emphasis on the first. This research links business administration with construction sciences and housing sciences. In this linkage lies the added value of this thesis.

Recent research has focused on purchasing for construction of new buildings. As such, it has been driven by both practice (e.g. De Ridder, Van der Klauw, and Vrijhoef, 2002; Egan, 1998; Latham, 1994) and by more theoretical approaches (e.g. Barrett and Sexton, 1998; Bennett and Jayes, 1995; Cox and Townsend, 1998; Edum-Fotwe, Thorpe, and McCaffer, 2001; Franks, 1990; Kelly, Morledge, and Wilkinson, 2002; Masterman, 2002; Walker and Hampson, 2003). However, attention to purchasing maintenance for existing buildings has been rather limited (e.g. Chanter and Swallow, 1996; Jongerius and Lennartz, 2004; Marsh, 2003; Vijverberg and Straub, 2003; Vijverberg and Straub, 2004; Vijverberg, Straub, and Korse, 2003; Wood, 2003; Wordsworth, 2001), and has often been of a broad and practice-driven nature. In addition, such research has not focused on end-customer preferences relating to maintenance. This research aims to develop knowledge regarding end-customer preferences for maintenance and how Dutch housing associations' commodity strategies for these services could maximise tenant satisfaction.

In addition to this broad indication of this research's scientific relevance, each chapter has its own particular relevance, which is defined in each of the chapters.

1.2.2 Societal relevance

As with those in other European countries, the Dutch social rented sector has recently undergone major changes. A number of researchers have analysed the (primarily institutional) developments in European social housing (e.g. Priemus and Dieleman, 1997; Priemus and Dieleman, 1999; Priemus, Dieleman, and Clapham, 1999; Lundqvist, 1992), including:

- The increasing orientation of property management towards the market demands of tenants and future tenants;
- A shift from public responsibility towards privatisation, and increasing independence with respect to public authorities (financial risks are moving from central government to housing organisations, and aside from this, many mergers are occurring);
- Changing housing markets, from suction to pressure: from a general shortage to equilibrium, and even an over-supply in sub-markets;
- A general decreasing market share for social housing, accompanied by a trend towards an increasing concentration of lower-income groups in social housing (Van Kempen and Priemus, 2002);
- The increasing focus on occupants and target groups often leads to an increasing differentiation in housing services, including housing environment activities (cleaning, greening, and surveillance to promote social safety) and various 'care and cure' arrangements.

These developments have – or should have – consequences for the organisation of maintenance management in social housing, including purchasing.

The outcomes of this research may contribute to discussions regarding the transition of the construction sector from a one-dimensional orientation towards costs to process and value maximisation. In this transition, new relationships may have to be developed, which may influence all actors within the supply chain. Given the increasing professionalism of housing associations and their increasing orientation towards their customers, scientific knowledge can facilitate the management of these new relationships for the sake of both tenants and citizens. The new needs of housing associations and other customers will demand other competences from the construction industry, as well as a change in tendering and cooperation practices. This may reduce opportunities for collusion.

In November 2001, evidence was made public in the Netherlands regarding collusive behaviour, bid-rigging and corrupt practices among construction companies and civil servants (Tweede Kamer der Staten-Generaal, 2003). Many companies within the construction sector had not modified their practices to the adaptations demanded by the Cartel and Collusion Rules of 1992. This led to mass malpractices and, finally, to extensive investigations by the Dutch Cabinet, the Department of Justice and the Dutch Competition Author-

ity. It also gave rise to a parliamentary inquiry. Lack of product differentiation and one-dimensional, price-oriented competition have been mentioned as important drivers for this collusion (Dorée, 2004). This pleads for purchasing methods that do include the non-price dimensions of competition, such as quality, speed, and reliability. The *Toekomstperspectief bouwsector* (EZ, VROM, and V&W, 2003) report mentions that being a professional customer, which is crucial for successful building projects (including maintenance and improvement), starts with ‘a meticulous and commercial purchasing policy’. Including customers’ (in this case, housing associations’) preferences in the purchasing of maintenance, instead of only taking cost-related aspects into consideration, will add new demand-related dimensions.

In addition to this broad indication of the societal relevance of this research, each chapter has its own particular relevance. This is defined in each of the chapters.

1.3 Problem definition

1.3.1 The aim of this research

The aim of this research is twofold: (1) to improve our understanding of Dutch housing associations’ commodity strategies regarding maintenance services; and (2) to provide insights into development opportunities for commodity strategies relating to maintenance, enabling housing associations to make choices that will increase tenant satisfaction in relation to maintenance.

1.3.2 Research questions and chapters

The aim of the research will be attained through the formulation of three primary research questions, which are addressed in Chapters 3-9:

1. *To what extent do the different types and characteristics of maintenance services purchased by the Dutch social rented sector influence tenant satisfaction?*
2. *To what extent are current Dutch housing associations’ commodity strategies for maintenance tenant-focused?*
3. *Which commodity strategies facilitate the optimisation of tenant satisfaction with maintenance services?*

The research questions are elaborated into (sub-)research questions (see Figure 1.4). The first research question is addressed in Chapters 5 and 6. These chapters focus on the important elements for end-customers in maintenance service delivery.

The second research question is dealt with in Chapters 3, 4, 7 and 8. Chapters 3, 4 and 8 primarily focus on the nature of the purchasing of mainte-

nance services by Dutch housing associations. In Chapter 7, research questions 1 and 2 are both considered, and a connection is made between the two. Chapter 9, meanwhile, focuses on the third research question.

A further elaboration of the subjects to be addressed in the chapters can be found below.

Chapter 2: Rules of the game, and tools for analysis

This chapter elaborates on the rules of the game of purchasing, as set by the characteristics of the maintenance industry and regulatory constraints. Furthermore, we introduce a set of tools of analysis for optimising commodity strategies (which are applied in Chapter 9). This chapter was published in an adapted form in a Dutch Habiforum report under the title *Inkoop van onderhoud en goede dienstverlening* (Van Mossel and Straub, 2007b).

The following three (sub-)research questions are addressed in this chapter:

- *What effect do the maintenance market's characteristics have on maintenance purchasing optimisation possibilities from the end-customer's perspective?*
- *Which new institutional economics concepts and theories are useful for analysing and developing coordination mechanisms for the maintenance client-contractor relationship?*
- *What effect do existing procurement regulations and trends in the regulations have on maintenance purchasing optimisation possibilities from the end-customer's perspective?*

Chapter 3: Purchasing of Dutch housing associations' technical management services: state of the art and a decision framework

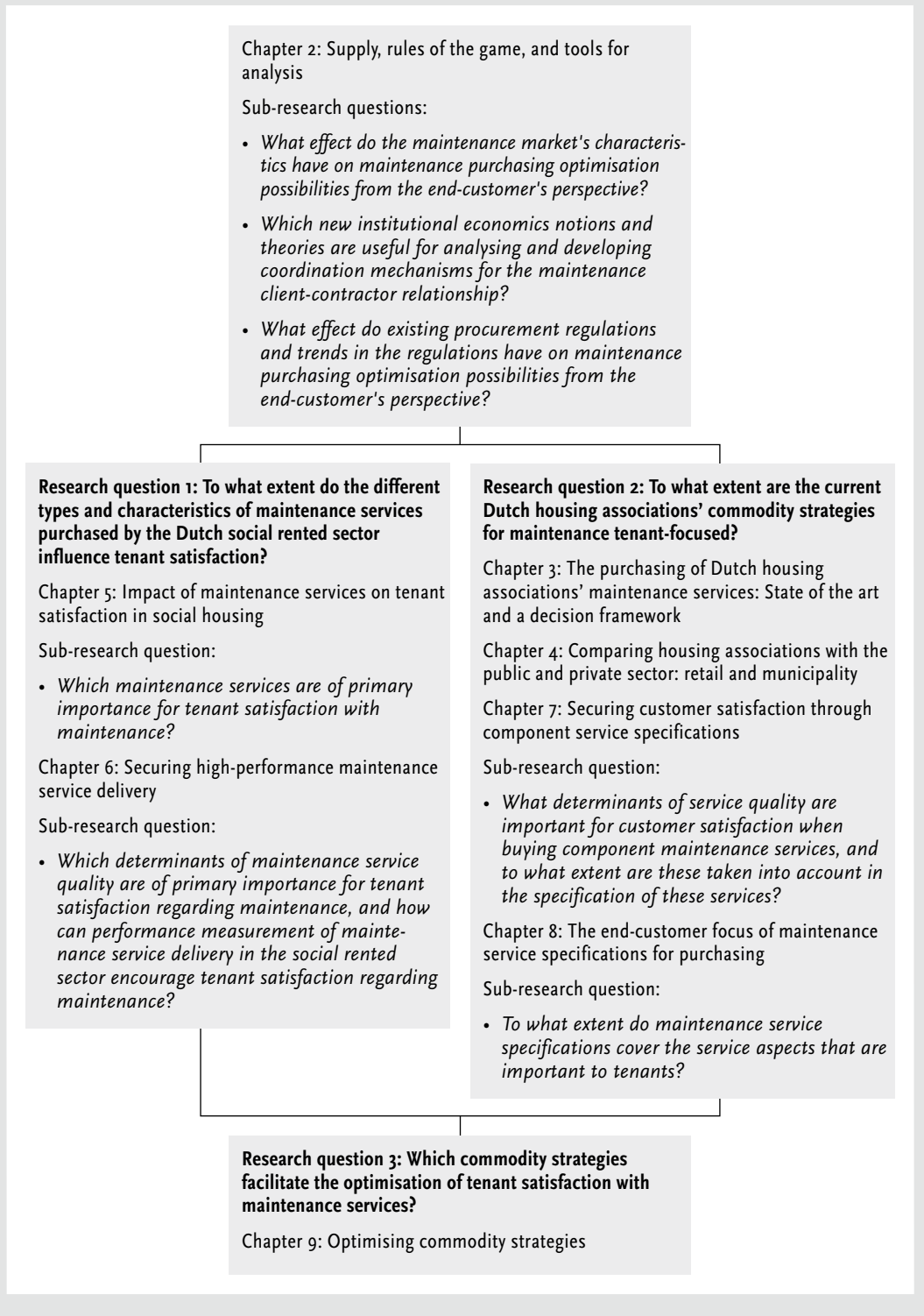
This chapter is based on an article that was published in the journal *Property Management*, under the title: *Purchasing of Dutch housing associations' technical management services* (Van Mossel and Straub, 2007a). This chapter aims to provide an initial, systematic connection between the special institutional environment of the Dutch social housing sector, public tasks for the social housing sector, the organisational goals of housing associations, and their commodity strategies for technical management services.

Chapter 4: Comparing housing associations with other organisations in the public and private sectors: retail and municipality

Social enterprises such as housing associations have characteristics in common with both the private sector and the public sector. In this chapter, hous-

1 Most of the chapters were originally written for articles and can thus be read independently. This does influence the structure of the thesis: the composition of the thesis is not identical to the sequence of the research questions and (parts of) the research sub-questions are dealt with in more than one chapter, and (parts of) the sub-questions may overlap.

Figure 1.4 Overview of chapters and research questions¹



ing associations are compared on the one hand with retail, which is typical of the private sector, and on the other hand with municipalities, which belong to the public sector. Lessons are drawn that can be used in the optimisation of commodity strategies. The sector comparison is structured through key factors that differentiate the environment of the compared supply chains. An adapted version of this chapter was also included in the Habiforum report *Inkoop van onderhoud en goede dienstverlening* (Van Mossel and Straub, 2007b).

Chapter 5: The importance of maintenance services for tenants in social housing

The delivery of high-quality maintenance stimulates tenant satisfaction. Improving service delivery can lead to higher tenant satisfaction with maintenance. The research question addressed in this chapter is:

- *Which maintenance services are of primary importance for tenant satisfaction with maintenance?*

Insights into this relationship can be used to make better decisions when prioritising maintenance services from the end-customer perspective. The data about end-customer preferences was collected by means of an extensive questionnaire-based survey conducted among the tenants of large Dutch housing associations. This chapter is based on a paper written in co-operation with Sylvia Jansen (OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology), which has been submitted to an international journal.

Chapter 6: Securing high-performance service delivery

The tenant questionnaire data is used again in this chapter. The focus now lies on the determinants of maintenance service quality, instead of maintenance services as such. The contents of the widely-used performance measurement instrument KWH are compared with the perceived importance of determinants of maintenance service quality from the end-customer perspective, as shown by the survey. For this chapter, the research question is:

- *Which determinants of maintenance service quality are of primary importance for tenant satisfaction regarding maintenance, and how can performance measurement of maintenance service delivery in the social rented sector of housing encourage tenant satisfaction regarding maintenance?*

An adapted version of this chapter will be published in the book *Performance measurement in the Dutch social rented sector of housing*, (edited by Van Mossel, Koopman and Straub), to be published by IOS Press.

Chapter 7: Securing service quality through component service specifications

This chapter focuses specifically on the purchase of downstream services. The central objective is to identify the main drivers for end-customer satisfaction in a service supply chain. The research question is:

- *Which determinants of service quality are important for customer satisfaction when buying component maintenance services, and to what extent are these taken into account in the specification of these services?*

Component services, such as maintenance, may have a high impact on end-customer satisfaction, which should be reflected in the purchase process. Document analyses are conducted to find out whether, and how, this is accounted for in the specification. This chapter is based on a paper written with Wendy van der Valk (Erasmus Universiteit Rotterdam/Technische Universiteit Eindhoven), which has been submitted to an international journal. Moreover, the results of these document analyses are presented in Chapter 8.

Chapter 8: The end-customer focus of maintenance service specifications for purchasing

Specifications are a crucial prerequisite for successful service delivery. Specifications determine the service that is delivered and how this corresponds to customer preferences. This chapter examines purchasing specifications for maintenance, and how these are applied in the social rented sector. An adapted version of this chapter is also included in the Habiforum report *Inkoop van onderhoud en goede dienstverlening* (Van Mossel and Straub, 2007b).

The research question is:

- *To what extent do maintenance service specifications cover the service aspects that are important to tenants?*

Chapter 9: Optimisation of housing associations' maintenance commodity strategies

This chapter considers the possibilities for optimisation of housing associations' commodity strategies with regards to maintenance. End-customer satisfaction is taken as the point of departure for the analysis. Commodity strategy is described in relation to five pillars: specifications, requirements of appropriateness of suppliers, award criteria, the relation between the purchasing organisation and the service supplier, and contract-related incentives. As with Chapters 2, 4, and 8, an adapted version of this chapter is included in the Habiforum report *Inkoop van onderhoud en goede dienstverlening* (Van Mossel and Straub, 2007b).

The research question addressed is the same as research question 3:

- *Which commodity strategies facilitate the optimisation of tenant satisfaction regarding maintenance services?*
-

A number of conclusions are drawn in relation to this research question.

Chapter 10: Conclusions and recommendations

This final chapter presents the study's findings and offers recommendations for policy, management and further research.

1.4 The research environment

The research was conducted at OTB Research Institute for Housing, Urban and Mobility Studies at TU Delft. This is an interfaculty research institute within the University that involves the faculties of Architecture, Civil Engineering and Geosciences, and Technology, Policy and Management. The research formed part of the Delft Centre for Sustainable Urban Areas (SUA), and it formed part of the Sustainable Housing Transformations research programme. This thesis was prepared under the auspices of the Netherlands Graduate School of Urban & Regional Research (NETHUR). It relates to an earlier dissertation on the technical management of social housing, *Technisch beheer door woningcorporaties in de 21e eeuw – Professioneel, klantgericht en duurzaam* [Technical management by housing associations in the 21st century – Professional, client centred and sustainable] (Straub, 2001).

The research was conducted within the framework of the Habiforum programme on 'Innovative Land Use' (BSIK), and in particular, Corpovenista, a project that was carried out between 2004 and 2008. Corpovenista is a joint programme between Aedes – the branch organisation of Dutch housing associations – a number of large Dutch housing associations, and research groups at Utrecht University, the University of Amsterdam and OTB Research Institute for Housing, Urban and Mobility Studies. The research formed part of the Corpovenista programme 3.6: Performance-based maintenance partnering by Dutch housing associations. A specialised steering committee from Corpovenista and SBR (Stichting Bouwresearch) commented on the results during the project, which proved to be a valuable opportunity to gain expert appraisal for the empirical parts of the thesis (in particular Chapters 2, 4-6, and 7).

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2 Supply, rules of the game, and tools for analysis

2.1 Introduction

When it comes to options for optimising commodity strategies, the characteristics of the supplying maintenance market are relevant. Housing associations are dependent on the supply market for important parts of their service delivery. The maintenance market characteristics are discussed in Section 2.2. Housing associations, however, face a number of possibilities when it comes to dealing with problems arising from market imperfections. The tools that can be used, particularly those related to the configuration of the client-contractor relationship, are presented in Section 2.3. These tools are applied in Chapter 9. In addition, in order to draw on the supply market's potential, housing associations have to take existing procurement regulations into account.

This chapter has three objectives:

- to ascertain the impact of characteristics of the maintenance sector on maintenance purchasing;
- to present analysis tools for the client-contractor relationship; these tools are based on concepts and theories from new institutional economics;
- to establish the extent to which European and other procurement regulations affect housing associations' options for maintenance purchasing.

The following research questions arise from these objectives:

- 2.1 *What effect do the maintenance market's characteristics have on maintenance purchasing optimisation possibilities from the end-customer's perspective?*
- 2.2 *Which new institutional economics notions and theories are useful for analysing and developing coordination mechanisms for the maintenance client-contractor relationship?*
- 2.3 *What effect do existing procurement regulations and trends in the regulations have on maintenance purchasing optimisation possibilities from the end-customer's perspective?*

2.2 Maintenance market characteristics

2.2.1 Maintenance services

The maintenance market is traditionally divided into multiple sectors. For the purpose of characterising the maintenance market, these sectors are taken as our point of departure.

The Dutch Economic Institute for the Construction Industry (EIB) recognises the following main groups: installation maintenance, finishing maintenance and structural maintenance. Installation maintenance covers so-called plumbing maintenance, involving gas, water, and sanitary work, as well as the

maintenance of central heating and air conditioning systems, electrical and mechanical installations. As plumbing maintenance's classification as installation maintenance is confusing, these are presented separately in Table 2.1. Finishing maintenance is subdivided into three categories. Paintwork, glass repair and wall finishing are in the first category, and are sometimes referred to as finishing maintenance. The second category, plastering maintenance, includes plastering, decorative plastering and wall insulation. The third maintenance category is concerned with activities involving hard materials, such as natural stone, screeds, ceramic tiles and terrazzo work. General maintenance of building structures is categorised in the structural maintenance group (EIB, 1998).

Domestic and other cleaning is not covered by the EIB maintenance definition. Both common parlance and academic usage sometimes class cleaning under facility services. The same applies to the maintenance of communal greenery.

However, 'facility maintenance' is often understood as supporting the primary process, and this is indeed often the case for non-residential buildings. For housing, on the other hand, facility services are provided around dwellings, including the maintenance of communal greenery and paving, and the cleaning of shared areas, and these contribute directly to the value delivered to the customer. As being more than just a facility, then, it is an actual part of the primary process.

This thesis recognises sixteen different maintenance services. The categories are in line with previous research (Straub, 2001), with modifications made in response to recommendations from front- and back office housing association staff and tenants' comments (respondents in the field research; see Chapter 5). The vertical axis in Table 2.1 shows the sixteen maintenance services.

The main features of the maintenance sector are discussed without going into detail regarding the maintenance services recognised in the survey. It is important to note that several services exist within the same sector.

2.2.2 The maintenance market

Fragmentation and a focus on costs

For the purpose of characterising the maintenance market, we consider the five sectors presented in Table 2.1. Structural maintenance, finishing maintenance and plumbing maintenance are subject to considerable fragmentation. Although different suppliers usually take on planned maintenance and reactive maintenance, the supplier market structures are comparable.

Many small suppliers operate in the market. These suppliers work not only for housing associations, but also for hospitals, schools, private individuals and companies. Some are specialised, whereas others combine multiple

Table 2.1 EIB sectors and the sixteen types of maintenance recognised in this survey

Maintenance of	Structural maintenance	Finishing maintenance	Maintenance of electrical, mechanical, air conditioning and central heating systems	Plumbing maintenance	Other 'facility maintenance'
Heating and water systems			×		
Exterior paintwork		×			
Communal greenery					×
Hinges and locks of windows and external doors		×			
Paving around the apartment or house					×
Roofs and gutters	×				
Ventilation systems			×		
Bathrooms		×		×	
Toilets		×		×	
Kitchens		×		×	
Drains	×			×	
Lighting in shared areas			×		
Cleaning of shared areas					×
Entrance hall, galleries, corridors and/or stairs	×	×			
Balconies	×	×			
Lifts			×		

Source: EIB, 1998

disciplines. The high degree of fragmentation and lack of transparency in the market hinder the creation of long-term competitive advantage. Competition is mainly on costs and on personal contacts with clients, the latter being a condition for involvement in tenders or being awarded private contracts.

The considerable fragmentation is connected with the low entry barriers to the sectors, which, in turn, are linked to low levels of investment needed for a business start-up. The fact that labour takes a high proportion of the costs makes it difficult to achieve economies of scale. The substantial amount of labour in the process and the relative simplicity of the implementation processes almost preclude improvements in productivity. Furthermore, each customer has different maintenance requirements, which means that adjustment have to be made with every new contract. Certainly in the case of planned maintenance, almost every contract is unique, which hampers development and the repetition of methods and techniques. Neither may improvements in productivity be allowed to detract from service quality, which cannot be taken for granted in view of the front office's major role in service provision (many workers are in contact with the residents). Transport costs are another relatively important factor in the maintenance process, binding services to a particular area, and further hampering economies of scale. Some sectors are

also affected by cyclical and seasonal fluctuations, which is another obstacle to long-term investment. This means that there is no guarantee of continuity, forcing companies to keep fixed costs low. Finally, many maintenance companies are one-person or family businesses, meaning that there are emotional exit barriers in addition to purely commercial ones. Many factors thus explain the fragmentation of the sector.

Attempts are sometimes made to erect barriers to entry, particularly in specialised market sectors. This takes the form of process certification, such as that brought in for repairs to concrete (Certificeringsregeling Betonreparatiebedrijven [Concrete Repair Companies' Certification Arrangement]). Certification acts both as a barrier to new entrants and a quality guarantee for customers, i.e. housing associations.

With respect to structure, the maintenance sectors for electrical, mechanical, air conditioning and central heating systems are largely comparable with those for structural maintenance, finishing maintenance and plumbing maintenance. Unlike structural, finishing and plumbing maintenance, however, clients' technical knowledge of electrical, mechanical, air conditioning and central heating systems is usually limited. The suppliers involved are also relatively large, in particular for the non-residential building market, which is not the focus of this survey.

Lift maintenance has a separate position in the sector. There are few suppliers, and lift systems are often maintained by manufacturers. The use of microelectronic components makes it hard or impossible for third parties to gain access, which serves to protect the maintenance market.

Opportunities due to new entrants

The increasing popularity of integrated contract forms that link maintenance to new construction may open the way for large construction companies to enter the maintenance market, particularly for property maintenance. In future, this may lead to more opportunities for a combined approach towards building elements and maintenance types (reactive maintenance, void repairs and planned maintenance). Until now, however, it has normally been the case that housing associations have separate departments responsible for construction and maintenance. In addition, reactive maintenance and planned maintenance often lie under the responsibility of separate housing association departments. In order to successfully integrate the purchasing of new construction and maintenance, and different types of maintenance, with the goal of improving processes and leading to a more efficient maintenance life cycle, some integration must occur between these separate parts of housing associations. In addition, few maintenance service suppliers – particularly in the finishing and structural maintenance sectors – are as of yet able to conduct both planned and reactive maintenance.

In order to optimise purchasing, housing associations must exploit the op-

portunities offered by the maintenance market. In the next section, tools are discussed that can help housing associations to deal with the market characteristics identified in this section.

2.3 New institutional economics

This section discusses the tools provided by new institutional economics for analysing problems and opportunities in the client-contractor relationship. Chapter 9 will describe the application of these tools. The following approaches will be discussed: the transaction cost approach, the property rights approach and the agency approach. Before this, however, we describe the core characteristics of new institutional economics.

2.3.1 Market problems

The risks and uncertainties that accompany the structural characteristics of the maintenance sector, as discussed in Section 2.2 above, create several imperfections. There are many ways in which the current situation deviates from the ideal of full competition. Important examples include:

- far fewer buyers than suppliers, such that the buying parties are able to influence the price;
- a non-homogeneous service is involved;
- the market is not transparent: there is a lack of information on the buyers' side (information on possible solutions) and on the suppliers' side (information relating to the building to be maintained).

It would appear that institutions could play a critical role in moving the market towards more positive outcomes.

2.3.2 New institutional economics

The production function lies at the core of neoclassical economics. One part of the theory is concerned with the form of this function, while another is concerned with the implications of the function's various forms for several economic phenomena. Neoclassical microeconomic theory is concerned with the operation of prices and markets. Coase (1937) identified some of the neoclassical paradigm's limitations for understanding relationships between firms. He argued that in order to understand what a firm does, one must understand why a firm exists and, therefore, which forces govern the organisation of economic activity (Hobbs, 1996).

New institutional economics can be thought of as an extension to traditional neoclassical economics, and microeconomics in particular. New institu-

tional economics may provide explanations for various governance structures, in this case between clients and contractors. Importantly, the theory extends previous knowledge by incorporating the existence of transaction and information costs into the analysis, and providing an explanation for the creation of public authorities, firms and institutions. Given the market problems identified in the previous section, new institutional economics is expected to have added value for determining optimal governance structures for maintenance service delivery.

The following three approaches can be identified within new institutional economics (See e.g. Williamson, 1975, 1979, 1985; Jensen and Meckling, 1976; Fama, 1980; Eisenhardt, 1989; Mol and Verbon, 1993; Tjldink, 1996; Wolters and Verhage, 2001; Kim and Mahoney, 2005):

1. transaction cost theory;
2. property rights theory;
3. agency theory.

While each focuses on different problems, all three approaches are rooted in Coase (1937)'s original ideas (Hobbs, 1996).

2.3.3 Transaction cost theory

The key question for transaction cost theory is: how can we choose between various methods of distributing resources? A large part of the answer to this question has consisted of analysing the conditions under which a hierarchy is a better way of coordinating multiple actors than a market (e.g. Williamson, 1975; 1985). The applied coordination mechanism is expected to influence performance and thus, ultimately, tenant satisfaction. It should be noted that transaction cost theory, as such, does not focus on explaining performance (Kamann *et al.*, 2006). Rather, it asks how transaction characteristics affect a transaction's coordination mechanism. According to Kamann *et al.* (2006: 31), 'Roughly, the idea is that the characteristics of a transaction (...) affect the risks associated with a transaction. The risks then determine the way in which a transaction will be (or should be) governed. Hence, "governance" [the coordination mechanism] refers to the measures actors involved in an exchange use or implement in order to mitigate risks and therefore also improve performance.'

Market operation and hierarchy

Economies have two basic mechanisms for coordinating the flow of materials and services through the multiple links in the supply chain: those of markets and hierarchies (see e.g. Williamson, 1975). Markets coordinate the flow through the forces of supply and demand, and external transactions between various individuals and firms. Market operation determines the design, the

price, the quantity and a delivery timetable for a given product (or service), which serves as input for a subsequent process the buyer of the product or service compares its many possible sources and makes a choice based on the best combination of attributes.

Hierarchies, conversely, coordinate the flow of materials and services by means of adjacent steps, by monitoring and giving instructions on a higher level in the managerial hierarchy. Management decisions, and not the interaction that accompanies market operation, determine the design, the price (if relevant), the quantity, and the delivery timetable, on which basis products and services are acquired in a given step in the supply chain for the next step. Buyers in a hierarchy do not select a group of potential suppliers, but work with a single, predetermined supplier (Malone et al., 1987).

Market operation and hierarchy: The maintenance market

What does this continuum imply for housing associations and maintenance? In an ultimate hierarchy, one of the housing association's departments would conduct the maintenance activities. By contrast, in the ultimate market operation situation, the housing association as a purchasing entity would evaluate the various offers in the market. A hybrid form would apply in the case of cooperation between a housing association and a supplier for determining the characteristics of the maintenance service delivery.

Transaction cost theory relies on a number of key concepts (see e.g. Hobbs, 1996): (1) bounded rationality, (2) opportunism, (3) asset specificity, and (4) information asymmetry.

1. Bounded rationality – Bounded rationality means that although people might have every intention of making rational decisions, there is a physical limit to their capacity to accurately evaluate all possible decisions (Simon, 1961). Bounded rationality therefore implies that economic agents do not consistently optimise a fixed utility function. This manifests itself in habitual behaviour, routines, imitation of others, and short space and time horizons (Gelders, 2005).

Bounded rationality: The maintenance market – Maintenance projects can be complex. When different types of activities are combined, such as not only painting and concrete repair but also planned and reactive maintenance, relatively high levels of logistical and technical complexity are involved. The number of stakeholders involved is another factor influencing the complexity. The more complex the maintenance is, the larger the gap will be between full- and bounded rationality.

2. Opportunism – Williamson (1979) defines opportunism as 'self-interest seeking with guile'. Opportunism harms the other party's interests, as benefits are

created by means of selective or distorted information, or false promises ('self-disbelieved promises regarding future conduct') (Williamson, 1975: 26). Two circumstances can lead to opportunism: information asymmetry and 'lock-in' (dependency on the buying organisation).

Opportunism: The maintenance market – A contractor may exhibit opportunistic behaviour by surreptitiously offering suboptimal solutions within or outside the conditions of the contract, which may go unnoticed by the buying party. This conduct can have a negative impact on service quality, including for the end-customer. It can occur either with respect to the design of the solution, or its execution (e.g. an inferior choice of materials or application). Opportunistic behaviour may also manifest itself on the buying side, for example in the concealing of existing (price) risks.

The presence of opportunistic behaviour has important practical implications. If there is a high risk of opportunism in a given relationship, considerable resources must be spent on control and monitoring – resources that could otherwise be used for more productive purposes. The risk of opportunism can also give rise to high opportunity costs in the form of 'valuable deals that won't be done' (Calfee and Rubin, 1993: 164).

'Lock-in' occurs when a housing association is dependent on a contractor. In this situation, a contractor may use its position to unilaterally determine service quality, and therefore clients should avoid becoming dependent on suppliers in this way.

In a similar way to companies in other industries, maintenance companies may be tempted to behave opportunistically if given the opportunity. Housing associations thus put a lot of effort into monitoring maintenance service delivery.

Wathne and Heide (2000) offer some advice on how to deal with opportunism. They present four 'governance strategies' (see Table 2.2), which will be discussed further in Chapter 9.

Monitoring relates to the configuration of the relationship (Section 9.4). Monitoring in maintenance is predominantly related to proving whether the execution or performance of maintenance activities complies with the requirements. Selection is discussed in Section 9.3. This is an important tool for investigating whether, and to what extent, potential maintenance service suppliers fulfil the necessary requirements and qualities for successfully completing maintenance. Socialisation is discussed in Section 9.4. Socialisation includes housing associations' efforts to improve the fit between their own objectives and those of service suppliers. This tool is currently seldom used in the Dutch context. (Contract-related) incentives are discussed in Section 9.5. Incentives can be used to stimulate maintenance service suppliers to achieve the agreed goals.

Table 2.2 Strategies for managing opportunism

Governance strategy	General purpose	Prerequisites	Primary effects on opportunism	Second-order effects
Monitoring	<ul style="list-style-type: none"> • Reducing information asymmetry • Facilitating the deployment of incentives 	<ul style="list-style-type: none"> • Identification of relevant criteria • Implicit or explicit contract that legitimises monitoring 	<ul style="list-style-type: none"> • Limited to information-based opportunism • Most effective under existing circumstances 	<ul style="list-style-type: none"> • Selection effects
Incentives	<ul style="list-style-type: none"> • Reducing payoffs from opportunism • Aligning interests 	<ul style="list-style-type: none"> • Ex ante bargaining power (hostages) • Direct costs (price premiums) • Information availability 	<ul style="list-style-type: none"> • Effectiveness under new circumstances is limited by range of self-enforcing contract 	<ul style="list-style-type: none"> • Hostages as productive assets • Quality signal
Selection	<ul style="list-style-type: none"> • Reducing information asymmetry • Allowing for selfselection 	<ul style="list-style-type: none"> • Relevance of criteria • Imposing selection costs on partner • Risk of selfselection biases • Information availability (reputation) 	<ul style="list-style-type: none"> • Effectiveness depends on relevance of selection criteria 	<ul style="list-style-type: none"> • Customer signal
Socialisation	<ul style="list-style-type: none"> • Promoting goal convergence 	<ul style="list-style-type: none"> • Completeness of socialisation efforts 	<ul style="list-style-type: none"> • Effectiveness depends on applicability of role across situations 	<ul style="list-style-type: none"> • Customer signal • Selection effects

Source: Wathne & Heide, 2000, p. 44

3. Asset specificity – Asset specificity is usually defined as the extent to which the investments made to support a particular transaction have a higher value to that transaction than they would have if they were to be redeployed for any other purpose (McGuinness, 1994). Williamson (1975, 1985, 1986) argues that transaction-specific resources are physical and manpower investments that cannot be re-used, but are rather specialised and unique to a particular task. Williamson (1983) identifies four dimensions of asset specificity:

- site specificity, e.g. a natural resource available at a certain location and only movable at great cost;
- physical asset specificity, e.g. a specialised machine tool or complex computer system designed for a single purpose;
- human asset specificity, e.g. highly specialised human skills that arise in a ‘learning by doing’ manner;
- dedicated assets, e.g. a discrete investment in a plant that cannot readily be put to work for other purposes.

Malone et al. (1987) make an important addition to the above list:

- time specificity: when the asset’s value is highly dependent on its reaching the user within a specified, relatively limited, period of time. For example, an input for an industrial process would be time-specific if it had to be timed to arrive at a specific point in the manufacturing process in order to avoid substantial costs or losses.

An asset's degree of specificity has an impact on the optimum coordination mechanism in a client-contractor relationship. The greater an asset's specificity, the more plausible a hierarchical coordination mechanism becomes.

Asset specificity: The maintenance market – Asset specificity is involved in many areas of housing maintenance. For instance, maintenance solutions and cooperation processes are specific, as are experiences with and knowledge of tenant preferences. In Section 9.4, more attention is given to asset specificity in maintenance and the consequences for commodity strategy development.

4. Information asymmetry – Information asymmetry is said to exist if one party (e.g. the service supplier) is better informed about aspects of a transaction than the other (MacMillan, 1990). Information asymmetry is a form of market imperfection that enables a supplier to act opportunistically without being detected. Two forms of opportunism are possible in this framework. The first is adverse selection. Adverse selection, or 'anti-selection' (Akerlof, 1970), refers to a situation in which the service supplier has an information advantage regarding an exogenous variable. More specifically, it refers to a situation in which it is impossible for the buyer to observe or acquire exhaustive information about the characteristics of the service supplier, or of the service to be purchased (Gallouj, 1997).

Information asymmetry: The maintenance market – The more complex the required maintenance solution, the more complex (the design and execution of) the maintenance will be. Alternatively, the less information there is regarding the pattern of complaints, the more likely it is that adverse selection will occur. For instance, it might be easier for maintenance companies to estimate risks (e.g. the probability of a leaking roof) than for housing associations to do so. One either needs experience with the company concerned, or information from fellow housing associations (reputation), in order to establish a maintenance company's capabilities .

Moral hazard refers to the abuse of freedom in a contract or partnership to falsify quality, or even to commit downright fraud. Another situation in which moral hazard occurs is when contractors set performance estimates higher than necessary (for example, when a proposed maintenance solution exceeds that which is required), and then subsequently bill in line with the higher level. Both situations point to the need for specifications and performance requirements to reflect the actually-envisaged performance level. Furthermore, is it useful for a housing association to have knowledge about maintenance process and the ability to either estimate or assess solutions.

2.3.4 Property rights theory

Property rights theory constitutes another aspect of new institutional economics, and addresses the question of how economic actors use various (economic) property rights to stimulate certain activities. 'Property rights' are defined as the rights to use, to earn income from, and to transfer or exchange assets and resources (Libecap, 1989). It may be generally stated – *ceteris paribus* – that more property rights allow actors to undertake a wider range of actions, and that the result is more efficiency for society as a whole. Hart (1995) emphasises the importance of possession. He concludes that the economic advantage of integration (or the assumption of tasks from the other party) derives from the possessing party's economic incentive for relationship-specific investment. This has to do with 'residual control rights' over parts of the contract that are not completely specified ('incomplete contracts'). In other words, a firm will receive a bigger surplus share of its relationship-specific investment, which is an incentive for investments of this kind.

The maintenance market

Following this line of argument, housing associations conducting their own maintenance would be the best guarantee for residual control rights. However, in many cases, maintenance does not constitute housing associations' core business and they thus choose not to conduct it themselves. When it comes to outsourcing maintenance, it might be the case that maintenance service suppliers would provide a higher quality service if they were also to benefit from it. For this reason, housing associations might consider giving maintenance service suppliers responsibility for, for instance:

- designing the solution to the problem, i.e. the maintenance activities in combination with responsibility for executing maintenance works;
- a sequence of maintenance activities which are dependent on each other; by improving the quality of service delivery at an early stage, the efforts of maintenance service suppliers in a later stage might be reduced;
- tenant satisfaction with maintenance service delivery, including the accompanying investments for being able to customise services to individuals' needs.

2.3.5 Agency theory

An agent relationship can be defined as follows: 'A contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationships are utility maximisers, there is a good reason to believe that the agent will not always act in the best interest of the principal' (Jensen and Meckling, 1976: 5).

The theory revolves around solving two problems that can arise in agent relationships (Eisenhardt, 1989):

1. the principal-agent problem that arises when the principal and the agent have conflicting wishes or objectives, and when it is difficult or expensive for the principal to verify what the agent actually does;
2. the problem of sharing risks that arises when the principal and the agent have different opinions on risk. The problem resides in the fact that the principal and the agent will prefer different actions as a result of their different risk preferences.

A specific contribution made by this theory is that information is treated as a product, or something that can be traded (Eisenhardt, 1989: 64). Organisations may invest in information systems in order to avoid agent problems (opportunism). Some examples of information systems include supervision, budgeting and joint management of a project.

In the standard economic treatment of the principal-agent problem, compensation systems serve the dual function of allocating risks and rewarding productive work. A tension between these two functions arises when the agent is risk averse, as providing the agent with effective work incentives often forces him to bear unwanted risk (Holmstrom and Milgrom, 1991).

Empirical research on agency theory equates effort with performance. Christen, Iyer, and Soberman (2006), however, note that effort and performance are related, but effort does not guarantee performance (i.e., they are distinct concepts). Although the primary outcome for agency theory is performance, the theory focuses on controlling the effort required to meet performance standards.

The management of effort in the perspective of risk can be categorised by outcome-based and behaviour-based contracts (Choi and Liker, 1995; Eisenhardt, 1989; Lassar and Kerr, 1996; Zsidisin and Ellram, 2003). Complete reliance on outcome-based efforts signifies an exclusive concern with bottom-line results, regardless of how suppliers achieve them (Choi and Liker, 1995). Contrary to the concept of outcome that will be discussed in Chapter 7, specifications of outcome-based contracts in the context of this section can be activity-based, while performance measurement is related to the outcomes of activities. As uncertainty becomes insignificant, an agency theory perspective supports outcome-based supply risk management efforts as appropriate (Eisenhardt, 1989). Supply is more efficiently managed without unnecessary intervention into supplier operations on the part of the purchasing organisation (Zsidisin and Ellram, 2003).

Contracts that are oriented towards behaviour, and therefore assume behaviour-based management, focus on processes, and emphasise tasks and activities that lead to reducing risk relating to delivery (Eisenhardt, 1989; Logan, 2000). This means that the efforts devoted to managing suppliers require sub-

stantial human and financial resources and close communication in order to improve processes, reducing the probability of risk materialisation (Celly and Frazier, 1996). Thus, when risks are high, close cooperation between the client and the supplier appears to be advisable for sharing and handling these risks.

Agency theory: The maintenance market

Outcome-based contracts (usually in the form of activity-based specifications) are the contract type most commonly used by Dutch housing associations. This also applies to cases where there is a significant level of uncertainty, even though theory would suggest the use of behavioural contracts in such circumstances.

The manner in which the principal (the housing association) manages its relationship with the agent (the maintenance service supplier) affects the service outcomes. As tenant satisfaction with maintenance is a service outcome and thus an outcome of the principal-agent relationship between the housing associations and the maintenance service supplier, paying close attention to the management of this relationship may result in increased tenant satisfaction. See Chapter 9 for the application of this theory in the context of this research.

2.4 Procurement customs and regulations

The tendering procedure consists of a client requesting suppliers to submit a tender for the performance of a project (based on ACA B&U, 2001). The Netherlands has a long history of tendering rules. A Royal Decree of 1815 made public tenders compulsory for the Dutch Government. The purpose of the rule, even then, was 'the efficient management of resources and to oppose the corruption of public servants' (<http://www.europeseaanbestedingen.eu>, 04-06-2007).

2.4.1 The current application of instruments

Most tenders are unique, although many make extensive use of components previously developed by the housing association or the external party.

The tenders issued by housing associations are based on several general models. The UAV (the Dutch acronym for Uniform Administrative Conditions for the Execution of Works [Uniforme Administratieve Voorwaarden], 1989; also referred to as UAV 1989) is a commonly-used resource, which forms the basis for general terms and conditions. The UAV 1989 is a set of rules that may be declared applicable to construction contracts. It was concluded following consultations between construction companies and the government. The UAV 1989 was originally intended to apply to the government alone, but over time,

it has grown into a standard set of regulations and has gained almost universal acceptance across the construction industry, by from the government and from private parties. In Chapter 8, attention is given to the contents of the general conditions used by Dutch housing associations, which are often either based on the UAV or draw heavily upon them.

In addition to such conditions are the specifications, or contract documents, which are usually the standard specifications developed by STABU. STABU is a foundation based in Ede that publishes and manages the standardised classification systems for residential and non-residential construction.

Standards have also been developed for tendering. As mentioned in the introduction, single private tendering is the most popular form of tendering for planned maintenance (Vijverberg, 2005). Multiple private tendering is less popular, and multiple public tendering is rare. Some housing associations have internal regulations, including thresholds, for the form of tendering to be used. Some housing associations apply the Uniform Tendering Rules (UAR) and, more recently, the Tendering Regulations for Works (ARW). The ARW 2005 came into existence on 1 December 2005, and is a description of procedures for applying national and European public tenders (in accordance with the Public Contracts (Tendering Rules) Degree (BAO).

There is a conspicuous trend, particularly for larger housing associations, towards the creation and imposition of internal procedures. Furthermore, sharper internal financial monitoring also appears to be leading to more multiple tendering. Housing associations appear to be searching for new functional frameworks, and European procurement rules may offer another possibility for housing associations in this respect.

2.4.2 European regulations

The first European procurement rules appeared in the early 1970s, with the objective of achieving free and fair competition within the European internal market.

A number of European Directives apply to procurement. The main objectives of these Directives are (Ministerie van Economische Zaken, 1999):

- the creation of an internal market (the free movement of goods, services, capital and people);
- the alignment of the legislation of the separate EU member states;
- the promotion of free and fair competition within the EU by publishing notices of (envisaged) contracts;
- making savings for clients due to a more professional purchasing process.

The European Directive on Public Works Contracts and the European Directive on Public Supply Contracts date from 1993. A Directive on Public Service Contracts had been adopted in 1992. The Directives were merged, simplified and

clarified in 2004 under the European Public Procurement Directive, which has been in force in the Netherlands since 1 December 2005. The European Public Procurement Directive is Directive 2004/18/EC of the European Parliament and of the Council on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts. The Directive was implemented in the Netherlands in the framework Act for EEC regulations and the Public Contracts (Tendering Rules) Decree (BAO) in 2005.

Like the Directives it superseded, Directive 2004/18/EC aims to improve transparency in the common market for public procurement, and to prevent discriminatory procurement practices on the part of contracting entities in the European Union member states. It also intends to enhance market competition. Instruments for achieving transparency include publication obligations; the prohibition of discrimination between contractors, suppliers and service suppliers; and the duty to specify neutrally the requirements for the public contract and the contractor, supplier or service supplier (Ministerie van Economische Zaken, 2005). The new Procurement Act is expected to come into force in the Netherlands in 2008, and will replace the current framework Act for EEC regulations. The BAO will serve under the new Procurement Act as the Order in Council with which the Directive is implemented in Dutch law. The Upper House of the Dutch Parliament debated the legislative proposal in November 2006, and further amendments to the legislative proposal cannot be ruled out. One of the issues currently being discussed is that of procedures for tenders that fall below the threshold, and whether additional thresholds with associated tendering procedures should be adopted.

Subject to tendering?

Are housing associations obliged to put (maintenance) contracts to European tender? The Netherlands has the following contracting entities, in the legal sense of the term:

- state: ministries, civil service;
- provincial governments;
- municipalities;
- district water boards;
- municipal regulations;
- bodies governed by public law.

The answer to the question of whether an organisation is obliged to put contracts out to European tender depends on three criteria, all of which are must apply:

1. the organisation was established for the specific purpose of meeting needs relating to the general interest, and not having an industrial or commercial character;
2. the organisation has a legal personality;

3. the organisation is financed, for the most part, by the state, or regional or local authorities, or other bodies governed by public law. Also covered are those organisations subject to management supervision by the state or those bodies and organisations with an administrative, managerial or supervisory board, more than half of whose members are appointed by the state or those organisations (<http://www.europadecentraal.nl>, 04-06-2007b).

These criteria determine whether a housing association is a contracting entity for the purposes of European procurement Directives. The first two criteria are clearly applicable, whereas the applicability of the third criterion is debatable. It is open to question whether a housing association is a body governed by public law or lies under the control of the state.

Article 70d of the Dutch Housing Act provides for the minister to issue an Order in Council instructing that certain acts be performed or omitted (Act of 2 December 1999; Bulletin of Acts and Decrees 1999 no. 553). The minister may also determine that certain acts should be performed only having first obtained prior ministerial approval. The minister can even oblige a housing association to first have a plan drawn up by the minister (or a person or body designated by the minister) before performing acts such as investing in a residential building project. The supervision involved here is not only retrospective. If this is the case, then the third (dependency) criterion of a contracting entity is also satisfied (Case C-373/00 of 27 February 2003; RO 70).

The Dutch Government does not consider housing associations to be contracting entities, however (<http://www.europadecentraal.nl>, 04-06-2007b). Opinions differ on this point, in view of the relevant European case law involving a judgment by the European Court of Justice. This judgment classed French limited companies for social housing (known as *Sociétés Anonymes d'Habitation à Loyer Modéré*, or HLMs) as contracting entities. The European Commission's opinion was that such companies should be viewed as contracting entities within the meaning of the Directive, and consequently submitted the question to the European Court of Justice. The Court stated in its judgment that pursuant to various statutory provisions, the HLM companies were subject to governmental management supervision, which put the government in a position to influence the decisions of HLM companies regarding public works contracts (De Boer, 2006: 724). Box 2.1 lists a number of significant points in the Court judgment that were relevant to establishing the HLM as a contracting entity.

As is evident from the articles set out in Box 2.1, it seems that the French Government's supervision of HLMs has a broader scope than the supervision exercised on Dutch housing associations. While the French Government intervenes in policy making, the Dutch Government maintains a supervisory role. De Boer draws the following conclusion: 'Dutch supervision is mainly repressive financial supervision on the management of assets by the housing associations.'

There is extremely limited, and furthermore completely transparent, use of a relatively heavy instrument such as an authority to issue a designation order. Only sporadic use is made of the power to approve (the Minister is authorised by Art. 43 of the Subsidised Rented Sector (Management) Decree (BBSH) to determine that a corporation may perform certain acts only with prior permission from a person or body approved by the Minister).’ De Boer therefore concludes that a Dutch housing association cannot be considered to be a contracting entity within the meaning of the Directive. However, different conclusions can be drawn. For instance, Koning (2002) concludes that like French HLMs, Dutch corporations should be considered to be contracting entities. Other authors are also unwilling to rule out a Court of Justice opinion of this kind (e.g. Bregman and De Win, 2005; Van Romburgh, 2005). These differences of opinion would appear to have been prompted by diverging assessments of the (degree of) ministerial supervision on housing associations. Should the Court ever deliberate on the situation of Dutch housing associations, it is a realistic probability that they could be considered to be contracting entities.

In line with conclusions drawn by De Boer (2006: 729), any future increase in public control over housing associations, such as compulsory investment measures, could lead to an increase in the government’s supervisory role such as to enable the government to influence corporations’ decisions. Should this influence extend so far that the government is able to control investment decisions, and therefore tenders, Dutch housing associations may be considered to be contracting entities in future.

Maintenance

If housing associations are considered to be contracting entities in line with the EU Directive, then contracts only have to be put out to ‘European’ tender if they are above a certain threshold. The question is then the extent to which maintenance jobs reach this threshold.

There are different thresholds for public works, public supply and public services. For the period from 1 January 2008 to 31 December 2009, the threshold amounts for the central government are 5.15 million euros for public works, and 133,000 euros for public services and public supplies. For local government, the thresholds are 5.15 million euros and 206,000 euros, respectively. These thresholds are adjusted every two years, and are estimated amounts that exclude VAT. If no total sum is indicated in the tender, and the contract is continuous or expires after 48 months, then the amount is the monthly fee multiplied by 48. If the contract expires within 48 months, the monthly fee should be multiplied by the number of months of contract duration.

It is forbidden to split contracts in order to avoid the thresholds.

The contract term plays a role in the correct valuation of a contract. However, contracting entities are not obliged to enter into a contract for a certain minimum or maximum term.

Box 2.1 From: Judgment of the Court (Fifth Chamber), 1 February 2001. Commission of the European Communities versus the French Republic. Failure by a Member State to fulfil obligations – Directive 93/37/EEC – Public works contracts – Concept of ‘contracting authority’

- 8 Article L. 451-1 of the Code provides that low-rent housing bodies are to be subject to supervision by the administration. In accordance with Article L. 451-1 that supervision is to be carried out by the Minister responsible for finance and the Minister responsible for construction and housing.
- 9 Article L. 451-2 of the Code states that the officials responsible for supervising those bodies may, in the exclusive interest of performing their supervisory duties, consult any accounts, copy letters and documents relating to income and expenditure at the premises of the architects or developers who have dealt with bodies subject to that supervision.
- 10 Article L. 422-7 of the Code states:
‘In the event of serious irregularities, gross mismanagement or failure to act on the part of the administrative board, or of the managerial board and the supervisory board, of an HLM or mortgage corporation, the Minister responsible for construction and housing may, after hearing the observations of the corporation or after the latter has been duly invited to submit its observations, order that it be wound up and appoint a liquidator.’
- 11 In accordance with Article L. 422-8 of the Code, the Minister responsible for housing may in such cases merely suspend the managerial organs and appoint a provisional administrator, to whom all the powers of the managerial organs to continue the operations in progress are automatically transferred.
- 12 The first paragraph of Article L. 423-1 of the Code provides:

The key question is whether maintenance constitutes works or a service. While the methods of tendering for these categories are largely the same, different thresholds are involved, meaning that a shift in the application of procedures and regulations may occur.

Drastic or major maintenance, for which there is no longer an element of regular management, falls under ‘works’. Maintenance contracts related to repairs and the maintenance of machines, vehicles and technical installations, as well as maintenance activities on buildings in the sense of building management and cleaning, can be considered to be ‘services’ (Ministerie van Economische Zaken, 1999). The Ministry of Economic Affairs confirms that routine patching-up of paintwork falls under building management, and may therefore be considered to be a service. In other words, regular planned maintenance, void repairs and reactive maintenance in the dwelling may all be considered to be ‘services’, unlike major maintenance and refurbishment, which may be considered to be ‘works’.

'Any low-rent housing body which manages fewer than 1,500 housing units and has not built at least 500 housing units or granted 300 loans over a 10-year period may be dissolved and a liquidator appointed by decree of the Minister responsible for construction and housing or, in the case of a public low-rent housing entity or a public development and construction entity, by decree adopted jointly by that Minister and the Minister of the Interior.'

13 Article L. 423-2 of the code provides:

'Any low-rent housing body which manages more than 50,000 housing units may be given formal notice, by decree of the Minister responsible for construction and housing, to transfer all or part of the housing units in excess of that number to one or more bodies designated by name.'

14 By Decree No. 93-236 of 22 February 1993 (JORF 24 February 1993, p. 2941) an interministerial task force for the inspection of social housing was set up. Article 3 of that decree provides:

The task force shall be responsible for supervising natural or legal persons involved in social housing. It shall carry out documentary and on-the-spot inspections of operations relating to the construction, acquisition, or improvement of housing in respect of which financial assistance has been provided by the State or State-controlled funds have been used, or which form the subject-matter of an agreement with the State or are supported by tax-exempt resources.

[...]

It may be instructed by the Ministers to whom it is responsible to carry out checks and inquiries and also studies, audits or assessments in the field of social housing.

It shall draw up proposals as to the action to be taken following its inspection reports and shall ensure that the persons concerned by its inspections implement the measures taken by the Ministers to whom it is responsible.

Procedures

A contract that is subject to the Directive must be put out to tender through one of the procedures mentioned in the Directive. We focus on the most common procedures:

- a. Open procedure. Any interested economic operator may submit a tender under this procedure. Companies submit their selection documents and proposal simultaneously.
- b. Restricted procedure. Any economic operator may request to participate in this procedure, but only candidates invited by the contracting entity may, after a selection procedure, actually submit a tender for a contract.

One can choose whether to go for an open or restricted procedure, and neither procedure may involve negotiation of prices or other conditions. As stated, other procedures mentioned in the Directive may only be used in specific situations.

If the contract must be put out to European tender, a notice of the envisaged contract must be published in the *Supplement to the Official Journal* of the

European Union. To this end, the contracting entity sends the contract notice to the Office for Official Publications in Luxembourg. The contract award must be published in the *Supplement to the Official Journal*, and the contracting entity must draw up a report for each preselection and contract award.

Framework agreements

The new Directive defines a framework agreement as: ‘an agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged’ (European Union, 2004). In other words, a framework agreement is a general term covering agreements between public authorities and contractors for the award of contracts for a given period in accordance with documented conditions and prices. The framework forms the basis for later contracts involving the participating parties (<http://www.europadecentraal.nl>, 04-06-2007a). Framework agreements facilitate bundled purchasing, do not imply compulsory sourcing (which is useful if the price-quality ratio fails to meet expectations) and reduce the administrative burden. This certainly applies to European procurement, by allowing orders to be concluded without having to repeatedly follow the full procedure.

A framework agreement is drawn up based on an estimate of whether the European threshold will be exceeded, taking into account the total lifetime of the framework agreement, and the total estimated value of envisaged contracts under that agreement. If the framework agreement itself is not published, the applicability of the threshold must be ascertained for each individual contract. The least cumbersome option is therefore usually to publish the framework agreement itself. Regarding the lifetime of the agreement, a contracting entity should know that: ‘The term of a framework agreement may not exceed four years, save in exceptional cases duly justified, in particular by the subject of the framework agreement’ (European Union, 2004).

Selection and award

The exclusion of economic operators may be justified by matters including involuntary liquidation, grave professional misconduct, and violations of environmental law and of noncompliance with social legislation. For example, it will be investigated whether an economic operator has been found guilty of the offences of participation in a criminal organisation, fraud, or money laundering (European Union, 2004).

Contracting entities use selection criteria to verify the suitability of economic operators pursuant to economic and financial capacity, and technical and/or professional capability. Technical capability may be proven on the basis of past results, information regarding capacity for executing quality control or other quality assurance measures, academic and professional

qualifications held by the service supplier, capacity in terms of manpower or technical plants, tools and equipment, an indication of the proportion of the contract that the service supplier may intend to subcontract, and certificates.

The award of a contract may be based on the following criteria (European Union, 2004: 134):

- a. either, when the award is made to the tender most economically advantageous from the point of view of the contracting authority, various criteria linked to the subject-matter of the public contract in question, in addition to the price. These can include quality, technical merit, aesthetic and functional characteristics, environmental characteristics, running costs, cost-effectiveness, after-sales service and technical assistance, delivery date and delivery period or period of completion;
- b. or the lowest price only.

For an award on the basis of the most economically advantageous tender, the contracting entity must specify the relative weighting it gives to each of the criteria chosen. Furthermore, where, in the opinion of the contracting authority, weighting is not possible for demonstrable reasons, these criteria are applicable in descending order of importance.

There is a mandatory 15-day 'standstill' period after the award before negotiations can start, so as to allow for any legal challenge to the contract award. The contracting entity has no discretion when it comes to which tenderer will be awarded the contract. Its freedom is restricted to concluding a contract with the party that, on the basis of award criteria stated by the contracting entity, submits either the most economically advantageous tender, or the lowest price.

In Chapter 3 and ultimately in Chapter 9, attention will be given to the assessments regarding the use of selection and award criteria, as well as contract-related incentives and specifications.

2.4.3 Application

Housing associations and the Dutch government do not currently consider European procurement rules to be applicable to Dutch housing associations. Should public control over housing associations ever increase, the Directives may be declared applicable. The Directives represent both a threat and an opportunity for Dutch housing associations.

One of the most frequently cited disadvantages of European procurement rules is the substantial administrative burden that they entail. This burden can be reduced by means of using electronic aids, e.g. Tendernet. In addition, when European tendering regulations are applicable, housing associations cannot spontaneously award contracts to existing partners. In order to get the desired supplier, or better, the supplier with the desired qualities, the choice

of selection and award criteria is crucial. Principals applying European tendering regulations may choose applicable award criteria, as long as they are explicit and clear about them. Framework contracts can be agreed for a period of four years, and this period may be extended if stated beforehand. This might be interesting when a supplier's experience (including the costs associated with re-tendering) proves to be more advantageous than the advantages offered by the competitive functioning of the market.

The regulations do not, therefore, have to be an obstruction when it comes to optimising commodity strategies. European procurement procedures demand specific sequences and set out process requirements, and even help to streamline housing associations' purchasing processes. In this sense, they may present opportunities where the contract is awarded on the basis of the most economically advantageous tender. More attention might be given to the definition of the desired delivery. Moreover, professionalisation of the relationship between the principal and the supplier might occur, including the introduction of more objective selection and evaluation procedures.

As European tendering regulations would appear not to hinder the optimisation of maintenance commodity strategies, then we can turn our primary attention to possibilities for optimising commodity strategies. In other words, how can the client-contractor relationship be optimised in order to maximise tenant satisfaction?

2.5 Conclusions

This chapter covered three issues related to maintenance purchasing: the maintenance market, procurement regulation, and theoretical tools for optimising the client-contractor relationship. The research questions that were presented at the start of the chapter will now be answered in turn.

Maintenance market

The first research question was: what effect do the maintenance market's characteristics have on maintenance purchasing optimisation possibilities from the end-customer's perspective?

The maintenance market is fragmented, which has the following implications for the relationship with the end-customer.

- It is difficult to combine efforts on different aspects of building, making it more likely that tenants will be inconvenienced by maintenance. More agreements are needed, and the probability of duplicated activities and suboptimal technical coordination is higher. In other words, the market structure precludes possible synergy benefits.
- It is difficult to combine different types of maintenance: planned maintenance, maintenance in response to requested repairs and maintenance

following a change of tenant. This has the same disadvantages as listed above.

- The capacity to initiate developments that would benefit tenants is limited, due to the lack of resources that is, in part, attributable to tight margins.

As this answer makes clear, the maintenance market does not enjoy perfect competition, in the sense of transparency, homogeneous products and zero transaction costs. Insights from new institutional economics might shed some light on how to deal with these deficiencies and optimise outcomes.

New institutional economics

The second research question posed in this chapter was: which new institutional economics notions and theories are useful for analysing and developing coordination mechanisms for the maintenance client-contractor relationship?

The neoclassical individual is assumed to be hindered neither by a lack of information nor by a finite capacity to process information. The absence of an information problem means there are no costs involved in entering into and performing transactions. In theory, the operation of the market should lead to a Pareto-efficient outcome. In other words, no one would prosper unless someone else suffered. This theory rests on a number of assumptions: the market would have to be perfect, with complete competition, complete information for all, no barriers to entry and exit, no transaction costs, and homogeneous products.

Transaction cost theory, which is considered to be part of new institutional economics, suggests the following issues that may arise in the client-contractor relationship and may affect on tenant satisfaction regarding maintenance.

- Bounded rationality, which manifests itself in automatism and risk-averse behaviour regarding tenders: imitation, incomplete (complex) contractual documents, and incomplete procedures.
- Opportunism, with a possible impact on the quality of service, the use of substantial resources for management and supervision, and opportunity costs. Solutions for opportunism may come from monitoring, incentives, selection and socialisation.
- Asset specificity. Asset specificity crops up in the maintenance of homes in many ways, relating to the uniqueness of buildings, projects, maintenance solutions, and tenants.
- Information asymmetry. Information asymmetry is a form of market imperfection that enables a supplier to act opportunistically without being detected, which can lead to adverse selection and moral hazard, with a negative impact on services.

Although transaction cost theory does not focus on explaining performance as such (which would be in line with the focus of this thesis), it does ask how

transaction characteristics affect a transaction's coordination mechanism. The characteristics of a transaction affect the risks associated with a transaction. The risks then determine the way in which a transaction will be (or should be) governed in order to improve performance (Kamann *et al.*, 2006).

Property rights theory states that an actor endowed with more property rights will take a broader view when making decisions, which will lead to higher efficiency for society as a whole. A contractor may gain a greater sense of responsibility by acquiring property rights regarding a maintenance solution, say, which could have a positive impact on the quality of the services. This responsibility could be transferred to contractors via the use of output specifications, for instance.

From agency theory, it can be learned that contracts that are oriented towards behaviour, and therefore assume behaviour-based management, focus on processes, and emphasise tasks and activities that lead to reduction of risk on delivery (Eisenhardt, 1989; Logan, 2000). Maintenance jobs that involve considerable risks, therefore, would be best managed by using behaviour-based contract. As uncertainty becomes less significant, agency theory supports outcome-based supply risk management efforts as appropriate.

Insights from new institutional economics appear to be useful in analysing and developing coordination mechanisms for the maintenance client-contractor relationship. Chapter 9 discusses the opportunities presented by applying these tools for optimising maintenance purchasing from the tenant's perspective.

Procurement customs and regulation

In order to optimise purchasing, housing associations must exploit the opportunities offered by the maintenance market. Procurement regulation can help housing associations in this regard, but may also bring a number of disadvantages. The third research question posed in this chapter was: what effect do existing procurement regulations and trends in regulations have on maintenance purchasing optimisation possibilities from the end-customer's perspective?

So long as there is no case law on European procurement regulations pertaining to Dutch housing associations, there will be no certainty regarding whether housing associations are obliged to apply these regulations. Opting not to apply these regulations therefore continues to pose a risk. On the other hand, applying the regulations brings the disadvantage of a considerable administrative burden. Application brings benefits as well, however. It ensures that the most suitable party is selected fairly and justifiably by means of a transparent and competitive procedure. This allows the market to operate the best quality supplier to be selected at the best price. Tendering at the national level can likewise produce such benefits. The choice of appropriate selection criteria and award criteria is essential to the success of the process.

At any rate, there appears to be some need for public monitoring and transparency regarding investment in public services. Unlike activities performed in a competitive setting, there is limited incentive for efficient investment in this area. Nonetheless, public, and in particular European, procurement rules are not currently applied, and the actual level of transparency is thus limited. Many housing associations currently put out single and private maintenance tenders, which would appear to inhibit the operation of the market. Housing associations are missing opportunities to find better service suppliers as a result.

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3 The purchasing of Dutch housing associations' maintenance services: state of the art and a decision framework

3.1 Introduction

The Dutch social rented sector consists almost entirely of housing associations. These are private organisations, functioning within the public framework of the Housing Act. This Housing Act defines the scope of housing associations' activities. In short, the housing associations' domain is defined as 'housing, housing services, and the social environment of housing' (Ministerie van VROM, 2000). Housing associations are responsible for their own efficiency and effectiveness, and for their position within this defined domain. The organisational goals of housing associations are more or less directed to fulfilling public tasks. By far the most important assets of housing associations for attaining their strategic goals are their dwellings, for which technical management maintenance is essential: the housing stock is ageing fast, and has to fulfil the current needs of several target groups (Straub and Vijverberg, 2004). Maintenance therefore plays an important role in realising housing associations' strategic targets.

The purchasing of maintenance services currently receives continuous attention within the social rented sector, thanks to interesting developments such as e-reversed auctions, performance-based cooperation between housing associations and technical management contractors, and developments concerning European tendering procedures. However, although purchasing tools have been developed, a systematic connection between the policy aims of housing associations and their purchasing practice is still lacking.

Concurrently, a business planning process leading to the identification of required maintenance activities is already being applied by housing associations, or has at least been developed (see e.g. Gruis and Nieboer, 2004b). The performance aims of the housing stock and the subsequent planning and management of maintenance services can be derived from a strategic portfolio policy, which is adapted to the particular circumstances of the housing association and its environment. This is known as the maintenance strategy of a housing association (Straub, 2002). As a result of the policy formulation and the budgeting process, maintenance or improvement activities are planned and carried out. Thus, while a systematic link exists between the housing associations' aims and the planning of maintenance services, a similar link is still lacking for the purchasing of these services. In this chapter, this link is investigated. We take into consideration both the influence of maintenance services on the performance of housing associations, and the particularities of maintenance services.

First, attention is paid to current Dutch maintenance practices. After this,

consideration is given to the purchasing of maintenance. Information is derived from interviews with purchasers, technical managers, and Dutch housing associations' strategic managers, and from expert meetings with purchasers, and directors and managers of maintenance companies. Furthermore, a recent survey of the Dutch social rented sector (Straub, 2004; Vijverberg, 2004; Vijverberg 2005) provides us with valuable data. Based on this 'state of the art', and an overview of housing associations' institutional environment and the strategic focus that fits this, recommendations are made with regard to purchasing goals. A framework is used to present connections between the strategic focus of housing associations and purchasing goals. The framework, which has been created to fit the particular context of Dutch housing associations, could easily be extended to similar purchasing situations involving social enterprises in their capacity as private organisations undertaking public tasks.

3.2 Maintenance in Dutch practice

In many cases, the maintenance plans of Dutch housing associations are derived their strategic portfolio policies, or strategic housing policies. In the strategic portfolio policy, 'the housing association constructs a picture of the composition of the desirable dwelling portfolio and sets up market strategies for product lines, e.g. invest in growth or divest' (Straub, 2002). 71% of the Dutch housing associations have such plans, and for 91% of these, the strategic portfolio policy is derived from a written mission and quantified goals (Vijverberg, 2005). Housing associations indicate that market perspective and lettability, together with the residential quality of dwellings, are the most decisive factors for determining the strategic portfolio policy (Straub, 2004).

The organisational types of maintenance (planned maintenance, reactive maintenance, void repairs, and service maintenance) have already been introduced in Sub-Section 1.1.4. The whole range of maintenance services consists of maintenance of compound building components, maintenance of installations and maintenance of surrounding grounds of buildings. Table 3.1 offers some examples of these types.

The success of maintenance objectives is usually gauged by customer satisfaction measurements, whether these result from investigations by local employees or from intuition. Although the main target group of housing associations does not have the financial strength to justify an upmarket quality policy, there still seems to be space for improving the fit between the services of the housing association and the needs of its customers and other stakeholders.

Not all maintenance is realised by external service suppliers. Housing associations' in-house maintenance departments account for 9% of total main-

Table 3.1 Classification of different types of maintenance services

Maintenance on (compound) building components	Maintenance of installations	Maintenance on surrounding grounds of buildings
<ul style="list-style-type: none"> • Exterior paintwork • Roofs and gutters • Entrance hall, gallery, corridors and/or stairs • Balconies • Kitchens • Bathrooms • Toilets • Drains • Hinges and locks of windows and external doors • Cleaning of shared areas 	<ul style="list-style-type: none"> • Lifts • Heating and water systems • Ventilation systems • Lighting in shared areas 	<ul style="list-style-type: none"> • Paving around the building • Communal greenery

tenance expenditure in the Netherlands. For planned maintenance, this amounts to only 4% (Aedes, 2003; see Sub-Section 1.1.2). The purchasing of maintenance concerns maintenance realised by external service suppliers.

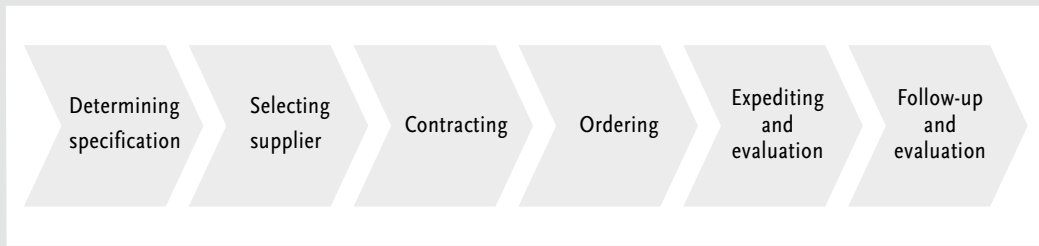
3.3 The purchasing of maintenance in Dutch practice

The purchasing function – that is, the way purchasing is organised – is still in its infancy in Dutch housing associations. One can distinguish between two types of maintenance services purchasers, the technical manager and the purchaser.

The first type is usually an engineer, who has progressed from a technical background to a position where he or she can make decisions regarding the purchasing of maintenance. The purchaser-type can be either a generic purchaser of all kinds of goods and services, from lease-cars to pencils, or someone who is purely responsible for purchasing maintenance services. In any case, the purchasing function is usually not yet a board-level role within housing associations. However, housing associations are heavily dependent on their suppliers for the realisation of their goals. Purchasing, whether undertaken by purchasers, technical managers, or both, forms the key interface with suppliers. Despite this, purchasing is often perceived as an operational function that only has to realise what is stated in the maintenance strategy of a housing association. This can hamper bottom-up control or the information supply, leading to inefficiencies and even ineffectiveness.

The purchasing process (see Figure 3.1) usually starts with the specification of the works, after which the supplier selection follows.

Increasingly, maintenance contractors are invited to add knowledge to the process of specification for a fee. However, these advising contractors do not necessarily have to also realise works. Specialised consultants provide alternatives to maintenance contractors giving advice on specifications. This con-

Figure 3.1 Key concepts from the purchasing process

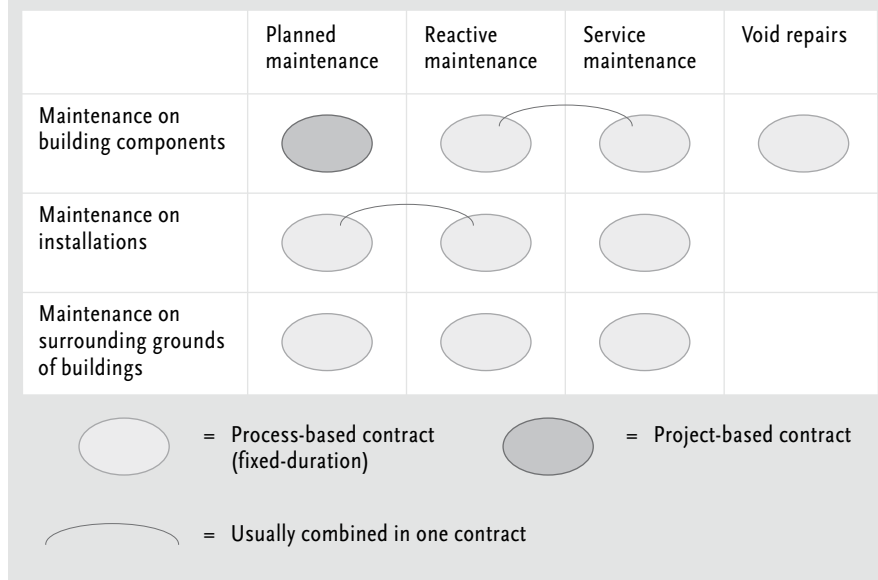
Source: Adapted from Van Weele, 2002

trusts with the old practice of drawing up a specification purely on the own insights of purchasers, aided by material and installation manufacturers if so desired. The most far-reaching current method is to make a specification entirely consisting of output requirements, leaving the maintenance contractor to decide on the working methods. Since maintenance contractors are specialised in precisely this area, housing associations are expected to increasingly use this method in future.

The majority of maintenance projects are procured through both private tendering (89% of housing associations use this method) and direct, one-to-one contracting (84% of Dutch housing associations use this method) (Vijverberg, 2005). European legislation on public tendering is not yet obligatory for Dutch housing associations (see Section 2.3), meaning that this type of tendering is rarely used. The actual tender is usually conducted with parties that have already been selected in a pre-selection process. This pre-selection is essential to separate the 'sheep from the goats', and to recognise potential business partners. Usually the pre-selection is not tied to one project, but to a certain commodity, such as exterior paintwork. The pre-selection results in a distinction between a 'white list' and a 'black list' of contractors. Black-list contractors are those that have, in the past, failed to meet housing associations' requirements. When pre-selecting contractors, in addition to product and process aspects, evaluation of their financial stability (e.g. the contractor's solvency and liquidity) is important. Furthermore, common selection criteria are directed at the contractor's integrity. In addition, the use of quality, management, safety, and environmental systems (e.g. ISO 9000 and 14000) provides information about suppliers' standards. References from colleagues and purchasers' own experiences are also very common when determining the suitability of suppliers. 'Progressive' customers also consider issues such as innovative ability, added value in the longer run, environmental aspects, the dependability of the supplier on the customer, and the position of the supplier in the supply chain. Still, until now, there are no known examples of housing associations distinguishing between supplier selection criteria that are used for services directed at different types of end-customers, or even selection criteria based on end-customer perceptions regarding the different maintenance services.

According to a study by EIB (1998), for housing associations, the quality of work is almost always the most important reason for choosing a particular

Figure 3.2 The most common contract approaches to different types of maintenance services



maintenance service supplier. The proposed price takes in second place, followed by service. Service is defined here as the service provided by the contractor and the extent to which the circumstances of the owner and users are taken into account.

Tendering procedures for building new houses and for building maintenance are usually assessed in a comparable way. Performance criteria are directed towards compliance with specifications, at the lowest possible price. This means that much attention is given to the price and quality of a product and logistic processes. However, in contrast to building activities for new houses, most maintenance activities directly add to tenant satisfaction. The activities are often carried out in the presence of tenants, or other customers. Usually, the contractor who performs the works against the lowest price, or against the economically most advantageous offer, is allowed to perform the maintenance services.

Regardless of the generalities in the different types of maintenance with respect to the specification and selection phases, differences do exist in the contracting and ordering phases of purchasing. The most common and influential differences in the contracting and ordering stage are presented in Figure 3.2.

Two types of contracts can be identified: project-based contracts and process-based contracts. The first is applied to planned maintenance of building components. Traditionally, planned maintenance is put out to tender for the duration of one maintenance cycle or project. It is expected, however, that there will be more partnership contracts in future, in the form of performance-based maintenance contracts (Straub and Van Mossel, 2005). These contracts cover more than one maintenance project. In addition to the longer-term financial advantages that are attributed to this type of contract, another advantage of this type of contracting, which is based on functional requirements,

is that the contractors may have the chance to acquire in-depth knowledge about housing associations' customers. These customers are the recipients of the maintenance services, and contractors can use this knowledge to improve services to these customers. In other words, performance-based contracts go beyond individual projects. In addition to performance-based contracts for planned maintenance of building components, performance-based contracts also exist for maintenance of installations. Unlike contracts for building components, these are process-based contracts. The impact of using performance-based contracts for installations is thus restricted to a move to output specifications and to a possible lengthening of contract duration.

As presented in Figure 3.2, all of the different types of maintenance of most building components are procured separately. Different suppliers are thus usually used for these different types as a result. For planned and reactive maintenance at installations, the different types of maintenance are often covered in one contract, with one supplier. Despite this, different suppliers normally are used for different parts of the country.

3.4 Supplier selection

Purchasing has long been thought of as the management of inputs, i.e. raw materials, services, and sub-assemblies, into an organisation (Burt and Soukup, 1985; Dobler and Burt, 1990; Farmer, 1985). However, firms are increasingly moving away from managing the inward flow of goods and services, and moving towards the management of the supply process. Supply management is therefore concerned with the flow of goods and services through an organisation, with the aim of making the firm more competitive (Cousins and Spekman, 2003). In other words, supply management enables companies to improve their position in terms of costs or in terms of differentiation towards customers, which enables them to gain higher profits than their competitors (Porter, 1985). As Dutch housing associations are not just for-profit companies, but are private organisations with public tasks, these competition aims cannot be easily replicated. On the other hand, public bodies are often driven by budget constraints and formal rules and regulations (see e.g. Thai, 2001). These public purchasing aims and practices, however, are not sufficient for these private organisations either. This leads to the conclusion that appropriate purchasing aims for housing associations have to be adapted to the particular circumstances of these organisations and their sector, and the characteristics of maintenance services.

Purchasing aims can be further elaborated in the commodity strategy. Handfield et al., (2005) define 'commodity strategy' as follows: 'The term "commodity" is used in supply chain management to refer to a general class of purchased items, so a commodity strategy is the specific decisions concern-

ing sources of supply, number of suppliers, number of stocking points and relationship with suppliers that a company makes concerning any single commodity, while staying within the boundaries defined by the purchasing strategy'. For supplier selection and specification, which are important components of this commodity strategy, this means that criteria and measurement should be adapted to the purchased item. An important distinction in this context is between project-based contracts and process-based contracts. For project-based contracts, the contact between the supplier and the customer is concentrated at regular intervals. For process-based contracts, there is no such concentration. Suppliers who are to be selected to perform services must be able to deal with these circumstances, in terms of logistics, for example, or contact with tenants.

Dickson's (1966) initial work in the area of supplier selection concludes that cost, quality, and delivery performance are the three most important criteria that need to be considered for supplier selection. It can be argued that it is extremely difficult for any vendor to excel in all performance dimensions (Verma and Pullman, 1998), implying that some choices must be made when prioritising supplier selection/evaluation criteria. Criteria should be adapted to the purpose of a purchase and its implication for the organisation's aims (in this case, those of the housing association). For housing associations, these aims are derived from public aims that are applicable to the entire social housing sector.

3.5 The social rented sector in the Dutch housing market

All markets and industries have their own characteristics. For social housing, in order to respond to volatile house prices and an inadequate supply of housing following the Second World War, many western European countries developed governmental control systems, including rent regulation and property subsidies. During the last decades, the government effectively retreated from the housing market in those countries. This usually meant reduced financial support for the social rented sector. In the Netherlands, no generic object subsidies have been granted for the building of social rented housing since 1995, and income-related subsidies have become the main form of government support (Priemus and Boelhouwer, 1999). Dutch housing associations are private organisations that combine public tasks with market activities. These public tasks mainly concern the supply of affordable housing and a liveable environment to certain target groups (see Chapter 4 for a description of the position of these target tenants). Housing associations have to use their own capital to finance the maintenance and renovation of existing housing, and they have to find funding for new construction on the capital market (Van Kempen and Priemus, 2002).

Despite ex-ante regulation and supervision via the Social Housing Management Order (BBSH) and the Housing Act, Dutch housing associations are responsible for their own strategies. Their aims are not necessarily those that might be projected on them from a public perspective. A market orientation could lead to housing associations being more effective and efficient in realising their strategies. Gruis and Nieboer (2004a: 187) define market orientation as follows: 'Market orientation can be set against the traditional, task-oriented approach that many social landlords have followed – and still follow – in which they focus solely on the production and management of cheap and decent dwellings, with only a limited differentiation in rents, tenure and target groups, and often without attuning these factors to each other.' Still, Dutch housing associations are restricted in their objectives. Financial possibilities set the preconditions for housing associations' public and/or social activities. Housing associations are social enterprises without shareholders and the latter's with financial objectives. A certain degree of control over these organisations is a matter of public interest. This control should focus on the two roles played by housing associations (e.g. Conijn, 2004):

1. The role of real estate investor, by which revenues are earned with real estate; and
2. The role of performing public and social functions, which are often not cost-effective.

The interpretation of these roles has many implications for the focus of maintenance and how it is purchased. In short, housing associations can strive to perform a mix of social and economic functions within current regulatory boundaries.

3.6 Maintenance services as the means to fulfil tasks

Maintenance services are important means of fulfilling the functions that arise from the dual roles of housing associations. (1) Maintenance influences the quality of real estate and, by extension, its market value. On the other hand, procuring these services means costs. (2) Concurrently, maintenance services can help to achieve public and social functions by improving housing quality and by providing a customer-friendly service to tenants and other customers. As the way of procuring these maintenance services affects both price and service quality, choices that are made regarding the purchasing of maintenance services can help the social enterprise to achieve its aims.

In general, the main purpose of maintaining buildings (Seeley, 1987) includes:

1. retaining the value of an investment;

2. maintaining the building in a condition in which it continues to fulfil its function; and
3. presenting a good appearance.

These purposes fit perfectly with the three public tasks regarding maintenance services. Given this perspective, Al-Zubaidi (1997: 174) adds: 'These [purposes] all apply [as well] to varying degrees to hospital buildings, but there is a particular ordering priority with hospital buildings.' The same applies to maintenance services for housing associations' dwellings. Moreover, each housing association has to identify its own focus. The housing association that perceives itself to be a social real estate investor will look upon maintenance as adding to the value of its real estate. On the other hand, the housing association that considers itself to have a social identity will perceive maintenance as something that contributes to the housing service provided to residents. A third possibility is the housing association that fulfils its social tasks relating to maintenance in terms of its contribution to a neighbourhood's 'liveability'. Naturally, combinations of all three are possible.

With regard to maintenance, in fulfilling these tasks, housing associations are dependent on their service suppliers, maintenance contractors. These suppliers' contributions cannot be realised unless purchasing, the key interface, participates fully in corporate planning and strategy formulation. Purchasing should therefore play a central role in corporate strategic success, through the selection and development of suppliers that support a housing association's long-term strategy.

3.7 A framework for purchasing

In contrast to the building of new housing, purchasing of maintenance services demands attention to aspects such as customer-friendliness, communication with residents, flexibility towards residents, and the cleanliness of both workers and the workplace. Thus, the extent to which maintenance activities have an impact on residential satisfaction differs from the impact of building new houses. In addition, many differences exist with respect to residential satisfaction relating to diverse maintenance activities, such as paintwork, planned or reactive lift maintenance, and roofing maintenance. This issue will be explored further in Chapter 5.

As suggested above, dwellings owned by housing associations have a number of core functions: providing housing services to tenants, contributing to liveability in a neighbourhood, and providing financial revenues to housing associations through cost-effective exploitation of real estate and value-enhancing maintenance solutions. Each building component contributes to these functions to a different extent. Maintenance services relating to each

of these components and the customers 'using' these components thus also contribute to these functions:

1. revenues on real estate;
2. residential satisfaction;
3. liveability of the neighbourhood.

1. Revenues on real estate

Revenues can be earned through making maintenance choices that increase the market value of real estate, and through cost-effective purchasing of maintenance (e.g. using the principles of Total Costs of Ownership, TCO). Appropriate maintenance work has the potential to lengthen the service life of buildings by curbing the progressive increase in their maintenance costs, and by curbing the decrease in their present market value (Skifter Andersen, 1995; OECD, 2005). All construction maintenance, such as exterior paintwork, maintenance of balconies, maintenance of porches, galleries, common passageways and stairways, but also (to a lesser extent) maintenance to kitchens and bathrooms, influences a building's aesthetic, technical and functional performance, and thus the revenues on real estate.

2. Residential satisfaction

The residential satisfaction of housing associations' customers can be enhanced through attention to a customer-friendly maintenance process and to the quality of the output of maintenance on building components, installations and surrounding grounds of buildings. Maintenance is a service that aims to preserve or improve the housing situation of tenants (Dogge, 2002). All maintenance services contribute to this aim, to a greater or lesser degree. Dissatisfaction with maintenance services will lead to complaints, particularly when the functional performance, or functionality, of installations and building components is damaged.

3. Liveability of the neighbourhood

The visual and functional quality of the surrounding grounds of buildings and external building components (e.g. paintwork) can have a positive (or negative) influence on the liveability of a neighbourhood. Whether this effect is direct or indirect is disputed in literature. The so-called environmentalist approach assumes a direct relationship between physical-spatial attributes and social problems (Newman, 1972; Coleman, 1985). Others, such as Nieboer (2005), argue that physical housing characteristics determine the rent paid by tenants, which can subsequently affect the socio-economic position of the population. The composition of the population may influence the liveability, and may be linked to social problems. Maintenance services to external building components, such as (slope) roofing, paving, and the building façade may directly affect liveability. All maintenance services that somehow affect the

aesthetic and functional performance of a building may have indirect effects on liveability, including maintenance to kitchens and bathrooms.

Finally, although sustainability as such is not a public task of housing associations, it might be defined as one of their maintenance objectives. As sustainability is not a public task according to BBSH, however, and as maintenance is still not usually conducted for sustainability reasons, sustainability will not be given further attention in this chapter.

Housing associations should know what contribution maintenance makes to their strategic goals and, by extension, to the fulfilment of their public tasks, and should use this information to purchase maintenance services effectively. Table 3.2 presents the different maintenance services and their impact on a housing association's goals.

The results of the maintenance services fulfil certain functions, which subsequently contribute to the housing association's goals. The elaboration of the maintenance works determines the extent to which these goals are reached.

The choices in the commodity strategy should be made on the basis of these goals, such as the choice of performance criteria for suppliers. In practice, this may mean that for maintenance services with a relatively high impact on residential satisfaction, criteria that are directed towards a high level of service to customers will be prioritised. On the other hand, criteria for services that are important for maintaining the market value of the building may cover more 'traditional' process and product-related issues.

Since the underlying goals for purchasing of maintenance are clear, a framework can be constructed linking the function of maintenance services to the related purchasing strategy, enabling a commodity strategy to be developed. This framework is presented in Figure 3.3. According to this model, maintenance services affect the liveability of a neighbourhood, residential satisfaction and revenues on real estate. Strategic choices made with respect to these three tasks (which may in turn depend, for instance, on the service, the dwelling's characteristics and the resident's characteristics) determine the development of the commodity strategy.

The requirements for the service supplier and the offer can be set in different ways:

- through execution requirements (specifications);
- through suitability requirements (supplier selection criteria);
- through award criteria; and
- through contract-related incentives.

In Sub-Section 2.3.2 above, the differences between suitability requirements and award criteria in the context of European tendering laws were outlined. Selection criteria allow contracting entities to verify the suitability of economic operators pursuant to economic and financial capacity, and technical and/or

Table 3.2 Maintenance services and their functions

Maintenance service	Functions of the results of the services	Goals to which the service contributes
Maintenance of roofs and gutters	<ul style="list-style-type: none"> • Technical performance • Aesthetical performance for slope roofing, and in case of a view of flat roofing • Energetic and acoustic comfort 	<ul style="list-style-type: none"> • Residential satisfaction • Total costs of ownership (TCO), market value • Liveability of the neighbourhood
Exterior paintwork	<ul style="list-style-type: none"> • Aesthetical performance • Social safety • Technical performance 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, market value • Liveability of the neighbourhood
Maintenance of balconies	<ul style="list-style-type: none"> • Functionality • Technical performance • Aesthetical performance 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, market value • Liveability of the neighbourhood
Maintenance of hinges and locks of windows and external doors	<ul style="list-style-type: none"> • Functionality • Social safety 	<ul style="list-style-type: none"> • Residential satisfaction • TCO
Maintenance of entrance hall, gallery, corridors and/or stairs	<ul style="list-style-type: none"> • Social safety • Aesthetical performance • Functionality 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, market value • Liveability of the neighbourhood
Maintenance of lifts	<ul style="list-style-type: none"> • Functionality • Technical performance • Safety of use 	<ul style="list-style-type: none"> • Residential satisfaction • TCO
Cleaning of shared areas	<ul style="list-style-type: none"> • Social safety • Aesthetical performance 	<ul style="list-style-type: none"> • Residential satisfaction • TCO

professional capability. Award criteria are related to the offer itself. To what extent will the offer be delivered according to the criteria set? The specification, or execution requirements, states the required level of service delivery in the amount of detail needed to secure service quality. Contract-related incentives imply a bonus system for higher performances than required in selected areas.

Housing associations should apply an appropriate set of criteria and requirements in order to get the service they expect. The appropriate set of criteria and requirements are dependent on the building component or installation in question, and on the strategic objectives.

With regard to the suitability requirements, there is usually no reason to abandon one of the financial economic and ethical criteria and the criteria related to the authorisation to conduct works, as mentioned in the applicable European Directive 2004/18/EG (European Union, 2004: 144-145). The amount of technical competence needed on the part of the maintenance service supplier depends on the specific maintenance service in hand. Naturally, a specific maintenance problem may demand specific expertise. In addition, a maintenance service supplier's technical competence might be proven through quality or approval systems (e.g. 'AF-erkenningsregeling', 'Dakmerk', Concrete Repair Standard, see Straub and Van Mossel, 2007). Quality marks are not available for all requirements, however.

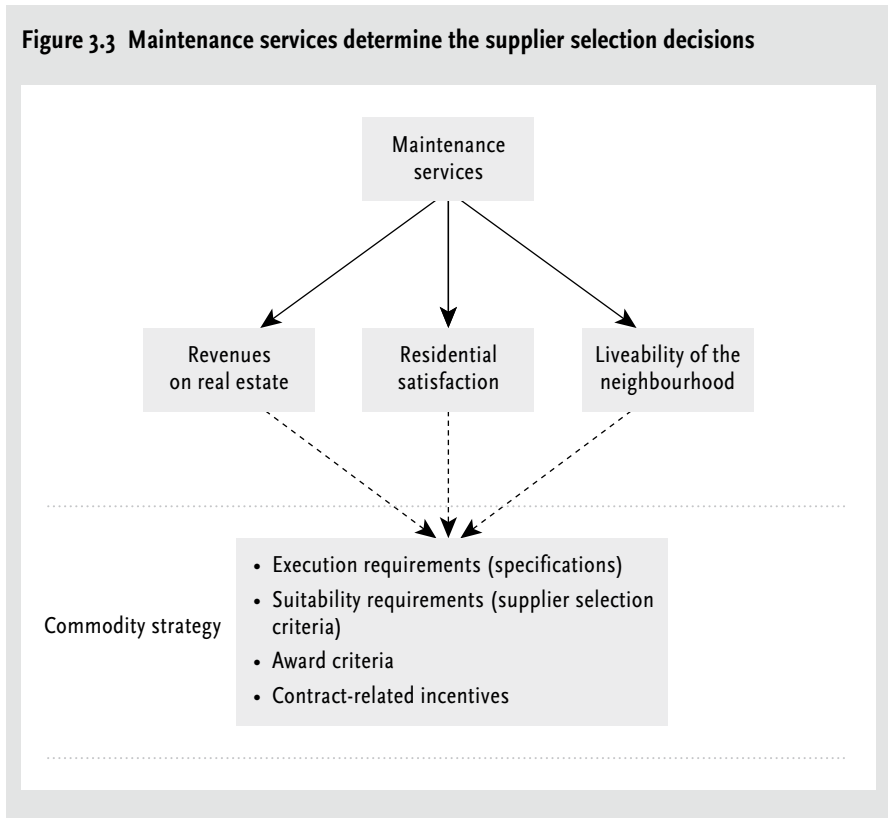
Table 3.2 Continued

Maintenance service	Functions of the results of the services	Goals to which the service contributes
Maintenance of lighting in shared areas	<ul style="list-style-type: none"> • Social safety • Aesthetical performance • Functionality 	<ul style="list-style-type: none"> • Residential satisfaction • TCO
Maintenance of ventilation systems	<ul style="list-style-type: none"> • Healthiness • Functionality 	<ul style="list-style-type: none"> • Residential satisfaction • TCO
Maintenance of heating and water systems	<ul style="list-style-type: none"> • Functionality • Safety of use 	<ul style="list-style-type: none"> • Residential satisfaction • TCO
Maintenance of kitchens	<ul style="list-style-type: none"> • Functionality • Aesthetical performance 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, (market value)
Maintenance of toilets	<ul style="list-style-type: none"> • Functionality • Aesthetical performance 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, (market value)
Maintenance of bathrooms	<ul style="list-style-type: none"> • Functionality • Aesthetical performance 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, (market value)
Maintenance of drains	<ul style="list-style-type: none"> • Healthiness 	<ul style="list-style-type: none"> • Residential satisfaction • TCO
Communal greenery	<ul style="list-style-type: none"> • Aesthetical performance • Social safety 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, (market value) • Liveability of the neighbourhood
Maintenance on paving around the building	<ul style="list-style-type: none"> • Aesthetical performance • Functionality • Social safety • Safety of use 	<ul style="list-style-type: none"> • Residential satisfaction • TCO, (market value) • Liveability of the neighbourhood

For works that include end-customer contacts, it is advisable to ask for proof of expertise. In this case, the most logical proof may be prior, successful experience. In addition, a housing association may ask a potential supplier how it has dealt with customer complaints in the past. For complex works, the potential supplier may be asked to list previous successfully completed complex works.

The application of supplier selection criteria, in combination with award criteria, will lead to a reduction in the number of suppliers that need to be evaluated. Selection criteria are thus often relatively generic in nature. The filtering process will reduce the time and effort required in collecting and analysing supplier data in the award procedure. See Section 3.3 for information about the application of supplier selection and award criteria in practice.

The use of award criteria for potential suppliers, and contract-related incentives for existing contracts, can be combined with use of an incentive structure. The key performance requirements relating to the award criteria may be the same as those used in the performance measurement of existing contracts, so long as this does not lead to an insufficient number of potential suppliers. In this way, positive experiences from the past may be rewarded and lead to an increased chance of doing more business with the housing association. Concurrently, performance requirements (being contract-related in-

Figure 3.3 Maintenance services determine the supplier selection decisions

centives) may be flexible enough to occasionally raise the requirements, and let suppliers submit continuous improvement plans on a regular basis.

Contracts may be awarded to the supplier that:

1. satisfies all requirements;
2. gets the highest ratings for desired but non-essential service attributes.

An attribute's importance to the strategy determines its application and weight. An essential attribute may be made a requirement, whereas an important but not essential attribute might become one of the weighted criteria. An attribute may be related to the result of the service but also to the process of service delivery. Due to the fact that this thesis focuses on how to promote tenant satisfaction using maintenance, the following chapters will focus on the importance of attributes of maintenance service delivery for meeting this objective. In other words, which elements have an on impact tenant satisfaction with regard to maintenance? This information serves as input for later chapters (7, 8 and 9), which look at how to optimise commodity strategies for tenant satisfaction regarding maintenance.

3.8 Discussion

Due to the fact that mechanisms in the housing market do not lead to a generally accepted equilibrium, public tasks cannot be achieved in the absence of

institutional interventions. At the same time, private parties, housing associations, carry out these public tasks.

What can be concluded from this chapter is that the performance of maintenance services appears to be a means of fulfilling essential aspects of these tasks: providing housing services to tenants, contributing to liveability in a neighbourhood and pursuing sound financial policies. In this thesis, we primarily focus on the first aspect, the provision of housing services to tenants.

The influence of maintenance services on the realisation of the above-mentioned tasks is not the same for each service, however, and further research should investigate how all types of services influence customer value, value in terms of the total costs of ownership and the market value of the properties, and liveability. Moreover, the extent to which housing associations' current commodity strategies take the particularities of different maintenance services into account is unknown. Further research should explore these issues in order to support further professionalisation of purchasing within the social housing sector.

As we have seen that the three tasks for housing associations with respect to maintenance services are a more elaborate version of the three main objectives of buildings in general, the conclusions and implications of this research may be applied to comparable situations relating to other social enterprises, such as hospitals, in order to realise optimisation of purchasing.

Commodity strategies should differentiate on the basis of characteristics of building components and the accompanying maintenance services. Commodity strategies should cover different means of enabling high performance service delivery. These can include execution requirements (specifications), suitability requirements (supplier selection criteria), award criteria, and contract-related incentives. The more important the component and the service are for tenant satisfaction, for instance, the more award criteria could take the tenant's opinions and experiences into account. Relevant criteria in this respect are, for example, the completion of maintenance activities in a single visit, accessibility, and sticking to execution planning agreements (Straub *et al.*, 2005). The same applies to the liveability of a neighbourhood and revenues on real estate. Additional research is needed to explore the current use of performance criteria for different types of service suppliers, and to explore the impact of maintenance services on the realisation of public tasks. For example, how important are different maintenance services for customer satisfaction? In the remaining parts of this thesis, steps will be taken to fill these gaps.

In order to be able to treat suppliers as extensions of housing associations when delivering services to residents, the function of purchasing maintenance services needs to be more closely connected to the strategic level of organisations. The function of purchasing is currently underdeveloped. At present, purchasers simply realise what is stated in housing associations'

maintenance strategies – assuming that there is in fact a link between the maintenance strategy and the purchasing strategy. The buying centre for a certain commodity should preferably be organised in alignment with the contribution to the public task of that commodity. For example, from the perspective of increasing customer satisfaction, it is advisable to have marketing professionals in the buying centre for those services that have a high impact on customer satisfaction. As more and more suppliers play a role in the development of maintenance solutions (Straub and Van Mossel, 2005) rather than merely realising specifications, the role of purchasers within housing associations is expected to become more strategic in future. In this way, the effectiveness and efficiency of housing associations' policies will be secured at a higher level.

Award criteria and contract-related incentives, other than those relating to price, are seldom used in practice, which may indicate deficiencies in the use of potential tools for producing effective commodity strategies. The potential of incentives to assist with the improvement of service suppliers' performance appears to be undervalued. In Chapter 9, more attention will be given to ways of rectifying this. Purchasers from Dutch housing associations currently predominantly use selection criteria and specifications. Chapters 7 and 8 will focus on the contents and organisation of maintenance service specifications. First, Chapter 4 will examine the specific position of the tenant as a customer in the Dutch social rented housing sector.

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4 Comparing housing associations with the public and private sector: retail and municipality

4.1 Introduction

Purchasing in the public sector has many similarities with purchasing in the private sector (Telgen *et al.*, 2007). At the same time, many authors acknowledge the differences between these two worlds (e.g. Erridge, 1996; Thai, 2001; Thai *et al.*, 2004). Social enterprises such as housing associations are subject to contextual factors, which in some cases are comparable with those in the private sector, but others, with those in the public sector. This chapter discusses two different sectors: retail, representing the private sector, and municipalities, representing the public sector. They will be compared with the social rented housing sector, and lessons will be drawn for the latter. The sector comparison is structured around the principle of purchasing for others than the purchasing organisation, often the end-customer. This combines the consumer's perspective and organisational purchasing processes and investigates the question, 'What could be learned from retail and municipality?'

This chapter is primarily directed at sector differences related to the position of the customer, and begins with a general overview of institutional differences and differences related to purchasing practice and knowledge. This overview is presented in Table 4.1.

Harland (1996) defines supply chain management as the management of business activities and relationships that are (1) internal to the organisation, (2) with immediate suppliers, (3) with 'first-tier' and 'second-tier' suppliers and customers and so on through the supply chain, and (4) with the entire supply chain. We focus in this chapter on the supply chain as defined under (3): with 'first-tier' and 'second-tier' suppliers and customers and so on through the supply chain. In this case, the end-customer is the focal actor. Figure 4.1 shows the traditional supply chain in accordance with this definition.

The figures are presented with demand from the end-customers at the centre, partly in the interests of clarity and also to preserve the essence of the supply chain.

4.2 Retail

4.2.1 Supply chain

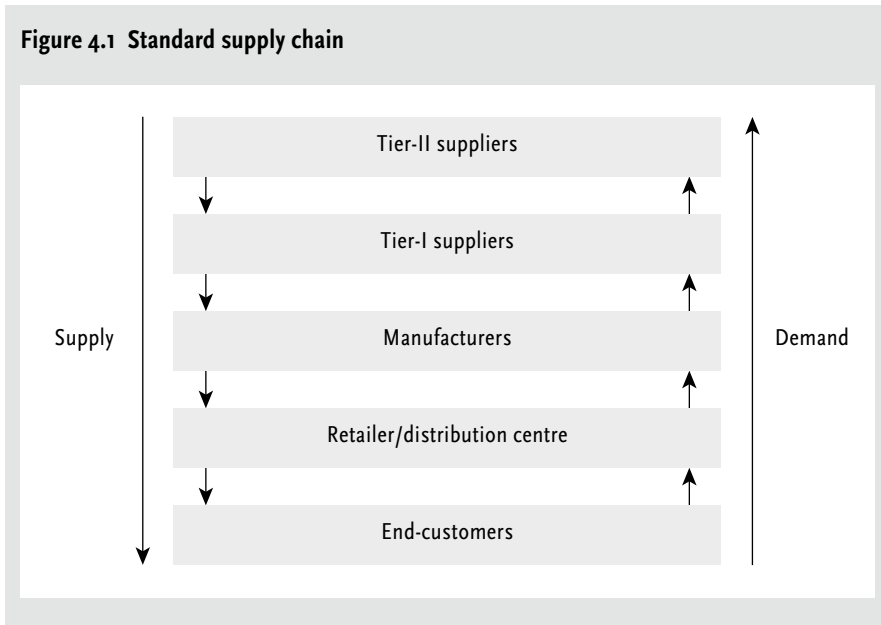
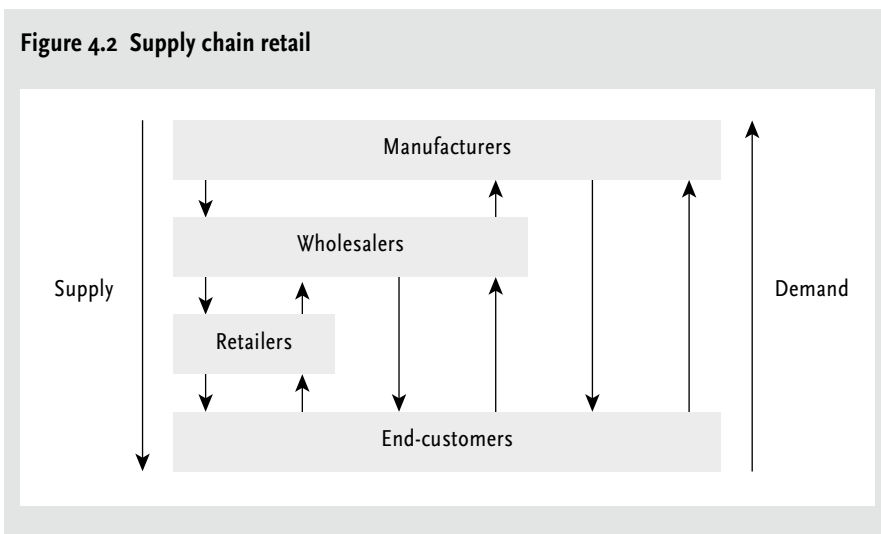
Retail can be defined as the delivery of services and/or goods to consumers for their personal use. The sector consists of multiple branches, such as food, fashion, home furnishings, banking and travel. In the traditional chain pre-

Table 4.1 Sector comparison: institutional and purchasing practice differences

	Retail	Municipalities	Housing associations
Institutional characteristics			
Objective	Private	Public	A mix of public and private
Organisation	Enterprise	Public body	Social enterprise
Ownership	Private	Public	Private
Institutional interventions in market by government	–	Not applicable, municipalities take part of the government	+
Purchasing and delivery			
Scope	(Inter)national	Usually national and local	Usually national and local/regional
Public monitoring and transparency	–	+	o
Application of European procurement directives	–	+	Unclear
Delivery by chain	Delivery by manufacturer, wholesaler and retailer to end client	Delivery by service supplier and municipality to end client	Delivery by service supplier and housing association to end client
Branch blurring	+	--	+
Influence of effective demand by end client on purchasing decisions	+	o	o
Much scientific analysis and knowledge available related to purchasing	+	–	--
-- = Not applicable – = Minimally applicable o = Rather applicable + = Most applicable			

sented in Figure 4.1, retail occupies the position immediately before that of the end client. If we focus in on retail, an outline of the relevant part of the supply chain emerges, as shown in Figure 4.2. Wholesalers (e.g. Makro and Sligro) and manufacturers (e.g. Dell) may also supply directly to the end client.

The added value of retail lies in its knowledge of customers and how to reach them. Indeed, without these aspects, manufacturers could just as easily directly supply end clients with products or services. The retail sector is not normally involved in any kind of transformation in a technical sense. Delivery is commonly accompanied with additional services that are oriented to achieving an optimum fit with the end client's demands. Purchasing is a key function in retail, since the core product, or core service, is usually what that which is produced by the manufacturer. A range of products will often be built up, with a view to guaranteeing optimum availability and freedom of choice for the end client. This implies some risk for the retailer. Often, retailers have to deal with 'basket shoppers': consumers who want to purchase from multiple product categories (as one would in a supermarket).

Figure 4.1 Standard supply chain**Figure 4.2 Supply chain retail**

4.2.2 Customer demands

The customer forms a preference for what he or she wants from the firm. In a retail context, this typically means selecting from a predetermined menu of products or services. Substance is given to the preference by paying the supplier, by which demand becomes effective demand. The more customers demand a certain service or good, the more sense it will make for the supplier to produce it and for the retailer to purchase it.

Alford (2002) identifies several more characteristics of transactions between consumers and private firms. The first is the reciprocal nature of the process by which the customer pays money according to the price of the service and/

or good, in return for the goods or services provided by the firm. Furthermore, both parties receive value. The good or service may be consumed individually, and the firm can appropriate the money. The money is related explicitly to the value of what is bought. Moreover, the customer has two choices to make:

1. the choice of retailer; and
2. the choice of product.

Another characteristic is that the customer has a positive preference for the good or service, in that he or she wants to obtain or consume it. Finally, as long as a firm earns a profit on each transaction, it will seek to maximise sales by increasing the number of customers, and/or by gaining 'repeat business' from the same customers.

4.2.3 How to deal with customer demands?

The objectives of most firms in the sector are concerned with some combination of performance (now and in the future), and expansion (of the market, or within the market). Efficient and effective purchasing is necessary to preserve margins and to appeal to appropriate client groups. Marketing policy leads purchasing. The retailer must take current trends into consideration in order to stay ahead of the competition. 'The industry will experience a shift towards services and solutions, leading companies to rethink product development with an emphasis on these aspects. The outcome of the consumption experience, rather than the features and functions, will become much more important to the shopper' (Global Commerce Initiative, Capgemini, Intel, 2006).

Assortment planning is important for retailers. Many retailers are adopting an 'efficient assortment' strategy, which primarily seeks to find a profit-maximising level of variety by eliminating low-selling products (Kurt Salmon Associates, 1993). However, if a retailer reduces variety in all categories based on single-category analyses, then the store becomes less attractive and some customers are likely to defect to other retailers, reducing store traffic. This concern is particularly relevant with respect to basket shoppers. If a basket shopper does not find an item that she wants in one category, she may purchase her entire basket from another retailer (Bell and Lattin, 1998). Category management has been described as a major innovation in retailing (Hogarth-Scott, 1999) and has been promoted as a mechanism for achieving closer working relations between suppliers and retailers (Hogarth-Scott and Dapiran, 1997). The implication is that buyers are responsible for entire product (or service) categories, allowing them to consider all possibilities within these in order to optimise results across entire categories. This often leads to a reduction in the number of suppliers, and a preference for suppliers that cover at least parts of an entire category. The need to achieve these closer working relations is due to changes in the retail environment, in which power has

shifted from manufacturers to retailers (McGoldrick, 2002; Sparks, 1998; Varley, 2001). Both parties are realising their need to develop mutuality in their relationships (Hogarth-Scott, 1999). Category management relies on collaborative and co-operative supply partnerships (Freedman *et al.*, 1997), achieved by means of cross-functional interactions between suppliers and retailers (Varley, 2001). The traditional transactional approach to buying prevented companies from gaining cost efficiencies in the supply chain. Having recognised this, many have moved towards collaborative supplier partnerships (Varley, 1999).

Finally, the optimisation of services leads to branch blurring, and even sector blurring. Some production has also shifted to the retail trade, allowing the production process to be adapted to the specific needs of the customer. One example is that of paint-mixing machines in Do-It-Yourself stores. This, in turn, has an impact on the structure presented in Figure 4.2: retailers are taking over parts of the production process from manufacturers, creating a form of vertical integration.

4.3 Dutch municipalities

4.3.1 Authorities and organisation

The Netherlands is a decentralised, unitary state. It is ‘decentralised’ in the sense that the national government devolves various duties to the municipalities and provincial government. It is a ‘unitary state’ in that it is centred on the national government, and the powers of provincial government and municipalities are subordinate to those of the national government. Local and regional authorities, including municipalities, are obliged to implement central regulations set by the national government, a process known as ‘joint administration’. Nonetheless, each administrative layer also has its own powers.

In the Netherlands, the meaning, organisation and functions of a municipality can be explained as follows. A municipality is a public body: it is a governmental organisation with a legal personality. Various administrative organs control this public body, including a council, a municipal executive, a mayor and committees. Each of these has its own powers and duties. A municipal council’s principal duties are to establish the outline of policy and supervise its implementation. The vote of every member of the municipal council carries the same weight, and resolutions are passed by majority voting. The municipal council is the forum that has ultimate authority on matters such as road building, car parks, residential zones, pedestrian tunnels and cycle paths. Other matters, such as the broader provision of out-of-school care and the management of cultural centres or sports fields, all fall within the scope of municipal council resolutions.

The municipal executive is responsible for the day-to-day management of

the municipality. The municipal authority reports to the municipal council on the policies pursued, and can be held accountable by the latter. While the municipal council may not overturn a municipal executive resolution that it disagrees with, it may urge the municipal executive to adopt a different resolution. In extreme cases, one or more aldermen may be dismissed (<http://www.overheid.nl>, 14/06/2007). The municipal executive arranges and records in resolutions the internal rules for purchasing and procuring supplies, works and services.

Municipal officials are responsible for preparing and implementing these resolutions. The official organisation is divided into departments or directorates, with lower-level departments responsible for elements of provincial policy, such as the environment, water management, spatial planning, economics, leisure activities, natural assets, traffic and transport. Municipal officials receive their mandate from the municipal executive and the elected municipal council, rather than directly from the public.

4.3.2 Supply chain

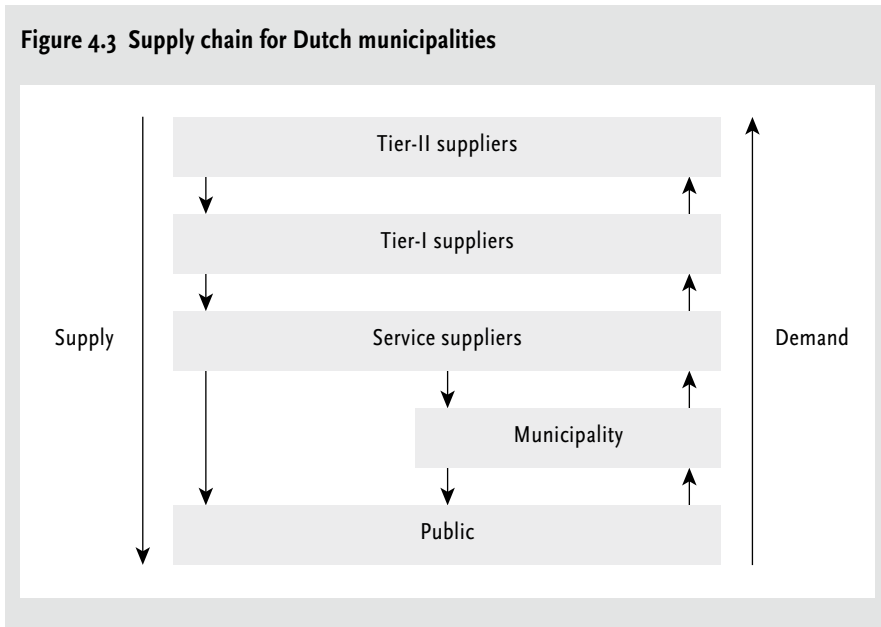
Purchasing is less of a strategic priority for municipalities than for private firms (43% versus 64%; De Boer and Telgen, 1998). Unlike private firms, municipalities are obliged to observe the European Directives on procurement, and this has an impact on the planning and organisation of the purchasing process. Transparency is an important aspect of the process. The great majority of municipalities (95%) have centralised purchasing in some way or another. Of these, however, only 15% have done so by creating a formal purchasing department (De Boer and Telgen, 1998). Property-related purchasing, which forms a substantial part of the total purchasing volume, is usually handled in a separate forum ('Property').

The services rendered to the public are usually purchased by the municipality, but often delivered by an external service supplier (see Figure 4.3). The municipality as an organisation is therefore not always the party that enjoys the services, but has to purchase them all the same. The municipality is responsible for intervening if the service supplier performs poorly. The public (that is, voters) may use an election to exact revenge for any failure to intervene.

4.3.3 The citizen and municipal services

Citizenship implies a certain degree of collective choice. This collective choice is not simply an aggregation of the preferences of individual citizens (Carroll, 1995; Pagnato, 1997). This aggregation would be extremely difficult to achieve, because each citizen has many wishes and aspirations (Alford, 2002). Collective choices are therefore necessarily the outcome of political interaction and

Figure 4.3 Supply chain for Dutch municipalities



deliberation, in which citizens or their representatives (in this case, the municipal council) engage with each other in advocacy, debate, and negotiation (Lynch and Markusen, 1994; Patterson, 1998). In the event of disagreement on choices, the majority will usually decide. Collective choice is therefore an imperfect expression of citizens' individual expectations, because the preferences of those in the minority are usually overruled. Given that citizens have varying wishes, it is unlikely that any individual citizen will be satisfied with every one of a municipality's policies.

Customers in the private sector signal their preference for a product or service by paying for it. Taxpayers, or at any rate citizens, pay for municipalities' services directly or indirectly (through taxes paid to other public authorities: a municipality receives more than 80% of its income from the national government). The municipality receives money from the citizen by means of municipal taxes, including property tax, dog licence fees, standing charges (such as for sewerage, refuse collection and parking), incidental charges (such as for admission to swimming pools and metered parking), and administrative charges (such as for issuing planning permits and renewing passports).

In many cases, the amount charged will have no direct relationship with the value returned to citizens by a municipality. Taxpayers are legally obliged to pay. The government (usually the national government) decides how much should be charged, and this thus forms part of the democratic process. Municipalities, however, often determine what the money should ultimately be spent on, assuming they have the money to spend. Although an individual taxpayer may not wish to spend money on the particular services delivered on behalf of the municipality, the majority of citizens' representatives support the expenditure, or at least go along with it (Alford, 2002). Citizens might also support a given policy, even though they are personally worse off as a result. On the other hand, citizens do not expect any direct 'return' on their taxes. Taxes provide for investments that might pay future dividends, and for

investments that might contribute indirectly to a stable environment. For instance, the municipality is responsible for providing the fire service, but one never knows whether this 'insurance' service will ever be 'enjoyed'.

Since the 1980s, the direct benefit principle has become an increasingly important policy instrument. This principle encourages a satisfactory distribution of goods and services in accordance with the benefit to the people. It is based on the notion that citizens and firms contribute to the costs of services provided by the government according to the direct benefit that they (the citizens) receive from the services. The direct benefit principle can be applied by municipalities in such areas as the hiring of sports facilities to citizens, sewerage charges, the waste collection levy, or applications for planning permits. The direct benefit principle has the following advantages (Verdult, 1996: 71):

1. Optimum allocation. The application of a price mechanism can signal citizens' preferences to the local government that the latter would only otherwise learn about through extremely indirect means (e.g. surveys).
2. It helps to make the citizen more cost conscious.
3. A more direct link between paying and enjoyment gives citizens a direct relationship with the local government, and they may well choose to tackle local government directly on the level of services provided.

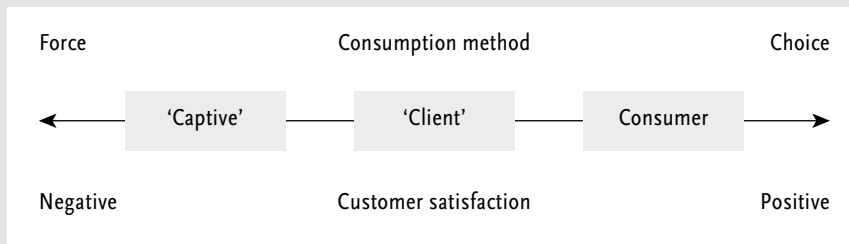
Municipalities are not concerned with maximising demand. Instead, under the direct benefit principle, the actual situation is one of distributing rations; municipalities have limited budgetary resources. A citizen may also be obliged to use a service without having any positive preference for it, as with permits, for example.

It would appear to be cost-effective to treat stakeholders (citizens) in a customer-friendly manner. If stakeholders resist, then enforcing compliance is expensive (Diver, 1980; Bardach and Kagan, 1982; Grabosky, 1995). Furthermore, in some cases the municipal authority demands action on the part of citizens, making them co-producers of services. For example, the government depends on active citizens to report their suspicions of criminal behaviour in their neighbourhoods. It can be helpful, in this and other situations, if citizens are treated in a customer-friendly manner. Despite this, closer inspection reveals that the incentives for municipalities to work in a customer-oriented manner are less direct than for many firms.

4.3.4 Consumption

Service interactions in the private sector occur at the discretion of the customer. For example, an individual may decide independently whether or not to use the services of a particular hairdresser. In this case, the receiver is the consumer. This does not always apply in the public sector. Some service interactions are foisted upon citizens without any choice, for instance when a fine

Figure 4.4 Relationship between the method of consumption related to the position of the customer, and customer satisfaction



Source: Brown, 2007

has to be paid. In these circumstances, service receivers are 'captives', and are forced to undergo a service interaction (Brown, 2007). Some service interactions fall between the extremes of force and free will, such as when service receivers enter into an exclusive and binding relationship with a service supplier and can exert little influence on the price, but have some limited say in the way in which the service is delivered (Hyde, 1991). Rail passengers fall into this category. The same sort of relationship occurs in healthcare institutions, particularly for specialised operations with restricted availability. Brown refers to the service receiver in this case as a 'client'.

The distinction made above affects the way in which service quality is evaluated. Service receivers tend to assess quality depending on their position relative to the service supplier. Free choice predisposes respondents to making more positive evaluations, while the use of force causes a negative bias (e.g. Aizerman and Aleskerov, 1995, see Figure 4.4).

Usually, a person is automatically a resident of a municipality by virtue of where he lives, which makes him a user of certain services. The citizen will therefore be a 'captive' customer for some services. The service interaction that results from providing a site in which neighbourhood youths can gather, but which is situated close to the home of someone who is opposed to the initiative, for example, will be both forced and undesirable. For other municipal services, the citizen may be considered to be a 'client', and the services involved will usually be oriented to the individual. In this sense, citizens are increasingly being given opportunities to express individual preferences regarding services, and there is a gradual movement towards treating citizens as 'consumers'. For some services, citizens can already be described accurately as consumers, as for public swimming baths owned by municipalities and some cultural establishments.

4.3.5 The influence of the citizen

Besides the method of consumption, the position of the customer can be differentiated to the extent that he or she may be able to influence service delivery. A citizen basically has two possible responses when he or she perceives that the quality or benefits of a municipality's services is decreasing: they can 'exit' (withdraw from the relationship, move); or they can 'voice' (attempt to

repair or improve the relationship by communicating the complaint, grievance or proposal for change) (Hirschman, 1970). With regards to the use of voice, a citizen has a number of options.

The customer may be a coproducer, in what is referred to as participation. The most important form of participation involving municipalities is the character of democracy itself. Active and passive franchise allows the citizen to influence municipal policy. Public consultation exercises, as may be set out in participation-related bye-laws (within the framework of the General Administrative Law Act), are another way for individual citizens to influence policy. Citizens can also exercise influence on policy through lobbying or being involved in mediating structures. Finally, there are currently many experiments in the Netherlands on 'interactive policy forming'. When policy is formed interactively, political choices are made in cooperation with stakeholders, meaning that policy is not developed unilaterally. However, the results are not always convincing (Edelenbos and Monnikhof, 2001). As an extension to interactive policy forming, citizens can use civilian initiative to put items on municipal council agendas.

4.4 Housing associations

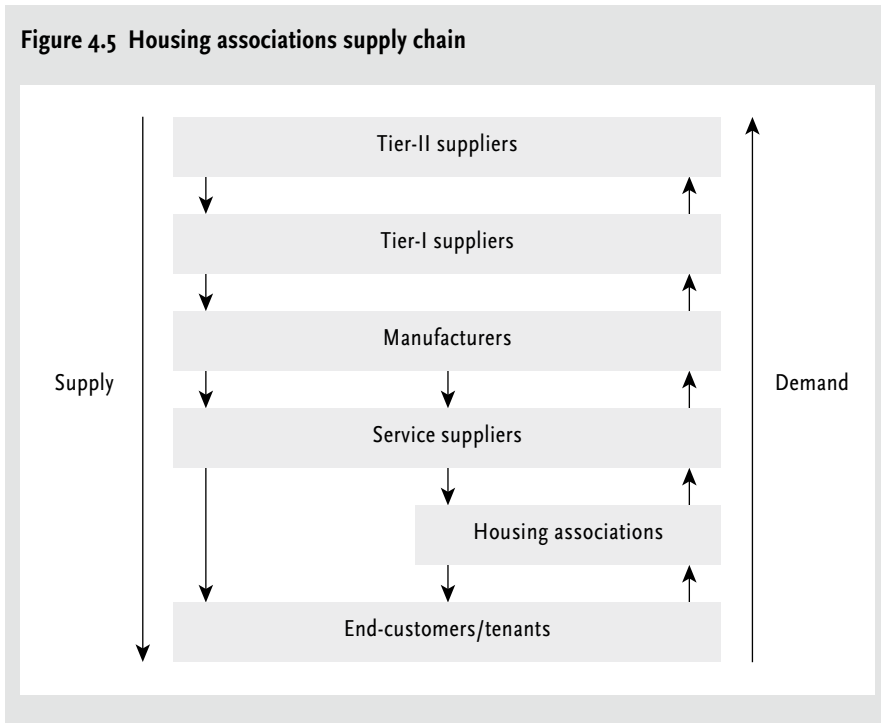
4.4.1 The supply chain

Figure 4.5 shows the housing association supply chain from the point of view of the tenant. The housing association's end client, the tenant, only exercises demand on the housing association. The service may be delivered by the housing association, or by a service supplier, such as a maintenance company. Delivery does not result in possession by the end client, who receives only the enjoyment of use. In other words, rent is paid, and a home is provided as a service in return. Manufacturers sometimes exert substantial market power; they are often far more concentrated than service suppliers (the latter are known for their fragmentation). Painting work offers one example of this. Major paint manufacturers, such as Akzo Nobel and SigmaKalon, have to deal with small painters and external wall maintenance companies. As a result, paint manufacturers regularly bypass painters and offer their products directly to housing associations and even tenants.

4.4.2 The tenant

The rented sector is divided into a regulated part and a liberalised part. The former is subject to rent protection (maximum rent increases). 95% of all rented housing in the Netherlands is subject to regulated rents (Elsinga *et al.*, 2006). The rent for each dwelling can only be reviewed once a year, on 1 Ju-

Figure 4.5 Housing associations supply chain



ly. The landlord submits a timely proposal to the tenant, thereby keeping up with the general directive stipulated by parliament. Any increase in rent is subject to a maximum, as decided by a so-called ‘ministeriële regeling’ (Ministerial Order). According to the current policy of the Dutch Ministry of Housing [Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer] (2007), the maximum rent increase allowed is equal to the rate of inflation.

The rights and duties of tenant and landlord are set out in landlord and tenant law. In the Netherlands, the latter falls under the civil code (BW) (Section 4 of Book 7) for both the social and commercial rented sectors.

The tenancy agreement (Book 7, Section 201 of the BW) is defined as follows: ‘Tenancy is the contract in which one party, the landlord, makes undertakings to the other party, the tenant, to provide a property or part of a property for occupation, and the tenant undertakes to make payment in return.’ The law provides protection for the tenant, without which he or she would be in a vulnerable position. On average, the target groups for the policy spend a large proportion of their income on rent. Furthermore, in most parts of the country the choice of homes is extremely limited. The tenant is therefore heavily dependent on the landlord.

The tenant has to pay rent and must conduct him- or herself in a responsible manner. In return, the tenant enjoys security of tenure, which means that the tenant may assume that he or she can stay in the home as long as they fulfil their obligations, barring exceptional cases. Furthermore, the landlord is obliged to rectify defects at the tenant’s request, unless these are impossible, unreasonably expensive, are the tenant’s own responsibility, or are the tenant’s fault. The landlord’s obligations include periodic maintenance and the prevention of defects. While tenants may make demands of their

housing associations, they are also allowed to conduct maintenance activities themselves. The results of these activities are called 'Zelf Aangebrachte Voorzieningen' (ZAV) [Self-Installed Facilities]. In agreement with the housing association, tenants are allowed to conduct activities inside dwellings as long as the lettability and value of the dwelling are not harmed. The housing association's permission is not needed for adaptations and additions that can be undone without great cost at the end of the tenancy period. The tenant does require permission for major alterations, however, and this will be granted depending on the consequences for lettability, safety, health and value.

4.4.3 The market and consumption

Sub-Section 1.1.3 examined the different 'housing markets' that are relevant for this thesis. Following Priemus (1984), we concluded that the social rented sector is a housing services market, which consists of a mobile part and an immobile part. The level of competition in the mobile housing services market can vary. In case of pressure, supply exceeds demand, and proprietors have to compete for tenants. In case of suction, demand exceeds supply, and candidate tenants have to compete for dwellings (Kornai, 1971). Given the restrictedness of the market to a specific area, and the immobility of residents, Priemus indicates that the mobile housing services market can be best referred to as oligopoly. The delivery of the most important component of the housing service, the dwelling, is subject to the housing allocation system. Housing associations and municipalities agree on rules for how vacant rented homes should be allocated, and these differ from one municipality or region to another. Some municipalities and associations have dozens of detailed rules, whereas others suffice with a few guidelines, and sometimes vacated dwellings are even allocated in a lottery. After registering, house seekers are entitled to apply for available housing, as publicised by the housing association(s). Later, after viewing, they can decide whether to accept the dwelling. Furthermore, 'suitability criteria' are often defined, with requirements relating to the age, income and family structure of house seekers. The system has some known disadvantages. A house-seeker in one village may succeed almost immediately, while enormous waiting lists continue to grow in the neighbouring city. Moving from one town to another is usually disastrous for one's position on a waiting list. We can thus conclude that in the case of suction in the market (which is often the situation in Dutch urban areas), the customer's choice – particularly that of starters – is extremely limited, which is to say that the model is strongly supply-driven.

Like citizens in municipalities, candidate tenants also shift back and forth between being between 'captives', 'clients' and 'consumers', as mentioned above in Section 4.3. Tenants in a tight housing market (suction) are almost forced to opt for any housing association with a vacant dwelling. A tenant

in a relaxed housing market (pressure) has more freedom of choice and is a 'consumer'.

The immobile housing services market concerns the relationship between the tenant and the proprietor (in this thesis, the housing association). This situation implies high exit barriers for tenants, undermining their competitive position. A tenant can be considered to be a 'captive'. To a large extent, tenants are dependent on housing associations with regard to rent increases and the maintenance policy. As soon as a resident becomes a tenant, he or she is generally forced to endure planned maintenance. Sometimes there will be a choice of finish and result, and in these cases the tenant is more of a 'client'. The tenant has more choice when it comes to reactive maintenance. He or she has more influence on the timing of the service, and has some say in whether the service is provided. The same is true of service maintenance, and in some cases, (parts of) void repairs. Because tenants are frequently 'captives', the services that social landlords tend to impose upon tenants will act as 'dissatisfiers': negative experiences weigh more heavily than positive ones. Increasing tenant participation via the provision of options for maintenance may relieve this captive position.

Currently, tenants are being presented with more choice regarding maintenance, besides compulsory matters. Residents' committees are becoming involved with planning and with matters such as, for example, choosing the colours of external walls. Individual tenants can also be approached, and decisions are sometimes taken by a majority vote. Individual tenants are often given options for the maintenance of sanitary facilities and kitchens. For instance, a tenant may be able to choose taps or the tiles, possibly for an additional price.

Institutions have been created, however, to support what is basically the tenuous position of tenants. A special aspect of the position of end clients in the social rented sector is their ability to be involved in the management of and policy on landlords, by means of the Tenant and Landlord Consultation Act and the BBSH. The Tenant and Landlord Consultation Act sets out the rights of tenants' organisations, which represent tenants in consultation with landlords. The Tenant and Landlord Consultation Act (Commissie Zeggenschap en Versterking positie huurders(-organisaties), 2005) covers:

- the areas in which consultation or advice is required;
- the tenants' organisation's right to a qualified opinion on policy changes in these areas;
- a financial contribution from the landlord to the tenants' organisation.

The areas in which, on the tenants' organisation's request, the landlord has to provide information and allow consultation are (Commissie Zeggenschap en Versterking positie huurders(-organisaties), 2005):

- maintenance and management policy for dwellings;

-
- letting and allocation policy;
 - the general conditions of the tenancy agreement;
 - plans for rents in the coming years;
 - the package of services and the service charges;
 - the demolition of dwellings; and
 - the sale and/or encumbrance (with mortgage) of dwellings.

The BBSH specifically addresses the activities of housing associations. Regarding the Tenant and Landlord Consultation Act, the BBSH prescribes a complaints committee and the provision by the landlord of facilities for residents' committees. Additional subjects for consultation and advice are also identified. These are liveability, disposal/encumbrance/demolition, and the housing of specific target groups.

In addition the law, institutional support for tenants is offered by various organisations. The Dutch Union of Tenants (De Nederlandse Woonbond) is an independent national association that stands up for tenants' interests. It successfully supports local residents' committees, lobbies the government in support of tenants' interests, and advises individual tenants. Maintenance is an important issue for De Woonbond. By far most of the advice that they have given to tenants and residents' committees is related to maintenance (Vereniging Nederlandse Woonbond, 2006). An example of an achievement claimed by De Woonbond that is embedded in law is the 'gebrekenregeling' [arrangement of defects], which has been set up in order to stimulate housing associations to perform maintenance (see Sub-Section 1.1.5 for a more comprehensive description of this arrangement).

In Sub-Section 4.4.2, we noted that housing associations' target groups spend on average a large proportion of their income on rent. In addition to the rent, energy bills are becoming increasingly important for tenants. It is, however, the housing association that invests in the quality of the thermal isolation, while the tenant takes advantages of the investments. In other words, the relationship between the costs and benefits of investments is a difficult one for housing associations, utility companies and tenants to manage. Presenting the benefits of thermal isolation to tenants in combination with rent increases would provide an extra incentive for housing associations to invest in thermal isolation and thus improve housing quality. The implication, however, is that a housing association's influence on its tenants' cost of living can extend beyond rent alone.

Table 4.2 Sector comparison: differences related to the position of the customer

Customers	Retail	Municipalities	Housing associations
Freedom of choice of supplier	+	--	-- (maintenance)
Freedom of choice of product	+	-	o (maintenance)
Amount of different categories of products/services is high	Depending on the retailer, but may be +	+ or o	-
Big size of the assortment of products/ services per category	Depending on the retailer, but may be +	-	-
Influence of customers on choice of service attributes	+	-	o (maintenance)
Services/products are delivered by external parties	+ (products) - (services)	o	o
Performance is related to customer satisfaction	+	-	o
Relationship between customer satisfaction and loyalty	+	--	-
Payment is related to the value of the product or service	+	--	o
Large share of income spent	Customers' choice	o	+
Influence of customers on policy	-	+	o

-- = Not applicable - = Minimally applicable o = Rather applicable + = Most applicable

4.5 Comparison of sectors

4.5.1 Introduction

This section compares relevant characteristics of the retail sector, Dutch municipalities and Dutch housing associations. The differences identified in this chapter are shown in Table 4.2. Occasionally, we have added characteristics which were not described in previous sections of this chapter, but which are relevant to the discussion in this section. The rest of the section discusses the differences in detail.

4.5.2 Freedom of choice

Effective demand is brought to bear most directly in the retail sector, where it has the most direct consequences for the chain. There is a high degree of differentiation and of freedom of choice for the end client. Demand in municipalities is expressed in different ways. Some of the demand is expressed collectively in elections, but only when delivery is an issue at election time. The government ultimately decides on the actual purchasing and delivery. Another part of the demand operates through the direct benefit principle: a citizen who demands a certain service pays for and receives that service. The greater the direct benefit from a given government facility, the more the indi-

vidual will pay. Finally, part of the exercise of demand by citizens is taken up by social organisations that represent citizens' interests.

For the housing services market, one can make a distinction between the mobile market and the immobile market. With regards to the mobile housing services market, tenants in a tight market (suction) are almost forced to opt for any housing association with a vacant dwelling. A tenant in a relaxed housing market (pressure) has freedom of choice and is a 'consumer'. Whereas the customer of a retail firm is a consumer and service interactions occur in accordance with customer choice, the same is not always true for municipalities and housing associations. House seekers who fall within housing associations' priority groups have little choice, especially in a tight housing market.

The immobile housing services market concerns the relationship between tenants and housing associations. This situation implies high exit barriers for tenants, as moving is expensive. This implies that the tenant's position can be considered a 'captive' one. Planned maintenance, unlike reactive maintenance, is tied to the dwelling, not to the customer. After a tenant has taken occupation of the home, he or she can become familiar with the planned maintenance schedule. If appropriate, the customer can immediately enjoy void repairs. As soon as residents become tenants of a social landlord, they generally have little choice regarding planned maintenance. Reactive maintenance and service maintenance may occur at the tenant's request, but compulsory sourcing applies and there is limited choice regarding planning, the manner of execution, and the result.

This situation begs for tenant participation via the provision of choice relating to maintenance inside the dwelling. The housing association or the maintenance service supplier may present tenants with certain options in combination with the implications for the price. In other words, tenants could be offered certain product or delivery process upgrades in exchange for a fee.

4.5.3 Assortments

Depending on the retailer, customers are offered a certain scope of different categories of products or services. A supermarket is one example of a retailer that offers a range of product categories (such as bakery products or snacks), relating both to food and non-food products. In addition, the retailer can determine the degree of choice relating to products or services within each category. Service retailers often allow customers to influence service attributes. One example is the hairdresser who adapts his service delivery to customers' wishes, resulting in a satisfactory hairstyle and a nice chat while the service is delivered.

Residents enjoy a relatively wide range of different 'categories' of services from their municipalities. The latter offer services such as swimming facilities

and building permits, which are apparently unrelated to each other. However, the assortment per category is very limited. Usually, there is only one swimming pool in a certain district. In addition, the influence of customers on the choice of service attributes (characteristics) is limited. The smaller and poorer the municipality is, the fewer facilities it may offer to its tenants. In addition, the supply from neighbouring municipalities may influence the offer.

The services offered by Dutch housing associations are usually restricted to the housing category, which includes energy and water. There is some assortment of services within that category, such as maintenance of heating and water systems and exterior paintwork, but tenants can seldom choose between services. For reactive maintenance inside the dwelling, they may choose not to take the service. Moreover, tenants may have (little) choice relating to service attributes.

For planned maintenance (outside the dwelling), tenants can be asked about their preferences relating to both product and process characteristics. These preferences then form important input for purchasing decisions. For tenant satisfaction, receiving subsequent feedback on their input is essential.

4.5.4 Service and product delivery

With services retail, it is usually the retailer that delivers the service to his or her customers. In most cases, the delivery of services is the retailer's core business. For product retailers, meanwhile, products are often delivered by external suppliers. Both housing associations (for maintenance) and municipalities often make use of external service suppliers.

4.5.5 Value for money

The relationship between performance and satisfaction in a retail context is usually tight. In addition, satisfied customers tend to be loyal and frequently lead to repeat business.

For a municipality, performance means more than customer satisfaction alone (see e.g. Kelly, 2005). Public accountability, for instance, might be at least as important a goal. Customer satisfaction, in addition, is virtually separate from loyalty in this case. The decision to move to another city is usually not inspired by dissatisfaction with a municipality's service delivery.

For housing associations, performance of maintenance service delivery can be related to cost/value considerations, and objectives such as liveability of neighbourhood, tenant satisfaction and even sustainability (see Chapter 2). Therefore, there is certainly some relationship between performance and customer satisfaction, but this is not as tight as that for retail. Customer satisfaction is related to loyalty to a certain extent. The decision to move to another housing association is usually not inspired by dissatisfaction with mainte-

nance service delivery, but may be related to the characteristics of the dwelling and neighbourhood. Often, changing circumstances in the life course of tenants, such as getting a new job, lead to dissatisfaction with the tenant's current circumstances and thus with the housing service (see e.g. Van der Vlist *et al.*, 2002).

As choices relating to a municipality are generally collective, the same is also largely true for social landlords. Sometimes tenants are involved in choices. Purchasing decisions cannot be derived directly from effective demand, so the association must make decisions on the basis of its own judgment. However, the service received by a tenant in return for paying rent is less differentiated than those provided by a municipality. Whereas the service supplied by a municipality in return for taxes varies widely, the service provided by a housing association in return for rent is always connected either with housing or, in a broader sense, with the liveability of the surroundings (social property).

4.5.6 Share of income spent

The share of income that tenants spend on housing is high. Given the fact that they also have a 'captive' position, tenants may be considered to be vulnerable. This is less the case for municipalities (although the share of the residents' income spent on government services is extremely high). The share of income spent on some forms of retail may be high (e.g. in the case of supermarkets), whereas for others, such as hairdressers, the proportion of income spent is usually restricted.

The tenant's position in the social rented sector is not the same as that of the client in the retail sector, or the citizen. Compared with the client in the retail sector, the tenant is in a vulnerable position. The groups targeted by social policy mostly spend a high proportion of their income on rent. Furthermore, the choice of homes may be extremely limited. The tenant is therefore heavily dependent on the landlord. Tenants received some protection in law and assistance from institutions such as De Nederlandse Woonbond, which appears to have a stronger position on housing than that of the more general, non-specialised Dutch Consumers Association, the 'Consumentenbond'.

4.5.7 Influence on management and policy

The distance between decision-makers and end-customers appears to be greater for municipalities and housing associations than it is for the retail sector. This is related to a lack of competition for the client, although governance structures partly compensate for this (the direct benefit principle and democracy provide something of an incentive). In addition, both housing associations and municipalities have to make collective choices for customers;

the choices that they make cannot always be attributed to individuals. These differences imply that municipalities and housing associations have a less pressing need than the retail sector for a purchasing function that sees some responsibility for the purchasing of front office services to be coupled directly to the end-client's preferences.

Unlike clients in the retail sector, tenants have an opportunity to become involved in the management and policy of landlords. The involvement of tenants in this process is set down in the Tenant and Landlord Consultation Act and the BBSH.

4.5.8 What could be learned from retail and municipalities?

From retail, aspects of the principle of category management could function as an inspiration for housing associations. By improving the performance of an entire category rather than of separate products, improved performance might be delivered overall. Comparably, maintenance performance as a whole could be improved by integrating decision-making for reactive maintenance, planned maintenance and void repairs. Currently, separate departments of housing associations are often responsible for these three maintenance types, despite the links between the three, which may well hamper the achievement of optimal outcomes. For instance, structural maintenance could be aligned with installation maintenance in order to improve energy quality and to decrease energy bills. Integration could, in addition, be achieved for maintenance and (small) improvements. For instance, maintenance workers that visit tenants for reactive maintenance could also install new police-approved locks, if so desired by tenants.

Unlike municipalities, the situation of retailers is one of competing for customer favour. Public accountability and transparency function as incentives for rational decision-making by municipalities and effective spending. With regard to the immobile housing services market, competition is very restricted. In order to stimulate effectiveness in spending, there seems some need for public monitoring and transparency, at any rate regarding investment in public services. Unlike the activities performed in a competitive setting, there is limited incentive for efficient investment. Nonetheless, public, and in particular European, procurement rules are not being applied, and actual transparency is thus limited. Given this, it would be advisable to apply transparent procedures enabling fair competition among candidate suppliers.

For collective choices, when the direct benefit principle cannot be applied, residents have access to democratic tools in order to influence their municipality's decisions. For housing associations, planned maintenance can be perceived as a form of collective choice. Tenants can thus use tenants' organisations to empower themselves. However, it appears that currently, the fact

that decisions are taken at a business (instead of local) level, affecting many aspects including the price and quality of services, is seldom contested. Giving stakeholders (e.g. tenants) a strong position vis-à-vis the internal decision-making structure of housing associations (e.g. supervisory bodies) could improve debate, allowing accountability to follow transparency. This could include paying attention to the representativeness of tenants' organisations. Increased accountability for tenants' interests would probably lead to an increased focus on the customer. It would be logical, for instance, for the purchasing department to become accountable for its performance from the tenant's perspective. Inadequate service delivery would have consequences for the housing association's decision-makers.

At the level of the housing block, for collective maintenance choices, i.e. planned maintenance, tenants' opinions could be collected and used for maintenance priority setting. For reactive maintenance, the individual tenant might be offered certain product or delivery process upgrades in exchange for a fee. In any case, it is important to keep tenants well-informed about expected maintenance works.

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5 Impact of maintenance services on tenant satisfaction in social housing

5.1 Introduction

5.1.1 Housing services

This research focuses on maintenance services purchased by housing associations and delivered to tenants. The implication is that these customers cannot make such purchasing decisions themselves¹.

The maintenance service is procured by the housing association and delivered to the housing association's customers, i.e. the tenants, as a constituent part of the entire housing service (Van Mossel and Van der Valk, 2006). The delivery of high-quality maintenance stimulates tenant (residential) satisfaction, which, in turn, means fulfilling important aspects of housing associations' social objectives and concurrently improving the housing stock's market position (Gruis *et al.*, 2005). In order to optimise tenant satisfaction, the quality of essential maintenance services should be secured. Knowing which services are essential to tenants allows housing associations set priorities relating to maintenance policy and purchasing. This chapter will investigate the question of which commodity should receive housing associations' primary attention in order to stimulate tenant satisfaction with regard to maintenance.

The periodically carried out 'WBO'² research (2002) has investigated the main factors that influence residential satisfaction. This study measured residents' perceptions of the importance of 26 characteristics of dwellings and living environments, such as the size and atmosphere of the dwelling, contact with neighbours, and the maintenance condition of the dwelling. In what follows, we only present the results relating to the tenants of housing associations. The levels of importance were measured on a four-point scale, ranging from (1) 'very important' to (4) 'very unimportant'. The perceived importance of a dwelling's maintenance condition received a rating of 1.69, one of the most important aspects for tenants. Compared with other aspects related to the dwelling itself (and not the living environment), it is even considered to

¹ The only services directly purchased (or conducted) by tenants are those conducted through the tenants' self-activation policy in maintenance, called Do-It-Yourself-Work ('ZAV').

² The 'WBO' (Housing demand survey, 2002) is a large-scale Dutch questionnaire on housing, conducted in order to get insights into developments in the housing market. To meet this aim, the composition of families, housing situations, housing preferences, and the moving behaviour of the Dutch residents are investigated (<http://www.scp.nl>, 03-05-06). WBO 2002 is a representative sample of about 120,000 Dutch residents administered by Statistics Netherlands (Kauko, 2005). Recently, the WBO survey has been succeeded by the WOON survey. This survey replaces both the WBO survey and the Qualitative Housing Survey (KWR).

be the most important.

In order to set spending priorities for maintenance, it is essential to know what one's customers' preferences are. From the start, attempts to increase end-customer satisfaction should be aimed at those services that are important to end-customers. For individual housing associations, efforts should be further prioritised if the resulting service delivery is found to be inadequate, and additional efforts may be needed to monitor service quality.

5.1.2 Satisfaction with maintenance

The current research focuses on tenants' perceptions with regard to the importance of and satisfaction with maintenance services. These topics were investigated by means of a large-scale survey held among more than 6,000 tenants of Dutch housing associations.

As far as we are aware, end-customers' preferences for maintenance services have seldom previously been explored. This chapter aims to fill this knowledge gap. Nevertheless, substantial prior research into customers' preferences with regard to housing in general has been conducted. Residential satisfaction has long been a major research topic in disciplines such as sociology, psychology, planning, and geography (e.g. Bailly and Peart, 1992; Bruin and Cook, 1997; Canter and Rees, 1982; Cutter, 1982; Diaz-Serrano, 2006; Galster and Hesser, 1981; Grzeskowiak et al., 2006; Lévy-Leboyer and Ratiu, 1993; Lu, 1999; Marans and Rodgers, 1975; Weidemann and Anderson, 1985). The main focus of residential satisfaction research, however, is related to residents' residential mobility following dissatisfaction with their living situations (Fang, 2006). Residential satisfaction is often seen as an intervening variable to help understand residential mobility (e.g. Marans, 1976; Rossi, 1980; Speare, 1974).

In this chapter, we examine the perceived importance of and satisfaction with maintenance services. This leads us to the following research question: *Which maintenance services are of primary importance for tenant satisfaction with maintenance?*

5.2 Literature review and expectations

In this section, we will outline some expectations concerning the importance of maintenance services. For this reason, we focus on the 'generic service' (Levitt, 1980) i.e. the 'problem-solving benefits' of the service (Kotler and Armstrong, 2004), assuming that these the most important part of the service. Chapter 6 will draw attention to the relative importance of different service aspects.

Maintenance can be perceived as a form of problem-solving for those needs that are covered by building components and installations in dwellings.

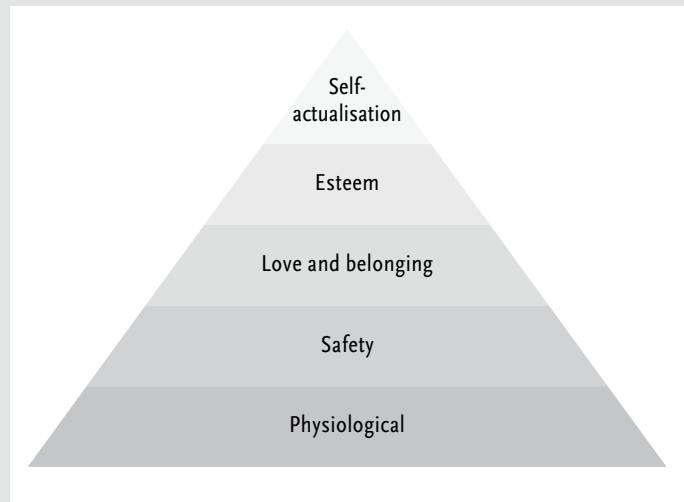
With regard to needs related to housing, Lévy-Leboyer and Ratiu (1993) make a distinction between what one might call minimum conditions of physical comfort (shelter, heating, light) and conditions of 'socially defined comfort'. Phillips (1967) and Peach (1982) have explored different categories of physiological wellbeing and comfort. Heijs and Stringer (1987) categorise the corresponding sub-properties of the dwelling as thermal, visual, auditory, olfactory (smell), tactile and kinaesthetic comfort. Heijs and Stringer subsequently add two categories, one that incorporates general necessary conditions for physical health and safety, and another relating to all kinds of conditions for satisfying occupants' (other) biological needs, such as eating, drinking, sleeping, and personal hygiene.

De Jonge (1960, 1961) suggests that, besides physiological needs, the dwelling must also satisfy psychological needs (for example, privacy), cultural needs (such as being able to carry out particular activities in particular spaces), and fashion-dictated needs (for example, the style of decor). There is a decreasing amount of durability of these needs (Priemus, 1984), which may point at some prioritising.

Maslow's hierarchy of needs

When it comes to the prioritisation of general needs, the best-known author is Maslow (e.g. 1943; 1970). Many theorists and practitioners adhere to Maslow's hierarchy, but there are also those who challenge his approach (Bellott and Tutor, 1990; Frame, 1996; Maddi, 1977; Sackett, 1998). Some have questioned the practicality and reality of the hierarchy, the process by which people proceed through it, and its relevance and applicability to modern society. However, while not particularly new, his hierarchy of needs is still widely applied in many different disciplines and has been tested by others than Maslow. For instance, Franke (1983a: 16) stated that it 'yielded the hypothesis that a high degree of dissatisfaction of lower-level needs results in behavior conducive to economic growth,' and found strong and significant relationships between the basic needs of managers and the economic growth rates of 11 developed nations.

In Maslow's hierarchy of needs (Maslow, 1943), there are at least five sets of goals that may be termed basic needs (Figure 5.1): physiological, safety, love and belonging, esteem, and self-actualisation. Maslow believed that human beings aspire to becoming self-actualizing (Stephens, 2000). The needs that are usually taken as the starting point for motivation theory are the so-called physiological drives. A person who is lacking food, safety, love, and esteem would most probably crave food more strongly than for anything else. If the physiological needs are relatively well satisfied, a new set of needs will then emerge, which may be categorised roughly as the 'safety needs'. If both the physiological and safety needs are fairly well satisfied, the needs for love, affection and belonging subsequently arise. An individual's need for belong-

Figure 5.1 Maslow's hierarchy of needs

Source: Maslow, 1943

ing or love covers a wide variety of needs, from a sense of affiliation (group membership, clubs, churches, work affiliations, etc.) to friendship and love of spouses, children, and parents (Seeley, 1988). All people have a need or desire for a stable, firmly grounded, high evaluation of themselves, for self-respect or self-esteem, and for the respect of others. The esteem needs represent an individual's desire for a feeling of self-confidence and adequacy. This may reflect internal feelings of strength, achievement, independence, or external desires for reputation, prestige, recognition, attention, etc. (Seeley, 1988). Finally, self-actualisation indicates the desire to realise one's full potential (Seeley, 1988) (see Figure 5.1).

Application to maintenance

Maintenance influences the characteristics of dwellings and, as a result, the way in which dwellings fulfil certain needs. The most 'basic' needs are physiological. Kitchens, bathrooms, toilets and drains play some role with regard to these. They enable residents to eat and to excrete. However, maintenance of these building components is not always directly related to physiological needs. In particular, maintenance of kitchens, toilets and bathrooms is often primarily directed towards visual aspects and luxury: tiles, painting, cupboards etc. In this case, maintenance has more to do with fashion-dictated needs, and therefore, with esteem. This aspect is positioned much higher in the hierarchy of needs than that of physiological needs. Services related to physiological needs that are functional (as opposed to visual) include maintenance of heating and water systems, and maintenance of drains. Therefore one would expect these two maintenance services to be essential for tenants. Roofing is another function that is related to people's physiological needs. It seldom occurs that a roof loses its entire function, however. Small leaks are more common, but their impact is limited. Maintenance of lifts may also impact the function-

ing of a dwelling with regard to physiological needs, but this may only affect a restricted group of tenants. For tenants who are physically dependent on lifts, having functioning lifts is essential for being able to care for themselves and obtain essentials, such as food. For tenants who are not dependent on lifts, the functioning of lifts, and therefore lift maintenance 'only' has to do with comfort, although this is partly dependent on which floor the dwelling is situated.

After physiological needs, safety needs are essential for human beings. Well-functioning hinges and locks of windows and external doors provide the best protection against external violence. One would thus expect maintenance of hinges and locks of windows and external doors to be very important for tenant satisfaction with maintenance. More indirectly, a well-maintained environment directly surrounding the dwelling may add to security, of to the perception of security. There are many maintenance services that can influence the liveability of the neighbourhood. In multi-family dwellings, maintenance of shared areas is important for liveability. This includes maintenance of entrance halls, galleries, corridors, stairs, lighting in shared areas, and cleaning of shared areas. In addition, exterior paintwork, maintenance of communal greenery and maintenance of paving around a building may affect tenants' feelings of security, albeit to a limited degree. In a more general sense, almost all types of maintenance imply some impact on safety. When, for instance, maintenance of balconies is neglected for years, safety levels may be reduced. In particular, inadequate maintenance of heating and water systems may carry significant risks for inhabitants.

The third level in the pyramid, 'love and belonging', is not directly influenced by maintenance. Esteem, on the other hand, can be influenced by the visual, aesthetic impact of maintenance. One would expect this to be particularly applicable to individual dwellings, rather than shared areas. Exterior paintwork is a service that might also influence esteem, as might the maintenance of kitchens, toilets and bathrooms, communal greenery and the maintenance of paving around a building. The effect, however, will be limited and not easily measureable.

An overview of the functions of the services is offered in Table 3.2, Chapter 3. By means of the large-scale survey presented in this chapter, the actual perceived importance of maintenance services has been measured. In the next section, we will explain the different measures of attribute importance used to gauge the perceived importance of maintenance services.

5.3 Measures of attribute importance and impact on tenant satisfaction

This research measured the perceived importance of maintenance services in two ways:

- by asking respondents to indicate the importance of maintenance services directly;
- by estimating the importance of maintenance services in a regression analysis, with satisfaction with maintenance in general as the dependent variable, and satisfaction scores for the distinct maintenance services as predictors.

The direct importance measurement (the first concept above) covers two different measures: a rating and a top-three ranking. Why conduct two types of measurement for the same concept, and why use two concepts? According to Heeler *et al.* (1979), convergent validation is an attempt to obtain similar results using different measures of the same concept. When applied to measures arising from different conceptual bases, proof of convergence is an especially strong validation for the measures. Absence of convergence can also enhance our understanding of both the concepts and the measures.

Some researchers identify the disadvantages of direct importance measurements (Oliver, 1997). According to Matzler and Sauerwein (2002), it is questionable whether respondents assess 'importance' as 'desirable' or as 'essential', and this may have consequences for the rating that is given and for the conclusions that may be drawn. Some factors need a certain minimum quality level, and if absent, the entire service may be rated very low (basic factors). Other factors only become important for customers when their quality level is high (performance factors). If factors are interpreted as being 'desirable' for respondents, then basic factors become insignificant, while performance factors become decisive. In order to meet this objection, in addition to direct measures of attribute importance, we have asked respondents to list their top three most important attributes. We assume that the top three ratings will visualise 'essential' maintenance services from the customer's perspective.

One problem with explicitly derived importance weights is that they may result from socially acceptable or 'politically correct' answers (Oliver, 1997: 59), or from strategic considerations (Matzler and Sauerwein, 2002). Maintenance of communal facilities, for instance, may be given a high importance rating, but in many cases it would not play a major role if tenants were allowed to choose what their money were to be spend on. For instance, maintenance of balconies might be rated as extremely important and as contributing to low tenant satisfaction if tenants expected extra maintenance efforts to be conducted as a result of the survey.

In order to check the sensitivity of the measurement of the stated importance of attributes, three different measurements were conducted. In Section 5.5, the differences in results for the three measurements will be indicated and discussed.

5.4 Methods

5.4.1 The questionnaire and response

A questionnaire was used to measure tenants' perceptions of the importance of maintenance services, and tenants' satisfaction with various maintenance services. This questionnaire was sent to tenants in the Netherlands who live in social rented housing. Other clients of housing associations, such as home owners who enjoy the technical services of housing associations, were not included in the sample. The sample consisted of respondents who are customers (i.e. tenants) of four main Dutch housing associations located in central and western areas of the Netherlands, namely: Vivare, Portaal, Vestia, and Staedion. The questionnaires were distributed in February 2006. This distribution was preceded in December 2005 by a pilot study. Table 5.1 sets out the key characteristics of the four housing associations.

Approximately 28,000 questionnaires were sent to potential respondents, and more than 6,000 respondents participated by returning the questionnaire. This amounts to a response rate of 22%. Reminders were not sent, since the response rate was higher than we had expected (20% response). Respondents could either fill in the questionnaire on paper or online. 5.6% responded online and 94.4% responded in writing, and the results of both groups are highly comparable. As far as the characteristics of respondents are concerned, we can conclude that the online respondents were, on average, almost ten years younger than respondents who filled in the paper version of the questionnaire, and fewer of them were retired. Moreover, in the case of online respondents, 64% were male (compared with 47% male overall), and they tended to be more highly educated.

The attributes – the maintenance services – were determined by examining the literature (see e.g. Straub, 2001; Thomas *et al.*, 2005), and by asking experts as well as tenants for their opinions. Only attributes that might have some impact on residential satisfaction were included. For example, construction work without any aesthetic, functional or other impact that might directly influence tenant satisfaction was not included (see Table 5.2 for a description of the specific maintenance services).

The levels of importance of and satisfaction with each of these attributes were then evaluated using the large-scale survey described above. Respondents' perceptions of the importance of the various maintenance services were measured on a seven-point scale, ranging from (1) 'extremely unimportant', through (4) 'neither important nor unimportant', to (7) 'extremely important'. The levels of satisfaction were also measured on a seven-point scale, ranging from (1) 'extremely dissatisfied', through (4) 'neither satisfied nor dissatisfied', to (7) 'extremely satisfied'.

We also explored how respondents evaluated the current maintenance of

Table 5.1 Key figures of the housing associations included in the research (consolidated figures)

	Staedion	Portaal	Vivare	Vestia
Housing units	32,472	53,969	23,539	71,618
Balance sheet value	€ 1,379,802,000	€ 1,893,785,000	€ 730,404,000	€ 3,231,000,000
Employment	388	534	298	915
Local departments	5	5	5	13
Core region of activity	The Hague	Amersfoort/Utrecht, Arnhem/Nijmegen, Leiden	Arnhem area	Southern Randstad

Sources: Annual reports Staedion (2007), Portaal (2007), Vivare (2007), Vestia (2007); data December 31st, 2006

their dwelling by asking: ‘How do you experience the current maintenance of your dwelling?’ Seven categories of answers were provided, ranging from (1) ‘extremely negative’, through (4) ‘neither negative nor positive’, to (7) ‘extremely positive’.

A pre-test was conducted in two phases. First, the survey instrument was pre-tested by ten purchasing and technical management professionals to ensure content validity. These practicing managers read, checked and made recommendations for changes to the survey in a group meeting and a small number of separate meetings. According to the recommendations, some questions were rephrased to improve validity and clarity. Second, the questionnaire was sent to 613 potential respondents, all customers of the Staedion housing association who lived in the ‘Lamel’ housing block in The Hague. A total of 116 questionnaires were returned. When these were evaluated, special attention was paid to the difficulties experienced by respondents when filling in the questionnaire (see Appendix 2 for the questionnaire).

5.4.2 Regression analyses

Regression analyses must be conducted under certain conditions. First of all, the predictors must be linearly independent, i.e. one must not be able to express any predictor as a linear combination of the others. This condition tells us that the correlations between the independent variables should not be too high. While it continues to be a point of debate for statisticians, a commonly accepted (although somewhat strict) rating is 0.65. In this research, we assume that a score higher than 0.65 may suggest multicollinearity problems. The individual effects of variables that are connected too closely to one another cannot be distinguished any more.

For single-family dwellings, only maintenance of toilets and maintenance of kitchens correlate with a rating higher than 0.65, namely 0.671. For multi-family dwellings, two pairs of attributes correlate with a rating higher than 0.65. Again, maintenance of toilets and maintenance of kitchens, rate 0.671. In addition, cleaning of shared areas and maintenance of porches, galleries, corridors and communal staircases correlate with 0.833. Therefore, maintenance of toilets has been left out of the regression analyses for both single and multi-family dwellings. Cleaning of shared areas has been dropped from

Table 5.2 Maintenance services

Maintenance of building components	Maintenance of installations	Maintenance of surrounding grounds
<ul style="list-style-type: none"> • Exterior paintwork • Entrance hall, gallery, corridors and/or stairs • Hinges and locks of windows and external doors • Kitchens • Drains • Toilets • Cleaning of shared areas • Balconies • Bathrooms • Roofs and gutters 	<ul style="list-style-type: none"> • Heating and water systems • Lifts • Ventilation systems • Lighting in shared areas 	<ul style="list-style-type: none"> • Paving around the building • Communal greenery

the regression analysis concerning multi-family dwellings.

Another requirement for conducting regression analyses concerns the normal distribution of variables. This is not the case for the collected data. In accordance with the Central Limit Theorem, however, the sample used for this research is large enough to assume that the sample mean scores resemble the mean scores for the population as a whole.

Given the exploratory character of this research, the enter-method for conducting regression analyses was used.

5.4.3 Missing data

The need for maintenance services depends, in the first place, on the type of dwelling. The housing stock can be most obviously broken down into single- and multi-family dwellings. Some maintenance services, such as lift maintenance, can only be delivered to tenants of multi-family dwellings. For this reason, the analyses were conducted separately for single- and multi-family dwellings. However, not all multi-family buildings have features such as lifts and balconies, meaning that missing values appear for such services – something that is termed Not Missing At Random (NMAR). NMAR refers to missing observations related to the outcome of interest. The regression analyses have only been conducted for cases that include all answers on the related (satisfaction) questions. Therefore in the regression analyses, in particular for multi-family dwellings, N is limited compared with the overall response.

5.5 Results

5.5.1 The respondents

Appendix 1 shows the respondents' socio-demographic and household characteristics, as well as the general characteristics of their dwellings. When compared with the average figures for the entire population of social rented housing in the Netherlands (WBO 2002), a number of differences can be

Table 5.3 Means and standard deviations of the perceived importance ratings and satisfaction scores of respondents, single-family dwellings

Maintenance service (n = 3783)	Importance ratings			Satisfaction scores		
	Mean	Std	n	Mean	Std	n
Heating and water systems	6.39	0.9	2991	4.81	1.8	2689
Drains	6.27	1.0	2711	4.65	1.7	1972
Hinges and locks of windows and external doors	6.22	1.0	2946	4.74	1.8	2406
Toilets	6.17	1.0	2635	4.49	1.9	2033
Ventilation systems	6.11	1.1	2591	4.23	1.9	1969
Kitchens	6.08	1.1	2622	4.49	1.9	2030
Bathrooms	6.06	1.1	2639	4.07	2.0	2088
Roofs and gutters	6.02	1.1	2961	4.59	1.8	2512
Exterior paintwork	6.01	1.1	2905	4.30	2.0	2687
Paving around the building	5.82	1.2	2778	3.98	1.9	2270

Note: higher scores relate to higher importance and more satisfaction with the particular maintenance service (range 1 to 7).

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

identified. These had a very limited influence on the results, however, as was made clear by the sensitivity analyses. The following differences were identified. Singles are somewhat underrepresented in the current study (38.4% vs. 49.1%). In contrast, couples without children living at home are slightly overrepresented (30.4% vs. 23.1%). Furthermore, middle-aged people are overrepresented (45 to 64 years old: 42.2% vs. 29.8%), whereas young people are underrepresented (18 to 34 years old: 11% vs. 24.6%). In our sample, tenants of single-family dwellings are overrepresented (59.5% vs. 47.1%). This is particularly the case for tenants living in early post-war houses constructed between 1945 and 1959 (12.1% vs. 8.7%), and to a lesser extent pre-war houses constructed prior to 1940 (8.2% vs. 5.1%). Early post-war multi-family dwellings are underrepresented (1.8% vs. 7.5%), as are multi-family dwellings from the 1990s (4.2% vs. 7.4%).

5.5.2 Mean importance ratings and satisfaction scores

Tables 5.3 and 5.4, respectively, show the means and standard deviations of the importance ratings and the satisfaction scores for single-family dwellings and multi-family dwellings. In general, the results with regard to the stated importance ratings are very similar for single-family and for multi-family dwellings. Heating and water systems appear to be the most important maintenance service for tenants of both types of dwelling. Other very important maintenance services are maintenance of drains, maintenance of lifts (only for multi-family dwellings) and maintenance of hinges and locks of windows and external doors.

With regard to the satisfaction scores, tenants of multi-family dwellings generally seem to be more satisfied with the maintenance services than

Table 5.4 Means and standard deviations of the perceived importance ratings and satisfaction scores of respondents, multi-family dwellings

Maintenance service (n = 2202)	Importance ratings			Satisfaction scores		
	Mean	Std	n	Mean	Std	n
Heating and water systems	6.37	0.9	1706	4.83	1.8	1522
Lifts	6.26	0.8	1750	4.72	1.3	1718
Drains	6.22	1.0	1528	4.81	1.7	1070
Ventilation systems	6.21	1.0	1595	4.26	2.0	1299
Hinges and locks of windows and external doors	6.20	1.0	1632	4.78	1.8	1303
Toilets	6.18	1.0	1536	4.71	1.8	1152
Cleaning of shared areas	6.18	0.9	1781	4.20	1.7	1731
Porch, gallery, corridors and/or stairways	6.17	0.9	1782	4.12	1.7	1736
Lighting in shared areas	6.13	0.9	1834	4.98	1.5	1718
Kitchens	6.11	1.0	1510	4.61	1.9	1116
Bathrooms	6.09	1.1	1501	4.35	2.0	1142
Balconies	5.91	0.9	1781	4.16	1.4	1639
Roofs and gutters	5.90	1.3	1334	4.82	1.7	901
Exterior paintwork	5.89	1.2	1650	4.57	1.9	1475
Paving around the building	5.84	1.2	1598	4.27	1.9	1304
Communal greenery	5.76	1.1	1836	4.28	1.6	1758

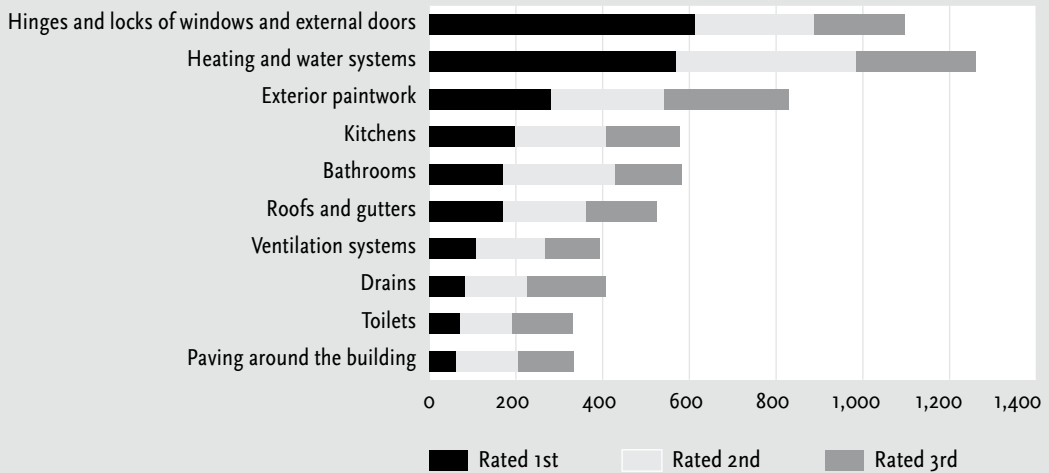
Note: higher scores relate to higher importance and more satisfaction with the particular maintenance service (range 1 to 7).

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

tenants of single-family dwellings. Respondents are most satisfied with the maintenance of lighting in shared areas, maintenance of heating and water systems, maintenance of hinges and locks of windows and external doors, and maintenance of drains. Respondents are less satisfied with the maintenance of porches, galleries, corridors and/or stairways, maintenance of balconies, and maintenance of paving around the building.

5.5.3 Top three rankings of most important maintenance services

We asked the same group of respondents to cite their top three most important maintenance services, thus forcing respondents to make choices. We counted the number of respondents who rated a maintenance service most important, second most important, and third most important. Separate calculations were made for single-family and multi-family dwellings. For common green space around a building, lifts or a balcony (multi-family dwellings), frequencies were divided by the number of respondents who indicated that dwelling did indeed include the specific building component or installation. This was done in order to correct for differences in response due to the availability of a certain building component or installation (see Figures 5.2 and 5.3).

Figure 5.2 Top three scores in importance of attributes perceived by tenants, single-family dwellings

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

Maintenance of heating and water systems and maintenance of hinges and locks of windows and external doors receive the highest scores. Moreover, maintenance of lifts (in case of multi-family dwellings) gets high scores. Compared with the mean scores (Tables 5.5 and 5.6), maintenance of drains seems to be a less prominent issue, and the same applies to maintenance of toilets. Exterior paintwork and, to a lesser degree, maintenance of bathrooms, on the other hand, get many top three scores, whereas the average importance ratings are not very high for these attributes. One key difference between both types of measurement is the relatively high influence of extremely positive feelings about the importance of certain attributes in Figures 5.2 and 5.3. The interpretation of these results is presented in Section 5.6.

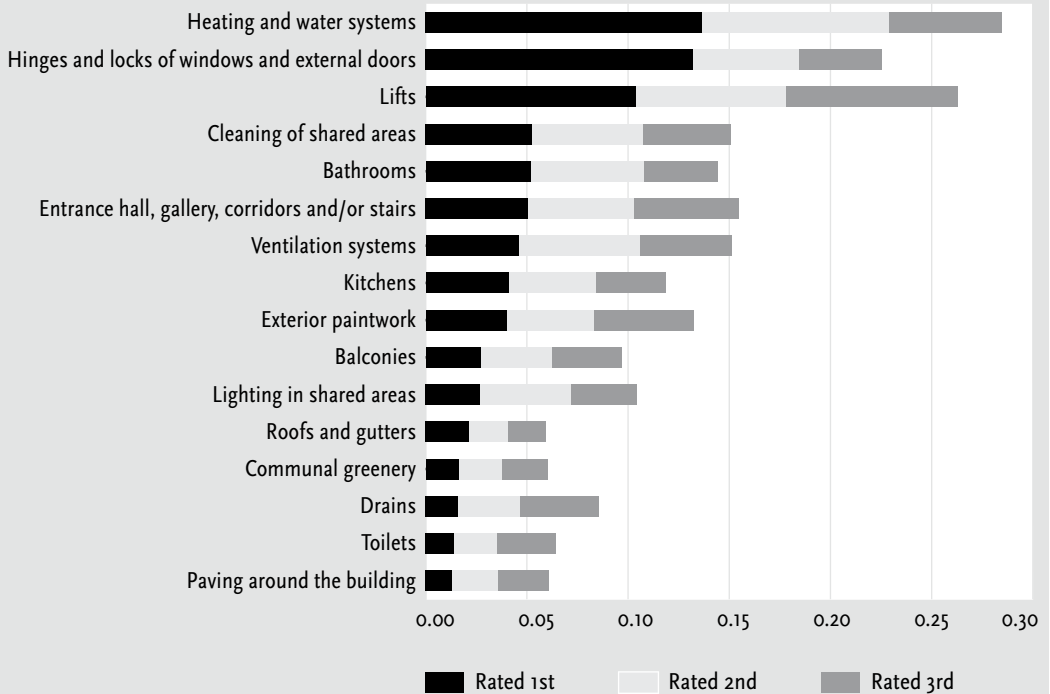
5.5.4 Regression analyses

Two regression analyses were performed. Regression analyses with 'satisfaction with the current maintenance of the dwelling' as a dependent variable were performed for both single-family dwellings and multi-family dwellings. The satisfaction ratings of the discerned maintenance services were the independent variables. The results are presented in the Tables 5.5 and 5.6.

Regression coefficients are high for exterior paintwork and maintenance of bathrooms in the case of both single-family and multi-family dwellings. Maintenance of hinges and locks of windows and external doors and maintenance of heating and water systems are only significant for single-family dwellings. The same applies to maintenance of roofs and gutters, and maintenance of kitchens. Maintenance of entrance hall, gallery, corridors and/or stairs is an attribute that significantly regresses with the evaluation of tenant satisfaction with maintenance for multi-family dwellings.

Until now, we have not examined the influence of socio-demographic vari-

Figure 5.3 Top three scores in importance of attributes perceived by tenants, multi-family dwellings



Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

ables on the results. Part of the unexplained variance of the regression of satisfaction with the discerned maintenance services with tenant satisfaction with maintenance in general may be due to these variables. For single-family dwellings, the contribution of socio-demographic, geographic and construction-related variables to the degree of explained variance is 15%.³ The entire explained variance is 55%. For multi-family dwellings, the contribution of socio-demographic, geographic and construction-related variables to the degree of explained variance is 43%. The entire explained variance is 77%.

3 The following variables were included in the analyses: Gender, Plan to move within two years, Family income, Source of income (as dummies), Age, Type of family (as dummies), Community (as dummies), Education (as dummies), number of hours of labour/week outside home (respondent), number of hours of labour/week outside home (partner of respondent – excluded from multi-family dwellings analysis because of multicollinearity), Urbanisation, Part of country and Year of construction.

Table 5.5 Regression analysis regarding maintenance services for tenants of single-family dwellings

Maintenance services (N = 1067)	Unstandardised Coefficients		Standardised Coefficients	t	Significance
	B	Standard Error	Beta		
(Constant)	0.267	0.136		2.020	0.044
Exterior paintwork	0.210	0.025	0.230	8.331	0
Hinges and locks of windows and external doors	0.193	0.027	0.200	7.033	0
Bathrooms	0.180	0.025	0.204	7.253	0
Heating and water systems	0.152	0.027	0.155	5.633	0
Roofs and gutters	0.098	0.028	0.097	3.465	0.001
Kitchens	0.062	0.028	0.065	2.257	0.024
Ventilation systems	0.038	0.027	0.041	1.382	0.167
Toilets	0.006	0.031	0.006	0.195	0.845
Paving around the building	*				
Drains	*				

* The coefficients were restricted to have a value ranging from a minimum of zero to a maximum of one. The explanatory factors indicated with “*” were dropped for further analyses because of a ‘wrong’ sign of the coefficient.

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

5.6 Discussion and conclusions

5.6.1 Research question

How, then, can one answer the research question: Which maintenance services are of primary importance for tenant satisfaction with maintenance? One should recall that we initially made a distinction between single-family and multi-family dwellings.

5.6.2 Single-family dwellings

From the analyses, we can conclude that maintenance of heating and water systems and maintenance of hinges and locks of windows and external doors are both very important for tenants of single-family dwellings. These are services that directly contribute to people’s essential basic needs: that is, their physiological needs and safety. In particular, problems relating to inadequate service may lead directly to unsafe and very uncomfortable situations.

Maintenance of bathrooms and kitchens and maintenance of roofs and gutters are also considered important through all measurements. When striving for maximisation of tenant satisfaction with maintenance for tenants living in single-family dwellings, the quality of delivery of these services should be assured. These services also contribute to satisfying people’s physiological needs. In addition, and particularly for maintenance of bathrooms and kitchens, good maintenance may help to meet fashion-dictated needs (esteem).

Table 5.6 Regression analysis regarding maintenance services for tenants of multi-family dwellings

Maintenance services (N = 134)	Unstandardised Coefficients		Standardised Coefficients	t	Significance
	B	Standard Error	Beta		
(Constant)	1.054	0.504		2.091	0.039
Exterior paintwork	0.412	0.086	0.434	4.778	0
Porch, gallery, corridors, and/or stairways	0.203	0.092	0.213	2.195	0.030
Bathrooms	0.202	0.081	0.222	2.489	0.014
Heating and water systems	0.131	0.080	0.139	1.639	0.104
Paving around the building	0.130	0.095	0.133	1.363	0.176
Hinges and locks of windows and external doors	0.081	0.093	0.085	0.870	0.386
Lifts	0.077	0.093	0.083	0.822	0.413
Ventilation systems	0.045	0.095	0.048	0.473	0.637
Lighting in shared areas	0.003	0.120	0.003	0.029	0.977
Roofs and gutters	*				
Communal greenery	*				
Drains	*				
Balconies	*				
Kitchens	*				

* The coefficients were restricted to have a value ranging from a minimum of zero to a maximum of one. The explanatory factors indicated with '*' were dropped for further analyses because of a 'wrong' sign of the coefficient.

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

Exterior paintwork is often ranked as the most important maintenance service. Moreover, the correlation with general satisfaction on maintenance is high. However, the average importance rating that is awarded by respondents to this attribute is relatively low. Often, respondents that assign a relatively low satisfaction score to a certain attribute give a relative high importance rating to that attribute. Further analysis of the results suggests that this is particularly the case for exterior paintwork. The group of people that ranked this maintenance service first includes many people who were dissatisfied with exterior paintwork. In other words, maybe strategic considerations played a part, following Matzler and Sauerwein (2002). Another reason for the reported differences in the results of measurements can be attributed to the fact that one can expect satisfaction with maintenance in general to be judged with the most predominant maintenance service in mind, which might be exterior paintwork – a service that might be predominant both in terms of process and result. The result, or the lack of result, can be noticed easily due to the obvious visual impact, and might thereby contribute to the 'esteem needs' of tenants. The impact is not only clear to recipients, but also to neighbours and others. People are often confronted with exterior paintwork in daily life, for instance due to scaffolding. Thus when compared with other maintenance services that have more of a direct impact on wellbeing,

painting of external building components gets relatively low importance ratings (assuming the quality is not too disappointing). The impact on general satisfaction with maintenance is high, however.

The results for maintenance of drains contrast with those of exterior paintwork. The stated importance rating is relatively high, but drain maintenance is not frequently mentioned as being one of the three most important maintenance services. Moreover, maintenance of drains does not significantly regress with general satisfaction with maintenance. The results of maintenance of drains are not easily visible. Moreover, negative experiences with inadequate maintenance of drains are probably less common than those of other maintenance services. Therefore, when evaluating the combination of all maintenance services, maintenance of drains is not the first service that comes to mind. When asked to rate the service, however, most respondents will acknowledge the problems that arise when maintenance of drains is insufficient. In that case, a lack of maintenance may affect the fulfilment of (basic) physiological needs.

5.6.3 Multi-family dwellings

The results for multi-family dwellings are somewhat different from those of single-family dwellings. Maintenance of heating and water systems and maintenance of hinges and locks of windows and external doors are still important for tenants of multi-family dwellings, however, there is no significant correlation anymore with satisfaction with maintenance.

In order to increase satisfaction with maintenance for tenants of multi-family dwellings, instead, attention must be paid to exterior paintwork, maintenance of entrance hall, gallery, corridors and/or stairs, and maintenance of bathrooms.

It is striking to remark, however, that these maintenance services are not among the services that get the highest importance rankings, and also not among the services that get the most top three scores. Similar to the situation of single-family dwellings, exterior paintwork gets relatively low importance ratings. We assume the same reasons for these differences to be applicable as for the situation of single-family dwellings.

Maintenance of entrance hall, gallery, corridors and/or stairs is rated better than on average. Moreover, this maintenance service earns the fourth place of all maintenance services in the frequency of top three scores. Therefore we can conclude that for tenants of multi-family dwellings, maintenance of these communal facilities should be one of the main priorities. It seems to be an important precondition for a positive feeling about the social security in the building. In addition to this, for some tenants good maintenance in particular to stairways is essential for their personal mobility. Therewith it contributes to needs of safety, which are basic needs. Similar to maintenance of

entrance hall, gallery, corridors and/or stairs, maintenance of bathrooms regresses significantly with the general tenant satisfaction with maintenance. With regards to the other two measurements however, the maintenance service does not exceed the middle bracket. In particular when people are asked to rate maintenance services, there are other maintenance services than maintenance of bathrooms that get higher ratings (e.g. maintenance of heating and water systems and maintenance of lifts). A negative evaluation of the maintenance condition of the bathroom is something that is easily remarked. Comparable to for instance exterior paintwork, inadequate service supply is manifest. Similar to the situation of single-family dwellings, maintenance of drains gets high importance ratings, while it does not score really high in the amount of top three scores. In addition, there is no significant correlation with satisfaction with maintenance as a whole. The same results can be noticed for maintenance of lift services.

5.6.4 Some final remarks

In Section 5.5 we have concluded that besides satisfaction with maintenance services, socio-demographic variables explain part of the variance in the evaluation of maintenance. Housing associations should acknowledge that differences appear in perceived importance of maintenance services between individual tenants and between categories of tenants. Tenants with different characteristics are mostly scattered all over the properties of housing associations. In order to increase tenant satisfaction with maintenance, service delivery ideally fits tenants' demands. As reactive maintenance is often delivered to individual tenants, adapting the service to individuals is possible through giving them options of choice regarding maintenance service delivery. Planned maintenance is delivered to groups of tenants. Giving individuals options of choice, therefore, might not be possible. Instead some democratic influence of tenants may stimulate tenant satisfaction with maintenance.

Elsinga (1995) has investigated the meaning of rights of ownership of homes for, in particular, low-income groups in the Netherlands. Part of that study was related to the different perceptions of residents about buying or renting homes. She found out that tenants give lower report marks to the maintenance condition of their dwelling than owner-occupiers do. Elsinga suggested that this difference is related to the fact that owner-occupiers generally rate their own work and therefore score higher than tenants who evaluate the work of the landlord. This implies the argument that tenant satisfaction with maintenance can be improved by giving tenants some responsibilities and participation in maintenance policy. This would be in conformity with the property rights theory (see Sub-Section 2.4.4). As indicated in Chapter 4, tenants can be invited to give their priorities in maintenance. In Chapter 6, attention is given to the tenant-perceived importance of participation in

maintenance through giving them options of choice.

In case of housing estates for, or dominated by, specific target groups, such as students or elderly, some fit might be achievable between the demand of the specific target group and the (tailored) maintenance (purchasing) policy.

In addition, some overall concluding remarks can be made with regard to the analyses made in this chapter. While (inadequate) maintenance services that can easily be noticed by tenants, such as exterior paintwork, maintenance of entrance hall, gallery, corridors and/or stairs and maintenance of bathrooms, get importance ratings which are lower than on average, their impact on tenant satisfaction with maintenance in general is significant. On the other hand, there are maintenance services that have little visual impact on tenants but large impact on requirements for a satisfactory living situation, such as comfort and personal mobility. Examples of this type of services are maintenance of drains and maintenance of lifts. These services do not regress significantly with tenant satisfaction with maintenance in general, but the given importance ratings are high.

Finally, maintenance of heating and water systems and maintenance of hinges and locks of windows and external doors may, based on this research, and at least for tenants of single-family dwellings, be designated as essential. Inadequate maintenance of these components is expected to severely harm the well being of tenants.

This chapter is based on a paper written in co-operation with Sylvia Jansen (OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology), which has been submitted to an international journal.

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6 Securing high-performance maintenance service delivery

6.1 Introduction

6.1.1 Research question

This chapter will investigate which aspects of maintenance service delivery are important for securing tenant satisfaction with maintenance.

When the phase of contracting a maintenance supplier is complete, it is important to conduct performance measurement, or monitoring, in order to secure high-quality maintenance service delivery for tenants. This chapter focuses on performance measurement of maintenance service delivery. However, conclusions regarding the relevant determinants of maintenance service quality may also be relevant to earlier stages of the purchasing process, and this issue will be addressed in Chapter 7.

The importance of the determinants of maintenance service quality for tenant satisfaction is measured by adopting the questionnaire introduced in Chapter 5. Relevant determinants of maintenance service quality can be used as input for both purchasing (specifications and award criteria) and performance measurement. Part of the performance measurement of maintenance service delivery can be covered by referring to the performance measurement tool for quality of service delivery that is currently most widely applied in the Dutch social rented sector: the 'KWH-huurlabel'. In order to get this quality mark, tenants' satisfaction with housing associations' service delivery is measured across the whole spectrum. In this chapter, the coverage of important determinants of maintenance service quality is measured for maintenance alone. The aim of this exploratory research is to investigate what is important for tenants in maintenance service delivery, and to study whether this is adequately secured by the performance measurement of maintenance service delivery by Dutch housing associations. The research question for this chapter is thus: *Which determinants of maintenance service quality are of primary importance for tenant satisfaction regarding maintenance, and how can performance measurement of maintenance service delivery in the social rented sector encourage tenant satisfaction regarding maintenance?*

6.1.2 Performance measurement

All performance measurement systems consist of a number of individual performance measures. There are various ways in which these performance measures can be categorised, ranging from Kaplan and Norton's (1992) balanced scorecard to Fitzgerald et al.'s (1991) framework of results and determinants. The rationale underlying this chapter is that performance measures need to be positioned in a strategic context, as they influence what actors do. Measurement may be a 'process of quantification', but its goal is to stimulate

action, and as Mintzberg (1978) has pointed out, it is only through consistency of action that strategies are realised (Neely, 2005).

In the manufacturing literature, it is frequently argued that performance measures should be derived from strategy; that is, they should be used to reinforce the importance of certain strategic variables (Skinner, 1969). Although this does not always appear to happen in reality (Neely *et al.*, 1994), the link between performance measurement and strategy has been extensively explored in the business strategy literature. Strategies evolve as decisions are made and courses of action are pursued. Indeed, it has been argued that a strategy can only be said to exist when one can identify a consistent pattern of decisions and action within a firm (Mintzberg, 1978). Hence an important question is, how can one induce consistency of decision-making and action within an organisation? From an end-customer perspective, this would imply operationalising the objective of including tenants's perspectives in purchasing policies.

In Section 6.2, maintenance services are specified, and the objectives of maintenance are clarified. In Section 6.3, attention is given to current practices of performance measurement of maintenance services. The maintenance service delivery process is clarified and presented using a conceptual systems approach. In addition, the quality mark 'KWH-huurlabel' is introduced. 'KWH', or 'Kwaliteitscentrum Woningcorporaties Huursector', is an association that presents itself as a quality driver for the Dutch social rented housing sector. KWH is renowned for its measurement instruments, which aim to make the performance of housing associations more transparent. The organisation has performance measurement products for rental processes (the 'huurlabel'), attributes relating to good governance, tenant participation, management processes and societal performance. Section 6.4 contains an evaluation of the KWH-huurlabel from the sole perspective of maintenance service delivery. Section 6.5 includes the results of a survey of end-customer perceptions about maintenance service delivery. These results are then compared with the conclusions drawn from the evaluation of KWH. Finally, recommendations are suggested for improving the service delivery system.

6.2 Maintenance services

6.2.1 Objectives of maintenance

Irrespective of whether maintenance is purchased externally or procured via an in-house maintenance department, performance requirements have to be set in order to ensure high-quality service delivery. There is thus a need for appropriate and measurable performance indicators. This chapter will examine the process of maintenance, the possibilities for (external) monitoring of

this process by using performance measurement, and the appropriateness and measurability of performance indicators for maintenance services.

As hybrid organisations, Dutch housing associations both engage in market operations and perform public tasks. Each of these activities involves financial risks. The public tasks are defined in the BBSH (Social Housing Management Order) of 1993, which is derived from the Housing Act (1901).

In Chapter 3, we concluded that maintenance, or broader, technical management, primarily contributes to the following goals:

- Yields on real estate – Yields can be earned through real estate market-value increasing maintenance choices, and through cost-effective procurement of maintenance (TCO);
- Residential satisfaction – Residential satisfaction of housing associations' customers can be enhanced through a customer-friendly maintenance process and through the quality of maintenance on building components, installations and surrounding grounds of buildings;
- Liveability of the neighbourhood – The visual and the functional quality of surrounding grounds of buildings and external building components (e.g. paintwork) has a positive or a negative influence on the liveability of the neighbourhood. A special, however scarce category of maintenance services regard to the up keeping of monumental buildings, or other buildings with historical value.

These functions of maintenance perfectly comply with some of the tasks in the Social Housing Management Order, namely:

- to guarantee the financial continuity of the housing association (see: yields on real estate);
- to maintain the quality of the housing stock (residential satisfaction);
- to increase and maintain the quality of life in the area surrounding the dwellings (liveability of the neighbourhood).

On the other hand, the contribution of maintenance to residential satisfaction is only covered by the results of maintenance: the quality of the housing stock (plus the housing environment). While the process of maintenance is also very important for tenant satisfaction, there is no explicit public duty to provide high-quality services to customers. Concurrently, there is little pressure from the market for high-quality service processes. In theory, this implies that housing associations generally go unpunished for providing inadequate services to tenants.

One general public task defined in the Social Housing Management Order does reduce the chance of this occurring, namely that relating to 'tenant involvement in management and policy'. The implications for maintenance service delivery processes are unclear, however. In addition, Aedes, the branch organisation for the social rented housing sector, has drafted a code

of conduct for its members (the 'AedesCode'). This agreement includes some general guidelines relating to tenants, e.g. tenant participation. The most applicable article is that which states, 'the wishes and needs of our clients are considered key for our business'. This arrangement is, however, too broad to be effective for maintenance service delivery. Despite these omissions, from the point of view of good social entrepreneurship, high quality maintenance processes should be a key issue. How could these be developed for individual housing associations? The latter can take the strategic opportunity to choose their focus: either yields on real estate, residential satisfaction and liveability of the neighbourhood. They may as well follow a diversification strategy and opt for more than one objective, however.

6.2.2 Current use of performance indicators

As mentioned above, maintenance services can lead to financial yields, tenant satisfaction and improved liveability of a neighbourhood. The contribution of maintenance to the latter has not yet been measured by housing associations. The contribution of maintenance to financial yields has only been measured in terms of costs analyses. Value consequences for objects, as well as total costs of ownership, have scarcely been measured. Periodically, the level of a building's maintenance may be measured from a technical point of view. Do the building's components and systems still function according to the minimum requirements stated in the maintenance contract? Such minimum requirements are usually based on standards set in the Building Decree, other regulations, or standards agreed by principals themselves. These requirements may take a safety perspective, but can also address issues relating to utility, sustainability and health. Some housing associations measure tenant satisfaction, which is often related to recent maintenance works.

This chapter focuses on tenant satisfaction due to maintenance service delivery. The relevant outcome of the maintenance processes is tenant satisfaction; if the latter is achieved, an important part of the housing association's *raison d'être* as a social enterprise is fulfilled. The desired output should thus be related to tenant satisfaction. Residential satisfaction research reports form the most direct way of measuring tenant satisfaction in terms of output. Another way of examining tenants' satisfaction with the maintenance is to measure the number and severity of complaints. Attributes, for example, might include (dis)satisfaction with timeliness, tidiness, and the meeting of commitments by the maintenance supplier. Another way of securing high-quality services is to measure the actual output of key activities from the perspective of tenants. For the results of maintenance, this is usually done by supervising performed activities, particularly those relating to planned maintenance and void repairs. For reactive maintenance, it is possible to track crucial moments in the handling of complaints, such as the information sup-

ply to the tenant concerning the maintenance process. This all concerns the measurement of output. Even parts of the maintenance process when there is interaction with the tenant can be considered to be output. The preparation of such output is considered to be throughput. In other words, given that the outcome is tenant satisfaction, throughput in this case is the entire maintenance process excluding the interaction with, and the results delivered to, tenants. For the delivery of maintenance services, handling the throughput is not an easy task. As mentioned before, many parties are involved, and maintenance solutions are often complex.

6.3 Maintenance services and performance measurement

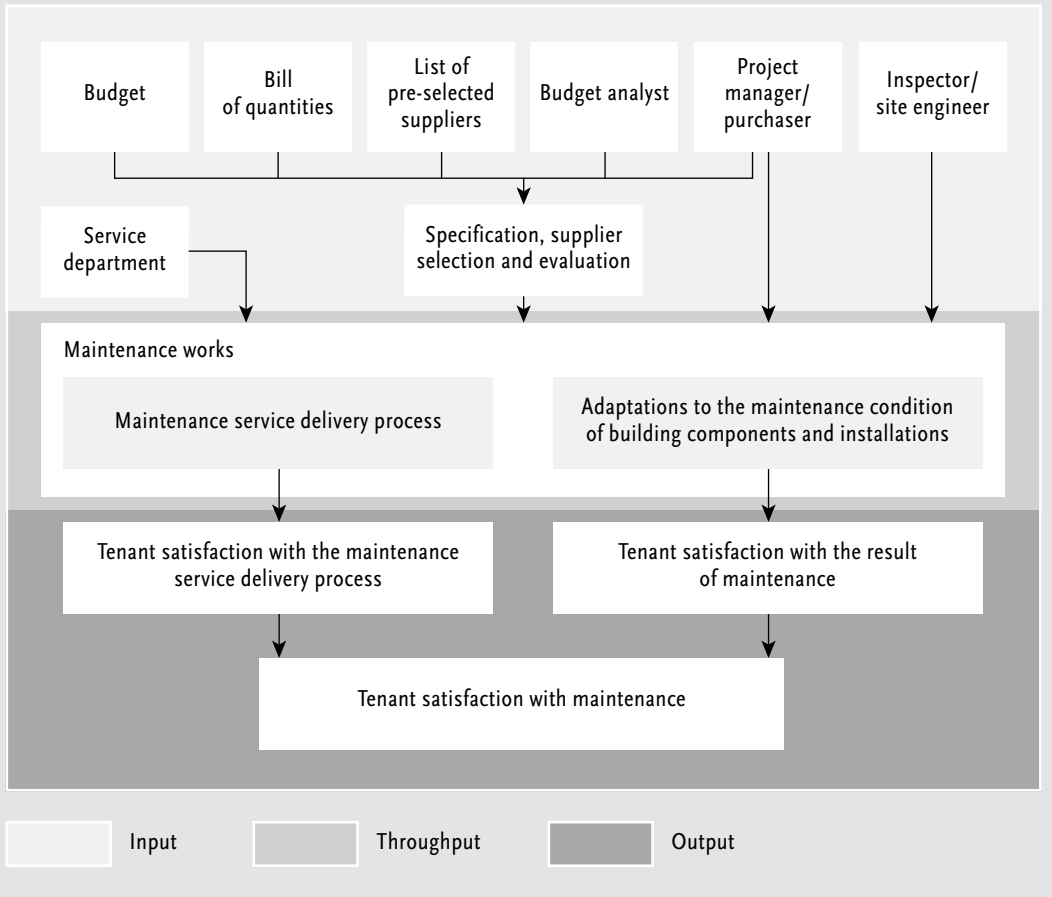
6.3.1 Maintenance contractors and the service delivery process

The three main parties that are involved in the service delivery process are:

1. tenants: the end-customers;
2. the housing association;
3. maintenance contractors (or the housing association's in-house maintenance department).

For the production of maintenance services, the most important inputs are the resources and capabilities of internal or external service suppliers. From the perspective of the housing associations, however, the actual inputs are the means of hiring these service suppliers and monitoring their performance. Barney (1991) offers three categories of resources: physical resources, such as plant equipment, location and assets; human resources, such as manpower, management teams, training and experience; and organisational resources, such as culture and reputation. Capabilities are defined as 'architectural abilities or bonding mechanisms whereby resources are combined in new and innovative ways' (Duncan *et al.*, 1998: 10). It is the purchasing department's task to ensure the right combination of resources and capabilities for the appropriate delivery of maintenance services. This is primarily achieved during the supplier selection phase of purchasing. In the specification phase, the quality requirements for the maintenance service to be delivered are set. Finally, the quality of the delivered service is measured in the evaluation phase of the contract, or in separate evaluations of specific orders. From the end-customer's perspective, this service quality can be separated into two components: the physical results of the service (on the building components and installations), and the interactions with the end-customer during the service delivery (Van Mossel and Van der Valk, 2006). In this chapter, we focus primarily on the

Figure 6.1 Input-throughput-output-outcome model of the maintenance service delivery process as steered by housing associations



measurement of service delivery quality by housing associations, taking the end-customer's perspective.

Figure 6.1 shows the process of maintenance service delivery from the perspective of the housing association. The black box in this case is the actual execution of maintenance works by the service supplier. The relevant output is tenant satisfaction with the delivery process of maintenance, and tenant satisfaction with the result of maintenance, i.e. tenant satisfaction with maintenance. Tenant satisfaction in general can be perceived as the outcome.

When housing associations want the relevant determinants of maintenance service quality to be covered in order to ensure tenant satisfaction (which particularly the case for reactive maintenance inside dwellings), it is necessary to have the relevant output measurement. At the level of input, specifications should include the necessary determinants of maintenance service quality in order to be able to monitor these aspects (see Chapter 7).

6.3.2 Managing maintenance service delivery

Maintenance services can be directed towards individual customers, housing blocks, or part of – or even the entire – housing stock of a housing association. Planned maintenance is usually directed towards more than one dwelling, whereas reactive maintenance and void repairs are mostly customised. In most circumstances, there are two recipients: the housing association and the tenant.

The maintenance agenda is filled from both the ‘bottom-up’ and from the ‘top-down’. For reactive maintenance and void repairs, maintenance activities are highly dependent on the suggestions, complaints and desires of tenants. Concurrently, the level of quality is usually determined by the housing association’s policy. Ideally, planned maintenance is derived from the housing association’s strategic portfolio/asset plan, which may include tenant preferences (Straub, 2002).

Purchasing, whether undertaken by purchasers, technical managers or both, is the key interface with maintenance suppliers. Despite this, purchasing is currently frequently perceived as an operational function that only has to realise what is stated in the maintenance planning of housing associations. This can hamper bottom-up control or the information supply, leading to inefficiencies or even ineffectiveness (Van Mossel and Straub, 2006). In addition, almost all maintenance services demand different skills, and therefore different disciplines are usually involved (see Chapter 2). This leads to an accumulation of dyadic relationships that have to be managed by housing associations in order to secure a high-quality supply, leading to all sorts of supply risks. Among other things, performance-based partnerships have been developed to decrease the number of relationships between the housing association and its maintenance service suppliers, particularly those of a short-term nature.

Notwithstanding the jumble of parties involved in the supply of maintenance services, in terms of securing both the product and the process quality, it is desirable to have some generalised minimum requirements for all supplies and all suppliers of comparable commodities. Concurrently, as already mentioned, these requirements need to be well-chosen in order to ensure effectiveness and efficiency.

6.4 Determinants of maintenance service quality

6.4.1 Methods

What determines maintenance service quality? In other words, what should we measure when trying to reach high levels of end-customer satisfaction?

The importance and satisfaction of the main determinants of maintenance service quality have been investigated using the survey questionnaire introduced in Chapter 5 (see further Chapter 5 for a description of the procedure used).

A survey questionnaire was developed which aimed to measure the importance of different determinants of maintenance service quality as perceived by the tenant. The determinants of maintenance service quality used for the purpose of this research were derived from the determinants of service quality defined by Parasuraman *et al.* (1985). Their SERVQUAL model focuses on important determinants of service quality, and thus on the question of what creates service quality. Five specific dimensions of service quality have been identified that apply across a variety of service contexts (Zeithaml *et al.*, 2006):

- reliability: ability to perform the promised service dependably and accurately;
- responsiveness: willingness to help customers and provide prompt service;
- assurance: employees' knowledge and courtesy and their ability to inspire trust and confidence;
- empathy: caring, individualised attention given to customers;
- tangibles: appearance of physical facilities, equipment, personnel, and written materials.

On the basis of exploratory and quantitative research, these five dimensions were found to be relevant for many businesses (Zeithaml *et al.*, 2006). We therefore assume that these dimensions can also be applied in the present context, i.e. that of Dutch housing associations. The general determinants of service quality were adapted to the maintenance situation with reference to the maintenance literature (Straub, 2001; Thomas, Johnson and Veale, 2005). The determinant of the service quality 'tangibility', for example, is covered in this survey by 'the quality of the result of maintenance'.

In order to ensure that the determinants that we selected sufficiently covered what tenants consider important, we discussed them with purchasers, marketing managers, technical specialists and representatives from residents' groups. In this way, we achieved a sufficient level of data-saturation. Added to the fact that no representative quality characteristics were missing, this means that the validity of the research has been ensured. The research's validity is supported by the results of the questionnaire survey. Although the respondents had the option of adding a determinant of maintenance service quality that they deemed to be important, they hardly used this option, and the few additions that were made were generally highly fragmented. Two categories of maintenance quality can be identified that were cited by respondents and that make sense, namely 'provision of information before the start of the maintenance activities', and 'evaluation and service recovery'.

In the end, 14 determinants of maintenance service quality remained. Sec-

tion 5.2 describes the applied questionnaire procedures, and Sub-Section 5.3.1 offers a description of the respondents.

6.4.2 Measurements

In order to simplify the process of filling in the questionnaire for tenants, we equalled planned maintenance to planned maintenance to the exterior building, and reactive maintenance services to reactive maintenance performed inside dwellings.¹ This way, tenants had one and the same service in mind when answering the various questions, and the duration of the questionnaire was restricted.

After that, the determinants of maintenance service quality were laid down, as described above, and the levels of importance of and satisfaction with each of these attributes were evaluated using the questionnaire. The levels of importance were measured on a seven-point scale, ranging from (1) 'extremely unimportant', through (4) 'neither important nor unimportant' to (7) 'extremely important'. The levels of satisfaction were also measured on a seven-point scale, ranging from 'extremely dissatisfied', through (4) 'neither satisfied nor dissatisfied' to (7) 'extremely satisfied'.

The perceived importance of attributes was measured in two ways, one direct (verbal) and one indirect (implicit). The direct way entailed calculating the mean importance ratings for all determinants of maintenance service quality. Comparable to Chapter 5, the indirect way of measuring the perceived importance of attributes implies measuring the impact of satisfaction with determinants of maintenance service quality on tenant satisfaction with maintenance. The reasons for using these different types of measurements are set out in Section 5.3.

6.4.3 Results

For both reactive and planned maintenance, 'the quality of the result of maintenance' is considered to be most important, followed by 'the competence of maintenance workers', and 'completing maintenance activities in a single visit'. Although the results for planned and reactive maintenance are highly comparable, when there is a high level of interaction (which is the case with reactive maintenance), it seems to be particularly important to deliver quick service. Quick service is stimulated by prompt problem identification, by making it easy to arrange appointments, and by restricting the period of time that

¹ With this distinction, respondents are offered a clearer perspective on the differences between each type of maintenance. In practice, by far the majority of planned maintenance works are conducted to the exterior of buildings. At the same time, by far the majority of reactive maintenance is conducted inside dwellings.

Table 6.1 Importance ratings determinants of maintenance service quality

	Reactive maintenance inside the dwelling			Planned maintenance on the exterior of building		
	Mean	N	Standard	Mean	N	Standard
The quality of the result of maintenance	6,49	5010	0,868	6,49	5226	0,848
The competence of maintenance workers	6,43	5032	0,901	6,43	5262	0,905
Completing maintenance activities in a single visit	6,41	5005	0,926	6,42	5249	0,924
Avoiding damage to personal property	6,37	5051	0,963	6,36	5244	1,011
Sticking to execution planning agreements	6,34	5036	0,938	6,26	5203	0,976
The politeness of maintenance workers	6,29	5103	0,949	6,25	5277	0,978
Being available to answer questions and receive complaints	6,22	5037	0,987	6,12	5300	1,043
Limiting and tidying up litter and dust around the work site	6,19	5044	0,971	6,11	5246	1,098
Flexibility in making appointments	6,12	5028	1,087	6,05	5217	1,041
Tenant participation in maintenance through options	5,96	4900	1,213	5,89	5102	1,271
Being addressed in your own language	5,80	4951	1,313	5,80	5260	1,549
Limiting nuisance caused by noise and vibration	5,77	4998	1,558	5,65	5210	1,408
Limiting the time taken by the work	5,69	4969	1,388	5,65	5111	1,396
Having maintenance workers wear smart, uniform overalls	5,48	5045	1,559	5,40	5281	1,596

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

workmen have to be in tenants' private settings (see Chapter 7). The stated mean scores on the attributes are presented in Table 6.1.

Similar to the situation described in Chapter 5, differences might occur between verbal priority patterns, and priority patterns of statistically derived (subconscious) priorities actually used when evaluating the housing situation, in this study the statistically derived importance factors are presented next to the stated importance ratings. The perceived importance of attributes is measured indirectly through regression analyses. Satisfaction with either planned maintenance to the exterior of the building, or reactive maintenance inside the respondent's dwelling, are the dependent variables. The independent variables are the satisfaction scores for the determinants of maintenance service quality, either for planned maintenance to the exterior of building, or for reactive maintenance inside the respondent's dwelling. The regressions result in a list of independent variables that seem to have a relationship with tenant satisfaction with the two types of maintenance identified. The model for satisfaction with planned maintenance to the exterior of the building has an explained variance rating of 28%. The regression model for satisfaction with reactive maintenance inside the dwelling has an explained variance score of 37% (see Appendix 3). Part of the unexplained variance of the satisfaction with the discerned determinants of service quality with tenant satisfaction with maintenance in general may be attributed to socio-demographic, geographic and construction-related variables. For both planned maintenance to the exterior of the building and reactive maintenance inside the dwelling,

the contribution made by socio-demographic, geographic and construction-related variables to the degree of explained variance is 11%.² For satisfaction with planned maintenance to the exterior of the building, there is a significant relationship with satisfaction for the aspects, ‘tenant participation in maintenance through options’ and ‘the quality of the result of maintenance’. ‘The quality of the result of maintenance’ is another aspect that was explicitly rated ‘most important’ by respondents. For reactive maintenance inside the dwelling, most of the aspects that were rated as important by respondents also have a significant relationship with satisfaction with reactive maintenance inside the dwelling. An exception is ‘avoiding damage to personal property’. Based on additional regressions, we can conclude that this aspect does have a significant relationship with residential satisfaction in general. This means that this aspect is mentally generally attributed as being potentially harmful to respondents’ residential situations, rather than being attributed to maintenance services in particular.

We asked the same group of respondents to rank their top-three most important maintenance services. We counted the number of respondents who rated a maintenance service most important, second most important and third most important. Separate calculations were made for reactive maintenance inside dwellings and planned maintenance to the outside of dwellings (see Figures 6.2 and 6.3).

In general, we can conclude from Figures 6.2 and 6.3 that the issues that received high importance ratings (see Table 6.1) also get many top-three scores. For both planned maintenance to the outside of dwellings and reactive maintenance inside dwellings, the quality of the results of maintenance has the most top-three scores. It is remarkable that ‘being available to answer questions and receive complaints’ – in particular for reactive maintenance inside dwellings – and ‘sticking to execution planning agreements are among the highest receivers of top-three scores.

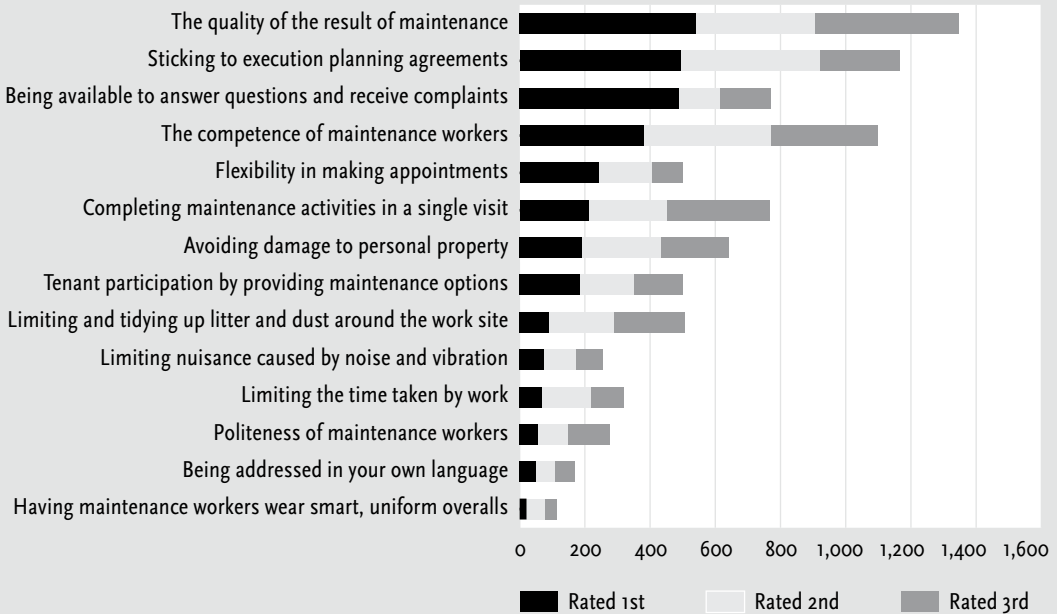
6.5 Case: the ‘KWH-huurlabel’

6.5.1 The ‘KWH-Huurlabel’

The quality mark, the ‘KWH-huurlabel’, is an important tool that is used by housing associations delivering services to 50% of all end-customers in the

² The following variables were included in the analyses: Gender, Plan to move within two years, Family income, Source of income (as dummies), Age, Type of family (as dummies), Community (as dummies), Education (as dummies), number of hours of labour/week outside home (respondent), number of hours of labour/week outside home (partner of respondent – excluded from multi-family dwellings analysis because of multicollinearity), Urbanisation, Part of country and Year of construction.

Figure 6.2 Top three scores for importance of attributes perceived by tenants concerning planned maintenance to the outside of dwellings

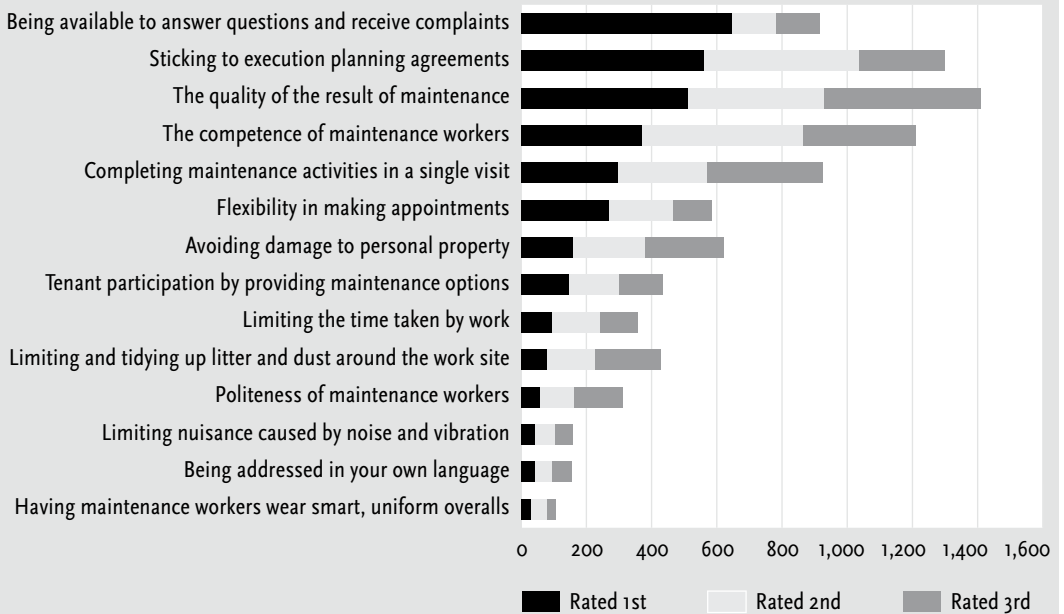


Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

Dutch social rented sector. The KWH-huurlabel measures the perceived quality of service delivery in the letting process. While other quality marks, such as the VGO-keur and the MQM (both of which were specifically set up for maintenance), do not focus on the end-customer, the tenant, this is not the case for the KWH-huurlabel. KWH measures service quality for 174 housing associations. Annually, around 200,000 paper-version tenant questionnaires, telephone questionnaires and mystery guest meetings form the basis for measuring performance. Although the focus of the KWH-label is on the processes executed by housing associations, service suppliers can be required to deliver services in conformity with KWH-standards.

The KWH-huurlabel quality mark consists of ten components, which range from searching for housing to paying rent. Of these ten components, five are related to maintenance processes: 'doing repairs', 'maintaining dwellings', 'complaint handling', and to a lesser extent 'calling the housing association', and 'visiting the housing association'. The quality of service delivery is measured once every two years over a period of eight weeks. For the component, 'doing repairs', end-customer satisfaction with the delivery of services can also be measured continuously. These quality of service delivery measurements are done through online questionnaires. For all components, terms of delivery (performance indicators), as well as standards, are set out. These terms of delivery are considered to match end-customers' expectations. The delivery process is broken down into the actual standards, or performance indicators, that are to be met by the housing association. According to KWH, the quality

Figure 6.3 Top three scores for importance of attributes perceived by tenants concerning reactive maintenance inside dwellings



Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

requirements are based on general-accepted standards and values, such as respect for one another, timeliness, clearness, approachability, patience and friendliness (KWH, 2007a). In addition to KWH, marketing consultancy companies such as USP carry out comparable performance measurements of the quality of services provided by housing associations. Given that KWH is currently the market leader, and that the KWH-huurlabel is a recognised quality label, the following analysis will focus on this tool.

The next section will analyse the extent to which the KWH-label addresses the relevant determinants of maintenance service quality, and thus the extent to which additional requirements should be made of housing associations in order to ensure maintenance service quality.

6.5.2 Document study

A document study was carried out to examine the KWH-huurlabel's terms of delivery, standards and measurement points (KWH, 2007a; 2007b). Using the determinants of maintenance service quality as points of reference, we investigated whether these aspects were covered by the KWH-huurlabel. Two analysts indicated separately whether these aspects were indeed covered, and if so, how. The discrepancies were discussed and consensus was finally reached on all determinants of maintenance service quality. The results with respect to the different determinants of maintenance service quality are presented in Table 6.2.

Table 6.2 Determinants of maintenance service quality covered by the KWH-huurlabel (Qualification given by analysts)

The quality of the result of maintenance	+
The competence of maintenance workers	o
Completing maintenance activities in a single visit	-
Avoiding damage to personal property	o
Sticking to execution planning agreements	+
The politeness of maintenance workers	+
Being available to answer questions and receive complaints	+
Limiting and tidying up litter and dust around the work site	-
Flexibility in making appointments	o
Tenant participation in maintenance through options	o
Being addressed in your own language	-
Limiting nuisance caused by noise and vibration	-
Limiting the time taken by the work	o
Having maintenance workers wear smart, uniform overalls	-
+ = Covered o = Partly covered - = Not covered	

Appendix 4 provides a more extensive evaluation of the extent of the determinants of maintenance service quality covered by KWH.

6.5.3 Conclusions from KWH

The most important determinants of service quality should be included in the performance measurement of maintenance, possibly in combination with the two aspects that are mentioned by respondents ('provision of information before the start of the maintenance activities', and 'evaluation and service recovery'). The KWH-huurlabel covers a significant part of this performance measurement.

'The quality of the result of maintenance' is generally considered to be the most important determinant of service quality. The KWH-huurlabel indirectly measures this aspect. This is logical, since the KWH-huurlabel was primarily set up to measure the quality of service delivery to tenants in terms of processes. From this perspective, it is necessary to make condition measurements and output performance measurements of the results of maintenance. For other standards, KWH uses throughput, output and outcome measures. Apart from the method of measurement, the choices for measures seem to cover many of the aspects identified in the survey.

It is notable that two very significant stated importance aspects, 'the competence of maintenance workers', and 'completing maintenance activities in a single visit', are only partly or not covered at all by the KWH-huurlabel respectively (note that for reactive maintenance inside the dwelling, these are also included in the regression model of indirectly measured aspects). For housing associations, this means that in order to ensure customer sat-

isfaction, additional performance measurements are needed. For ‘completing maintenance activities in a single visit’, which implies that maintenance workers should not have to return unnecessarily to tenants’ dwellings for extra materials or because of mistakes, both output and throughput measurements may be satisfactory. This aspect can be covered by throughput measures related to the activities that are needed to finalise a job. Another option is (output) measurement of tenant evaluations of the number of interactions needed to complete the job adequately. For the competence of maintenance workers, output and throughput measurements with respect to the activities conducted by maintenance workers might be combined with input measurements of maintenance contractors’ human resources.

In addition to this, from this research we may conclude that the KWH-huurlabel pays limited attention to worker- and workplace-related disturbance. Although these aspects are not among the most influential for tenant satisfaction with maintenance, for specific groups (e.g. the elderly, see Van Mossel *et al.*, 2006), additional attention via performance measurement may nevertheless be necessary in order to ensure customer satisfaction.

The KWH-huurlabel does not cover the prevention of noise and vibrations, and inconveniences due to litter and dust, both issues that require additional output measures in addition to KWH’s broad current satisfaction measurements. In addition, the KWH-huurlabel does not cover the restriction of the duration of works, even though, in case of reactive maintenance, this has a significant relationship with tenant satisfaction with maintenance. Again, an output measurement would seem to be most suitable for forcing maintenance workers to communicate and deal adequately with this issue.

Aside from the issues covered, the quality of performance measurement depends on how the measurements are made. This research does not address this latter issue, as this study is concerned with the contents of measurements rather than measurement techniques.

6.6 Conclusions

6.6.1 Important determinants of maintenance service quality

From the perspective of the tenant, the most important aspect is ‘the quality of the result of maintenance’, followed by ‘the competence of maintenance workers’ and ‘completing maintenance activities in a single visit’. The latter implies that maintenance workers should perform their maintenance activities without unnecessary re-working or making extra site visits.

The average stated importance ratings of determinants of maintenance service quality are comparable for planned maintenance to the outside of

dwelling and reactive maintenance inside dwellings. However, the only determinants of maintenance service quality regressing with the evaluation of planned maintenance on the exterior of buildings are 'the quality of result of maintenance' and 'tenant participation in maintenance through options'. For reactive maintenance of the interior of buildings, the most importance stated importance determinants of maintenance service quality also regress significantly with the evaluation in general. In addition, satisfaction with aspects related to the planning of the actual realisation of works, such as 'sticking to execution planning agreements', and 'flexibility in making appointments', have a significant impact on tenant satisfaction with reactive maintenance inside the dwelling.

6.6.2 Performance measurement

This chapter has offered an account of, and the reasons for, the widespread use of performance measurement of maintenance service delivery in the social rented sector. The aim of this investigation was to assess the extent to which performance measurement with regard to maintenance service delivery is consistent with housing associations' intentions.

As maintenance service delivery is often the responsibility of an external service supplier, for housing associations, performance measurement can take three basic forms:

1. *Throughput measurement* – The measurement necessary process steps from a customer satisfaction perspective. Actual interaction with the end-customer during the process is considered to be output, however. Standards relating to accessibility are examples of throughput measures. They enable adequate output in terms of successful interactions, and should thus be necessarily included in a performance measurement system. One disadvantage of undertaking this type of measurement is the lack evaluation by the end-customer.
2. *Output measurement* – The measurement of the client's evaluation of interactions with the service supplier, as well as the measurement of the physical consequences of maintenance (changes to the building component or installation). For example, standards that relate to tenant satisfaction with the ways in which they are approached by maintenance workers can be considered to be output measures. One disadvantage of this type of measurement is that end-customers may be overloaded with surveys.
3. *Outcome measurement* – The measurement of tenant satisfaction in general. Measuring outcomes can be useful for measuring the performance of suppliers and the buying centre. Housing associations' boards can use these measures to steer and improve the buying centre, and can use the information to inform strategic and organisational policy. For the buying centre itself, this type of measurement has the disadvantage of being too broad, and moreover may contribute to overloading end-customers with surveys. In other words,

these kinds of indicators, which are often used by housing associations in order to test the quality of service supply, are not specific enough to act as valuable key performance indicators for improving the quality of service delivery, and function merely as alerts.

6.6.3 KWH-huurlabel and public performance criteria

The KWH-huurlabel measures the quality of service delivery in the letting process. Many aspects that are related to maintenance service delivery seem to be adequately covered by the KWH-huurlabel. For maintenance service delivery, in addition to the aspects that are adequately covered by the KWH-huurlabel, housing associations should pay particular attention to the measurement of completing maintenance activities in a single visit in order to ensure customer satisfaction. As mentioned earlier, this means that maintenance workers should not have to return to tenants' dwellings unnecessarily, either for extra materials or because of mistakes. Since worker and workplace-related disturbances are also not covered by the KWH-huurlabel, additional performance measurements related to these may be necessary in order to achieve customer satisfaction within specific target groups that put a high value on these qualities.

One of the more significant findings to emerge from this study is that current public and private incentives to improve the quality of service delivery are not adequate in all respects. This is in contrast to the results of maintenance, which are covered both in law (e.g. the building decree, which sets minimum quality requirements), and in public performance criteria, such as BBSH.

For a potential customer, the fact that a particular housing association has the KWH quality mark does not influence the eventual choice of dwelling (and thus the service supplier). Moreover, in a 'suction' market situation, which is often the case for Dutch urban housing (see Chapter 4), clients in the social rented sector do rarely have any choice. This situation begs for clear public objectives with regard to high-quality service delivery to tenants, including high-quality maintenance service delivery. The current public performance criteria (BBSH) do not take this important issue into account, however. The alternative, meanwhile, the branch code of conduct (AedesCode), also does not cover maintenance service delivery satisfactorily. Despite this, from the point of view of good social entrepreneurship, high-quality maintenance processes should be a key issue for housing associations – just as they are for other public (and private) services. Future developments in public or private reviewing processes may provide new opportunities in this respect.

It may be advisable to oblige housing associations to present the results of the KWH-huurlabel performance measures in the information provided to candidate tenants. The grades given to housing associations can give candi-

date tenants insights into the quality of service delivery. While the physical aspects of a housing service are visible to candidate tenants, and can therefore be easily assessed, the quality of service delivery is not. The presentation of a service quality label for each dwelling offered might help customers in their search for a suitable place to live, including the quality of service delivery that they might expect. Such a development would be particularly useful in a situation of pressure in the market.

An adapted version of this chapter will be published in the book *Performance measurement in the Dutch social rented sector of housing*, (edited by Van Mossel, Koopman and Straub), to be published by IOS Press.

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7 Securing customer satisfaction through component service specifications

7.1 Introduction

While Chapters 5 and 6 offered insights into tenant preferences regarding maintenance service delivery, this chapter will examine the consequences for purchasing.

The purchasing of business services has become a substantial element of firms' total acquisition of external resources (Axelsson and Wynstra, 2002; Ellram, Tate and Billington, 2004; Ellram, Tate and Billington, 2007). Whereas the purchase of business services traditionally revolved around non-product related services, nowadays companies are increasingly buying services that form part of their offer to customers. Examples of this include the outsourcing of airport baggage handling by airlines, or the subcontracting of field maintenance by petrol pump producers. We adopt the terminology developed by Axelsson and Wynstra (2002, p. 105) and Wynstra, Axelsson and Van der Valk (2006), who refer to these services as 'component services'.

The services management and marketing literature has largely failed to address the issue of services that play a role in the buying company's customer processes and, in effect, become part of the company's offer to customers (Brown, 2002; Jackson and Cooper, 1988; Parasuraman, 1998). Nevertheless, Parasuraman (1998, p. 310) argues that customer-seller links differ for services that are used internally and services that will be sold to customers in the next level in the supply chain (whether or not they have been modified). In such supply chains, the quality of service provision strongly influences end-customer satisfaction, which implies a need for well-mapped customer requirements (Wynstra et al. 2006; Åhlstrom and Nordin, 2006). Chandon et al. (1997) and Lewis and Entwistle (1990) argue that such service encounters must be carefully managed since they have a high impact on customer satisfaction.

Limited attention has been paid to how companies that buy services for their customers deal with the latter's requirements, i.e. whether and how these requirements affect service specifications. In the case of services passed on to end-customers, determinants of service quality include not only aspects related to the buying organisation, but also – perhaps even more importantly – to end-customers and interactions with end-customers.

This chapter therefore focuses on the specification of component services. Our main objectives are to establish: *What determinants of service quality are important for customer satisfaction when buying component maintenance services, and to what extent are these taken into account in the specification of these services.* The chapter is organised as follows. First, we draw on a usage-based classification of business services (Wynstra et al., 2006) to further pinpoint the kinds of services under discussion. Then, we draw on literature in the area of ser-

vice supply chains, service quality and specifications to conceptualise how component services can be specified in a way that contributes to customer satisfaction. Having explained the research design, the results of document studies are examined in order to establish the extent to which the relevant determinants of maintenance service quality are included in maintenance service specifications. This discussion is aided by first drawing on the questionnaire results presented in Chapter 6. The chapter ends with a discussion of our conclusions, the managerial implications, the research's limitations, and areas for further research.

7.2 Component services and service supply chains

Companies are increasingly buying services for inclusion in their offerings to end-customers. Research on the purchasing of business services has traditionally focused on relatively standardised 'support services', such as facility services or IT. Increasingly, research is being carried out on professional services such as marketing and consultancy services, which generally rely to a large extent on the expert knowledge of the service supplier (Axelsson and Wynstra, 2002). However, the services studied are mainly those targeted at the buying company, and little attention has been paid to services that are targeted at the customer.

Jackson and Cooper (1988) were among the first to acknowledge this category of services. They propose a classification of products and services that takes into account those products and services that are being passed on to the buying company's customers. They refer to this category of services as 'production services', i.e. services that become part of the production process for a particular (set of) product(s) (which thus generally constitute direct costs). Building on this classification, and that proposed by the Industrial Marketing and Purchasing (IMP) Group (see e.g. Håkansson, 1982) for industrial goods, Wynstra *et al.* (2006) propose a classification of business services based on how the buying company uses the service with respect to its own offerings. According to these authors, this usage dimension is one of the main drivers for effective, ongoing interaction between buyer, seller and end-customer. 'Ongoing' here refers to the period of continuous service exchange after the contract has been signed.

Wynstra *et al.* (2006) identify four service types. Two of these are used by the buying firm¹, whereas the other two are targeted at customers of the buying firm. The latter two types of services concern:

- Semi-manufactured services, which are used as an input into the buying company's offer to end-customers. One such example would be the overnight cleaning of trains.
- Component services, which are directly passed on to the end-customer. One example would be the cleaning of train stations during the day.

In a recent series of iterative field studies, which build on the initial theoretical framework developed by Wynstra *et al.* (2006), it was found that the four service types set different requirements for the way in which these services are purchased (Van der Valk, 2007). For example, when buying component services, it is important to take end-customer requirements into account. Knowledge about these requirements is most likely to come from marketing and sales. Thus, when buying component services, it would seem advisable to involve marketing in the purchase team that draws up the specifications. Key buyer capabilities include identifying and communicating customer requirements, whereas important supplier capabilities include understanding these requirements, adapting service delivery to the individual needs of each customer (flexibility), and reliable delivery. Similarly, Congram and Epelman (1995) indicate that if service managers and employees are to be effective in anticipating or meeting their customers' needs, then they must understand the processes underlying their services. For component services, this includes understanding the provider's service processes, and how these interact with those of the buying company.

The notion of component services facilitates our discussion of service supply chains. Ellram, Tate and Billington (2004) note that little research has been conducted into service supply chains. Despite this, the increased importance of services (see e.g. Oliva and Kallenberg, 2003; Vargo and Lusch, 2004) and the associated service supply relationships (see e.g. Åhlström and Nordin, 2006; Blumberg, 2003; O'Farrell and Wood, 1999; Trent and Monczka, 1998) justify further research in this area. Appropriate management of component services is extremely important, since low performance on the supplier's side will immediately affect end-customer satisfaction and, ultimately, buying company performance. In their study of service supply relationships, Åhlström and Nordin (2006) furthermore signify that using suppliers that get between

¹ The two service types are instrumental services and consumption services. Instrumental services are used to change the way the buying company conducts its primary processes (think, for example, of the use of management consultancies to professionalise purchasing), whereas consumption services generally become part of the buying company's support processes (think of traditional facility services such as office cleaning and catering).

a manufacturing company and its customers may result in a loss of control over customer relationships. As a result, buying companies can feel a need to control the encounter if this is indeed where the supplier delivers value to the end-customer. Chandon, Leo and Philippe (1997) and Lewis and Entwistle (1990) also underline the importance of careful management of service encounters², since they can strongly influence customer satisfaction.

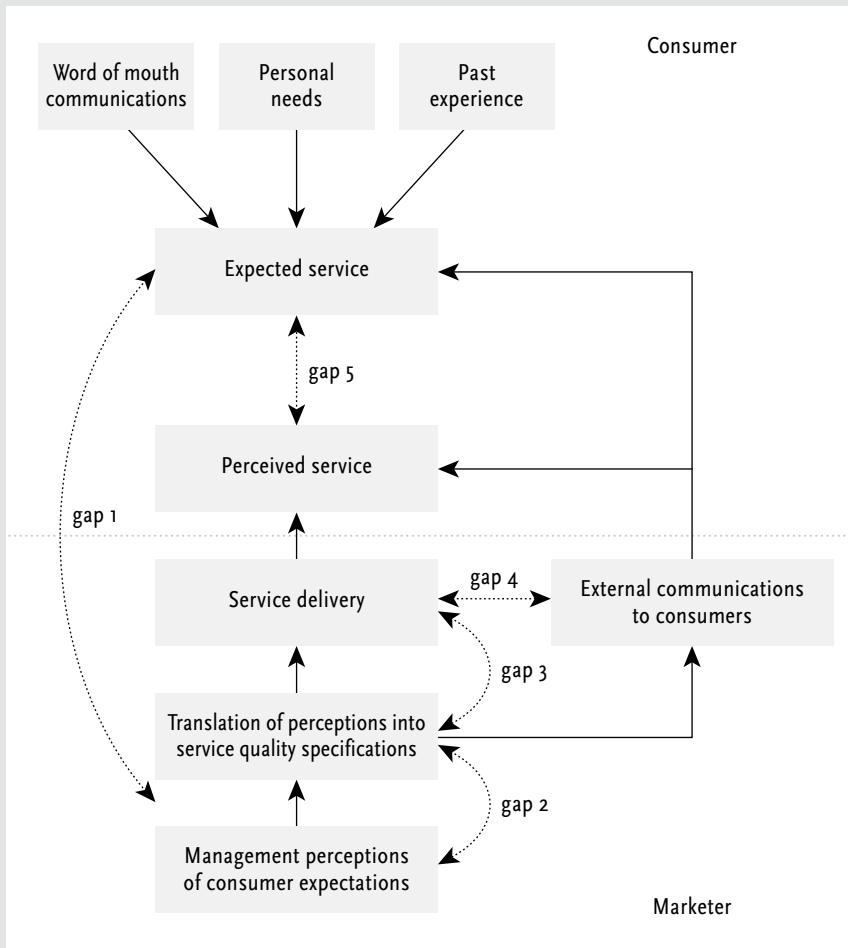
7.3 The importance of specifications for ensuring customer satisfaction

For component services, it is essential to take the end-customer's perspective into account in order to achieve (end-) customer satisfaction. Specifications play an important role in ensuring this. In the consumer (dis-)satisfaction literature, consumer satisfaction is generally viewed as being a function of consumer expectations and perceived performance, or perceived service quality (e.g. Bolton and Drew, 1994; Erevelles and Leavitt, 1992; Oliver, 1977; 1980; 1981; Oliver and DeSarbo, 1988; Rust and Oliver, 1994). Consumer satisfaction is thus a subjective evaluation of the degree to which the consumer's expectations concerning a particular service encounter have been met. As such, service quality can be regarded as an antecedent for the superordinate satisfaction construct (Brady, Cronin and Brand, 2002). In the expectancy-disconfirmation framework, consumers form expectations concerning the quality of the service to be received. Once the service has been produced and consumed, the consumer establishes a perception of the quality of the service that may or may not meet pre-consumption expectations.

Measuring service quality expectations and perceptions is thus an essential part of managing customer satisfaction. Regarding the measurement of service quality, considerable progress has been made in the area of business to consumer markets (e.g. Babakus and Boller, 1992; Brown, Churchill and Peter, 1993; Cronin Jr. and Taylor, 1992; Parasuraman, Zeithaml and Berry, 1985; 1988; 1991; 1994; Teas, 1993). Brady and Cronin (2001) identify two main approaches. First, the so-called 'Nordic' model (Grönroos, 1982; 1984) consists of technical and functional quality dimensions, which together constitute the experienced quality. By contrast, the 'American' perspective (Parasuraman et al., 1988) uses terms that describe service encounter characteristics, or determinants of service quality (i.e., reliability, responsiveness, empathy, assurances, and tangibles). This framework identifies gaps in the process of service delivery 'that can be major hurdles in attempting to deliver a service which

² Shostack (1985: 243) defines 'service encounter' as 'a period of time during which a consumer directly interacts with a service'.

Figure 7.1 Model of service quality gaps



Source: Parasuraman *et al.*, 1985

customers would perceive as being of high quality' (Figure 7.1) (Parasuraman *et al.*, 1985, p. 44).

In our view, the 'American' perspective is a more elaborate approach to measuring service quality, and we thus draw on the conceptual model of service quality developed by Parasuraman *et al.* (1985) to investigate service quality. Parasuraman *et al.* define five gaps and interrelationships between them. The fifth gap, i.e. the one between service quality as perceived by the end-customer and the end-customer's expectations, is considered to be the result of four other gaps:

1. between consumer expectations and management's perceptions of consumer expectations;
2. between management's perception of consumer expectations and management's translation of those perceptions into service quality specifications;
3. between service quality specifications and actual service delivery;

4. between actual service delivery and external communications to the consumer about the service.

When service delivery is not performed by the buying company, but by an external supplier (as is the case with component services), the buying company gives full responsibility concerning service delivery to the supplying organisation. This means that the supplier will be 'managing' Gap 5. The supplier is also responsible for Gap 3, i.e. for ensuring that service delivery matches the specifications of the buying company. Finally, Gap 4 may also become an issue for the supplier, and may be closed by focused communication aimed at managing the end-customer's expectations.

Gaps 1 and 2 thus remain under the control of the buying company, and for these, the buying company needs to properly assess customer expectations and requirements, and translate these into service specifications. After all, these specifications (theoretically) determine how the service supply chain should operate. Aalders (2007) studied the issue of control in service encounters for component services, and suggests various ways in which buying companies can increase their level of control. For example, a service level agreement, which specifies what the buying company is buying from their suppliers, is a good way to increase control over the initial (pre-order) stages of the purchasing process. Building on this, using specifications would essentially appear to be the only way in which a buying company can initially try to ensure quality regarding component services. These specifications, based on a relatively detailed set of requirements, will subsequently have implications for which supplier selection criteria are used and which kinds of interactions will take place between end-customers and suppliers.

This is in line with research conducted by Åhlstrom and Nordin (2006), who found that it is critical to developing service definitions. According to Swan, Bowers and Grover (2002), specifications are an essential part of the service process, as they determine which service will be created and how this will meet customer needs. Van Raaij and Pruyn (1998) point out that a service is comprised of its specifications, including the type of service, when and how it will be provided and the service's characteristics. In other words, the service product, the service delivery, and the service environment should be covered by the specifications given to the provider, and these specifications should form the backbone for the services purchasing process.

7.4 Maintenance services purchased by Dutch housing associations

This research focuses on planned and reactive maintenance (for a description, see Appendix 5), as these two types of services form almost 90% of all main-

tenance expenses. More specifically, we consider:

- planned maintenance to the outside of dwellings; and
- reactive maintenance inside dwellings.

Both services are component services: unaltered, they become part of the buying company's offer to the end-customer. End-customer requirements should thus be taken into account in the service specification. However, there are some key differences between the two types of services, which relate to the characteristics of the service encounter. One such difference is the sense of urgency associated with them: in the case of reactive maintenance, the tenant usually has a problem inside his or her dwelling³ that may need to be resolved quickly; water damage or a broken heating system are two such examples. The sense of urgency is therefore usually high. Planned maintenance, however, is usually preventive, meaning that the sense of urgency is generally relatively low. Another aspect that may lead to a need for greater control with respect to reactive maintenance inside dwellings, as opposed to planned maintenance to the outside of dwellings, relates to the fact that tenants tend to feel more personally responsible for and attached to in-house maintenance than to (more public) outside maintenance.

The second key difference relates to the fact that reactive maintenance tends to be characterised by short and intensive interactions with tenants (inside dwellings), whereas planned maintenance implies less intensive interactions relating to the works, which may take a relatively long time. These differences can have an impact on which determinants of maintenance service quality are most important for each maintenance service. Any differences that occur between reactive and planned maintenance should be reflected in the service specification. Based on the above, we would expect different service specifications for reactive and planned maintenance services.

7.5 Research design

Our research consisted of a survey conducted among tenants of Dutch housing associations, and an analysis of these housing associations' specification documents. The development and testing of the survey were described above in Sections 5.3, 5.4 and 6.4. The respondents were described in Sub-Section 5.5.1, and Sub-Section 5.5.2 explained how missing data was handled.

We built upon the survey results by undertaking a document analysis. This

³ Despite the fact that exceptions exist (for example: the sudden breakdown of a shared heating system in an apartment building), for purposes of simplicity we assume that reactive maintenance takes place within an individual tenant's dwelling, which increases the sense of urgency.

aimed at verifying whether or not the appropriate determinants of maintenance service quality had been secured in the housing associations' specifications. This is highly relevant to the issue at hand, since Åhlström and Nordin (2006) indicate that drawing up good agreements seems to be a potential problem area in the establishment of service supply relationships. The intangibility of many services makes evaluation and specification difficult in the case of such agreements (Axelsson and Wynstra, 2002, p. 24; Tinsley and Lewis, 1978). For component services that become part of the customer's experience (Johnston and Clark, 2001), developing appropriate specifications also becomes more important from a strategic perspective.

The analysis includes a review of specifications relating to one form of planned maintenance, exterior painting, and one form of reactive maintenance, maintenance to heating and water systems.⁴ We studied all documents that could be classified as being part of the maintenance service specifications for a selection of six (independent departments of) housing associations. These included the same housing associations whose tenants participated in the survey research.

These documents were analysed in detail for the presence, whether direct or indirect, of matters relevant to service quality determinants (as identified earlier in the tenants' maintenance survey, see further Chapter 6). The following service quality determinants were identified:

- the quality of the result of maintenance;
- the competence of maintenance workers;
- completing maintenance activities in a single visit;
- avoiding damage to personal property;
- sticking to execution planning agreements;
- the politeness of maintenance workers;
- being available to answer questions and receive complaints;
- limiting and tidying up litter and dust around the work site;
- flexibility in making appointments;
- tenant participation in maintenance (availability of options);
- being addressed in your own language;
- limiting nuisance caused by noise and vibration;
- limiting the time taken by the work;
- having maintenance workers wear smart, uniform overalls;
- speed of response;

⁴ Clearly, exterior painting is only one example of planned maintenance, just as maintenance to individual heating and water systems is only one example of reactive maintenance. We could have selected many others. We selected these services as examples of planned and reactive maintenance because these are exemplary examples of the two types of maintenance services, they are usually the most important in terms of expenditure, and are also very important for tenant satisfaction.

- evaluation and restoration of service (service recovery);
- provision of information prior to the start of maintenance activities.

The documents analysed included contracts, specifications, memos, and general terms and conditions. 'Theme codes' were used to retrieve and organise the chunks of data (Miles and Huberman, 1994), and clustering and displaying the condensed chunks set the stage for drawing conclusions. We recorded the document's type, owner, date, and name; the maintenance service concerned; the statement referring to a specific determinant of maintenance service quality; the determinant of maintenance service quality covered by the statement; the location of the statement in the document; and the weight of the statement. Points of consistency between the various documents were clarified in interviews with buyers and contract managers from the various housing associations.

A three-point weighting system was applied to the presence of the determinants: strong, average, and weak. The weighting of a particular statement was determined by comparison with other clauses and other service determinants. We looked at how measurable and realisable the various clauses were, and how well they covered specific service quality determinants.

The weightings represent an attempt, despite the envisaged qualitative nature of this survey, to gauge how much attention was given to a given determinant for a given type of maintenance. A weakly-represented determinant in a clause was multiplied by 1; a determinant given average attention in a clause was multiplied by 2; and strongly-represented determinants (i.e. those that were specific, measurable, realisable, and provided good cover) were multiplied by 3.

In order to increase the reliability of the research, six documents were selected at random from the entire range of documents included in the study. Three were re-evaluated by an expert reviewer, the other three by a layman. Some minor adaptations were made with regard to the determinants of maintenance service quality and the weighting of these aspects. Overall, our interpretations can be considered to be reliable. The results of the survey and the document analysis are discussed in the next two sections.

7.6 Results of the survey

7.6.1 Introduction

The results of the tenant survey were described in Chapter 6. In this chapter, the so-called 'stated' importance ratings, presented in Chapter 6, will be used. For both reactive and planned maintenance, tenants consider 'the quality of the result of maintenance' to be most important, followed by 'the compe-

tence of maintenance workers', and 'completing maintenance activities in a single visit'. When asking respondents to give their top three determinants of maintenance service quality, in addition to the determinants of maintenance service quality just mentioned, 'sticking to execution planning agreements' also has a very high ranking. From these findings, we can conclude that for the maintenance of housing association's dwellings, both the outcome and the process of the service are essential for tenant satisfaction and therefore for the success of service delivery. This is in line with research conducted by Grönroos (2004), Edvardsson and Olsson (1996) and Asubonteng *et al.* (1996, p. 63), who all argue that a customer's perception of quality is not solely based on the output of the service, but that the process of service delivery is also important.

When introducing the case study, we noted some expectations regarding the differences between planned and reactive maintenance. Two main differences were identified:

1. Differences relating to the character of interactions during the works: short and intensive interactions for reactive maintenance, and less intensive interactions for planned maintenance works, which can take a relatively long time.
2. Differences with regard to the need for perceived control over service delivery: high for reactive maintenance inside dwellings, and low for planned maintenance to the outside of dwellings.

7.6.2 Differences with regard to the character of interactions during the works

We tested the importance of determinants of maintenance service quality related to the character of interactions during works for both reactive maintenance inside dwellings, and planned maintenance to the outside of dwellings. Interactions during such works take place between workmen and tenants. In the context of customer contact services (also a component service when it is purchased), Froehle (2006) argues that for services that are characterised by a fair degree of interaction between a company and its customers, service representatives' skills are highly important. He points out that unprofessional, discourteous or inattentive agents can easily reinforce or even create negative customer impressions, and decrease customer satisfaction as a result. From a tenant's perspective, workmen's characteristics will therefore strongly affect the quality of interactions.

The test was conducted in two ways. First, workmen's characteristics in a narrow sense (i.e. only factors directly related to workmen's characteristics) were tested; and second, workmen's characteristics in a broader sense (i.e. including the consequences of the workmen's characteristics) were tested. In order to be allocated to the narrow group of workmen's characteristics, those determinants of maintenance service quality introduced in Chapter 6 relat-

Table 7.1 Workmen characteristics

Workmen characteristics in a narrow sense	Workmen characteristics in a broader sense
<ul style="list-style-type: none"> • The politeness of maintenance workers • The competence of maintenance workers • Having maintenance workers wear smart, uniform overalls 	<ul style="list-style-type: none"> • The politeness of maintenance workers • Avoiding damage to personal property • The competence of maintenance workers • Limiting and tidying up litter and dust around the work site • Limiting the time taken by the work • Having maintenance workers wear smart, uniform overalls • Being addressed in your own language • Limiting nuisance caused by noise and vibration • Completing maintenance activities in a single visit

ing to the direct characteristics of maintenance workers were selected. The broader group of workmen's characteristics included determinants of maintenance service quality that are affected by workmen's characteristics, i.e. 'avoiding damage to personal property' (see Table 7.1). The following hypotheses were tested:

H1a: *Workmen's characteristics in a narrow sense are more important for tenants for reactive maintenance inside dwellings than for planned maintenance to the outside of dwellings.*

H1b: *Workmen's characteristics in a broader sense are more important for tenants for reactive maintenance inside dwellings than for planned maintenance to the outside of dwellings.*

For the 'narrow' group, the average importance of determinants of maintenance service quality for reactive maintenance was 6.04, while the average figure for planned maintenance was 6.02. A pairwise t-test was performed in order to test whether the average importance differs for each type of service. The outcome of the test was $t=-1.841$ with $df=4723$ and $p>0.05$. The service types thus do not differ significantly, and hypothesis H1a was rejected. The test was conducted again for the 'broad' group. For this group, the average importance of determinants of maintenance service quality for reactive maintenance was 6.01, while the average figure for planned maintenance was 6.00. The outcome of the t-test was $t=-1.185$ with $df=4501$ and $p>0.05$. This meant that, again, the service types do not differ significantly and hypothesis H1b was also rejected. The different character of interactions between planned maintenance to the outside of dwellings and reactive maintenance inside dwellings was thus not affected by different perceived importance ratings of related determinants of maintenance service quality.

Despite these conclusions, we have to take into account the differences in measurement outcomes between the stated importance ratings and the impact of determinants of maintenance service quality identified in Chapter 6 (see Appendix 3). It appeared that few of the determinants of maintenance service quality listed for the 'broad' group had positive coefficients with tenant satisfaction for reactive maintenance inside the dwelling, while this was

Table 7.2 Aspects attributing to perceived control over the services

- Being available to answer questions and receive complaints
- Flexibility in making appointments
- Sticking to execution planning agreements
- Tenant participation in maintenance through options

not the case for planned maintenance to the exterior of the building. Therefore, the application of the regression outcomes instead of the stated importance ratings might have resulted in different outcomes.

7.6.3 Differences with regard to the need for perceived control over service delivery

Unlike planned maintenance, which is planned by a housing association, reactive maintenance is conducted in response to requests from tenants. From the tenant's perspective, there is a certain degree of urgency connected with reactive maintenance, due to the fact that it is the tenant who takes the initiative. The urgency for the tenant can be particularly high in those cases where broken building components are directly causing dissatisfaction, such as broken heating and water systems, lifts, and roofing. This high degree of urgency implies a need for control over the service encounter, in order to accelerate and improve problem-solving.

As mentioned in Section 7.4, another aspect that might lead to a greater need for control in the case of reactive maintenance inside dwellings (as opposed to planned maintenance to the outside of dwellings) is related to tenants feeling more personally responsible for and attached to in-house maintenance than (more public) outside maintenance.

The importance of various attributes relating to perceived control was tested for both reactive maintenance inside dwellings, and planned maintenance to the outside of dwellings. The following hypothesis was formulated:

H2: Attributes relating to perceived customer control are more important for tenants in the case of reactive maintenance inside dwellings than in the case of planned maintenance to the outside of dwellings.

Table 7.2 lists the determinants of maintenance service quality that influence tenants' perceptions of their control over the service.

The average importance of determinants of maintenance service quality for reactive maintenance was 6.20, while the average figure for planned maintenance was 6.08. A pairwise t-test was performed in order to test whether the average importance differed for each type of service. The outcome of the test was $t=-11.892$ with $df=4489$ and $p<0.01$. Hypothesis H2 was thus supported. For tenants, attributes relating to perceived customer control appear to be more important for reactive maintenance inside dwellings than for planned maintenance to the outside of dwellings. In order to ensure tenant satisfaction, this differentiation should be incorporated into the service specifications.

7.7 Results of the document analysis

7.7.1 Introduction

Turning to the results of the document analysis, the determinants of maintenance service quality were examined in 28 documents used by the six selected organisations (46 were reviewed in total). In total, 236 determinants of maintenance service quality relating to the two selected maintenance services were found in these documents. The degree to which the specifications address determinants of maintenance service quality varies greatly between housing associations and between maintenance services.

By far the best-covered service among those selected was that of (reactive) maintenance to heating and water systems. 'Covered' in this context means that important determinants of maintenance service quality are included in a certain service's specifications. Given the fact that tenants rate this as the most important maintenance service for residential satisfaction (see Chapter 5), this would appear to be commendable.

Tables 7.3 and 7.4 show the coverage of determinants of maintenance service quality in maintenance specifications. In the tables, the relative weights of the sections for covering the specific determinants of maintenance service quality are presented. The researchers determined the weights according to the degree of specificity, measurability, feasibility of the section, and the degree of coverage of the specific determinant of maintenance service quality in the specific section. A distinction was made between weak, medium and strong coverage.

7.7.2 Maintenance of heating and water systems

The item most frequently included in specifications for maintenance of (individual) heating and water systems is that suppliers must be available to answer questions and receive complaints. When it comes to requested repairs, accessibility is a key factor, and is indeed essential if carrying out such maintenance is to be possible at all. Much attention was also given to flexibility in making appointments, and preventing damage to personal property. The documents gave no attention to 'tenant participation by providing maintenance options' and 'addressing tenants in their own language' (in cases when tenants and workmen do not speak the same language). However, these were not among what tenants considered to be the most essential determinants of maintenance service quality. Likewise, little attention was paid to completing maintenance work in a single visit and limiting the time taken by work.

Table 7.3 Results of document studies for maintenance of heating and water systems

Determinant of maintenance service quality	Weak (x1)	Medium (x2)	Strong (x3)	Score	%
Being available to answer questions and receive complaints	5	5	6	33	19.2
Flexibility in making appointments	6	6	3	27	15.7
Avoiding damage to personal property	2	10		22	12.8
Limiting and tidying up litter and dust around the work site	6	2	3	19	11.0
The politeness of maintenance workers	5	5	1	18	10.5
Limiting nuisance caused by noise and vibration	2	3	3	17	9.9
The competence of maintenance workers	5	4		13	7.6
Sticking to execution planning agreements	5	1		7	4.1
Having maintenance workers wear smart, uniform overalls		3		6	3.5
Limiting the time taken by the work	3	1		5	2.9
Completing maintenance activities in a single visit	1	2		5	2.9
Being addressed in your own language					
Tenant participation in maintenance through options					
Total				172	100%

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

7.7.3 Exterior paintwork

The best-covered service quality determinant for exterior paintwork was the prevention of damage to personal property. 'Limiting and tidying up litter and dust around the work site' also received much attention, followed by 'limiting noise and vibration' and 'ensuring satisfactory provision of information before the start of maintenance work'. No attention was given to 'completing maintenance in a single visit', 'having maintenance workers wear smart, uniform overalls', and 'tenant participation in maintenance (availability of options)'. Because exterior work takes place outside the home, failing to complete maintenance in a single visit usually has no direct impact on residents' satisfaction. Overalls are apparently not considered important outside the home, although they could have some merit from the point of view of feelings of reliability and identity.

7.7.4 Tenants' priorities versus specifications

Generally speaking, the sequence of determinants of maintenance service quality in the specifications differs from the priorities given by the tenants in the questionnaire on maintenance services. From the analyses conducted, it appears that completing maintenance in a single visit is insufficiently documented in maintenance specifications, in view of its importance from a tenant's perspective. Although it should be possible to take this aspect for granted, (it is, after all, only sensible that work should be completed in a single visit), tenants' dissatisfaction on this point suggests a need for specification.

Table 7.4 Results of document studies for exterior painting

Determinant of maintenance service quality	Weak (x1)	Medium (x2)	Strong (x3)	Score	%
Avoiding damage to personal property	5	13	1	34	22.4
Limiting and tidying up litter and dust around the work site	3	8	4	31	20.4
Limiting nuisance caused by noise and vibration	1	6	4	25	16.4
The politeness of maintenance workers	2	5		12	7.9
Sticking to execution planning agreements	3	4		11	7.2
Flexibility in making appointments	5	3		11	7.2
The competence of maintenance workers	1	5		11	7.2
Limiting the time taken by the work	3	3		9	5.9
Being available to answer questions and receive complaints	4	1		6	3.9
Being addressed in your own language		1		2	1.3
Tenant participation in maintenance through options					
Completing maintenance activities in a single visit					
Having maintenance workers wear smart, uniform overalls					
Total				152	100%

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

In Tables 7.3 and 7.4, the factors that enable tenants to feel in control regarding urgent reactive maintenance are printed in bold. The tables show that the specifications for heating and water systems have more relative and absolute coverage of determinants of maintenance service quality with regard to perceived customer control than specifications for exterior painting: 67 sections of six housing associations relate to perceived customer control. This means that 39% of all sections relating to any of the determinants of maintenance service quality is devoted to the four determinants of maintenance service quality that add to perceived customer control. For exterior painting, these figures are respectively 28 sections, and 18.3%. From this research, we can confirm that the aspect of maintenance services that is most specifically needed, that of perceived customer control, is being taken into account in the specification process.

7.8 Conclusions and discussion

The purchasing of services that are passed on to the buying company's customers is becoming an increasingly important phenomenon. Given the large impact that such services can have on end-customers, it is important to take end-customer requirements properly into account when specifying these services.

The context of the research was maintenance services purchased by Dutch housing associations that were to be delivered to tenants' dwellings. We conducted a survey of tenants' perceptions of the relative importance of various

determinants for maintenance service quality, and investigated whether differences exist between planned and reactive maintenance.

Overall, the results of the survey indicate that for both types of maintenance, the outcome as well as process of the service are essential for tenant satisfaction and therefore for the success of service delivery. We found that the character of interactions during the maintenance works does not differ significantly across the two types of maintenance service. The hypotheses that workmen's characteristics in both a narrow and a broad sense would differ for the two types of maintenance service were rejected. Apparently, when designing tenant-supplier interactions, it would not seem relevant to distinguish between the two types of maintenance services with regard to this aspect.

Aspects that contribute to tenants' perceptions of control are more important in the case of reactive than in the case of planned maintenance services. This need for perceived control over the service encounter stems from the urgency of the need for a service, which is generally higher for reactive maintenance than for planned maintenance. In addition, tenants might feel greater responsibility for maintenance inside dwellings than for maintenance conducted outside, and therefore feel a greater need to control the service. Thus, the two types of maintenance are different in terms of the perceived need for control. This should be taken into account the service specifications.

We found that the purchasers who took part in this study do emphasise this need for control and its implications for the service delivery process in the specifications. As a result, greater attention is given to determinants of maintenance service quality that give tenants a feeling of control over a situation in the case of reactive maintenance, than for planned maintenance.

However, we found that housing associations do not include all determinants of maintenance service quality that contribute to tenant satisfaction in their service specifications. For example, tenants mentioned 'completing maintenance in a single visit' as being important, yet it is hardly documented in maintenance specifications. Furthermore, the maintenance specifications (planned and reactive) do not cover involvement of customers in the maintenance process by making various maintenance options available. This would suggest that there is still room for improvement of the specifications developed by housing associations.

Furthermore, the determinants of service quality tend to be covered in a number of different documents, rather than in a single document. Therefore, for a supplier to be successful in meeting all the requirements, an extensive search must first be conducted to identify them. Moreover, much duplication can be found with respect to sections that deal with determinants of maintenance service quality. In addition, there is usually no attempt to differentiate technical from process-related specifications. In order to stimulate readability and compliance, attention should be paid to the way in which the deter-

minants are structured and built up in the various documents related to the specifications.

In general, this research suggests that component services seem to be insufficiently recognised as such by purchasers, leading to inadequate coverage of important determinants of service quality in service specifications. This situation may not only apply to maintenance services bought by housing associations, but also to other kinds of component services. For example, Tate and Van der Valk (2006) used the context of call centre services to discuss the importance of having an end-customer perspective for end-customer satisfaction and, ultimately, buying-company success. Other examples could include catering for patients and visitors in hospitals, or baggage-handling at airports. The insights that this chapter has offered with regard to service specifications could help to optimise service delivery from the end-customer's perspective for other component services as well.

7.9 Managerial implications

Buying companies can use the knowledge obtained in this chapter to critically reflect on which aspects of service delivery contribute to perceptions of high-quality services, and how they should thus specify these for providers. Proper service specification, which should take into account what end-customers deem to be important, will help a company to acquire and retain satisfied customers.

Recognising that services such as maintenance services are component services has implications not only for specifications, but also for other elements of a commodity strategy. First of all, performance measurement should ensure that the requirements are indeed fulfilled. According to the specifications, for example, workmen may be not allowed to smoke inside dwellings. This needs to be monitored in order to ensure compliance, e.g. by means of periodical output measurements by a third party. Key requirements that must be met by housing associations could be included as award criteria. For reactive maintenance to heating and water systems, for instance, it may be essential to have a supplier with a proven record of accessibility in order to achieve tenant satisfaction. Housing associations could demand that suppliers are able to give evidence of past successes based on convincing figures. Contract-related incentives could be used to stimulate performance relating to determinants of service quality that enhance tenant satisfaction. They could be used in addition to the standards set for execution requirements. Contract-related incentives are an interesting option due to the fact that it is difficult to assess service quality beforehand. Housing associations could specify a minimum level of performance for individual service quality determinants, and any deviations could be linked to bonuses or penalties.

Supplier suitability requirements (or selection criteria) are essential for verifying whether a maintenance service supplier indeed has the resources and capabilities needed to provide high-quality service delivery. In addition to diplomas showing the proficiency of maintenance workers, a proven ability to deal with tenants in a client-friendly manner may be required.

Finally, as was mentioned earlier, the readability and clarity of specification documents could be improved. For example, it might prove helpful and would add to transparency to use separate documents for technical specifications and for issues related to interaction with tenants (functional quality).

7.10 Limitations and future research

Despite the merits of the study presented in this chapter, one should note a few critical points. The first relates to our choice of empirical domain. Admittedly, the social rented sector may not be an obvious choice for studying the specification of component services. However, given that direct services are becoming increasingly important to the success of buying companies, and that such services are increasingly being sourced from external suppliers, we would argue that the subject is highly relevant and topical. The fact that the context of our research is unusual does not diminish the value of our findings. However, in order to enhance the robustness of the results, the study would need to be repeated in other contexts and for other services.

Second, this chapter has focused on how component services should be specified in order to enhance customer satisfaction. No attention, however, was given to the effects of these presumably better specifications. Future research should address whether more appropriate specifications for component services indeed result in higher customer satisfaction.

In addition, future research could also examine the related costs for securing end-customer preferences by means of specifications. The cost associated with component service activities is a major issue, and any actions (e.g. monitoring performance) that can be taken to ensure a high level of quality and customer satisfaction are therefore extremely important. Such actions need to be cost-effective, however. Finally, end-customer satisfaction is not the only objective of housing associations. A more comprehensive decision model that included aspects such as value, liveability and sustainability would to comply with the objectives of the purchasing organisations in question to a greater extent.

This chapter focused primarily on the theoretical relationship between determinants of service quality and specifications. In Chapter 8, we extend our investigations concerning maintenance service specifications to other maintenance services, and to the structure of documents. Chapter 9 examines other aspects of commodity strategies that may help to improve end-customer

satisfaction, such as the configuration of the buyer-supplier relationship, and use of suitability requirements, award criteria and contract-related incentives.

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8 The end-customer focus of maintenance service specifications for purchasing

8.1 Customer-oriented specifications

8.1.1 Introduction

Chapter 7 concluded that specifications form a crucial part of the service process. They determine which service will be created and how this will satisfy client wishes (Swan *et al.*, 2002). Specifications cover a service's requirements, that is, the type of service, when and how it is to be delivered, and its characteristics (Van Raaij and Pruyn, 1998). One can find various opinions as to what should be understood by the term, 'specifications'. Nellore *et al.* (1999) conducted a survey on the meaning of the term for automotive industry suppliers. The definition most frequently mentioned by respondents was: 'requirements of the customer/user that the product has to fulfill'. This definition does not prescribe a specification method, unlike some of the less popular definitions: 'a very careful description of a product or a process', and 'technical descriptions of products and processes which may contain drawings'. This study adopts the most popular definition, which gives buyers and suppliers the most freedom to adopt a particular style, while still allowing success.

Referring to the contracts used for construction projects, Clough (1986) long ago noted that due to the complexity of the projects, such contracts tend to be lengthy and painstakingly drafted so as to precisely specify legal, financial, and technical aspects. Maintenance projects may well be less complex than other building projects, but the nature of the contracts involved is comparable.

This chapter addresses purchasing specifications (execution requirements) for maintenance services, as used by housing associations in the Netherlands. Award criteria, of course, are another means of securing high-quality service delivery. Due to the fact that award criteria are seldom used by Dutch housing associations, however, we do not address them in this study. Chapter 9 examines the potential advantages of using award criteria.

The objective of our survey was to discover the extent to which maintenance service specifications focus on the end-customer, and therefore the degree to which they take service aspects that are important to tenants into account. The survey question was: *To what extent do maintenance service specifications cover the service aspects that are important to tenants?* The subsequent analyses addressed the following questions:

- Which types of maintenance are specified in the most customer-oriented ways?
 - Which service aspects receive most attention in the specifications?
 - Do housing associations differ in their customer focus, as expressed in specifications?
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- Does the emphasis on certain service aspects differ across the various types of maintenance?
- Does the emphasis on certain service aspects differ across the various housing associations?
- Does the customer always receive attention in the same kind of documents? In other words, do housing associations ensure customer-friendliness in similar ways?

8.1.2 Purchasing documents

We analysed the documents concerned with the definition of specifications introduced above: 'requirements of the customer/user that the product has to fulfill'. One should note at the outset that documents cannot capture everything. Some agreements may go undocumented, as may be the case if a partnership has existed for many years. A complete survey of the content of maintenance specifications would therefore demand more than a document study and several interviews. It would require a more extensive research method that would allow the above-mentioned undocumented matters to be investigated, preferably at first hand. However, the survey that was performed does give a clear initial indication of the customer-friendliness of maintenance specifications in the Dutch social rented sector.

Contracts are the most important specification documents. The term, 'contract', is far from clearly defined, however. Framework agreements, for example, have multiple meanings in practice. Parties will often be initially contracted using a framework agreement, and then engaged later by means of separate contracts or orders. Alternatively, a framework agreement may be used as a form of, or in combination with, general conditions.

Other documents that are often physically available are calls for proposals or for information. Such documents set out the requirements that proposals must satisfy in order to have any chance of success.

Besides the actual maintenance service contract, general conditions are among the most important documents for specifications. Bubshait and Almohawis (1994) observe that general conditions need to be applicable to all projects in an organisation, or even a country. General conditions are developed by various professional bodies and are widely used in the construction industry. Bubshait and Almohawis (1994) suggest that this constitutes an acknowledgement by the construction industry of the benefits of using standard general conditions:

1. Standard general conditions create opportunities for improving specifications. Using the same standard conditions for a lengthy period allows the clarity, fairness and efficiency of the clauses to be tested, and to be corrected as necessary.
2. An advantage of standard contracts is that the contracted parties will be

familiar with the relevant contract clauses. This familiarity will limit the time and effort needed to prepare and review documents for a contract, and will help improve clarity in a tender.

Bubshait and Almohawis (1994) also mention some disadvantages of general conditions: they are often biased in favour of the organisation that wrote them, and they reflect assumptions that can be irrelevant to some applications (Gilberth, 1983).

This survey investigates the extent to which maintenance service specifications are focused on the customer. It should be noted that this is not to negate the importance of other elements that determine the success of specifications, such as clarity, completeness, consistency, practical applicability, fairness, and impacts on quality, costs, planning and safety.

8.1.3 Buyers and tenants

Purchasing can be considered to be customer-oriented when issues that customers consider to be important are taken into account. A 2006 survey examined maintenance-related issues that customers, or tenants, considered to be important for their level of comfort (see for an extensive analysis e.g. Van Mossel *et al.*, 2006; and the Chapters 5-8). This survey revealed that both for planned maintenance to the exterior of a dwelling and reactive maintenance within dwellings, the quality of the result was ultimately the most important factor. The next most important aspects were the competence of the maintenance workers, the completion of maintenance in a single visit, and avoidance of damage to personal property. Process-related matters, such as being available to answer questions and receive complaints, flexibility in making appointments, and limiting the time taken by work, were found to be more important for reactive maintenance in dwellings than for planned maintenance to the exterior of dwellings. Thus repairs involve more interaction with the resident than planned maintenance.

Buyers' expectations

In order to gain an approximate idea of the degree of consistency in the specification process, we asked five employees from five independent (local) departments at a major housing association to state their expectations of what tenants consider important in maintenance. All five employees were involved in the specification of maintenance. With regard to planned exterior maintenance, it was expected that sticking to execution planning agreements would be the most important fact, followed by avoiding damage to personal property, and the quality of the result. With respect to requested repairs in the dwelling, the expectations varied somewhat. In this case, flexibility in making appointments was expected to be most important factor for residents, followed by

sticking to execution planning agreements, completing maintenance work in a single visit, being available to answer questions and receive complaints, and avoiding nuisance and tidying up litter and dust around the work site. These differences show that purchasing employees differentiate between planned exterior maintenance and reactive maintenance in the dwelling.

If we compare the buyers' assessment with tenants' opinions, it is striking that tenants attached even more importance to the results of maintenance than the association staff had expected. Sticking to execution planning agreements is still extremely important, but less important than the quality of the result. The same applies to flexibility in making appointments for reactive maintenance in dwellings. The aspects considered to be most important by (the very modest sample of) association staff were broadly in line with those that the residents rated highly.

8.1.4 Survey method and data

The data include all applicable documents in the maintenance purchasing process, such as contracts, calls for proposals and tendering documents (see Section 7.5). Data were gathered from four major housing associations located in western and central regions in the Netherlands. The characteristics of the participating housing associations are displayed in Table 5.2 in Chapter 5. The survey was conducted at department-level for one of the housing associations, and three separate departments were involved. The data therefore relate to six different purchasing organisations. The selected housing associations were known to engage in innovative tendering methods, such as performance-based partnerships, which is reflected in the content of the documents.

The survey covered four different maintenance services, thereby extending the survey introduced in Chapter 7:

- maintenance of individual heating and water systems;
- maintenance of individual ventilation systems;
- exterior paintwork;
- cleaning of shared building elements.

The first two maintenance services take place within the home, while the other two occur externally (one on the building exterior, and the other in shared building elements). The maintenance of heating and water systems normally occurs in response to residents' request and has some degree of urgency. Maintenance of ventilation systems may be carried out on the basis of what are usually indirect complaints related to people's home environments. Exterior paintwork is initiated by the housing association and can be regarded as an upkeep measure. The cleaning of shared building elements, if performed on a regular basis, is normally a housing association initiative.

See further Section 7.5 for an explanation of the research methods used.

8.2 Results

8.2.1 Maintenance types and documents

Dozens of documents were scrutinised for service quality determinants. In all, 340 relevant clauses were found in 28 documents.

The number of relevant clauses per housing association varied between 29 and 78, where the last would initially appear to have the most customer-friendly specifications, leaving aside the duplication of aspects in multiple documents. 130 of the 340 relevant clauses related to the maintenance of heating and water systems, 106 to exterior paintwork, 52 to the cleaning of shared building elements, and 50 to the maintenance of ventilation systems. It is important to note that contracts for cleaning shared building elements and ventilation system maintenance are still under development, and that many associations have yet to conclude a contract for these services. These types of maintenance are not carried out in many cases. For many housing associations, therefore, the first step for improving service delivery to tenants would simply be to set up and organise the relevant maintenance activities.

Table 8.1 sets out the documents that were analysed and that deal with service aspects in some way.

8.2.2 Documents and determinants of maintenance service quality

Only those documents that included any determinants of maintenance service quality were included in the analysis. Table 8.2 lists the determinants of maintenance service quality and the specification documents that refer to them for the selected housing associations. The list indicates which types of document housing associations are using in their attempts to optimise service to end-customers.

The 'contract documents' are generally technical in nature, especially those for exterior paintwork. Contract documents stipulate the provision of information to tenants, as well as physical matters related to the actual activities. These physical matters might be concerned with avoiding damage to tenants' property, and preventing nuisance caused by noise, vibration, dust and litter.

The issues covered by calls for proposals are broadly similar to those covered by contracts. A possible explanation for this is that a call for proposals will specify requirements and thus functions as a direct precursor to the contract. Those aspects that are mentioned relatively frequently in both calls for proposals and contracts are: being available to answer questions and receive complaints, the provision of information to tenants, and the speed of response. 'Completing maintenance work in a single visit' was mentioned in

Table 8.1 Documents with ‘customer-friendly’ clauses

Association	Maintenance	Document
A	Maintenance of heating and water systems	Performance contract for central heating maintenance; General conditions for performance contract for central heating maintenance + Appendix; Process description for performance-based partnership; Framework agreement for performance-based partnership
	Exterior paintwork	General purchasing and contracting conditions; Framework agreement for performance-based partnership + Appendix 1
B	Maintenance of heating and water systems	General conditions association B + Appendix III: conditions for customer contacts; Request for proposal for maintenance; Request for information
	Exterior paintwork	General conditions association B + Appendix III: conditions for customer contacts
C1	Cleaning of shared areas	Framework agreement, certificates of integrity, and general conditions
	Maintenance of heating and water systems	Maintenance contract for individual heating and hot water and framework agreement
	Maintenance of mechanical ventilation systems	Maintenance contract for mechanical ventilation; Framework agreement, certificates of integrity, and general conditions
	Exterior paintwork	Contract documents for maintenance paintwork; Framework contract, certificates of integrity, and general conditions; UAV
C2	Cleaning of shared areas	Contract for cleaning shared areas; Framework agreement, certificates of integrity, and general conditions
	Maintenance of heating and water systems	Maintenance contract for individual heating and hot water; Framework agreement, certificates of integrity, and general conditions
	Maintenance of mechanical ventilation systems	Framework agreement, certificates of integrity, and general conditions
	Exterior paintwork	Contract documents for external paintwork; Memo x residents’ information PLO; Framework agreement, certificates of integrity, and general conditions; UAV
C3	Cleaning of shared areas	Cleaning contract; Framework agreement, certificates of integrity, and general conditions
	Maintenance of heating and water systems	Maintenance contract for individual heating and hot water; Framework agreement, certificates of integrity, and general conditions
	Maintenance of mechanical ventilation systems	Maintenance contract for mechanical ventilation; Framework agreement, certificates of integrity, and general conditions
	Exterior paintwork	Request for proposal, description of work; Framework agreement, certificates of integrity, and general conditions
D	Cleaning of shared areas	Contract for cleaning activities
	Maintenance of heating and water systems	Requirements specification for maintenance, service and replacement of heating equipment for individual installations; Performance contract
	Exterior paintwork	General conditions for planned maintenance

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

the calls for proposals examined, but not in contracts. The same applies to ‘sticking to execution planning agreements’. ‘Evaluation and restoration of service’ is one aspect that was mentioned somewhat more often in contracts

Table 8.2 Aspects of service and the documents in which they are specified

Document	Service quality determinants															Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	
Contract documents	2	0	2	2	0	1	2	0	0	0	0	0	0	0	0	9
Request for proposal	2	1	5	0	4	1	1	1	1	2	0	5	1	2	0	28
'Traditional' contract	1	5	7	5	9	1	0	4	3	0	0	8	1	0	1	46
Performance-based contract	0	1	0	0	1	1	0	0	1	0	0	1	1	0	0	6
Framework agreement	2	0	2	0	0	0	0	2	0	0	0	0	0	0	0	6
Framework contract, certificates of integrity, and general conditions	22	22	11	11	11	11	11	11	11	11	11	0	0	0	0	155
General terms and conditions	13	6	5	15	3	8	10	4	5	4	4	2	1	1	1	83
Selection criteria	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Informal work description	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	4
Total	44	37	34	34	30	25	25	23	23	19	16	16	4	3	2	340
I Avoiding damage to personal property									IX The competence of maintenance workers							
II Flexibility in making appointments									X Sticking to execution planning agreements							
III Provision of information before the start of maintenance work									XI Limiting the time taken by work							
IV Limiting and tidying up litter and dust around the work site									XII Speed of response							
V Being available to answer questions and receive complaints									XIII Having maintenance workers wear smart, uniform overalls							
VI Politeness of maintenance workers									XIV Completing maintenance activities in a single visit							
VII Limiting nuisance caused by noise and vibration									XV Being addressed in your own language							
VIII Evaluation and restoration of service																

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

than calls for proposals. The same applies to 'flexibility in making appointments', and 'limiting and tidying up litter and dust around the work site.' All in all, there is no clear pattern in the listed differences between the two document types. Differences may have more to do with the type of maintenance service concerned than the differences between the two document types.

Only two performance-based contracts were included in the selection (see Table 8.3), too few to allow any conclusions to be drawn regarding this type of contract.

The 'framework agreement, certificates of integrity, and general conditions', several of which were included in the selection, were either based on one other, or the same document proved to be valid for multiple housing association products and branches. This is one explanation for the large range of service aspects 'covered' in this way. The same is true for the documents that constituted the 'general conditions' part of the specifications. Many service aspects

Table 8.3 The number of documents applied in the analysis

Document	The number of documents applied in the analysis
Contract documents	2
Request for proposal	3
'Traditional' contract	8
Performance-based contract	2
Framework agreement	2
Framework contract, certificates of integrity, and general conditions	11
General terms and conditions	7
Selection criteria	1
Informal work description	1
Total	37

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

are mentioned in the general conditions. It would thus appear to be better to discuss the aspects that are rarely mentioned, or not mentioned at all. For example, addressing residents in their own language, completing maintenance work in a single visit, having maintenance workers wear smart, uniform overalls, and response speed were all aspects that were seldom stipulated in these documents. 'Offering options for maintenance' was never covered in the specifications. Some of these aspects were not mentioned frequently in any of the documents examined. Speed of response, by contrast, was usually handled in contracts, which are more specific to the maintenance service concerned.

The selected associations frequently use general conditions to address aspects of service quality. One association uses a framework agreement including general conditions as a basis for each form of partnership with maintenance firms. Selection criteria are scarce and, if they exist, are seldom applied. Some contracts address resident-related matters, but others make no mention of them. Contract documents for paintwork are particularly unlikely to do so. One association is known to have formulated internal agreements on dealing with residents. These internal agreements are applied within the association, mainly at an operational level. While it is true that internal agreements will always be made, they will not always be recorded in writing. Finally, one housing association uses calls for proposals to outline the necessary requirements regarding quality of service to tenants.

Preventing damage to personal property, and sticking to agreements (with tenants) are generally addressed in general conditions and calls for proposals, not via contracts. Speed of response, as mentioned above, is an aspect that is addressed in contracts and calls for proposals, but not in general conditions. Other service quality determinants are represented in all document types.

Table 8.4 Service quality determinants for cleaning of shared building elements

Service quality determinant	Weak (x1)	Average (x2)	Strong (x3)	Score	Score
Avoiding damage to personal property	0	7	0	14	3.50
Evaluation and restoration of service	2	2	2	12	3.00
The competence of maintenance workers	0	4	1	11	2.75
Limiting and tidying up litter and dust around the work site	0	0	3	9	2.25
Flexibility in making appointments	3	3	0	9	2.25
Limiting nuisance caused by noise and vibration	0	0	3	9	2.25
Politeness of maintenance workers	0	4	0	8	2.00
Provision of information before the start of maintenance work	3	2	0	7	1.75
Being available to answer questions and receive complaints	4	0	0	4	1.00
Sticking to execution planning agreements	3	0	0	3	0.75
Limiting the time taken by work	3	0	0	3	0.75
Having maintenance workers wear smart, uniform overalls	0	0	1	3	0.75
Being addressed in your own language	0	1	0	2	0.50
Speed of response	0	1	0	2	0.50
Completing maintenance activities in a single visit	0	0	0	0	0.00
Tenant participation by providing maintenance options	0	0	0	0	0.00

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

8.2.3 Types of maintenance and quality of service determinants

Tables 8.4-8.7 outline the scores for each maintenance service on the various service quality determinants. Due to the fact that not every housing association studied performs maintenance of ventilation systems or cleaning of shared areas, the score is also calculated per association. In other words, the score is divided by the number of associations with specifications.

Comparing the tables, it can be observed that clauses relating to maintenance of heating and water systems receive the greatest coverage, and exterior paintwork is also well covered. Specifications for the cleaning of shared areas appeared to be at a lower level of coverage from the customer's point of view. The same is true, to a lesser extent, for the maintenance of ventilation systems. This would appear to be consistent with the general attention given to the first types of maintenance mentioned, but less for the cleaning of shared areas and the maintenance of ventilation systems, and the subsequent development of contracts in these areas.

Cleaning of shared building elements

The documents relating to the cleaning of shared building elements give most attention to preventing damage to tenants' personal property. The evaluation of the service and any restoration of service also receive attention, as does the competence of the cleaners. Completing maintenance work in a single

Table 8.5 Service quality determinants for maintenance of heating and water systems

Service quality determinant	Weak (x1)	Average (x2)	Strong (x3)	Score	Score
Being available to answer questions and receive complaints	5	5	6	33	5.50
Flexibility in making appointments	6	6	3	27	4.50
Speed of response	1	7	4	27	4.50
Avoiding damage to personal property	2	10	0	22	3.67
Limiting and tidying up litter and dust around the work site	6	2	3	19	3.16
Politeness of maintenance workers	5	5	1	18	3.00
Limiting nuisance caused by noise and vibration	2	3	3	17	2.83
The competence of maintenance workers	5	4	0	13	2.17
Provision of information before the start of maintenance work	11	1	0	13	2.16
Evaluation and restoration of service	3	3	0	9	1.50
Sticking to execution planning agreements	5	1	0	7	1.17
Having maintenance workers wear smart, uniform overalls	0	3	0	6	1.00
Completing maintenance activities in a single visit	1	2	0	5	0.83
Limiting the time taken by work	3	1	0	5	0.83
Tenant participation by providing maintenance options	0	0	0	0	0.00
Being addressed in your own language	0	0	0	0	0.00

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

visit and tenant participation (availability of maintenance options) are not addressed, which makes sense given the nature of the service. The efficiency of cleaners only has a limited impact on tenants' satisfaction. Furthermore, one can make few choices when it comes to cleaning work. What is more striking is that 'being addressed in your own language', and 'having cleaners wear smart, uniform overalls', receive little attention, despite the fact that these kinds of issues can have a direct impact on the impression given to tenants.

Maintenance of heating and water systems

The item that is mentioned most frequently is 'being available to answer questions and receive complaints'. Accessibility is the key factor for reactive maintenance, and is indeed essential for being able to carry out such maintenance at all. Much attention is also paid to flexibility in making appointments, and preventing damage to personal property. The documents give no attention to allowing tenant participation by providing a range of maintenance choices, and addressing tenants in their own language. Little attention was also paid to 'completing maintenance work in a single visit' and 'limiting the time taken by work'.

Maintenance of ventilation systems

Contracts for this type of maintenance give most attention to flexibility in making appointments. 'Preventing damage to personal property' also (again) receives substantial coverage. This also applies to 'limiting and tidying up

Table 8.6 Service quality determinants for the maintenance of ventilation systems

Service quality determinant	Weak (x1)	Average (x2)	Strong (x3)	Score	Score
Flexibility in making appointments	3	4	1	14	4.67
Avoiding damage to personal property	0	6	0	12	4.00
Limiting and tidying up litter and dust around the work site	2	0	3	11	3.67
Limiting nuisance caused by noise and vibration	0	0	3	9	3.00
The competence of maintenance workers	0	3	0	6	2.00
Politeness of maintenance workers	0	3	0	6	2.00
Being available to answer questions and receive complaints	4	1	0	6	2.00
Speed of response	0	3	0	6	2.00
Provision of information before the start of maintenance work	5	0	0	5	1.67
Sticking to execution planning agreements	3	0	0	3	1.00
Limiting the time taken by work	3	0	0	3	1.00
Evaluation and restoration of service	3	0	0	3	1.00
Completing maintenance activities in a single visit	0	0	0	0	0.00
Tenant participation by providing maintenance options	0	0	0	0	0.00
Being addressed in your own language	0	0	0	0	0.00
Having maintenance workers wear smart, uniform overalls	0	0	0	0	0.00

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

litter and dust around the work site' and 'limiting noise and vibration'. No attention was given to 'completing maintenance work in a single visit', 'allowing tenant participation,' 'addressing tenants in their own language' and 'having maintenance workers wear smart, uniform overalls'.

Exterior paintwork

'Preventing damage to personal property' is the best-covered service quality determinant for this type of maintenance. 'Limiting and tidying up litter and dust around the work site' also receives a great deal of attention, followed by 'limiting noise and vibration' and 'ensuring satisfactory provision of information prior to the start of maintenance work'. No attention is given to 'completing maintenance in a single visit', 'having maintenance workers wear smart, uniform overalls', and 'speed of response'. Due to the fact that exterior work takes place outside the home, failing to complete maintenance in a single visit usually has no direct impact on residents' satisfaction levels. Overalls are apparently not considered to be important outside the home, although they could have some merit from the point of feelings of reliability and identity. Speed of response is generally unimportant in this case, as paintwork is usually planned maintenance.

Differences according to types of maintenance

Documents relating to all types of maintenance contract paid particular attention to preventing damage to (tenants') personal property. This would ap-

Table 8.7 Service quality determinants for exterior paintwork

Service quality determinant	Weak (x1)	Average (x2)	Strong (x3)	Score	Score
Avoiding damage to personal property	5	13	1	34	5.67
Limiting and tidying up litter and dust around the work site	3	8	4	31	5.17
Limiting nuisance caused by noise and vibration	1	6	4	25	4.16
Provision of information before the start of maintenance work	9	2	1	16	2.67
Politeness of maintenance workers	2	5	0	12	2.00
The competence of maintenance workers	1	5	0	11	1.83
Sticking to execution planning agreements	3	4	0	11	1.83
Flexibility in making appointments	5	3	0	11	1.83
Evaluation and restoration of service	5	3	0	11	1.83
Limiting the time taken by work	3	3	0	9	1.50
Being available to answer questions and receive complaints	4	1	0	6	1.00
Being addressed in your own language	0	1	0	2	0.33
Completing maintenance activities in a single visit	0	0	0	0	0.00
Tenant participation by providing maintenance options	0	0	0	0	0.00
Having maintenance workers wear smart, uniform overalls	0	0	0	0	0.00
Speed of response	0	0	0	0	0.00

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

pear to be mainly related to limiting the risk to the client by avoiding damage claims from tenants. It is also a way of preventing tenants from having valid grounds for complaints. Another complaint-related aspect of service that receives much attention in the documents examined is 'limiting and tidying up litter and dust around the work site'.

'Completing maintenance in a single visit' is not addressed in the specifications, and it is likely that the purchasing party takes this aspect for granted. One might reasonably expect documents related to paintwork and cleaning not to cover this aspect, in view of the nature of the services provided. For these types of maintenance, the distance between service provider and tenant is relatively large. The omission is more surprising in the case of maintenance heating and water installations, and maintenance of ventilation systems, both of which take place closer to tenants. This is reinforced by the fact that the tenants' survey on maintenance (See Chapter 6) revealed that it is precisely this aspect that is particularly important for tenants. Furthermore, the same survey reveals that tenants are relatively dissatisfied with this service aspect.

Housing associations

One might expect there to be many similarities in how housing associations cover aspects of services in their specifications, given the degree of cooperation between them and, in particular, between the different departments of housing association C. Despite this, however, there are considerable differ-

Table 8.8 Cover of relevant clauses per housing association

Service quality determinant	Association C2	Association C1	Association C3	Association B	Association A	Association D	Total
Avoiding damage to personal property	12	11	8	4	6	3	44
Flexibility in making appointments	9	10	10	5	3	0	37
Limiting and tidying up litter and dust around the work site	7	8	6	6	5	2	34
Provision of information before the start of maintenance work	8	7	8	1	4	6	34
Being available to answer questions and receive complaints	8	7	7	5	1	2	30
Politeness of maintenance workers	5	4	4	8	2	2	25
Limiting nuisance caused by noise and vibration	6	6	4	5	3	1	25
The competence of maintenance workers	5	6	5	4	1	2	23
Evaluation and restoration of service	7	4	4	1	5	2	23
Sticking to execution planning agreements	5	4	4	3	1	2	19
Limiting the time taken by work	4	4	4	2	1	1	16
Speed of response	2	4	2	3	3	2	16
Maintenance workers wearing smart, uniform overalls	0	0	1	1	1	1	4
Completing maintenance activities in a single visit	0	0	0	2	1	0	3
Being addressed in your own language	0	0	1	0	0	1	2
Tenant participation by providing maintenance options	0	0	0	0	0	0	0
Total	78	75	68	50	37	27	335

Source: Document study specifications, Onderzoeksinstituut OTB, 2007

ences between them (see Table 8.8). Although it is necessary to take account of differences caused by the absence or otherwise of specifications for certain types of maintenance for certain housing associations, Table 8.8 gives a reasonable impression of the scale of the differences.

The specifications used by housing association departments C2 and C1, which generally had the widest coverage for service aspects, took no account of four service aspects: (1) having maintenance workers wear smart, uniform overalls, (2) completing maintenance in a single visit, (3) addressing tenants in their own language, and (4) allowing tenant participation by providing a choice of maintenance options.

It is striking that 'completing maintenance in a single visit' was mentioned by only two of the four housing associations. 'Flexibility in making appointments' appears to be a key issue for a few housing associations, but a non-is-

sue for others. Finally, tenant participation via being able to choose between various maintenance options was not mentioned at all in the agreements examined. It is possible, however, that this aspect is dealt with separately from the purchasing process (for example, in advance).

Perception and effect

How consistent are buyers' expectations regarding what is important for end-customers in the actual specifications? For planned exterior maintenance, damage to personal property is indeed given considerable attention. Sticking to execution planning agreements also receives reasonable attention in general conditions and framework agreements.

For tenants, the most important point for maintenance carried out in response to requested repairs in the dwelling was that of 'flexibility in making appointments'. As we concluded in the previous section, the occurrence of this aspect in the specifications is extremely variable. In general, however, this factor is mentioned fairly comprehensively in the various documents concerned with the maintenance of individual heating and water systems and the maintenance of individual ventilation systems, both of which both take place inside the home. A striking point, again, is that purchasers identified 'completing maintenance in a single visit' as an aspect that they would expect tenants to find important, and yet this element was always absent from the maintenance specifications.

8.3 Conclusions and recommendations

8.3.1 Conclusions

In conclusion, to what extent do maintenance specifications cover those service aspects that tenants consider to be important? One should first note that the extent to which the occurrence of service aspects is deemed to be 'satisfactory' or 'unsatisfactory' is a matter of opinion, and therefore subjective. However, we aimed for 'sufficient' intersubjectivity by using three assessors. Another significant point to note is that there was no assessment of cover in a legal sense.

For many housing associations, the first step for improving service delivery to tenants would simply be to arrange the maintenance needed. In particular, contracts for cleaning shared building elements and ventilation system maintenance have yet to be developed in many cases.

Overall, many service aspects are mentioned in the general conditions. These general conditions usually apply to multiple, if not all, maintenance services put out to tender. Response time is not mentioned in general conditions, but is mentioned in the applicable individual contracts (in other words,

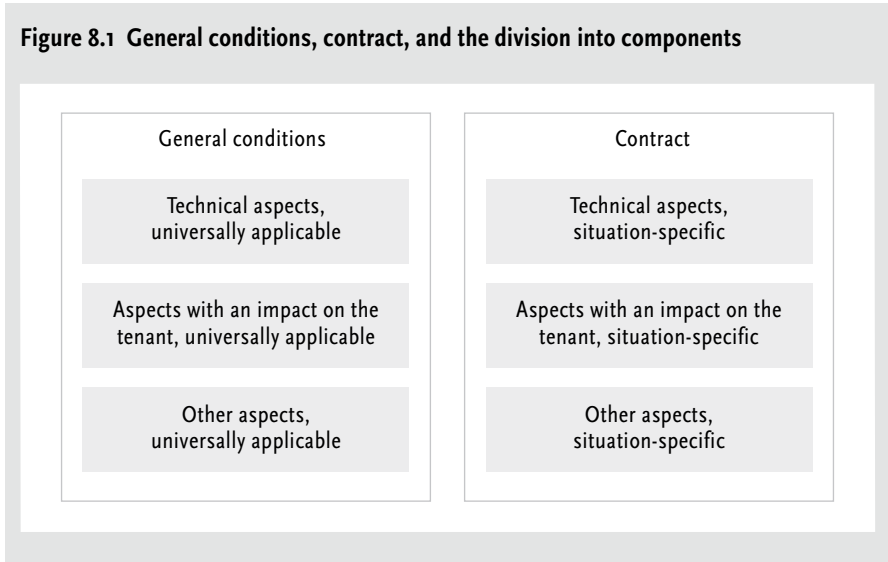
for maintenance in response to requested repairs). This is probably due to the variability of the desired level of service per type of maintenance. Service aspects that may vary in presence or level of service per maintenance service might indeed be better recorded per maintenance service, and therefore per contract. It is preferable to record service aspects that have, or should have, the same service level in general conditions, however, in view of the greater transparency achieved (as opposed to a variety of different clauses in multiple contracts).

It is particularly clear from the analyses that 'completing maintenance in a single visit' is insufficiently documented in maintenance specifications, in light of the importance attached to it by tenants. Although it should be possible to take this aspect for granted, it being only sensible that work should be completed in a single visit, tenants' dissatisfaction on this point suggests the need for further specification. If specified and included in agreements, then compliance with this aspect could be measured using output evaluations. Moreover, non-compliance is equal to default, as is the case for all aspects included in agreements.

The regression analyses that were conducted using satisfaction with planned maintenance as the dependent variable, and satisfaction figures for service aspects as independent variables (see Chapter 6), show that providing maintenance options for planned maintenance substantially contributes to satisfaction. However, this factor is not included in the specifications used in maintenance purchasing. If addressed at all, then this apparently occurs through the housing association in consultation with its residents, possibly represented by a residents' committee. Provisionally, the maintenance company plays no role in responding to individual or group differences concerning end-customer preferences. If the maintenance company were to have some capacity in this regard, however, in future steps could be taken to give companies more responsibility and control.

Comparable regression analyses were performed (see Chapter 6), with satisfaction with maintenance in response to requests and repairs in the home as the dependent variable. The importance of aspects such as 'being available to answer questions and receive complaints' and 'flexibility in making appointments' is reflected in the attention that maintenance specifications give to them. To a much lesser extent, this also applies to 'sticking to execution planning agreements with tenants' and 'limiting the time taken by work', alongside 'completing maintenance work in a single visit'. If more attention were to be given to these aspects in specifications, then this might result in a more satisfactory assurance of service. However, there would be little point in specifying such factors without measuring output, and tenants could be periodically questioned about the extent to which the requirements had been met.

Service quality determinants find their way to maintenance companies along a variety of paths. The current system of specifications has a number

Figure 8.1 General conditions, contract, and the division into components

of roots: contracts are copied from earlier projects and modified, derived from consultants or fellow housing associations, or are based on older documents from the same housing association. This means that contractual documents tend to acquire different structures for each maintenance type, and moreover, these structures are not particularly transparent.

8.3.2 Recommendations

The fact that housing associations record various service aspects (and thus specification components) across many different documents appears to be detrimental to the transparency of the specifications, and the likelihood that they will be observed. There would appear to be much in favour, where possible, of distinguishing between technical documents and separate service (or interaction-related) documents (possibly bundled together). A distinction could be made between the various service aspects that can differ per maintenance service and would therefore be recorded at contract level, and 'fixed' service aspects that are standard for all activities and could be recorded in the general conditions (see Figure 8.1).

Finally, despite the important contribution that these specifications make to service quality, agreements should not be so detailed and extensive as to make fulfilling them impossible.

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9 Optimising commodity strategies

9.1 Introduction

This chapter addresses the following research question: *Which commodity strategies facilitate the optimisation of tenant satisfaction with maintenance services?* The structure of the chapter, as summarised below, follows that of the tender process, and the related requirements for contractors, relationships, and services. The commodity strategy consists of the choices made during the tender process outlined here.

The process is as follows:

1. Execution requirements, formulated into specifications: in short, what has to be delivered? We make recommendations for the specifications, and attention is also given to their form (input, throughput, output or outcome, Sub-Section 9.2).
2. Suitability requirements, also known as proficiency requirements for the supplier or selection criteria (Sub-Section 9.3).
3. The choice of award criteria for suppliers (also Sub-Section 9.3).
4. The contract, or more specifically, the relationship. How should risk sharing be approached, for what period should relationships be entered into, and what requirements should be made regarding these? (Sub-Section 9.4).
5. Incentives in the actual contract (Sub-Section 9.5).

Finally, we briefly examined the issue of whether maintenance services should be insourced or outsourced. In this study, this is approached primarily from the perspective of core competencies.

The various options for optimisation, in particular those related to the contract/relationship, are mainly handled using the tools provided by new institutional economics, as introduced in Chapter 2 ('Supply, rules of the game, and tools for analysis', Section 2.4).

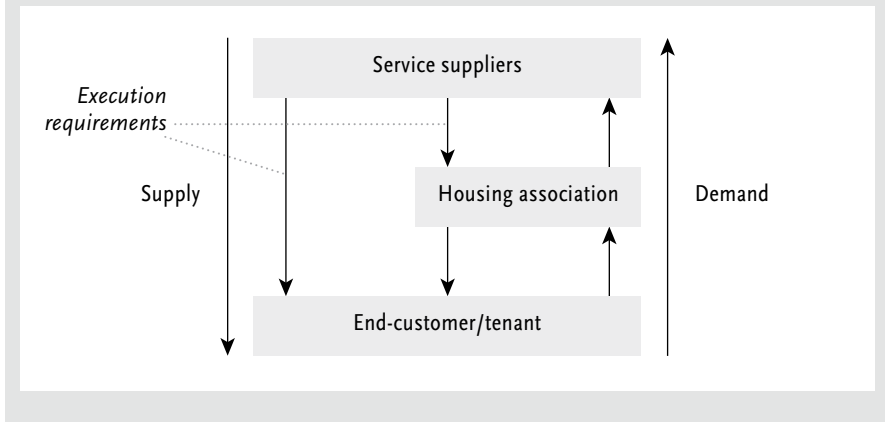
9.2 Execution requirements

9.2.1 Introduction

This section addresses the execution requirements drawn up by clients in the form of specifications. In line with this chapter's objective, we first define the position of specifications in relation to the end-customer. Because execution requirements directly determine a service's form, they are linked to the actual maintenance service delivered to the tenant (see Figure 9.1). It is thus essential to have clear and focused execution requirements in order to achieve tenant satisfaction regarding maintenance.

The sequence below describes the document form used to for specifications, the form of the actual execution or performance requirements, suppli-

Figure 9.1 Execution requirements are directly related to the end-customer in a triangular relationship



ers' qualities, and the specification decision-making process.

Sub-Section 9.2.2 focuses on choosing suitable performance requirements for optimal service delivery. This sub-section is based on the findings of Chapter 8 (The end-customer focus of maintenance service specifications). The recommendations made with regard to the form of performance indicators, which are presented in Sub-Section 9.2.3, are connected to the findings that were presented in Sub-Section 6.6.2 (Performance measurement). Sub-Section 9.2.4 discusses how suppliers might contribute to specifications. Property rights theory (introduced in Sub-Section 2.3.4) is used to assess the possible benefits of supplier contributions. Sub-Section 9.2.5 examines problems related to rational decision-making when specifying maintenance services. These problems pose a threat to optimal specifications and therefore service quality. The concept of bounded rationality, which was introduced in Sub-Section 2.3.3 as part of transaction cost theory, is used to identify these problems and to suggest solutions. Finally, in Sub-Section 9.2.6, we look at how selection criteria and award criteria have the potential to add emphasis to certain performance requirements, with reference to the findings of Chapters 6, 7 and 8. Table 9.1 offers an overview of the links between Section 9.2 and preceding sections of the thesis.

9.2.2 The choice of performance requirements

Specifications and tenant satisfaction

The tenants' survey presented in the Chapters 5, 6, and 7, suggests a prioritisation of service aspects from the end-customer's point of view. The quality of the results, completing maintenance work in a single visit and accessibility were found to be the most important aspects. Without repeating the list of service quality determinants and associated priorities, it would be advisable for housing associations to specify these requirements well, in order to guarantee quality. The contents of specifications could be adapted to the demands of specific groups, such as the elderly, which may differ from more general demands.

Table 9.1 The links between Section 9.2 and preceding sections of this thesis

Sub-section:	Is primarily related to chapter or (sub-) section:	
9.2.2 The choice of performance requirements	8	The end-customer focus of maintenance service specifications
9.2.3 The form of performance indicators	6.6.2	Performance measurement
9.2.4 Adapting specifications to suppliers' qualities	2.3.4	Property rights theory
9.2.5 Rational decision-making and specifying maintenance services	2.3.3	Transaction cost theory
9.2.6 Giving extra emphasis to performance requirements	6	Securing high performance maintenance service delivery
	7	Securing customer satisfaction through component service specifications
	8	The end-customer focus of maintenance service specifications

The character of maintenance and performance requirements

The character of a service has a significant impact on its specifications. The amount of interaction between maintenance firms and tenants in the course of service provision should be reflected in the specifications. Chapters 7 and 8 took the end-customer's perspective in focusing on the impact that maintenance as a component service has on the attention given to service-quality aspects in specifications. The specifications for reactive maintenance inside dwellings devote more attention to aspects that give end-customers a sense of control. This is in view of first, the often urgent nature of this kind of maintenance, and second, the greater sense of responsibility that tenants feel for maintenance inside dwellings, as compared with planned maintenance to the outside of dwellings. The aspects addressed include accessibility, flexibility in making appointments, sticking to agreements and providing choices regarding maintenance possibilities. It would be advisable for housing associations to examine all of these issues further.

9.2.3 The form of performance indicators

Specifications can focus on any combination of input, throughput, output and outcome. The form of performance indicators determines their potential for performance requirements. The choice of form, however, is subject to certain limitations. In Chapter 6, various options for the form of performance indicators in the context of performance measurement were discussed, with implications for specifications. Indeed, performance must first be specified before it can be measured.

Outcome indicators

Outcome indicators, such as end-customer satisfaction, are suitable for overall performance monitoring as a form of management information. This information can be used to enhance the purchasing function. One problem with outcome indicators is that causality can be hard to establish, given that end-customer satisfaction also depends on many factors other than maintenance

service. Outcome indicators are not specific enough for maintenance specifications, and using outcome indicators for explicit and objective monitoring and holding suppliers accountable would be a laborious process. Maintenance service suppliers will rarely be able to optimise service using outcome indicators, unless additional details are provided.

Output indicators

Output indicators that form part of the functional specifications have the potential to be specific, and may be objectively measurable. When referring to buildings, output indicators are also known as functional performance indicators. The success of output indicators depends on the capacity and quality of service suppliers, which we will discuss further below. Output in this case refers to aspects related to the maintenance result and aspects of service quality, with respect to the interaction between the service supplier and the end-customer. Where output indicators are concerned, a housing association has to be very clear about its objectives and expectations regarding maintenance assignments. In other words, the key question is how maintenance can contribute to objectives such as customer satisfaction. Housing associations must be able to translate such needs into unambiguous, transparent and measurable indicators.

Throughput indicators

Throughput indicators, which document the steps of a maintenance process, facilitate the objective measurement of supplier performance, meaning that the activities carried out are traceable and verifiable. Compared with output indicators, a disadvantage of this specification method is that the supplier has fewer opportunities to optimise processes. Detailed specifications, which are commonly used by housing associations, primarily consist of throughput indicators. The use of throughput indicators obliges housing associations to know exactly how a service breaks down into activities, and how it has to be delivered (Axelsson and Wynstra, 2002). Throughput indicators can be used for maintenance and application processes. The maintenance process is concerned with the management of maintenance activities, and the application process refers to carrying out the actual activities.

Input indicators

Input indicators are used when purchasing competencies. There are two important types: purchasing additional capacity, and purchasing specialised competencies. Consultancy on maintenance solutions is a specialised form of consultancy (the 'engineering consultant'; see Straub and Van Mossel, 2007).

9.2.4 Adapting specifications to suppliers' qualities

Classification

An important principle relating to specifications is that the latter will not work unless they are adapted to suppliers' qualities and needs. The key question, then, is whether all suppliers are equal in their capacities to comply with specifications.

Kamath and Liker (1994) classify suppliers into four types: Partner, Mature, Child and Contractual (or Article) suppliers. Partners are independently able to design and develop entire subsystems and work with multiple concepts. Mature suppliers need rough specifications on which to base development. Child suppliers need detailed specifications from the outset, which determine the materials, dimensions and functionality of components, and the supplier is obliged to deliver the component as specified. Contractual suppliers are only capable of performing standard services. A continuum is thus drawn from functional to descriptive requirements.

Output specifications or throughput specifications?

One advantage of using functional specifications for maintenance (or specifications based on output indicators), is that contractors are able to make the most effective use of their qualities in designing optimum services and maintenance solutions. However, the question is whether maintenance firms are capable of approaching specifications in this way. The same applies to housing associations: they have to be capable of drafting authoritative functional specifications, based on the housing association's objectives. There have been some notable developments in this regard. For instance, a select group of contractors in the property maintenance sector, most whom are members of the employers' association 'WVB' together with housing associations and OTB Research Institute for Housing, Urban and Mobility Studies, are involved in developing functional specifications. Ongoing tests suggest that a select group of companies do have capability in this regard, with the implication that added value can be created for customers.

The capacities needed by maintenance firms for maintaining relationships with end-customers can be deduced from the supplier categories defined by Kamath and Liker (1994). As mentioned above, Partners are able to design complete subsystems. This means that they are independently capable of designing services provided to end-customers. This implies, for instance, that contractors know the tenants and their preferences. For Partner suppliers, outcome and possibly few output indicators might be sufficient for monitoring purposes. Mature suppliers, meanwhile, use client output indicators to optimise their services. Contractors are responsible for designing activities and interactions so as to fulfill output indicators. However, unlike Partners, Mature suppliers are not independently capable of determining what is im-

portant for end-customers.

Child suppliers are not able (or at any rate, no better than the client) to determine for themselves how to arrange activities so as to fulfill output indicators. The contractor is capable of performing the activities prescribed by the client. The Child supplier is not independently capable of improving the service to the end-customer. Finally, Contractual suppliers are only capable of performing standard services. This situation rarely arises in maintenance, with the possible exceptions of maintenance of shared installations or greenery. Standard effectiveness is not the same as standard service. As soon as interaction with the end-customer comes into play, the service ceases to be standard. A maintenance service supplier that is capable only of providing standard services for similar systems could be classified as a Contractual supplier.

In general, maintenance suppliers can be categorised as Child suppliers. Many maintenance firms are capable of producing services in conformity with specifications, which currently, are usually technical. We know of no Dutch maintenance firms that would fit the description of 'Partner'. A few firms may be classified as Mature suppliers. In technical terms at least, these firms are capable of defining services themselves. There may be scope for development in non-technical areas, possibly and preferably in partnership with the housing association.

Suppliers' contributions to specifications

Property rights theory (presented in Sub-Section 2.3.4), which is part of new institutional economics, states – *ceteris paribus* – that more property rights allow actors greater freedom of action, and as a result, their decisions lead to greater efficiency for society as a whole. This insight also applies to maintenance service specifications. Firstly, a contractor will reap the rewards of his own efforts if he is contractually bound to a client or given building complex for a lengthy period. Secondly, the more a contractor can contribute to designing solutions or services, the broader the contractor's outlook will be, and it is likely that the contractor will put more effort into solving maintenance problems and delivering better services. There are two ways to achieve this. Together, service suppliers and housing associations could refine specifications to produce 'the best solution'. Alternatively, the housing association could structure specifications in such a way as to leave sufficient freedom for maintenance firms to optimise their services as they saw fit. With respect to the end-customer, property rights theory suggests that maintenance firms will come up with better services as soon as they are made responsible and accountable for tailoring services to end-customers' wishes, or those of customer groups. To do so, they need more knowledge regarding end-customers.

If European procurement Directives are applicable, then there are certain obstacles to involving maintenance firms in drawing up specifications prior

to selection. In 1994, the World Trade Organisation Agreement on Government Procurement was negotiated. One noteworthy part of this Agreement is the 'Chinese wall clause', which states that the principle of equal treatment of suppliers must be guaranteed when contracting entities accept advice on drawing up (technical) specifications. This implies that a consultant who provides support in drawing up technical specifications may compete for the contract only if his consultancy function has given him no actual advantage over other potential suppliers, or that they have the same information available to them. In other words, discrimination between contractors is not permitted (Ministerie van Economische Zaken, 1999). As long as the European Directives are not considered to be applicable, however, this will not become an issue.

9.2.5 Rational decision-making and specifying maintenance services

Ideally, purchasers would know everything that is important to know, suppliers would be able to read their minds, and excellent service delivery would be the result. In reality, however, perfect rational decision-making remains a utopian dream.

In Sub-Section 2.3.3, bounded rationality was introduced as one of the key concepts in transaction cost theory. Bounded rationality means that although people might intend to make rational decisions, their capacity to evaluate all possible decisions accurately is physically limited. Decision support systems can help to reduce the limitations brought by bounded rationality.

Although decision-making on purchasing processes actually extends beyond commodity strategy, which is the main subject of this chapter, below we briefly comment on to the issue in view of its importance to commodity strategy.

Bounded rationality and maintenance purchasing

Bounded rationality problems occur in housing association maintenance purchasing. Maintenance is still strongly budget-driven, for example, and too few trade-offs are made between investment and management expenses. There are also barriers to housing associations' decision-making with regard to budgets for planned maintenance, reactive maintenance, and home improvements. A further example that is relevant to bounded rationality is that of complex contracts. Bounded rationality means that complex contracts are often incomplete, which is detrimental to the level of service.

Achieving optimum service to tenants implies possessing the necessary information about tenants for service optimisation. These data concern the wishes of client groups, and even individual preferences. It is clearly also important to have sufficient information about the building elements and systems to be maintained, by means of condition measurements and inspections,

so as to facilitate efficiency (completing maintenance in a single visit; limiting the time taken by the work), and to allow appropriate preventive measures to be taken. In many cases, it will be appropriate to share information with the service supplier, precisely because it is unique. One might even consider the possibility of making suppliers responsible for information systems related to tenants. These may include, for instance, analysis of complaints and the use of service maintenance by (specific groups of) tenants. If suppliers are capable of using this information to improve services, this would simultaneously provide a positive ('property rights') incentive; suppliers would develop their sense of responsibility for tenant satisfaction.

In addition, the structure of the purchasing team (buying centre) could contribute to rational decision-making. Having the right purchasing team composition would increase the availability of information and increase potential for optimising decisions. This means that for maintenance services that are crucial to tenant satisfaction, in particular the maintenance of heating and water systems, the purchasing team must have knowledge about the end-customer. One possible way of achieving this would be to involve marketing specialists in purchasing. It is also important to provide strategic support to the purchasing function (Cousins, 2006: 778): 'Not only does top management play an important role in influencing the organisation's attitude toward purchasing, they can also devote resources in terms of time, personnel and finances toward improving the capability of the function.'

The purchasing function must also be able to handle the various partnerships that some services need in order to ensure a stable delivery at a high level, which goes beyond price negotiations alone. This subject is discussed later in this chapter.

Services and documents

The structure of specifications can add to the understandability of requirements (it may help to resolve bounded rationality) and therefore to suppliers' performance.

When specifying services, it is important to recognise whether what is involved is a completely new service (a 'new task'), a modified service (a 'modified rebuy') or a frequently-applied 'copy' (a 'straight rebuy') (Robinson *et al.*, 1967). The more that it is a case of the latter, the more material can be recycled from previous tenders.

Planned maintenance, void repairs and reactive maintenance qualify as 'modified rebuy'. Building complexes are fairly predictable, as are the main features of the processes involved in maintenance. Nonetheless, almost every housing block, and almost every maintenance assignment, involves something different. However, rather than purchasing single assignments for maintenance in response to requested repairs, it is more common to purchase an agreed service for a defined period. This service may involve various standard

activities, meaning that reactive maintenance can often have many characteristics of a straight rebuy. Depending on the situation, this may reduce effort expended on drawing up specifications. Many specification components can then be reused.

General conditions are used to record matters that do not vary between the different services (and products) purchased. Because large parts of specifications are reused in maintenance (new tasks are not involved), from the perspective of transparency, matters that seldom vary across the various contracts should be shifted to a separate specification component. Rather illogically, however, the contractual documents investigated in the survey described in Chapter 8 mix these aspects with others that are subject to change.

9.2.6 Giving extra emphasis to performance requirements

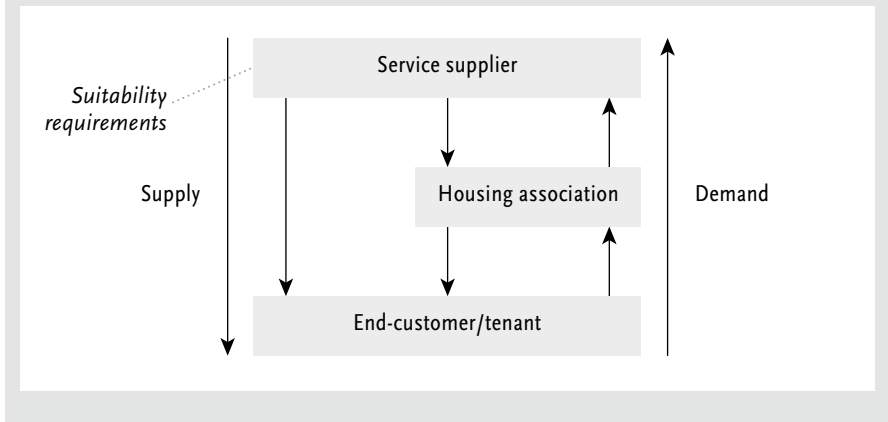
Execution requirements are the right means for housing associations to specify all relevant determinants of maintenance service quality desired for a particular contract. For the housing associations that focus on tenant satisfaction with maintenance, the execution requirements of component maintenance services should include essential determinants of maintenance service quality (see Chapter 7). In Chapter 6, attention was paid to the essential determinants of maintenance service quality, while Chapter 8 evaluated the use of essential determinants. Some determinants of maintenance service quality, however, are so important that they should be considered in the supplier selection phase. Although execution requirements are obligatory, rather than voluntary, considering them in the selection phase (usually in the form of award criteria) forces potential suppliers to prove beforehand that they are indeed able to perform, thus reducing the risk of inadequate performance. Housing associations have to ensure that suppliers have the resources and capabilities to deliver adequate quality. In the following sub-sections, we examine the use of selection criteria (suitability requirements) and award criteria.

9.3 Suitability requirements

9.3.1 Introduction

Suitability requirements are also known as proficiency requirements for the supplier, or selection criteria. Using suitability requirements in the selection phase can help to reduce the number of potential suppliers for the award phase, thereby increasing the chances for potential suppliers. One would expect this to raise the quality of proposals, and is a method that is particularly applicable to very complex projects. In addition, the costs of potential suppliers are limited, given that they have a greater chance of winning the contract.

Figure 9.2 Suitability requirements are related to the service supplier in a triangular relationship



Particularly from the perspective of tenant satisfaction, the requirements should include quality guarantees related to human resources.

Suitability requirements are related directly to the maintenance firm that is suitable for supplying the services (see Figure 9.2).

This section examines the supplier requirements necessary for delivering high quality maintenance services. Sub-Section 9.3.2 discusses which resources are needed from suppliers in order to enable high quality service delivery (supported by findings from Chapters 6 and 7). In Sub-Section 9.3.3, we turn to the issue of opportunism. This threat to quality is assessed using transaction costs theory, as introduced in Sub-Section 2.3.3. Supplier selection can help to reduce opportunism and thereby reduce the possibility of inadequate service delivery. The question, ‘What can be demanded from the maintenance firm?’ (Sub-Section 9.3.4) is assessed using information from Section 2.2 regarding maintenance market. This leads us to identify the problem of making too many requirements of potential service suppliers (for an overview, see Table 9.2).

9.3.2 Maintenance service suppliers’ resources

Which resources should a (maintenance) service supplier possess? Axelsson and Wynstra (2002) identify the following four categories of resources:

- Financial resources – Certainly for highly transaction-specific investments, it is important to have guaranteed continuity of service, and the firm must have sufficient financial power. Liquidity is also important for timely payment.
- Material resources – Maintenance firms must have the right production resources, such as a sufficient number of vehicles. Material resources could also be leased by the maintenance firm.
- Intangible resources – This refers to learning capacity/knowledge, business contacts, and brand/image. With respect to learning capacity, the selection procedure could involve enquiring about past performance, thus providing a certain guarantee for the future. The supplier’s network of service and materials suppliers (subcontractors) is ultimately important for ser-

Table 9.2 The links between Section 9.3 and preceding sections of this thesis

Sub-section:	Is primarily related to chapter or (sub)-section:	
9.3.2 Maintenance service suppliers' resources	6	Securing high performance maintenance service delivery
	7	Securing customer satisfaction through component service specifications
9.3.3 Supplier selection as means of limiting opportunistic behaviour	2.3.3	Transaction cost theory
9.3.4 What can be demanded from the maintenance firm?	2.2	Maintenance market

vice quality. The firm's reputation can be valuable for gaining the end-customer's confidence and, of course, that of the housing association itself. If maintenance firms provide consultancy to housing associations on maintenance solutions, then it is important that they have knowledge of and experience in designing maintenance solutions.

- Human resources – Maintenance firms must employ the right people. However, when they come into contact with the end-customer, it is important for service quality that they are able to (see Chapter 6):
 - work flexibly in terms of time;
 - stick to agreements with tenants and therefore also to plan well;
 - work efficiently;
 - take care of personal presentation and the impression made by their activities (including tidying up litter, if possible, and being polite);
 - speak the tenant's language;
 - plan their activities so as to complete reactive maintenance in a single visit. This aspect is also influenced by how well the maintenance request is recorded.

If the maintenance firm is also responsible for taking/recording requests for repair requests, or for (initial) contact with tenants, then the following communication skills can be added to the requirements:

- to be accessible to residents via various means of communication and to have sufficient capacity in this respect (possibly 24/7);
- to be able to respond to tenants' preferences, possibly in a differentiated way.

To ensure high-quality maintenance service delivery, more is thus needed than 'simply' proficiency and being able to coordinate work with other parties. The fact that maintenance firms play a 'front-office' role means that they need knowledge and skills to deal with consumers. If subcontractors are used, then the requirements made of them should reflect the amount of responsibility they are given.

9.3.3 Supplier selection as means of limiting opportunistic behaviour

Opportunism poses a direct threat to high-performance maintenance service delivery. Transaction cost theory (see Sub-Section 2.3.3) offers tools that can

enable housing associations to deal with this type of threat. The most direct way of dealing with opportunism is to select partners that are unlikely to indulge in opportunistic behaviour, or that are inherently cooperative with respect to a particular task (Orbell and Dawes, 1993; Wathne and Heide, 2000). It therefore makes sense to select partners that have an intrinsic desire to succeed. Wathne and Heide mention two possible limitations to selection:

1. passive opportunism may occur, despite selection, because a contractor disregards the agreements once he has been selected;
2. changed circumstances can make selection unnecessary; the requirements stated are no longer applicable.

Wathne and Heide (2000) suggest a number of solutions to combat opportunism, of which those relating to supplier selection are certification and 'reputation management'.

Certification as means of limiting opportunistic behaviour

Customised certification reduces information asymmetry related to a contractor's qualities, and ensures that only suppliers that meet the certification criteria are selected. Furthermore, maintenance firms demonstrate through the effort involved in certification that they are keen to enter into a relationship with the client. For a relationship of this kind, it is necessary that the costs of participation exceed the short-term gains of opportunistic presentation. In addition, the ultimate profits for participating suppliers must exceed the costs of participation (Farrell and Gibbons, 1995).

Certification is one way to reduce opportunistic tendencies. The contractor is certified for suitability from a particular perspective or for certain activities. This instrument can thus supplement suitability requirements used by a housing association. There are three approaches to certification:

- the client develops internal certification systems (i.e. customised certification) for suppliers;
- adoption of standardised systems (e.g. ISO 9000 series), with the expectation that suppliers (maintenance firms) will adhere to them;
- self-certification by suppliers (VGO quality mark for performance-based exterior maintenance: this quality mark is intended to become a standardised system; or the quality standard for companies specialising in daily maintenance 'Maintenance Quality Management' (MQM), which focuses on better quality of service; or focused on a particular technical activity, such as the AF certification scheme for painters and Dakmerk for roofing contractors) (Maass et al., 1990).

Client internal certification systems have the advantage of giving one control over the process and scope of certification, and allow certification to be customised per client. On the other hand, internal systems demand much devel-

opment time and capital, and a contractor inundated with questions about the system will be distracted from providing good service. The disadvantage of standardised systems, however, is that it is usually expensive for suppliers to go through a certification process, and clients complain that it does not guarantee continuous improvement and quality, merely a documented quality process (for example in the case of ISO 9000) (Avery, 1993). An alternative approach would be to combine an existing standardised system with a custom system.

Certifications are thus means of simplifying the selection process. Apart from certification of employees, using certification as a suitability requirement enables housing associations to choose service suppliers with proven track records e.g. in relation to minimal tenant satisfaction ratings regarding maintenance service delivery. Particularly for maintenance services that have high impact on tenant satisfaction, certain certification procedures may be set up and used for supplier selection. Certification, however, should be used with care. Performance indicators should exclusively and precisely measure key factors leading to tenant satisfaction. Using unnecessary indicators will lead to non-essential or even undesirable actions and a reduction in the number of suitable, (pre-)selected suppliers.

Reputation as means of limiting opportunistic behaviour

Reputation also counters opportunistic behaviour. Reputations, however, require public transparency regarding output (Sappington, 1991). In competitive relationships, firms are not always inclined to be honest about the performance of their suppliers. However, in the case of housing associations, where there are no such competitive relationships, it should be possible to make use of the (public) reputations of maintenance firms. This requires, however, that criteria used are objective, and that there is no tendency to manipulate the information used to verify the criteria. Moreover, the situation is unbalanced: poor performance by a supplier is not necessarily the supplier's fault, but it might be in the housing association's interest to give the supplier a bad reputation. For a housing association, however, many of which operate in a tight housing market, having a bad reputation will be less harmful than for a company that is dependent on market demand. This difference stems from housing associations' special position of power relative to their customers, and the lack of opportunities for competition in tight housing markets.

Thus while certification appears to be a useful selection means of limiting opportunistic behaviour by suppliers, 'reputation management' would appear to be less useful. Still, the clearest benefit of supplier selection relates to getting an indication of the supplier's potential ability to help achieve the housing association's objectives. The housing association should avoid setting the standards too high, however.

9.3.4 What can be demanded from the maintenance firm?

When using suitability criteria, the housing association is dependent on the nature of the maintenance market (the market characteristics). If too few suppliers are able to satisfy what the client is demanding, then this will have consequences for power relations.

The power relations between the supplier and the housing association depend on factors such as the size of the firm (Campbell, 1985), the number of suppliers, dependence on resources (Pfeffer and Salancik, 1978), how critical a purchase is in view of a lack of substitutability (Krapfel, Salmond, and Spekman, 1991), and technical and commercial competence. Market characteristics are defined in a similar way by Kraljic (1983, supply market complexity) and Elliott-Shircore and Steele (1985, supply sensitivity). In the case of maintenance, the firm is usually smaller than the purchasing party (the housing association). Lift maintenance firms tend to be larger than other maintenance firms and exercise a certain degree of market power, partly due to the fact that there is a small number of companies and there is limited substitutability. This, in turn, is due to the fact that maintenance is mainly performed by lift manufacturers of the same brand.

As client requests become more specific and demanding, this has implications for the number of suppliers able to satisfy the requests. Contractors must therefore ascertain whether there are enough suppliers that are able, for example, to offer engineering consultancy capacity for devising maintenance solutions, as well as operational capacity. In other words, if various transaction-specific investments are requested, such as providing input into the design of a service, the result may be a lack of possible suppliers and therefore, in addition to higher prices, possibly a greater need to secure the delivery. At the same time, as mentioned above, transaction-specific investment by the supplier leads to what Bensaou (1999) describes as the 'captive supplier' (for low specific investment by the purchasing organisation), or a strategic partnership, whereby the purchasing party also performs substantial transaction-specific investment.

9.4 Award criteria

Unlike suitability requirements, award criteria relate to the suitability of the delivery (see Figure 9.3). Like execution requirements, they are linked to the actual maintenance service delivered to the tenant. Award criteria have the potential to highlight essential execution requirements.

The award criteria that will be presented in this section as potentially interesting for housing associations are based on the aspects that tenants indicated as important for satisfaction (see Chapters 6 and 7) Current procure-

Figure 9.3 Award criteria directly relate to the offering made to tenants in a triangular relationship

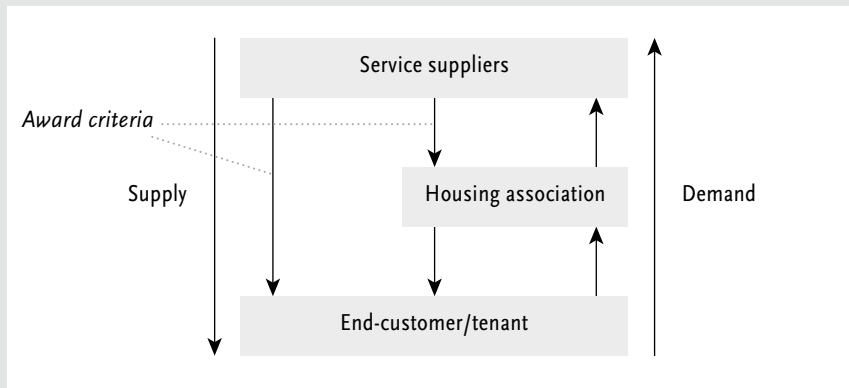


Table 9.3 The links between Section 9.4 and preceding sections of this thesis

Section:	Is primarily related to chapter or (sub-)section:
9.4 Award criteria	2.4 Procurement customs and regulation
	6 Securing high performance maintenance service delivery
	7 Securing customer satisfaction through component service specifications

ment customs and regulations (see Section 2.4) are taken into account in the analysis.

When awarding contracts to (candidate) maintenance service suppliers, two award criteria can be applied. As explained earlier, in accordance with ARW 2005 and the European Public Procurement Directive, contracts can be awarded to maintenance firms on the basis of (Municipality of Overbetuwe, 2006: 11):

1. *The lowest price* – When a contract is awarded based on the lowest price, the assessment of the proposals is fairly clear. The proposals will be checked against the selection criteria for irregularities and for completeness. The price then decides. The contract documents or requirements specification then have to contain a detailed (technical) specification. This methodology must be used for supplies, services or works for which the technical, quantitative and qualitative requirements can be specified in detail in a requirements specification, or in contract documents, where the probability of upward contract variation is negligible. Candidate suppliers are then unable to distinguish themselves with the content of their proposal, but only with the price.
2. *Most economically advantageous tender* – For other contracts the criterion of most economically advantageous tender must be used. Additional award criteria are stipulated alongside ‘the price’. The criteria may be concerned with the product to be purchased (e.g. standard prices, quality, environmental friendliness and delivery time), but could also be concerned with the execu-

tion, management or maintenance of the product (e.g. execution term, customer-friendliness, service and quality). The most relevant award criteria will be used for each contract. A clear assessment method is used when applying this award criterion.

Tenant satisfaction appears to be best secured through the use of 'the most economically advantageous tender', rather than the lowest price. This may result in some direct price disadvantages, but these may be countered in the longer run (total costs of ownership). For instance, more satisfied tenants may result in fewer complaints, thus fewer burdens on the system, and lower costs as a result.

It is in the interests of tenant satisfaction regarding maintenance that the essential determinants of maintenance service quality are included as award criteria, including the appropriate weights. Clear emphasis is thus given to specific items, which may be overlooked in execution requirements. However, only those determinants of maintenance service quality should be included that can be measured, and can be compared objectively at this stage of process. For instance, for reactive maintenance inside dwellings, the flexibility of making appointments is a determinant of service quality that significantly adds to tenant satisfaction with maintenance. Availability for appointments is one aspect of this flexibility, and is made a precondition. One award criterion could relate to the range of hours (e.g. day or night) that the contractor is available for appointments, for instance, for urgent maintenance of hinges and locks of windows and external doors. Other determinants of maintenance service quality could be perceived as minimum requirements. Inadequate compliance leads to dissatisfied tenants, and using selection criteria, the ability of potential suppliers to meet such requirements could be tested. For example, the ability to be available to answer questions and receive complaints (accessibility) may be best guaranteed by having a call centre, which might be made a suitability requirement. The required level of service delivery can, subsequently, be described in the execution requirements. At contract-level, an incentive structure may be used in order to further stimulate high accessibility ratings (see further Section 9.5 for contract-related incentives).

Besides the contents of the award procedure, the nature of the procedure itself may influence that quality that is finally delivered by selected suppliers. According to the literature, the decision to opt for either an open or a restricted award procedure should be based on the following criteria: the expected level of market competition, the expected tendering costs, and the amount of time that will be involved (Heijboer and Telgen, 2002). These criteria will vary per commodity. However, Section 2.1 explained how most maintenance markets are characterised as having a local scope. This restricts the expected level of market competition, and also restricts the possibility of combining parcels.

Therefore, it will often be the case that a restricted award procedure may be sufficient and 'exotic' suppliers will not be able to deliver extra added value.

9.5 The relationship between the housing association and the maintenance service supplier

9.5.1 Introduction

This section discusses the configuration of the relationship between the housing association and the contractor that is chosen in the selection phase. In this case, the 'relationship' is that between the client and contractor, and thus only has indirect consequences for the service provided to the end-customer. Figure 9.4 shows how the subjects dealt with in this section are positioned in a triangular relationship.

Sub-Sections 9.5.2 and 9.5.3 focus on coordination mechanisms, using the categories of 'hierarchy' and 'market' developed by Malone *et al.* (1987) and others. These categories were introduced in Section 2.3, and are based on transaction cost theory. In an ideal hierarchy, a department of the housing association would conduct maintenance activities. In an ideal market operation, the housing association as purchasing entity would evaluate various offers from the market. A hybrid form is applicable in cases of cooperation between housing associations and suppliers to determine the characteristics of maintenance service delivery.

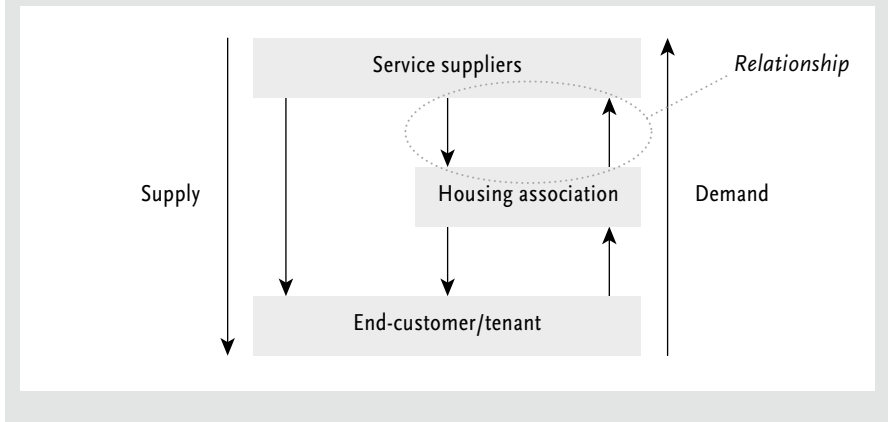
Sub-Section 9.5.3 focuses on choosing an optimal coordination mechanism to deal with risk related to asset specificity and specification complexity. The choice of the coordination mechanism can have consequences not only for price, but also for the quality of service delivery.

Sub-Section 9.5.4 examines the agency risks that appear in the relationship between housing associations and maintenance service suppliers, and which may threaten high-quality maintenance service delivery. Finally, Sub-Section 9.5.5 is concerned with possible solutions for limiting opportunism risks in the buyer-supplier relationship. Opportunism risks can also be considered a threat to high-quality service delivery, and therefore to tenant satisfaction regarding maintenance (see Table 9.4 for an overview of the links between the items studied in Section 9.5 and preceding sections of the thesis).

9.5.2 Using coordination mechanisms to optimise service quality

A number of theoreticians have analysed the relative benefits of hierarchy and market, including Coase (1937) and Williamson (1979; 1981a; 1981b). With

Figure 9.4 The configuration of the relationship between the housing association and the service supplier (triangular relationship)



respect to this, Coase (1937) describes the different situations within and outside of the firm: 'Outside the firm, price movements direct production, which is coordinated through a series of exchange transactions on the market. Within a firm, these market transactions are eliminated and in place of the complicated market structure with exchange transactions is substituted the entrepreneur-coordinator, who directs production.' Coase then describes hybrid forms, observing (1937: 389): 'As it is evident, the amount of 'vertical' integration, involving as it does the supersession of the price mechanism, varies greatly from industry to industry and from firm to firm.' Coase assumes that as soon as there is not anymore a price mechanism, there is no longer any element of market, but instead of a firm. Vertical cooperation may be considered to be a relationship type lying between vertical integration (hierarchy) and the market. The rest of this thesis refers to the 'hierarchy-market continuum' to denote how close this partnership is (i.e. how much hierarchy is present, as opposed to market, without going beyond the boundaries of firm formation or integration).

Which coordination mechanisms are most effective depends on the specific situation. A general assumption is that hierarchies are rationally more logical than markets if coordination costs (the transaction or management costs needed to coordinate the work of people and machines to facilitate primary processes) are high compared with production costs (physical and other primary processes needed to create the goods and services to be produced). Various factors determine the relative importance of production and coordination costs, and therefore the relative desirability of markets and hierarchies. The more specific the assets that are bound to the maintenance activities, the greater the coordination costs compared with production costs. Hierarchy would then appear to be the most appropriate coordination mechanism. Also, the more complicated the specifications are, the more difficulties a client should expect from markets. The next sub-section will look at asset specificity and complexity, both of which can influence the nature of the optimal coordination mechanism (with the objective of maximising tenant satisfaction).

Table 9.4 The links between Section 9.5 and preceding sections of this thesis

Sub-section:	Is primarily related to chapter or (sub-)section:
9.5.2 Using coordination mechanisms to optimise service quality	2.3.3 Transaction cost theory
9.5.3 The choice of the most suitable coordination mechanism	2.3.3 Transaction cost theory
9.5.4 Limiting agency risks	2.3.5 Agency theory
9.5.5 Limiting risks of opportunism	2.3.3 Transaction cost theory

9.5.3 The choice of the most suitable coordination mechanism

Asset specificity: Types of asset specificity in maintenance

Asset specificity is usually defined as the extent to which the investments made to support a particular transaction have a higher value to that transaction than they would have if they were redeployed for any other purpose (McGuinness, 1994). Asset specificity is involved in many areas of home maintenance.

Every building is different. Sometimes buildings have the same design, but have different environmental characteristics, such as the setting, the behaviour of residents, and management. Every maintenance solution is thus unique in some sense, with the implication that working methods, applications, and even innovations (in so far that the term applies) can sometimes only be applied once. A relatively complex building design is more likely to involve unique solutions, and therefore increases the challenges posed by asset specificity. A positive consequence of (close) cooperation in the case of unique works is that the risks of failure are discussed (for instance, by quality teams) and can therefore be limited. The following types of asset specificity can be identified:

- Besides knowledge of maintenance solutions, knowledge of the property of the client is also specific and not replicable. This problem can be minimised through objective inspections and inventories.
- Knowledge of the (ideal approach to) cooperative processes, in particular at an operational level between the client and the maintenance firm, is specific. In other words, the maintenance firm's processes and work-flows can be adapted to those of the client. For example, what kind of coordination exists between the foreman and the project leader?
- The maintenance solution can be considered to be a specific asset if the development of a maintenance solution is part of the partnership between the client and the maintenance firm.
- Estimates in procurement processes are already transaction-specific. This does not imply that the supplier making the investment also deserves the actual contract.
- In some cases, the maintenance firm will have built up experience and knowledge of the needs and wishes of the end-customer. Complaint patterns are one example of this.

Asset specificity: Contract duration

In general, the degree of asset specificity in a relationship, if there is any substantial interaction between the parties, increases as the contract continues.

When maintenance solutions are standardised, and there is thus less unique optimisation, having extremely long-term relationships might be detrimental to flexibility and price advantages. In other words, market advantages could play a greater role in such cases. This is the case for installations, for example, where the manufacturer may have chosen the design specifications and the maintenance solutions at the outset.

Asset specificity: Knowledge of the residential complex and performance patterns of building elements

Knowledge of the residential complex is another specific 'asset' that could lead to a preference for hierarchical control. Knowledge of the complex can be acquired in two ways:

1. inventories and inspection;
2. experience with maintenance of the building and knowledge of the performance pattern of building elements.

The first aspect is independently measurable and tradable. The client could also be primarily responsible for making such measurements, and thus would not be dependent on the maintenance firm in this respect. However, it would appear that in practice, if a housing association performs an inspection, the contractor feels obliged to repeat it, in view of the considerable differences in measurements and associated interpretations that can arise. A shared measurement team, or an independent one that is accepted by both parties, would appear to be the most appropriate option.

The second point, relating to experience with maintenance of the building element, and, even more importantly, knowledge of the building element's performance pattern, will be effective if there is sufficient repetition and duration of maintenance (when there will be a transaction-specific investment as opposed to expenses alone). This would appear to apply to relatively large maintenance assignments relating to the exteriors of buildings. One precondition for this is to select a contractor with sufficient stamina. Stamina is related to both long-term solvency and what could be described as a stable knowledge base, so that knowledge and experience are not lost once they have been acquired.

Asset specificity: Repetition of maintenance works

Besides complexity, the degree of repetition of maintenance works is an important factor for determining the advantage of hierarchy over market for maintenance. Knowledge of processes, dwellings and the end-customer is acquired from the start of a relationship, but only pays off at a later stage

(sometimes only years afterwards). Repetition is more likely to be an element of reactive maintenance within dwellings than for planned maintenance. However, planned maintenance is generally more complex, so that previously gained knowledge and experience can still have a relatively high value, provided it is still up to date.

Complexity of specifications

Besides asset specificity, another factor influences the choice of the most suitable coordination mechanism: the complexity of the specification of the maintenance solution that is the basis of the service. The more complicated the specification, the more communication expenses (and accompanying risks of failure) will be involved in tendering, and the more reason to adopt hierarchical coordination mechanisms. Complex specifications suffer from higher coordination costs, such as with maintenance to the exterior of buildings ('total maintenance'), where many interrelated applications are sometimes needed (for the roof, pointing, bricklaying, concrete maintenance, other substrates, paintwork, etc.), in particular when the end-customer is also involved in the process. On the other hand, most of the costs for cleaning shared building elements are directly connected to primary process. There is no question of dependence on interaction with tenants and the housing association as such, only the complex. The same is true of lift maintenance. The applicable performance requirements vary little across installations, the reputation of maintenance firms is generally reasonably well known, and only limited coordination is necessary to be able to perform the maintenance. Intensive cooperative relationships would appear to make less sense for these last two types of maintenance than for complex bilateral types, such as 'total' maintenance (to the building façade).

9.5.4 Limiting agency risks

Risks

Agency risks are inherent in maintenance purchasing. They pose a threat to high-quality maintenance service delivery, and therefore to tenant satisfaction regarding maintenance. Chapter 2 introduced agency theory as a tool for analysing problems in the client-contractor relationship. From this perspective, a particularly relevant aspect of this theory is the distribution of risk between the two parties.

There may be various 'sources' of risk, and maintenance can entail the following:

- the risk of fluctuating demand related to requested repairs or other maintenance demands from tenants;
- the risk of fluctuating demand for planned maintenance, because of insufficient knowledge of the performance pattern (the degradation process) in

long-term relationships;

- the risk of technological change (This risk lies in the danger that suppliers are unable to keep up with technological developments. This is less of a risk for housing associations than for commercial firms, which operate in a competitive setting.);
- risks of quality; in other words, the risk that suppliers cannot meet the specifications;
- the risk of price rises, or conversely, an inability to set a competitive price;
- the risk of late or no delivery.

Behaviour-based management techniques

In the case of an agency risk, behaviour-based management techniques may help to match the supplier's objectives with those of the client (Anderson and Oliver, 1987, see Sub-Section 2.3.5). Zsidisin and Ellram (2003) identify the following four approaches:

1. The certification of suppliers that consistently meet the objectives of quality, costs, service and delivery requirements (see Sub-Section 9.3.3).
 2. The implementation of quality management programmes, which improves the competence and activities of the supplier needed to meet the client's quality requirements and expectations. The costs of these programmes should not exceed the benefits. The 'Excellence model' provided by the European Foundation for Quality Management (EFQM) is popular among housing associations, and they may demand that service suppliers implement this (see Straub and Van Mossel, 2007).
 3. Target costing is defined as a structured approach to determining the cost at which the proposed product (with specified functionality and quality) must be produced in order to generate the desired level of profitability at the product's anticipated selling price (Cooper, 1995). This concept was developed by Toyota in the 1960s (Tanaka, 1993), and includes a detailed evaluation of service (or product) attributes, and of the desired attributes. The objective is rationalisation, rather than minimisation, of costs (Lockamy III and Smith, 2000). Target costing represents a shift from the notion of functional cost objectives (budgets) that disregard the creation of customer satisfaction, to a determination of the total costs of the chain taking customer requirements as point of departure. The development of target costing may demand substantial discussion and negotiation between the client and its suppliers. This leads to cost-saving programmes involving objectives agreed by the supplier and the client (Ellram, 1999). Despite its name, target costing is oriented less towards costs than towards customer preferences. Costs may be considered to be a result, or an 'economic umbrella', whereas customer preferences are considered to be a binding constraint. While this might appear to be a useful concept for improving the construction supply chain (see Nicolini et al., 2000), the improvement possibilities for the maintenance supply chain appear to be restricted.
-

This is due to the many limiting conditions, such as those related to safety, that are associated with maintenance. In addition, for social housing, rents are not linked to the costs of providing housing, which means that the target costs are difficult to determine.

4. Supplier development, which refers to the effort made by a purchasing organisation to improve its suppliers' performance or capabilities, so that the client's short- and long-term supply needs can be satisfied (Hartley and Choi, 1996; Krause, 1999; Krause and Ellram, 1997). The goals of supplier development include creating and maintaining a network of competent suppliers (Watts and Hahn, 1993); limiting costs (Hartley and Choi, 1996); upgrading technical, quality-related and delivery capabilities; and encouraging continuous improvement (Watts and Hahn, 1993). Krause and Ellram (1997) suggest several possible supplier development activities:

- providing feedback on supplier performance;
- raising performance expectations regarding the supplier;
- instructing and training supplier personnel;
- qualifying suppliers;
- posting technical or other client personnel to work with the supplier;
- providing investment capital to the supplier.

These various supplier development activities could be combined. A housing association could, for instance, organise an annual 'quality day' for its suppliers, when it would communicate policy changes and its (raised) expectations concerning suppliers. This might help create common understanding between housing associations and suppliers.

Activities relating to supplier development and quality management are closely related to socialisation activities (discussed in Sub-Section 9.5.6). The success of the techniques described above would clearly depend on the willingness and qualities of the maintenance firms and the housing association in question.

Outcome-based management techniques

In addition to behaviour-based techniques, outcome-based techniques can be used to manage risks. These are also referred to as 'buffer-oriented techniques', because they entail the creation of buffers to absorb risk. These are mainly used in situations involving stockpiling and demand fluctuations. Stocks can be 'played' with in maintenance by trading off planned maintenance against reactive maintenance. The use of timely, preventive, planned maintenance can help to avoid the peak loads created by requested repairs. Delivery risk is also limited. Buffering in maintenance therefore serves to limit risks both 'upstream' and 'downstream'. Both the supplier and the housing association can make the trade-off between planned maintenance and reactive maintenance. Trading off planned maintenance against complaints main-

tenance can also help to reduce nuisance for tenants.

Another way of covering possible supplier-related risks (such as quality, delivery, price and innovation) is to arrange delivery from several sources, which is known as multiple sourcing. However, having too many sources of delivery can lead to inefficiencies.

9.5.5 Limiting opportunism risks

Monitoring: The merits of monitoring

Monitoring is a way of countering the opportunistic tendencies of suppliers, which can threaten the quality of service delivery. In theory, there are two reasons why monitoring can reduce opportunism. First, from a behavioural perspective, the monitoring process may place uncomfortable social pressure on a party and thus improve compliance (Blau and Scott, 1962; Murry and Heide, 1998). Second, from an economic perspective, increased monitoring enhances an actor's capacity to detect opportunism and ultimately makes it possible to link rewards and sanctions to a partner's behaviour (Wathne and Heide, 2000). Otherwise, monitoring only works when the source of opportunism is asymmetrical information. In other words, if a maintenance firm has more information than a housing association concerning the ins and outs of the delivery of the service, monitoring may limit opportunistic behaviour that is expensive for the housing association. The selection of criteria for monitoring is vital to its success. See Chapter 6 for appropriate determinants of service quality that can be applied for performance measurement.

On the other hand, monitoring can be counterproductive, and it must be accepted by the party being monitored. If not, opportunistic behaviour will still arise. Monitoring can have a positive side-effect, however, in that opportunistic contractors may decide not to participate in a tender if they know that they will come under scrutiny.

Monitoring in maintenance service delivery

Inspections by foremen, usually on a random basis, are common for planned maintenance. Particularly for relatively large maintenance projects, the results of these measurements can be combined with tenants' surveys. For reactive maintenance, the handling of complaints is registered. One possibility is to monitor all contractor activities, but that can lead to duplication of activities and high costs. It is advisable both to measure and to insist on those aspects that constitute a guarantee of the envisaged level of service, in terms of process and results. The details are then the maintenance firm's responsibility. Joint quality-management teams can be given responsibility for performance measurements, and thereby directly initiate process improvements. Such an investment only makes sense if there is a certain level of interest in the relationship (e.g. financial interest, interest for the tenant). In order to

achieve a greater level certainty, which is reasonable given the purchasing party's information disadvantage, additional information regarding the maintenance firm's processes could be used as a basis for assessment. The theory underlying this is that the quality of service is strongly related to the organisation of the maintenance firm. This could imply an audit, for example, of the service supplier's materials and quality systems. Quality systems are mainly of interest in the cases of strategically significant maintenance services (i.e. in a financial or customer satisfaction sense), and for those cases where performance measurement is complex, such as exterior maintenance.

In order to prevent opportunistic behaviour, it is important to state in advance (i.e. before the tender) that monitoring will be used. In addition, the chances of opportunism can be decreased through advance attention to supplier assessments (based on suitability criteria), past results, management quality, quality systems, and available resources and qualities. A contract could also stipulate that if a contractor consistently performs below the agreed standard, then it will not be eligible for a follow-on contract, whereas good performance can be rewarded with additional contracts. The latter can be considered a contract-related incentive (see Section 9.6). However, this is an expensive option if significant price advantages can be obtained via multiple tenders, the specification is unambiguous (it should be specified properly and simply), and synergy benefits between the supplier and the client are scarce and involve little transaction-specific investment. This is the case, for example, for maintenance of paving. Price advantages that only pay out when a high performance level is achieved can also be an extra incentive for good performance (see further Sub-Section 9.3.3 for other measures for countering opportunism).

Socialisation

'Socialisation' was introduced in Sub-Section 2.3.3 as strategy for managing opportunism in cooperation with contractors (see Wathne and Heide, 2000), in the context of transaction cost theory. It was defined as social integration, or assimilation into a certain culture. In this context, it is significant that opportunistic behaviour depends partly on the role played by the individual or firm in question. In other words, depending on the situation, socialisation may involve particular employees (e.g. management, or subcontractors) from the maintenance firm, or the company as a whole.

If a housing association intends to work with a supplier in the long term, a strategically important service is involved, and if supplier volume is sufficiently large, then the maintenance firm might take part in a 'socialisation' programme. This could take the form of training, possibly oriented towards issues that are important to the end-customer and that fit within the housing association's values. A related example is that of quality management programmes (see Sub-Section 9.5.4 for the use of quality management and supplier development programmes as means of limiting agency-related opportunism).

9.6 Contractual incentives

9.6.1 Introduction

Contractual incentives can form part of the relationship between the client and the contractor (see Figure 9.5), and have the potential to encourage suppliers to optimise results for the end-customer.

Studies of 'self-enforcing' contracts (e.g. Kaufmann and Lafontaine, 1994; Telser, 1980) suggest that parties' interests can be aligned by creating an incentive structure in contracts that ensures that the long-term benefits of co-operative behaviour exceed the short-term proceeds of opportunism. There are various forms of 'self-enforcing' contracts:

- transaction-specific investments may be required, raising the exit barriers from the relationship (Williamson (1983) calls these investments 'hostages');
- price or margin premiums (These are premiums for suppliers that ensure that the price paid to them is higher than the market price, providing an incentive to continue the relationship (Rao and Bergen, 1992). If the delivery of quality is deficient, the maintenance firm will lose the relationship as well as the premium, and therefore additional profit.)

Transaction-specific investments are means of limiting the possibility that opportunism may occur, and this concept is derived from transaction cost theory (Sub-Section 2.3.3, see Table 9.5). Price premiums are a more direct way of stimulating the desired performance and reducing inadequate performance.

9.6.2 Transaction-specific investments

Transaction-specific investments to support commodity strategies

In the case of transaction-specific investments, the elements that are important for tenant satisfaction may be emphasised. This is particularly worthwhile for strategic services. For example, for exterior maintenance, depending on the housing association's objective, the competence of the maintenance firm can be used to achieve benefits in terms of costs over the lifetime of the complex. A contribution from the maintenance firm to optimising a maintenance scenario, assuming that the maintenance firm has the appropriate qualities, and provided that at least some of the costs are covered by the maintenance firm, will ensure that the latter is committed to the success of the maintenance. For the maintenance of heating and water systems, for example, maintenance firms could be required to invest in designing an optimum service. Interaction structures could be developed, in which the maintenance firm earns back the investment depending on success over time. An investment in a call centre might be one example of an applicable transaction-specific investment.

Figure 9.5 Contractual incentives and the relationship between the housing association and the service supplier (triangular relationship)

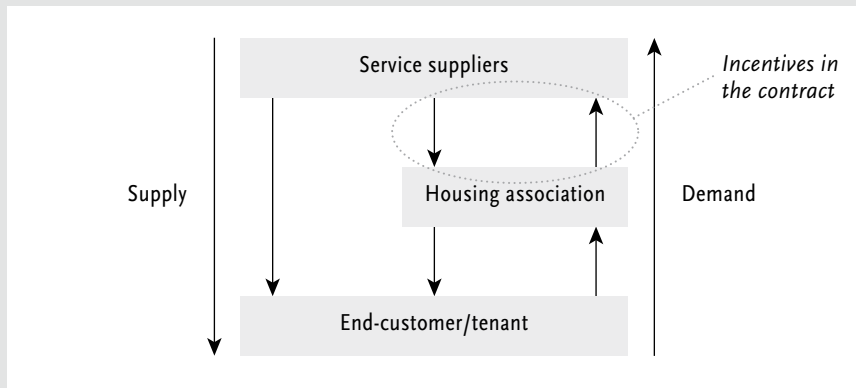


Table 9.5 The links between Section 9.5 and preceding sections of this thesis

Sub-section:	Is primarily related to chapter or (sub-)section:
9.6.2 Transaction-specific investments	2.3.3 Transaction cost theory

Another possibility is to have the contractor invest in an information system that is oriented, say, towards the end-customer's product and process preferences. This information system may include, for instance, the analysis of complaints, and the use of service maintenance by (specific groups of) tenants (see Sub-Section 9.2.5). One possible positive effect of an investment of this kind is that the interactions and outcomes between the contractor and the end-customer might be better tailored to one another. Depending on the circumstances, it might also be sensible for a system to be jointly owned by the two parties involved, so as to prevent the housing association from becoming dependent on the contractor (rather than vice versa).

Transaction-specific investments through the form of specifications used

Transaction-specific investments do not necessarily have to be prescribed. If outcome or output specifications are used, a maintenance firm might have to make related investments in order to satisfy a certain performance. It is then desirable for the joint output variables used (which are often more convenient than outcome variables, because they are specifically measurable) to approach the envisaged outcome as closely as possible. Different customers or groups may use different requirements. One step further, which implies even more transaction-specific investment, is for a maintenance firm to be responsible for (optimum) differentiation and therefore to investigate tenant preferences on its own.

Transaction-specific investments through long-term outcome responsibility

Another possible transaction-specific investment (known as 'hostage') con-

cerns giving long-term (output and) outcome responsibility to the contractor. A contractor that is responsible for the state of a building element or system and for handling requested repairs for ten years, rather than two years, might opt for a different solution, taking cost and other benefits into account. Long-term responsibility implies the freedom to generate maintenance solutions. It also implies that the contractor is more capable than the client of combining knowledge regarding the performance pattern, complex strategy, and project organisation in order to devise sustainable solutions (which are therefore less expensive over the lifetime of a building element or system). This option is especially feasible for a complex combination of types of maintenance, such as exterior and roof maintenance (as mentioned above). In this case, there is a need for advanced logistics capacities.

9.6.3 Price premiums

In the case of maintenance services, price premiums are difficult to realise. It is difficult to determine the market value in advance, in view of constantly changing contracts. One possibility would be to use unit prices, in combination with quantities and activities. If a price premium is promised in advance, however, then it will be calculated into the proposal, which cancels out the incentive. The precise performance of maintenance service delivery is likewise difficult to determine. Therefore, this form of incentive only appears to work when combined with monitoring. In that case, it can be an excellent measure for those maintenance services for which quality is essential.

Contract-related incentives can be used to stimulate performance on determinants of maintenance service quality leading to tenant satisfaction (see Chapter 6 for an overview of these). They can be used alongside the standards set in execution requirements, and are suitable for determinants of maintenance service quality that require a minimum level of performance (and which may improve over time). Incentives can imply a bonus or a penalty. If the determinant of service quality is a satisfier for tenants, then over-performance could result in a bonus. If the determinant of service quality is a dissatisfier for tenants, however, underperformance could be followed by a (severe) penalty for the service supplier. In addition, significant underperformance may imply default, and lead to a breach of contract.

9.7 The core competence approach and insourcing

The core competence approach

The essence of the core competence approach (also known as the dynamic capabilities approach), is that only those goods and services that are consid-

ered to be an organisation's core competencies are produced internally (Prahalad and Hamel, 1990). Prahalad and Hamel define core competence as the combination of individual technologies and production skills that underlie a company's myriad product lines. Core competencies combine three elements (Krüger and Homp, 1997):

- the characteristics must be relevant from the point of view of the customer, and must differentiate between the organisation and its competitors.
- resources and knowledge regarding the product or service must be unique at all times, in order to achieve competitive advantage. (It must be possible to protect the product or service from imitation by competitors. In other words, the competitive advantage must be sustainable.);
- these resources become core competencies, and should remain within the organisation concerned (They should only be contracted out when when they can be used for multiple purposes.).

The functions of housing associations and core competencies

Every housing association is entitled to establish individual, unique objectives, provided that these are compatible with the relevant public framework (BBSH). Core competencies, in this case, are the combination of individual technologies and production skills that play a key role in achieving an organisation's objectives. From this point of view, housing associations that aim for growth in property values, for example, will need different core competencies from housing associations that aim for excellent service. A housing association involved in major neighbourhood improvement tasks needs yet other set of core competencies. On the other hand, no organisation has an inexhaustible source of core competencies, and indeed the opposite is more likely to be the case. The core competencies that are present help to determine the organisation's strategic flexibility.

Housing associations' core competencies can help to determine the function that they perform best. They are, however, not the only determinant of the function to be performed. A function can be performed properly even if important parts of the production essential for this function are outsourced. Wolters and Verhage (2001) identify four functions for housing associations (but note that hybrid forms can also occur):

- the housing manager function;
- the project developer function;
- the public housing investor function; and
- the maintainer function.

The housing manager function is particularly concerned with the front office of housing associations. If a housing association decides to establish a profile based on this function, then it is important to have matching core competencies, such as those relating to its interaction patterns with the end-customer.

On this basis, a case could be made for retaining internal control of maintenance services that involve frequent interaction with tenants, or at any rate to perform these in close collaboration with suppliers. After all, the technologies and skills needed to perform satisfactorily would be present, and further synergy could be achieved. Therefore, interaction with the tenant would have to be the necessary competence for making the maintenance a success. If the nature of the maintenance is technically specialised and complex, technical competence will also be needed, and then the question will be whether the housing association is able to perform such maintenance internally.

Housing associations that wish mainly to fulfil a project developer function need to have different core competencies. Logically, these would be related to the proper initiation and financing of projects, and the assumption of associated risks. This means that regular maintenance would normally be performed entirely by external parties, and control would be as efficient as possible.

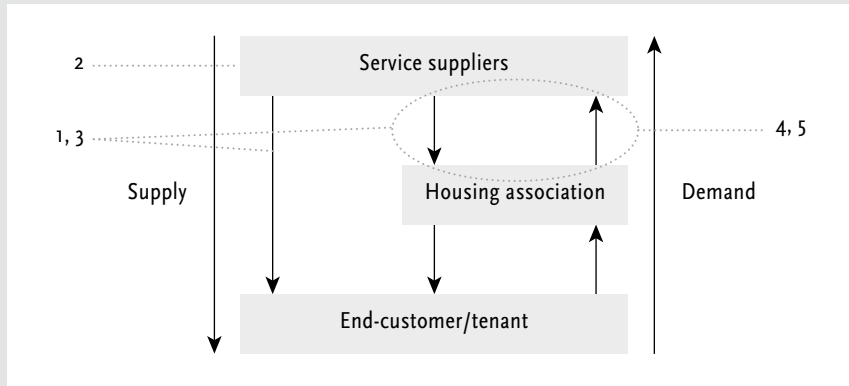
The core activities of a 'typical' public housing investor reside mainly in the supply of public housing performance. The necessary core competencies are normally those relating to entering into and maintaining fruitful relations with partners, in order to achieve satisfactory public housing performance. With respect to maintenance, it can also be useful for this type of association to optimise the processes of the types of maintenance that contribute to the better liveability of neighbourhoods, such as maintenance of paving and maintenance of plants and shrubs. However, this contribution is limited, and therefore the core competencies would probably not be related directly to maintenance.

Finally, a housing association that concentrates on the maintainer function may also play a significant implementation role. Practical difficulties, such as the scarce availability of high quality maintenance workers, may limit the housing association's ability to do this, however. In addition, while housing associations may concentrate on the maintainer function, there could be well many parties that are better able to perform maintenance, and partnerships may be useful for this reason.

Vertical integration

The more that resources and capabilities in which the housing association is lacking become critical to achieving its objectives, the more likely integration with service suppliers will be. In extreme cases, this can lead to complete vertical or horizontal integration, by means of mergers or takeovers. While in-house resources and skills might be available, the housing association cannot easily acquire a particular competence. Prahalad and Hamel use the metaphor of a large tree to describe the core competence approach as applied to a company. The trunk and main branches are the core products, the smaller branches are the business units, and the flowers and fruit are the end products.

Figure 9.6 Optimisation possibilities in the triangular relationship for purchasing from the point of view of the end-customer



There are three ways to test the logic of vertical integration (Porter, 1987):

- the attractiveness test: the business must be structurally attractive or capable of being made attractive;
- the cost-of-entry test: the cost of entry must not capitalise all future profits of the integration;
- the better-off test: whether the integrating organisation, or the integrated business, is to benefit from the integration (in other words, synergy must be possible).

If a housing association does decide to purchase external maintenance, then it is obviously essential to select the right partner (a process that is described in Sections 9.3 and 9.4).

9.8 Conclusions

Using the analysis and tools presented above, we are now in a position to draw conclusions relating to the following research question: Which commodity strategies facilitate the optimisation of end-customer satisfaction with maintenance services?

This chapter discussed the five phases outlined below. Suggestions were made for improving services to end-customers (tenants), by means of maintenance purchasing:

1. execution requirements;
2. suitability requirements;
3. selection of award criteria for suppliers;
4. the definition of the client-contractor relationship; and
5. incentives in the actual contract.

Figure 9.6 shows how these phases interrelate in the chain. The figure shows that execution requirements and award criteria are most directly related to service delivery to the end-customer (the tenant). Improving specifications

and award criteria will probably have the greatest direct impact on improving services to tenants. However, in the longer run, service suppliers may need additional stimulation (or even development driven by the housing association) to encourage them to strive for tenant satisfaction.

Specifications

Specifications are a direct means of establishing relevant service aspects. What are the minimum service requirements for keeping tenant satisfaction at a particular level? In order to answer this question, one needs to take the nature of the maintenance service into account. Reactive maintenance inside dwellings usually has a degree of urgency. In addition, maintenance inside the dwelling probably entails a greater feeling of responsibility on the part of tenants than maintenance outside dwellings. This means that service aspects that give the end-customer a sense of control over the situation are more important for reactive than for planned maintenance.

The issue of which form of indicator can best specify the desired level of service depends on the situation. If a housing association is capable of transforming the needs of end-customers into unambiguous, measurable and transparent output indicators, and if the selected contractor is capable of optimising output indicators in execution, then output indicators are preferable to throughput indicators. Output indicators enable the service supplier to make the best use of his qualities and specialisms to optimise a service. Property rights theory holds that suppliers will provide a better service if they have more property rights. It may therefore be expected that maintenance firms will be more motivated to provide optimum performance (which is in the interest of end-customers) if they define the service themselves. However, if neither of the conditions for using output indicators can be satisfied, throughput indicators can better guarantee optimum service.

Execution requirements are the correct means of specifying all the relevant determinants of maintenance service quality that housing associations would like to see implemented during the execution of the contract. Service specifications for maintenance services that affect tenant satisfaction should include the essential determinants of maintenance service quality. Some determinants of maintenance service quality, however, are of such importance that they should be addressed in the selection phase. In such cases, housing associations should be confident that the supplier can deliver adequate quality.

Suitability requirements and award criteria

In order to achieve a satisfactory implementation of specifications, both the service supplier and the relationship between the client and the service supplier must satisfy certain conditions. The desired service supplier may emerge from the selection procedure as a result of suitability requirements or award criteria. The quality of human resources is a crucial factor, in view of the high

degree of interaction involved in certain maintenance services that are important to tenants. In addition, the requirements to be made of the direct partners of housing associations, the maintenance firms, must be transferred down the chain to the supply companies.

Care must be taken not to specify the requirements for suppliers so strictly that too few possibilities remain. The housing association might then become dependent on a single maintenance company for a certain service.

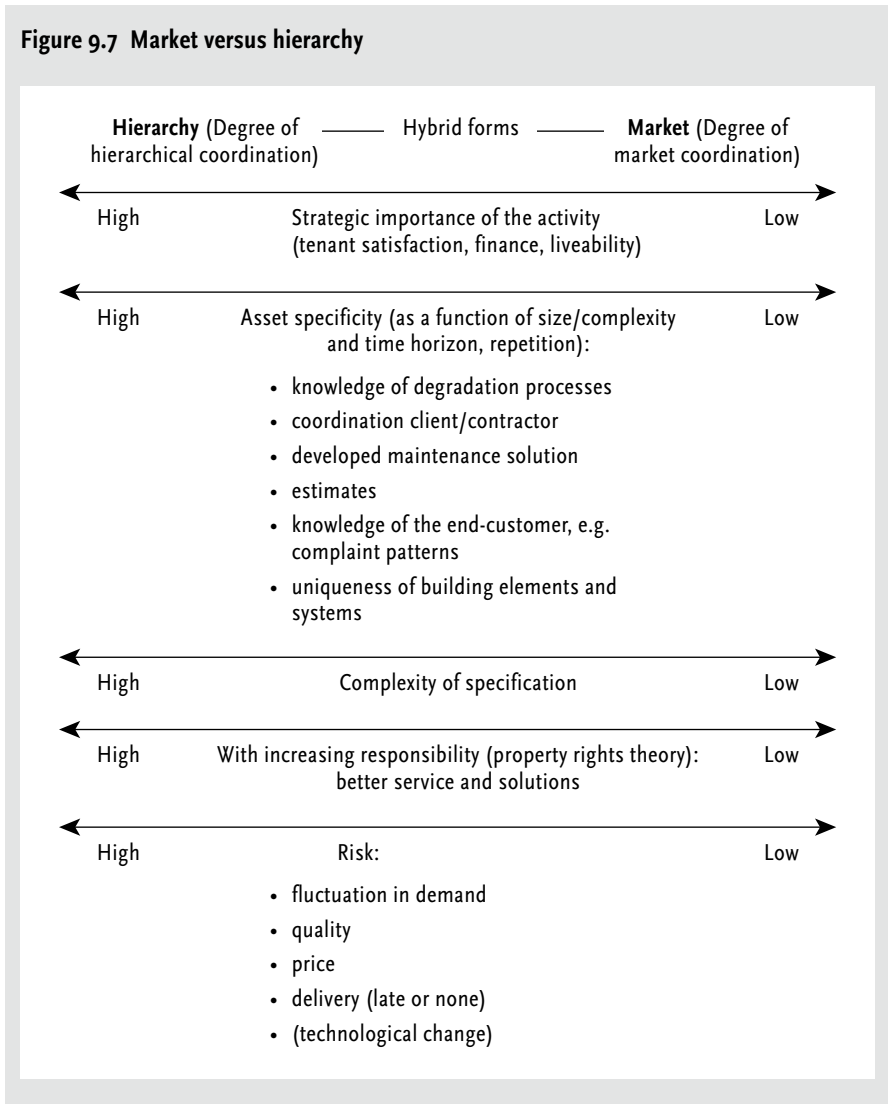
Tenant satisfaction appears to be best secured through the use of 'the most economically advantageous tender' when awarding contracts, instead of the lowest price. It is in the interests of tenant satisfaction that the essential determinants of maintenance service quality form part of the award criteria, including appropriate weights, giving clear emphasis to specific items. However, only those determinants of maintenance service quality should be included that can be measured, and be compared objectively in this stage of process. In addition, not too many aspects should be included. (The degree of) being available to answer questions and receive complaints may qualify as a suitable award criterion. Another determinant of service quality that could also be used as an award criterion is 'flexibility in making appointments with tenants'.

For complex works, candidate service suppliers can be asked to present a risk assessment plan. This may help to limit quality risks beforehand, and the quality of this plan can function as an award criterion. In a risk assessment plan, candidate suppliers can give their opinion regarding the nature of the project's risks, and how these could be minimised. Parties that make a good assessment and propose adequate remedies would score higher than parties that are unable to do so.

The definition of the client-contractor relationship

The partnership between the client and the contractor can take several different forms. Transactions between people, official bodies and other organisations take place within a structure, which can resemble a market, hierarchy or a hybrid form. In a market structure there are no entry rules, and in theory anyone may join. In a hierarchy, the party with power determines who is admitted to the process. Figure 9.7 sets out a list of the relevant dimensions for determining the best coordination mechanism.

The more unique or complex specifications, maintenance projects, or solutions are, the more appropriate a hierarchical partnership structure will be. In this case, it may be worthwhile to invest in a close cooperation (partnership) with a maintenance company that is able to tackle the problem. The more a relationship grows and knowledge of the features, maintenance solutions, and end-customers increases, the greater the benefits of such a partnership become. In addition, routines may be developed and price increases may occur.

Figure 9.7 Market versus hierarchy

Furthermore, risk may also play a part in the choice of coordination mechanism. Examples of risks include fluctuations in complaints and maintenance needs, or the maintenance firm's inability to consistently meet the required standards or terms of delivery. Managing these sorts of risks becomes easier when the purchasing company is more closely linked with the activities of maintenance firms, and can intervene more directly if necessary. This is actually only worthwhile if the intention is to work together for a lengthy period. If possible, the quality risk must be covered in the selection phase, for instance through the use of supplier certification. Supplier management programmes and supplier development activities by housing associations may help to limit the possibility of agency risks. Housing associations may, for instance, organise an annual quality days for suppliers, for communicating policy changes and expectations to suppliers. This may help to create common understanding.

Maintenance works that do not imply risks, for example those that are simple and transparent, may instead be put to tender regularly in order to secure the lowest price. For instance, cleaning of shared areas probably qualifies for this, and if a housing association succeeds in specifying the desired service, the service may be occasionally put out to a multiple tender.

Finally, the strategic importance of a maintenance service, in combination with the above-mentioned factors, is decisive for the choice of the best coordination mechanism. It is more important to invest in a close partnership with suppliers if the importance, for example in terms of customer satisfaction, is significant. Some examples of such maintenance services include exterior maintenance and maintenance of heating and water systems.

In general, there appear to be few service suppliers specialised in promoting tenant satisfaction. Therefore, for those housing associations that really want tenant-friendly maintenance for essential maintenance services, it may be worthwhile to invest in close cooperation with maintenance service suppliers. Via close cooperation, suitable suppliers can acquire knowledge about tenants and become familiar with the housing association's processes, enabling maintenance processes to be fine-tuned.

An asymmetrical information situation will arise if a housing association has less knowledge than the maintenance firm regarding the maintenance processes, and monitoring may help to limit the opportunistic tendencies of maintenance firms in such a case. The optimum deployment of the knowledge and qualities of maintenance firms, as mentioned above, in the form of transaction-specific investment, will also restrain urges for opportunistic behaviour. A related possibility is long-term delegation of responsibility for the condition of a building element. Finally, transferring the values upheld by a housing association to maintenance firms or their employees through instruction or even a training course may help reduce the risk of opportunism. One possibility is to set up a course oriented towards fulfilling agreements made with residents, if there are signs that this is becoming a problem (or this is already a problem).

In order to manage relationships with service suppliers, the number of suppliers should be restricted, although not to such a degree that dependency is created. Three to six suppliers per commodity (depending on the size and the spread of the commodity) may be advisable in most circumstances.

Incentives in the actual contract

Besides specifications, and the structure of the relationship, contract-related incentives may motivate maintenance firms to optimise service to end-customers. Guarantees, or investment in knowledge of end-customers, are matters that can be stipulated in a contract with maintenance firms, and may curb opportunistic tendencies. Another possible incentive is to present the prospect of a premium if, with hindsight, monitoring shows that the mainte-

nance firm has performed positively.

Although contract-related incentives are not easy to implement for maintenance service delivery, and only in combination with some kind of monitoring, the instrument can be a valuable tool. Due to the lack of possibilities for purchasers to check the quality of delivery beforehand, compared to products, an incentive structure could be very helpful as means to stimulate performance.

Problem solving

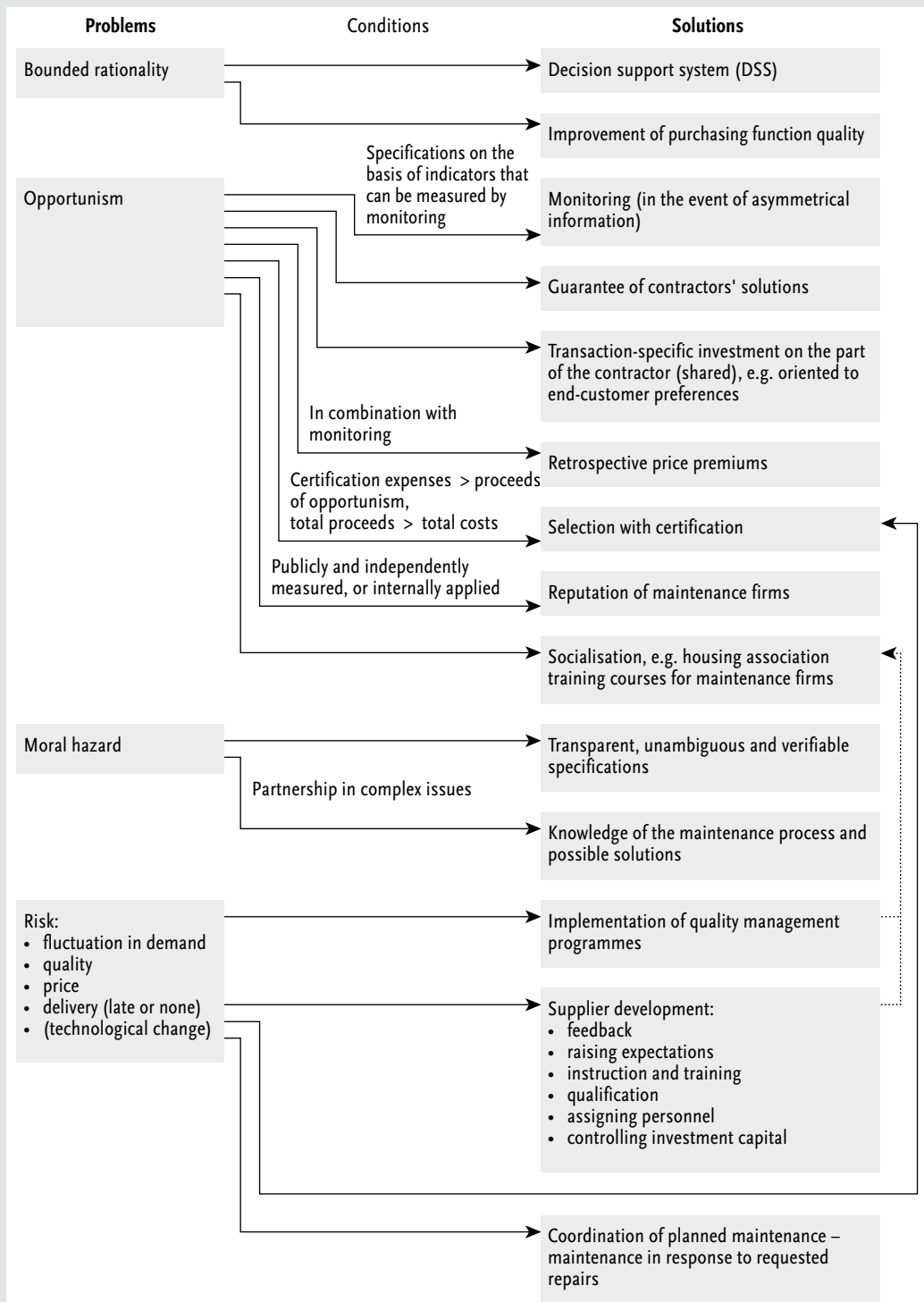
Figure 9.7 shows the important factors for the assessment of the appropriate coordination mechanism. Figure 9.8 shows a list of elements from new institutional economics (as presented in Section 2.3) that offer problem-solving tools.

It is difficult to assess the position of the elements on the scales presented in Figure 9.7. Such an exercise is subjectively sensitive, and calls for an inter-subjective approach. For instance, the question of which risks can and cannot be assessed may need to be answered by specialists. Assessing the strategic importance of purchasing is particularly precarious, and could result in a decision to insource large parts of maintenance. Tenant satisfaction with maintenance, which may be one of the strategic objectives of housing associations, can be assessed using the findings presented in Chapter 5.

Core competencies

The decision concerning whether or not to carry out parts of maintenance internally, or to buy maintenance, may be influenced or even determined by a housing association's core competencies. If a housing association sees its main role as that of a housing manager, with an emphasis on optimum customer contact, then it would make sense to seek strategic partners for those types of maintenance that make a significant contribution to this (such as the maintenance of heating and water systems). This might be the best way of guaranteeing high-quality delivery that is tailored to the preferences of the tenant. In such cases, it may even be advisable for the housing association to consider undertaking maintenance itself.

Figure 9.8 Elements from new institutional economics as problem-solving instruments



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10 Conclusions and recommendations

10.1 Introduction

This doctoral research was conducted from a business perspective. The aggregation level of study is that of the individual organisation (in this case, the Dutch housing association), and the leading perspective is that of the purchasing organisation. The point of departure was the recognition that a housing association is a social entrepreneur, which implies that housing associations are responsible for their own organisational and commodity strategies, and for implementing them. Keeping this starting point in mind, this doctoral research has tried to offer insights into the current situation and perspectives of Dutch housing associations, in their role as purchasers of maintenance services.

This research had two aims: (1) to improve our understanding of Dutch housing associations' commodity strategies relating to maintenance services; and (2) to provide insights into development opportunities for these commodity strategies, and how maintenance policy choices might be made that would increase tenant satisfaction. Theoretical research was also included as part of these aims.

These research aims were achieved by addressing three primary research questions over the course of Chapters 3-9:

1. *To what extent do the different types and characteristics of maintenance services purchased by the Dutch social rented sector influence tenant satisfaction?*
2. *To what extent are the current Dutch housing associations' commodity strategies for maintenance tenant-focused?*
3. *Which commodity strategies facilitate the optimisation of tenant satisfaction with maintenance services?*

(Sub)questions were formulated in order to provide extra structure for answering the research questions. The first research question is addressed in Chapters 5 and 6. These chapters focus on the important elements for end-customers in maintenance service delivery:

- *Which maintenance services are of primary importance for tenant satisfaction with maintenance?*
- *Which determinants of maintenance service quality are of primary importance for tenant satisfaction regarding maintenance, and how can performance measurement of maintenance service delivery in the social rented sector encourage tenant satisfaction regarding maintenance?*

The second research question is dealt with in Chapters 3, 4, 7 and 8, and comprises the following subquestions:

- *Which determinants of service quality are important for customer satisfaction when buying component maintenance services, and to what extent are these taken into account in the specification of these services?*

- *To what extent do maintenance service specifications cover the service aspects that are important to tenants?*

Chapters 3, 4 and 8 primarily focus on the nature of the purchasing of maintenance services by Dutch housing associations. In Chapter 7, research questions 1 and 2 are both considered, and a connection is made between the two. Chapter 9, meanwhile, focuses on the third research question. The structure of the research is presented in Figure 10.1. Section 10.2 presents the main conclusions of this study.

10.2 Findings

The Dutch social rented sector, like those in other European countries, has recently undergone major changes. The introduction to this thesis examined institutional developments in European social housing (see Sub-Section 1.2.2), including an increasing orientation towards the market demands of tenants and future tenants. This situation was taken as the point of departure for this doctoral research.

10.2.1 Goals for purchasing maintenance services

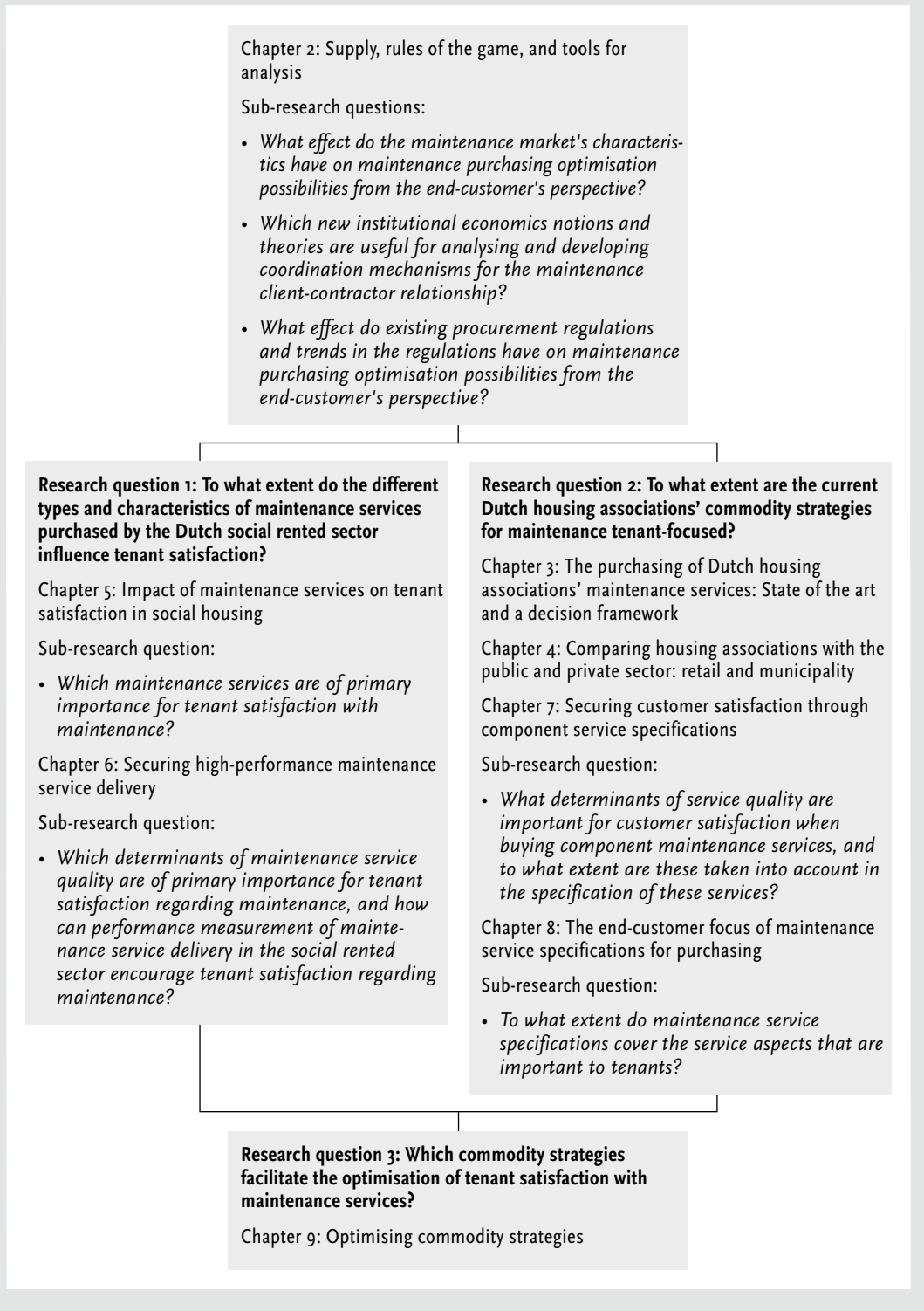
Maintenance services are an important means of fulfilling both the private objectives of housing associations and acting within a public framework. Maintenance services can contribute to high-quality service delivery to tenants. They may contribute to the liveability of a neighbourhood, and they can be used optimally from a financial point of view. In this research, the focus lies on the possible contribution made by (purchasing of) maintenance services to tenant satisfaction. The relevant arena concerns the buying centre (including all actors involved in purchasing), its relations, supplier selection, and specifications.

10.2.2 Characteristics of the housing association and its customers

Social enterprises such as housing associations share characteristics with both the private and the public sector. They operate in a market situation, but they also have to use their means to serve society. In particular, housing associations have to provide services for target groups that need special support in the housing market.

As a customer, the tenant is in a vulnerable position. Often, the target groups spend a high percentage of their income on rents. Moreover, the choice of dwellings and accompanying housing services is very restricted, particularly in a tight housing market (suction). High exit barriers exist for tenants,

Figure 10.1 Overview of research questions



and their position can be considered a 'captive' one. This means that tenants are, to a large degree, dependent on housing associations, e.g. for the quality of the (maintenance) services delivered. In addition, there is a very limited choice of services and service attributes. The law offers certain protection for tenants, such as the existing restrictions on rent increases. In addition, tenants can become involved with their housing association's policy.

Unlike activities performed in a competitive setting, there are limited incentives for housing associations to make efficient investments. Despite this, public, and in particular European, procurement rules are not currently applied, and the degree of actual transparency is therefore limited. Given this situation, it would be advisable to apply transparent procedures that would enable fair competition among candidate suppliers.

10.2.3 Characteristics of the maintenance sector

- *What effect do the maintenance market's characteristics have on maintenance purchasing optimisation possibilities from the end-customer's perspective?*

Maintenance markets tend to be fragmented markets, with the exception of the lift maintenance market. In general, there are many small companies offering their services. Entry barriers are low, despite the efforts made by maintenance companies to raise these. Improving productivity can be difficult due to the large share taken by labour costs, and price is the key order-winning criterion. Therefore maintenance companies are proficient at keeping costs low, but not necessary at maximising end-customer satisfaction. This probably restricts possibilities for optimising end-customer satisfaction. Therefore, additional efforts may be needed from the purchasing organisation, the housing association, to ensure that they receive the right combination of resources and capabilities from service suppliers. Supplier selection is important, but not always sufficient. When the requested capabilities do not match the available capabilities in the supply market, supplier development efforts may be needed in order to be able to achieve the desired goals. In addition, due to low margins, the capacity to initiate new developments for the sake of end-customers is limited. The fragmentation of the maintenance market has also makes it difficult to combine different types and forms of maintenance, which hampers synergy. This may lead to more frequent annoyance and disruption for tenants.

Thus the character of the maintenance markets implies a lack of end-customer focus and a lack of opportunities for synergy, and the opportunities for optimising commodity strategies from the end-customer perspective are thus limited.

10.2.4 Regulatory purchasing requirements

- *What effect do existing procurement regulations and trends in the regulations have on maintenance purchasing optimisation possibilities from the end-customer's perspective?*

Purchasing opportunities are restricted by regulatory demands and the characteristics of the maintenance market. When public control of the social rented housing sector increases, European tender laws may become obligatory. For individual housing associations, these regulations would imply some restrictions on purchasing possibilities, and in some cases, higher costs due to more extended procedures. This may potentially restrict opportunities for synergy (combining maintenance activities) and optimisation by means of long-term partnering. On the other hand, for core maintenance expenses, European tender laws may help to develop a transparent purchasing process. For the sector, it may mean a 'forced' professionalisation of purchasing practice through structured procedures.

Before conclusions could be drawn with respect to the actual optimisation of the commodity strategy, attention should be given to the question of what affects tenant satisfaction regarding maintenance, as the objective for optimisation.

10.2.5 Maintenance services and tenant preferences

- *Which maintenance services are of primary importance for tenant satisfaction with maintenance?*

The perceived importance of maintenance was measured by conducting a large-scale questionnaire among tenants in the Dutch social rented housing sector. In this research, the perceived importance of maintenance services was measured in two ways:

- by asking the respondents to indicate the importance of maintenance services directly;
- by estimating the importance of maintenance services in a regression analysis, with satisfaction with maintenance in general as the dependent variable and satisfaction scores for the distinct maintenance services as predictors.

The direct importance measurement (the first concept above) included two different measures: a rating and a top-three ranking.

Maintenance to heating and water systems, and maintenance of hinges and locks of windows and external doors, are considered to be among the most important factors for tenant satisfaction. These maintenance services

directly contribute to the physiological and safety needs of tenants. In addition, while maintenance services that are clearly visible to tenants, such as exterior paintwork and maintenance to bathrooms, receive lower-than-average importance ratings, their impact on tenant satisfaction with maintenance in general is significant. These services are related to the 'esteem' needs of tenants, or the 'fashion-dedicated needs'. On the other hand, there are maintenance services for which inadequate service is not directly visible to tenants, until there is a breakdown. Examples of this type of services include maintenance to drains and lifts. These services do not regress significantly with tenant satisfaction with maintenance in general, but the stated importance ratings are high. For certain groups, such as the elderly and the disabled, lift maintenance has an impact on physiological needs. For other groups, lift maintenance can be perceived more or less as a luxury.

Tenants with comparable maintenance preferences can be distributed across housing associations' properties. In the exceptional case of housing estates with a relatively homogeneous population (e.g. including a high percentage of students or elderly people), planned maintenance to communal facilities lends itself well to the application of a segment-based maintenance purchasing policy. The latter may imply adapted specifications, adapted supplier selection or adapted award criteria. As reactive maintenance is often delivered to individual tenants, customising the service is easier than for planned maintenance. Housing associations should evaluate the possible price advantages that may accompany bundling tenant preferences for reactive maintenance, compared to anticipating individual preferences with regard to the desired service level.

- *Which determinants of maintenance service quality are of primary importance for tenant satisfaction regarding maintenance, and how can performance measurement of maintenance service delivery in the social rented sector encourage tenant satisfaction regarding maintenance?*

According to tenants, the most important aspect is 'the quality of the result of maintenance', followed by 'the competence of maintenance workers' and 'completing maintenance activities in a single visit'. The latter implies that maintenance workers perform their maintenance job without unnecessary re-working or additional site visits. The stated importance ratings of determinants of maintenance service quality are thus comparable for planned maintenance to the outside of dwellings and reactive maintenance inside dwellings. The regressions of determinants of maintenance service quality for planned maintenance, with the evaluation of planned maintenance to the exterior of buildings and for reactive maintenance, with the evaluation of reactive maintenance to building interiors, offers a different picture from that implied by the importance ratings. The only determinants of maintenance

service quality regressing with the evaluation of planned maintenance to the exterior of buildings are 'the quality of result of maintenance' and 'tenant participation in maintenance through options'. For reactive maintenance to building interiors, the most important stated importance determinants of maintenance service quality regress also significantly with the evaluation in general.

When the phase of contracting a maintenance supplier is over, performance measurement, or monitoring, constitutes an important means of securing high-quality maintenance service delivery. Performance measurement should be based on indicators that are presented in the service specifications. The most relevant determinants of maintenance service quality should be included in order to secure end-customer satisfaction. The perceived importance of determinants of maintenance service quality were measured through stated importance ratings, and through regression analyses measuring the impact of attributes on satisfaction with reactive maintenance inside dwellings and planned maintenance to the outside of dwellings.

While the essential determinants of service quality should be assessed for reasons of performance measurement, the same applies to earlier stages of the purchasing process.

10.2.6 Characteristics of the maintenance service and the implications for commodity strategy development

- *Which determinants of service quality are important for customer satisfaction when buying component maintenance services, and to what extent are these taken into account in the specification of these services?*

Maintenance services are services that are purchased by housing associations from maintenance service suppliers and delivered downstream to tenants. These services can be referred to as component services, and may have a significant impact on end-customers. This should be taken into account when developing specifications for services. This impact is revealed both by the service delivery process and by the outcomes of the service (the problem solution or prevention). Differences in service characteristics from the end-customer perspective should be taken into account when purchasing maintenance services. Although the organisation and structure of the service is totally different, in contrast to our expectations, given the stated importance figures, the demands put on the service encounter are not significantly different for reactive maintenance inside dwellings and planned maintenance to the outside of dwellings. Instead, the increased urgency that is associated with reactive maintenance puts different demands on the service delivery process. In addition, tenants may feel more personally responsible for and attached to in-house maintenance than for (more public) outhouse maintenance. Both may

result in a need for perceived control over the service encounter, which is relatively high for reactive maintenance inside dwellings (compared to planned maintenance to the outside of dwellings). In order to incorporate tenant demands into the purchasing phase, service specifications should reflect this difference. Moreover, supplier selection should yield service suppliers that have the quality and capacity to deal with this difference.

The results of this study suggest that component services are insufficiently recognised as such by purchasers, leading to inadequate coverage of important determinants of service quality in service specifications.

10.2.7 Optimisation of the commodity strategy

- *Which new institutional economics notions and theories are useful for analysing and developing coordination mechanisms for the maintenance client-contractor relationship?*
- *To what extent do maintenance service specifications cover the service aspects that are important to tenants?*
- *Which commodity strategies facilitate the optimisation of tenant satisfaction with maintenance services?*

Tools from new institutional economics proved to be useful for analysing this problem, and form the backbone of the possibilities that have been suggested with regard to optimising commodity strategies for maintenance. The 'design' is structured on the basis of the steps that constitute the purchasing process. Chapter 9 looked in detail at the optimisation of commodity strategies. In this sub-section, only the most important items for answering the research question are discussed.

Purchasing process

The purchasing process consists of several steps that can be set by housing associations (the purchasing organisations) to set requirements for suppliers and services, which will affect service quality from the perspective of tenants. The purchasing process includes the following options:

1. execution requirements;
2. selection criteria (suitability requirements);
3. award criteria;
4. the contract as a means of managing the relationship between the housing association and the service supplier;
5. contract-related incentives.

1. *Execution requirements*

Execution requirements are a crucial prerequisite for successful service delivery. These requirements, elaborated into specifications, determine the service

that is delivered and how this corresponds to customer preferences. Execution requirements are the correct means of specifying all of the relevant determinants of maintenance service quality that housing associations would like to be realised during the execution of a contract. From the document study, the conclusion can be drawn that not every important determinant of service quality is included in current specifications. Some determinants of maintenance service quality are so important that they should be addressed during the supplier selection phase. In this situation, housing associations should ensure that suppliers are able to deliver adequate quality.

Specifications usually include throughput-indicators. By means of inspections, the results of throughput-indicators can generally be measured without any difficulty, assuming that the housing association knows and has access to the relevant activities. Occasionally, functional – or output – indicators are used. In order to use these criteria, it is important that the housing association is well aware of the potential benefits of maintenance for its strategic objectives. The advantage of using output-indicators is that the maintenance service supplier has more of an opportunity to optimise processes than with throughput-indicators. If this fits the capacities of maintenance contractors (and those of housing associations in setting up the relevant indicators), this could be an interesting opportunity for optimising maintenance service delivery. One prerequisite, however, is good coverage of the essential issues. ‘Completing maintenance activities in a single visit’, for example, is one output criterion that might be used (according to the situation), and may effectively improve service to tenants. It can be monitored through undertaking random checks with tenants. However, when performances are not measurable, or the maintenance contractor does not have the capabilities to come up with a better design or solution than that provided by the housing association, the use of throughput-indicators in specifications is recommended.

If maintenance contractors have the relevant capabilities, they can add value to specifications. Housing associations may, however, also improve their own capacities for optimising specifications. The composition of the purchasing function influences the quality of specifications. Maintenance services that have a large impact on tenant satisfaction can be purchased by a team that includes front-office employees. Decision support systems can help with the storage and use of knowledge regarding end-customer preferences about service results and service delivery processes.

There is room for improving the structure of specifications. Many different documents are used for specifications, leading to duplication, (possibly) missed aspects, and at the very least, a lack of transparency, none of which stimulate compliance. In addition, transparent specifications reduce the chance of moral hazard by service suppliers.

Currently, specifications are often the responsibility of project leaders, which reside at the operational level of the organisation. Because of the

growth of the size of housing associations, the business or corporate level lacks an overview of the specifications used and the actual service level that is delivered. There is some need for increased transparency. General conditions can be used to fix the service level of maintenance for aspects that are similar across all services. Framework agreements can be used for aspects that differ across different commodities and/or suppliers, but that do not differ among different housing blocks and target groups of tenants. When key performance indicators for the contents of these documents are settled at the business level of the organisation, service quality can be assured at a higher organisational level. Finally, contracts are a good means of fixing determinants of service quality that vary between different maintenance projects and housing blocks.

Related to this, at the corporate level of housing associations, current strategic housing (stock) policies are primarily related to the physical aspects. A strategic policy that has some ambitions with regard to the promotion of tenant satisfaction should include tenant preferences in maintenance service delivery. In strategic policy-making desired service levels can be agreed, which can subsequently be implemented in purchasing and commodity strategies.

2 and 3. Selection criteria and award criteria

If housing associations decide to purchase maintenance services from external service suppliers, supplier selection is an essential means of ensuring the right resources and capabilities. In current Dutch practice, housing associations seldom use selection and award criteria. Known parties which are often locally based are repeatedly invited to conduct works. This may be to the exclusion of other parties, which might raise the quality of service delivery to tenants and/or limit costs.

Some determinants of maintenance service quality can be perceived as minimum requirements. Inadequate compliance leads to dissatisfied tenants. Through selection criteria, the ability of potential suppliers to meet set requirements may be tested. This is particularly interesting for maintenance services that have a large impact on tenant satisfaction, such as exterior paintwork, maintenance to hinges and locks of windows and external doors (for single-family dwellings), maintenance of porches, galleries, corridors and/or stairways (for multi-family dwellings) and maintenance of bathrooms. In particular, the quality of human resources is a crucial factor, in view of the high degree of interaction involved in certain maintenance services that are important to tenants. Past successful projects may indicate success in future projects. In this context, 'successful' means a project that satisfies tenants. Only potential suppliers meeting the necessary criteria may continue to compete for contract. Because there is a risk of too few potential suppliers being able to realise a certain criterion, and because of the administrative burden that accompanies each criterion, a limited number of criteria should be used.

Where selection criteria are related to the proficiency of potential suppliers,

award criteria are related to the maintenance solution offered. With regard to award criteria, tenant satisfaction seems to be best secured through the use of 'the most economically advantageous tender', rather than the lowest price (although the costs in the short-term may increase). It is in the interests of tenant satisfaction regarding maintenance that the essential determinants of maintenance service quality are included as award criteria, including appropriate weights. This gives clear emphasis to each specific item. However, only those determinants of maintenance service quality that can be measured, and be compared objectively in this stage of process, should be included. (The degree of) being available to answer questions and receive complaints may qualify as a suitable award criterion. Another determinant of service quality that may be well used as an award criterion is that of flexibility in making appointments with tenants.

4. *The contract as a means of managing the relationship between the housing association and the service supplier*

■ Close cooperation or market processes

One topical question, in light of the daily practices of housing associations, is whether one should put one's trust in the market, or develop (long-term) cooperation with service suppliers. The answer to this question depends on several factors. In this research, close cooperation is understood to be a delicate form of the coordination mechanism 'hierarchy'.

Highly complex specifications constitute one reason to cooperate closely with service suppliers. Without close cooperation, the risk of not being able to match expectations and service delivery output might be considerable. First, due to bounded rationality, specifications may be incomplete or suboptimal. Second, bounded rationality on the supplier's side may lead to a different service from the one that was expected. Both may have negative consequences for end-customer satisfaction.

Having a high level of asset specificity is another reason for close cooperation. Asset specificity usually increases as a result of (intensive) cooperation with particular service suppliers. Usually, the longer a maintenance service supplier works on certain housing estates, the more dedicated the assets become. One becomes familiar with the tenants and the characteristics of the building components' degradation patterns, and unique solutions to problems are developed. In other words, previous successful cooperation is an economic incentive for cooperation (with the same service supplier) in the future.

Finally, the housing association should consider its key objectives. If tenant satisfaction is a key objective for the housing association, for example, then the maintenance of hinges and locks of windows and external doors (a factor that is of central importance for tenants) should be considered to be a priority. It may be advisable to cooperate with service suppliers to manage services in order to reduce risks. This can take the form of close cooperation, or even ver-

tical integration. For less important maintenance services, investing in close cooperation is less worthwhile.

■ Reducing opportunism

Opportunism is another factor that may negatively affect the quality of maintenance service delivery. If the housing association has an information disadvantage (information asymmetry) compared with the maintenance contractor, monitoring may be an effective means of reducing the chances of opportunism, and thereby the negative consequences for end-customer satisfaction. Supplier development actions may be effective for reducing risks, such as those related to quality, secure delivery and price. Low-profile supplier development actions include giving regular feedback to suppliers about their performance, acknowledging suppliers and raising expectations. More drastic measures include training the personnel of maintenance service suppliers, contributing investment capital, and placing one's own personnel on the supplier's premises.

Giving maintenance contractors an opportunity to bring their knowledge and experience to bear on improving specifications, as mentioned before, will lead to transaction-specific investments and reduce incentives for opportunism.

5. *Contract-related incentives*

Although contract-related incentives are not easy to implement for maintenance service delivery, and can only be used in combination with some kind of monitoring, the instrument can be a valuable tool. Due to the lack of possibilities for purchasers to check the quality of delivery beforehand, unlike with products, an incentive structure can prove very helpful as a means stimulating performance. Housing associations have the option of using post-hoc price premiums as a means of curbing opportunism, which may be effective when combined with monitoring.

10.2.8 Differentiated approaches

The decision to opt for a particular coordination mechanism (market, close cooperation, or complete hierarchy/integration), depends on the housing association's goals and strategy. From this research, one can conclude that this decision will be different for different maintenance services.

In the recommendations, most attention will be given to commodity strategies relating to two particular maintenance services: those of maintenance of heating and water systems, and exterior paintwork. These two services are essential in terms of finance and tenant satisfaction with maintenance. Exterior paintwork, in addition, may have a positive impact on the liveability of a neighbourhood.

Maintenance of heating and water systems

Maintenance of heating and water systems is a service that is very important for tenant satisfaction regarding maintenance. For housing associations that consider tenant satisfaction to be of paramount importance, the quality of service delivery for this service should be guaranteed.

The housing association in question should ensure the quality of the results of maintenance, and thus the reliability and safety of heating and water systems. People need warm water and an adequately heated living environment. However, given that this is a form of maintenance service that entails relatively intensive interactions with tenants, it is also important that service delivery is pleasant in order to assure satisfaction among tenants. It is important for tenants that maintenance workers execute maintenance without needing to return for additional materials, or rectify mistakes (including breakdowns due to faulty maintenance). In order to reduce inconvenience, specifications may include an output criterion related to tenant satisfaction with the completion of maintenance activities in a single visit. When housing associations do not expect suppliers to be able to detail this condition, throughput indicators may be used to indicate the steps to be taken in order to ensure satisfaction.

The competence of maintenance workers is essential for suppliers to be able to perform works satisfactorily, and for tenant confidence. Therefore, in supplier selection procedures, housing associations should include minimum criteria relating to the competence of maintenance workers. If service suppliers offering the necessary human resources are unavailable, then housing associations have no choice but to start development programmes for suppliers in order to raise them to the desired level of competence. With regard to human resources, maintenance workers should also treat tenants courteously. Since there is no diploma for courtesy, this could be achieved by means of training or service specifications. Output specifications could measure tenant satisfaction with the politeness of maintenance workers and call centre employees. If the housing association does not expect maintenance service suppliers to be able to handle these indicators, throughput indicators may establish the steps to be taken in order to secure satisfaction with the courtesy. This may include 'to do' and 'not to do' criteria. One example of a 'to do' criterion is to let maintenance workers introduce themselves. An example of a 'not to do' criterion is to forbid maintenance workers to smoke inside dwellings.

Maintenance to heating and water systems is often reactive maintenance. For reactive maintenance, determinants that give tenants a feeling of control over the urgent situation are important. For this reason, tenants must be able to easily access the right office, they must be able to arrange an appointment (preferably whenever they want), and most importantly, the maintenance workers must be present in line with arrangements. Call centres and maintenance workers thus need to work together. When maintenance and the call

centre are being run by different firms, additional coordination by the housing association is needed in order to guarantee service quality. In addition, irrespective of whether the call centre is outsourced, specifications need to include these determinants of maintenance service quality. Another determinant of service quality that adds to the feeling of control is that of tenant participation in maintenance by being able to choose from different maintenance options. Tenants might, for example, be given choices related to flexibility in making appointments. More flexibility implies paying a higher fee, however.

Maintenance of individual heating and water systems has high strategic value for housing associations, both in terms of finance and impact on tenant satisfaction. To a great extent, orders are repeated and the complexity of both specifications and works is limited. Only when knowledge of tenant preferences is stored and used for improving the quality of the service delivery, can long-term agreements be productive. This assumes that maintenance service suppliers are able to research and exploit tenant preferences, which is currently rarely the case. At the same time, giving service suppliers responsibility for improving and optimising heating and water systems may have positive consequences for their commitment and, eventually, service quality. Output specifications are an important means of making this approach possible.

Thus, if a service supplier can deal with output specifications, if a housing association can derive output specifications from its strategic maintenance objectives, and if the maintenance contractor is better able (than the housing association) to design optimal services, then output specification may be recommended. If these requirements cannot be fulfilled, however, housing associations should use throughput indicators. In both cases, performance measurement is necessary in order to limit opportunism.

Aside from heating, adequate ventilation is important for ensuring comfort, and achieving harmony between heating and ventilation systems may be advantageous in this respect. In addition, harmony between maintenance (or replacements) of ventilation systems and maintenance of heating (and water) systems may limit disturbance to tenants. If a number of maintenance service suppliers are able to deliver both types of maintenance in harmony, then combined specifications could be drawn up and put out to tender in order to stimulate tenant satisfaction.

Exterior paintwork

Exterior paintwork is crucial for tenants' perceptions of maintenance services. A lack of adequate maintenance is easily visible, and this form of maintenance can take a long time.

For tenants, the quality of the result of maintenance is essential. This aspect, however, is not always easily specified and measured. The quality of the result of painting influences the performance of a façade in the long-term.

Inadequate painting may, for instance, result in rotten windows. While adequate specification of the quality of paintwork is necessary, the appropriate activities needed may be obvious for some projects but less obvious for others. Output specification may provide opportunities for maintenance contractors to optimise services, if the maintenance contractor is better able than the housing association to design maintenance activities. The quality of the result from the tenant's perspective may be increased if it fits their preferences with regards to the appearance, e.g. use of colours. Therefore it may be stimulating for satisfaction with maintenance to let tenants vote for or choose the colours that are to be used.

For tenants, the competence of maintenance workers is important, and the selection procedure should take this into account. Not unlike the situation for maintenance to heating and water systems, avoiding damages to tenants' personal property should be included into the specifications.

Given the complexity of degradation to building façades due to, for instance, weather conditions, and the relative uniqueness of buildings and building components, these maintenance solutions are often highly specific. Specificity increases when different applications are combined, such as concrete repair and painting. The more complex and specific the situation and the needed specification, the more experience pays off in the longer term. In this case, it may be wise to contract a maintenance company for a certain length of time and give it responsibility for maintaining the building component. Another important factor relating to exterior paintwork is risk, including quality risks. When these are not easy to assess, it might be useful to cooperate with maintenance contractors to map risks, value them jointly, and share them. The disadvantage of this may be a reduction in competition.

10.3 Policy and managerial recommendations

The following managerial recommendations can be drawn from this research.

- *Maintenance commodity strategies should reflect the contribution made by specific maintenance services to a housing association's strategic objectives.*

Maintenance services are important means of fulfilling housing associations' goals, and commodity strategy development can help housing associations to achieve these. Maintenance services can contribute to both public and private challenges, such as financial-economic objectives, liveability, sustainability, and tenant satisfaction.

- *Maintenance of dwellings is a service that is purchased by housing associations and delivered to tenants. The large impact that such services may have on these end-customers makes it important to effectively take end-customer requirements*

into account in commodity strategy development.

Buying companies should know what is important to tenants. For the most important maintenance services, housing associations can constantly collect and save information about tenant preferences in order to limit bounded rationality. Subsequently, this information can be used to draw up specifications, suitability requirements, award criteria, contract-related incentives, and to decide on the best form of cooperation with service suppliers.

Buying companies can use the knowledge obtained to critically reflect on which aspects of service delivery contribute to perceptions of high-quality services, and consequently, how they should specify these services for providers. A proper service specification, which takes end-customer preferences into account, will help to acquire and retain satisfied customers. Subsequently, performance measurement should ensure that execution requirements are indeed fulfilled. Critically important requirements, for which the housing association cannot risk underperformance, could be included as award criteria. Contract-related incentives can be used to stimulate performance for determinants of service quality that enhance tenant satisfaction. They can be used alongside standards set for execution requirements, and are an interesting option due to the difficulties associated with making prior assessments of service quality in this area. Housing associations could specify a minimum level of performance for individual service quality determinants, and any deviations could be linked to bonuses or penalties.

In the supplier selection phase, supplier suitability requirements (or selection criteria) are essential for verifying whether a maintenance service supplier indeed has the resources and capabilities needed to provide high-quality service delivery. In addition, tenant satisfaction appears to be best secured through the use of 'the most economically advantageous tender' when awarding contracts, instead of the lowest price. It is in the interests of tenant satisfaction that the essential determinants of maintenance service quality should be included as award criteria, including the appropriate weights, giving clear emphasis to specific items. However, only those measurable and objectively comparable determinants of maintenance service quality should be included. In addition, not too many aspects should be included. (The degree of) being available to answer questions and receive complaints could qualify as a suitable award criterion, with another possibility being 'flexibility in making appointments with tenants'.

- *In order to stimulate tenant satisfaction, particular attention should be given to high-quality maintenance of heating and water systems and maintenance of hinges and locks of windows and external doors.*

Maintenance of heating and water systems and maintenance of hinges and locks of windows and external doors should, based on this research, and at least for tenants of single-family dwellings, be designated as essential. In-

adequate maintenance relating to these components is expected to severely harm wellbeing and reduce tenant satisfaction.

- *A transparent set of service specifications helps maintenance service suppliers to understand the service demands, and may therefore increase the probability of high quality service delivery.*

The readability and clarity of specification documents is generally something that could be improved. For example, it may be helpful and transparent to use separate documents for technical specifications and issues related to interaction with tenants. A further distinction could be made between various service aspects that can differ for each maintenance service and should therefore be recorded at contract level, and 'fixed' service aspects that are standard for all activities and that should be recorded in the general conditions.

General conditions can be used to fix the service level of maintenance for aspects that are similar for all services. Framework agreements can be used for aspects that differ across different commodities and/or suppliers, but are equal for different housing blocks and tenant target groups. When key performance indicators for the contents of these documents are settled at the business level of the organisation, service quality can be assured at a higher organisational level. Finally, contracts are good measures for fixing determinants of service quality that vary across different maintenance projects and housing blocks.

- *The buying centre for a certain commodity should reflect that commodity's contribution to the organisation's objectives.*

In order to be able to treat suppliers as extensions of housing associations in delivering services to tenants, a closer connection is needed between the purchasing of technical management services and the strategic level of the organisation. For example, from the perspective of customer satisfaction, it is advisable to place marketing professionals or front-office staff in the buying centre for those services that have a significant impact on customer satisfaction.

- *Housing associations should know which key process steps and parameters in maintenance service delivery can and should be measured to ensure tenant satisfaction regarding maintenance.*

Housing associations have to define key process steps and parameters for both their own and suppliers' processes for maintenance service delivery. This will enable them to monitor and improve these issues. An analysis of tenant complaints can be a good starting point for the identification of these key process steps from the end-customer's perspective.

- *Maintenance performance as a whole could be improved by integrating, as far as*

possible, decision-making relating to reactive maintenance, planned maintenance and void repairs.

Currently, separate departments of housing associations are often responsible for these three types of maintenance, despite the fact that the different activities can influence and possibly hamper one another. For instance, maintenance to the building façade could be aligned with maintenance to installations in order to improve energy quality and to decrease energy bills. In addition, bundling types of maintenance (reactive maintenance, planned maintenance, and void repairs) and categories of maintenance (for example paintwork, roof maintenance and concrete work) may reduce both coordination costs and nuisance for tenants.

- *The performance of housing associations as a whole, and of maintenance in particular, could be improved by integrating decision-making for maintenance, improvements, and new buildings.*

Frequently, the optimisation of maintenance solutions is restricted due to building characteristics. Maintenance would benefit from direct participation in decision-making regarding requirements for new buildings and refurbishment.

- *A strategic policy that has some ambitions relating to tenant satisfaction should include tenant preferences in maintenance service delivery.*

At the corporate level of housing associations, current strategic housing (stock) policies are primarily related to physical aspects. Desired service levels should be agreed as part of strategic policy-making, which can subsequently be implemented in purchasing and commodity strategies.

- *Tenant satisfaction regarding maintenance can be positively influenced by actively managing tenant expectations about maintenance activities.*

Although taking into account all determinants of maintenance service quality would be interesting from a tenant's point of view, from the economic point of view, it may be undesirable. Maintaining realistic tenant expectations with regard to deliverable service levels is essential in order to limit the number of disappointed tenants.

- *Risk, in combination with the strategic importance of maintenance services for the organisational objectives of the housing association, constitutes the rational coordination mechanism for managing maintenance service suppliers.*

The more unique or complex the specifications, maintenance projects, or solutions are, the more appropriate it is to have a partnership structure between the housing association and the maintenance service supplier. In such cases, it may be worthwhile investing in a relationship with a maintenance company that is able to tackle the problems at hand. This enables the parties to dis-

cuss risks (and give them a price) and thereby improve risk management. The more relationships grow, and thus knowledge of the features, maintenance solutions, and end-customers increases, the higher the benefits of a partnership are.

On the other hand, long-term contracts with maintenance service suppliers can restrict flexibility. For instance, it may be difficult to adapt a housing association's strategic stock policy due to contracts made with service suppliers. In addition, the competitiveness of arrangements may decrease over time, for instance due to innovations and price developments. Therefore, periodical tenders are usually advisable, where for 'dynamic' commodities the contract duration may be shorter than for less dynamic commodities. Alternatively, price actualisations during the contract period may increase the competitiveness of long-term agreements.

An advantage of close cooperation with suppliers for delivery of essential maintenance services is that this will probably lead to a reduction of the number of suppliers. This is particularly the case when maintenance to different building components is bundled for improved alignment of processes. Reducing the number of suppliers leads to an improved overview of existing relations with suppliers and therefore makes these relations more manageable.

When specifications, maintenance projects and solutions are predictable in terms of risks, market processes (competition) are important to ensure that the best supplier can indeed perform the maintenance. In this case, regular multiple tenders are advisable in particular for large volumes.

Examples of risks include fluctuations in complaints and maintenance needs, or the inability of the maintenance firm to consistently meet the desired quality or terms of delivery. Managing these sorts of risks becomes easier as the purchasing company becomes more closely linked with the maintenance firms' activities and can intervene directly if necessary. This is only worthwhile when both parties intend to work together for a lengthy period, however.

Finally, the strategic importance of a maintenance service, in combination with the above-mentioned factors, is decisive for the choice of coordination mechanism. It is more important to invest in a close partnership with suppliers if a particular maintenance service is important (e.g. for customer satisfaction).

For complex works, candidate service suppliers can be asked to present a risk assessment plan, and this may help to limit quality risks beforehand. The quality of this plan can function as an award criterion. In a risk assessment plan, candidate suppliers can give their assessment of the project risks, and how they will minimise them. Parties that make good assessments and propose adequate remedies will score higher than parties that cannot.

- *Tenants may participate in setting priorities for maintenance purchasing.*

Like owner-occupiers of homes, tenants may be more satisfied with maintenance when they have had an opportunity to influence decision-making. They may, for instance, play a role in setting priorities for maintenance of shared areas. This may lead to a greater feeling of responsibility for these areas, resulting in increased liveability.

For maintenance inside dwellings, tenants may participate by choosing between different options. The housing association or the maintenance service supplier may present certain options in combination with price consequences. In other words, sometimes in exchange for a fee, tenants can be offered certain product or delivery process upgrades, which in effect is an extension of service maintenance.

The final (policy) recommendations are primarily directed towards the branch organisation of the Dutch housing associations, Aedes.

- *For further professionalisation of the sector as a whole, the use of transparent procedures enabling fair competition among candidate suppliers is recommended.*

In immobile housing services market, competition is very restricted. Unlike activities performed in a competitive setting, there is limited incentive for efficient spending. In order to stimulate effective spending, there seems some need for public monitoring, and therefore accountability and transparency, at least for regarding spending related to public duties. Nonetheless, public, and in particular European, procurement rules are usually not applied, and actual transparency is therefore limited. Given this situation, the application of transparent procedures enabling fair competition among candidate suppliers is recommended.

- *For transparency relating to the quality of service delivered to tenants, housing associations may be obliged to present results related to the KWH-huurlabel to candidate tenants.*

It would be a good idea to oblige housing associations to outline the results of KWH-huurlabel assessments in literature provided to candidate tenants. The grades provide candidate tenants with information about the quality of service delivery. While the physical part of the housing service is visible, and can therefore be assessed by tenants, the quality of service delivery is not. Presenting a service quality label in combination with each offered dwelling will help customers in their search for a suitable dwelling, which is particularly desirable in such a pressured housing market.

10.4 Recommendations for further research

This thesis has suggested several avenues for future purchasing of maintenance services by Dutch housing associations. This section addresses the main recommendations for further research, which are:

- *To develop insights into the impact of determinants of maintenance service quality for the results of maintenance on tenant satisfaction.*

This thesis has primarily focused on the determinants of service delivery quality. The result of maintenance has been summarised in one attribute, while in fact it consists of many sub-attributes or actions. Which actions are essential for different maintenance services and for different end-customers in order to secure tenant satisfaction?

- *To develop insights into tenants' motives when rating maintenance services, and determinants of maintenance service quality.*

This thesis has offered insights into relevant maintenance services and relevant determinants of maintenance service quality from a tenant's perspective. It did not, however, investigate tenants' motives for rating attributes.

- *To develop insights into the effects of maintenance on the total costs of ownership for housing associations.*

Housing associations make trade-offs between competing maintenance goals. One such goal is to limit the total costs of ownership. The consequences of maintenance for the value of assets should be evaluated, as well as commodity strategies' consequences for buildings' life-cycle costs, in order to improve decision-making.

- *To develop insights into the effects of maintenance on liveability.*

Maintenance can help to create a pleasant living environment for a wider population than that of tenants alone; it may improve liveability in a neighbourhood. This is the case, for instance, for exterior paintwork and maintenance of entrance halls and galleries. The relevant performance indicators for measuring the effects on liveability, however, are still to be determined.

- *To develop insights into the effects of an optimal commodity strategy on tenant satisfaction.*

In this research, we designed an optimised commodity strategy for maintenance services. However, we did not test the effectiveness of this commodity strategy for improving tenant satisfaction with maintenance. Further research could give additional insights into the real-world effects of the proposed choices.

- *To develop insights into the extent to which suppliers can meet end-customer requirements.*

Data relating to optimal determinants of maintenance service quality was only collected from tenants and housing associations. Optimisation of interaction between (essentially) the maintenance service supplier and the tenant, however, also demands an assessment of service suppliers' views on interactions with tenants. Suppliers were not asked about how they perceive optimisation of maintenance service delivery for tenant satisfaction. Including suppliers' perceptions more explicitly in future research would substantiate the findings with regard to the optimisation of service delivery and might, in addition, result in additional insights into the role and behaviour of housing association's purchasers.

- *To develop insights into other housing-related services delivered to end-customers.*

Maintenance services purchased by housing associations and delivered unchanged to tenants are component services. Future research is needed in order to identify the essential determinants of service quality in other settings, and to make cross-comparisons. Research still needs to be carried out into component or semi-manufactured services relating to void repairs and improvement activities. In addition, tenants' experiences with maintenance subscriptions should be evaluated.

Appendix 1 Characteristics of the respondents

Socio-demographic and household characteristics of the respondents of the tenants' survey about maintenance (n = 6037)

Sex (n = 5896, missing = 141)

Male (n = 2894) 49.1%

Female (n = 3002) 50.9%

Age (years, n = 5879, missing = 158)

Median 55 (range: 17 - 96)

Mean 55

Type of family (n = 5760, missing = 277)

Single (n = 2223) 38.6%

Couple without children living at home (n = 1746) 30.3%

Couple with children living at home (n = 1124) 19.5%

Single-parent family (n = 667) 11.6%

(Completed) Education (n = 5757, missing = 280)

No formal education/elementary school (n = 793) 13.8%

Lower secondary/vocational education (n = 2921) 50.7%

Higher secondary/intermediate vocational/pre-university education (n = 1166) 20.3%

University/higher vocational education (n = 733) 12.7%

Other (n = 144) 2.5%

Source of income (n = 5893, missing = 144)

Labour (n = 2634) 44.7%

Retirement pay (n = 2047) 34.7%

Scholarship (n = 34) 0.6%

Other allowances/and social security payments (n = 1178) 20.0%

Monthly net family income (n = 5450, missing = 587)

Less than 1000 euros (n = 1584) 29.1%

1000-2000 euros (n = 3090) 56.7%

More than 2000 euros (n = 776) 14.2%

Type of dwelling (n = 5985, missing = 52)

Single-family dwelling (n = 3783) 63.2%

Multi-family dwelling (n = 2202) 36.8%

Period of construction of the dwelling (n = 5493, missing = 544)

Before 1946 (n = 581) 10.6%

1946-1967 (n = 1584) 28.8%

1968-1975 (n = 1085) 19.8%

1976-1994 (n = 1939) 35.3%

After 1994 (n = 304) 5.5%

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

Appendix 2 Tenant questionnaire

Dutch version

Uw persoonsgegevens

Hieronder volgen enkele vragen over uw persoonlijke situatie en uw woning. Wilt u svp omcirkelen wat voor u van toepassing is?

1. Wat is uw geslacht?
 - A. Man
 - B. Vrouw

 2. Welk huishoudenstype weerspiegelt uw situatie?
 - A. Alleenstaand, ga door naar vraag 4
 - B. Paar zonder één of meer thuiswonende kinderen, ga door naar vraag 3
 - C. Paar met één of meer thuiswonende kinderen, ga door naar vraag 3
 - D. Eenoudergezin, ga door naar vraag 4

 3. Hoeveel uur werkt uw partner in totaal buitenshuis in een normale werkweek? _____

 4. Hoeveel uur werkt u in totaal buitenshuis in een normale werkweek? _____

 5. Wat is uw leeftijd? _____

 6. Wat is uw hoogst genoten opleiding?
 - A. Lagere school, basisschool
 - B. Lager beroepsonderwijs (bijv. huishoudschool, LTS, LHNO, LEAO, VMBO)
 - C. Middelbaar algemeen onderwijs (MULO, MAVO, 3 jaar HAVO, VMBO)
 - D. Hoger algemeen onderwijs (bijv. HAVO, HBS)
 - E. Voorbereidend wetenschappelijk onderwijs (VWO)
 - F. Middelbaar beroepsonderwijs (bijv. MTS, MEAO, INAS, VHBO)
 - G. Hoger beroepsonderwijs (HBO, HTS)
 - H. Wetenschappelijk onderwijs (universiteit)
 - I. Geen opleiding
 - J. Anders, namelijk: _____

 7. Wat is de grootste inkomensbron van uw huishouden?
 - A. Inkomen uit arbeid
 - B. Pensioen/AOW
 - C. Studiebeurs
 - D. Overige uitkering

 8. Hoeveel bedraagt uw huishoudensinkomen per maand (gemiddeld, netto)?
 - A. Minder dan € 500,-
 - B. Tussen € 500,- en € 999,-
 - C. Tussen € 1000,- en € 1499,-
 - D. Tussen € 1500,- en € 1999,-
-

- E. Tussen € 2000,- en € 2499,-
 - F. Tussen € 2500,- en € 2999,-
 - G. € 3000,- of meer
 - H. Weet ik niet
9. Tot welke bevolkingsgroep rekent u zichzelf voornamelijk?
- A. Nederlands
 - B. Surinaams
 - C. Antiliaans/Arubaans
 - D. Indonesisch
 - E. Turks
 - F. Marokkaans
 - G. Ander 'westers' land
 - H. Ander 'niet-westers' land
10. Op welke etage woont u?
- A. Op de begane grond
 - B. Hoger dan de begane grond, namelijk op etage: _____
11. Bent u van plan om binnen twee jaar te verhuizen?
- A. Ja
 - B. Nee
12. Heeft u een serviceabonnement voor huurdersonderhoud?
- A. Ja, ga door naar vraag 13
 - B. Nee, ga door naar vraag 14
 - C. Weet ik niet, ga door naar vraag 14
13. Waarom heeft u gekozen voor een serviceabonnement voor onderhoud?:
- _____
- _____
- _____

Woongenot en onderhoud

De volgende vragen gaan over uw woongenot, het onderhoud aan uw woning en uw ervaringen daarbij in de afgelopen vijf jaar (of korter) met betrekking tot uw huidige woning.

Planmatig onderhoud is onderhoud dat periodiek uitgevoerd wordt om schade in de toekomst te voorkomen, veelal aan de buitenkant van de woning en eventuele gemeenschappelijke ruimtes.

Reparatieverzoek is een verzoek of klacht van u of één van uw medebewoners die al dan niet leidt tot een reparatie, veelal in uw woning en eventuele gemeenschappelijke ruimtes.

	<i>Zeer onbelangrijk</i>	<i>Zeer belangrijk</i>	<input type="checkbox"/>	<i>Zeer ontevreden</i>	<i>Zeer tevreden</i>
Onderhoud van ventilatiesystemen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van verwarming en waterinstallaties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van bestrating rondom uw woongebouw of woning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van uw keuken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van uw toilet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schilderwerk aan de buitenkant van de woning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van de riolering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Voor de volgende onderhoudsactiviteiten geldt: wanneer uw woning een installatie, bouwdeel of voorziening niet heeft, kunt u dit aangeven door het (n.v.t.) vakje in de linker kolom aan te kruisen en deze deelvraag overslaan.

	<i>Zeer onbelangrijk</i>	<i>Zeer belangrijk</i>	<input type="checkbox"/>	<i>Zeer ontevreden</i>	<i>Zeer tevreden</i>
Onderhoud van de gemeenschappelijke groenvoorziening rondom uw woongebouw	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van verlichting in gemeenschappelijke ruimtes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schoonmaak van gemeenschappelijke ruimtes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van de portiek, galerij, gangen en/of trappenhuizen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van liftinstallaties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onderhoud van uw balkon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Het onderhoud aan welke bovengenoemde (16) aspecten is voor uw woongenot het meest van belang? Kunt u de top drie geven?

1. _____
2. _____
3. _____

Uw eventuele toelichting op bovenstaande antwoorden:

Nu volgen vragen met betrekking tot de onderhoudsdienstverlening. In hoeverre acht u de genoemde zaken van belang voor uw woongenot, en hoe tevreden bent u?

20. Planmatig onderhoud aan de buitenkant van uw woning (bijvoorbeeld schilderwerk, dakonderhoud en onderhoud aan bestrating)

Heeft u ervaring met planmatig onderhoud aan de buitenkant van uw woning?

- Ja (in de afgelopen 3 jaar): vul de kolommen over belangrijkheid en tevredenheid in
- Ja (tussen de 3 en 5 jaar geleden): vul de kolommen over belangrijkheid en tevredenheid in
- Nee: vul slechts de kolom over belangrijkheid in (de linker kolom)

Wilt u nu aankruisen wat voor u van toepassing is? Hoe **belangrijk** is dit voor uw woongenot, en hoe **tevreden** bent u hierover?

	<i>Ze onbelangrijk</i>				<i>Ze belangrijk</i>				<i>Ze ontevreden</i>				<i>Ze tevreden</i>			
De bereikbaarheid voor informatie en klachten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexibiliteit in het maken van afspraken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het nakomen van afspraken over de planning van uitvoering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspraak door keuzeopties bij onderhoud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beperking van de tijdsduur van werkzaamheden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het voorkomen van schade aan persoonlijke eigendommen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het dragen van nette, herkenbare bedrijfskleding door onderhouds-uitvoerders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het beperken en opruimen van troep en stof rondom de werkplek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het beperken van geluidsoverlast en trillingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het aanspreken in uw eigen taal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	<i>Zeer onbelangrijk</i>	<i>Zeer belangrijk</i>	<i>Zeer ontevreden</i>	<i>Zeer tevreden</i>								
De vakbekwaamheid van onderhoudsuitvoerders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De beleefdheid van onderhoudsuitvoerders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De kwaliteit van het resultaat van onderhoud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het in-één-keer goed uitvoeren van onderhoudswerkzaamheden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anders, nl.: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Welke van de bovengenoemde aspecten zijn bij planmatig onderhoud aan de buitenkant van uw woning voor uw woongenot het meest van belang? Kunt u de top drie geven?

1. _____
2. _____
3. _____

Uw eventuele toelichting op bovenstaande antwoorden:

21. Het uitvoeren van onderhoud naar aanleiding van reparatieverzoek(en) in uw woning (bijvoorbeeld keuken, sanitair en verwarming)

Heeft u voor uw woning recentelijk een klacht of reparatieverzoek gemeld?

- Ja (in de afgelopen 3 jaar): vul de kolommen over belangrijkheid en tevredenheid in
- Ja (tussen de 3 en 5 jaar geleden): vul de kolommen over belangrijkheid en tevredenheid in
- Nee: vul slechts de kolom over belangrijkheid in (de linker kolom)

Wilt u nu aankruisen wat voor u van toepassing is? Hoe **belangrijk** is dit voor uw woongenot, en hoe **tevreden** bent u hierover?

	<i>Zeer onbelangrijk</i>	<i>Zeer belangrijk</i>	<i>Zeer ontevreden</i>	<i>Zeer tevreden</i>								
De bereikbaarheid voor informatie en klachten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexibiliteit in het maken van afspraken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	<i>Ze onbelangrijk</i>	<i>Ze belangrijk</i>	<i>Ze ontevreden</i>	<i>Ze tevreden</i>								
Het nakomen van afspraken over de planning van uitvoering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspraak door keuzeopties bij onderhoud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beperking van de tijdsduur van werkzaamheden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het voorkomen van schade aan persoonlijke eigendommen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het dragen van nette, herkenbare bedrijfskleding door onderhouds-uitvoerders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het beperken en opruimen van troep en stof rondom de werkplek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het beperken van geluidsoverlast en trillingen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het aanspreken in uw eigen taal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De vakbekwaamheid van onderhouds-uitvoerders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De beleefdheid van onderhouds-uitvoerders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De kwaliteit van het resultaat van onderhoud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Het in-één-keer goed uitvoeren van onderhoudswerkzaamheden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anders, nl.: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Welke van de bovengenoemde aspecten zijn bij reparatieverzoeken in uw woning voor uw woongenot het meest van belang? Kunt u de top drie geven?

1. _____
2. _____
3. _____

Uw eventuele toelichting op bovenstaande antwoorden:

Ik dank u vriendelijk voor het invullen en opsturen van deze vragenlijst!

U kunt de vragenlijst retour zenden in de bijgevoegde antwoordenvelop. Als u na afloop van het onderzoek een samenvatting van de onderzoeksresultaten wilt ontvangen, kunt u dit aangeven?

- Ja, ik wil een samenvatting van de resultaten ontvangen
- Nee, ik wil geen samenvatting van de resultaten ontvangen

Hieronder is ruimte voor uw vragen en/of opmerkingen naar aanleiding van de vragenlijst.

Tenant questionnaire

English version (not used)

Your personal details

Below are a number of questions about your personal situation and your home. Please circle the answer that applies in your case.

1. What is your gender?
 - A. Male
 - B. Female

 2. What is the composition of your household?
 - A. Single occupant – please go to question 4
 - B. Couple with no children living at home – please go to question 3
 - C. Couple with one or more children living at home – please go to question 3
 - D. Single-parent family – please go to question 4

 3. How many hours does your partner work outside the house in a normal working week? _____

 4. How many hours do you work outside the house in a normal working week? _____

 5. What is your age? _____

 6. What is your highest level of education?
 - A. Elementary school
 - B. Lower vocational education (e.g. school for domestic science, junior technical school, lower economic and administrative education, preparatory intermediate vocational education)
 - C. Lower general secondary education (extended primary education, 3 years of higher general secondary education, preparatory intermediate vocational education)
 - D. Higher general secondary education
 - E. Pre-university education
 - F. Intermediate vocational education (e.g. intermediate technical school, intermediate business education, intermediate professional education)
 - G. Higher vocational education (or higher technical education)
 - H. University
 - I. None
 - J. Other, please specify: _____

 7. What is the greatest source of income of the household?
 - A. Employment
 - B. Pension (private or state)
 - C. Student grant
 - D. Social security

 8. What is your average net monthly household income?
 - A. Less than €500,-
 - B. Between €500 and €999
-

- C. Between €1000 and €1499
 - D. Between €1500 and €1999
 - E. Between €2000 and €2499
 - F. Between €2500 and €2999
 - G. €3000 or higher
 - H. Don't know
9. To what population group do you consider you belong?
- A. Dutch
 - B. Surinamese
 - C. Antillean/Aruban
 - D. Indonesian
 - E. Turkish
 - F. Moroccan
 - G. Other 'Western' country
 - H. Other 'non-Western' country
10. What floor do you live on?
- A. On the ground floor
 - B. Higher than the ground floor, on the _____ floor
11. Are you intending to move in the next two years?
- A. Yes
 - B. No
12. Do you have a maintenance service contract for tenants?
- A. Yes, please go to question 13
 - B. No, please go to question 14
 - C. Don't know, please go to question 14
13. Why do you have a maintenance service contract?

Home enjoyment and maintenance

The following questions are about home enjoyment, the maintenance of your home, and your experiences in the last five years (or less) in relation to your current home.

Planned maintenance is maintenance that is carried out periodically in order to prevent damage in the future, often performed on the outside of the home and, if relevant, in communal areas.

Request for repairs is a request or complaint made by you or a member of your household that may or may not lead to repairs being carried out, usually in your home or, if applicable, in communal areas.

With this question, you can select an answer that best describes your situation. If in doubt, give the answer that is closest to your situation. Please place a cross in the space provided.

14. How do you perceive your current living situation?

Very negative Neutral Very positive

15. How do you perceive the current level of maintenance of your home?

Very negative Neutral Very positive

16. How do you perceive the current state of planned maintenance of your home?

Very negative Neutral Very positive

17. How do you perceive the current state of maintenance of your home following requests for repairs?

Very negative Neutral Very positive

18. Would you be prepared to spend more money on better maintenance?

- A. Yes
- B. No

If you would like to add any extra comments on the answers you have given, please use the space below.

Question 19 is about *different maintenance activities*.

19. How important is maintenance to your home enjoyment, and how satisfied are you about it? Please place a cross in the appropriate circle. If you cannot state your level of satisfaction because you have had no maintenance dealings in the last five years, please place a cross under 'NA' (not applicable).

	<i>Not at all important</i>	<i>Very important</i>	NA	<i>Very dissatisfied</i>	<i>Very satisfied</i>
Maintenance of hinges and locks on windows and external doors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of roof and gutters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	<i>Not at all important</i>	<i>Very important</i>	<i>NA</i>	<i>Very dissatisfied</i>	<i>Very satisfied</i>						
Maintenance of your bathroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of ventilation systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of heating and water systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of paving around the building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of your kitchen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of your toilet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
State of exterior paintwork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of drains	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In cases where your home does not have the installations, features or facilities mentioned in the following questions, please place a cross in the NA box (not applicable) and proceed to the next question.

	<i>Not at all important</i>	<i>Very important</i>	<i>NA</i>	<i>Very dissatisfied</i>	<i>Very satisfied</i>						
Maintenance of communal greenery in the area around your home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of lighting in shared areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cleaning of shared areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of porches, galleries, corridors, and stairways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of lifts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintenance of your balcony	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The maintenance of which of the 16 aspects listed above is the most important as far as your home enjoyment is concerned? Please give your top three.

1. _____
2. _____
3. _____

If you would like to add any extra comments on the answers you have given, please use the space below.

The following questions relate to maintenance services. To what degree do you consider the aspects mentioned contribute to your home enjoyment, and how satisfied are you?

20. Planned maintenance of the exterior of your home (for example, paintwork, roof maintenance, and maintenance of street/pavement).

Has planned maintenance actually been carried out on the exterior of your home?

- Yes (in the last 3 years): fill in the columns relating to importance and satisfaction
- Yes (between 3 and 5 years): fill in the columns relating to importance and satisfaction
- No: only fill in the column relating to importance (the left-hand column)

Please place crosses as they apply to your situation. How **important** is this for your home enjoyment, and how **satisfied** are you?

	<i>Not at all important</i>	<i>Very important</i>	<i>Very dissatisfied</i>	<i>Very satisfied</i>								
Ease of obtaining information and making complaints	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexibility in making appointments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honouring of agreements in relation to work schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Range of maintenance options available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited duration of maintenance work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prevention of damage to personal property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wearing smart and recognisable company clothes (those performing the maintenance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limiting the amount of debris and dust near the area of work, and clearing it away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limiting the amount of noise and vibrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	<i>Not at all important</i>	<i>Very important</i>	<i>Very dissatisfied</i>	<i>Very satisfied</i>
Speaking to you in your own language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professionalism of maintenance staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Courtesy of maintenance staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The quality of the end-product of the maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting the maintenance work right first time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As far as planned maintenance of the exterior of your home is concerned, which of the above aspects are the most important for your home enjoyment? Please give your top three.

1. _____
2. _____
3. _____

If you would like to add any extra comments on the answers you have given, please use the space below.

21. Maintenance carried out following a request (or requests) for repairs in your home (such as kitchen, bathroom, heating)

Have you recently made a request for or complaint about repairs?

- Yes (in the last 3 years): fill in the columns relating to importance and satisfaction
- Yes (between 3 and 5 years): fill in the columns relating to importance and satisfaction
- No: only fill in the column relating to importance (the left-hand column)

Please place crosses as they apply to your situation. How **important** is this for your home enjoyment, and how **satisfied** are you?

	<i>Not at all important</i>	<i>Very important</i>	<i>Very dissatisfied</i>	<i>Very satisfied</i>
Ease of obtaining information and making complaints	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexibility in making appointments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	<i>Not at all important</i>	<i>Very important</i>	<i>Very dissatisfied</i>	<i>Very satisfied</i>
Honouring of agreements in relation to work schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Range of maintenance options available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited duration of maintenance work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prevention of damage to personal property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wearing smart and recognisable company clothes (those performing the maintenance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limiting the amount of debris and dust near the area of work, and clearing it away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limiting the amount of noise and vibrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speaking to you in your own language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professionalism of maintenance staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Courtesy of maintenance staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The quality of the end-product of the maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting the maintenance work right first time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As far as requests for repairs to your home are concerned, which of the above aspects are the most important for your home enjoyment? Please give your top three.

1. _____
2. _____
3. _____

If you would like to add any extra comments on the answers you have given, please use the space below.

Thank you for completing and returning the questionnaire.

You can return the questionnaire in the enclosed reply envelope. Please indicate whether or not you would like to receive a summary of the survey after it has been concluded.

- Yes, I would like to receive a summary of the results
- No, I do not wish to receive a summary of the results

Please use the space below for any questions or comments you may have in relation to the questionnaire.

Appendix 3 Regression analysis

A3.1 Regression analyses regarding determinants of maintenance on the exterior of buildings (n = 2978)

R	R square	Adjusted R square	Standard error of the estimate			
0.529(a)	0.280	0.277	1.352			
		Unstandardised coefficients		Standardised coefficients	t	Significance
		B	Standard error	Beta		
(Constant)		1.463	0.126		11.644	0.000
Tenant participation in maintenance through options		0.172	0.018	0.189	9.318	0.000
The quality of the result of maintenance		0.256	0.028	0.265	9.307	0.000

(a) Dependent variable: Evaluation of planned maintenance on the exterior of buildings

* The coefficients were restricted to have a value ranging from a minimum of zero to a maximum of one. The explanatory factors indicated with '*' were dropped for further analyses because of a wrong sign of the coefficient.

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

A3.2 Regression analysis regarding determinants of maintenance service quality for reactive maintenance inside the dwelling (n = 2946)

R	R square	Adjusted R square	Standard. error of the estimate			
0.609(a)	0.371	0.368	1.329			
		Unstandardised coefficients		Standardised coefficients	t	Significance
Determinants of maintenance service quality		B	Standard error	Beta		
(Constant)		1.084	0.129		8.390	0.000
Being available to answer questions and receive complaints		0.178	0.027	0.157	6.569	0.000
Flexibility in making appointments		0.094	0.029	0.082	3.195	0.001
Sticking to execution planning agreements		0.132	0.025	0.126	5.212	0.000
Tenant participation in maintenance through options		0.073	0.021	0.071	3.508	0.000
Limiting the time taken by the work		0.110	0.028	0.095	3.986	0.000
The competence of maintenance workers		0.063	0.031	0.055	2.067	0.039
The quality of the results of maintenance		0.193	0.029	0.189	6.558	0.000
Completing maintenance activities in a single visit		0.055	0.027	0.057	2.026	0.043
Having maintenance workers wear smart, uniform overalls		*				

(a) Dependent variable: Evaluation of reactive maintenance inside the dwelling

* The coefficients were restricted to have a value ranging from a minimum of zero to a maximum of one. The explanatory factors indicated with '*' were dropped for further analyses because of a wrong sign of the coefficient.

Source: Tenant questionnaire for maintenance services, Onderzoeksinstituut OTB, 2006

Appendix 4 **Determinants of maintenance service quality**

1. The quality of the result of maintenance

This determinant of service quality is reflected in a few standards. The clearest standards are: (1) the satisfaction of tenants regarding the result of maintenance; and the more general standard, (2) the client is satisfied with the current maintenance to his dwelling. A further distinction is made between maintenance of the building façade and maintenance inside the dwelling. There is no separate standard related to the common facilities inside the building. For reactive maintenance, a separate standard is included: 'a suitable solution is offered to the identified problem'. Together with the usual maintenance condition measurements and performance measurements before and after maintenance works, this determinant of service quality seems to be covered adequately in the purchasing and performance measurement process.

2. The competence of maintenance workers

Another KWH standard is related to the question of whether the customer is satisfied about the process of maintenance delivery. Comparable standards are set up for both reactive maintenance and planned maintenance. The competence of maintenance workers itself is not directly measured. However, maintenance workers have to make sure that the work is done 'neatly'. For employees that carry out requests for repairs, this standard requires them to be kind, patient, helpful and professional.

3. Completing maintenance activities in a single visit

While this is considered to be one of the most important determinants by respondents, it is not directly included in the KWH-label. Again, we may refer to the general standards concerning the satisfaction of tenants concerning maintenance delivery processes.

4. Avoiding damage to personal property

Problems with regard to maintenance are described in a generic standard: it should be clear for tenants where they can get help when they have certain complaints. Since this aspect is very logical and generic (not solely limited to maintenance processes), this service recovery measure seems to be sufficient.

5. Sticking to execution planning agreements

This determinant of service quality is directly reflected in the KWH standards, both for reactive and for planned maintenance. Moreover, according to the KWH-huurlabel, in case of deviations from the planning, the client should be contacted beforehand.

6. The politeness of maintenance workers

The politeness of maintenance workers is measured by several standards.

For planned maintenance projects, it is included in the term of delivery, 'the client is spoken to kindly and the works are done neatly'. The standards are related to the satisfaction of customers about the way they are approached by maintenance workers (and the housing association). For reactive maintenance, this determinant of service quality is included in the term of delivery, 'the client wants to be approached in a respectful way'.

7. Being available to answer questions and receive complaints

This aspect is covered in many ways by the KWH-label. It covers, for example, the accessibility of the housing association's office, accessibility by phone, Internet, and email, the availability of information, the accessibility of the contact person for the maintenance project, and the possibilities for tenants to use arbitration services.

8. Limiting and tidying up litter and dust around the work site

This aspect is not directly measured by KWH. A standard that is related to this aspect is, 'employees should ensure that the works are carried out neatly'.

9. Flexibility in making appointments

This aspect is included in the standard, 'when making appointments, the customer's preferences should be taken into account'. It is unclear how strictly this standard is applied, and how flexible the maintenance contractor has to be when making appointments.

10. Tenant participation in maintenance (availability of options)

Choices have to be given with respect to possibilities for clients to buy maintenance packages. If housing associations want to offer more choices, such as those related to colour use or different degrees of luxury, then they have to set their own standards.

11. Being addressed in your own language

This aspect is not included in the KWH-standards. It could be included in separate performance standards.

12. Limiting nuisance caused by noise and vibration

This aspect is not included in the KWH-standards. Indirectly, this will affect customers' feelings about the process of maintenance. Given the fact that respondents do not rate this aspect very highly, it should not be a top priority for housing associations.

13. Limiting the time taken by the work

This aspect is not included in the KWH-label. However, limitations for the time that housing associations and maintenance contractors have to react to

tenants' questions and complaints are included. Moreover, if reparations turn out to take longer than expected, clients must be informed.

14. Having maintenance workers wear smart, uniform overalls

Clothing is not prescribed. However, for reasons of security, the housing association has to inform its customers clearly which company will deliver the maintenance service. Moreover, maintenance workers must be able to give evidence of their identities when requested to do so by clients.

Appendix 5 **Planned maintenance and reactive maintenance as sequential processes¹**

For planned maintenance, an inspector registers the actual condition of the building components. The registration of the actual state of maintenance takes place by listing the defects. Based on the desired performance of building components, which is defined in the housing association's strategic policy, maintenance activities are (cyclically) planned in order to get or maintain building components at the desired level of quality. In this planning process, tenants may be consulted about their time-preferences. At the moment the maintenance is to be carried out, the maintenance contractor is given an order, which includes the specifications for maintenance activities. For the exact planning of maintenance activities, tenants may again be consulted to give their time-preferences, and sometimes even some (aesthetic) preferences about the results of maintenance. After the maintenance activities have been realised, performance measurements are conducted to ensure that the planned performance of the building components has been realised. This may include measurements of tenant satisfaction relating to the maintenance process and the result. Finally, the administrative handling of the order finishes the procedure. The main part of planned maintenance concerns maintenance to the building façade.

The procedure of reactive maintenance starts with the registration of a specific request or complaint. Requests are assessed with regard to necessity, after which orders are created. The order is given to an external maintenance contractor, and/or maintenance records are made for the internal maintenance department. After the maintenance service has been realised, the administration of the order finishes the procedure. Some housing associations carry out periodical tenant satisfaction measurements in order to check perceived quality. Unlike planned maintenance, reactive maintenance usually concerns the inside of dwellings.

¹ Based on Straub (2001).

De inkoop van onderhoudsdienstverlening in de Nederlandse sociale huursector

Samenvatting

Johan Hendrik van Mossel

Probleemdefinitie en onderzoeksvragen

Onderhoud is een belangrijke kostenpost van woningcorporaties. Jaarlijks wordt meer dan 4 miljard euro door Nederlandse woningcorporaties uitgegeven aan onderhoud van hun woningbezit. Onderhoud is een belangrijk onderdeel van de dienstverlening van woningcorporaties aan haar klanten, de huurders. Het overgrote deel van het onderhoud wordt echter geleverd door externe toeleveranciers. Voor een goede dienstverlening aan de huurders is het dus van belang aandacht te besteden aan de inkoop van het onderhoud en het management van de relaties van de woningcorporatie met leveranciers.

Het doel van het onderzoek is tweeledig:

- het verbeteren van het begrip van de inkooppakketstrategie van onderhoudsdiensten zoals gevoerd door Nederlandse woningcorporaties;
- het verschaffen van inzichten in ontwikkelingskansen die het woningcorporaties mogelijk maken om de tevredenheid van huurders met betrekking tot onderhoud te verhogen.

In het onderzoek zijn drie onderzoeksvragen geformuleerd:

1. *In hoeverre beïnvloeden de verschillende typen en karakteristieken van onderhoudsdiensten, zoals ingekocht door de Nederlandse sociale huursector, de tevredenheid van de huurder?*
2. *In hoeverre zijn huidige inkooppakketstrategieën van Nederlandse woningcorporaties voor onderhoud gericht op de huurder?*
3. *Welke inkooppakketstrategieën faciliteren de optimalisering van de tevredenheid van de huurder over onderhoudsdiensten?*

De onderzoeksvragen zijn uitgewerkt in de volgende deelvragen:

- *Wat zijn de gevolgen van de karakteristieken van de onderhoudsmarkt voor mogelijkheden tot optimalisatie van inkoop van onderhoud vanuit het perspectief van de huurder?*
- *In hoeverre zijn inzichten van de nieuwe institutionele economie bruikbaar voor de analyse en ontwikkeling van de coördinatiemechanismen gerelateerd aan de relatie tussen de opdrachtgever en opdrachtnemer in onderhoud?*
- *Wat zijn de gevolgen van bestaande aanbestedingsregulering en ontwikkelingen in de regelgeving voor de mogelijkheden tot optimalisatie van inkoop van onderhoud vanuit het perspectief van de finale consument?*
- *Welke onderhoudsdiensten zijn van primair belang voor de tevredenheid van huurders over onderhoud?*

- *Welke aspecten van dienstverlening zijn van primair belang voor de tevredenheid van huurders over onderhoud, en hoe kan prestatiemeting van onderhoudsdienstverlening in de sociale huursector de tevredenheid van de finale consument stimuleren?*
- *Welke aspecten van dienstverlening zijn bij het inkopen van component onderhoudsdiensten belangrijk voor de tevredenheid van de finale consument, en in hoeverre worden deze in acht genomen bij de specificatie van deze diensten?*
- *In hoeverre bevatten specificaties van onderhoud de aspecten van dienstverlening die voor de huurder van belang zijn?*

De structuur van het onderzoek is weergegeven in figuur 1.

Onderzoeksaanpak

Voor de beantwoording van onderzoeksvraag 1 is een grootschalige enquête uitgevoerd onder huurders van woningen van Nederlandse woningcorporaties. Het doel van deze enquête was te achterhalen wat van belang is voor huurders bij het onderhoud van hun woningen. Tevens zijn er gegevens verzameld over de huidige inkooppraktijk van onderhoud, door Nederlandse woningcorporaties. Een reeks bijeenkomsten met inkopers en managers technisch beheer van woningcorporaties en met ondernemers op het gebied van onderhoudsdienstverlening is waardevol gebleken voor de verzameling van data. Daarnaast zijn er een serie interviews gehouden bij de genoemde actoren. Bovendien heeft er een documentenanalyse plaatsgevonden bij vier woningcorporaties om in te zoomen op de praktijk van het specificeren van onderhoud.

In hoofdstuk 2 is aandacht gegeven aan drie zaken:

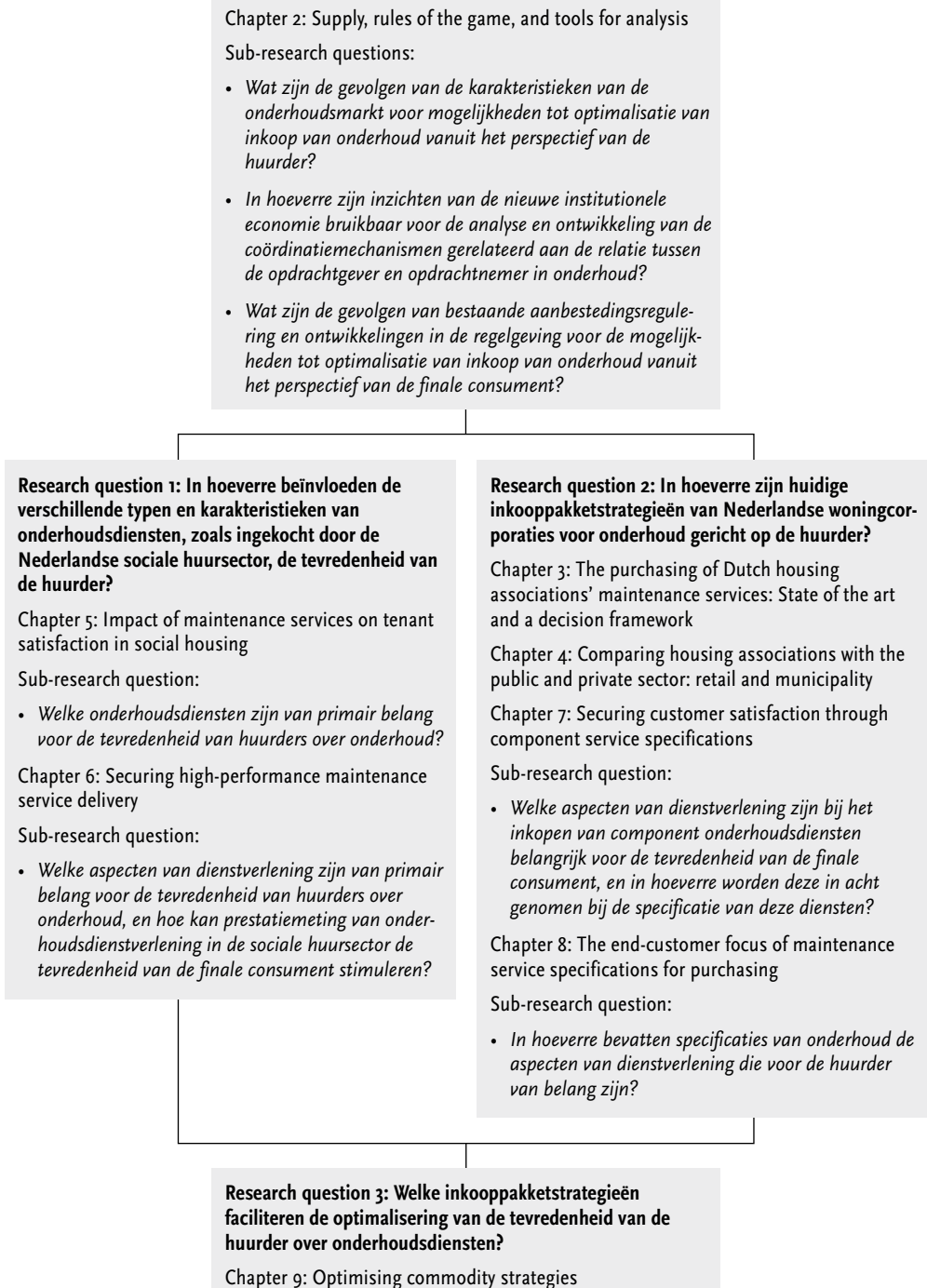
- de karakteristieken van de onderhoudssector
- de nieuwe institutionele economie
- aanbestedingsregulering.

De karakteristieken van de onderhoudssector bepalen mede de mogelijkheden die de inkoopende organisatie heeft voor wat betreft de inkoopketstrategie. De eigenschappen zijn onderzocht door middel van een literatuurstudie, en met behulp van informatie ontleend aan bijeenkomsten met ondernemers uit de onderhoudsbranche. De nieuwe institutionele economie levert inzichten die helpen om te gaan met (negatieve) karakteristieken van de onderhoudssector. Tevens verschaft zij gereedschappen om de inkoopketstrategie (zie hoofdstuk 9) te optimaliseren.

De toepassing van aanbestedingsregulering is onderzocht met een literatuurstudie.

Hoofdstuk 3 is voornamelijk gebaseerd op interviews met inkopers en managers technisch beheer, maar ook (adjunct-)directeuren van woningcorporaties. Een overzicht is gegeven van de huidige inkooppraktijk van woningcorporaties, en van de wijze waarop inkoop bijdraagt aan de organisatiedoelstellingen.

Figuur 1 Overzicht onderzoeksvragen



In hoofdstuk 4 is door middel van een literatuuronderzoek gekeken naar sectoren waarbij, net zoals in de sociale huursector, ingekocht wordt voor anderen dan de inkopende organisatie zelf en dan vooral de finale consument. Wat kan vanuit de positie van de finale consument geleerd worden van retail en van Nederlandse gemeenten?

In hoofdstuk 5 is de impact van verschillende onderhoudsdiensten op de tevredenheid van huurders over onderhoud onderzocht. Dit is gedaan met behulp van een schriftelijke vragenlijst. De vragenlijst is opgesteld in consultatie met huurders, inkopers en managers technisch beheer van woningcorporaties. Het eerste deel van de vragenlijst betrof voornamelijk socio-demografische gegevens van de huurder. Het tweede deel ging in op het belang van de tevredenheid van huurders voor wat betreft verschillende onderhoudsdiensten. Tenslotte is in het derde deel aandacht besteed aan het belang van en de tevredenheid over aspecten van dienstverlening bij onderhoud. Voorafgaand aan de definitieve verzending van vragenlijsten is er een pilot uitgevoerd bij huurders in een woningcomplex in Den Haag. Opmerkingen en onjuist ingevulde vragen zijn geëvalueerd en hebben geleid tot beperkte inhoudelijke en lay-outtechnische aanpassingen. De respons op de uiteindelijke vragenlijst was 23 procent, oftewel meer dan 6000 respondenten, verspreid over het midden en westen van Nederland. De resultaten van de enquête zijn samengevoegd met complex- en geografische gegevens over de huurders.

Op basis van de vragenlijst die gebruikt is voor hoofdstuk 5, zijn ook de belangrijkste conclusies voor hoofdstuk 6 getrokken. In hoofdstuk 6 is vooral gekeken naar het belang van verschillende aspecten van dienstverlening voor de tevredenheid van huurders over onderhoud. Deze aspecten van dienstverlening zijn gegeneerd op basis van de generieke aspecten van dienstverlening zoals gepresenteerd door Parasuraman et al. (1985). Onderscheid is gemaakt tussen planmatig onderhoud aan de buitenkant van de woning en onderhoud naar aanleiding van reparatieverzoeken in de woning. Conclusies zijn gericht op de prestatiemeting van onderhoudsdienstverlening. Door middel van een documentenstudie is bekeken in hoeverre het KWH-huurlabel al afdoende is ter dekking van relevante aspecten van dienstverlening met betrekking tot onderhoud. De documentenstudie betrof de leveringsvoorwaarden, de standaarden en de meetpunten van het label. Twee analisten hebben separaat een inventarisatie verricht, waarna de discrepanties zijn bediscussieerd en uiteindelijk consensus is bereikt.

In hoofdstuk 7 is gekeken naar onderhoudsdiensten, zoals ze worden ingekocht door woningcorporaties en rechtstreeks doorgeleverd aan de huurder. Onderhoud is beschouwd als component dienst (zie Axelsson en Wynstra, 2002; en Wynstra et al., 2006). Dit hoofdstuk vormt een theoretische basis en een brug tussen het empirische onderzoek gepresenteerd in de hoofdstukken 5 en 6, en een (documenten)studie in hoofdstuk 8 naar de mate waarin onderhoud in de inkoop daadwerkelijk als component dienst wordt behandeld.

Een documentanalyse is uitgevoerd naar de specificaties van een voorbeeld van planmatig onderhoud aan de buitenkant van de woning, te weten buitenschilderwerk, en van een voorbeeld van onderhoud naar aanleiding van reparatieverzoeken in de woning, namelijk, reactief onderhoud van verwarming en waterinstallaties. Alle documenten die als onderdeel van de specificaties kunnen worden beschouwd, zijn geïnventariseerd voor een selectie van vier woningcorporaties (zes zelfstandig opererende vestigingen). Documenten die zijn geëvalueerd betroffen onder meer contracten, specificaties, memo's, algemene voorwaarden en condities en selectiecriteria. Geïnventariseerd is in hoeverre relevante aspecten van dienstverlening zijn opgenomen in de specificaties. Zes van de door de beoordelaar onderzochte documenten zijn geëvalueerd op consistentie en validiteit van beoordeling door twee externe recensenten van wie één expert en één leek.

In hoofdstuk 8 is het documentonderzoek, geïntroduceerd in hoofdstuk 7, verder uitgebreid met twee onderhoudsdiensten: schoonmaak van gemeenschappelijke bouwdelen en onderhoud van mechanische ventilatiesystemen. Daarnaast is in het bijzonder aandacht besteed aan de indeling en structurering van specificaties, naast de inhoudelijke componenten.

Hoofdstuk 9 betreft een theoretische beschouwing van de mogelijkheden die Nederlandse woningcorporaties hebben om de inkoop van onderhoud te optimaliseren voor de tevredenheid van huurders. Bij deze beschouwing is veel gebruik gemaakt van theoretische gereedschappen uit de nieuwe institutionele economie, geïntroduceerd in hoofdstuk 2.

Conclusies, praktijkadviezen en aanbevelingen voor verder onderzoek

Doelstellingen voor inkoop van onderhoud door woningcorporaties

Onderhoudsdiensten zijn belangrijk voor het beantwoorden aan de private en publieke doelstellingen van woningcorporaties. Onderhoudsdiensten kunnen bijdragen aan een hoge kwaliteit van dienstverlening aan huurders, aan de leefbaarheid van de wijk (en het woningcomplex), en ze kunnen een bijdrage leveren aan een goede financieel-economische positie van de woningcorporatie. Dit promotieonderzoek is gericht op de bijdrage van (de inkoop van) onderhoudsdiensten aan de tevredenheid van huurders. Dit sluit aan bij (Europese) ontwikkelingen in de sector die in toenemende mate leiden tot het centraal stellen van de klant.

Een gedifferentieerd inkoopbeleid kan woningcorporaties helpen efficiënt en effectief te zijn in hun onderhoudsuitgaven. Deze differentiatie kan gerelateerd zijn aan de karakteristieken van de woningcorporatie, de karakteristieken van de huurders en hun voorkeuren, en aan de karakteristieken van de desbetreffende onderhoudsdiensten.

Karakteristieken van de woningcorporatie en haar klanten

Maatschappelijke ondernemingen zoals woningcorporaties hebben karakte-

ristieken vergelijkbaar met zowel de private sector als de publieke sector. Ze opereren in een marktsituatie, maar moeten tegelijkertijd hun middelen aanwenden om de samenleving te dienen. Woningcorporaties moeten diensten leveren voor doelgroepen die speciale hulp behoeven op de woningmarkt.

De huurder heeft een kwetsbare positie als klant. In veel gevallen besteden de doelgroepen een hoog percentage van hun inkomen aan huur. Bovendien is de keuze van woningen en bijbehorende woondiensten beperkt, in het bijzonder in een krappe woningmarkt. Als de klant huurder is van een woningcorporatie, is er sprake van hoge uittredingsbarrières. Dit betekent dat de huurder in hoge mate afhankelijk is van de woningcorporatie voor de kwaliteit van de geleverde diensten. Bovendien is de keuze van diensten en attributen, of samenstelling van diensten, beperkt. De wet geeft bescherming aan huurders. Huurstijgingen zijn beperkt en bovendien kunnen huurders het beleid van de woningcorporatie beïnvloeden.

Afgezien van de activiteiten, uitgevoerd in commercieel, competitief verband, is er beperkte externe stimulans voor efficiënte investeringen. Toch wordt publieke en in het bijzonder Europese aanbestedingsregulering niet toegepast. De actuele transparantie is daarom beperkt. De toepassing van transparante procedures die faire mededinging tussen kandidaat toeleveranciers mogelijk maakt, is aan te bevelen.

Karakteristieken van de onderhoudssector

- *Wat zijn de gevolgen van de karakteristieken van de onderhoudsmarkt voor mogelijkheden tot optimalisatie van inkoop van onderhoud vanuit het perspectief van de huurder?*

Onderhoudsmarkten zijn, met uitzondering van de liftenmarkt, gefragmenteerde markten. Er zijn veel kleine bedrijven die hun diensten aanbieden. Toetredingsbarrières zijn beperkt, ondanks inspanningen van onderhoudsbedrijven om deze te verhogen. Door het hoge aandeel van arbeid in de kosten is het moeilijk de productiviteit te verbeteren. Prijs is het belangrijkste 'orderwinning' criterium. Dus onderhoudsbedrijven zijn bedreven in het laag houden van kosten, maar niet per se in het maximaliseren van de tevredenheid van de huurder. Dit bedreigt de mogelijkheden voor het optimaliseren van de tevredenheid van de huurder. Daarom zijn mogelijk aanvullende inspanningen nodig door de inkopende organisatie, de woningcorporatie, om zeker te zijn van de juiste combinatie van middelen en capaciteiten van dienstverleners. De selectie van toeleveranciers is belangrijk, maar niet altijd voldoende. Wanneer de gevraagde capaciteiten niet matchen met de beschikbare capaciteiten op de markt van toeleveranciers, is ontwikkeling van toeleveranciers door de inkopende partij mogelijk nodig om alsnog de gewenste doelstellingen voor huurders te kunnen bereiken.

Voorts is dankzij de lage marges in de markt de capaciteit om nieuwe ontwikkelingen te initiëren ten behoeve van huurders beperkt. De fragmentatie van de onderhoudsmarkten heeft bovendien negatieve consequenties voor de mogelijkheden om verschillende typen en vormen van onderhoud te combineren. Dit beperkt synergiemogelijkheden en het kan leiden tot meer overlast voor huurders doordat de werkzaamheden van onderhoudsbedrijven minder gestroomlijnd zijn.

Kortom, het karakter van de onderhoudsmarkten impliceert een gebrek aan focus op de huurder bij onderhoudsbedrijven en een gebrek aan synergiemogelijkheden, en daarmee worden de mogelijkheden om de inkooppakketstrategie te optimaliseren beperkt.

Regulering en de gevolgen voor inkoop

- *Wat zijn de gevolgen van bestaande aanbestedingsregulering en ontwikkelingen in de regelgeving voor de mogelijkheden tot optimalisatie van inkoop van onderhoud vanuit het perspectief van de finale consument?*

De inkoopmogelijkheden zijn beperkt door de eisen die worden gesteld via de regelgeving. Indien de publieke controle op de sociale huursector zal groeien, wordt toepassing van Europese aanbestedingsregulering mogelijk verplicht. Voor individuele woningcorporaties zou verplichte toepassing van de regelgeving mogelijk leiden tot beperkingen van mogelijkheden bij inkoop. Het kan leiden tot hogere kosten door de uitgebreide procedures, en tot beperkte mogelijkheden voor het combineren van onderhoudsactiviteiten en voor langdurige en intensieve samenwerking met toeleveranciers.

Anderzijds kan de toepassing van aanbestedingsregulering helpen in de organisatie van een transparant inkoopproces. Voor de sector kan het een 'gedwongen' professionalisering van de inkooppraktijk betekenen door gestructureerde procedures.

Voordat conclusies kunnen worden getrokken over de daadwerkelijke optimalisatiemogelijkheden voor de inkooppakketstrategie van woningcorporaties, is aandacht gegeven aan de vraag wat de speerpunten voor optimalisatie zouden kunnen zijn. Oftewel, in de context van dit onderzoek: Wat beïnvloedt de tevredenheid van huurders over onderhoud?

Onderhoudsdiensten en voorkeuren van huurders

- *Welke onderhoudsdiensten zijn van primair belang voor de tevredenheid van huurders over onderhoud?*

Het belang van onderhoud voor de huurder is op twee manieren gemeten. In de eerste plaats is het belang gemeten door rechtstreeks aan huurders te vra-

gen om het belang van verschillende onderhoudssoorten aan te geven. Daarnaast is het belang geschat in een regressieanalyse met de algemene tevredenheid over onderhoud als afhankelijke variabele en de tevredenheidsscores over de afzonderlijke onderhoudssoorten als onafhankelijke variabelen.

Onderhoud van verwarming en waterinstallaties, en onderhoud van hangen en sluitwerk aan ramen en buitendeuren zijn zeer belangrijk voor de tevredenheid van huurders. Deze onderhoudsdiensten dragen rechtstreeks bij aan de fysiologische en veiligheidsbehoeften van huurders. Daarnaast zijn er onderhoudsdiensten die gemakkelijk kunnen worden waargenomen door huurders, zoals buitenschilderwerk en onderhoud van badkamers. Terwijl deze in rechtstreekse scores van huurders als minder belangrijk dan gemiddeld worden beschouwd, is hun impact op de tevredenheid van huurders significant. Deze diensten dragen bij aan behoeften van respect van huurders en aan moreel gerelateerde behoeften. Aan de andere kant zijn er onderhoudsdiensten waarvan een ontoereikende dienstverlening niet direct visueel kan worden herkend tot het moment van storing. Dit geldt bijvoorbeeld voor onderhoud van afvoer en riolering, en onderhoud van liften. De tevredenheid van huurders over deze onderhoudsdiensten hangt niet significant samen met de tevredenheid van huurders over onderhoud in het algemeen, terwijl de scores in rechtstreekse metingen hoog zijn. Voor bepaalde groepen, zoals ouderen en gehandicapten, kan liftonderhoud rechtstreeks van invloed zijn op de fysiologische behoeften. Hierbij kan de verdieping waar de woning zich bevindt van invloed zijn. Voor andere groepen is liftonderhoud een luxe.

Huurders met vergelijkbare onderhoudsbehoeften kunnen verspreid zijn over de voorraad van de woningcorporatie. Slechts bij uitzondering is er sprake van een woningcomplex met een homogene populatie, bijvoorbeeld een studentenflat of een ouderencomplex. In die situaties zou er ruimte kunnen zijn voor een op de desbetreffende doelgroep gebaseerd onderhoudsbeleid, bijvoorbeeld voor planmatig onderhoud aan gemeenschappelijke bouwdelen. Het laatste kan aangepaste specificaties of selectie- of gunningscriteria impliceren. Omdat onderhoud naar aanleiding van reparatieverzoeken veelal wordt geleverd aan individuele huurders, is het mogelijk om deze dienst aan te passen aan de voorkeuren van het individu. Woningcorporaties zouden de mogelijke prijsvoordelen die samenhangen met het bundelen van voorkeuren van huurders bij de inkoop van onderhoud naar aanleiding van reparatieverzoeken in de woning moeten evalueren, en vergelijken met de voordelen van het anticiperen op individuele voorkeuren voor een gewenste invulling van dienstverlening.

- *Welke aspecten van dienstverlening zijn van primair belang voor de tevredenheid van huurders over onderhoud, en hoe kan prestatiemeting van onderhoudsdienstverlening in de sociale huursector de tevredenheid van de huurder stimuleren?*

Het gepercipieerde belang van aspecten van dienstverlening is gemeten via

rechtstreekse scores door huurders en door regressieanalyses gericht op de impact van de tevredenheid van de aspecten van dienstverlening op de algemene tevredenheid over onderhoud.

Het rechtstreeks gekwalificeerd belang van aspecten van dienstverlening is vergelijkbaar voor planmatig onderhoud aan de buitenkant van de woning en voor onderhoud naar aanleiding van reparatieverzoeken in de woning. In de ogen van huurders is het meest belangrijke aspect de kwaliteit van het resultaat van onderhoud, gevolgd door de competentie van onderhoudswerklui en het in-één-keer goed uitvoeren van onderhoud. Het laatste aspect impliceert dat de werklui hun werkzaamheden uitvoeren zonder overbodige extra werkzaamheden of bezoeken aan de huurder.

De regressieanalyses geven een ander beeld dan het rechtstreeks gemeten belang. De enige aspecten van dienstverlening die significant samenhangen met de algemene tevredenheid over onderhoud aan de buitenkant van de woning, zijn de kwaliteit van het resultaat van onderhoud en inspraak van huurders door het geven van keuzeopties bij onderhoud. Voor onderhoud naar aanleiding van reparatieverzoeken in de woning geldt dat de beide gehanteerde meetmethoden eenzelfde beeld geven met betrekking tot de belangrijkste aspecten van dienstverlening.

Wanneer de fase van contracteren van een onderhoudstoeleverancier voorbij is, is prestatiemeting belangrijk om een hoge kwaliteit van onderhoudsdienstverlening te verzekeren. De prestatiemeting zou moeten zijn gebaseerd op indicatoren, reeds gepresenteerd in de uitvoeringsbepalingen, de specificaties. De meest relevante aspecten van dienstverlening zouden deel moeten uitmaken van de prestatiemeting om de tevredenheid van de huuder zo goed mogelijk te waarborgen. Dit geldt natuurlijk ook voor de eerdere fases in het inkooptraject.

Karakteristieken van de onderhoudsdienst

- *Welke aspecten van dienstverlening zijn bij het inkopen van component onderhoudsdiensten belangrijk voor de tevredenheid van de finale consument, en in hoeverre worden deze in acht genomen bij de specificatie van deze diensten?*

Onderhoudsdiensten zijn diensten die worden ingekocht door woningcorporaties van onderhoudsdienstverleners en doorgeleverd naar de huurder. Deze diensten worden componentdiensten genoemd en kunnen een (grote) impact hebben op de finale consument. Hiermee moet rekening worden gehouden bij het specificeren van de dienst. Deze impact kan zich uiten via het proces van dienstverlening en via de uitkomst van de dienstverlening. Verschillen in de karakteristieken van de dienst vanuit het perspectief van de finale consument zouden bij de specificatie aandacht moeten krijgen. De urgentie die veelal gepaard gaat met onderhoud naar aanleiding van reparatieverzoeken binnens-

huis vraagt om een andere aanpak in de dienstverlening. Daarnaast voelen huurders zich persoonlijk meer verantwoordelijk voor onderhoud dat binnenshuis plaatsvindt, dan voor onderhoud in meer publieke ruimten. Het lijkt erop dat huurders voor onderhoud naar aanleiding van reparatie verzoeken in de woning, meer dan voor planmatig onderhoud aan de buitenkant van de woning de behoefte hebben aan een gevoel van controle over de interacties die gepaard gaan met de dienstverlening.

Uit het onderzoek blijkt dat componentdiensten onvoldoende worden herkend als zodanig door inkopers, wat leidt tot inadequate specificaties met daarin onvoldoende aandacht voor de essentiële aspecten van dienstverlening.

Optimalisering van de inkooppakketstrategie

- *In hoeverre zijn inzichten uit de institutionele economie bruikbaar voor de analyse en ontwikkeling van de coördinatiemechanismen gerelateerd aan de relatie tussen de opdrachtgever en opdrachtnemer in onderhoud?*
- *In hoeverre bevatten thans gebruikte specificaties van onderhoud de aspecten van dienstverlening die voor de huurder van belang zijn?*
- *Welke inkooppakketstrategieën faciliteren de optimalisering van de tevredenheid van de huurder over onderhoudsdiensten?*

Het inkoopproces bestaat uit verscheidene stappen die kunnen worden genomen door woningcorporaties, de inkopende organisatie, om een goede dienstverlening veilig te stellen:

1. Specificaties
2. Selectiecriteria (geschiktheidseisen)
3. Gunningscriteria
4. Het contract als middel om de relatie tussen de woningcorporatie en de dienstverlener te organiseren
5. Contractgerelateerde stimulansen.

Ad 1. Specificaties

Specificaties bepalen de dienst die wordt geleverd en de wijze waarop deze dienst correspondeert met de klantvoorkeuren. Ze zijn het juiste gereedschap om alle relevante aspecten van dienstverlening die een woningcorporatie gerealiseerd wil zien gedurende de uitvoering van het contract uiteen te zetten. Uit de uitgevoerde documentenstudie kan geconcludeerd worden dat thans niet alle belangrijke aspecten van dienstverlening worden meegenomen in de specificaties.

Sommige aspecten van dienstverlening zijn dermate belangrijk dat ze al aandacht verdienen in de selectiefase. In die situatie moeten woningcorporaties zich verzekeren van de benodigde middelen en capaciteiten van de toeleverancier om de gevraagde kwaliteit te kunnen bieden.

Specificaties worden door woningcorporaties thans veelal opgezet via throughput-indicatoren. Via inspecties kunnen de resultaten van throughput-indicatoren meestal zonder problemen worden gemeten, indien de woningcorporatie op de hoogte is van de uitgevoerde activiteiten. Incidenteel worden functionele – of output – indicatoren gebruikt. Voor het gebruik van output-indicatoren is het belangrijk dat de woningcorporatie goed op de hoogte is van de potentiële en beoogde bijdrage van onderhoud aan haar strategische doelstellingen. Het voordeel van het gebruik van outputindicatoren is dat het onderhoudsbedrijf, meer dan in het geval van throughput-indicatoren, de mogelijkheid krijgt om processen te optimaliseren. Indien dit strookt met de capaciteiten van onderhoudsbedrijven (en met die van woningcorporaties in het opstellen van de juiste indicatoren), is het een interessante mogelijkheid voor optimalisatie van de onderhoudsdienstverlening. Voorwaarde is een goede dekking van de essentiële aspecten van dienstverlening. Het in-één-keer goed uitvoeren van onderhoud is bijvoorbeeld een outputcriterium dat kan worden gebruikt (met een zekere gevoeligheidsmarge) en dat effectief de service voor huurders kan verbeteren. Deze prestatie-eis kan worden gecontroleerd via ad random toetsen bij huurders. Echter, indien prestaties niet meetbaar zijn, of indien het onderhoudsbedrijf niet de capaciteiten heeft om met een beter ontwerp of een betere oplossing te komen dan de woningcorporatie zelf, is het gebruik van throughput-indicatoren aan te bevelen.

Indien onderhoudsbedrijven de relevante capaciteiten hebben, kunnen ze mogelijk waarde toevoegen aan specificaties. Woningcorporaties kunnen echter ook hun eigen capaciteiten verbeteren in het optimaliseren van specificaties. De samenstelling van de inkoopfunctie beïnvloedt de kwaliteit van specificaties. Voor onderhoudsdiensten die een grote impact hebben op tevredenheid van huurders, is het waarschijnlijk aan te bevelen ze in te laten kopen door een inkoopteam waarvan front-office medewerkers deel uitmaken. Beslissingsondersteunende systemen kunnen helpen om kennis over voorkeuren van huurders op het gebied van de dienstverlening op te slaan en te gebruiken.

Er lijkt ruimte voor verbetering van de structuur van specificaties. Er worden veel verschillende documenten gebruikt voor het specificeren van de gewenste dienst. Dit leidt tot duplicatie, mogelijke onvolledigheid en soms zelfs tegenstrijdigheid, en op zijn minst een gebrek aan transparantie, wat de navolging van specificaties niet stimuleert. Bovendien verkleinen transparante specificaties de kans op moral hazard door dienstverleners. De informatie-asymmetrie wordt minder groot en daardoor wordt de kans kleiner dat ze inadequate diensten verlenen.

Thans zijn specificaties in veel gevallen de verantwoordelijkheid van projectleiders. De verantwoordelijkheid ligt dus op het operationele niveau. Gezien de groei in omvang van woningcorporaties is er op bedrijfsniveau geen overzicht meer over de toegepaste specificaties en daarmee over het daadwer-

kelijke niveau van dienstverlening. Er lijkt daarom behoefte aan meer transparantie. Algemene voorwaarden kunnen worden gebruikt om het niveau van dienstverlening vast te stellen voor wat betreft de aspecten die gelijk zijn voor alle onderhoudsdiensten.

Raamcontracten kunnen worden gebruikt voor aspecten die verschillen tussen onderhoudsdiensten en/of toeleveranciers, maar gelijk zijn voor woningcomplexen en doelgroepen huurders. Wanneer de relevante kritische prestatieindicatoren voor de inhoud van deze documenten worden vastgelegd op bedrijfsniveau, kan de kwaliteit van dienstverlening gewaarborgd worden op een hoger niveau in de organisatie. Tenslotte kan in samenwerking met projectleiders, die bij uitstek over lokale informatie beschikken, invulling worden gegeven aan contracten en/of opdrachten. Deze contracten kunnen dus ook bij uitstek de aspecten bevatten die verschillen tussen woningcomplexen en groepen huurders.

Hieraan gerelateerd is op het bedrijfsniveau van de woningcorporaties het huidige strategisch (voorraad) beleid primair gericht op fysieke aspecten. Een strategisch beleid dat ambities heeft op het gebied van bewonerstevredenheid, zou ook bewonersvoorkeuren op het gebied van onderhoudsdienstverlening moeten behelzen.

Ad 2 en 3. Selectiecriteria en gunningscriteria

Indien woningcorporaties besluiten om onderhoudsdiensten bij externe toeleveranciers in te kopen, dan is de selectie van leveranciers essentieel om zoveel mogelijk zeker te zijn van de juiste middelen en capaciteiten. In de huidige Nederlandse praktijk van woningcorporaties worden selectiecriteria en in het bijzonder gunningscriteria maar zeer beperkt gebruikt. Bekende partijen die worden vertrouwd en die lokaal zijn gevestigd, worden bij herhaling uitgenodigd om werken uit te voeren. Dit kan interessante andere partijen uitsluiten die de kwaliteit van dienstverlening aan huurders kunnen verhogen, en/of ook kosten zouden kunnen verlagen.

Sommige aspecten van dienstverlening kunnen worden beschouwd als een minimumeis. Ontoereikende naleving leidt tot ontevreden huurders. Door het gebruik van selectiecriteria kunnen de capaciteiten van kandidaat toeleveranciers worden getoetst op het kunnen voldoen aan dergelijke eisen. Dit is in het bijzonder interessant voor onderhoudsdiensten die een grote impact hebben op de tevredenheid van huurders, zoals buitenschilderwerk, onderhoud van hang- en sluitwerk aan ramen en buitendeuren (eengezinswoningen) en voor het onderhoud van gemeenschappelijke bouwdelen (meergezinswoningen) en het onderhoud van badkamers. Vooral de kwaliteit van menselijke middelen is een cruciaal aspect, door de hoge mate van interactie die gepaard gaat met bepaalde onderhoudssoorten die belangrijk zijn voor huurders. In het verleden uitgevoerde succesvolle projecten kunnen een goede indicatie geven van de kans op succesvolle toekomstige projecten. Succesvol, in dit kader, is een

project met tevreden huurders. Slechts potentiële toeleveranciers die aan de criteria voldoen blijven kandidaat voor het project. Vanwege het risico dat te weinig potentiële toeleveranciers kunnen voldoen aan bepaalde criteria en vanwege de administratieve last die gepaard gaat met elk criterium, is het aan te bevelen om het totaal aantal toe te passen criteria te beperken.

Terwijl selectiecriteria zijn gerelateerd aan de vakkundigheid van potentiële toeleveranciers, zijn gunningscriteria gerelateerd aan de geboden onderhoudsoplossing. Voor gunningscriteria geldt dat de tevredenheid van huurders het best is gewaarborgd met het gebruik van het criterium 'de economisch meest voordelige aanbidding' ten opzichte van de prijs alleen. Het is het meest in het belang van huurders dat de essentiële aspecten van dienstverlening deel uitmaken van de gunningscriteria, met inbegrip van de bijbehorende gewichten. Echter, alleen aspecten van dienstverlening die meetbaar zijn en die objectief vergeleken kunnen worden in deze fase van het proces, kunnen mogelijk kwalificeren als gunningscriteria. De mate waarin onderhoudsbedrijven bereikbaar zijn voor het beantwoorden van vragen van huurders en voor het behandelen van klachten kan een goed gunningscriterium zijn. Een ander aspect van dienstverlening dat mogelijk goed toegepast kan worden als gunningscriterium, is de mate van flexibiliteit die een onderhoudsdienstverlener heeft bij het maken van afspraken met huurders.

Ad 4. Het contract als middel om de relatie tussen de woningcorporatie en de dienstverlener te organiseren

De vorm van samenwerking tussen woningcorporaties en onderhoudsbedrijven kan bepalend zijn voor het succes ervan en daarmee uiteindelijk voor de kwaliteit van dienstverlening aan huurders.

Een hoge mate van complexiteit van specificaties is een reden voor nauwe samenwerking met dienstverleners. Zonder nauwe samenwerking kan het risico voor een gebrek aan aansluiting tussen de verwachte en werkelijke uitkomsten van dienstverlening aanzienlijk zijn. Dit wordt ten eerste veroorzaakt doordat begrensde rationaliteit ervoor zorgt dat specificaties incompleet of niet-optimaal kunnen zijn. Daarnaast kan begrensde rationaliteit van de kant van de toeleverancier ervoor zorgen dat een andere dienst geleverd wordt dan verwacht wordt. Beide kunnen zorgen voor negatieve consequenties voor de tevredenheid van de huurder over de dienstverlening.

Een ander argument voor nauwe samenwerking is een hoge mate van specificiteit van middelen, bijvoorbeeld menselijke middelen in de vorm van kennis, die wordt ingezet voor de opdracht. Deze specificiteit van middelen groeit normaal gesproken als gevolg van (intensieve) samenwerking met dienstverleners. Hoe langer een onderhoudsdienstverlener heeft gewerkt met bepaalde woningcomplexen van een woningcorporatie, hoe groter de kans op toegewezen middelen, oftewel middelen die specifiek voor dat doel zijn. Het onderhoudsbedrijf leert de karakteristieken van de huurders en de karakteristie-

ken van de degradatieprocessen van de bouwdelen kennen, en heeft hiervoor unieke oplossingen ontwikkeld. Met andere woorden, eerdere succesvolle samenwerking is een economische stimulans voor samenwerking (met dezelfde dienstverlener) in de toekomst. Deze kan echter ook de effectieve concurrentie uithollen.

Ten slotte zou men moeten overwegen wat de kerndoelstellingen zijn van de organisatie. Wanneer tevredenheid van huurders een kerndoelstelling is, moet bijvoorbeeld onderhoud aan hang- en sluitwerk, een prioriteit zijn voor de woningcorporatie. Het kan dan aan te raden zijn om samen te werken met dienstverleners voor het organiseren van de dienstverlening, om de eventuele risico's te beperken. Dit kan de vorm aannemen van nauwe samenwerking, of zelfs verticale integratie. Voor minder belangrijke onderhoudsdiensten is de investering in nauwe samenwerking minder de moeite waard.

■ Het beperken van opportunisme

Opportunisme is een andere factor die de kwaliteit van dienstverlening op een negatieve manier kan beïnvloeden. Wanneer een woningcorporatie een informatie-nadeel (informatie asymmetrie) heeft vergeleken met het onderhoudsbedrijf, kan monitoren effectief zijn in het reduceren van de kans op opportunisme. Acties ter ontwikkeling van de toeleverancier ('supplier development') kunnen effectief zijn in het reduceren van risico's gerelateerd aan kwaliteit, leveringszekerheid en prijs. Relatief laagdrempelige acties zijn bijvoorbeeld het verhogen van verwachtingen ten aanzien van leveranciers, het geven van regelmatige terugkoppeling naar toeleveranciers over hun prestaties, en het erkennen van toeleveranciers. Meer drastische acties zijn het trainen van personeel, het verschaffen van investeringskapitaal, en het plaatsen van eigen personeel bij de toeleverancier. Het geven van de mogelijkheid van het inbrengen van kennis en ervaring van leveranciers ten aanzien van specificaties, leidt tot transactiespecifieke investeringen en het vermindert de verleiding van opportunisme.

Ad 5. Contractgerelateerde stimulansen

Ofschoon contractgerelateerde stimulansen niet gemakkelijk te implementeren zijn voor onderhoudsdienstverlening, en slechts kunnen functioneren in combinatie met een vorm van monitoren, kan het instrument waardevol zijn. Vanwege het gebrek aan mogelijkheden voor inkopers om de kwaliteit van levering bij voorbaat te controleren (in tegenstelling tot bij de inkoop van veel producten), kan prestatiestimulering van dienst zijn. Een van de mogelijkheden die een woningcorporatie heeft om de neigingen tot opportunisme van toeleveranciers te beperken, is het gebruik van prijspremies achteraf, gecombineerd met monitoren.

Curriculum Vitae

Johan Hendrik van Mossel was born in Zwolle on 14 January 1981. Growing up in Epe, he completed his secondary education at CC De Noordgouw (CSG De Heertganck) in Heerde. In 1999, he started his studies in Business Administration at the University of Groningen. In 2002/2003, he completed a semester in International Business at the University of Macau. His Master's thesis, 'Opportunities for expansion in Northern Poland', was written at Vos Cargo Logistics Poland, based in Kwidzyn, Poland. In 2004, he completed his Major in International Business and started with his PhD at OTB Research Institute for Housing, Urban and Mobility Studies, TU Delft. He participated in research on performance-based partnering in the maintenance of dwellings, and initiated research on performance measurement in social housing. In 2008, he started work as a purchasing coordinator at Ymere, the largest Dutch housing association, which is based in Amsterdam and its surrounding cities.

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Dutch housing associations have a market share of about one third of the entire Dutch housing stock. They spent around 2.8 billion euros a year on the maintenance of dwellings, of which external service suppliers account for approximately 90 percent. These suppliers can be seen as an extension of the housing associations in fulfilling their public tasks and private objectives. At the moment maintenance service delivery appears to be to the tenant of a suboptimal quality leading to a lower than potential tenant satisfaction. With this an essential part of the objectives of housing associations is not fulfilled optimally.

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