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19

Performance measurement in the Dutch social rented sector

Marnix Koopman
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TU Delft

Delft Centre for Sustainable Urban Areas

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1 Introduction

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1.1 Societal context

Performance measurement enables organisations to adopt a goal-oriented or result-oriented approach in their operations. The measurement of past performance helps to identify problems from the outset, the measurement of delivered performance allows for checks and controls on operations already in progress, and based on these checks and controls existing policies can be evaluated and/or adapted. Performance measurement is not just of vital importance as a management instrument; it is indispensable for external control of the organisation. External supervision is greatly facilitated when outsiders have access to the same unequivocal and transparent information on the operations of the organisation as the management of the organisation itself.

Dutch housing associations have experienced a greater need for internal and external supervision since the mid 1990s, when the social rented sector underwent a massive transformation. Housing associations in the Netherlands have their origins in corporative associations, established at the beginning of the twentieth century to provide affordable housing for the working classes. Local governments also became heavily involved in catering for the lower and middle end of the Dutch rental housing market. During the 1990s, however, the growing costs of public housing forced the government to abandon its direct control over public housing and hand over its housing stock to the housing associations.

In 1995, direct subsidies on newly constructed social dwellings were abolished in favour of rent rebates in the Netherlands. Most housing associations, including those that were run by local governments, changed their legal status from associations to non-profit corporations. This paved the way for a wave of mergers in the social rented sector, enabling housing associations to profit from economies of scale and the spread of risks (Hakfoort *et al.*, 2002). Subsequently, Dutch housing associations were transformed into so-called hybrid organisations, "combining task organization (implementing public tasks) and market organization (meeting market demands)" (Priemus, 2001: 247). Both their market and task operations forced housing associations to adopt a more structured approach to measuring and monitoring their performance.

The change in legal status, the wave of mergers and the growth in the scope of activities of many housing associations required more elaborate forms of financial reporting and management systems. The growth in size due to merg-

ers led to an increased distance in the hierarchical relationship between the managerial and the operational level. Housing associations started to expand their activities to property development, land reclamation and the sale of property. The drive towards more professional standards led to the adaptation of private sector approaches to public housing management. The new market-based approach involved, among other things, the use of portfolio and asset management, outsourcing of non-core activities, the implementation of marketing techniques to attract potential tenants or buyers and a broadening in the supply of housing-related services. A greater societal trend towards more accountability to stakeholders of privately and publicly run organisations was also present at the end of the 1990s, aiding the implementation of institutional and self-regulatory standards for the social rented sector.

Next to safeguarding the continuation of the association, housing associations in the Netherlands are required by law to provide a wide-ranging set of public tasks. By borrowing against their assets and meeting market demands, housing associations are able to fund these largely non-profitable public tasks. The public tasks require the measurement of financial and social returns of the housing associations in order to cover the accountability needs of supervisory bodies, the government and the tenants of the association (Gruis, 2005). Disappointment among public officials with the performance of (some) housing associations in the restructuring of urban neighbourhoods led to the inception of a committee in 2005, to rethink the current order of the Dutch social rented sector. If anything, the proposals put forward by this committee place an even greater emphasis on internal and external, thus increasing the societal need for measuring the performance of Dutch housing associations supervision (Commissie De Boer, 2005).

While the need for performance measurement within the Dutch social rented sector has risen in recent years due to market demands and societal demands on housing associations, its use is far from being common practice among housing associations. This is even less the case for the measurement of non-monetary returns than it is for the measurement of financial returns (Gruis, 2005).

In this book we try to address the need for better internal and external control of housing associations and planning decisions made by the associations, through the provision of instruments for performance measurement. While the current practice of performance measurement remains poorly developed, a sound theoretical base for the use of performance measurement within the social rented sector seems to be lacking altogether. Fortunately, the long-standing practice of performance measurement within non-profit organisations can offer us some insight into the best practices for performance measurement within the Dutch social rented sector.

1.2 Performance measurement in non-profit organisations

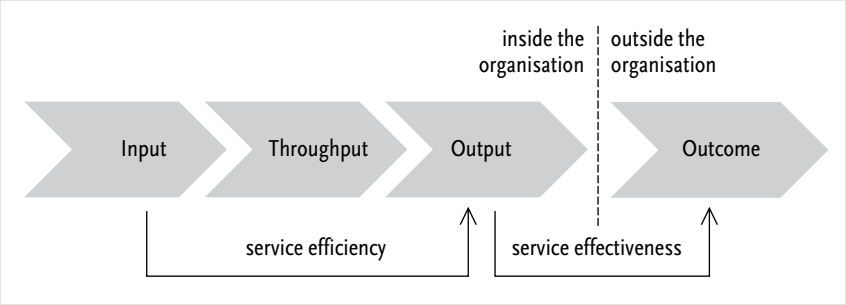
The institutional changes within the Dutch social rented sector during the 1990s resulted in housing associations adopting a more market-based approach. Many other non-profit organisations in the Netherlands went through a similar transition during this period, as did central and local governments. Carter *et al*. (1992) have pointed out that the rise of managerial thinking in the public services is not as recent a phenomenon as is sometimes believed. From the 1960s onwards the use of private sector business methods steadily gained ground within the public services, starting in the United States under the heading of New Public Management (NPM).

Performance measurement is an NPM tool for clarifying the output of non-monetary services. It is used to enhance upwards and downwards accountability for services and to demonstrate organisational efficiency within more market-based welfare systems (Ferlie and Ashburner, 1996; Walker, 1998). It is an essential element within the broader agenda of performance management in an organisation. The central idea is a fairly simple one (Osborne and Gaebler, 1992; Osborne and Plastrik, 2000; Johnson, 1991): an organisation or a department or employee within an organisation formulates goals and then indicates how the envisaged performances or effects could be managed and steered by defining appropriate indicators. In business, the goals of organisations are mainly finance-driven. For the social housing sector, it could be argued that financial indicators alone are insufficient to measure the performance of housing associations, as they are not-for-profit organisations whose main goals are of a non-monetary nature. How, then, should performance measurement be assessed in social housing management?

During the 1990s, the Roberts Enterprise Development Fund began to analyse social return on investment (SROI) as a means to illustrate the monetary value generated through investing in social programmes in the San Francisco Bay area. The SROI approach starts by defining an unambiguous goal for the programme. Subsequently the total benefits of attaining this goal are monetised and discounted back to the present, so that the return on the initial investment can be assessed (Lingane and Olsen, 2004). The SROI approach is useful as a starting point but somewhat limited in scope, since it neglects the various alternatives that are open to the organisation in defining and attaining the desired goal(s), nor does the goal of the organisation have to be a monetary or monetised value by definition.

One important decision that has to be made from the outset is whether the desired goal can be achieved within or partly outside the organisation. Kemp (1995) refers to the Audit Commission (1986) that states that performance in local government – and by extension in housing associations – has two key aspects: service efficiency and service effectiveness. According to Kemp (1995:

Figure 1.1 Production process in a nutshell



781): "The concepts of service efficiency and effectiveness relate to an understanding of public-service delivery as a process which uses resources (inputs such as effort and time spent by the staff, use of buildings and equipment) to produce services (outputs) in order to achieve an objective (outcomes) […] Service efficiency is the rate at which resources (inputs) are converted into services (outputs), while service effectiveness is the extent to which services provided actually achieve the intended objectives (outcomes)."

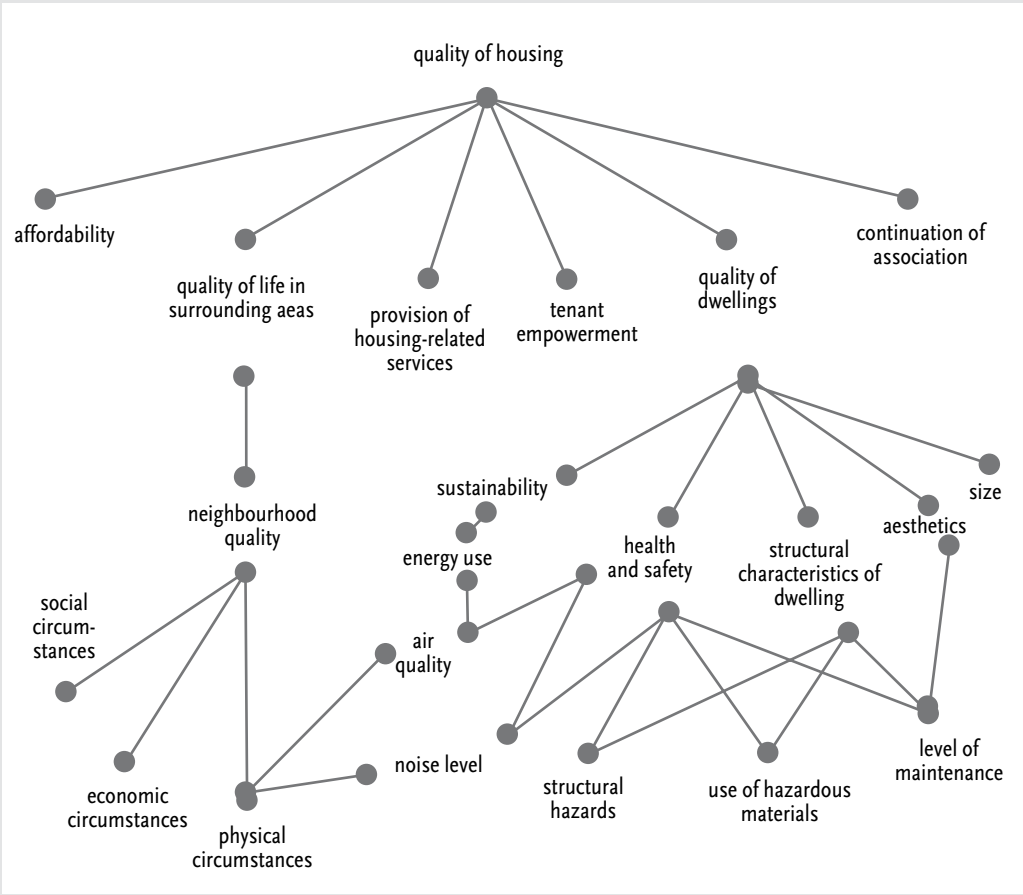
De Bruijn, in his assessment of performance measurement in the public sector (De Bruijn, 2002), makes a further distinction between product measurement and process measurement. Whereas product measurement is in fact output measurement, process measurement implies the measurement of throughput at any given point in time during the operation. Both types of measurement are alternative ways of measuring performance, in the sense that output (product) measurement reduces the multi-value performance to a 'single-valued' one: the quantifiable part of the performance. Moreover, output measurement disregards the fact that performance results from co-production among many actors and thus ignores the interactions and synergies in the production process. Throughput (process) measurement, on the other hand, includes the efforts of multiple actors with multiple goals, as well as co-productions.

The combined use of output, outcome and throughput measurement enables the assessment of multitask performance fields of housing associations. Figure 1.1 presents an overview of the main concepts that are used in the text. The input and output indicators define the beginning and ending of the production process that finally generates the outcome, while the throughput indicators are defined somewhere during the production process. Service efficiency relates to the returns on internal goals, while service effectiveness equates internal to external goals. In order to measure the right type of performances, proper indicators for the outcome have to be derived from the external goals of the housing association.

1.3 External goals of the housing associations

External goals are defined individually by each housing association, but must fall within the boundaries of the Social Housing Management Decree (BBSH)

Figure 1.2 Relationship tree for public tasks of housing associations and performance indicators



(Ministerie van VROM, 1993-2005), which is derived from the Dutch housing act. This decree indicates the demarcation of permitted activities of housing associations and formulates six tasks for housing associations (Ministerie van VROM, 2000):

1. To guarantee the financial continuity of the housing association.
2. To provide affordable housing to low-income tenants (broadly speaking: households with a below-modal income).
3. To maintain the quality of the housing stock.
4. To ensure tenant empowerment by giving tenants a say in policy matters and housing management.
5. To increase and maintain the quality of life in the area surrounding the dwellings.
6. To provide joint housing-and-care arrangements.

It is each individual housing association's responsibility to further specify the public tasks into performance indicators at the organisational and/or operational level. Ideally, the set of performance indicators or Key Performance In-

dicators (KPIs) ensures the effectiveness and efficiency of the internal business process and also covers the accountability to external stakeholders. These stakeholders include the local and central government as well as the tenants, the financiers, the guarantee underwriter (WSW, the private Social Housing Guarantee Fund) and the financial supervisor (CFV, the public Central Fund for Social Housing) of the Dutch housing association (Walker and Van der Zon, 2000).

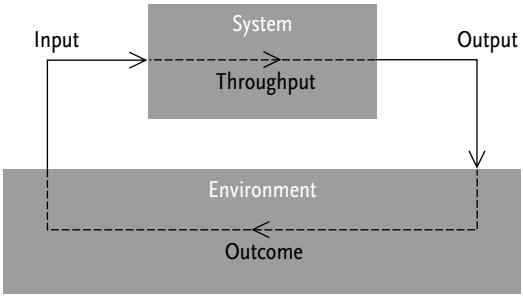
The wide-ranging set of tasks imposed on housing associations contributes to the larger goal of improving and maintaining residential quality, as shown in the (incomplete) relationship tree for public tasks in Figure 1.2.

The primary tasks form the intended goals of the housing association, for which the performance indicators need to be derived. These tasks can be broken down into several key aspects of residential quality, which in turn can be broken down further into separate attributes of residential quality. In the same way that the housing association may decide to act on either one of the primary tasks, at the operational level one can aim at one or more of the key aspects or attributes of residential quality. If, for instance, we focus on the improvement of the quality of life in the neighbourhood, the input measure could for instance be the number of employees of the association selected to work in this particular field. The desired output could then be visible from another metric, such as the count of reported nuisances per employee assigned to work in this neighbourhood. Neighbourhood quality as a public task can be broken down into its social, economic and physical attributes. A greater emphasis on social investments within the neighbourhood will then be reflected in a higher input for this key aspect, and when successful in improving the entire neighbourhood quality, as the attained outcome of the process.

What is also clear from the relationship tree is that addressing one key aspect or even attribute of residential quality might help in attaining more than just one primary task. The amount of money spent on renovating a dwelling serves as an input for the subsystem that aims at improving the quality of dwellings. This may produce output in the form of an improved construction of the dwelling, with lower maintenance costs as a possible outcome. In turn these measures may also produce output in the form of a reduction in structural hazards, which in turn improves the safety of the dwelling and as such the property value. In a similar vein, focusing on physical conditions in the neighbourhood in an attempt to improve the neighbourhood health quality could also contribute to the health and safety of the inhabitants of the dwelling.

This intertwining of the effects of singular operations on the key aspects level or attribute level is partly the result of the somewhat arbitrary division and selection of the public tasks in the Social Housing Decree. But it is also the innate complexity of the internal and external relationships that the

Figure 1.3 A system and its environment



housing association maintains with its stakeholders that leads to this blurred distinction between the primary tasks of the association. In order to bring some tractability to the problem of performance measurement within the social rented sector, there needs to be a minimal framework that helps to define and distinguish between the various relationships of the housing association. This framework will be built upon ideas from systems theory.

1.4 The conceptual systems approach

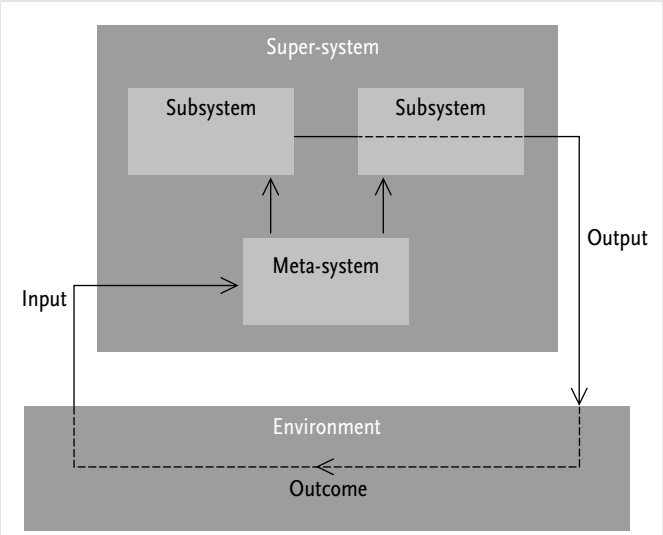
Systems theory is an interdisciplinary study of the abstract organisation of phenomena, independent from their substance, type and spatial or temporal scale of existence. It investigates the principles common to all complex entities, usually within a mathematical model, which is used to describe these principles. It is characterised as follows (De Leeuw, 1990: 62):

- a common language to identify all relevant concepts;
- a search for analogies among problems that at first sight do not resemble one another;
- interdisciplinary communication so that, for instance, social scientists and engineers use the same language when they consider the same problem;
- a common paradigm;
- a focus on problem identification and solving rather than analysing the relations among the various actors;
- a focus on coherency instead of separate details;
- a focus on a system and its environment as a way to describe and analyse problems.

The conceptual systems approach considers organisations or parts of an organisation as separate systems. The concepts listed above will be used as a toolbox for describing and assessing real-life problems, as systems operating in an environment (De Leeuw, 1990: 64). First, the 'toolbox' of the system and its environment will be explained in this section, after which it will be applied to the Dutch social rented housing sector.

A system and the environment are defined simultaneously: a system is distinguished from its environment by a clearly discernible border (see Figure 1.3). The system interacts with its environment through the exchange of materials, energy and/or information. The incoming interactions are called input, while the outgoing interactions are dubbed output. In a dynamic sense

Figure 1.4 A simple super-system



the system can thus be perceived as a process that transforms input into output. The transit substance is labelled throughput, while the actual effect of the output on the environment is called outcome.

The input-output relationship allows systems to be connected. Whenever systems are connected, the output of one system may simply be the input for another system, and vice versa. If several systems are connected to one another, they are called a network of systems. Whenever a network of systems has a clearly defined border and can thus be considered a single entity, a super-system is identified. At the same time the individual components of a system could be systems in their own right: these are then called subsystems (see Figure 1.4). A super-system and its subsystems form a hierarchy. On any specific level of this hierarchy, each system consists of a number of systems on the level below it. In a super-system the meta-system is the system that can be viewed as the steering organ at the very top of the hierarchy.

There are a variety of ways in which the type of steering can be expressed (De Leeuw, 1990: 125). Open-loop steering does not permit for the outcome to influence the input into the system for a renewed trial. Closed-loop steering, on the other hand, allows for the continual readjustment of input given the measurement of outcome. There are two variants of closed-loop steering: feedback and feed forward steering. Feedback steering only leads to readjustments when the outcome is realised, while feed forward steering makes use of prior and interim outcome measurement to adjust the operations already in progress.

For most practical purposes the housing association can be described as a super-system engaged in feed forward steering of the environment. The partition of the super-system that is the housing association into its component subsystems should be based upon different layers of control within the organisation. This division will usually consist of the managerial level (the meta-system) and the various operational levels of the association. An important consideration is that the various subsystems in the housing association are treated as if working in unison, thus ignoring any potential conflict of interest between the different layers of control or any inefficiency in the internal steering process. This idea allows us to treat the housing association as a black box in its dealings with the environment, even though we are able to

distinguish between the managerial and operational level of the association when we wish to define the relationship of the housing association with its environment.

For input measurement, indicators will usually consist of time and money spent on operations, as well as the necessary information and organisational overhead required to implement and continue the operations. The choice of performance indicators for the outcome measurement and subsequently the appropriate output and throughput measurement should be derived from the public tasks of the housing association. For the sake of workability and transparency, output and throughput indicators should be simple and unambiguous indicators such as metrics, percentages or monetary values. Furthermore, for each input measure, both the outcome and output measure should be cast in a similar form, so that the efficiency and effectiveness of the operation can be assessed.

1.5 Performance measurement and systems theory

Despite the ascendancy of performance measurement within the public services in many Western countries, its benefits remain contested (Greiling, 2005). There are those who view the benefits of performance measurement in the public sector with criticism (Gianakis, 2002) and even scepticism (see, for instance, De Bruijn, 2002). According to De Bruijn, result-oriented government could even lead to perverse results, since public officials start to measure their successes by obtaining set standards for performance indicators rather than by obtaining the intended goals. No matter how ill-defined the output measures are, service efficiency rather than service effectiveness is then used as the principle of good governance. On the other side of the argument, Osborne and Gaebler (1993) apply Kaplan and Norton's message of the strategy-focused organisation to the public sector under the header of result-oriented government (Kaplan and Norton, 1992).

The controversy over the benefits of performance measurement echoes the division that exists amongst complexity thinkers in the policy sciences. Complexity theory is the descendant of systems theory and deals with the evolution of complex systems over time. In the 1960s, systems theory came to the forefront as a management tool that translated optimisation principles and methodologies from engineering to organisations and social systems (Stewart and Ayres, 2001). The apparent failure of the 'hard' models of systems thinking to describe human phenomena was attributed to the complex and dynamic nature of the 'soft' human processes or institutions and the large amount of information these models required, making them impractical for common use (Chadwick, 1978; Checkland, 1981). As a consequence, the rigid

mathematical framework in systems theory was abandoned in favour of the 'softer' relationships and networks of actors in complexity theory.

Some complexity thinkers view human organisations as organic systems that evolve over time, eventually die and give birth to new systems, whose behaviour cannot be explained based upon the behaviour of the systems that produced them in the first place (Teisman, 2005: 25). The nonlinear and dynamic relationships that exist among networks of agents within an organisation or on a larger scale among evolving organisations lead to unpredictable outcomes. This lack of causality within the workings and evolution of an organisation makes performance measurement and steering impossible by its very definition (Stacey, 1993). Other complexity thinkers are less sceptical about the ability to understand the workings of complex systems (see, for instance, Pascale, 1999).

While human organisations are viewed as essentially complex and dynamic, they are supposed to exhibit predictable and manageable behaviour (Teisman, 2005: 25). Performance management and even steering remain a possibility, as long as one is willing to accept that the contributions of each separate actor within the organisation cannot be fully identified and the output or the outcome of the operations are seen as stochastic quantities, subject to risk and uncertainty, rather than the deterministic quantities of the systems approach. The organisation is considered as a black box, yet with clear causal relationships with the actors and objects in its environment.

Stewart and Ayres (2001) have given yet another rationale for the continued use of performance management within complex and dynamic organisations. The authors contend that the nature of a problem cannot be understood without referring to possible solutions for the problem. Systems concepts help to rationalise a given problem, even if they fail to give an exact description of the problem or the definitive solution. Performance management could still be a managerial tool for evaluating existing practices and suggested directions for future policies. Using systems thinking, or better yet, the systems approach in complexity thinking, performance measurement and steering becomes a practical exercise, rather than a theoretical one.

1.6 Purpose of this book

The contributions in this book try to address the societal and practical needs of housing associations, for better instruments for performance measurement. The provision of useful instruments allows for more transparency and thus improved external control over housing associations. At the same time these instruments should benefit the internal control and planning processes of the housing associations. The identification of KPIs, as well as the input, throughput and output indicators that are bound up with it, facilitates the

choice, implementation and (re-)shaping of policy alternatives and the justification for choosing among these alternatives.

The contributions in this book do not address the overall scope of performance measurement and performance indicators reflecting the impact of housing. The range of examples covered in the book is more or less related to the public tasks of Dutch housing association.

As well as offering practical instruments for performance measurement for specific public tasks, the book purports to ascertain a general guideline for performance management by housing associations. For this purpose the tools that are provided by the conceptual systems approach have been used as a framework. Most of the chapters have a mixture of theoretical or conceptual ideas and practical techniques.

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2 Assessing the social and financial performance of housing associations

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2.1 Introduction

In recent years, as part of developments towards a more business-like management in social housing, there has been widespread interest in performance measurement in the social rented sector. However, social landlords differ from 'regular' enterprises because the emphasis lies on the fulfilment of social objectives instead of financial return, although the latter is of importance as well (in terms of economic efficiency). Because of this multiplicity in their values and objectives, social landlords must make difficult deliberations on the basis of factors that are hard to measure and to compare factors that can be placed under the general headings of social and financial return. This challenge is particularly evident among Dutch housing associations, which have a rather unique position from an international perspective. In no other country is such a large proportion of the total housing stock owned and managed by private social landlords. Furthermore, Dutch housing associations have a relatively high decree of administrative freedom and are generally in a healthy financial situation (see, for example, Gruis and Nieboer (eds.), 2004; 2006).

Due to their healthy financial position, many associations lack the financial urgency to safeguard the efficiency of their operations. This brings about the risk of gold-plating or other inefficiencies (De Kam, 2003). In this respect the rising expenses of management are not encouraging (see CFV, 2006). It seems that a healthy financial position could be a blessing as well as a curse and must be addressed by performance measurement. On the other hand, many housing associations have improved their financial management considerably during the past ten years (see Van der Schaar, 2006), which also brings about the risk of an overly dominant financially-oriented management of the housing associations. For example, the values of financial managers within housing associations could clash with those of managers with a focus on social outcome. Thus, at the level of the meta-system a common language is needed, but not at hand. Lastly, the choice of social investments as such, and the question of whether these should be self-, locally or nationally governed, is urgent and requires specific approaches towards performance measurement as well.

Our chapter discusses how social and financial performance can be measured in relation to the management of Dutch housing associations. More specifically, we address the following question: which concepts and measures of financial and social performance can be used to support housing associa-

tions' decision-making and performance evaluation? The focus of our contribution is as follows:

- Function: the main focus is on the (im)possibilities of performance measurement for the purpose of planning (ex ante evaluation) and internal accountability of housing associations, although we will also reflect on its applicability for the purposes of monitoring, (ex post) evaluation and external accountability.
- Tasks: we will explore performance measurement in relation to the formal, legal tasks of housing associations that have been laid down in the Social Housing Management Decree (BBSH), as well as from the more fundamental, general objectives of social housing/landlords related to affordability, accessibility, availability and quality (of dwellings and neighbourhoods).
- Level: our primary focus will be on the managerial (strategic decision-making) level within the housing associations.

Approaches to measure social performance will be drawn mainly from Deuten and De Kam (2005) and De Kam and Deuten (2006). Approaches to measure financial performance will be drawn mainly from Gruis (2002; 2005a).

2.2 Approaches to measure social performance

In this chapter we present a general overview of approaches to measure social performance or social return, summarised on the basis of Deuten and De Kam (2005) and De Kam and Deuten (2006). Without engaging ourselves in a broader debate on management styles, we have found that the measuring of social performance requires two components: counting (quantitative) and storytelling (qualitative). A quantitative score on a 'Key Performance Indicator' does not mean much without a qualitative reference and further explanation. Both components are vital because in the end it is outcome that 'counts', while at the same time there is a common understanding that not all outcome can be measured (Paton, 2003). When there is relevant outcome that cannot be measured, at least that kind of outcome should be mentioned. But better, it should be 'framed' and sufficiently described in a qualitative manner as related to specific outputs. This type of description is called the theory of change, referring to the causal processes through which change comes about as a result of a programme's strategies and action (Shapiro, 2005: 1) and thus can be seen as a prediction or estimate of service-effectiveness.

The systems approach analyses the interaction of a system with its environment through the exchange of materials, energy and/or information, both in input as well as output. In the terms of this approach, the attribution of meaning to output, and the transparent description of the organisation's view on the relationship between output and outcome – i.e. the theory of change –

can be seen as output (and input) in the form of meta-information. Taking due account of this aspect of the complexity of social performance may help us to get a better grip on the matter in two ways. First, the awareness of 'uncountable' qualitative aspects of social performance can help us to refrain from attempts to quantify these aspects 'at all costs' – attempts that will produce only partial, and in the worst case even noninformation. And second, such awareness can be an incentive to develop professional tools to cope with qualitative aspects of social performance in their own right, that is, in qualitative terms. So although the focus of this chapter (and this book) is quantitative, we will pay due attention to the necessity of the qualitative side of performance measurement.

Public and social performance

For more than a century, housing associations have been essential institutions in Dutch housing policy. Housing policy in general takes many forms, and in a system such as the Dutch one the desired social outcome is expected to result from a combination of intrinsic 'voluntary sector' motives of private social landlords, and a set of public rules and incentives designed to make these landlords achieve public goals in housing. As a consequence, there has always been a discretionary margin between the publicly defined (or desired) performance and the actual social performance of housing associations. In other words, there is no straightforward principal-agent relationship between the Dutch government and housing associations. Sometimes this margin manifests itself in open conflict (for example, the housing associations' resistance to massive selling programmes proposed for the year 2000), but the prevailing attitude is corporatist cooperation at the national as well as the local level. We therefore argue that it is useful to discern two measures of social performance: the level of compliance to public goals and the level of compliance to self-determined social goals.

Public goals in housing are dynamic, but they can be defined at any point in the history of advanced industrialised countries as being derived from a subset of the 'classic' motives of state intervention in the housing market: the countering of market imperfections, compensation of external effects, the promotion of housing as a merit good and the equal distribution of housing quality (see Van der Schaar, 1987). Public performance has therefore traditionally been a key issue within housing policy and theory. Social performance, on the other hand, has not attracted much attention in the past, when housing associations were kept 'on a short leash' by central and local government. However, the retrenchment of government (both nationally and locally) created the need for more specific rules about the role of housing associations. These rules have been laid down in the Social Housing Management Decree (BBSH) isince 1993. In Table 2.1 the performance areas set down in the BBSH are summarised and related to intervention motives.

Table 2.1 Performance areas of housing associations and motives of public intervention

Performance area (cf. BBSH)	Related to intervention motive
Financial continuity	Instrumental or conditional to all motives
Provision of affordable housing to low-income tenants	External effects, merit good, redistribution
Maintain quality of housing stock	External effects, redistribution
Ensure tenant empowerment	Market imperfections
Increase and maintain quality of life ('liveability') in the neighbourhood	External effects, merit good
Provision of arrangements for housing and care	External effects, merit good

The rules laid down in the BBSH should not be read as 'hard' targets, but rather as general objectives that specify the public mission of housing associations. For a number of years the – rather rare – conflicts between central government and housing associations did not relate to the level of activity that was demanded within the framework of these rules, but to central government wanting to stop housing associations in their ambitions to expand their domain in social performance beyond the interpretation of the BBSH rules. For example, it has been formally forbidden for housing associations to actually provide (home)care themselves, in spite of the 6th BBSH rule as mentioned in Table 2.1. In such cases, the general argument is that the housing association's money should not ooze out to areas other than that of housing-related performance. In recent years, new expectations of the performance of housing associations have arisen, fuelled by their increasing investment potential. The latest policy proposed by the national government is to stick to a rather broad legal formulation of the required public performance of housing associations, to 'cream off' some of their surpluses for financing part of the fiscal rent support for low-income tenants, and to design a local bidding procedure for local authorities to invite (various) housing associations to invest in activities in the field of housing and related services (Dekker, 2005). Needless to say that in order to be able to take off the cream we must first ascertain what is milk and what is cream. This is one of the issues to be treated in our section on measuring financial performance. Also, the proposed policy illustrates the complex environment in which housing associations have to perform. Even in their relationship with public stakeholders there is an immanent conflict between the performance required by the central state and that required by local government. The quality of the system they use to measure performance to the satisfaction of either of these constituencies is therefore of great strategic importance in their debate with the other, and vice versa.

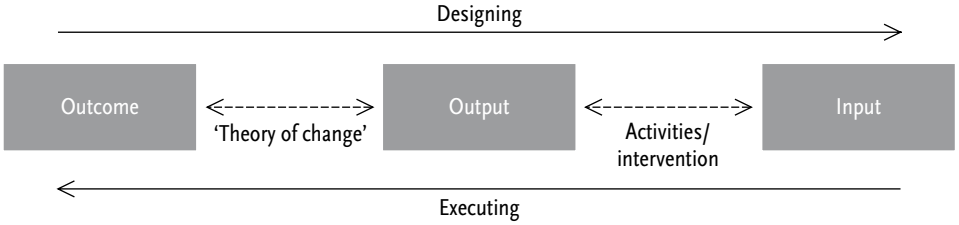
Obviously, much of the current debate on the performance of housing associations is focused on the dynamics in the institutional arrangement between associations, the two tiers of government and their stakeholders, expressing the complexity of the hybrid nature of housing associations. Despite this dynamic, this arrangement is rather classic in that the tenant is 'taken care of', although one of the performance areas of the BBSH, empowerment, does relate to giving voice to the tenant, as is typical of situations where the government wishes to strengthen the position of customers who have virtually no exit options. As we see reflected in the performance areas, at the present

stage the quality of the processes of service delivery by housing associations is not part of the publicly required social performance. On the one hand this can be considered as an omission due to path dependency in the relationship between housing associations and the state, which should be amended by introducing standards of delivery. On the other hand one might argue that such standards would be a mere administrative burden now that housing associations themselves are increasingly aware of the importance of customer relations, for example by adopting management tools such as the Balanced Scorecard and quality management. In this chapter, we will focus on social performance at the level of investments and activities rather than processes.

Within their complex environment, the board and managers of a Dutch housing association have a large administrative leeway, within which they can decide to pursue self-chosen goals and standards of social performance, decisions about which they may – again, to a self-chosen extent – give their local stakeholders a say. Putting it somewhat negatively, this may lead to 'institutional caritas' (De Kam, 2005). Putting it in more positive terms, a housing association may be considered as a resourceful local institution, which can make a substantial contribution to solving problems in the housing market and the deliverance of related services. To manage this professionally, the development and use of adequate and sector-specific tools for performance measurement should be part of the normal routines of the organisation. The final achievement would be to develop and operate a comprehensive system of performance measuring, encompassing both social and financial performance. As far as financial performance is concerned, measures have been relatively well developed (see Section 2.3). Our knowledge of current practice, however, suggests that measuring social performance is far less developed, and only partly standardised. According to the BBSH, associations are obliged to produce quantitative data on the composition and development of their housing stock, on their lettings and rent arrears, on their investments in neighbourhoods, and their commitment to housing and care. The data are collected and processed by the Central Housing Fund (CFV), which produces nationwide reports, benchmarks and feedback reports to individual housing associations. In principle, these data can be considered as measures of performance on the last four task areas of the BBSH (see Table 2.1).

However, what has not been achieved is to bring together these obligatory aspects of social performance in one comprehensive method of measurement. This means that the direct approach of social performance is not practised at the moment. In addition to this, most housing associations consider the production of data connected to the annual CFV report as a mere obligation, which functions neither to challenge management information nor as a basis for inspiring communication with local stakeholders. In addition to this, the obligatory information on social performance hardly covers the issues of social performance in which managers of housing associations engage them-

Figure 2.1 Management of social performance in the policy cycle



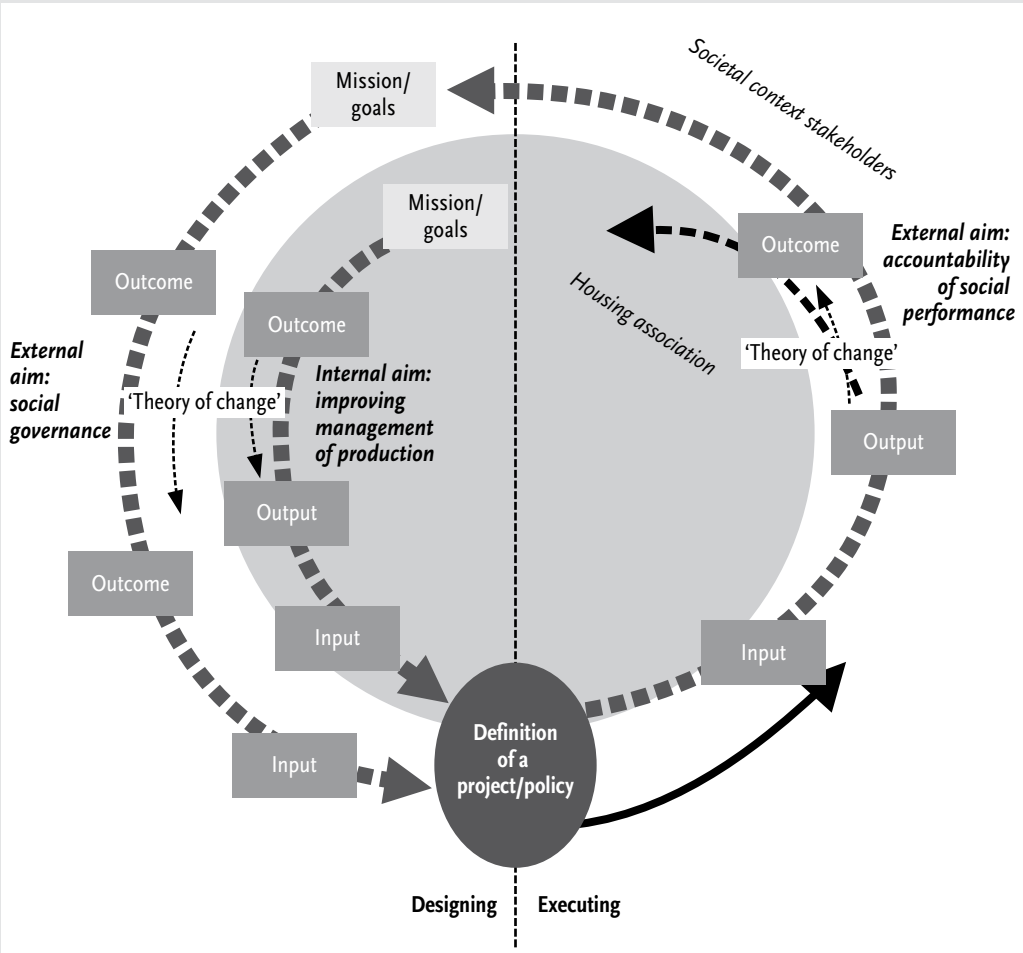
selves. For example, it does not address questions like how much should be invested in the social management of housing estates, and how this investment should be combined with the efforts of other agents such as municipal welfare departments, voluntary organisations and others.

The challenge is therefore to develop a comprehensive method for the measurement of social performance. Ideally, such an approach should measure the sum of the performance of various relevant subsystems (policies, projects). We will return to this issue in our concluding section. Now, as a first step towards such an approach, we elaborate a conceptual framework for defining and measuring social performance, and for the classification of existing and emerging instruments that housing associations (can) use for measuring social performance.

A conceptual framework for the measurement of social performance

Intuitively, we define social performance as the extent to which the social goals of a housing association are achieved. Social goals can be closely related to housing (for example, giving people with low incomes sufficient access to decent housing) or more loosely related (such as ensuring that care facilities for elderly tenants are close at hand). However, in order for information about performance to become a real instrument for management as well as accounting we must relate achievements to inputs. So we argue that social 'return' (defined as the ratio between outcome and input) is the best measure of social performance. However, this definition leads to fundamental problems. The first problem is that not all of these performances can be summed up in a monetary sense, because they are not valued in the same currency (Cutt and Murray, 2000). The second problem is that what we have indicated as achievements is composed of two elements: first the output, and second the outcome. Whereas the outcome can be seen as identical to the achieved social goals, the second fundamental problem is that there is no unequivocal relationship between output and outcome. With regard to a few aspects of this second problem, the causal relationship between the output and outcome may be only partial, there may be time lags and the observed outcome may have been jointly produced with the output of other organisations or projects. This means that the theory of change we apply to clarify the relationship between output and outcome can never reproduce the full complexity of this relationship. Nevertheless, it should be part of a management cycle that aims to take account of social return as we have defined, because it

Figure 2.2 The three aims of measuring social performance framed within the policy cycle



stimulates debate on what the essential outcome should be, and because it may open doors to considering alternative output[1]. The validity of the theory of change is of equal importance as the measuring of various indicators of output and outcome, because it attributes meaning to these indicators. Moreover, paying due attention to the theory of change does enhance the organisation's awareness of unintended outcome, negative outcome and/or uncertain outcome (see Figure 2.1).

Now that we have identified these two problems of measuring social performance – to which we will return in the next section – we present a reworked version of the basic systems approach (see Figure 2.2). It has been reworked in order to express the cyclical character of the management process (see also the notion of closed-loop steering in Section 1.4), as well as to

1 For a rich set of applications of the theory of change, see Fulbright-Anderson and Auspos (2006).

Table 2.2 Simplified example of an impact map

Stakeholder	Outcome	Output	Possible indicator of outcome
Tenant	Safer neighbourhood	Quick replacement of broken locks and windows Surveillance Addressing undesirable behaviour	Number of police reports Number of incidents Number of cases by social workers
	Cleaner dwelling/estate	Reporting to local authority Organising cleaning activities Addressing undesirable behaviour Supervising cleaners	Score on cleanliness index Perception of cleanness by tenants (interview) Number of derelict gardens Number of broken artefacts in public spaces (e.g. playgrounds) Number of graffiti tags Amount of damage to dwellings and public spaces
	Sense of belonging	Visual presence Organising social activities Interaction between tenants	Survey question: would you recommend living in this neighbourhood? Number of tenants visiting each other

show the three different aims we may have in measuring social performance. The first – and the most basic – is an internal aim: to improve the management of production. For many housing associations this is the starting point. Based on their mission and set goals they will define the desired outcome, output and input of a project or policy (designing). The second aim is to be accountable to stakeholders regarding the organisation's choice of investments and the delivered social return of these investments (after executing). The third aim is social governance: the possibility for stakeholders to co-define a project or policy. This approach is best characterised as the flywheel of social performance. At first the housing association must pick up momentum by coming to grips with social performance itself. Once this is under control, the housing association can start to assume accountability for its social performance. In the final stage, when the flywheel is in full swing, the housing association is fully accountable and ready for a stakeholder dialogue based on social performance.

Based on our experience with housing associations trying to come to grips with social performance, we suggest the building of an impact map at the start of every performance assessment. The impact map is a schematic overview (diagram) of stakeholders, impacts and the outputs that cause them, and possible indicators (of outcome). As an example of such an impact map, Table 2.2 contains an abstract of a (hypothetical) impact map of an estate manager with merely social tasks, a common measure of housing associations to improve living conditions (for the sake of conciseness this example includes only one stakeholder: the tenant).

The impact map will help the management to identify stakeholders and to be as specific as possible about outputs and outcome, and the linking theory of change.

The organisation can start to make impact maps on the most pressing issues of social performance (in the case that an issue is contested, experi-

mental or entailing high or risky investments, for instance).

In addition to impact mapping there are several other instruments that cover part or (almost) all of the process of assessing social performance. We have made a classification of these instruments, some of which are already operational in the management of housing associations, while others have been developed in other spheres of (non-profit) activity, and would have to be tailored to the needs of social enterprise in housing. Our classification rests on two pillars: practical aspects and methodological aspects.

Practical aspects relate to questions such as:

- Can the method or instrument be used for internal purposes, for accounting and/or governance?
- Is the method fit for measuring, knowing, telling or catalysing?
- Can the method be implemented for projects or for the management of the housing association as a whole?
- Can the method be used in retrospection, for monitoring or for forecasting?
- Does the method require information about input, process/activities, output or outcome?

The other set of aspects to classify methods of measuring social performance is methodological, relating to aspects such as:

- Does the method apply a relative or an absolute norm?
- Does the method use quantitative or qualitative data?
- Does the method use indicators?
- Can the method cope with the dynamics of the required performance?
- Can the method be easily introduced into the day-to-day routines of the housing association?

The next section provides a short description of some existing instruments and some instruments in development. The section concludes with an overview of these instruments on the basis of the abovementioned classification.

Existing instruments and instruments in development

The Dutch practice in the measurement of social performance is mainly orientated on the input and output level. The existing instruments are limited in both number and effectiveness.

The first, Aedex, is in fact a financial instrument: its purpose is to assess social performance by comparing the financial measures of housing associations with similar ones in the private sector. The difference is explained as the extra costs of the social performance. In terms of systems theory the focus is on the input. The actual achievement in terms of output and outcome is not considered. The strength of the instrument lies in measuring the performance of the organisation as a whole. For singular projects or policies the instrument has no use. This instrument, as a financial instrument, will be fur-

ther discussed in the next section.

The second existing instrument is the Transparency Method, which is also discussed in the next section, due to its financial characteristics. The value of this method lies in the definition of the available budget for extra, social investments. It delivers valuable information on the input side and is very useful as a starting point for a stakeholder dialogue. Similar to Aedex, the focus is on the organisation.

A third instrument often used is benchmarking. There are several benchmarks available for Dutch social housing associations and some of these also encompass elements that can be related to social performance. Nevertheless, the initiatives are fragmented and we have not found any example of benchmarks having been used to support and evaluate social performance by individual housing associations or their public supervisors.

The fourth instrument in use that potentially addresses social return is 'visitation'. The current experience is based on the Raeflex method. This method has focused primarily on qualitative assessments and opinions by the stakeholders of the overall performance of housing associations. A new national system of visitation is now being tested in several pilot schemes by several organisations. The aim of the new system is to put social performance at the centre of the assessment.

Housing associations have also begun to implement Balanced Scorecards to measure and control their organisational performance. The Balanced Scorecard is intended to achieve a more or less comprehensive view and set of measures on various aspects of organisational performance, such as financial performance, performance in delivery of services to customers and organisational learning. It has also been suggested to use an adapted form of the Balanced Scorecard to measure social and financial performance in relation to each other (Gruis, 2005b).

Looking at the existing instruments, it becomes apparent that these instruments do not cover the whole range that is needed to fully assess social performance. There are two important shortcomings. The outcome itself is not assessed in any of the instruments. Furthermore, there is no instrument for assessing the social performance of a subsystem, i.e. project or policy, especially in the day-to-day management of the housing association. This is why new instruments are being developed. In the remainder of this section we will briefly discuss the most promising ones, in the light of the abovementioned deficiencies in the existing toolkit.

The first approach is simply to employ a better, smarter and/or more consistent use of indicators. Indicators can be used in different ways. Before executing a project or a policy it is useful to discuss and define indicators. This forces the parties involved to discuss the desired outcome thoroughly and to be specific about it. Partly by defining outcome indicators as such and partly by linking output (indicators) to outcome, the association will start to con-

ceive its theories of change, which will make its decision on the desired investment more robust. Another use of indicators is to monitor progress in reaching the output and achieving the outcome. Indicators may also be used to evaluate whether the investment has been successful[2].

The Social Return on Investment (SROI) method, as a second approach, is derived from the profit-oriented 'ROI': the ratio of money invested to money earned, which is a rate for the predicted financial success of an investment. The SROI rate demonstrates the broader value of an investment for society by monetising the effects. The method maps the social effects that accrue to the most important stakeholders. These effects are valued and expressed as currencies. This can be a fictitious price someone is prepared to pay or a cost saving for a stakeholder. The summarised values can then be compared to the costs, for example by calculating the present value of these two measures. In the example above, the appointment of an estate manager with merely social tasks could mean an investment of around € 50,000. The outcome of this investment can be found among several stakeholders. For example, tenants may value the improvement of the living conditions through the willingness to pay extra rent, and the local authorities may save on maintenance of public spaces. In all, the value of the outcome for several stakeholders may add up to € 150,000. The SROI ratio is then 3:1 – every euro invested generates € 3 of societal value. SROI focuses on the external effects of an investment that can be expressed in monetary values (so-called socioeconomic values). Neither the internal effects for the housing association itself nor the values that cannot be expressed in currencies are taken into account.

Another new approach is the development of a Value Sieve method, as presented in Cutt and Murray (2000). This method helps decision-makers in the quest for the best resource allocation. The central measure is the 'Value for Money', by which incommensurable investments can be judged and prioritised by 'experts', for example, professionals or clients. For every investment the Value for Money, the rate between expected utility and required resources, is described and supported with the relevant information. Decision-makers then compare the Value for Money in relation to the investment objective, and by voting they can rate the investment.

In the private sector, reporting on social and environmental matters is an issue. Standards such as the Global Reporting Initiative make reports comparable. Accordingly, housing associations make a greater effort in producing a more comprehensive report of their social performance. However, a standard framework is lacking, except for the obligatory data that is reported to the Central Housing Fund (CFV). Comparison beyond this data is therefore diffi-

2 There is literature in abundance describing the pitfalls of employing indicators. The challenging aspect in this approach is to find indicators that are easy to use but at the same time avoid the major pitfalls.

Table 2.3 Overview of existing and new instruments

	Aspect	Specification	Existing				New			
			Aedex	Transparency method	Benchmarking	Visitation	Smart indicators	Social return on investment	Valuesieve	Reporting standards
Practical	Purpose	Internal	x	x	x	x	x	x		
		Accounting	x	x	x	x	x	x		x
		Governance				o		o	x	
	Fit for	Measuring	x		x		x	x		x
		Knowing	x	x	x	x	x	x	x	
		Telling	x	x		x		x		x
		Catalyst	x			x				x
	Implementation for	Projects			o		x	x	x	
		Whole organisation	x	x	x	x	x	o		x
	Time perspective	Retrospection	x		x	x	x	x		x
		Monitoring	x		x		x	o		
		Forecasting		x			x	x	x	
	Required information	Input	x	x	x	x		x	x	o
		Process/activities			o	x			x	o
		Output			x	x	x		x	o
		Outcome				x	x	x	x	o
Methodological	Relative or absolute norm	Relative norm			x	x	o	o	x	o
		Absolute norm	x				o	o		o
	Type of data	Quantitative	x	x	x	x	x	x		x
		Qualitative				x		x	x	x
	Use of indicators		x		x	x	x	x		x
	Coping with dynamics					x	x	x	x	
	Easy implementation						x	x	x	

x = instrument complies with aspect

o = instrument possibly complies with aspect, depending on deployment

Source: Deuten and De Kam, 2005

cult. The act of reporting is closely linked with monitoring social performance for internal use. The same information may also be used for social auditing: the process of systematically monitoring social performance and discussing findings with stakeholders. This engagement with stakeholders makes housing associations more accountable for their choices. External verification is a crucial aspect of social auditing.

The introduction of these new instruments can contribute to taking new steps on outcome level within the measurement of social return of Dutch housing associations. Furthermore, they can contribute to a more perform-

ance-oriented attitude in company management: taking account of social effects in a more professional way and striving towards a more 'evidence-based' investment policy (knowing or discovering what works).

To conclude this section, we have summed up the practical and methodological aspects of methods of measuring social performance and social return. In Table 2.3 we score the new instruments and indicate the relationship of these various aspects with the terms commonly used in systems theory.

2.3 Approaches to measure financial performance

The measurement of financial return has only become an object of theorisation and practice in social housing fairly recently, particularly in contrast to its tradition in the private sector. Nevertheless, the financial return on social rented dwellings can be expressed in the same measures as those used in the private sector. Over the course of time, different measures of financial return have been developed. Commonly used examples include (see Rust *et al*., 1995):

- the gross or net return from income: the income realised over a certain period (usually one year) divided by the capital value at the beginning of that period;
- the capital return: the growth in capital value which has been realised over a certain period divided by the capital value at the beginning of that period;
- the Total Rate of Return (TRR): the sum of the income and the capital return;
- the Internal Rate of Return (IRR): the 'average' financial return realised over the entire exploitation period of a dwelling;
- the Net Present Value (NPV): the discounted or present value of the expected net future income.

Some associations have also begun to look at the market value of their dwellings and have joined the Aedex/IPD index for housing associations. Furthermore, the abovementioned Transparency Method is based on explicit financial principles. Below we will discuss the relevance of all these measures within the context of housing associations.

In addition to these widely used measures of return, many Dutch housing associations base their financial position and the value of their dwellings on historic cost prices. However, from a financial-economic point of view, the value of an asset is determined by how it is expected to develop over the course of time. The value based on the historic cost price provides no information about future expectations and nothing about the financial consequences of management decisions. Therefore it is not a relevant indicator for use in performance measurement (see also Gruis, 2000; 2002).

Net Present Value

Income, capital and the total return are all used to express the financial performance of an asset over a short period of time (usually one year). All three can be subject to significant periodic fluctuations, for example due to a concentration of maintenance expenditure or periodic growth, or due to stagnation in the capital value of a dwelling because of market circumstances. However, in operating their dwellings, social landlords usually adopt a long-term perspective. Much more relevant for them is the financial performance measured over the entire exploitation period of the dwellings. Thus, for social landlords, the most interesting indicators of financial performance for their asset management are the IRR and the NPV. As calculating the IRR is problematic for dwellings that have already been brought into use (see Van der Flier and Gruis, 2002), of these two the NPV is the most appropriate indicator. Unlike the IRR, the NPV relies only on future cash-flows so knowledge of the initial investment cost is not required.

The NPV can be used in relation to several of the performance measurement objectives in housing asset management. On the company level, taking the financial risks into account, the NPV provides insight into the solvency of social landlords (for a detailed discussion of how the NPV can be used for this purpose see Gruis, 2000; 2002). Furthermore, social landlords can use the NPV to benchmark their financial performance (provided that they all apply the same parameters for rent increases, discount rates and so on). On the estate level, the NPV of different policy options can be used to support decisions through ex ante evaluation.

Use of the market value as a measure of economic efficiency

The NPV is usually calculated under the assumption that the social rent will continue. However, the market value is often (much) higher. The difference between the NPV based on current policy and the market value is a measure of the economic opportunity costs of current policy (see Gruis, 2002) and can be seen as an implicit subsidisation of the social rented dwellings. Of course, social objectives can often justify the economic loss (or implicit subsidy), but if this loss becomes very high, then it would raise questions regarding efficiency. In some cases, for example, it may be better to sell some dwellings and use the proceeds to finance social housing services in a more efficient way. Thus, the ratio between the NPV under current policy and the market value provides a useful indicator of economic efficiency. This ratio can be used in portfolio analyses to compare the economic efficiency of the various estates (see also Gruis, 2002; Van der Flier and Gruis, 2002) and as part of benchmarking (see the discussion of the Aedex/IPD index below).

Use of the market value as an indicator of economic effectiveness

In general, housing associations undertake their management and invest-

ment activities to improve or maintain the quality of housing and neighbourhoods. Consequently, many housing associations have become aware that, in order for their actions to be effective, they must be appreciated by the 'market', and thus must be reflected in an increased (or less decreasing) market value. Some housing associations have taken the stand that, in principle, the amount of investment must be fully compensated by an increased market value. For example, an investment of € 10,000 should lead to an increase in market value of € 10,000 (although the NPV of the extra income as a result of the investment need not equal € 10,000). Housing associations have therefore started thinking about how to use the market value as a measure of the economic effectiveness of their actions. From a scientific point of view, however, it should not be expected that a relationship can be found between actions and results in such respects. In the case of ex ante evaluations it will be very hard to predict what the effect of actions will be on the market value, but even in ex post evaluations it will be impossible to determine a direct link between housing associations' actions and the development of the market value, because the market value depends on many factors, not all of which can be influenced by the housing association itself. Nevertheless, it is an interesting line of thought to link the effectiveness of investments aimed at improving (social) housing quality to an economic measure of appreciation.

Aedex/IPD Social Housing Index

Dutch housing associations (collaborating in the foundation known as Stichting Corporatie Vastgoedindex Aedex) have developed a property value index in association with the Investment Property Databank (IPD). Information about developments in the value of the stock of these housing associations is collected into the IPD, from which averages are calculated. These averages can be used as benchmarks by the individual associations. The main results of the Aedex (the average return and value) are published annually (downloadable from www.aedex.nl). More detailed information is gathered and made available to the participating housing associations. The first publication of the index concerned value and return in the year 2000 on the property of thirteen housing associations. In 2006, fifty-three housing associations were participating in the index. Together they own about one third of the total social housing stock (Vlak and Bel, 2006). Thus, the Aedex represents a substantial and growing proportion of the social rented sector in the Netherlands.

The Aedex follows similar principles to those of the ROZ/IPD index for commercial investors in the Netherlands (also co-produced by the IPD; see www.rozindex.nl). The total return is calculated as the sum of capital growth (net of capital expenditure) and net income, expressed as a percentage of the capital employed during the year, using the following formula (Aedex/IPD):

$$T = \frac{CV_t - CV_{t-1} - C + NI}{CV_{t-1} + \frac{1}{2}C - \frac{1}{2}NI}$$

where:
T = total return
CV = capital value
C = net ongoing capital expenditure/receipts on standing investments
NI = net rental income
t = year-end
t-1 = year-beginning

In this formula, the capital value represents the market value of the dwellings – in other words, the net present value that could be realised if the rent increases were maximised and dwellings were sold at turnover against the open market value. The Aedex also attempts to quantify the impact on the return caused by the policies pursued by participating social housing organisations. This 'policy impact' is calculated as the difference between the gross (rental) return that has actually been achieved and a hypothetical 'estimated commercial' return based on market rent levels (Aedex/IPD). This measure seems to be very similar to the economic loss measure (or measure of economic sacrifice) that we discussed above, but the Aedex approach has a few disadvantages (Gruis, 2003):

- The Aedex does not calculate the economic loss as a ratio of the NPV under current policy to the market value, but is based on the difference between actual income and the hypothetical market rent. Therefore, by using the Aedex method, it is necessary to estimate the market rent. This is often very difficult since, after many years of government regulation and social renting, it is unclear what the actual market rents are.
- The market rent is an even bigger fiction than the market value. While the market value could at least be realised in theory, it is impossible, due to rent regulations and the protection of sitting tenants, to raise rents in one go to market levels. What is the use, one may then ask, of providing information based on policy options that cannot be realised anyway?
- The difference between the actual rent and the hypothetical market rent does not take into account all effects of the policy concerning economic loss (e.g. higher maintenance than necessary, the consequences of future selling plans). There are, however, a few exceptions: the Aedex does subtract specifically earmarked expenditure concerning 'social management' from the gross rental income, to incorporate the policy impact of this expenditure on the return.
- The Aedex provides information about the past return, while it is information about the expected return that is more relevant in supporting management decisions, as stated above.

Therefore, we argue that it is better to use the ratio between the expected NPV and the market value as an indicator of economic (in)efficiency. The Aedex could easily be adapted to incorporate this indicator: the calculations for

the market value are already being incorporated into the Aedex, and the associations should be able to provide their expected NPV fairly easily, because they already calculate the NPV for their own purposes and for annual reports to their financial supervisors (Gruis, 2003).

The Transparency Method
This method is aimed at determining a yearly budget for social investments. The method is based on the principle that the yearly (extra) investments in the interest of social housing can equal the expected net yearly return of a housing association, without endangering the financial continuity of the housing associations. The principle of the method can best be illustrated using a simplified example. Suppose a housing association has a calculated net worth of € 40 million (taking into account a going concern strategy for the existing housing stock), calculated with a real discount rate of 4%. Then, (mathematically) the housing association's yearly budget is € 1.6 million (in real prices). In principle, the housing association could decide to spend the full amount each year without diminishing its net worth. It could also choose to put some aside, if it envisages a larger need for investments in the future. Furthermore, the determination of the budget can be used as a basis for discussion with the local government and stakeholders about where priorities lie and what the potential financial contribution of the housing association could be. We also recognise one structural weakness in the application of the Transparency Method. The choices and (in)efficiencies incorporated in the going concern strategy are not weighed against the resulting (residual) budget for social investments. Without additional benchmarking, application of the Transparency Method would justify a housing association with exceptionally high management costs refraining from social investments. Nevertheless, the method is a valuable contribution in unveiling the available input for social performance. Some housing associations have begun to experiment with the Transparency Method, but broader experience is lacking. Woonbron, one of the largest Dutch housing associations, for example, has calculated using a similar method that it can spend around € 100 million in the next four years on social performance (Woonbron, 2006) and explicitly states its budget for extra investments in its yearly report. This insight can be used in a stakeholder dialogue to discuss the investment strategy.

2.4 Conclusion: towards a comprehensive system of performance measurement?

The concepts of social and financial return have found their way into the Dutch housing association sector. Paradoxically, methods to measure financial return have been relatively well developed. This is partly because financial re-

turn has a better developed theoretical foundation. Furthermore, after the retrenchment of the government, most Dutch housing associations initially had more interest in professionalising their financial management. Nowadays, housing associations are under pressure to make their contribution to society much more transparent and there is great interest in the measurement of social performance, in accordance with their mission to add social value.

In this chapter we have discussed several existing and new methods for the assessment of social and financial performance. Regarding the methods that have been applied at a certain scale, we have concluded that they are mostly focused on performance assessment at the company level. Furthermore, they employ either purely qualitative assessments or quantitative (mostly financial) measures. Finally, existing methods focus either on social performance or financial performance, while ideally the two should be combined to be able to support balanced decisions and evaluations. Thus the challenge lies in designing a comprehensive system of performance measurement that can be employed to:

- measure financial and social performance in relation to each other;
- assess performance at the company as well as the project level;
- combine quantitative measures for input, output and outcome with qualitative measures for outcome, with explicit attention to the theory of change linking output and outcome.

Although we would not claim to be able to design such a system, in this concluding section we would like to propose a new direction. We propose the use of the Transparency Method as a starting point to achieve a comprehensive system, because this method has the potential to combine financial input with social output and incorporate the involvement of local stakeholders. We suggest the following:

- the use of the Transparency Method for investment budgeting and output planning at company level, in close consultancy with local government and stakeholders;
- further development of the Transparency Method in order to broaden the scope for possible trade-offs between 'going concern' and social investments, by incorporating benchmarking of the essential elements of 'going concern';
- not to restrict the use of the Transparency Method to company level, but employ the method within a neighbourhood-based approach as well, involving the relevant parties. Theoretically, joint decision-making could be supported by the Value Sieve method;
- (joint) formulation of expected outcomes of the individual (neighbourhood-based) projects, using qualitative terms combined with quantitative indicators where this can be done in a sensible manner. In doing so, it seems worthwhile to explore the applicability of the SROI or Value Sieve method

to attach (expected) social returns of the (individual) neighbourhood-based projects.

Such an approach would enable housing associations to make much more transparent decisions, taken in consultation with stakeholders and evaluated on the basis of financial inputs, and actions in terms of outputs and expected social and financial outcome. At the same time, the system is flexible enough to combine general investment targets defined (and negotiated) at the company level with more detailed plans and outcome targets at the project level. Of course, experiments are necessary to determine whether the suggested approach is applicable in practice. Nevertheless, the approach certainly seems worthwhile to pursue. The ability and willingness to measure social performance is of vital importance to the shaping of the future of Dutch housing associations. And it is the individual housing associations themselves that will have to show their interest and demonstrate that the slow responsiveness that is sometimes attributed to non-profit organisations does not apply to organisations that claim to be social entrepreneurs.

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3 Investment and portfolio goals

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3.1 Introduction

This chapter investigates the relationship between the housing investments and the housing portfolio goals that social landlords impose upon themselves. In this way, we try to identify some implications relating to the use of performance indicators in the development of the housing stock. This chapter does not concentrate on any specific issue within portfolio and/or asset management (such as liveability, social return, energy or maintenance) but on the integral view of social landlords on the development of their housing portfolio and how they 'translate' their portfolio policies to the physical investments in housing that they have made or plan to make. Conversely, this chapter also concerns the contribution of the investments of social landlords to their portfolio goals.

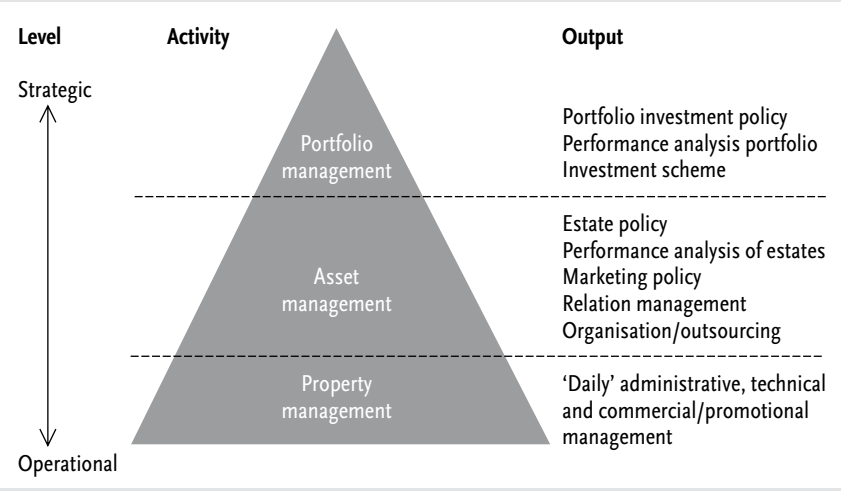
In the relationship between goals and investments, performance indicators can play a significant role. As regards the role of these performance indicators, we can distinguish the levels of policy that the indicators are related to: do they denote general, strategic policy issues, or do they denote operational issues, whether or not these are linked to the achievement of strategic goals?

We can also distinguish between a steering role and a monitoring role of performance indicators. In the steering role, the identification of indicators is part of policy development and serves to make goals more explicit. In the monitoring role, indicators are used to follow the operationalisation or materialisation of an already given policy. It can be argued that the operationalisation of a given policy is also a policy (although at another level), which would blur the distinction between the steering and the monitoring role. So, in making this distinction, one has to define which kind of policies takes centre stage in the investigation. In this chapter, policies regarding the development of the housing portfolio are central. This, in turn, makes a clarification of the term 'portfolio management' useful.

In order to clarify the term 'portfolio management', we use the distinction made within (commercial) real estate management between portfolio, asset and property management (see Figure 3.1).

As can be seen in Figure 3.1, Miles *et al.* (1996) put 'portfolio management' at the top, strategic level of the triangle. Like most commercial investors, they define this term as the allocation of resources to several investment categories such as shares, bonds, real estate, etc. at a meta-level within the organisation. This use of the term is not fully applicable to social landlords, if only because they are by definition restricted to investments in one specific investment category, namely housing. Nevertheless, social landlords also have an

Figure 3.1 Organisational levels of real estate management



Source: Miles *et al.*, 1996

investment portfolio, namely their housing stock. Thus, they also manage a portfolio. In this case, portfolio management is concerned with defining the desired mix of housing (dwelling types and prices), analysing the performance of the residential portfolio, and defining the size and the geographical dispersion of the housing portfolio.

The investments that we deal with in this chapter are concentrated on the asset management level. The primary focus is on the choice of rather general investment options, like consolidation, refurbishment, sale and demolition. The way in which the investments are carried out is not dealt with in this chapter and neither is the construction process.

The investments in housing are related to the BBSH performance area concerning the physical quality of the housing portfolio. Housing associations must provide decent and affordable housing to low-income tenants. The acquisition, management and disposal of the housing stock should be carried out in support of this provision. The BBSH, however, does not specify how an organisation should do this, thus leaving significant room for policy freedom as far as investments are concerned. Despite the emphasis on housing for low-income households, the investment policies of Dutch social landlords are not only concentrated on (rental) housing for this target group but also concern a wider portfolio, in which the provision of owner-occupied housing and more expensive rental housing is included as well. It would be too narrow a view to concentrate on investments in low-income housing alone. We will therefore also take investments in other housing into account.

It goes without saying that performance indicators are formulated in areas regarded as important and that they are related to goals that are to be achieved. The formulation of performance indicators is therefore highly dependent on the goals that have to be achieved. In the following section we will take a general look at the objectives that we found in an earlier research exercise (Nieboer and Gruis, 2004b). In doing so, we present a picture of what

Table 3.1 Examples of portfolio objectives used by the researched landlords

Category	Objectives
Target group	Focus on low-income households, but also attention to higher-income groups
	Housing for a wide variety of households (elderly, students, those on low and high incomes, etc.)
	More variety in demographic composition of districts
	More appropriate housing for the elderly
	Re-let at least x% to low-income households
	At least x% of the total number of homes allocated to the mentally or physically disabled
	Sufficient good quality housing for low-income households
Portfolio composition	Adjustment of supply to demand
	More variety in portfolio composition
	More high quality homes
	More homes for the elderly/building x homes for the elderly
	Refurbishment or disposition of homes with bad market expectation
	Varied supply on both the social and the commercial housing market
	An increase in the average floor space of the portfolio by x square metres
	Improvement of x homes per year to a predefined quality level
Portfolio size	Disposition of homes in neighbourhoods in which the landlord has a small number of properties
	Disposition of homes in neighbourhoods with a high concentration of social rented housing
	Stabilisation in well-to-do neighbourhoods, disposition in declining neighbourhoods
	Stabilisation of the share in the local social housing market
Sale	Sale of x homes per year
	The homes that will be sold reflect the present composition of the portfolio
Rent level	A minimum number or percentage of affordable homes
Finance	Solvency rate at least x% in year y

is meant by the 'performance' of social landlords as far as portfolio policies are concerned. Of course, goals are not the same as performance, but they can give an indication of a desired outcome. We will also address the relationship between goals and performance in Section 3.2.

In Section 3.3 we deal with theoretical models for developing portfolio policies. The usefulness of such models is investigated in Section 3.4, in which we will take a closer look at a selection of Dutch social landlords. In this section, we further investigate the role of performance indicators in the planning process by not only looking at the portfolio goals, but also at the investments that should be related to it. We will draw upon results from four social landlords, which belong to a selection from a recent case study research. In Section 3.5 we discuss the implications of the empirical results in the preceding sections for the role of performance indicators.

3.2 Overview of portfolio objectives

In a research exercise focusing on nine relatively large social landlords, several portfolio objectives were identified (Nieboer and Gruis, 2004b). Table 3.1 lists some of these objectives. Because these objectives are from different landlords they are not necessarily compatible and may even be contradictory.

Despite the larger emphasis in the Dutch social housing sector on financial factors in recent years, most objectives of the landlords researched are related to rather traditional issues like affordability, focus on lower-income groups, housing for the elderly, and adjustment of market supply to market demand in general.

In our research we found many general, non-quantified objectives, but also a number of concrete and measurable objectives in the form of targets or performance indicators, such as "building x homes for the elderly". Because the latter objectives are no more than a few years old, there appears to be a shift towards more quantified and measurable goals. The objectives are formulated according to various fields of interest, such as lettability, affordability, finance and neighbourhood security (theft prevention, tackling troublemaking tenants, etc.). Goals and performance indicators therefore sometimes coincide.

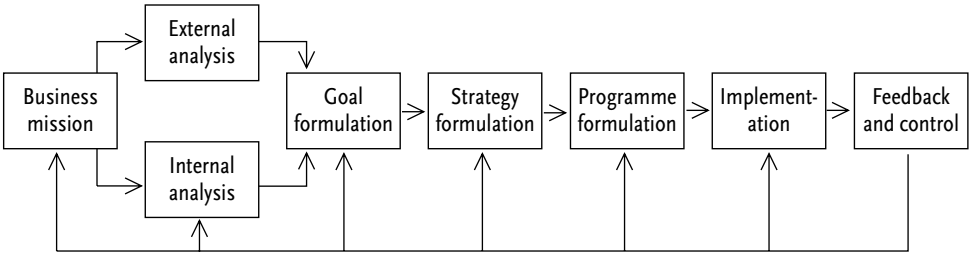
From the documents of the landlords studied it is not always clear to what extent the goals are subordinate to other goals. For instance, a goal such as "sale of x homes a year" may not be a goal in itself, but a means to reach a certain solvency rate or to attain a mixed-income neighbourhood. In this case, the number of homes sold can be seen as a performance indicator that is related to these goals.

3.3 Models for developing portfolio policies

Formulating objectives, making them explicit in quantitative terms (insofar as they were not already quantified) and (further) translating them into programmes on a lower geographical scale (for instance a neighbourhood) easily fits into a rational-analytical approach to planning. In this respect, the use of performance indicators in portfolio management has close relations with rational planning (Kotler, 1994). Of course, the use of performance indicators is not restricted to rational planning alone, especially not if performance indicators are used for monitoring purposes. But if we want to use such indicators for policy formation and policy formulation, a translation of the indicators into more or less concrete activities is required in order to have an impact on the actual investment decisions.

The attention among social landlords towards a more sophisticated and rational planning has resulted in several models for the development of such a planning process (Nieboer and Gruis, 2004a). Originally, these models were more or less based on or inspired by existing models for strategic planning for commercial companies. Most models for strategic planning concern a company's portfolio as a whole. Depending on the level of the strategic planning, strategies are formulated for business areas or product-market combinations. In multiple businesses, strategic planning can be performed at a corporate level, to formulate strategies for the different business areas in which

Figure 3.2 Model for the business strategic planning process



Source: Kotler, 1994: 79

the company can compete. In enterprises with a narrower product range or in individual business units within a firm, strategies are formulated for the product markets within the business (see also Aaker, 1984: 4-6). On the basis of the desired portfolio development more precise strategies will be formulated for all individual product markets within the housing stock.

A general model for the development of strategic planning is given by Kotler (1994). Although this model was developed for marketing management, it allows a wider application. In Kotler's model, the business mission is the starting point. The business mission determines which analyses take place. Based on the results of these analyses, goals are formulated, which in turn are translated into strategies and then into programmes (see Figure 3.2).

Kotler's model is normative: it indicates how strategic planning should be done, not how it is done in reality. Nevertheless, if this model is meant to be useful in practice (and we suppose that it is), there must be explicit or implicit assumptions about how planning works in reality. Kotler's model, with its hierarchical structure, and in which policy goals are based primarily on analyses, reflects the rational-analytical paradigm. This paradigm has a dominant position in planning studies, but is also often criticised for neglecting the non-rational elements in decision-making processes. In the next section we investigate to what extent the intended investment goals and strategies are followed in practice.

3.4 Portfolio management and investments

In this section we describe the portfolio management of four social landlords and their housing investments in selected neighbourhoods. The selected landlords and neighbourhoods are listed in Table 3.2.

As indicated previously, these four landlords form part of a larger case study research. We have not aimed at representativity: the selected social landlords form only a small part of the whole sector, which (as we mentioned earlier) consists of around 500 organisations. On the assumption that strategic planning is still rather unusual in the social rented sector, we have selected relatively advanced and also larger housing associations, which were expected to have a sophisticated portfolio management. Indications (from either liter-

Table 3.2 Selected social landlords and neighbourhoods

Landlord	Neighbourhood in which investments are investigated	City
Ymere	Nieuwendam-Noord	Amsterdam
Volkshuisvesting Arnhem (SVA)	Malburgen-West	Arnhem
Trudo	Lakerlopen	Eindhoven
Staedion	Morgenstond-West	The Hague

ature or personal connections) for the development of a strategic asset management were the basis for selection of these housing associations.

A further criterion for the selection of the social landlords was that they have concrete investments or investment plans for a neighbourhood undergoing restructuring. It is, of course, not possible to take all the investments of a social landlord into account. For this reason, we have selected one neighbourhood for each landlord. As the research is part of a programme of restructuring and urban renewal, we have selected neighbourhoods that are undergoing restructuring. Because certain investments are preferred over investment plans that are still uncertain, we have chosen those restructuring areas that are relatively advanced with regard to the progress of redevelopment. 'Advanced' in this context means that the investments in the housing stock have been carried out or that the investment plans have such a solid base among the relevant actors that major changes are unlikely to occur.

The research was carried out through interviews and a literature study. Generally speaking, the interviews were held with two types of people:

- people who are closely involved in or responsible for the policy development of the respective social landlord;
- people who are closely involved in or responsible for major development projects.

In the following text we describe the portfolio management and the investments of each of these landlords.

Ymere

General characteristics

Ymere is a housing association with approximately 47,000 homes, and was the result of a merger in 2004 between the 'Woningbedrijf Amsterdam', formerly a municipal housing organisation, and the housing association WVA, situated in the town of Almere. Ymere's housing portfolio is concentrated in the municipalities of Amsterdam and Almere, but the association also has properties in several other municipalities in the region. Further regional expansion is planned.

The organisation is divided into a main office and several so-called Markets (Markten), each of which is responsible for the development of a certain (housing) market segment. There are Markets for traditional social housing, housing for the elderly, student housing and more expensive housing for higher-income households, for example. The Market for traditional social housing is, in turn, geographically divided into several Regions. Portfolio man-

agement is assigned to the main office. Asset management decisions are taken within the Markets and/or the Regions.

Portfolio management
Ymere seeks to diversify its portfolio by expansion into the region around Amsterdam, by growth in segments that are now relatively small, and by improving the average quality standard of its homes. For each segment, yearly targets are determined for, for example, production of new homes, sales and financial return. Risk reduction and improvement of financial returns are important reasons behind this policy. The desired returns differ according to Market: the desired rate for the traditional social housing market, with relatively cheap homes for low-income households, is lower than for relatively expensive housing for higher-income groups.

Until several years ago, analyses were made in which the housing stock was labelled green, yellow or red, the colour indicating the nature of physical improvements and the urgency of carrying out these improvements. This method, however, turned out to be too labour-intensive and also too rigid. For these reasons, the method has been simplified; now only indicators of return, risk and technical quality are used. The results of the analysis are used to identify eventual discrepancies from the actual list of planned investments and to discuss the discrepancies with those responsible for investment planning.

Investments
The neighbourhood of *Nieuwendam-Noord* has 5,400 homes, 85% of which are in the social rented sector. Ymere has 856 homes in the area. A total of 60% of this stock consists of 1960s five-storey apartment blocks without lifts. The other homes are mainly situated in a middle-rise or high-rise building above a shopping centre (WBA, 2003).

Already by the 1990s, the social housing segment in Nieuwendam-Noord was felt to be threatened by a selective out-migration of the better-off and by lettability problems. Both the district council and the housing associations in the area agreed upon a substantial renewal of the housing stock and the shopping centre. In cooperation with relevant parties (notably tenants and the district council), the development branch of Ymere (or rather its legal predecessor, the municipal housing organisation of Amsterdam) drew up a development plan for the neighbourhood, in which investment proposals were made for each estate (see Table 3.3).

In the investment considerations listed in Table 3.3, the portfolio targets per housing segment play a negligible role. Only in the new building in the neighbourhood (not mentioned in the table) did the interviewees report that the Markets tried to influence the investment programme. This was mainly done to realise growth in their type of stock. The modest importance of the port-

Table 3.3 Ymere investment plans for housing stock in Nieuwendam-Noord

Estate	Type of dwellings	Number of homes	Investment plans	Landlord's considerations behind initial investment plans	Considerations behind changes in initial investment plans
202	Flats	382	Demolition	Small and noisy dwellings, mediocre liveability, poor physical access	None
227	Gallery flats	21	Initially demolition, now large-scale maintenance and improvement	Demolition would open up possibilities for a more integral area improvement	District council has rejected demolition after resistance from the tenants
228	Homes in tower flat	105	Large-scale maintenance and eventually improvement	Fairly good technical quality, but improvements necessary	None
229	Gallery flats	96	Large-scale maintenance and eventually improvement	Fairly good technical quality, but improvements necessary	None
230	Gallery flats	88	Initially sale, now demolition	Technical quality requires investment, but refurbishment is too expensive compared to what its results would be; initially, demolition was regarded as too radical; refurbishment seemed an appropriate opportunity to differentiate the housing stock in the neighbourhood and to comply with Ymere's portfolio strategy to sell a substantial number of homes	At second sight, demolition is needed from an urban planning point of view. In addition, the estate has a low technical quality, a high turnover rate, an inflexible floor plan and a socially insecure entrance hall
232	Flats	168	Large-scale maintenance	Homes recently purchased from another landlord; will be in good technical state after maintenance	None

folio indicators can be explained by the fact that these targets are relatively new. But also 'older' indicators, such as the segmentation of the stock into green, yellow and red, play a negligible role. One of the most important indicators for new construction seems to be an external one, namely the 70%-30% division (70% of the homes in the owner-occupied or expensive rented sector, 30% in the cheap rented sector), which is in accordance with local policies.

Volkshuisvesting Arnhem (SVA)

General characteristics

Volkshuisvesting Arnhem ('Stichting Volkshuisvesting Arnhem', abbreviated to SVA) has around 14,000 homes, all in the city of Arnhem. Portfolio management and asset management decisions are taken by head office. A project or-

ganisation has been established for the redevelopment of the district of *Malburgen*, which is undergoing large-scale restructuring.

Portfolio management

Unlike Ymere, SVA prefers to remain a locally-based housing association, which means that regional expansion is not a priority. The desired development of the housing portfolio of SVA is dependent on the neighbourhood in which the properties are located. Investments are preferably allocated to relatively deprived neighbourhoods. In these neighbourhoods, SVA seeks to increase the quality of the housing stock through refurbishment, demolition and new construction. The association also seeks to substantially increase the amount of owner-occupied housing in these neighbourhoods, while in better-off neighbourhoods a growth in the number of social rented dwellings is preferred.

The increase in owner-occupied housing is achieved in two ways. First, a considerable proportion of new build homes are sold. Second, at turnover, SVA offers approximately half of its existing portfolio in a tenure-neutral way: the homeseeker to whom the dwelling is allocated is given the choice either to rent or to buy it. If the homeseeker chooses the latter option, he must offer the dwelling back to SVA when he moves out. By offering these tenure-neutral homes with a buy-back option for the housing association, SVA aims to broaden options for homeseekers and realise mixed-income neighbourhoods.

SVA has agreed with the municipality that at least 75% of the properties in the total portfolio will be kept under a certain rent level, so that they are financially accessible for low-income households. Apart from common solvency rules to guarantee the financial continuity of the organisation, there are no further criteria on the portfolio level that influence the composition of the housing stock.

Investments

Malburgen-West is part of the much larger district of Malburgen, which has around 7,400 homes, mostly built in the 1950s. A total of 60% of the housing stock in Malburgen consists of relatively cheap and small flats. SVA's properties in the district of Malburgen are mainly 1950s homes. Because Malburgen's position on the housing market has deteriorated severely, plans for urban renewal have been drafted. The present plan was published in 2002. Within Malburgen, a certain priority has been given to Malburgen-West, as it is considered the neighbourhood where problems need to be most urgently addressed. At the beginning of 2004, before the first homes were demolished, this neighbourhood had 1,700 dwellings (http://statline.cbs.nl). The main policy principles for this neighbourhood are:

- creation of a 'garden city' environment;
- 80% of newly-built homes in the owner-occupied sector, in order to attain a

share of 50% in Malburgen as a whole;
- a mixed-income neighbourhood.

The investments of SVA in Malburgen-West are a mixture of refurbishment, more and minor improvement, sale and demolition (see Table 3.4).

The considerations presented in Table 3.4 do not show an influential role of performance indicators. However, there are minor exceptions, like the decision to maintain homes in estate 276 to keep sufficient cheap homes in the area.

Trudo

General characteristics

Trudo is a housing association with approximately 8,000 homes in the city of Eindhoven and in neighbouring municipalities. Around half of these properties are located in areas undergoing restructuring. Policy development takes place at the central level of the organisation.

Portfolio management

As is the case with many other social landlords, Trudo not only aims to meet the housing demand of low-income households, but also the housing demand of middle-income groups. For Trudo, this means a larger variety in its housing portfolio in terms of physical quality, price and location. A larger share of its housing stock must be located in attractive neighbourhoods.

The most striking feature of Trudo's portfolio policy is the emphasis on the sale of dwellings. In the period 2000–2004, Trudo sold around 600 homes (Smeets *et al.*, forthcoming), which, given its total stock of around 8,000 homes, represents a very high share compared to Dutch standards. This number had risen to over 1,000 homes by the end of 2006 (Trudo, 2006:25).

As far as the existing stock is concerned, most dwellings are not sold against market value, but on the conditions of a self-developed concept known as *Slimmer Kopen* ("Buying Smarter"). This socially-bounded ownership scheme includes a discount off the market price, which may amount to 50% in principle for low-income households and 25% for other households (see Smeets and Dogge, 2007). In return for this discount, householders must sell the home back to Trudo when they move out. At that time, the increase in value of the property will be divided between the household and Trudo.

Trudo offers the vast majority of its vacant homes (80% to 90%) under the Slimmer Kopen scheme. Despite extensive sales of its properties, Trudo expects its stock to grow from 8,000 to 10,000 homes in the next twenty years. This will be mainly due to new construction.

Investments

Lakerlopen is a neighbourhood in the city of Eindhoven. At the beginning of 2006, it had 1,235 homes (http://statline.cbs.nl), two thirds of which were in the

Table 3.4 Investment proposals for SVA housing stock in Malburgen-West

Estate	Type of dwellings	Number of homes	Investment plans	Landlord's considerations behind initial investment plans	Considerations behind changes in initial investment plans
270	Single-family homes	49	Regular maintenance, improvement at turnover	Relatively good homes, good market position	Sale at turnover, because of tenure mix and because these are SVA's only homes in this particular area, amidst owner-occupied dwellings. SVA strives for tenure mix on district level, but for homogeneity on neighbourhood level
271	Single-family homes	76	Sale of 74 homes, demolition of 2 homes	Contribution to a mixed-tenure neighbourhood	None
272	Flats	366	Regular maintenance, improvement at turnover	Building has been renovated recently	None
273	Mix of single-family homes and flats	104	Consolidation of 14 into 7 homes, demolition of 18 homes, improvement at turnover of 72 homes	Consolidation because SVA regards the dwelling type as undesirable from a social point of view. Demolition to make room for new homes	None. The 18 homes have been demolished
274	Single-family homes	201	Demolition of 35 homes, possible sale of 166 homes	Demolition in order to improve physical structure of the neighbourhood (according to urban plan). Refurbishment of the exterior to add quality. Originally, sale was an option, but other options were also possible	35 homes have been demolished; the other homes have been renovated and offered for sale, with the right to rebuy for SVA
275	Flats	428	Demolition	Demolition in order to improve physical structure of the neighbourhood (according to urban plan). Moreover, the homes were obsolete. 192 of these homes have been sold to the municipality for redevelopment along a main traffic thoroughfare	None. 236 homes have been demolished; the other 192 have been sold and will be demolished
276	Single-family homes	103	Demolition of 52 homes, regular maintenance of 51 homes	Demolition in order to improve physical structure of the neighbourhood (according to urban plan). Regular maintenance to maintain sufficient cheap homes in the district	None. The 52 homes have been demolished

social housing sector. Lakerlopen was developed from the 1920s onwards; Trudo's homes in this neighbourhood were built in 1944 or 1950. Unlike Nieuwendam-Noord and Malburgen-West, the housing stock in Lakerlopen is mainly low-rise, which contributes to the rustic character of the neighbourhood.

The restructuring of Lakerlopen will be carried out in four phases, each related to an area within the neighbourhood. In areas B and D, where Trudo has its properties, the present restructuring plan aims to preserve the rustic character of the neighbourhood. Nevertheless, a transformation towards a more mixed-income neighbourhood has remained one of the policy principles for the building programme. Area D will be restructured after 2010. Area B is currently being redeveloped with the other social landlord in the neighbourhood. For this redevelopment, Trudo has demolished 58 homes, mainly because of their poor technical quality. The vast majority of the remaining 372 homes in areas B and D will be refurbished and then sold under the Slimmer Kopen scheme (up to 50% discount). Insofar as performance indicators are used in this process, they serve to monitor the progress of restructuring and the number of sales.

Staedion

General characteristics

Staedion has around 34,000 homes in The Hague. The organisation works in several districts but policies are, in principle, developed at the central level.

Portfolio management

A considerable proportion of Staedion's housing stock consists of small homes and homes in less attractive neighbourhoods. Staedion aims to improve the quality of its portfolio. This means refurbishment, new construction and geographical extension to attractive locations and neighbourhoods. Main policy principles are:

- diversification of residential environments (through, for example, an increase of properties in municipalities other than The Hague);
- fewer properties in unattractive neighbourhoods through demolition and sale;
- more large homes, fewer small homes;
- more single-family dwellings, fewer flats.

Staedion has appointed 3,000 of its homes for sale. The vast majority of these homes will be sold against market value. An exception is made for the (deprived) neighbourhood of Transvaal, where socially-bounded ownership with a discount off the market price of 25% is applied. When a buyer moves out, he/she must sell the home back to Staedion, paying back the discount, and share the development in value with Staedion. Staedion has chosen to apply a discount in Transvaal because of the unfavourable market situation in this

neighbourhood.

Asset management decisions are laid down in district or neighbourhood plans. In these plans, choices between regular maintenance, refurbishment and demolition of estates or buildings are made. As for the maintenance of housing stock, Staedion strives to achieve a situation in which technical quality will never be a reason for demolition.

Investments

The restructuring of the neighbourhood of *Morgenstond-West* is part of the much larger restructuring of The Hague-South West district. Five years ago, Staedion and the two other housing associations owning homes in this district created a joint development plan, in which they make a distinction between estates to be renewed (in the physical sense, by refurbishment or replacement) and other estates. Agreements have also been made about the number of dwellings to be consolidated, sold, refurbished or demolished. These agreements are still valid today.

At the beginning of 2004, before the restructuring of the neighbourhood began, Morgenstond-West had 3,870 homes (http://statline.cbs.nl). Staedion has four estates in this area, all consisting of four-storey flats with no lift. All these flats have been or will be demolished. Limited technical possibilities for creating larger homes are given as the main reason for this disinvestment. Consolidating two or more flat units would have meant creating homes that are either too expensive for this less attractive district or that belong to a less popular dwelling type.

With regard to the new homes that will replace the demolished ones, there are no fixed agreements at the level of Morgenstond-West itself, but at the higher level of the district (The Hague-South West) and on the level of *Morgenstond-Midden*, an area that is a part of The Hague-South West but includes all Staedion's properties in Morgenstond-West. One of the agreements on the level of the district is that 30% of the newly built homes will be in the social rented sector. Looking at what will be built in Morgenstond-Midden, this percentage also applies in this smaller area, but rather as a more or less coincidental result of the investment plans afterwards than as an intended result of a policy goal beforehand. Other agreements about the restructuring of the housing stock are related to budget constraints and the share of single-family dwellings.

3.5 Discussion and conclusions

Performance indicators are frequently used in portfolio management. As we have seen in Section 3.2, a number of goals are formulated as performance indicators. A closer investigation in Section 3.4 revealed several performance in-

dicators, such as Ymere's portfolio targets per segment, SVA's minimum percentage of low-rent housing, and Trudo's desired share of Slimmer Kopen homes.

Despite the presence of performance indicators, there are strong indications that their role in portfolio management is modest. There are two reasons for this.

The first reason may appear rather trivial: goals in the form of performance indicators simply represent a relatively small share of all portfolio goals and, in addition, are generally not the main goals of the housing association. This reason for the modest role of performance indicators may be further trivialised because most performance goals serve higher values and goals that are mostly not quantified.

Rather less trivial is the second reason, which has to do with the way in which social landlords develop their strategies and make decisions on housing investments. As we have seen from the case studies, the rational and linear planning models, like Kotler's model for the business strategic planning process, do not describe adequately what happens in practice. In all four cases, the portfolio policy of the respective landlords has not trickled down to guidelines about (dis)investments per (type of) estate. Instead, there is a loose relationship between portfolio management and housing investments. Decisions about the latter are mainly taken on considerations regarding the technical state and the liveability of the neighbourhood. In all four cases studied for this paper, the urban plans that have been made for the respective districts or neighbourhoods have a considerable influence on investment decisions on the estate level. On the one hand, these plans are not the result of a predefined, single strategy, but the result of negotiations of different parties. Portfolio policies can certainly influence these decisions (think of budget constraints, solvency targets and forms of tenure), but in the main the policies are a loose framework for these investments. Therefore, the relative influence of performance indicators at the portfolio level has not so much to do with the choice of indicators, but with the influence of portfolio policies on investment decisions.

From this we can conclude that the complex environment in which social landlords operate restricts an effective use of performance indicators. This is especially true in areas undergoing restructuring, in which this complexity is higher than elsewhere. This can restrict the implementation of portfolio policies. In addition, the research shows that each of the social landlords themselves can also be seen as a (sub)system, with interdependent relations in which policy developers do not always play a dominant role.

As a consequence of this, performance indicators at the portfolio level hardly fulfil a steering role in portfolio development. The steering role is restricted to situations in which these indicators are used for monitoring actual developments, and in which, in the case of eventual discrepancies between desired

and actual developments, eventual policy adjustments are considered. In general, performance indicators at the district or neighbourhood level (e.g. number of homes to be realised, desired tenure mix) play a more important role, because they have a more direct influence on investment projects. This confirms the findings of Gruis (2005) about the use of a 'Balanced Scorecard' in housing management. In his case study research on two Dutch social landlords, Gruis found that the indicators in a 'Balanced Scorecard' played very little role in policy formation, but were useful in monitoring the actual developments in certain fields.

The virtual absence of a steering role for performance indicators on the portfolio level implies that either one has to be modest in the use of these indicators or that extra attention has to be devoted to the acceptance of these indicators in decision-making about investments. A more realistic view, however, may be that performance indicators are developed to follow the consequences of the individual investments for the entire organisation. In doing so, such indicators contribute to the integration on the portfolio level of the individual actions and activities; an integration that seems, according to earlier research (see Nieboer and Gruis, 2004c), often weakly developed. In this context, it is also worth considering the use of indicators with which plans on a lower spatial scale can be judged on their contribution to the desired development of the housing portfolio.

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4 Measuring and steering liveability in neighbourhoods

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4.1 Introduction

Increasing and maintaining liveability in areas where a housing association's property is located was introduced as a separate public task field in the Dutch Social Housing Decree in 1997. Listed among the instruments that are available to a housing association for the improvement and maintenance of liveability in neighbourhoods are the acquisition, sale, demolition, construction, renovation or maintenance of dwellings and other buildings (Ministry of Housing, Spatial Planning and the Environment, 2000). While these investments contribute to the quality of life in neighbourhoods, their main purpose is to improve the physical quality of the housing stock. Various measures not mentioned in the decree, yet specifically targeted at the improvement and maintenance of liveability in neighbourhoods, have since been implemented by Dutch housing associations in response to the decline in public service levels during the 1990s. Total expenditure on liveability and a description of the activities falling within this public task field have become items in their own right in the annual reports of housing associations in the Netherlands.

Aside from reporting yearly expenditure on liveability measures, housing associations and local governments in the Netherlands have had plenty of experience in monitoring liveability. This has its origins in the Urban Policy (GSB), initiated by the central government in 1995. From 1999 onwards, the participating local governments were required to monitor the physical and social conditions and safety in their neighbourhoods (Ministerie van Binnenlandse Zaken, 2004). Residential surveys known as 'liveability and safety monitors' were implemented to monitor living conditions, while suitable output indicators were compiled from various external data sources. Many housing associations adopted the methodology of the liveability and safety monitors to check on the progress of their own neighbourhood investment programmes. Furthermore, Dutch housing associations started to make extensive use of tenants' panels to signal the improvement or deterioration of the quality of life in areas where their property was located.

Although initiatives to monitor living conditions and report liveability have become commonplace among Dutch housing associations, it is the definition and use of output indicators that seems to be lacking (Gruis, 2005). This absence of output measurement precludes any sound practice for evaluating the internal efficiency and external effectiveness of liveability policies. The main purpose of this chapter, therefore, is to construct a suitable framework for defining and measuring the output of the liveability process, based

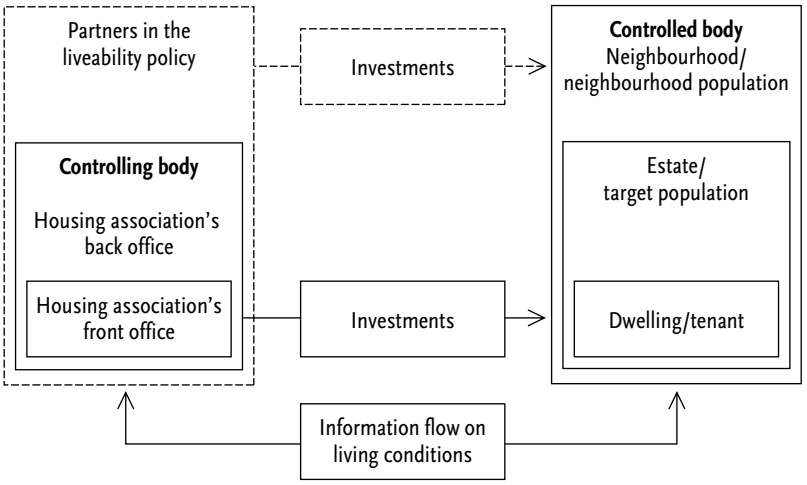
upon the widespread practice of outcome measurement among Dutch housing associations. A description of the problem of measuring and steering liveability in systems language will be given in Section 4.2. Outcome measurement is the subject of Section 4.3, while the measurement procedure during the preceding stages in the production process is the main topic of Section 4.4. Guidelines for best practices in the ex ante and ex post evaluation of neighbourhood investment programmes and an example of selecting Key Performance Indicators for this task are given in the final section.

4.2 The production process for maintaining and increasing liveability

The common definition of liveability is the assessment made by residents of the social and physical quality, conditions and safety of their immediate surroundings (Marsman and Leidelmeijer, 2001). Residents' neighbourhood satisfaction, neighbourhood attachment and their willingness to stay are all indicators for the living conditions in the neighbourhood (Van Iersel *et al.*, 2007). The subjective definition of liveability runs against the convention in the UK (Office of the Deputy Prime Minister, 2004) and in the Netherlands during the second and third phase of the Urban Policy (Ministerie van Binnenlandse Zaken, 2004) of using 'hard' or objective indicators to measure the quality of life in neighbourhoods. In the vein of the Dutch Social Housing Decree, where liveability is considered one of two components of residential satisfaction (alongside tenants' satisfaction with their dwelling), the definition of liveability as a 'soft' or subjective standard of neighbourhood quality is used here, although the ensuing analysis carries over to all other forms of information gathering on the quality of life in neighbourhoods that the housing association decides to adopt. As a separate public task field in the Dutch Social Housing Decree, liveability is self-contained and the production process is entirely outcome-oriented, which greatly facilitates the job of defining the process model for liveability.

In systems language the process model for liveability is an example of closed loop steering (see Figure 4.1). The housing association is part of a super system that comprises the housing association and all its partners involved in maintaining and improving liveability in the neighbourhood (municipality, police, welfare workers, etc.). The association acts as the steering organ and is a system in its own right, since it consists of the back office at the managerial level and the front office at the operational level. Partly based upon the input of feed forward flow of information on living conditions in the controlled body, the neighbourhood, the planning of the liveability policy takes place at the managerial level, in cooperation with the partners in the approach. The front office receives input in the form of orders and funding from the back

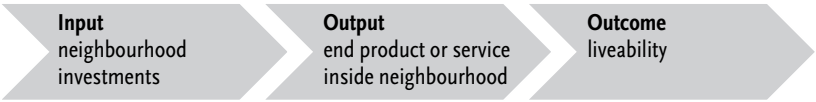
Figure 4.1 Process model for the production of liveability



office and undertakes the investments aimed at maintaining and improving liveability. The investments of the front office serve as the input to the neighbourhood system. The nature (social or physical) and scale (entire neighbourhood, groups of tenants or housing estate and individual dwelling or resident) of the neighbourhood investments define which elements of the neighbourhood system are being affected, while the impact of the intervention defines the size of the resulting transformation of these elements. In turn, the transformation of the neighbourhood system creates output in the form of an information flow on the current state of living conditions in the neighbourhood, which is redirected at the housing association. This feed backward flow is used by the housing association to check on the progress of its operations and for external validation to its stakeholders, thus closing the loop in this continuous process model.

Even though there are numerous relationships between the various components of the system, the focus will be on the operations that form an integral part of the liveability approach of the housing association. For this reason we limit the full system to the housing association (the controlling body), the neighbourhood and its component parts (the controlled body) and all relationships between the two systems (continuous lines in Figure 4.1); all other elements and relationships are considered part of the environment (dotted lines in Figure 4.1). In terms of the input, output and outcome approach to performance measurement (Audit Commission, 1986), the planned investments in the neighbourhood and the efforts undertaken by the front office are the input of the liveability process, the output of these investments is made tangible inside the neighbourhood system and the resulting (net) transformation of the neighbourhood system produces the outcome: liveability (see Figure 4.2). Liveability can be measured either through tenants' assessments of local living conditions or through objective indicators for the quality of life in the neighbourhood. Each stage in the production process can now be consid-

Figure 4.2 Input-output-outcome model for the production of liveability



ered in its own right, starting off with the measurement of the outcome stage, since this should ideally be the starting point for the liveability policy.

4.3 Measuring liveability

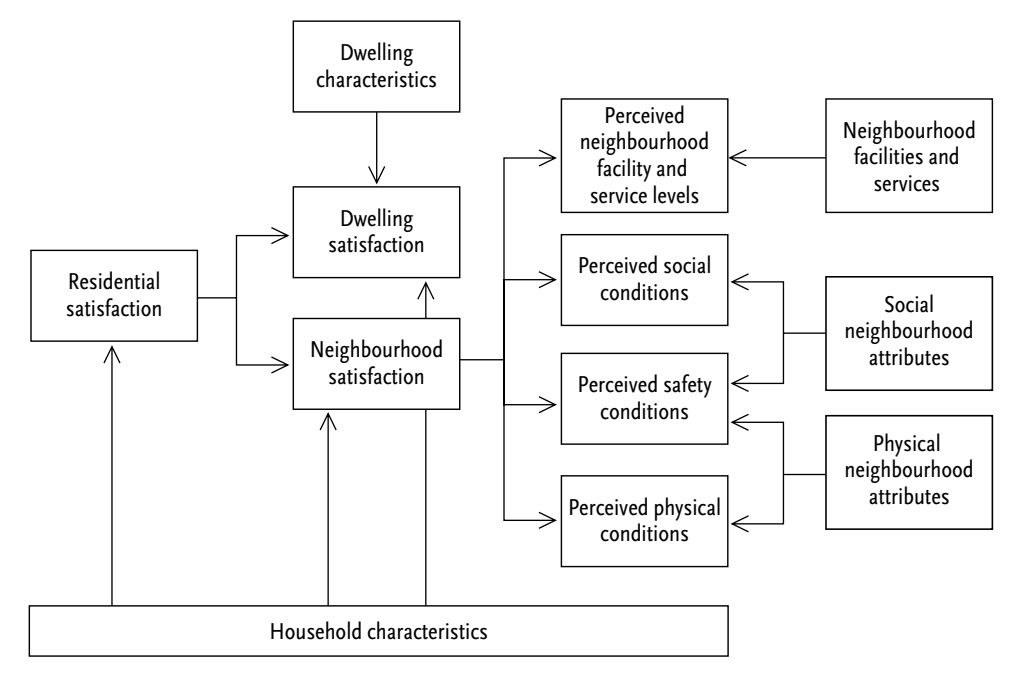
Measurement of the outcome stage

Liveability or the subjective assessment of living quality in the surrounding area of the home (Marsman and Leidelmeijer, 2001) is considered one of two components of residential satisfaction, alongside dwelling satisfaction. This division of residential satisfaction is a natural consequence of the physical separation between a dwelling and its physical surroundings. Many housing associations are well aware of residential, dwelling and neighbourhood satisfaction through the use of resident surveys, tenants' panels and the testimonials of professionals working in the front office. All these sources of information suffer from the biased views of witnesses, the intermittent timing of both questionnaires and reports on local living conditions, and limited coverage, since not all residents' views can be known. In this respect, the more exhaustive residential survey offers the best clues on the quality of life in a given neighbourhood.

Most residential surveys in the Netherlands use the methodology that was introduced by the liveability and safety monitors. In these monitors residents are asked to evaluate the various attributes of the neighbourhood they live in by entering scores, which are then averaged to obtain overall neighbourhood scores. Neighbourhood satisfaction is defined as the aspect of residential satisfaction that is directly influenced by the living conditions in the surrounding area of the dwelling (see Figure 4.3). In turn, neighbourhood satisfaction can be broken down into separate scores for each attribute of neighbourhood quality: the social, physical and safety conditions in the area, local service levels and quality and the attachment to the neighbourhood. These sets of questions are often expanded to gather more detailed information on items such as the underlying causes behind the unsafe nature of a neighbourhood, the kind of neighbourhood facilities that are insufficient or the number of social ties that a resident has in the neighbourhood. The more detailed the questionnaire, the higher the information content of the survey, but parsimony ensures a higher response among surveyed residents and less overlap between the questions. Finally, the scores on the various aspects of neighbourhood satisfaction can be linked to the actual state of affairs in the area, since the neighbourhood attributes are precisely the items that are being assessed in the residential survey.

Whenever residents try to assess their immediate surroundings, the area

Figure 4.3 Structure of the liveability and safety monitor



they have in mind more or less conforms to their activity span (Goetgeluk and Wassenberg, 2005). This activity span is usually much smaller than the administrative neighbourhood, and therefore average survey scores do not necessarily reflect differences in living quality within a given neighbourhood. Even when respondents are asked to assess the overall neighbourhood, local differences in living conditions become visible in the scoring (Koopman, 2006). Instead of averaging the individual scores over the entire neighbourhood, the housing association could average the scores over neighbourhood sections that are known to be physically and socially distinct units. This division of the neighbourhood into subsections is of course constrained by the coverage of the residential survey, because too low a number of respondents may produce severe bias in the average scores. In the remainder of this chapter the term 'neighbourhood' is used synonymously with 'area', even though the division of the neighbourhood into subsections remains the best practice in monitoring liveability (Van Iersel *et al.*, 2007).

The residential survey provides the housing association with two essential clues about the preferred direction for its liveability strategy. First of all, the weight of each aspect of residential satisfaction reveals which neighbourhood attributes residents care most about in their overall assessment. Statistical methods can be used to obtain the exact weightings, but it should be noted that the absence of safety, tidiness and proper maintenance of the physical surroundings and (the lack of) social interaction with other residents plus the nuisances they create generate so-called 'dissatisfiers' and as such are the most significant causes of residential dissatisfaction (Ministerie van VROM,

Table 4.1 Indicators for liveability

Aspect	Survey score		Neighbourhood indicator
Overall	Evaluation of surrounding area	General living conditions	-
		Improvement or deterioration in living conditions	-
Physical	Evaluation of physical quality	'Atmosphere' of neighbourhood	Percentage of historic dwellings
		Maintenance of buildings	Percentage of newly built or recently renovated dwellings Percentage of dwellings with overdue maintenance
		Amount of green space	Percentage of green space in total surface area
		Tidiness of green space	No. of complaints about pollution of green space per 1,000 inhabitants
		Aesthetic quality of public spaces	-
		Tidiness and maintenance of public spaces	No. of complaints about pollution and overdue maintenance of public spaces
	Evaluation of accessibility	Public transport	Average walking distance to bus or tram stop and train or underground station
		Access roads	Average driving time to ring road and to city
		Parking spaces	No. of parking spaces per 1,000 inhabitants x average car ownership
Services	Evaluation of neighbourhood facilities and service levels	Primary schools	Spaces in primary schools per number of children aged 4 to 12
			Average walking distance to nearest primary school
			Average score given by education inspection
		Child daycare centres	Spaces in child daycare centres per number of children aged 1 to 4 x fraction of families with both parents working
		Number and diversity of shops	No. of shops with goods for daily use per 1,000 inhabitants
			No. of shops with goods for non-daily use per 1,000 inhabitants
			No. of youth centres per 1,000 inhabitants aged 12 to 18
			No. of playgrounds per 1,000 inhabitants aged 6 to 12
		Youth facilities	Average walking distance to nearest playground
		Sport facilities	Spaces in sports clubs per 1,000 inhabitants aged 10 to 55 x average membership of sports club
		Recreational facilities	Nbr. of recreational grounds per 1,000 inhabitants aged 6 to 25
			No. of bars and restaurants per 1,000 inhabitants
		Medical facilities	No. of general practitioners' offices and dental offices per 1,000 inhabitants

2004; USP Marketing Consultancy, 2006; Wittebrood and Van Dijk, 2007). Secondly, a low score on certain aspects of neighbourhood satisfaction signals the need to transform those neighbourhood attributes that are linked to these aspects. Combining both pieces of information allows the housing association to formulate its liveability strategy in terms of targeting those neighbourhood attributes that obtain the lowest average scores and carry the highest weight in the overall assessment of the neighbourhood quality. If no survey is available, testimonials from tenants' panels or professional witnesses can be used to develop a similar liveability strategy, yet the danger of being led by biased or partisan views is more imminent here.

The results of the residential survey lend themselves well to defining Key

Aspect	Survey score		Neighbourhood indicator
Social	Evaluation of social quality	Interaction with neighbours	-
		Interaction with neighbourhood residents	-
		Interaction with different socio-economic groups	Poverty concentration index Percentage of households with very high and very low incomes
		Interaction with different ethnic groups	Residential segregation concentration index Percentage of households in the first and the second largest ethnic group
		Commitment of neighbourhood residents	Participation rate in neighbourhood committees, tenant organisations, volunteer organisations, etc.
Safety	Evaluation of safety	General safety conditions	-
		Fear of property crimes	Property crime victimisation rate
		Fear of violent crimes	Violent crime victimisation rate
		Vandalism	No. of reports on vandalism per 1,000 inhabitants
		Nuisance from neighbours	No. of disturbance complaints about neighbours per 1,000 inhabitants
		Nuisance from neighbourhood population	No. of disturbance complaints about neighbourhood population per 1000 inhabitants
		Road safety	No. of traffic accidents per 1,000 inhabitants

Performance Indicators for the outcome stage of the liveability process, since these KPIs are simply the average survey scores given to the various neighbourhood attributes. If no survey is available for the area, indicators for the neighbourhood attributes must be collected from internal or external data sources and these must be monitored to check on the state and progress of living conditions. The use of 'hard' neighbourhood indicators may produce perverse effects, where the preferences of the inhabitants are not well reflected in these indicators (Hamilton and Chervany, 1981). Outcome steering, even if successful, then no longer guarantees steering of liveability. A simple, practical rule for choosing the right type of outcome indicators is that the neighbourhood indicators should be selected as the 'hard' counterpart to the 'soft'

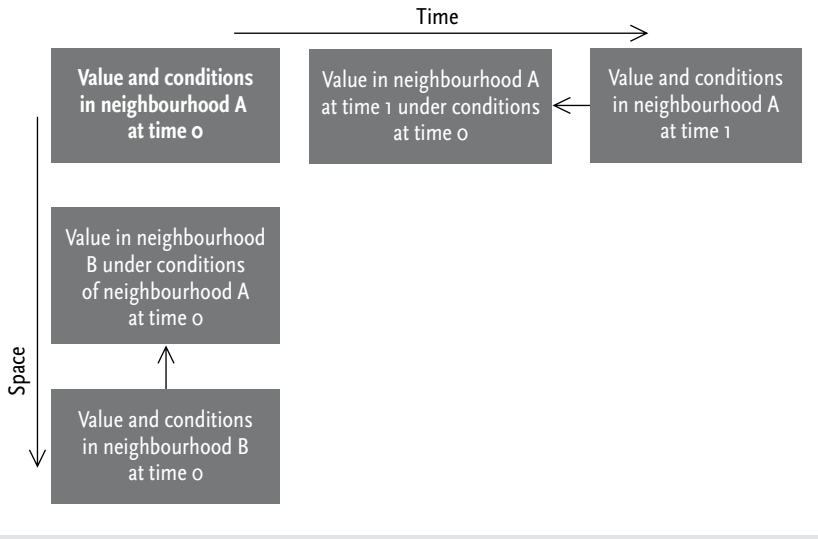
residential survey scores, although methodological and practical drawbacks preclude this in some cases. If, for instance, safety is evaluated, the perceived safety of the neighbourhood can be substituted for the actual victimisation rates in the area. Similarly, it is not the presence of a neighbourhood facility that should be used as an outcome indicator, but the use of the service by the residents of the neighbourhood and, if this is possible, the quality of the service, since this is exactly what the residents evaluate in the residential survey. Table 4.1 lists some typical indicators from safety and liveability monitors and their possible objective counterparts.

Dealing with incongruities in space and time

Because assessments are done on an individual basis, the average survey scores can be biased if a group of respondents is overrepresented. Tenants (as opposed to owner-occupiers), single-family households and the young harbour more negative views on local living conditions than other groups (Ministerie van VROM, 2004; Koopman, 2006). This bias might lead to wrong conclusions about progress in living conditions or areas where action is needed most. In systems language: the maturation of the neighbourhood system and the incongruity of different neighbourhood systems must be compensated for before any comparison in time or space can be made. The trick is to use the conditions of a 'model neighbourhood' at the first measuring point in time as a benchmark (see Figure 4.4). If, for instance, the share of elderly residents in neighbourhood A increases by one-half over time, the survey scores given by elderly residents on the second date must be multiplied by two-thirds and those belonging to other categories divided by two-thirds, and so on for all categories that change their composition over time (for example, age groups, household types, income and duration of stay categories). Similarly, if, for instance, neighbourhood B has double the fraction of owner-occupiers of neighbourhood A, the scores given by owner-occupiers in neighbourhood B must be halved and those given by tenants doubled to make the average survey scores of neighbourhood B congruent with those of neighbourhood A.

In a similar vein, the gross values of the 'hard' neighbourhood indicators at the second measuring point must be compensated for the maturation of the neighbourhood in order for the changes from the first date onwards to carry any real meaning. In many cases the maturation rate remains unknown and the housing association will have to make an educated guess about its size. In some instances the maturation rate can be derived from an intimate relationship with some neighbourhood attribute. Reports on nuisances might, for instance, be related to the proportion of younger residents in the area. An exogenous change in the size of this particular age group needs to be taken into account when the number of nuisance reports on the second date is compared to that on the first date. Similarly, when vacancy rates are calculated for the benefit of a cross-neighbourhood comparison, differences in the

Figure 4.4 Incongruity of neighbourhood scores



composition of the housing stock need to be taken into account. The manipulations shown in Figure 4.4 do not ensure that the maturation of neighbourhood attributes is properly accounted for, nor do the remaining changes in the outcome indicators fully reflect the net transformation of neighbourhood attributes. It does, however, enable an evaluation of the progress in living conditions or a cross-neighbourhood comparison, which of course should be the starting point when formulating the liveability strategy.

4.4 Steering liveability

Internal production of liveability

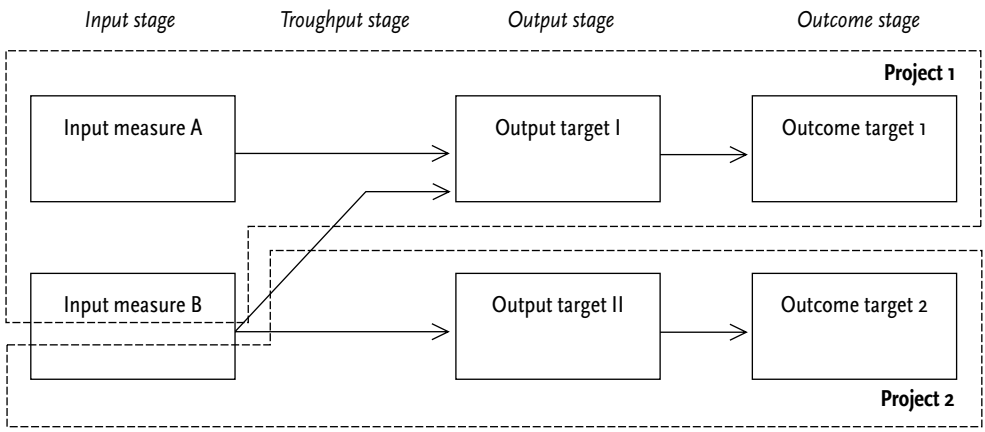
The liveability policy of the housing associations kicks off by way of a selection of those areas and neighbourhood attributes that need improvement or further maintenance. After defining its liveability strategy the housing association has the ability to steer liveability along the trajectory from input to output. In our process model the housing association acts as a single unit and the efforts of partners in improving and maintaining liveability in the neighbourhood are wholly ignored (see Figure 4.1). In reality, the neighbourhood investment programme will have to be negotiated with external partners, conflicts of interest between the managerial and the operational level of an association do exist and bureaucracy or slack may develop in any organisation, resulting in suboptimal policies (De Bruijn, 2003). In addition, the extent of measures that the housing association can adopt is limited by various institutional and legislative constraints. Analysing the internal and external mechanisms that influence the internal production of liveability goes beyond the scope of this chapter and, on a more methodological note, the boundaries of systems thinking. It is assumed here that the front office has full discretion-

ary powers over the internal production process and directs all its efforts at reaching the output targets. Given the outcome orientation of the liveability policy, the housing association then attains maximum efficiency in its production process when the desired output is reached with a minimum of input requirements (Kemp, 1995).

There are many ways to break down the efforts of the front office into aspects of control, yet the division into money, time, organisation, information and quality is a popular and tested approach (Briner *et al.*, 1990). Money entails fixed costs in the form of the overheads of the housing association and variable costs in the shape of wages, interest, depreciation, maintenance costs and other expenditures associated with neighbourhood investments. Variable costs can also be broken down into the costs of physical investments, aimed at improving and maintaining physical structures in the area, and social investments, directed at tenants. The time that elapses between implementing the input measure and completing the corresponding output target is another easily quantifiable aspect of control. Organisation (hierarchy, skills, mission, values, etc.) is a key facet when outlining the liveability strategy, but its role in the implementation of the liveability policy is ignored here, as is the flow of information that is part of the internal validation to the back office and external validation to the stakeholders. The feed forward and feed backward information flows on living conditions remain as aspects of control in our model, but only during the planning stage. Finally, quality is much harder to define than quantitative aspects of control such as time or money. Managing quality should form an integral part of the planning and control of the internal production process for any organisation (Barkley and Saylor, 1994). One way to integrate quality into the production of liveability is to incorporate quality standards in the output indicators. Both quantitative and qualitative indicators should be used as KPIs for output and preferably combined into a single output indicator per outcome target. The selection of semi-qualitative output indicators ensures that the housing association takes the quality of its delivered performance into consideration.

The apparent simplicity of money and time as aspects of internal control contrasts with the more sophisticated nature of the semi-qualitative indicators for the output target. Input measures, however, often interact or overlap to impact on more than one output target or, and this is by far the more realistic case, co-produce a single output target (De Bruijn, 2002). The multi-valued performance is then reduced to a 'single-valued' output indicator, bringing back some complexity to the internal production process (see Figure 4.5). This co-production of input measures also lends support for adopting a project-based approach in the internal production of liveability, where each output target is the focus of an internal project. A project-based approach is preferable when members of different divisions in an organisation or from different organisations have to combine their efforts to reach a specific target

Figure 4.5 Multi-valued internal production process



within a limited amount of time (Wijnen, *et al.*, 2007), requirements that are common in the case of a policy intervention in a neighbourhood. When the intervention has succeeded in improving the targeted aspects of liveability, the housing association can return to the more routine-like business of maintaining liveability in the neighbourhood through its regular organisational structure. Adopting a project-based approach dictates that the housing association keeps track of the variable costs per output target. Overheads and constant costs can be assigned to the various projects according to the share of each project in the sum of the variable costs. The starting date and deadline for a project coincide with the earliest date of implementation and last date of completion for any one of the co-producing input measures. The timetables for the other co-producing input measures lend themselves well to throughput measurement. Similarly, the accumulated costs linked to each co-producing input measure at the interim dates make for budgetary controls over the internal production process. The combination of input and throughput measurement of time and money enables the housing association to continually monitor the efficiency of the internal production process.

External production of liveability

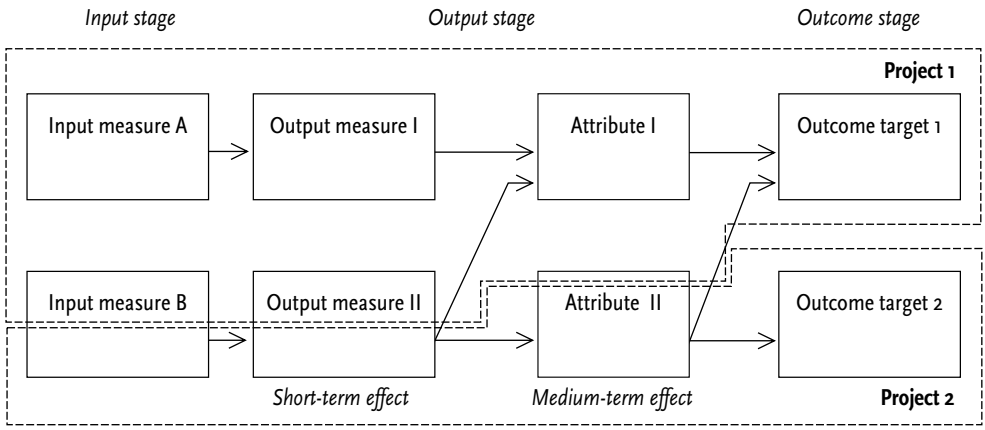
The internal production of liveability momentarily ends when the output target is reached. Output targets are nothing more than attainable goals that the housing association can set itself. Unlike the internal production process, which can be steered by the housing association, the external production of liveability is the uncertain result of the maturation and net transformation of neighbourhood attributes and the perception that residents have of it. Since these processes are largely beyond the control of the housing association, it is the mix and scale of output measures that are parts of the choice set for the association. The scale of the output measure relates to the number of neighbourhood elements that are being targeted. If an output measure is produced by physical investments its scope will always be one-to-one: physical investments specifically target fixed elements within the neighbourhood system

(dwellings, blocks, streets or squares). Social investments never attain this full scope: even with a maximum effort only a fraction of the target population will be reached. Subsequently the output measure impacts on the attributes of all or, in the case of social investments, a fraction of the targeted neighbourhood elements. The assessment by residents of the resulting net changes in these attributes produces the desired outcome. The desired outcome could be a lower limit for the average survey score or neighbourhood indicator for the attribute in question, so that the outcome target corresponds to the corresponding change in the outcome indicator.

Given the uncertainties surrounding the impact of the output measures, the housing association will find it much easier to steer output than outcome. A poor choice of output indicators will then produce the "perverse effects of output steering" (Hamilton and Chervany, 1981), in the sense that efficiency takes precedence over effectiveness. The natural tendency for organisations to revert to output steering can be exploited by the housing association when selecting KPIs, by making a clear distinction between the output indicators and the associated output measures. The output indicator should reflect the semi-qualitative nature that is embedded in the outcome target, but ideally it should also mimic the outcome in content and scope. If, for instance, the lack of social interaction is seen as a dissatisfier, creating public events does not qualify as a KPI, since the fraction of the neighbourhood population that is present at these events is not taken into consideration. Even when the popularity of the event is incorporated into the output indicator, it could still be improved upon by giving extra weight to the attendance of those residents who view the lack of social interaction as most dissatisfying. Whilst the attendance of the target population is not ensured, all efforts are directed at making them attend, thus indirectly steering outcome. At this point only the exogenous non-attendance and the appreciation of the event among the target population remains beyond the control of the housing association. Extending the internal production process to the last vestiges of control reduces the uncontrollable gap between output and outcome, but the simultaneous lengthening of the trajectory between input and output may lead to a loss of internal controls. For this reason, throughput measures should be put in place to monitor and steer the efficiency of the internal production process.

The impact of an output measure can reach far beyond the immediate transformation of targeted neighbourhood elements and their attributes. The trajectory from output to outcome covers a timespan that is usually much longer than that of the internal production process, due to the inertness of many elements in the neighbourhood system. An improvement in the quality of a public space, for example, can be achieved in a relatively short period of time, but it may take a long while before this is noticed and appreciated by the neighbourhood's residents. If an evaluation of the liveability policy takes place, the housing association should adopt a medium-term horizon (three to

Figure 4.6 Multi-valued external production process



five years) rather than a short-term one (one to two years). Furthermore, output measures usually co-produce a single outcome target or they may impact on the effectiveness of other output measures, lending yet another rationale for adopting a project-based approach in steering liveability, where each outcome target is the focus of a project (see Figure 4.6). The co-production of output measures is sometimes a consequence of interdependencies among different types of investment. The complexity of the neighbourhood system coupled with the broad definition for many of the outcome targets also gives rise to more than one output measure per outcome target. An increase in safety, for instance, may require a varied mix of social and physical investments, where the type and scope of the investments will be specific to the area and the nature of the problem that is being addressed. Further along the trajectory from output to outcome, a change in one neighbourhood attribute may have unforeseen effects on other attributes and the outcome that is associated with it. These second order effects could reinforce the impact of other output measures as shown in Figure 4.6, but in other instances they might also produce negative externalities on non-targeted attributes and their associated outcome.

The second order effects of the output measures tend to be diffuse and hard to detect (Dawes *et al.*, 2004), yet knowledge on their direction and size is essential in choosing among alternative projects, each intended to reach the same outcome target but with its own unique set of output measures. Expert opinion or past measurements could help to estimate the impact of each co-producing output measure on the desired outcome. Maximum effectiveness is then reached when a minimum of output requirements is needed to obtain the outcome target (Kemp, 1995). Given the preferred choice of output indicators, effectiveness is merely the result of the scale and impact of the output measure and the intractable perception that residents have of this. Some simple arithmetic will then tell the housing association which project to select among the alternatives. Because the outcome of each project is the sum of the co-producing output indicators times their scale and impact, filling in the

desired value for the outcome indicator yields the output requirements for each conceivable combination of co-producing output measures and the necessary scale of the investment programme. Since each output measure comes with its own investment costs stemming from the internal production process, the housing association should undertake those projects whose output requirements yield the lowest costs of investing for all possible projects.

The duration of a project should also be taken into consideration by the housing association. A suitable framework for incorporating both money and time into the evaluation of different projects is the Social Return on Investment approach. The SROI approach was designed to gain insight into the effectiveness of social investments and it is steadily gaining popularity within the Dutch public sector (Den Breejen *et al.*, 2006; Kortz *et al.*, 2007). The outcome targets are first monetised and discounted back to the present day to obtain the Net Present Value of the financial or societal savings of the investments. The social returns are then equal to the NPV of the total savings divided by the NPV of the investments (The Roberts Enterprise Development Fund, 2001; Lingane and Olsen, 2004). Like the impact of output measures in the external production of liveability, the social returns may be hard to assess, especially when savings accrue to third parties. Some of the financial savings are visible in housing association accounts, such as a rise in property values, higher rental rates, less loss of rent due to non-payment, and lower costs of maintenance and neighbourhood supervision. The social returns are another information flow that allows the housing association to continually monitor progress in living conditions, although the association needs to remind itself that steering social returns is not the same as steering outcome. A rise in property values, for instance, might be the result of an increase in liveability and a subsequent rise in local housing demand, but it may also be the result of an improved image for the neighbourhood regardless of its improvement in living conditions (Koopman, 2006). Even without using the SROI approach, the housing association should adopt the NPV method when the costs associated with each alternative project are being compared, to compensate for the different timespans of the various investment programmes.

4.5 Guidelines for steering liveability

This chapter has led to three important considerations in performance measurement for housing associations: the need for adopting an outcome-oriented, project-based approach when dealing with liveability problems, the prescribed shape of the Key Performance Indicators for output measurement and the limitations and virtues of systems thinking in steering liveability.

The efforts of the housing association in increasing the liveability of neighbourhoods should take the form of an outcome-oriented, project-based

approach. The orientation on outcome is a direct consequence of the designation of liveability as a separate public task field in the Dutch Social Housing Decree. Residential surveys or internal and external data sources can be used to construct outcome indicators for various aspects of liveability, which allows the housing association to monitor improvement or deterioration in local living conditions (see Table 4.1, p. 58-59). These outcome indicators identify the areas and neighbourhood attributes that need maintenance or further improvement, thus defining the liveability strategy in terms of the focus and size of the investment programme.

The co-production of output measures and the interdependencies that exist between them dictate that the housing association adopts a project-based approach in the external production of liveability. Similarly, the co-production of input measures prescribes that the housing association casts the internal production of liveability in the form of a single project per output target. Internal efficiency requirements ensure that each possible output target is produced with a minimum of input requirements. Given this optimal internal production, the housing association knows the costs and timeframe for each possible combination of co-producing output measures in advance. In deciding among alternative projects, each aimed at the same outcome target but with a different mix of co-producing output measures, the housing association should select the project that reaches the outcome target at the lowest cost and in the shortest timespan possible.

While Dutch housing associations do have some experience with the measurement of liveability, it is the definition of output measures that seems to be lacking altogether, and this precludes the (cost-)effective steering of liveability. In selecting Key Performance Indicators for the desired output, the housing association should try to make them as close in spirit to the corresponding outcome indicator, keeping in mind that output measures are designed to reach the associated output target rather than being synonymous with them. This means that the output indicators should contain a quantitative and qualitative component or preferably a combination of both, since both elements are present in the corresponding outcome indicator. Furthermore, the output indicator(s) need not be fully controllable; rather, the housing association should still be able to steer them, thus indirectly steering outcome through its internal production process. Table 4.2 presents two examples of suitable KPIs with the associated output measures and necessary neighbourhood investments. What is immediately visible is that the output indicator is primarily designed to mimic the desired outcome. The corresponding output measures and the necessary neighbourhood investments impact on the output indicator and may take any form depending upon the particular problem that is being addressed in the area, as long as they are meant to reach the intended output target, embedded in the output indicator(s).

One notion that has permeated this chapter is the benefit of systems think-

Table 4.2 Example of a project-based neighbourhood investment programme

Outcome indicator	Output indicator	Output measures	Investments
Evaluation of vandalism in area	Number of reports on vandalism per 1,000 inhabitants that are part of a high complaint population category (e.g. elderly residents, families with young children)	Number of cameras installed in trouble spots	Instalment of cameras
		Frequency of patrols as part of neighbourhood watch programme	Leaflets or meetings to inform residents Financial compensation, equipment and meeting space for participating residents
		Percentage of damage repaired within one week after reporting	Streamlined front office complaint procedure Agreement with contractor
Availability of child daycare centres	Spaces in child daycare centres v. number of children aged 1 to 4 x fraction of families with both parents working or willing to work	Creation of number of extra places in existing child day care centre	Expansion scheme for child daycare centre Dwelling for new employee of centre Creation of 'safe area' around the centre
	Walking distance to nearest child daycare centre	Creation of new child daycare centre in specific area	Lease of building for child daycare centre Parking spaces for employees and parents

ing in monitoring and steering liveability. The systems approach falls short of modelling the full complexity of the neighbourhood system and ignores the difficulties in reaching consensus over the investment programme between the back office and front office of the housing association, and between the housing association and its external partners. Aside from these issues, the systematic analysis of the neighbourhood and the production process for liveability has given credence to the assertion of Stewart and Ayres (2001) that systems thinking in performance management and steering is a useful managerial tool for evaluating existing practices and suggested directions for future policies. By viewing the physical structures or inhabitants as elements in the larger neighbourhood system, the housing association is able to distinguish between the net changes that result from its policies and the maturation of the neighbourhood. This enables the monitoring over time of liveability and cross-neighbourhood comparisons, thus aiding the association in defining its liveability strategy. Furthermore, the systematic view of the neighbourhood combined with the input-output-outcome approach in performance measurements (Audit Commission, 1986) yields a suitable framework for the ex ante evaluation of the effectiveness of alternative projects, thus telling the housing association which option it should choose for increasing and maintaining liveability in areas where their property is located.

On a final note, the Dutch Social Housing Decree designates liveability as a separate public task field, yet in the listed instruments it fails to recognise that many measures take place in the social domain rather than in the physical domain. Leaving this minor shortcoming aside, the designation as an outcome-oriented and self-contained public task field provides a solid foundation and a validation for the measurement and steering of liveability by hous-

ing associations. In practice, many Dutch housing associations do monitor living conditions in neighbourhoods and implement neighbourhood investment programmes designed at improving and maintaining liveability in selected areas, but they fail to adopt a sound analytical framework for the ex ante and ex post evaluation of their liveability policies. This chapter has revealed that there are no real impediments to the adoption of a more systematic and analytical approach in dealing with liveability issues, as long as the housing association is prepared to invest in its monitoring system. A selection of KPIs for output taken from internal and external data sources, some bookkeeping to allocate time and money to the various projects and straightforward calculations are all that is needed to analyse the internal efficiency and external effectiveness of proposed and implemented neighbourhood investment programmes.

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5 Securing performance of building components

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5.1 Introduction

One of the tasks of housing associations defined in the Social Housing Management Decree (BBSH) is to maintain the quality of their housing stock. All building components must contend with performance loss due to ageing, use and external causes. The quality of the housing stock is guaranteed by executing the right maintenance activities at the right time (preferably 'just in time'), which is known as condition-based maintenance.

Housing associations have the freedom to set their own quality level or quality levels for their building stock. They are also free to choose appropriate instruments for the asset management and maintenance management used in maintaining the housing stock. Technical construction legislation sets the lower limits for housing quality level. In any case, all dwellings must satisfy the minimum requirements of the Dutch Building Decree.

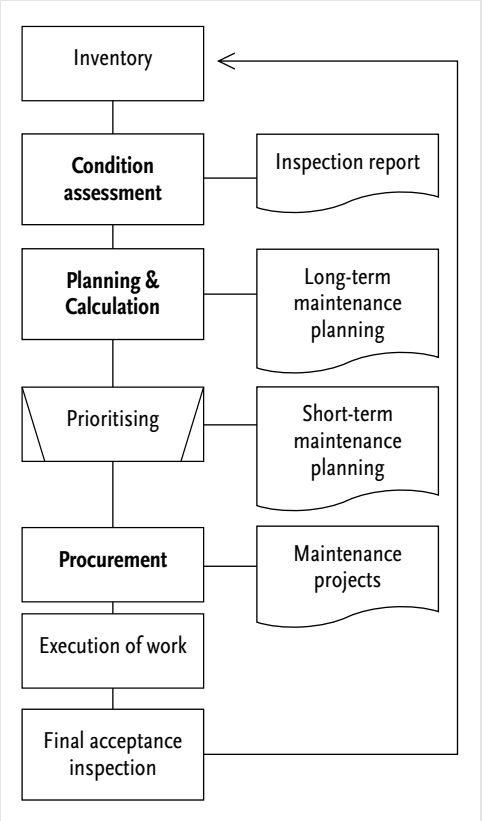
The asset management and maintenance policy of a housing association should be based on objective, reliable information about the performance of housing estates, buildings, dwellings and building components. Data are required on the technical status of the building components, the housing quality (for example services, kitchen), the environmental quality (for example use of materials, energy usage, water usage, kind of heating system), adaptability for changes in housing and environmental quality and the realised costs for maintenance and improvements.

In this paper we focus on the tools of performance measurement and the performance itself of building components, especially of the building envelope: frames, windows, doors, brickwork, concrete work and roofing, amongst others. Our research questions are as follows: how do we measure the performance of building components during the service life of dwellings and housing estates and how do we specify performance requirements for maintenance of the building envelope?

The chapter is based on several research projects on condition assessment, maintenance planning and procurement of maintenance by Dutch housing associations (NEN, 2006, 2007; Straub, 2001, 2002, 2003, 2007; Straub *et al.*, 2005ab, 2006ab; Straub and Van Mossel, 2007; Vijverberg, 2004). This chapter comprises six sections: performance of building components, condition assessment, planning and calculation, maintenance procurement, performance measurement and conclusions and discussion.

5.2 Maintenance planning and execution

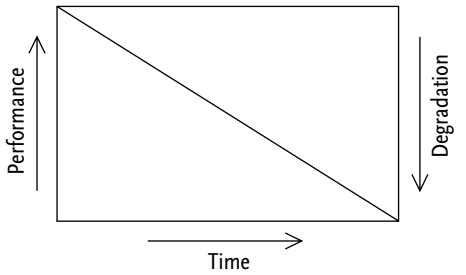
Figure 5.1 Maintenance planning and execution process



Maintenance is defined as the combination of all the technical and administrative activities carried out during a service life intended to retain an item in a state in which it can perform its required functions. By service life is meant the 'real service life', the period during which the dwelling or building actually meets the demand (Awano, 2005). The physical service life, in this respect, is the period between construction and demolition. Performance requirements are the qualities or performance categories of building components for which criteria are set down. Performance loss is measured in terms of defects ascertained. A condition-dependent approach to maintenance leads to a decoupling of condition assessment from the determination of maintenance activities and maintenance planning. It also provides possibilities for differing performances of building components and formulating performance levels, controlling performance and working with maintenance contractors in new ways (Straub, 2003).

The design of the maintenance planning and execution process is of crucial importance in securing the performance of building components. In general, the process of maintenance planning and execution takes place as shown in Figure 5.1. Condition assessment, planning and calculation of maintenance activities leading to long-term maintenance planning, and procurement of maintenance work are key processes in condition-based maintenance. Not all (sub-)processes are shown in Figure 5.1: budgeting and budget control have been omitted, for example. Short-term maintenance planning leads to maintenance projects to be executed in the following year(s). The goals of the housing association and the characteristics of maintenance services determine the procurement methods used. Generally, a distinction can be made between prescriptive and non-prescriptive methods. Traditionally, housing associations tendering maintenance services use a prescriptive, detailed specification of the work to be performed. Performance-based specification is an alternative to traditional prescriptive specifications for maintenance. After

Figure 5.2 Performance and defects



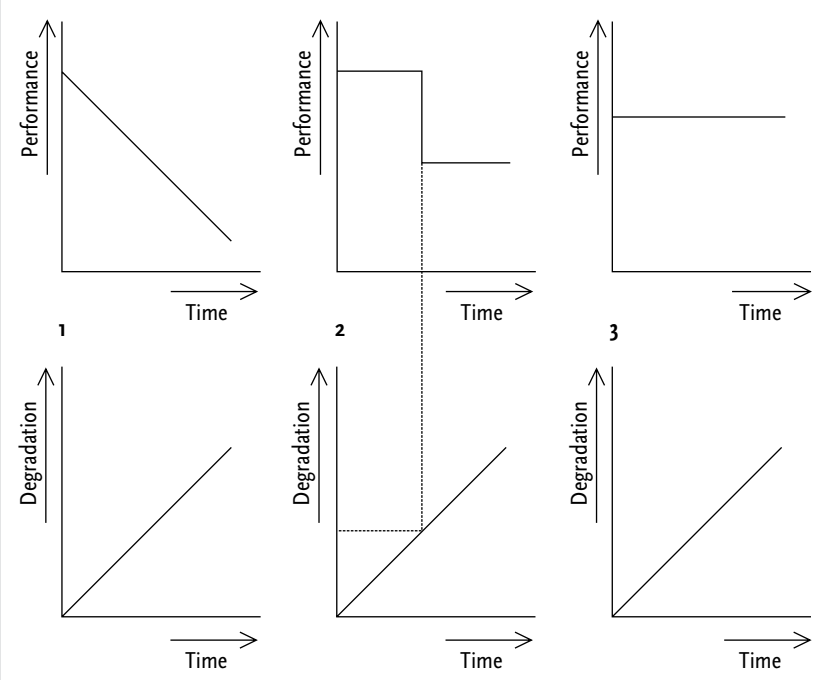
the procurement process the work is executed by an external maintenance contractor or the housing association's in-house maintenance department, followed by a final acceptance inspection. The process starts again with an inventory of the building components or with a condition assessment.

5.3 Performance of building components

All building components must contend with performance loss due to ageing, use and external causes. Performance and performance loss is seen as the opposite of degradation and defects (see Figure 5.2).

The observation that performance loss is the opposite of defects is overly simplistic because the initial performance requirements of building com-

Figure 5.3 Patterns of performance loss and degradation



Source: Hermans, 1995; revised

ponents are so many and because knowledge about performance loss, service life, degradation and visual defects is limited or unknown for many building components.

Hermans (1995) showed that the relationship between degradation and performance loss could take place according to three patterns (see Figure 5.3):

1. Performance loss manifests itself as continuously decreasing while degradation continuously increases.
2. Performance remains constant while degradation declines continuously; performance loss manifests itself abruptly.
3. Performance loss and degradation act independently.

We believe that this distinction is essential to ascertain turning points in performance loss and degradation and to determine optimal points in time for maintenance actions. Under ideal circumstances it would be possible to have the entire maintenance of a building neatly planned into a series of cleaning and replacement cycles (preventive and just-in-time). If failures have occurred, the contractor must carry out repairs (corrective maintenance).

5.4 Condition assessment of building components

Data collected during an on-site condition survey can be used for the maintenance planning of each building. Supplementary technical information, like the size and location of defects, is needed for the detailed planning and execution of maintenance work.

Although the actual performance of most building components can be measured directly using destructive and non-destructive instruments, in practice the performance of building components is measured indirectly by assessing visual defects. This is done by performing a defect assessment. This assessment could be seen, in respect of Figure 5.2, as the reciprocal concept of performance measurement. Defect assessment is called condition assessment if a scale is used.

As a result of several research projects and the use of the method by the Dutch Government Buildings Agency and in the Dutch Housing Quality Survey, the process of condition assessment using a six-point condition scale has become popular with property managers, consultants and contractors in the Netherlands. A representative survey among Dutch housing associations showed that in 2003 90% of building inspectors registered the type of defects and the extent of these defects. One third of housing associations used condition marks to record the technical status of building components (Vijverberg, 2004). Another research project revealed that condition assessment methods varied in the hierarchical classification of building components, classi-

fied defects and the use of condition parameters. All condition assessment methods used the same six-point scale, but the several condition assessment methods led to different condition marks when the same defects were examined (Straub, 2003).

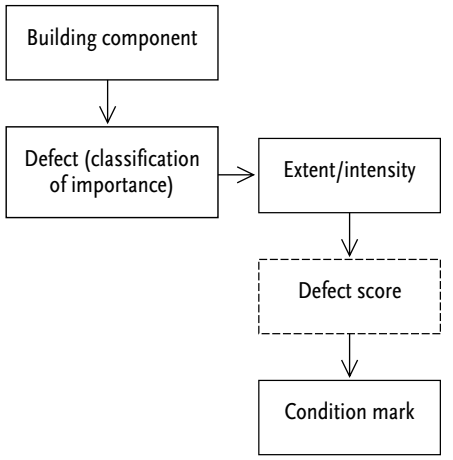
In 2002 the Dutch Government Buildings Agency took the initiative to standardise the condition assessment of building components, including building services. The standard is aimed at providing an objective assessment of technical quality, to provide property managers with unambiguous, reliable information about technical status based on assessed defects. The Condition Assessment of Building and Installation Components standard is aimed at property owners, managers and administrators, tenants, consultants, contractors and inspectors of control bodies (NEN, 2006).

The six-point scale forms the basis of the standardised method. The condition categories are in chronological order, describing possibly occurring defects without references to remedial work. Table 5.1 lists the general descriptions for the condition marks.

Table 5.1 Six-point scale, Dutch Standard for Condition Assessment (NEN, 2006)

Condition mark	General condition description
1	Excellent
2	Good
3	Fair
4	Poor
5	Bad
6	Very bad

Figure 5.4 Condition assessment process



The condition assessment process follows the pattern in Figure 5.4. The assessment of defects is the first stage. Without this information one could not formulate maintenance activities and estimate costs. Subsequently the inspector passes through the following condition parameters: importance of defects, intensity of defects and extent of defects. The extent and the intensity of a defect combined with the importance of the defect leads to a condition mark, probably with a defect score as an intermediary product.

The importance of the defect indicates to what extent it influences the functioning of building components. The Dutch Standard for Condition Assessment classifies the importance of defects in distinct building components into minor, serious and critical. Critical defects significantly threaten the function of the building component. Serious defects, such as defects in the material surface, compromise the performance of building components gradually. Defects to the finishing, for example coatings, are classified as minor defects. A sample extract of the defect list for window frames, door frames, windows and doors is given in Table 5.2. It is important to note that a separate defect list exists for finishing coats.

Table 5.2 Defect list for window frames, door frames, windows and doors (NEN, 2008)

Importance	Type	Defects
Critical	Basic functioning	Sealants defect
		Being ajar
		Leakages
	Basic constructional	Cramps defect
	Material intrinsic	Wood rot
		Moisture retention
		Capillary moisture absorption
		Cracks
		Cold bridges
		Condensation
	Basic quality	Wrong use of materials
		Failing drainage constructive parts
		Sharp edges jambs and sills
Serious	Minor constructional	Distortion
		Missing parts
		Connections undone
		Failing stiffness and stability
	Material surface	Mechanical damages
	Basic quality and ageing of secondary components	Ironmongery defects
		Failing width windows
		Failing outline
		Failing putty and sealants glazing and panels
		Non-professional repairs
Minor	Finishing	Algal growth, moss
		Pollution, surface deposit
		Discolouration
	Basic quality and ageing of tertiary components	Failures secondary fastening
		Failures element parts
		Defects connections frames and wall

The use of condition marks for building components makes technical status transferable between building inspectors and property managers. Property managers can then exercise control over maintenance performance levels and maintenance costs. It also makes technical status transferable between the maintenance department and the department and employees involved in setting up the asset management process.

5.5 Planning and calculation of condition-based maintenance

Data collected during an on-site condition survey are needed for strategic policymaking to underpin long-term maintenance cost expectations and for maintenance planning by maintenance staff.

Input and output of asset management

Property managers may use a selection of relevant data for policymaking. Several Dutch housing associations require condition data as input and as output for their asset management. The maintenance performance of building components and housing estates, expressed in condition marks, and calculated and realised maintenance costs could be used as input for the asset management of the housing association. Aggregated condition data, by way of condition targets for housing estates, could be used as output for asset management and input for maintenance management.

For this goal, the archiving of historical condition data is important. The condition course of building components combined with calculated and realised maintenance costs provides useful insight. It clarifies what will happen – the expected condition course – or what has already occurred – the historical condition course – to the performance of the components in the case of under- and over-investment.

Input for planning and calculation of maintenance

The input for the planning and calculation phase and also the prioritising phase are the available budget for maintenance (per building estate) and the desirable quality. The desirable quality could be expressed in (aggregate) condition marks, as stated before. It has also been termed 'maintenance performance levels' (Straub, 2002). In general terms, Dutch housing associations recognise three performance levels in planned maintenance: a basic level, a lower level if a technical intervention (e.g. refurbishment) is envisaged for the housing estate in the near future, and a higher level that is based on the position of the housing estate on the housing market. They do so through setting requirements for the type of activities, the use of materials and the maintenance activity cycles, and by setting priorities. Insufficient budget leads to prioritising of maintenance activities.

Maintenance performance levels

Formulating maintenance performance levels in planned maintenance requires discussion of the maximum performance loss, the appropriate maintenance activities and the financial means required. Maintenance activities can be distinguished according to their type (cleaning, repair and replacement), the part of the building component to which an activity applies, the specification of materials, the quantity of the work, the frequency of short cyclical preventive maintenance actions and the character of an activity (preventive or corrective).

The planning and calculation of maintenance activities can occur on the basis of standardised performance levels –the (minimum) condition of building components after executing maintenance work – by setting a lower limit on the six-point condition scale and thereby setting norms for the maxi-

Figure 5.5 Maintenance planning using a minimum condition

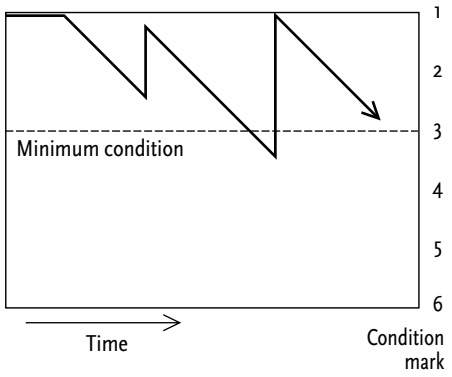
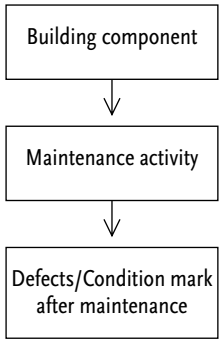


Figure 5.6 Condition assessment process after maintenance



mum performance loss. Maintenance managers are able to do so by forecasting the condition status of building components after executing maintenance activities, dealing with more and fewer acceptable remaining defects (see Figure 5.5).

To perform efficiently and effectively the performance of a building component after executing maintenance work should be clear (see Figure 5.6). However, general knowledge about maintenance activities and performance recovery is scarce. The performance of building components after partial replacements, repairs and cleaning is not clear for most technical managers of Dutch housing associations (Straub, 2001). After an integral replacement of the component the condition status will be as new (condition mark 1). In the case of partial replacements and repairs the condition gap and the performance recovery before and after execution of the maintenance activity is indistinct. The new condition depends on the solved defects at that particular moment in time. Hermans (1995) found that the cleaning and repainting of surfaces does not influence the technical performance of substrates: degradation will simply progress more gradually. Nevertheless, the aesthetic performance of a surface improves. Through a functional material modification of the building component performance alterations take place: the characteristics of the building component change and the original performance capacity increases.

A management maintenance system fulfils a central role in the support of technical management processes. The maintenance management system must be capable of being used as a policy instrument, enabling the calculation of maintenance performance levels and budgets required.

5.6 Maintenance procurement and performance measurement

Short-term maintenance planning leads to maintenance projects that have to be executed in the following year(s). Condition assessments are not meant for

short-term maintenance planning and drawing up technical specifications. In order to take adequate maintenance actions, supplementary information, for example the precise location of defects and the causes of defects, is needed in the preparation phase for procurement and execution of remedial work.

Traditional maintenance procurement

Housing associations traditionally procure the majority of planned maintenance projects through a process of soliciting three to five competitive bids and choosing the lowest one. They use a prescriptive, detailed specification of work to be performed. The technical specifications are drawn up using the housing association's in-house knowledge and experience, possibly with assistance from external maintenance consultants and manufacturers.

The technical specifications can be considered as throughput indicators for securing the execution of maintenance work. A maintenance recipe covers all the operations required to execute a maintenance activity: for painting work, for instance, this would cover how to sand, prime and add a finishing coat. In other words, the technical specifications cover the process and the expected results. The housing association supervises the throughput–the maintenance work – on-site.

The housing association may also control the achieved performance or condition of the building component by way of a final acceptance inspection. The maintenance work may lead to new characteristics of building components (properties, materials, etc.), too. The performance capacity of the building component increases.

Because the commissioning of the work is based on throughput indicators, the achieved performance of the building components is not clear. Also, and as mentioned before, general knowledge about maintenance activities and performance recovery is scarce. Maintenance managers require a site inspection in order to assess performance. However, those site inspections are, where executed, not performed in a standardised and objective manner. Housing association employees involved in site supervision often work in other departments than those involved in condition assessment and maintenance planning. The result is a lack of feedback of data from a final acceptance inspection to the earlier process stages.

Performance-based partnering

Performance-based specification is an alternative to traditional prescriptive specifications for maintenance. A growing number of housing associations procure a proportion of their planned maintenance projects through short- or long-term performance agreements with maintenance contractors.

In a research project conducted for seven housing associations and the Dutch Building Research Foundation (SBR), partnership forms and performance requirements for condition-based maintenance services were developed

(Straub *et al.*, 2005ab; Straub *et al.*, 2006ab; Straub, 2007). The performance-based approach means that maintenance contractors no longer act as suppliers of maintenance work capacity, but as active participants in the overall maintenance process, giving advice on maintenance strategies, maintenance scenarios, performance specifications and activities (Straub, 2007). In a long-term performance-based maintenance partnership, contractors act as maintenance engineering consultants (Straub and Van Mossel, 2007).

The process progresses as follows. The housing association specifies performance criteria for its housing estates. The functional needs of housing associations, expressed in performance requirements, can be derived from the housing stock policy and housing estate strategies (Straub, 2002). The performance criteria and the maintenance budget and exploitation period that apply to each housing estate are input indicators for the maintenance contractor. The contractor develops maintenance strategies within the constraints of performance criteria, maintenance budget and exploitation period. Initially, contractors need to assess the condition status of the building components to diagnose the causes of deterioration and the climate conditions to make recommendations on the likely success and performance of remedial measures. The remedial measures are set down in maintenance scenarios and activity plans, presenting net present values of whole life costs (whole 'real service life') and performance criteria. A partnership agreement is then concluded, covering a maintenance scenario consisting of several intervals that may last for the entire exploitation period of the housing estate. The best maintenance scenario is chosen that accords with net present values of life-cycle costs. The first activity plan is set down in a performance agreement. The maintenance scenario is comparable to long-term maintenance planning, while the activity plan can be compared to short-term maintenance planning (see Figure 5.1, p. 74). The contractor executes the work. The process is repeated, starting with the development of a new activity plan or possibly a new maintenance scenario.

The result of maintenance is indicated as the performance of building components. A performance-based maintenance partnership can be based on the minimum performance of building components. To verify the results, a minimum percentage of measurements, taken at random, should meet the performance criteria. Criteria are expressed in the properties of defects, such as size, percentage and intensity. Long-term agreements should include performance criteria at the start (completion of work) and at the end of the contract period.

Performance criteria can be considered as output specifications. "The performance approach is primarily concerned with the description of what a building process, product and/or service are required to achieve (the "end"), not about how they should be achieved (the "means")" (Foliente, 2005). Working with performance-based specifications in maintenance would promote

Table 5.3 Main characteristics of long-term performance-based maintenance partnering compared to traditional maintenance tendering

Characteristics	Traditional maintenance tendering	Long-term maintenance partnering
Type of requirements	Descriptive technical specifications	Decisive performance criteria
Role of maintenance contractor	Executor work	Consultant and executor work
Contractual pricing	Lump sum fixed-price	Unit prices for standard activities
Type of commission and agreements	Maintenance agreement specified work	General agreement process and performance requirements and unit prices Partnership agreement for maintenance scenario for housing estate Performance agreement for activity plan and performance criteria for housing estate
Legal contract period	Per work	Performance agreement for maintenance interval
Maintenance planning	Housing association: long-term and short-term maintenance planning	Contractor: maintenance scenario and activity plans
Supervision	Site supervision by housing association	Supervision of maintenance process by housing association

better communication between the client (the housing association) and the contractor working as maintenance engineering consultant. A more exact formulation of the real needs of the client, combined with the use of the knowledge and experience of the contractors, would promote innovation.

In addition to the performance criteria for the result of maintenance, throughput indicators can also be set for the maintenance execution process, for example for the information to be given to tenants or the planning of performance measurements.

In a performance-based partnership the contractors themselves measure the achieved performance after completion of the work and report to the housing association. The housing association assesses the completion of the work and the performance measurements undertaken by the contractors. The contractor is made responsible for the performance of the building components during a certain period. This implies that the contractor periodically monitors the degradation processes of building components using performance measurements and reports on the agreed performance criteria to the housing association. The contractors may apply feed forward steering and use the interim output measurements to readjust the current or subsequent activity plan and/or maintenance scenario. Contractors also monitor the entire maintenance process, in particular customer satisfaction, during maintenance interventions and thereafter. The primary purpose of control and supervision by the housing association is to review the maintenance process, identify problems and then take the necessary action.

Table 5.3 shows the main characteristics of long-term performance-based maintenance partnering compared to traditional maintenance tendering (Straub, 2007).

Performance criteria

In condition assessments each condition mark is constructed by taking an

Table 5.4 Functional statements and decisive performance requirements for wooden window frames, door frames, windows and doors

Functional statement	Decisive performance requirement
Substrate	
Operation and ventilation	Jammed windows and doors
Construction safety and sustainability	Presence of wood rot
Finishing	
Protection substrate	Presence of cracking paint
Aesthetic performance	Discoloured paint
Aesthetic performance	Loss of gloss paint
Glass and glazing	
Energy safety	Functioning of double glazing
View and light	Presence of glass damage

Source: Straub *et al.*, 2005b

Table 5.5 Examples of performance measurement methods and criteria for wooden window frames, door frames, windows and doors

Decisive performance requirement	Performance measurement method	Performance criteria in percentage of measurements	
		Completion of work	After maintenance interval
Jammed windows and doors	Assessment of functioning (grades 0 and 5)	100% grade 0	95% grade 0 5% grade 5 (jamming)
Presence of cracking paint	Visual assessment ISO 4628 (grades 0–5)	100% grade 0	90% degree 0–2 (< 10% cracking surface)
Loss of gloss paint	Visual assessment ISO 2813 (grades 0–5)	95% grade 0 (> 80 GU) 5% grade 1 (= 60–80 GU)	Yearly loss 25% of original

Source: Straub *et al.*, 2005b

overall picture of all assessed defects in a group of similar building components. In Table 5.4 all defects that may occur in window frames, doorframes, windows and doors are listed. Not all possible defects need to be incorporated in performance-based partnerships, as this may result in very high costs for control. So-called basic performance requirements for new building components must be based on functional statements for building components. These determine the performance capacity. The Dutch building decree defines the minimum requirements. Decisive performance requirements for building components in-use could be based on functional statements for building components, for example, the presence of wood rot representing construction safety or load bearing capacity and sustainability (Straub, 2007). Performance requirements for moisture retention, for example, are not needed. It is the contractor's responsibility to measure moisture retention and take appropriate action. Table 5.4 lists some functional performance statements and decisive performance requirements for maintaining wooden building components. For performance measurement methods, references to (international) standards are given (see Table 5.5).

5.7 Conclusions and discussion

Dutch housing associations must maintain the quality of their housing stock. The Dutch building decree sets only minimum requirements. The outcome of maintaining the quality of dwellings might be a 'combination' of residential (customer) satisfaction, liveability of the neighbourhood, ecological sustainability and increased revenues of the housing association (Van Mossel and Straub, 2007). The housing associations may use condition assessments of housing estates, according to the Dutch standard, as well as performance measurements of building components as tools to secure the performance of building components and to maintain the quality of their housing stock.

Technical data collected during on-site condition surveys is the required input for the maintenance planning of each housing estate. The performance of a building component can be seen as the reciprocal of occurring defects. Generally, a condition assessment provides information on the condition of building components expressed in condition marks. Condition assessments can then be used as a strategic management tool for assessing the technical status of properties to underpin long-term maintenance expectations and financial foresights.

One could say that performance measurement is equal to condition assessment. However, in the Dutch maintenance practice performance measurement deals with specific performance requirements and performance criteria for building components, directly deduced from functional statements for building components, and consequently from defects of building components. Condition marks are constructed by taking an overall picture of all defects of a group of similar building components. More research must be carried out to link the condition marks (and underlying defects and defect parameters) to performance requirements and criteria for building components, thereby linking strategic and operational management tools.

Property managers may use a selection of relevant condition data as input for asset management policymaking. The maintenance performance of building components and housing estates, expressed in condition marks, and calculated and realised maintenance costs could be used as input for the asset management of the housing association. Aggregated condition data, from condition targets set for housing estates, could be used as output for asset management and input for maintenance management.

Maintenance work is executed based upon a prescriptive technical specification or a performance-based specification. A technical prescriptive specification means that the throughput of the maintenance contractor is described, and not the result of the maintenance work. Performance-based maintenance specifications are output specifications that involve the results of the maintenance work. Performance requirements are specified at the operational level, based on functional statements for the building components, for example

construction safety, aesthetic performance and energy saving. Throughput indicators for the maintenance execution process deal with the information and interaction between maintenance contractor, housing association and customers (tenants).

In a performance-based maintenance partnership, housing associations determine the output of maintenance work in performance requirements and criteria for building components based upon functional statements for the building components. Performance criteria and maintenance budgets are the input for maintenance contractors. Throughputs of the maintenance execution process are the maintenance activities, rather than – as is traditionally the case – all the operations required to execute a maintenance activity. In a performance-based maintenance partnership the maintenance contractor executes performance measurements. The data is used as feedback for its own process but also for the maintenance process of the housing association.

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6 Healthy housing

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6.1 Introduction

Performance is the functioning of systems and the condition of objects compared with previously set targets. Performance measurement in the context of housing maintenance is the inspection of dwellings with the goal of describing performance loss or degradation of building components and buildings. This chapter addresses bathroom mould; an example of a maintenance problem that can be analysed through systems theory. Mould growth is an important maintenance issue: many occupant complaints relate to bad smells, decaying materials and visible mould. Because exposure to mould can cause health problems and because the diagnosis of complaints and remediation of the problem reveals complex phenomena, it is useful to develop a theoretical framework that supports the diagnosis of this problem. This framework applies to other topics in maintenance policy as well.

Maintenance of occupied dwellings involves both technical and social aspects. Technical aspects are related to the performance of the building and social aspects are related to the behaviour of occupants. Maintenance policies are either planned or reactive, dealing with unforeseen events and complaints. Complaints may lead to conflict between a housing manager and occupants. This chapter addresses a complex maintenance problem. It deals with the question of responsibilities of involved actors and the question of remediation of problems with healthy housing, with mould as an example.

The main parameters of health performance are air quality, acoustics and thermal comfort, safety and social quality. Table 6.1 presents agents (such as gases and aerosols) and environmental conditions (stair safety, burglar protection, temperature, etc.) that may have an impact on occupant health. The health risk depends on the period of exposure and conditions that exceed safety limits.

Problem definition

A high moisture concentration in the bathroom, caused by taking showers and drying laundry, often leads to mould growth. Mould has potential health implications due to the release of toxic substances and allergic agents that may cause infections or irritation of the respiratory tract. Visible mould and a mouldy smell can create anxiety among occupants about potential negative health effects. These phenomena are associated with poor maintenance. Solving mould problems is difficult: practical experience shows that simple remediation measures, for instance better ventilation and re-painting of the

Table 6.1 Agents and conditions that create health hazards

Parameters	Agents or conditions creating health hazards	Potential effects
Air quality	Mould, house dust mite, pollen, bio-effluents, Legionella bacteria, PM2.5, NO_2, CO, VOCs, benzene, benzo(a)pyrene, fuel-burning exhaust, formaldehyde, asbestos, aerosols	Infection, respiratory effects, stress, pneumonia, cardiovascular disease, cancer, neurological effects, suffocation
Acoustics	Ambient noise, technical noise, social noise	Stress, fatigue, headache
Comfort	Extreme temperatures and relative humidity, radiant asymmetry, draught, poor daylight and view	Stress, dehydration
Safety	Personal injury, poisoning, blocking of respiratory system, falling in water	Falls, cuts, bruises, scalds, burns, shock, poisoning, suffocation, drowning
Social quality	Trespassing, lack of privacy, personal safety	Stress, social isolation, bodily harm

Source: Hasselaar, 2006; revised

bathroom, are not effective. Furthermore, it is often the case that neighbours in identical dwellings do not have mould problems, leading housing managers to believe that poor ventilation behaviours are the cause. Different perceptions about who is responsible may lead to conflict.

The problem definition is as follows: complaints concerning health problems are not solved effectively, leading to conflict between tenants and housing managers. There are two research questions. What can we learn from an analysis of the mould complaint handling process by applying systems theory, and how does this analysis contribute to maintenance policy strategies for healthy housing?[1]

6.2 Mould

There is evidence of the relationship between damp, mould and health, but it is not possible to identify specific hazard conditions (Hägerhed *et al*., 2002). This is the main reason why a precautionary principle is applied: moisture and mould must be avoided in a dwelling. Moisture is mentioned in the Dutch Building Decree: when moisture is persistent or mould and moisture stains cover an area of more than 50 cm^2, then 'comfort' is considered to be seriously violated (OVH, 2004; Straks *et al*., 1994). When tenants complain, the rent level may be fixed. The rent level may even be reduced to 55% of the maximum legalised level when problems are very serious and neglected by the homeowner.

1 For this chapter data was used from three studies (Hasselaar and Cüsters, 2004; Hasselaar and Rijsbergen, 2005; Hasselaar, 2006). Information on the roles and responsibilities of occupants and housing managers is based on an evaluation of 12.5 years of social action in a housing estate in Amsterdam. The results were presented in *De schimmel voorbij* (Beyond the mould problem) (Hasselaar and Cüsters, 2004). A study on instrumentation for health performance evaluation of housing resulted in a protocol for inspection of houses and interview with the occupants. This study produced the *Checklist Healthy Housing* for occupants (Hasselaar and Rijsbergen, 2005) and for professionals (Hasselaar and Boerstra, 2006). Information on bathroom mould problems is based on the PhD thesis *Health performance of housing. Indicators and tools* (Hasselaar, 2006). This project involved the inspection of 500 houses and interviews with occupants.

Awareness of mould comes from the senses: you can see mould, it creates a bad smell and may cause irritation of the airways. Mould growth depends on moisture and nutrition. Nutrition can come from house dust, cellulose-based paint, wallpapers and certain natural materials. Moisture production by occupants depends on the number of persons, the number of showers, laundry drying and cooking. Moisture removal depends on behaviour, for instance the use of ventilation systems (De Boer and Kulller, 1997; Bornehag and Sundell, 2002; Hägerhed *et al*., 2002) and drying laundry outside or in a dryer with an exhaust duct. Certain building characteristics promote moisture production, such as emission from the crawlspace and condensation on thermal bridges. Moisture problems tend to be diagnosed as individual problems, with the tenant as the central actor. However, solving moisture problems may require improvements to the foundation or insulation of a complete block or estate, and these 'structural' measures can be very costly.

When mould grows in a dwelling, mould material such as mould spores and dust from dead material can be found all around the dwelling. Concentration peaks can be expected when the inhabitants are moving around, during windy periods or during cleaning. Viable mould and dead mould material may have similar health effects; however, spore forming presents relatively higher concentration and exposure levels. As the main indicator for the presence of mould we propose the following: visible mould at any location in the house. Visible mould can be wiped off, thereby bringing the risk under control. Hidden mould in cavities likely to be wet from leakage but condensation influences the indoor environment as well. The indicator of hidden mould is a mouldy smell (when no mould is visible).

Mould growth parameters for the bathroom are the number of showers and wet laundry (Hasselaar, 2006). Three or more showers per day or more than two showers in combination with wet laundry on a rack present a high risk for mould growth in bathrooms. Mould risk is higher with poor exhaust, which is the case with mechanical ventilation systems having received no maintenance for five years or with (almost) constant use on the lowest setting. Air let into the bathroom directly from outside will improve moisture removal. The required ventilation volume during pollution peaks is often higher than the exhaust capacity, meaning that condensation is a risk. When the time of wetness is longer than 50% of the time, mould growth is likely to occur (Adan, 1994).

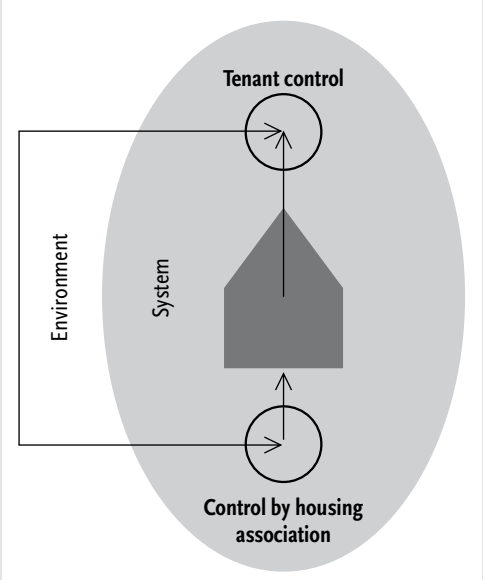
Generally, occupants do not know what kind of ventilation is required and how well a ventilation system works. They tend to overreact: a window is opened after a bad smell is perceived, but closed again after a short while, especially when it is cold, rainy or windy outside. Line inlet grates are used in a more appropriate way than windows. Mechanical ventilation with individual control is often kept at a low fan speed at only 15%-40% of the nominal capacity. The fan is often used on its highest setting for no longer than 30

minutes to 45 minutes a day. A small number of occupants turn the exhaust fan to its highest setting during a shower. In houses with natural exhaust ventilation, the bathroom often has a short exhaust channel onto the roof. This short duct does not create enough stack effect and the low position on the roof does not profit from wind suction. Downward draught or backflow may even cause comfort problems. Mechanical and natural exhaust ventilation will, in practical conditions, not remove enough moisture to prevent long periods of wetness caused by three or more showers a day. Ventilation in enclosed bathrooms with warm and humid air from other rooms removes less moisture than with dry fresh air, so mould growth is more likely to occur in enclosed bathrooms without a window or ducted inlet of fresh air. This information about the moisture balance in the bathroom is essential input for the complaint handling process.

6.3 Theoretical framework

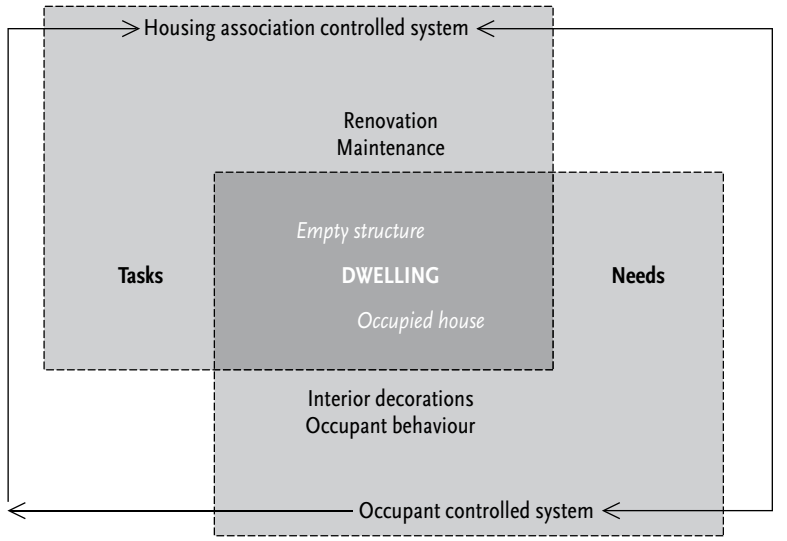
We have applied the conceptual systems approach to the complaint handling process. Input is the knowledge, the capacity and the available tools and protocols for a successful complaint handling process. This input includes available information about the needs of occupants and the functional and technical quality of the dwellings. Throughput includes all actions and milestones to reach a diagnosis and to select proper measures, including execution of measures and communication between the housing association and the tenants and their advocates. Important milestones in the complaint handling process are a solid diagnosis, the acknowledgement of the relevance of a complaint, and the initiative to take action and perform remediation work. The output is a solved problem: for instance, a successfully handled complaint. The final outcome is the realisation of goals, for example healthy housing.

Figure 6.1 The individual house as the controlled system



In the systems approach a distinction is made between the controlled system, the controller(s) and the external environment. The individual house is the scale of the system (see Figure 6.1). The housing manager collects information about the performance of

Figure 6.2 Interacting subsystems controlled by tenants and by the housing association



the house and occupancy and decides on a diagnosis and strategies for remediation or renovation. The playing field is an occupied house with a tenant who files a complaint. The interactions between stakeholders and their perceptions and connections, both informal and institutional, are analysed for a better understanding of the playing field. This information is the basis for the control of the system: are the right actors involved, can the rules be accepted or must the rules be changed?

The external conditions of the system are the social and physical aspects of the neighbourhood. External conditions for the housing association are, for instance, the rules and regulations that define the required performance quality. External conditions for the occupants are, for instance, expertise, DIY capacity and money. The system can be viewed as two interacting and partly overlapping subsystems: (1) the housing association as the controller with the house and its occupants as the controlled system, and (2) tenants as the controllers and the indoor environment including the (maintenance policy of the) housing association as the controlled system (see Figure 6.2).

Dealing with complaints

Occupant complaints about mould are often depicted as an ad hoc problem at the scale of one dwelling. Some housing associations do not register complaints that are moisture related, because of the large numbers of this type of complaint and because of their strategy to diagnose these problems as poor ventilation behaviour. Figure 6.3 shows the three phases and all the steps that a complaint handling process may involve, often lasting many years. The first step is to handle the phone call or letter concerning the complaint. The complaint results in a visit to the house by a technical inspector to look at the phenomenon and talk with the occupant(s). The inspector will suggest prop-

Figure 6.3 Flowchart of complaint handling process concerning mould

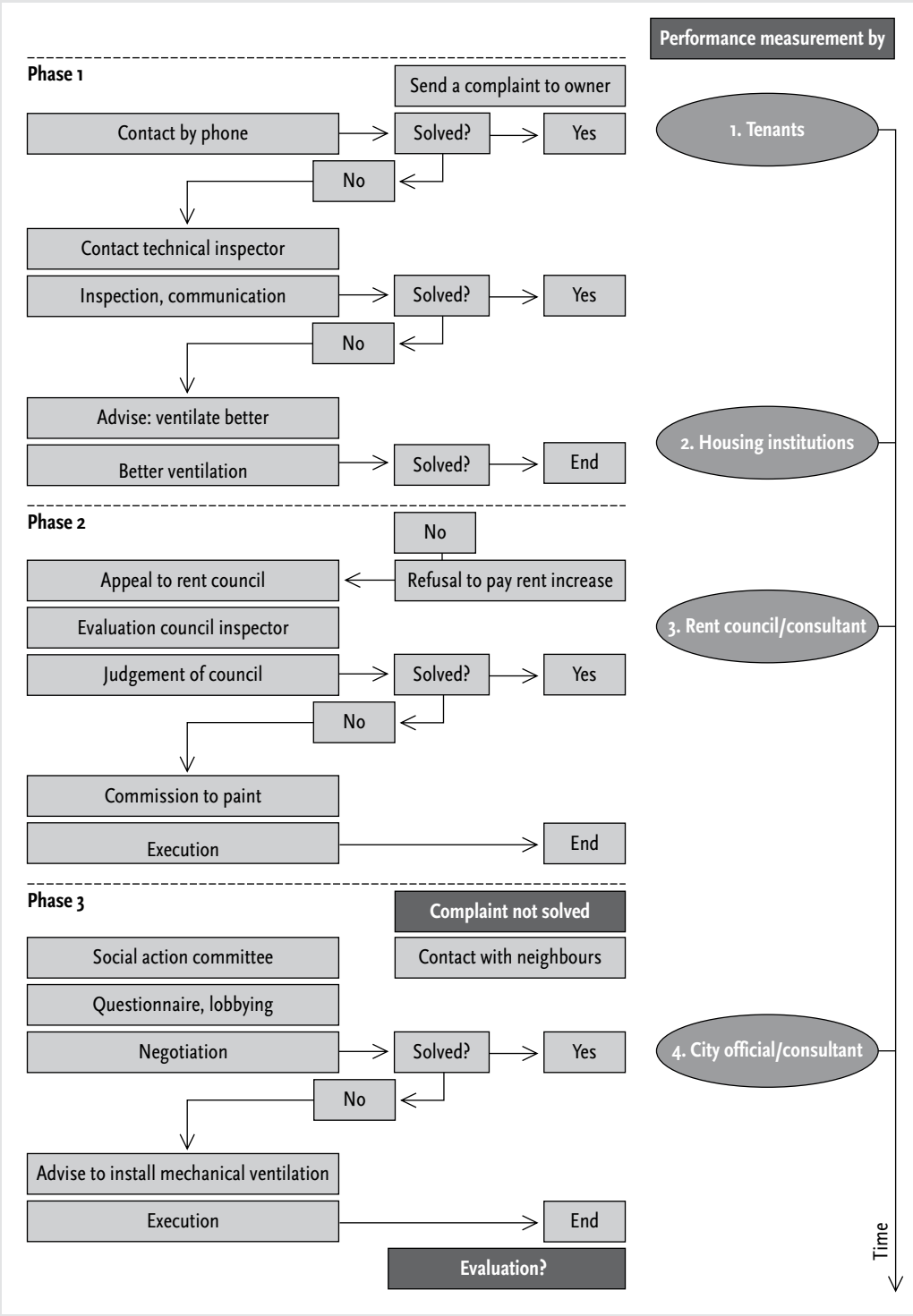


Table 6.2 Input, throughput, output and outcome of the complaint handling process

Systems theory	Occupant	Housing management	
		Ad hoc	Structural
Input			
Mould expertise, quality ambition	Awareness of mould problem, filing of complaint	Strategy for ad hoc individual complaint	Preparing to deal with a collective problem
Throughput			
Performance measurement, communication, actions, milestones	Refusal to pay rent increase, appeal to court, involvement in remediation	Interview, feedback on occupant behaviour, paint job	Inspection and interview, diagnosis, structural remediation
Output			
Improved technical condition	Conflict after wrong diagnosis, or satisfied after successful involvement	Problem hidden and mould will emerge	Complaint resolved
Outcome			
Healthy house	Empowered and satisfied occupant	Job done, no other effect	Satisfied tenant in mould-free dwelling

er ventilation and the tenant may listen without feedback, but thinking otherwise. Complaint handling involves a range of communication processes. When communication is not open or horizontal, either from the side of the tenants or the housing association, the diagnosis may be biased and negative emotions may grow instead of disappear. When the problem reflects a structural problem for a larger estate and individual complaint handling is no longer a proper maintenance strategy, but the housing association does not want to take structural measures, then a maintenance dilemma appears: to acknowledge the structural aspects of the problem, which will cost much time and money, or make a wrong diagnosis, let nothing substantial happen and wait until a conflict situation dissolves itself. The Figure shows a complaint handling process that took a long time to resolve because the process failed when a dilemma was not recognised and solved: mould reappeared and neighbours joined in the complaint process.

Dealing with dilemmas

A dilemma needs to be recognised as such. When one party wishes to break the dilemma, that party needs an analysis of which stakeholders are involved and which information is reliable. The arena in which the stakeholders interact is studied: roles, interactions and perceptions. The analysis may point at a conflict of interest between stakeholders, or a lack of expert knowledge. The diagnosis may point at the need for structural remediation instead of individual approaches. A strategy for improving the relationship between parties may be needed, either by communication or by involving tenants in the process.

In Table 6.2 the input-throughput-output-outcome sequence of systems theory is connected to the position of the occupant and housing manager, who follows an ad hoc or structural approach. The ad hoc approach leads to a job done, without positive side effects, but including the risk of a non-resolved complaint. The structural approach in this table leads to a satisfied tenant in

a mould-free house. The table suggests the steps involved in dealing with a maintenance problem: input, throughput, output and outcome are analysed separately.

6.4 Health performance of housing

The mould problem is one of the many issues of healthy housing. A short exercise in healthy housing connects the mould example to health performance measurement.

A healthy house allows large freedom of user behaviour without endangering health, while providing a positive health perception (Bronswijk *et al.*, 1999; Hasselaar, 2006). The health of the occupant includes their physical and mental condition and relates to the quality of life, rather than the absence of sickness (WHO, 1946). Much research evidence is available on polluting agents (Bergs, 2002; Van Dongen and Steenbekkers, 1993; Hollander, 2004; Ormandy, 2003; Säteri, 2003), but evidence of cause and effect of exposure and health effects in houses is rather poor. Cause-effect information is derived from extreme conditions with high pollutant concentrations, mostly in occupational environments, with healthy workers and also short exposure periods. Concentrations in houses are rather low, but the exposure periods are often long and the occupants may be sick or vulnerable. The health risks of the home environment are derived from theoretical models and are not diagnosed on an individual basis. However, there is good consensus among scientists on the major indicators that mark the relation between environmental conditions and health risk. These indicators are also available for mould (Hasselaar, 2006).

Figure 6.4 Relationships between behaviour, performance and health hazards

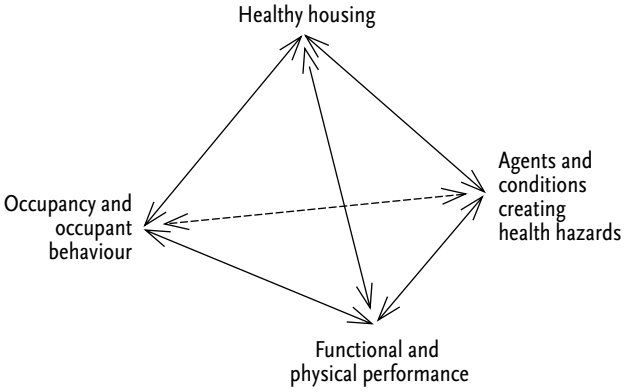


Figure 6.4 illustrates how healthy housing is influenced by behaviour, hazards and performance. Performance measurement connects information about occupancy and behaviour with the functional and physical performance of the dwelling.

Performance requirements

Health, including safety, is regulated in the Dutch Build-

ing Decree through minimum performance requirements: emission limits of building materials, steepness of stairs, airtight and heat resistant flue gas exhaust pipes, no smell from sewerage systems, and no moisture problems, amongst others. Dutch civil law urges housing associations to prevent obvious health risk through proper inspection and maintenance. Despite these requirements, certain problems are persistent. A survey of 1,240 houses by the Ministry of Housing, Spatial Planning and the Environment mentions exceeding CO_2 levels of 1200 ppm, exceeding limit values of total volatile organic compounds, carbon monoxide and formaldehyde, high noise levels of mechanical ventilation systems and low capacity of inlet and outlet ventilation features (Ministerie van VROM, 2007). Many problems point at technical features that depend on occupant control.

Occupant perception and behaviour

Occupant behaviour can be defined as the way occupants use a house and its services. Poor behaviour can point at improper use, lack of understanding or lack of awareness about the health performance of the house. Learning well-adapted user behaviour is influenced by the user as well as the 'learnability' of a system. Involvement of users in the design process is one way of learning and do-it-yourself performance evaluation is another way of learning. Accessible information is a prerequisite for learning. 'Empowered' occupants take more control over the environment and digest information that helps the learning process. Thomson and Petticrew (2005) discovered that being involved in renovation processes contributes to more positive health perception and increased quality of life.

In 2005 a do-it-yourself health performance evaluation tool was launched by the Dutch Tenant Association (Woonbond) and SBR (Building Research Institute) (Hasselaar and Van Rijsbergen, 2005). The strategy of this *Checklist Healthy Housing* is to give insight into the quality of the building and into occupant behaviour and its effect on housing health risk. Learning by way of the do-it-yourself tool supports a critical feedback on the quality of the technical features of the house and also on individual behaviour. When this critical feedback leads to clear perception of problems, then the occupant may decide to take action by filing a complaint.

Connection of the control systems

Cooperation between the housing association and the tenants provides an opportunity to indicate, diagnose and prevent health hazards. It is important to consider both the physical quality of the house and occupant behaviour; in other words, to diagnose the problem by looking at two interconnected control systems, one system controlled by the housing association, the other by the tenants. The housing association can take technical measures, but it is important that these measures support occupant behaviour that prevents fu-

Table 6.3 Input-throughput-output-outcome system of health performance evaluation

Input	Throughput		Output	Outcome
Expertise, Checklist Healthy Housing	Inspection and interview	Exposure risk score, tips and measures	Remediation to reduce risk, change of behaviour	Healthy house

ture problems. Communication about the diagnosis of a problem is considered an important step towards taking action. The diagnosis involves two parties and requires that both parties can fully accept the diagnosis. Complaints are a chance to communicate and learn about the physical aspects and behaviour.

In systems theory language, the Checklist Healthy Housing and expertise about the indoor environment are input for the control system of healthy housing. Inspections and the taking of remediation measures are throughput. The output is improved technical performance and improved use of the house. The outcome is a healthy house. Also, by making a version of the checklist for professionals and a version for occupants, performance measurement becomes accessible to both control systems, and communication is the key factor to connect these control systems. Feedback becomes an aspect of maintenance (see Table 6.3).

6.5 Discussion

Diagnosis

Mould has potential health effects due to exposure to mould spores and dust of dead material. The diagnosis of air pollution follows the source strength, removal and concentration sequence and looks at exposure and finally the vulnerability of the occupants. The main driving force for mould is the long-term wetness of surfaces that cannot be cleaned. The moisture source is the droplets of water that stick to surfaces after a shower. It takes more than two hours to emit and remove the droplets, including absorbed moisture in materials. A shower cabin reduces the surface area of droplets. Drying down the tiles or the panes of the shower cabin after a shower reduces the moisture source to a large extent. Moreover, surfaces from which mould can be wiped off do not demonstrate problems and are no cause for complaints. The relation between bathroom mould and ventilation systems is rather poor, when these systems allow individual control.

This diagnosis leads to the conclusion that smooth surfaces, a shower cabin and cleaning behaviour are the key to solving the problem; secondary to this is permanent exhaust ventilation, preferably with fresh air directly from outside. Mould is effectively reduced by installing heat recovery ventilation, especially when the bathroom has both an exhaust and inlet damper. Installing individually controllable mechanical exhaust ventilation is not effective in improving the ventilation volume.

Furthermore, occupant behaviour that supports solving the mould problem is limited to cleaning; a relatively smaller contribution comes from increased ventilation. This diagnosis puts conflicts about mould reoccurrence in a dif-

ferent perspective: the surface materials are more relevant than the ventilation system. The diagnosis must not be biased by the dilemma between individual or collective measures.

A solid diagnosis is essential in problem solving. This analysis is supported by considering two control systems: the housing management and the occupant. The two control systems of mould prevention include a potential conflict. The perception of who is responsible and of the need to do something about it differs and this can lead to an incomplete diagnosis of cause and effect.

Complaint handling is a communication issue. Complaints are a sign of empowered tenants. Taking action provides a positive opportunity for cooperation. This process in itself promotes a positive perception of quality of life and thus contributes to the notion of healthy housing. Acknowledgment of the outcome of the diagnosis problems is a crucial step. Communication is the exchange of critical feedback on the diagnosis and on the selection of relevant remediation actions. Good communication can restore trust and promote the acceptance of information that can result in better behaviour to prevent future problems. It is important that both control systems of the house cooperate.

Applying systems theory

Input indicators

Resources for quantitative measurements of air quality and acoustic measurements are the input. Hiring external experts to inspect houses and interview occupants can prevent bias in the diagnosis of problems. Process input is, for instance, providing front-office workers with training in the field of environmental quality and communication. Information on behaviour and problem prevention is only digested in the context of cooperation and involvement, or taking action. The input indicators are knowledge and a protocol for inspections and interviews.

Throughput indicators

The main question is that of addressing the problem from the side of the tenant and from the side of the housing manager. Throughput indicators are activities that result from a solid diagnosis and change the cause-effect sequence. Possible throughput includes tiling the bathroom, painting the ceiling and supplying shower cabins. Maintenance of ventilation systems, including exchange of old fans for new fans and adjustment of exhaust volumes, including noise reduction, are requisites for better ventilation which can improve the indoor air quality of the dwelling, not specifically to prevent mould in the bathroom. Thermal bridges that cause wet surfaces by condensation can be insulated. For better user-friendliness of the maximum setting it is essential to reduce the noise level. Fan control on the basis of humidity does not

Table 6.4 System of Input-throughput-output-outcome based on different roles in solving a moisture problem

Input	Throughput		Output	Outcome
Housing association				
Complaint handling protocol, expertise	Inspection and diagnosis	New surface materials, shower cabin	Surfaces dry and clean	Problem solved, rent increase
Occupants				
Recognise a problem	File a complaint	Dry and ventilate	Clean the surface	No visible mould

Table 6.5 Solving problems through mould prevention

Input	Throughput		Output	Outcome
Goal setting: all mould problems in bathrooms will be solved	Strategy to reduce time of wetness and to improve cleaning	New surface materials, shower cabin	Coordinated reparation action for all showers	No mould in bathrooms

work in summer periods when there are high moisture levels. Fans in natural exhaust ducts that run simultaneously with the electric light have a negative performance because the exhaust period is short and the fan blocks the natural flow when the light is off.

Output indicators
The major output indicator is no visible mould and no mouldy smell.

Outcome indicator
The outcome is no exposure to mould in the house.

Systems theory contributes to the awareness of the sequence of steps that form the complaint handling process (see Table 6.4).

Table 6.5 shows the complete problem solving strategy. Goal setting is an essential step. The strategy of achieving the goal with the involvement of occupants is also important. In this strategy, a proactive policy is developed.

The contribution of systems theory
Without considering all the steps in the input-throughput-output-outcome sequence of systems theory, the complaint about mould in a bathroom is a routine problem that may not be solved. When the goal is set higher and looks at the prevention of problems and at solving all mould problems in all bathrooms, this goal (input) results in a different throughput: the design of bathrooms that do not suffer from emission of mould spores and fragments into the indoor air. The output is a housing stock free of mouldy bathrooms.

Analysis through the steps of systems theory points at measurement of performance, not of satisfaction. The strategy is action, not image building. First comes communication, then information. Lack of action and poor communication comes from fear, so the strategy can be changed towards the improvement of relationships and the building of mutual trust.

6.6 Conclusions

Healthy housing can be achieved by analysing the house as a system that is controlled by the housing association on one side and tenants on the other side. Conflicts that may arise between the two controlled systems are as follows:

- a different perception of responsibility among tenants and housing managers;
- holding the other party responsible for the problem;
- low attention to inspection resulting in poor diagnosis of cause-effects;
- poor communication;
- lack of acknowledgement of complaints.

Conflicts of interest lead to eagerness to jump to conclusions, and lack of information or expert knowledge may lead to the wrong diagnosis. Looking at the occupants and the physical performance as causes of a mould problem supports a solid diagnosis of causes and effects and the selection of remediation measures that are effective in mould reduction.

We believe that the complaint handling process presents an opportunity, rather than a problem. Activities to support the learning process of occupants contribute to empowerment and a good relationship with housing managers.

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7 Tenant-empowerment through choice of tenure

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7.1 Introduction

In 2002, after several years of preparation, the Rotterdam housing association *Woonbron* launched its *Klant Kiest* (Customer Choice) concept, rechristened Te Woon ('to live') a year later in 2003 (Vos *et al.*, 2005). The Te Woon programme offers existing tenants and home-seekers the opportunity to make their own tenure choice and to purchase a home alone or in co-ownership. Woonbron had its own agenda when it set up Te Woon and did not initially realise that the programme inadvertently provided a means of responding to the third objective in the Social Housing Management Decree (BBSH), viz: resident participation in policy and management. In the years that followed Woonbron offered over 14,000 Te Woon dwellings to tenants and home-seekers. Though the programme got off to a sluggish start, the prognosis for sold dwellings was exceeded as early as 2006. Another measure of the success of Te Woon is that a hundred housing associations have since acquired a licence for parts of the programme via the *Koopgarant* Foundation (co-founded by Woonbron) and that twenty-two housing associations have actually adopted the programme and are now participating in the Te Woon platform.

This chapter begins by describing the social background against which the Te Woon programme took shape. It shows how a housing association managed to find an innovative answer to the sometimes conflicting social tasks required by the BBSH. This is followed by a brief history of Te Woon and a translation of the programme into a system-based approach, geared primarily to process requirements, such as good information and customer services. Due to the large measure of uncertainty that emerged in output-to-outcome, the product requirements are geared solely to creating conducive conditions by, for example, careful selection of the homes designated for sale. The operational workings of Te Woon are illustrative of the constraints imposed on a steering mechanism by uncertainties in an external production process.

7.2 The social background

Sale of social rented dwellings

In 2000 the Ministry of VROM issued a policy document titled *Mensen, wensen, wonen* (What people want, Where people live), which stated that: "The first task is … to make greater use of consumer input in the design, lay-out and management of the home and the living environment. This means that, giv-

en the housing preferences, the level of home-ownership must rise steeply…" (Ministerie van VROM, 2000: 25). It was impossible to attach hard conditions to the government's call for more home-ownership – which was prompted by the flawed mechanisms of the housing market in the Netherlands – but the statement did make housing associations pay closer attention to freedom of choice and tenants' views regarding the ownership of their homes.

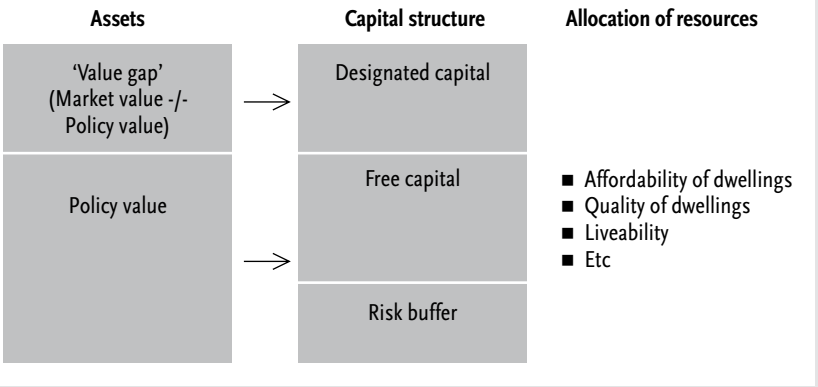
The social rented sector in the Netherlands is larger than in the neighbouring countries and the percentage of low-income households who own their own home is relatively low. This situation is largely attributable to the strong position historically acquired by the social rented sector, in which many low- and middle-income households have traditionally pursued their housing career (Priemus, 2003). Over the years, the threshold for switching from the social rented to the owner-occupier sector has become increasingly higher (Gruis *et al*., 2005) as a result of relatively low rents and income-based rent allowances on the rental side (Hakfoort *et al*., 2002) and the steep rise in property prices in the 1990s and progressive mortgage relief on the owner-occupier side (Boelhouwer, 2002). As many tenants would lose out financially if they purchased a home, they decide to stay in social rented accommodation when their income improves. This goes some way to explaining the long waiting lists for starters on the social rented market.

Before Woonbron developed the Te Woon programme, various participants in the sector had already been trying to find ways to boost mobility in the social rented market (SEV, 1997). One solution which Woonbron and its predecessors had applied in Rotterdam since 1980 was to sell rented dwellings in a buy-back scheme (Maatschappelijk Gebonden Eigendom/MGE).

In an MGE scheme housing association dwellings were sold at cost price (book value). When the resident moved out the housing association bought back the dwelling at the purchase price, corrected for inflation and depreciation and with compensation for improvements to the interior. The housing association had a strong influence in the home-owners' association, both as the manager and as the designer of the maintenance policy. At the end of the 1990s MGE was replaced by a model in which the increase or decline in value was shared between the housing association and the departing owner. This paved the way for the birth of Koopgarant in 2004, which made the home-owners' association responsible for the management on the basis of a set of process requirements. The legal framework took account of the experience gleaned from MGE. Koopgarant offers tenants with a low income the chance to switch more cheaply and with less risk and no removal costs from the social rental sector to the owner-occupier sector.

The sale of rented dwellings in Koopgarant unites three of the public tasks in the BBSH. Obviously, it leads to more consumer input and involvement, in this case with regard to the ownership structure of the dwelling. A second, more debatable supposition (see Ostendorf *et al*., 2001) is that the sale of

Figure 7.1 Differentiated organisation of capital



Source: Woonbron, 2006b

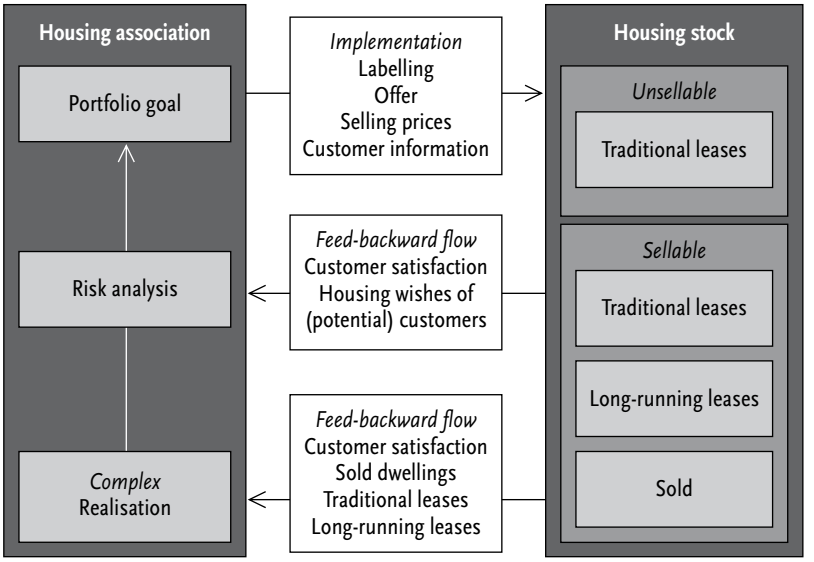
social rental dwellings will not only lead to a more mixed population in poorer neighbourhoods but improve the living atmosphere as well. If the Koopgarant programme is successful, it will guarantee the financial continuity of the housing association and enable it to fulfil its other public tasks by facilitating the construction of affordable accommodation for low-income households. Before we can find out exactly how the sale and repurchase of social rented dwellings can enable housing associations to fulfil their public remit, we need to take a close look at how the capital of a housing association is organised.

Differentiated organisation of capital

The capital of a housing association is enclosed in the value of its assets (see Figure 7.1). There are two types of value in housing stock: policy value and market value. Policy value is the cash value of all future rent proceeds minus the maintenance and running costs. Market value is the value of the dwelling on the owner-occupier market, taking account of the fact that most dwellings fall vacant only after a period of time. The 'value gap' (Smith, 1987), the difference between the two values shows, at portfolio level, the extent to which the financial returns of the housing association are trailing behind the maximum realisable return: the market return.

The policy value of the dwellings defines the part of the capital that is freely available and includes a buffer to shield the housing association from financial risks. This free capital can be converted through loans into a cash flow that serves the public tasks. The designated capital is the 'value gap' for all dwellings. It is potentially present but cannot be used for investment because of policy constraints. Sales in Koopgarant enable assets to be realised and the dwellings can return to the portfolio after a period of time. Though the discount on a sale in Koopgarant can rise to 25% for existing dwellings and 33.3% for new dwellings, designated capital can still be realised provided the selling prices of dwellings exceed their policy value at portfolio level. The risk buffer is now encumbered with the new buy-back risk and relieved of the interest risk on the repaid loans. This creates extra scope to build or renovate dwellings, to fund rent rebates or to execute other public tasks in the BBSH.

Figure 7.2 Te Woon process model



7.3 How Te Woon operates

Te Woon in a systems approach

In conceptual systems approach jargon Te Woon works by means of continuous closed-loop steering with the housing association as the steering agency and the assets as the steered system (see Figure 7.2). The programme goals and the prognosis for the sold dwellings are defined on the basis of a feed-forward flow of information on customer satisfaction and the wishes of the residents. The programme also extends to asset-labelling, the selection of dwellings, the determination of the selling prices and information services for the customer. After the customers have chosen a tenure for each object, a feed-backward flow passes on information on the number of sold or rented dwellings, the proceeds of the sale and the level of satisfaction with the services. This information is used in risk analyses in order to gain insight into the effects on the financial position and investment scope of the housing association and to identify bottlenecks or inefficient parts of the programme. The goals can be adjusted depending on the outcome of this internal analysis. Then the next dwellings are offered and the process begins all over again. Each step in the process model is explained below by tracing the history of the Te Woon programme.

History of Te Woon

Though the idea behind Klant Kiest (Customer Choice) dates to 1997, it took Woonbron until 2000 to set up a pilot (see Table 7.1). The pilot, which was held among the first group of customers in a new building project, was evaluated (Ket, 2001) and a survey was held among a wider group of buyers of, amongst

Table 7.1 Te Woon timeline

1998	1999	2000	2001	2002	2003	2004	2005	2006
First strategy document	Contract development	Pilot 30 dwellings	Second strategy document	VROM makes Fair Value a policy rule for submitted projects	Te Woon within housing allocation	Koopgarant for sale of licences	Evaluation Te Woon	Te Woon spreads to Delft and Dordrecht
	Preparations for the pilot	Fair Value model developed as basis for allocation key for discount and loss-sharing	Evaluation of pilot via survey	Project plan Klant Kiest	Evaluation by 2,000 customers	Introduction Koopgarant	Eight housing associations acquire licence for Koopgarant	First re-sale
			Buyer's profile analysis	500 dwellings offered	700 dwellings offered	2,500 dwellings offered		Risk analysis via the Transparency Method (see Chapter 2)
			Introduction Klant Kiest	Limited evaluation by 500 customers	Risk analysis via scenario analyses	Te Woon platform set up		KWH purchase label KWH rent label
				2,000 dwellings offered				Sales exceed prognoses
				Te Woon risk analysis				

others, MGE dwellings (Ket and Papa, 2001). Klant Kiest was then launched in 2002 on the basis of this feed-forward information flow. The programme was, however, subject to prior ministerial approval, as the sale of social rented dwellings was at odds with the BBSH. Once this approval had been obtained, 2,500 dwellings were offered in two tranches to sitting tenants. This was followed by a feed-backward information flow on the customers' assessment of the offer (Kalders and Kolar, 2003). When Klant Kiest became Te Woon in 2003, choice of tenure was extended to new residents who had obtained a dwelling from Woonbron through an experimental housing lottery.

Though normal tenancy agreements and Koopgarant sales account for the bulk of the Te Woon tenures, Woonbron offers a broader range of options. This stems from a conscious decision: the programme was developed primarily for the benefit of customers, and only in the second instance, for the generation of cash flow. Existing tenants and new residents may choose from the following tenures:

- a traditional tenancy agreement;

Table 7.2 Stock policy and labels

Segment	Criterion	Tenure	Remarks
Ineligible	Fragmented stock Too expensive for target group (above € 275,000 in 2002)	Rent	Temporary management
		Transfer to another housing association	Management domain of fellow housing association
		Direct sale third party (Koopcomfort)	
Non-sellable strategic stock	Renovation or reorganisation within 15 years	Rent or Fixed Rent (Huurvast)	Fixed rent only in period preceding intervention
Sellable strategic stock	Under price limit of € 275,000 in 2002	Te Woon with home-owners' association (Koopgarant)	Apartments Single-family homes with conserved area
		Te Woon without home-owners' association (Koopgarant)	Single-family homes
		Rent	Customer's choice

- fixed rent for 5 or 10 years (Huurvast);
- purchase in Koopgarant with 25% discount (33.3% for new properties), a buy-back guarantee and a 50% share in the value development;
- purchase at market value with first buy-back option for the housing association (Koopcomfort).

The housing association decides in three steps which dwellings will be offered via Te Woon. The ineligible stock consists of dwellings in which any involvement by the housing association would deliver little or no added value. These are dwellings which are too expensive or lie outside the management domain. Another part of the stock has a limited life expectancy as renovations or large-scale reorganisation will be needed within 15 years. These dwellings are non-sellable either because they are in poor structural condition or because sales would lead to fragmentation of the stock and complicate restructuring programmes. What remains of the strategic stock will eventually be offered in Te Woon (see Figure 7.2). A few exceptions may be made for practical reasons. Dwellings with a Te Woon label can be offered in one tranche to sitting tenants or offered to home-seekers after a situational change. Up till 2007 Woonbron offered some 14,000 dwellings in the Te Woon programme (33% of the total stock). At the end of 2006, 4,086 dwellings had been sold via Koopgarant and 233 via Koopcomfort (Woonbron 2006a).

Performance evaluation

Customer satisfaction with the services forms an integral part of Te Woon. Tenants are informed about Te Woon via information material and at collective and individual information sessions. In the past the quality of the services was measured with questionnaires (Ket, 2001; Ket and Papa, 2001), which asked tenants and buyers about their knowledge of Te Woon, their experience of the services and the reasons for their choice of tenure. Since 2004, the organisation has been working on a more systematic evaluation of customer satisfaction via the KWH labels for rental processes (KWH-huurlabel) and purchasing

processes (KWH-kooplabel). Since 2006 the *Kwaliteitscentrum Woningcorporaties Huursector* (Quality Control Centre Housing corporations Rental sector) has reported customer satisfaction with the housing association's performance in rental processes, purchasing, information, maintenance, complaint processing gathered via surveys and inspections. Additional surveys conducted via the housing association's customer panel can be used to look into aspects of customer satisfaction which are not covered by the KWH labels.

The second type of performance evaluation is based on the number of finalised tenancy and purchase contracts, the proceeds of the sales and the duration of the offer, split according to tranche or situational change and dwelling type (single-family homes or apartments, new or existing dwellings). This feedbackward information flow is internally linked to earlier prognoses for the sale of dwellings at portfolio level. The gap between prognosis and realisation then provides a starting point for identifying the bottlenecks in the programme and for estimating the effects on the financial position. In 2002 an investigation was conducted to ascertain the potential effects of the introduction of Te Woon on the financial position (Faber, 2002; Elsinga *et al*. 2002). Further analyses were conducted in 2003 to calculate the financial implications in different risk scenarios (Elsinga and Conijn, 2003; Conijn and Van Grieken, 2003; Elsinga and Lamain, 2003). These risks included disappointing sales, loss-sharing due to a fall in value at buy-back time, and the repurchase of a large number of dwellings at the same time (Gruis *et al*., 2005). Since the introduction of the differentiated approach to assets (see Figure 7.1) the risks have been absorbed in the free capital buffer and risk allocation has been included in the routine financial reporting of the housing association (Woonbron, 2006b).

7.4 Performance-based steering

Dynamics in the environment

In a traditional sale, as in the case of dwellings from the ineligible stock of the housing association or dwellings in Koopcomfort (which are not re-purchased), the level of uncertainty is limited to the duration of the sale and the negotiable margin on the official valuation. When dwellings are sold in Koopgarant the uncertainty of the desired outcome is much greater even though the prices are fixed. The housing association cannot exercise any direct influence on the final tenure choice of long-standing or new residents or on the number of sold dwellings. As the sale of dwellings does influence the capital structure and the investment scope of the housing association, uncertainties in the output need to be considered. The internal production process is therefore steered with a view to better services for the customer, careful selection of the dwellings on offer, and continuous adjustments to policy and prognoses.

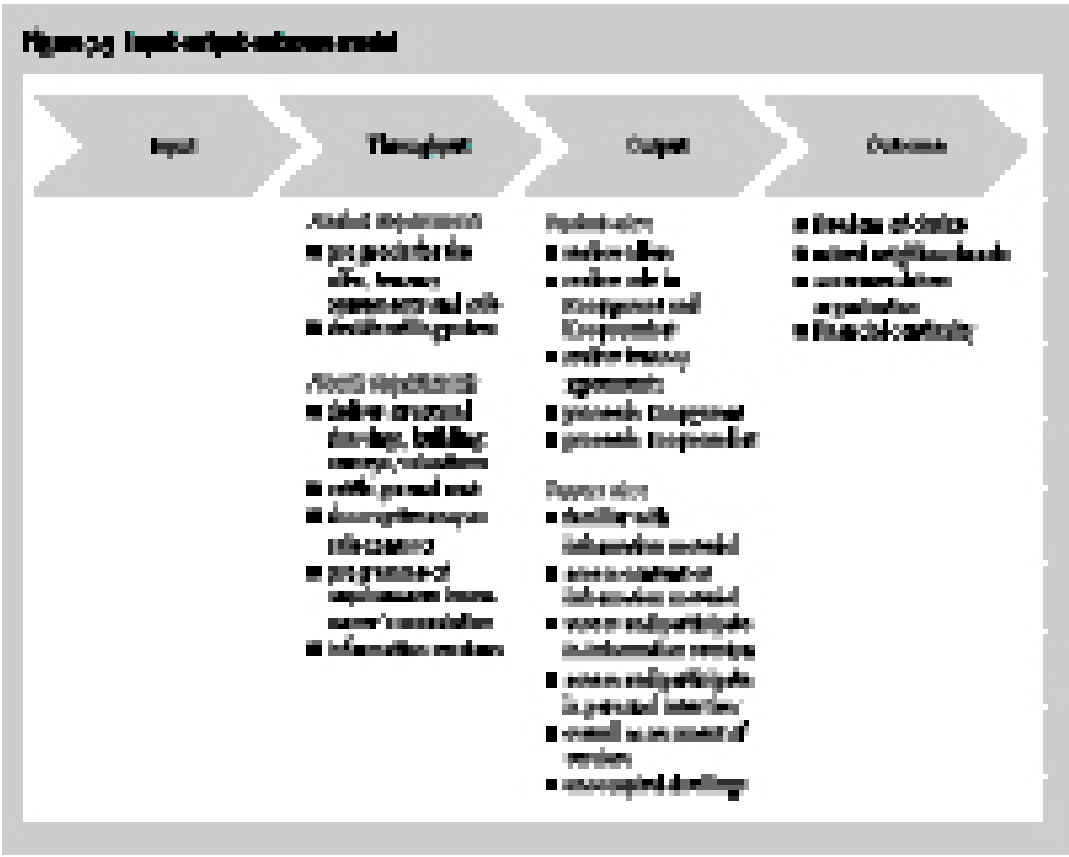
Steering based on the external production process

The aims of Te Woon are defined by Woonbron. They are: to give residents freedom of choice in the ownership structure of their home, to create a mixed living environment, to secure financial continuity and to create internally a customer-driven organisation. The first aim has already been achieved by the implementation of the programme. The utilisation of alternative types of tenure merely indicates that the residents appreciate more freedom of choice. In the system approach the aim should be defined in terms of output, i.e. to sell enough dwellings in Koopgarant or Koopcomfort to cover the housing association's investments plans for other public tasks. Take, for example, the utilisation of fixed rents (Huurvast) as an additional goal. The output would be measured by the number of Te Woon dwellings offered in a specific period, the number of finalised tenancy and purchase contracts, itemised according to type of offer (per tranche or via the housing allocation) and type of dwelling, and the proceeds of the sale in Koopgarant and Koopcomfort. The accompanying throughput indicators are the prognoses for the number of dwellings on offer and the number of finalised contracts, and the previously set selling prices.

The customer's choice of tenure depends on highly uncertain factors such as the wishes and financial scope of the residents, the search behaviour of aspiring buyers and the supply-demand relationship on the local housing market. The impact of these factors is more or less beyond the control of the housing association. This problem can be solved to some extent by steering on the basis of process aims as well as product aims (see Figure 7.3). The process aims are tied in with the process requirements: good information and customer services and an offer of limited duration. The KWH-huurlabel and KWH-kooplabel provide output indicators for customer satisfaction. The number of vacant dwellings in each non-occupancy category can serve as an output indicator for the duration of the offer. Though there are no throughput indicators linked to the process requirements, it is important to ensure that the required resources and manpower are in place for the services and to settle all contractual business before proceeding with a sale. This reflects a policy in which the housing association creates the conditions which are conducive to output rather than steering it directly. The aim is to encourage the highest possible percentage of customers to buy the dwelling by providing the very best information, by ensuring that the sale procedure runs smoothly and by selecting the most attractive tranche.

Steering within the internal production process

The housing association invests money, organisation, time, information and knowledge in the internal production process (Briner *et al.*, 1997) to ensure that the Te Woon programme runs efficiently. The information on the means of production consists, amongst others, of the measured output of the sold



and rented dwellings units and the duration of the offer, the data from the questionnaire on the housing preferences and financial scope of the customers, and satisfaction with the services. This information is used to estimate the effects on the financial position and investment scope of the housing association. In the early days of the programme it was also used to identify bottlenecks and areas of underperformance. The measurement of the progress of the process and product aims thus became an integral part of Te Woon.

The indicators for the realisation of offers, tenancy agreements and sales are linked to the respective prognoses. The difference between the key figures in the output and throughput phase reveals the investment scope of the housing association and shows whether the pace of the offers needs adjustment and whether alternative funding should be sought. The disappointing proceeds from the sales in the early days of Te Woon led, in 2003, to a situation in which complexes with more selling potential were offered more frequently and, in 2004, to the sale of 800 dwellings to the Woon Investerings Fonds, a nationwide real estate fund dedicated to the purchase of social rented dwellings. Steering instruments that have remained dormant are sales to private investors, sales in Koopcomfort, and the non-use of the buy-back option in Koopcomfort. The sales data split according to type of dwelling, housing black and type of offer provide even more information which has led to improvements in the process. For example, the disappointing sale of senior dwellings prompted a decision to stop offering this market segment in Te

Woon tranches, unless it was patently clear that the sitting tenants wanted to buy. It also emerged that the sluggish start of the programme was caused by the low sales of dwellings which were offered via the housing allocation system. Accordingly, 2004 saw the launch of a special information campaign for aspiring buyers. The offer also needed to tune in better to the search behaviour of buyers. In contrast with traditional rented housing, which can only be viewed by arrangement, vacant Te Woon dwellings can now be viewed before the lots are drawn for allocation (Vos *et al*., 2005).

Process improvements in Te Woon were realised partly by measuring the performance of the product aims. Essentially, the improvements are also part of the transformation process that changed Woonbron from a tenant-focused organisation to a primarily customer-focused organisation. The housing association has retained the traditional management tasks, but individual buyers and home-owners' associations are also being served and the services have been enhanced with valuations, structural drawings and building surveys, the compilation of purchase and buy-back agreements, and maintenance services for buyers and home-owners' associations. Organisational changes such as internal decentralisation and staff training for the development of knowledge were necessary to realize this transformation. Measurement of the performance of the process aims helped to target bottlenecks in need of solutions. It emerged, for instance, that offers sometimes took a long time to get off the ground because of unforeseen circumstances such as problems with the municipal ground rent and soil clean-up. Another bottleneck was the formation of home-owners' associations which opted for an administrative system with a reserve for future maintenance and demanded contributions which were much higher than in the free market. Customer satisfaction surveys via the KWH labels were also used to identify weaknesses in the services. In all cases the detection of bottlenecks via performance measurement caused the organisation to divert resources into the pursuit of higher scores on the product-related output indicators.

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8 Securing high performance maintenance service delivery

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8.1 Introduction

Research question

When the phase of contracting a maintenance supplier has been terminated, performance measurement, or monitoring, is important in order to secure a high-quality maintenance service delivery to tenants.

In this chapter, attention is given to performance measurement of maintenance service delivery. The perspective on maintenance service delivery is that of the end customer, the tenant. In other words, we will investigate what should be measured in order to secure tenant satisfaction regarding maintenance.

Part of the performance measurement of maintenance service delivery can be covered by referring to the performance measurement tool for the quality of service delivery that is currently most widely applied in the Dutch social rented sector: KWH-huurlabel. In order to obtain this quality mark, tenant satisfaction regarding the service delivery of housing associations is measured. In this research, the coverage of important determinants of maintenance service quality is measured for maintenance. Prior to this, the importance of the determinants of service quality for tenant satisfaction is measured. The aim of this exploratory research is to investigate the customer-friendliness of performance measurement of maintenance service delivery by Dutch housing associations. The research question for this chapter is as follows: How can performance measurement of maintenance service delivery in the social rented housing sector encourage end customer satisfaction?

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 the framework of results and determinants by Fitzgerald *et al.* (1991). 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 the '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). And although

this does not always appear 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 being 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 calls for the operationalisation of the objective of tenant perspective in the purchasing policy.

In Section 8.2, maintenance services are specified and the objectives of maintenance are clarified. In Section 8.3, attention is given to the current practices of performance measurement of maintenance services. The maintenance service delivery process is clarified and presented in the structure of the conceptual systems approach. In addition, the quality mark KWH-huurlabel is introduced in the context of this research. KWH, or Kwaliteitscentrum Woningcorporaties Huursector, is an association that markets itself as a quality management centre for the Dutch social rented housing sector. KWH is renowned for its measurement instruments, which aim to make the performances of housing associations transparent. The organisation has performance measurement products for rental processes (the huurlabel), purchasing processes, management of the housing association, housing association as employers, tenant participation, and societal performance. Section 8.4 contains an evaluation of the KWH-huurlabel, from the sole perspective of maintenance service delivery. Section 8.5 includes the findings of a survey on end customer perceptions about maintenance service delivery. These results are then compared with the conclusions drawn from the evaluation of KWH. Finally, recommendations are presented for improving the service delivery system.

The Dutch social rented sector

The Dutch situation is an interesting one with regard to the problem situation that is the subject of this chapter. Several reasons underpin this statement. One is that the multiplicity of social landlords' objectives is particularly evident in Dutch housing association operations. Viewed from an international perspective, they operate a fairly wide range (both in price and quality) of dwellings for a large share of the total number of households in the Netherlands (see Van der Heijden, 2002; Van der Flier and Gruis, 2002). Although focused primarily on low-income households, they provide housing for a relatively large number of middle- and higher-income households as well. Combining market activities with the fulfilment of social housing tasks, they have thus been typified as 'hybrid' organisations.

In order to fulfil these public tasks, housing associations must cooperate with several stakeholders. Among these stakeholders are the suppliers of the housing associations. These suppliers take care of the input of housing asso-

ciations that enable them to fulfil their public tasks. In order to realise the desired outcome, the services that are to be purchased, and later on delivered, must comply with the function of these services. Performance measurement is a means to reach this goal.

8.2 Maintenance services

Types of maintenance service

Maintenance services for housing are services delivered by maintenance contractors or in-house maintenance departments of proprietors, in order to keep and to bring components and installations that form part of the dwelling in a pre-defined condition. This condition is usually fixed in the strategic portfolio plan, which is the physical interpretation of the housing association's business strategy. In order to be able to deliver their services, both maintenance contractors and maintenance departments of housing associations must control the right resources. In other words, they are dependent on the supply of materials. In addition to this, depending on their own capacities, they must rely on capabilities that are to be delivered by external parties: subcontractors and external advisors.

Maintenance services form part of the core services of housing associations to their customers, usually tenants. Examples of these services are maintenance of heating and water installations, maintenance of the building façade, and maintenance of communal facilities, such as porches, galleries and stairways. In the Dutch social housing sector, three forms of maintenance services can be distinguished[1]:

- Planned maintenance: activities scheduled at regular intervals (66.6% of total maintenance expenses (VROM-Inspectie, 2005));
- Reactive maintenance: realised on residents' initiatives (complaints), often after breakdowns (22.7% of total maintenance expenses);
- Void repairs: maintenance realised in between tenancy periods (10.7% of total maintenance expenses).

Maintenance services, if done well, add to customer satisfaction. The impact that maintenance services have on customer satisfaction depends on the intensity and frequency of interaction between the service supplier and the customer, the tenant, and on the impact of the result of the service on values

1 A fourth form of maintenance that can be identified is service maintenance, which refers to maintenance that is realised as part of a service subscription. Tenants pay a monthly fee for receiving extra maintenance services. In this study, no particular attention has been given to this type of maintenance, as it can be considered as forming a part of mainly reactive maintenance and, to a lesser degree, planned maintenance.

such as comfort, safety, utility and aesthetics (Van Mossel and Van der Valk, 2006; Van Mossel, Straub and Jansen, 2006).

Total maintenance (excluding improvement activities[2]) to the expense of the profit and loss account amounted to € 2,633 million in 2003. Around 21.4% of the total annual expenditure of housing associations is spent on maintenance (CFV, 2005). Not all maintenance is realised by external service suppliers. Housing associations' in-house maintenance departments account for 9% of the total maintenance expenditures in the Netherlands. For planned maintenance this amounts to only 4% (Aedes, 2003).

Objectives of maintenance

Irrespectively of whether maintenance is purchased externally or procured at an in-house maintenance department, performance requirements must be set in order to ensure high-quality service delivery. This highlights the need for appropriate and measurable performance indicators. As hybrid organisations, housing associations in the Netherlands engage in market operations and perform public tasks. Both these activities involve financial risk. The public tasks are defined in the Social Housing Management Decree (BBSH).

Van Mossel and Straub (2007) concluded that maintenance, or more broadly, 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 association customers can be enhanced through a customer-friendly maintenance process and through the quality of maintenance carried out 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, albeit rare category of maintenance services, concerns the upkeep of listed buildings, or buildings with historic value.

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

- to guarantee the financial continuity of the housing association (see: yields on real estate);

2 Apart from maintenance, housing associations carry out improvement activities on their dwellings. Unlike maintenance activities, which primarily aim at preserving the quality of existing buildings, improvement activities lead to a higher market value of buildings. Improvement activities are therefore considered outside the scope of this chapter.

- to maintain the quality of the housing stock (residential satisfaction)[3];
- 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 result 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 task that requires high-quality service delivery to customers. Concurrently, the lack of market pressures means that the entrepreneurship of housing associations does not require high-quality service processes either. In theory, this implicates that inadequate service by housing associations towards their tenants generally remains unpunished.

There is a general public task defined in the Social Housing Management Order to reduce the chances of this, namely "tenant involvement in management and policy". The accompanying consequences for maintenance service delivery processes, however, are unclear. 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 general guidelines related to tenants, such as tenant participation. The most applicable article is "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 difficulties, from the point of view of good social entrepreneurship, high-quality maintenance processes should be an issue. How could this be worked out for the individual housing associations? Housing associations have the strategic opportunity to choose their focus: yields on real estate, residential satisfaction and liveability of the neighbourhood. They may, however, take a diversification perspective and opt for more than one objective.

Current use of performance indicators

As already mentioned, the outcome of maintenance services can be financial yields, tenant satisfaction and liveability of the neighbourhood. The contribution of maintenance to liveability has not yet been measured. The contribution of maintenance to financial yields is only measured in terms of costs analyses. Value consequences for objects as well as total costs of ownership are scarcely measured. Periodically, maintenance condition may be measured from a technical point of view. Do the building components and systems still function according to the minimum requirements stated in the maintenance contract? When minimum requirements are present, these are usually based

3 Residential satisfaction incorporates both dwelling and neighbourhood satisfaction/liveability).

on standards set in the Building Decree, other regulations, or standards set by the branch itself. These requirements may fall under the header of safety but also issues relating to utility and health. Some housing associations measure tenant satisfaction, usually regarding recent maintenance work.

As the consequences of maintenance on financial yields and the liveability of the neighbourhood are not currently measured, in this chapter the focus lies on tenant satisfaction as a result of maintenance service delivery. Therefore, the relevant outcome of the maintenance processes is tenant satisfaction, and by that the fulfilling of an important part of the *raison d'être* of the housing association as a social enterprise. The desired output should be related to tenant satisfaction. The most direct mode of measuring tenant satisfaction in the form of measurable output is through residential satisfaction surveys. Another way of examining tenant satisfaction with maintenance is by measuring the number and severity of complaints. It is, however, important to note that it is not the bundle of papers forming the survey itself that is the output, but the scores given by individual tenants on attributes of the quality of service supply. Attributes might include, for example, satisfaction with the timeliness, the tidiness, and the honouring of commitments by the maintenance supplier. Another way of securing high-quality service supply is to measure occurrences. For the result of maintenance, this is usually done by supervising activities carried out, particularly in the case of planned maintenance and void repairs. For reactive maintenance it is possible to track crucial moments in the handling of complaints, such as the information supply to the tenant about the maintenance process. This all concerns the measurement of output. Even parts of the maintenance process involving interaction with the tenant are output. The preparations of these outputs are considered to be throughputs. In other words, throughput in this case is the entire maintenance process excluding the interaction with, and the results delivered to, tenants, given the outcome of tenant satisfaction. For the delivery of maintenance services, the handling of throughput is not an easy task. As mentioned before, many parties are involved, and maintenance solutions are often recondite and complex. The quality of the throughput highly affects the service efficiency, while the quality of the output is decisive for service effectiveness.

8.3 Maintenance services and performance measurement

Service delivery process of maintenance contractors

The three main parties that are involved in the service delivery process are: tenants (the end customers), the housing association, maintenance contractors (or an in-house maintenance department of the housing association).

The most important inputs for the production of maintenance services are

the resources and capabilities of internal or external service suppliers. From the perspective of housing associations, however, the actual inputs are the means to hire these service suppliers and to control their performance. Barney (1991) categorises resources into three groups: physical resources such as plant equipment, location and assets; human resources such as manpower, management team, 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 task of the purchasing department to ensure the right combination of resources and capabilities for 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. Lastly, the quality of the delivered service is measured in the evaluation phase of the contract, or in separate evaluations of specific orders. From the perspective of the end customer this service quality can be separated into two components of the service: the physical results of the service (on building components and installations), and the interactions with the end customer during service delivery (Van Mossel and Van der Valk, 2006). In this research we focus primarily on the measurement of service delivery quality by housing associations, taking the end customer perspective in maintenance.

Figure 8.1 illustrates the process of maintenance service delivery from the perspective of the housing association. The black box in this case represents the actual execution of maintenance work by the service supplier. The relevant output is tenant satisfaction with the maintenance delivery process, and tenant satisfaction with the maintenance result. The outcome is tenant satisfaction with maintenance.

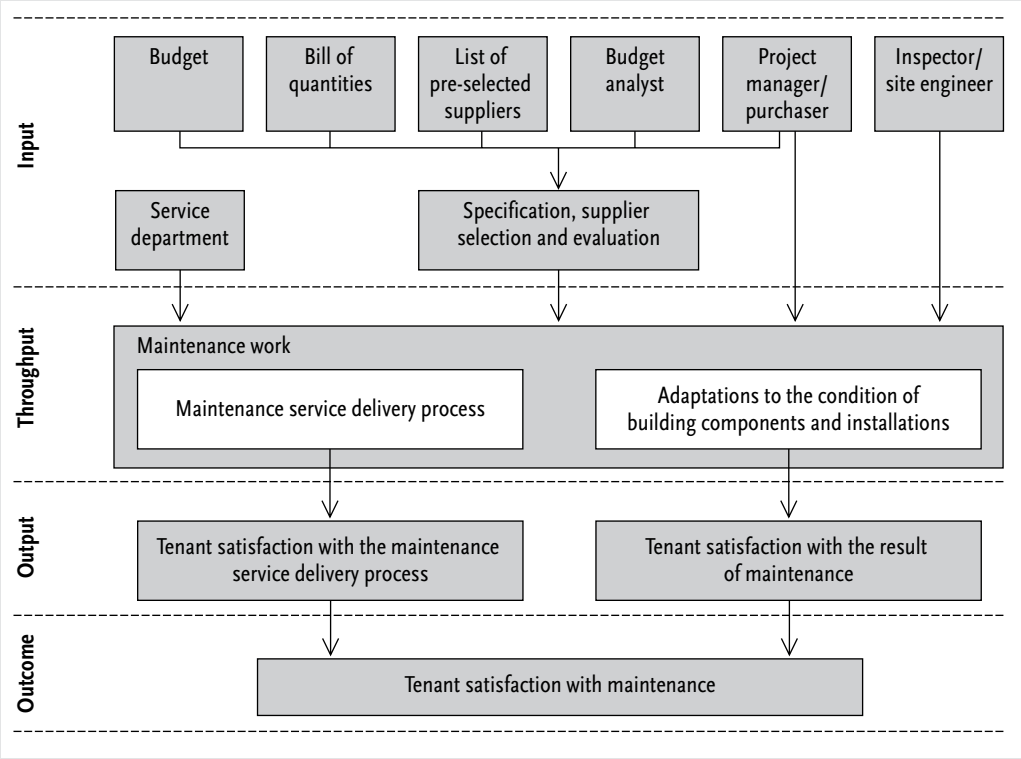
When housing associations want the relevant determinants of service quality to be covered in order to ensure tenant satisfaction (in particular in the case of reactive maintenance inside a dwelling), the relevant output measurement is necessary. At the level of input, specifications should include these determinants of service quality in order to be able to monitor these aspects.

Control of maintenance services

Maintenance services can be directed at individual customers but also at housing blocks or all or part of the entire housing stock of the housing association. Planned maintenance is usually directed at more than one dwelling, while reactive maintenance and void repairs are generally customised. In all circumstances there are two recipients: the housing association and the tenant.

The maintenance agenda is filled in both bottom-up and 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 through the housing associa-

Figure 8.1 Input-throughput-output-outcome model of the maintenance service delivery process as steered by housing associations



tion's policy. Planned maintenance is ideally derived from the strategic portfolio/asset plan, which may include tenant preferences (Straub, 2002).

Purchasing, whether undertaken by purchasers, technical managers or both, is the key interface to maintenance suppliers. In spite of this, purchasing is often perceived at present as an operational function that must merely realise what is stated in the maintenance planning of housing associations. This hampers bottom-up control and even 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. This leads to an accumulation of dyadic relationships that housing associations must manage in order to secure a high-quality supply, leading to all sorts of supply risk. Performance-based partnerships are developed to decrease the number of – in particular short-term – relationships between the housing association and its maintenance service suppliers.

Notwithstanding the jumble of parties involved in the supply of maintenance services, in terms of securing both product and process quality, some generalised minimum requirements for all supply and all suppliers of comparable commodities are desirable. Concurrently, as mentioned before, these requirements must be intelligent in order to ensure effectiveness and efficiency.

8.4 Determinants of service quality

Methods

What determines the service quality of maintenance? In other words, what should be measured when trying to reach high levels of end customer satisfaction? Van Mossel *et al.* (2006) have investigated the importance and satisfaction of the main determinants of maintenance service quality. Tenants' importance ratings and satisfaction ratings for services were measured by the use of a questionnaire.

A survey questionnaire was developed, aimed at measuring the importance of different determinants of the quality of maintenance service supply as perceived by the tenant (see Table 8.1). The determinants of service quality used for the purpose of this research were derived from the determinants of service quality as defined by Parasuraman *et al.* (1985). Their research identified five specific dimensions of service quality that apply across a variety of service contexts:

- 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). Based on these dimensions, determinants of maintenance service quality were drawn up. The general quality characteristics are adapted to the situation of maintenance using maintenance literature (Straub, 2001; Thomas *et al.*, 2005). Experts and tenants were asked for their opinion on the discerned aspects, or attributes. The applicable attributes were discussed in three focus groups, and translated into simple, comprehensible language, appropriate for the target group of the questionnaire. Clear, contrasting attributes remained, which were expected to have some influence on customer satisfaction. We then conducted a pilot survey, leading to a further sharpening of the attributes.

In this way, we were able to achieve a sufficient amount of data saturation, and no representative quality characteristics are missing. As such, validity is more or less ensured. This validity is confirmed by the results of the questionnaire survey: although respondents were provided with the option to add a determinant of service quality they deem important, this option was only rarely used. The few additions made were generally highly fragmented. For planned maintenance 99 and for reactive maintenance 70 respondents took

Table 8.1 Importance ratings: determinants of service quality

	Reactive maintenance inside the dwelling			Planned maintenance on the exterior of building		
	Mean	N	SD	Mean	N	SD
The quality of the result of maintenance	6.49	5,010	0.868	6.49	5,226	0.848
The competence of maintenance workers	6.43	5,032	0.901	6.43	5,262	0.905
Completing maintenance activities in a single visit	6.41	5,005	0.926	6.42	5,249	0.924
Avoiding damage to personal property	6.37	5,051	0.963	6.36	5,244	1.011
Sticking to execution planning agreements	6.34	5,036	0.938	6.26	5,203	0.976
The politeness of maintenance workers	6.29	5,103	0.949	6.25	5,277	0.978
Being available to answer questions and receive complaints	6.22	5,037	0.987	6.12	5,300	1.043
Limiting and tidying up litter and dust around the work site	6.19	5,044	0.971	6.11	5,246	1.098
Flexibility in making appointments	6.12	5,028	1.087	6.05	5,217	1.041
Tenant participation in maintenance through options	5.96	4,900	1.213	5.89	5,102	1.271
Being addressed in your own language	5.80	4,951	1.313	5.80	5,260	1.549
Limiting nuisance caused by noise and vibration	5.77	4,998	1.558	5.65	5,210	1.408
Limiting the time taken for the work	5.69	4,969	1.388	5.65	5,111	1.396
Having maintenance workers wear smart uniform overalls	5.48	5,045	1.559	5.40	5,281	1.596

Source: Tenant questionnaire for maintenance services (Van Mossel, 2006)

the opportunity to add something, although most of the additions made were unrelated remarks, factors that are already covered or those that cannot be covered. Two categories of aspects that were mentioned by respondents and that make sense can be identified, namely 'provision of information before the start of maintenance activities' and 'evaluation and service recovery'. In the end, fourteen determinants of service quality remained.

In order to simplify the process of questionnaire completion for tenants, we equalled planned maintenance to planned maintenance to the exterior of the building, and reactive maintenance services to reactive maintenance performed inside dwellings.[4] In 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 the determinants of service quality were determined, as described above, the levels of importance of and satisfaction with each of these attributes were evaluated with the use of the questionnaire. Levels of importance were measured on a seven-point scale, ranging from (1) 'extremely unimportant' to (4) 'neither important nor unimportan' to (7) 'extremely important'. Levels of satisfaction were also measured on a seven-point scale, ranging from (1) 'extremely dissatisfied' to (4) 'neither satisfied nor dissatisfied'to (7) 'extremely satisfied'.

Measurement of the perceived importance of attributes is conducted in two ways, namely direct (verbal) and indirect (implicit). The direct way involves

4 Through this distinction, respondents are offered a clearer perspective on the differences between both types of maintenance. In practice, by far the majority of planned maintenance work is conducted to the exterior of buildings. Concurrently, by far the majority of reactive maintenance work is conducted inside dwellings.

simple calculation of the mean importance ratings for all determinants of service quality. The indirect way of measuring the perceived importance of attributes implicates measurement of the impact of satisfaction with determinants of service quality on tenant satisfaction with maintenance.

Results

For both reactive maintenance and planned maintenance, 'the quality of the result of maintenance' is considered most important, followed by 'the competence of maintenance workers' and 'completing maintenance activities in a single visit'. Although the results for planned maintenance and reactive maintenance are highly comparable, in the case of a high level of interaction, which is the case in reactive maintenance, it appears to be particularly important to deliver quick service. Quick service is stimulated by prompt problem identification, the easy arrangement of appointments, and by limiting the amount of time that workmen spend in the private homes of tenants.

The stated mean scores on the attributes are presented in descending order in Table 8.1.

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 on 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 service quality, either for planned maintenance on the exterior of the 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 discerned types of maintenance. 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%.

Where satisfaction with planned maintenance to the exterior of the building is concerned, there is a significant relationship with satisfaction with the aspects 'tenant participation in maintenance through options' and 'the quality of the result of maintenance'. 'The quality of the result of maintenance' is an aspect that was also explicitly rated as 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 resi-

dential satisfaction in general. It means that this aspect is mentally attributed as being potentially more harmful to the residential situation of respondents than an aspect forming part of the maintenance service itself.

8.5 The case of KWH-huurlabel

KWH-Huurlabel

An important tool that is used for 50% of end customers in the Dutch social rented sector is the quality mark KWH-huurlabel. The KWH-huurlabel measures the perceived quality of service delivery in the letting process. While other quality marks such as VGO-keur and MQM, which were both set up specifically for maintenance, do not focus on the end customer (the tenant), KWH-huurlabel does. KWH measures the service quality of 174 housing associations. Around 200,000 paper tenant questionnaires annually, combined with telephone questionnaires and mystery guest meetings, form the basis for this performance measurement. Although the focus of the KWH-label is on processes executed by housing associations, service suppliers can be required to deliver services in conformity with KWH standards.

The KWH-huurlabel consists of ten components, ranging 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 an eight-week period. For the component 'doing repairs', end customer satisfaction with the delivery process of services can also be measured on a continuous basis. These measurements are done through online questionnaires. For all components, terms of delivery are set up as well as performance standards: the performance indicators. The terms of delivery are considered to be the expectations of the end customer. The delivery process is unravelled into actual standards, or performance indicators, to be met by the housing association. According to KWH, the quality requirements are based on general accepted standards and values, such as mutual respect, timeliness, transparency, approachability, patience and friendliness (KWH, 2007a). Alongside KWH, marketing consultancy companies such as USP conduct comparable performance measurements of the service quality of housing associations. As KWH is currently market leader, and the KWH-huurlabel is a recognised quality label, the forthcoming analysis will be focused on this tool.

Next we will analyse the extent to which the KWH-label delves into the relevant determinants of service quality, and thus to what extent additional requirements are needed for housing associations in order to ensure maintenance service quality.

Table 8.2 Determinants of service quality covered by the KWH-huurlabel

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 for the work	o
Having maintenance workers wear smart uniform overalls	–

+ = Covered o = Partly covered – = Not covered

Document study

By means of a document study the KWH-huurlabel so-called 'terms of delivery', performance standards and performance measurement points were examined (KWH, 2007a; 2007b). Using the determinants of service quality as our point of reference, we investigated whether these aspects are covered in the KWH-huurlabel. Two analysers indicated separately whether aspects are covered or not, and how they are covered. Discrepancies were discussed and consensus was finally reached on all determinants of service quality. The results with respect to the different determinants of service quality are presented in Table 8.2.

Conclusions from KWH

Possibly in combination with the two aspects that are mentioned by respondents themselves, 'provision of information before the start of maintenance activities' and 'evaluation and service recovery', the most important aspects (direct or indirect) should be included into the performance measurement of maintenance. An important part of this performance measurement is covered by the KWH-huurlabel.

'The quality of the result of maintenance' is generally considered the most important determinant of service quality. In the KWH-huurlabel, this aspect is indirectly measured. This is logical, since the KWH-huurlabel is primarily set up to measure the quality of service delivery to tenants, the processes. Condition measurements and output performance measurements of the results of maintenance are necessary. For other standards, KWH uses throughput, output and outcome measures. Apart from the method of measurement, the choices for measures seem to cover the needs for many aspects as identified through the survey.

Considering two top-three stated importance aspects which, for reactive maintenance inside the dwelling are also included into the regression model of indirect measured aspects, it is notable that 'the competence of maintenance workers' and 'completing maintenance activities in a single visit' are respectively only partly and not covered by the KWH-huurlabel. For housing associations this means that in order to ensure customer satisfaction additional performance measurements are needed. For 'completing maintenance activities in a single visit', which implicates that a maintenance worker must not pay unnecessary repeat visits to the tenant for extra materials or

through error, 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 results of this expertise might be combined with input measurements of human resources of maintenance contractors. Next to this, from this research we may conclude that the attention for worker- and workplace-related nuisance is restricted in the KWH-huurlabel. Although these aspects are not among the most influential for residential satisfaction, nevertheless, for specific groups (such as the elderly, see Van Mossel *et al.*, 2006) additional attention in performance measurement may be necessary in order to ensure customer satisfaction. Both the prevention of noise and vibrations and inconveniences due to litter and dust are not included in the KWH-huurlabel. Additional output measurements are needed besides the very broad satisfaction measurements of the KWH in order to settle this issue. In addition, the KWH-huurlabel does not cover the restriction of the duration of works while, in the case of reactive maintenance, this has a significant relationship with tenant satisfaction with maintenance. Again, an output measurement seems to be most suitable for encouraging maintenance workers to communicate and deal adequately.

Apart from the contents covered, the quality of performance measurement depends on how the measurements take place. In this research we do not pay attention to this, as this study is directed at the contents of measurements rather than the technique.

8.6 Conclusions

Performance measurement

In this chapter an account of and the reasons for the widespread use of performance measurement of maintenance service delivery in the social rented sector have been given. In this investigation, the aim was to assess to what extent performance measurement with regard to maintenance service delivery is consistent with the intentions of housing associations.

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 of a correct follow-up of necessary process steps for successful service delivery from the perspective of customer satisfaction. The actual interaction with the end customer in the process is, however, considered as output. Standards concerning accessibility are examples of throughput measures. They enable adequate output in

terms of successful interactions. Therefore they are necessary measures to be included in the performance measurement system. A disadvantage of this type of measurement is the lack of end customer evaluation of a certain process.

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: the condition of the building component or installation. For example, standards that are related to the satisfaction of customers with the way they are approached by maintenance workers can be considered output measures. A disadvantage of this type of measurement is a possible overload in surveying end customers.
3. Outcome measurement: the measurement of residential satisfaction after maintenance, and tenant satisfaction with different maintenance services. The measurement of the outcome is useful for measuring the performance of suppliers and the buying centre. Housing association boards can use these measures to steer and improve the buying centre and use the information for adaptation of the strategic policy and organisational consequences. For the buying centre itself, this type of measurement has the disadvantage of being too broad, and moreover the contribution to a possible overload in surveying end customers. In other words, these kinds of indicators, which are often applied by housing associations themselves in order to test the quality of service supply, are too unspecific to be valuable key performance indicators in improving the quality of service delivery. They are mere alerts.

Important determinants of service quality

The average stated importance ratings of determinants of service quality are comparable for planned maintenance outside dwellings and reactive maintenance inside dwellings. The most important aspect from the perception of tenants 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 implicates that maintenance workers perform their maintenance job without unnecessary rework or extra site visits.

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

KWH-huurlabel and public performance criteria

The KWH-huurlabel measures the quality of service delivery in the rental process. Many aspects that are related to maintenance service delivery seem to be adequately covered by the KWH-huurlabel, which has a much wider scope. Where maintenance service delivery is concerned, in addition to the aspects that are adequately covered by KWH, housing associations must pay attention to the measurement of, in particular, completing maintenance activities in a single visit in order to ensure customer satisfaction. Since worker- and workplace-related nuisance is also not covered in the KWH-huurlabel, for specific target groups that highly value these aspects additional performance measurements related to this may be necessary in order to achieve customer satisfaction.

Public performance criteria

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 contrasts with the situation as regards the result of maintenance, which is addressed both in the law (the Building Decree, which sets minimum quality requirements) and through public performance criteria (BBSH).

For potential customers, the fact that housing associations have the KWH quality label does not have any influence on the choice of dwelling (and therefore service supplier). Moreover, in a market situation of suction, which is often the case in urban housing, potential clients of the social rented sector have barely any choice. This situation would plead 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), however, do not take into account this important issue. The alternative, the branch code of conduct (AedesCode), also fails to cover maintenance service delivery satisfactorily. Despite these conclusions, just like for other public (and private) services, from the point of view of good social entrepreneurship, high-quality maintenance processes should be a matter of concern for housing associations. Future developments of (public or private) reviewing processes may provide new opportunities.

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9 Discussion

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Performance measurement

Performance measurement is essential to make organisations function effectively and efficiently. Performance measurement is not just of vital importance as a management instrument; it is indispensable for external control of the organisation.

The advantages it holds for public organisations apply equally to social enterprises such as housing associations (De Bruijn, 2002). First, performance measurement creates transparency. Second, as performance-based steering is rewarded with more efficient and effective production, performance measurement acts as an incentive to raise the bar even higher. As performance measurement is also necessary for public accountability, it can improve the quality of the decision-making processes.

But there is a downside. For example, performance measurement can lead to strategic behaviour. It can hinder an organisation from venturing into new, uncharted territory and pursuing innovation. In addition, aggregated performances can paint a distorted and obscured picture of the actual performance. The emphasis may be placed on performances that are easily measurable at the expense of those that are less easily measurable but certainly no less important. Steering that is based on erroneous or inadequately defined performance indicators can distract an organization from achieving its objectives. Finally, a performance-measurement system which is perceived as unfair by those involved because, for example, it is incomplete can lead to devious behaviour.

This book presents a wide array of problems and solutions concerning performance measurement in the social rental sector in the Netherlands.

In order to bring some tractability to the problem of performance measurement a built upon ideas from systems theory have been used by the several authors. The question is whether separate topics, funded in one and the same sector, can deliver generic insights that can be used to improve the performance of the entire sector.

Complexity

The essays in this book show that the system approach has the tools to bring transparency to the aims and means of the various participants in the production process of housing associations. As soon as the aims and means are transparent they can be discussed and used for problem analysis. Given that housing associations have many complex aims and tasks both in the market and in the public domain, there is a pressing need for an analytical frame-

work in which aims are transparently defined and insight is provided into the production process that leads to them. The situation is further compounded by a host of external parties and stakeholders who influence the production process, such as tenants, buyers, municipalities and suppliers in the social rental sector.

Hasselaar highlights the contradiction between the 'systems' of the resident and those of the housing association in the health performance of housing. System analysis provides a good idea of the differences between the perspectives of both players. This, in turn, unveils solutions, which can then be opened up for discussion.

Van Mossel and Straub underline that external suppliers take care of the input of housing associations that enable them to fulfil their public tasks. In order to realise the desired outcome, the services that are to be purchased, and later on delivered, must comply with the function of these services. Performance measurement is a means to reach this goal.

Dynamics

Though the complexity of the social rental sector is crying out for transparent performance measurement, this complexity – due to dynamics in the surroundings – is also to blame for the existence of some of the measurement problems in the first place.

Nieboer argues that the limited input from performance indicators in the portfolio management of housing associations is due largely to constraints on the relationship between intended investments in the portfolio and actual investment decisions at complex and neighbourhood level. Municipal area plans, in which the housing association has little or no say, have a strong influence on investment decisions at the level of the housing complex.

According to Koopman and Vos, the dynamics of the owner-occupier market is hampering prognoses of the outcome. The production process needs to be more flexibly planned to absorb fluctuations in demand. When planning a performance it is essential to gain a clear idea of the manageable and unmanageable dynamics and to adjust the system accordingly.

In the book suggestion are also put forward for innovative solutions to reconcile conflicting aims. Straub develops these into a profile of a performance-based partnership between housing associations and maintenance companies with conflicting interests, whereby the aims of both parties can be united.

Soft and hard

External dynamics can add to the complications of measuring and steering performance, but some performances are in themselves elusive and difficult to measure. Indeed, performance measurement may concentrate on performances that are easily measured at the expense of those that are less easily measured but certainly no less important.

Nieboer points out that performance measurements and indicators still play only a limited role in the portfolio management of housing associations. He cites another reason for this besides the local dynamics mentioned earlier. He concludes that many of the portfolio management aims cannot be reflected in performance indicators. Moreover, most of the portfolio management aims which are covered by performance indicators are not the ones that really matter. Nieboer maintains that performance measurement in portfolio management can be useful for monitoring actual developments.

Gruis, De Kam and Deuten argue for a 'comprehensive' system to measure the performance of housing associations. This system must meet certain criteria:

- it must measure financial and social performances in relation to each other;
- it must measure performance at company and project level;
- it must combine quantitative measurements of input, output and outcome with qualitative measurements of outcome.

The housing association's vision of the relationship between output and outcome must be explained clearly and unambiguously in writing. Gruis, De Kam and Deuten refer to this as the 'theory of change'.

A combination of qualitative and quantitative performance indicators is similarly recommended by Koopman, whose research findings indicate, amongst others, that liveability is not adequately measured by the availability of certain amenities. However, when the availability of amenities is combined with the residents' ratings for the quality of the service, it becomes a sound indicator of liveability.

Finally, when, as shown by Koopman and Vos, it is impossible to steer processes directly towards the intended performance, the aim can still be pursued by a policy that is designed to shape the right conditions.

Public performance objectives and criteria

Dutch housing associations are private organisations which are also entrusted with a public remit. This remit is laid down in the Social Housing Management Decree (BBSH) and is split into six tasks.

Gruis, De Kam and Deuten state that, over the years, there have been barely any conflicts about the required level of activity for each task. There has, however, been some discussion about housing associations with ambitions stretching beyond the remit of the BBSH. Discussions frequently flare up about the exact nature of the core activities of housing association.

The recognition of liveability as a separate domain is regarded by Koopman as confirmation of the validity of the efforts by the housing associations (at least) to measure and steer liveability performance.

Van Mossel mentions that, in a tight housing market in particular, the provider has only a limited choice of potential tenants. At such moments there is

a clear interest in the public remit of the housing associations. Though there are public aims for maintenance (the quality of the housing) besides those in the Building Decree, there are no public incentives for high-quality services. Koopman also points out that attention is concentrated on the 'physical' measures for the liveability task in the BBSH, while the process of increasing and maintaining liveability is more or less ignored.

Applying the Conceptual Systems Approach

Performance management in organisations is possibility, as long as one is willing to accept that the contributions of each separate actor within the organisation cannot be fully identified and the output or the outcome of the operations are seen as stochastic quantities, subject to risk and uncertainty, rather than the deterministic quantities of the systems approach. The organisation is considered as a black box, yet with clear causal relationships with the actors and objects in its environment.

The contributions in this book can be viewed as a validation for the assertion made by some complexity thinkers (for example, Pascale, 1999) that organisations do exhibit manageable behaviour despite the apparent complexity of their environment.

Like Stewart and Ayres (2001), we can conclude that a systems approach to performance management provides useful tools for assessing the current practices. The system analysis (or more specifically the soft systems methodology, developed by Checkland; see i.a. Checkland and Scholes (1990)) can prove useful in the analysis of complex problems, without turning into a deterministic steering instrument. It helps to identify the main players and plot the potential effects of actions. It can also clear up any conflicting interests and thus improve coordination between the players. Generally, analytical frameworks like the sytems theory can be helpful to address the managerial problems of housing associations, the actors involved and the possible consequences of new policies and interventions.

The social rental sector is becoming increasingly modernised and rationalised. This applies particularly to the production process of housing associations, as described in this book. Though the call for rationalisation and policy transparency is getting louder all the time, housing associations are still tightly bound to the – largely softer – public goals. Performance measurement can form a bridge to help public organisations carry out their public tasks for the benefit of the tenants and society at large.

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The contributors to this book try to address the societal and practical needs of housing associations for better instruments for performance measurement. The provision of useful instruments allows for more transparency and thus improvement of external control over housing associations. At the same time these instruments should benefit the internal control and planning processes of the housing associations. The identification of key performance indicators, as well as the input, throughput and output indicators that are bound up with it, facilitate the choice, implementation and (re-)shaping of policy alternatives and the justification for choosing among these alternatives. The range of examples covered in the book is more or less related to the public tasks of Dutch housing associations.
The book purports to ascertain a general guideline for performance management by housing associations, too. For this purpose the tools that are provided by the conceptual systems approach have been used as a framework.

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