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Performance measurement in the built environment

Textbook for part 2 of the Real Estate Management course

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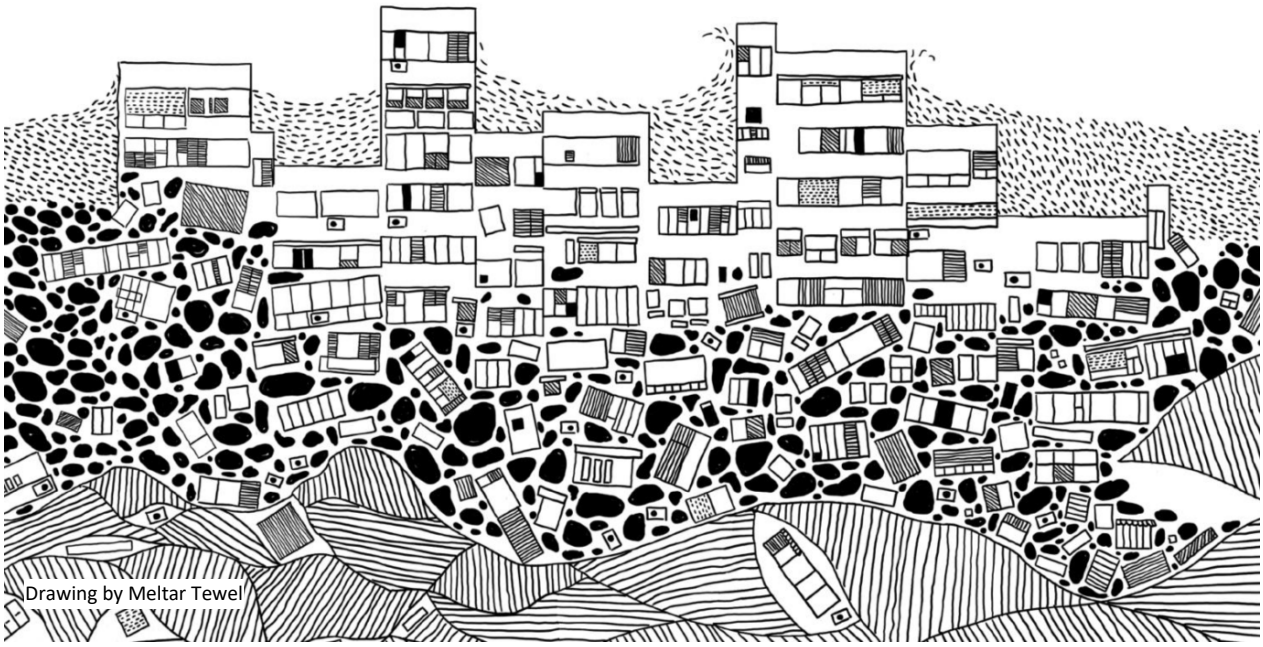
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Introduction

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The very purpose of management is to achieve desired goals. Management ensures that planes fly, the sick are healed, or peace is maintained. Management in the built environment ensures that the built environment fits with user requirements, during operation and (re-)development. Management needs feedback on whether its area of attention is moving in the right direction and the desired goals are reached. Performance measurement provides that feedback.

Performance, as used in this textbook, is the extent to which the current state of a focus area corresponds to its desired state. The concept is very familiar to all of us: we check performance naturally and frequently throughout the day as we examine whether our actions have produced the desired results and use this information to plan new actions. For example, when preparing a meal, we frequently check that the vegetables are cooking according to the recipe (performance measurement) and appropriately adjust the heat of the oven (performance management). This textbook focuses on the technique of performance measurement, with occasional references to what management can do with the results of performance measurement.

Example

Performance measurement during building construction

Within the built environment performance measurements are a common practice during construction. Project managers organise quality controls during all stages of the construction process: they check the designs, survey the orders, control the construction materials like steel and brick, visit the site to check the assembling, etc. When they check, they compare the observed state with the program of requirements, building regulation, material quality standards, and many more references. They then report on whether the current meets the required.

Example

Performance measurement of buildings in use

During the use of a building, there are many and continuous performance assessments as well. The various elements of the building, such as the roof, heating and ventilation systems, windows, solar shading, flooring, etc., are regularly checked for quality. A portfolio manager who is responsible for the operation of thousands of houses will check the portfolio against the many societal expectations: does the portfolio accommodate the required profiles of people and meet the government's sustainability goals well enough? And, what about social security in the evening in the parking garages and community gardens? Performance measurement will show what is in line with expectations and what is not.

1.1 Performance according to the dictionary

In daily language, the word performance has different meanings, and before we go on, we should agree on what performance means in this textbook. According to Oxford Languages Dictionary, performance is:

1 an act of presenting a play, concert or other form of entertainment
2 the action or process of performing a task or function
    a. a task or operation seen in terms of how successfully it is performed
    b. the capabilities of a machine, product or vehicle
    c. the extent to which an investment is profitable, especially in relation to other investments
    d. an individual's use of a language

There is no doubt that performance in this textbook refers neither to an act (1) nor to use of a language (2d). In everyday language, the word performance often refers to a property of an object, as in definition 2b. For example, when we say 'a powerful all-electric car', we mean that this car has a long range, which is a property of this car. But this is not the meaning of performance as used in this textbook.

The definition of performance used here is presented in the remaining definitions (2, 2a, 2c). These definitions refer to a predetermined task, function, success, profit or investment, and compare the action under consideration with this predetermined reference in terms of 'how successful' or 'how profitable' it is. We define performance as the extent to which the current state of a focus area matches its desired state, as mentioned above. As such, performance refers to how well people, products or services perform in the eyes of clients, customers, end users, other stakeholders and society as a whole. Well-functioning is established when the current state fits with the desired state, where the latter may take the form of a given target, objective, standard, law or benchmark.

From this perspective, it could be said that the rejected definitions 1, 2b and 2d lack the reference value, probably because this reference value is considered too obvious and is therefore left implicit.

Example

Car reseller

When a car reseller aims at selling 100 cars a month to generate a required return of 12% on equity capital, the performance appraisal will report on the actual number of cars sold and the resulting return on equity. This appraisal gives an indication of the effectivity of the sales team of this reseller and can be used to take corrective action.

Example

Quality Control

Performance measurement is widely used in industry. One example of performance measurement is quality control. Before products are delivered to customers, they are tested for quality. Think of a car: before it leaves the factory and is delivered to the customer, it is checked at hundreds of control points. For example, the quality assurance department will check that the bodywork has been painted to the brand's quality standards. The same applies to the engine's performance, the colour of the interior and many other checks.

1.2 Measuring what?

Performance measurement focuses on a particular area, and subjects this area to a series of well-thought measurements with the intention of informing recipients about the state of this area according to the dimensions these recipients are interested in and the reference value they installed.

Example

Measuring business performance

Measuring business performance depends on the definition of success for that business. In turn, the definition of success depends on the view of particular groups of stakeholders. Let us take an airline as an example. Someone going on holiday will be happy when there is plenty of room beside them because the next seat is empty, they are offered another portion of lunch because there is extra food on board and the cabin crew have plenty of time for individual attention. The airline’s customer service manager may also be delighted with performance because there have been many emails praising the service. The airline’s CEO, on the other hand, will probably be dissatisfied with performance because there are too many empty seats, money is being wasted on catering and the cabins are overstaffed, all of which contribute to unsatisfactory financial performance. Shareholders will be dissatisfied because they see a poor return on their investment.

(Hofstede Insights, 2023 §1.3)

In the above example, the flights executed by the airliner are the focus area of the performance measurement. There are four recipients – also called the audience – for the performance measurement: the passengers, the customer service manager, the CEO and the shareholders. These recipients have different perspectives on the focus area, which results in different performance dimensions to measure. The passengers and customer service manager have a customer

perspective: they are interested in a measurement of the customer satisfaction. The CEO and shareholders have a supplier perspective: they are interested in the financial dimension. In most cases the dimensions the recipients are interested in can not be measured directly in the focus area. In this case, measurement of customer satisfaction might necessitate three indicators (service quality, ease of traveling and ambiance) and the measurement of financial dimensions might need four indicators (percentage of seats sold, their average price, the no-show percentage, the number of cabin staff that wasn't needed). How the focus area can be structured and how the dimensions and indicators fit therein, is determined in the performance measurement framework that describes the focus area and the cause-effect relationships in it. The example also mentions the reference values the recipients use to judge. The passengers and customer service manager want to be happy and delighted; the CEO does not want money wasted and the shareholders want a high return on their investment.

The key concepts of performance measurement, as introduced in the example above, are:

- focus area
- current state, desired state
- recipients, audience, stakeholders
- perspectives
- reference values
- performance measurement framework, dimensions, indicators

Measuring performance informs the audience, but this can be misleading when they are not aware of the measurement techniques and the limitations of the method. The Nutri-Score measurement is a good example.

Example

Nutri-Score is convenient, but it also compares apples to oranges

With a green, yellow, orange or red label on the packaging, the Nutri-Score indicates how healthy a product is. But there are also unhealthy products with a green A label. So is the Nutri-Score correct?

Nutrition scientist Alie de Boer (Maastricht University) researches food information and claims on product packaging, such as the Nutri-Score. ''For example, low-fat yoghurt gets the green A label, while yoghurt with more sugars and calories gets the orange D label,'' she explains. ,,Thus, the Nutri-Score helps in making healthier food choices.''

Still, some products that we know are unhealthy get a favourable Nutri-Score. De Boer: ,,That is because of the scientific method used to determine that Nutri-Score. It is a calculation in which unhealthy nutrients are given penalty points and healthy nutrients are rewarded. As a result, one frozen pizza gets a negative Nutri-Score D, because it contains a lot of unhealthy nutrients. But another pizza with lots of vegetables and less salt and fats will actually get an A label.''

Although as a consumer you are more likely to buy that pizza with the positive A label, pizza is still an unhealthy product.

Another problem is that the Nutri-Score assesses all positive and negative nutrients in a product per 100 grams or millilitres, and not per portion consumed. For example, olive oil, which contains a lot of fat, is given a negative C label. De Boer: ,,But this calculation method does not take into account that you eat at least 400 grams of a frozen pizza. Meanwhile, you only take 10 millilitres of olive oil with your meal.'' As a result, a frozen pizza can get a positive A label, while it is unhealthier than a dash of olive oil with a C label.

So the Nutri-Score looks at the nutritional value per product and not at how healthy a product is in general. As a result, food producers sometimes engage in healthwashing, says De Boer: "For example, they add more positive nutrients to a product, such as protein, giving it a healthier Nutri-Score. As a result, the bag of crisps with less fat and salt and more protein still gets a positive B label, even though crisps are not a healthy food choice at all.''

If products with a Nutri-Score A are not necessarily healthy, can the Nutri-Score still be used to your advantage? De Boer: ,,It is a useful tool when in doubt about the healthiest choice within a product category.'' So although a Nutri-Score A does not automatically mean that a product is healthy, products with the A label usually have a better nutritional value than products with a D-score. De Boer: ,,So stay critical and pay close attention when comparing products. Just as you cannot compare apples with pears, you cannot compare A-label frozen pizza with C-label olive oil.''

Source: Roos Ettema, in: Algemeen Dagblad on Saturday 24-6-2023

1.3 Performance expressed in a formula

Performance is a relative metric of an aspect of reality: as said above, it contrasts the current value of an aspect to a reference value for this aspect. This reference value is determined by stakeholders.

When the current value matches the reference value, performance is equal to 1 and things are perfect. When the current value falls below the reference value, performance is deemed inadequate. Underperformance may result in corrective action.

When the current value is greater than the reference value, performance may also deemed inadequate, as in many instances exceeding the reference value results in undesirable adverse effects. Consequently, overperformance may also initiate corrective action.

$$\text{performance} = \frac{\text{current value}}{\text{reference value}}$$

The closer the performance is to 1, the higher it is called. So if after an intervention the ratio of the actual state to the desired state is closer to 1 than it was before the intervention, the performance has increased.

1.4 Performance measurement definitions

Performance measurement literature is very diverse, and so are the definitions of performance measurement. Below we give some examples.

- performance measurement is the regular collection of data about an enterprise and the comparison of that data with predetermined targets;
- performance measurement *systems* are any formal procedures and statements used by managers to execute performance measurement; they track selected measures of the activities in the focus area at regular time intervals and report these measures to the specified audiences on an ongoing basis (Miraglia & Leotta, 2010, p. 110);
- performance *management*: is either (1) management based on the use of performance data, in particular personnel performance data, or (2) management of performance, implicitly understood as management to improve performance.

Performance measurement and/or performance measurement systems often got called differently, depending on the context or the aim:

- controlling: this term is frequently utilized in terms such as financial control, quality control, management control, control and feedback, etc.; the term elicits an authoritative or at least a distant relationship between the controllers and those subjected; the term also has a sense of steering; control levers, a term used by Alamy (2001, p. 144) refers to mechanisms to steer.
- monitoring: to observe and check the progress or quality of (something) over a period of time; keep under systematic review (see e.g. Alamy, 2001, p. 1)

1.5 Outline of this textbook

The first part of this textbook explains the theory of performance measurement (PM). Since the desired state for a focus area depends on the values of the stakeholders, the first chapter of this textbook gives an overview of value systems that store and communicate about values. These values are at the root of all goal setting. The second chapter explains the technique of performance measurement. Starting with its history, it analyses the reasons for organising performance measurement and the consequences of particular views of an organisation. The chapter continues with an explanation of the design, implementation and use of PM systems, followed by a discussion of the models used and the requirements for a PM system. The third chapter presents some exemplary PM systems, such as Kaplan and Norton's Balanced Scorecard.

The second part applies performance measurement to the built environment. For now, the focus of the second part is mainly on corporate real estate management, i.e. the management of real estate owned or leased by organisations for their own use. Most of the text is adopted from the Dutch book *Huisvestingsmanagement: van strategie tot exploitatie* [Corporate real estate management: from strategy till management of buildings-in-use] by Jan Gerard Hoendervanger, Theo van der

Voordt and Jaap Wijnja (2022), extended by new insights. Chapter four discusses the use of values in the built environment. These are the references for performance measurement in the built environment. Chapter five describes how performance indicators can be grouped by dimension and level of scale. Another grouping technique is the use of key performance indicators. Chapter six presents a number of frameworks that have been developed to measure the performance of the built environment, both quantitatively and qualitatively. These frameworks are grouped into seven dimensions. The final chapter of part two links building performance measurement to performance improvement. Adding value is the ultimate reference for all interventions in the built environment.

The third part explores some specific topics in more depth. Chapter eight examines how to measure the financial performance of housing associations. Chapter nine describes how the security of housing tenants in the Netherlands has eroded over the years and become precarious. Chapter ten describes how the social performance of housing associations can be measured: they have to make difficult choices based on factors that are difficult to measure and compare, and this chapter describes how that works. Finally, chapter eleven presents a number of benchmark data, with a focus on office buildings.

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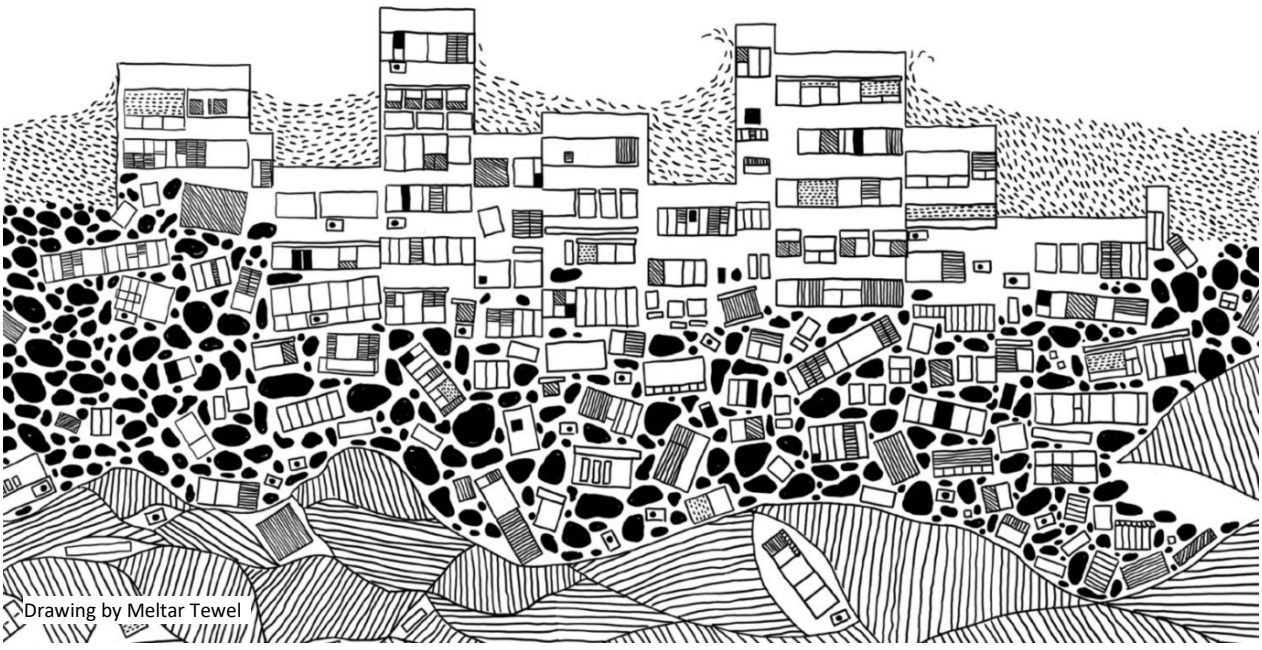
PART 1
PERFORMANCE MEASUREMENT THEORY

1. Values systems – *Herman Vande Putte*
2. Performance measurement – *Herman Vande Putte*
3. Examples of performance measurement frameworks – *Herman Vande Putte*


Drawing by Meltar Tewel

1 Values systems

Herman Vande Putte

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People valuate their environment and experiences. They make distinctions between what they like or dislike. They prefer certain food, certain feelings and music, friends, types of houses, ways of working or meeting above other ones. A total indifference to the external world and the own feelings is considered abnormal.

As a consequence, people tend to mobilise resources to nurture what they prefer and abstain resources from what they like less. They even mobilise resources to compete what they dislike. This behaviour may seem to be rooted in a hedonistic world view whereby people want to be pleased, but it is situated at a deeper level, maybe at the level of survival. Also an ascetic allocates or withholds resources to what he respectively finds important or unimportant; he may strive after less or the absolute minimal, but neither he undergoes things indifferently.

Values and preferences create goals for human activities. And it is through management that people achieve these goals. A management objective – also called a management goal – is derived from the set of values the manager has to serve such as keeping peace, providing affordable housing, making profit, finishing in time and within budget, increasing quality of life, etc.

What people like and dislike, what they consider good and bad, has been collected over time in a wide range of values systems. This chapter presents some of these values systems. At the end of the chapter some methods are presented to deal with differences in values preferences.

1.1 Meaning of the term value

The term ‘value’ covers several meanings. Oxford Learner Dictionaries (consulted on 07-10-2023) distinguishes four meanings:

- Within ethics and social life, values [plural] means
  the beliefs about what is right and wrong and what is important in life.
  Example: We need to be guided by our moral values.
  This is the dominant meaning of values in this chapter.

- In social life, value means
  the quality of being useful or important.
  Examples: The value of regular exercise should not be underestimated. She placed a high value on loyalty.

- In economics, value means
  how much something is worth in money or other goods for which it can be exchanged, how much something is worth compared with its price.
  Examples: To be good value. This is a great value-for-money offer.
  Here value is considered a property of the object; this value is a quantification through a currency of the former meanings of value. This means that this value relies on the appreciation of the object by its user. This meaning of value is used in some parts at the end of this chapter.

- In mathematics, value means
  the amount represented by a letter or symbol
  Example: Let y have the value 33.
  This meaning of value is not considered in this chapter.

This chapter about values systems focuses on the first and third meaning. The textbook uses the four meanings.

1.2 Values systems

Values systems are distinguishable collections of values within a society. They exist in many forms and shapes, like literature, religions, declarations, agreements, legislation, etc. Values systems store values and make them knowable, transferable and debatable. The ten systems that are presented below are some examples of the many values systems that are present in societies.

Myths and sagas

Myths and sagas, being basically stories, have connections with all aspects of human life and experience (Parada & Förlag, 1997): they refer to the origins of the universe, the gods and mankind; they claim to reveal historical facts or describe psychological truths; they make emotional valuations and concern themselves with moral, physical or ontological issues; they may convey beliefs, superstitions,

rituals, literary images, social ideas, and they may use symbols and allegories as well as reason, philosophy and ethical values. As the myths may be said to comprise both the outer and the inner world in all their aspects, they appear as an all-embracing tale.

The Greek believed that the capacity to tell such tale is the privilege of the gods and not of men, for human beings are notorious for having an inborn difficulty in distinguishing between true and false since they "have only hearsay and not knowledge" (Homer, 800-701 B.C.). The myths have therefore been considered to be divine tales told by gods to men, who in turn transmitted them to their fellow human beings (Parada & Förlag, 1997).

Classical plays

The Greek plays and the theatre pieces of Shakespeare, Molière, Beckett and so many more writers, are means by which the writer as well as the audiences transmit and discuss values. Their shows incite reflections in society that pass values to later generations. Oedipus Rex by Sophocles is perhaps one of the best-known of the classical dramas. The play follows a cursed family who tries in vain to escape their fate. Oedipus' father orders him executed, believing the young child will kill him. But Oedipus is rescued, raised abroad and told by an oracle that he will murder his father and sleep with his mother. When back home, the encountering with his true parents is disastrous. In this play Sophocles inquires fate, free will, and tragic flaw and confirms the taboo of incest.

Religions

Religions are not so different from myths and sagas. They are historical and productive methods to integrate, transfer and operationalise values hierarchies. They can be seen as sediments of the long and ongoing effort to describe and valuate the world and human behaviour, and make distinction between what works well and what should be avoided. Religions also offer the medium for what is hard to capture in daily language. They facilitate men to act and speak with confidence in the world, while promoting the shared good – the divine – and avoiding or combating the shared evil.

For Neville (2018) religion is the human symbolic engagement of ultimate realities in cognitive, existential, and practical ways. Colloquially, "ultimate" means the last in a series of conditions beyond which you cannot go. Some religions claim a monopoly of their own values hierarchy and actively fight other values and knowledge systems and other religions.

Philosophy

Philosophy (love of wisdom in ancient Greek) is a systematic study of general and fundamental questions concerning topics like existence, reason, knowledge, value, mind, and language. It is a rational and critical inquiry that reflects on its own methods and assumptions (Wikipedia, 2001b).

Historically, many of the individual sciences, like physics and psychology, formed part of philosophy. But they are considered separate academic disciplines in the modern sense of the term.

The main traditions in the history of philosophy include Western, Arabic-Persian, Indian, and Chinese philosophy. Western philosophy originated in Ancient Greece and covers a wide area of philosophical subfields. A central topic in Arabic-Persian philosophy is the relation between reason and revelation. Indian philosophy combines the spiritual problem of how to reach enlightenment with the exploration of the nature of reality and the ways of arriving at knowledge. Chinese philosophy focuses on practical issues in relation to right social conduct, government, and self-cultivation.

Major branches of philosophy are epistemology, ethics, logic, and metaphysics. Epistemology studies what knowledge is and how to acquire it. Ethics investigates moral principles and what constitutes right conduct. Logic is the study of correct reasoning and explores how good arguments can be distinguished from bad ones. Metaphysics examines the most general features of reality, existence, objects, and properties. Other notable subfields are aesthetics, philosophy of language, philosophy of mind, philosophy of religion, philosophy of science, philosophy of history, and political philosophy.

Philosophers use a great variety of methods to arrive at philosophical knowledge. They include conceptual analysis, reliance on common sense and intuitions, use of thought experiments, analysis of ordinary language, description of experience, and critical questioning. Philosophy is related to many other fields, like the sciences, mathematics, business, law, and journalism. It provides an interdisciplinary perspective and studies their scope and fundamental concepts. It also investigates their methods and ethical implications (Wikipedia, 2001b).

Human rights

The Enlightenment, the Declaration of the Rights of the Man and of the Citizen of 1789 and the Universal Declaration of Human Rights of 1948 hierarchize values as well. They laid the foundation of the civil society as it currently exists in Europe, US and many other countries around the world. The Enlightenment was an intellectual and philosophical movement that dominated the world of ideas in Europe during the 18th century (Wikipedia, 2001a). It valued reason as the primary source of authority and legitimacy, and came to advance ideals like liberty, progress, tolerance, fraternity, constitutional government and separation of church and state (Outram, 2006; Zafirovski, 2010). The French Revolution was a period of far-reaching social and political upheaval in France and its colonies that lasted from 1789 until 1799.

In the first year of the revolution, the French National Constitutional Assembly approved the *Declaration des droits de l'homme et du citoyen* that defines the individual and collective rights for all men (Wikipedia, 2002a). Influenced by the doctrine of natural rights, these rights are held to be universal and valid in all times and places. They are often summarized in the slogan ‘liberty, equality and fraternity’ (Figure 1), but consist of much more (Wikipedia, 2002a). With respect

Figure 1 – The slogan of the French Revolution – 'liberty, equality and fraternity' – chiselled in the sand stone facade of the Faculty of Law at the Sorbonne University of Paris (Alamy, 2001).

to the built environment e.g., the Article XVII states that "Property being an inviolable and sacred right, no one can be deprived of private usage, if it is not when the public necessity, legally noted, evidently requires it, and under the condition of a just and prior indemnity." And Article XV states that "The society has the right of requesting an account from any public agent of its administration."

It is relevant to note that the rights of liberty and equality are irreconcilable oppositions, and that the right of fraternity mediates between these two (De Cauter, 2018). This is not a unique situation for the 1789 Declaration. Many values systems are internally inconsistent and need arbitrage when applied. When confronted with other values systems, this conflict management becomes even more complex and asks for specific techniques, which will be described hereafter.

The 1789 Declaration, together with the Magna Carta, the English Bill of Rights, and the United States Bill of Rights, inspired in large part the 1948 United Nations Universal Declaration of Human Rights (Wikipedia, 2002a). Therein, amongst others, the articles 24 and 25 may relate to management of the built environment. Article 24 applies on project management and labour organisation, when it states that "*everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay*". Article 25 applies on the provision of sufficient and affordable housing, when it states that "*Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services […]*".

Culture

Culture is another container of values. The way people behave in the public domain, meet, greet and relate to each other, have rituals, etc. reflects the

hierarchy of values of their social group. This culture is transferred to children and foreigners through daily rituals, festivities, common sense, regulation and law. Trespassing culture conventions mostly doesn't go without pain.

Hofstede defines culture as *the collective mental programming of the human mind which distinguishes one group of people from another* (Hofstede Insights, 2023). This programming influences patterns of thinking which are reflected in the meaning people attach to various aspects of life and which become crystallised in the institutions of a society. This does not imply that everyone in a given society is programmed in the same way; there are considerable differences between individuals. It may well be that the differences among individuals in one country culture are bigger than the differences among all country cultures. Hofstede argues that he, nevertheless, can use such country scores based on the law of the big numbers and on the fact that most of people are strongly influenced by social control (Hofstede Insights, 2023).

Value differences between countries – the work of Hofstede

In 1965 Hofstede founded the personnel research department of IBM Europe (Wikipedia, 2011). Between 1967 and 1973, he executed a large survey study regarding national values differences across the worldwide subsidiaries of this multinational corporation. He compared the answers of 117,000 IBM employees on an attitude survey in different countries. His theory was one of the first quantifiable theories that could be used to explain observed differences between cultures.

The original theory proposed four dimensions along which cultural values could be analysed (Wikipedia, 2011). They regard "four anthropological problem areas that different national societies handle differently: ways of coping with inequality, ways of coping with uncertainty, the relationship of the individual with her or his primary group, and the emotional implications of having been born as a girl or as a boy" (Hofstede, as cited in Wikipedia (2011)). Independent research in Hong Kong led Hofstede to add a fifth dimension, long-term orientation. In 2010,

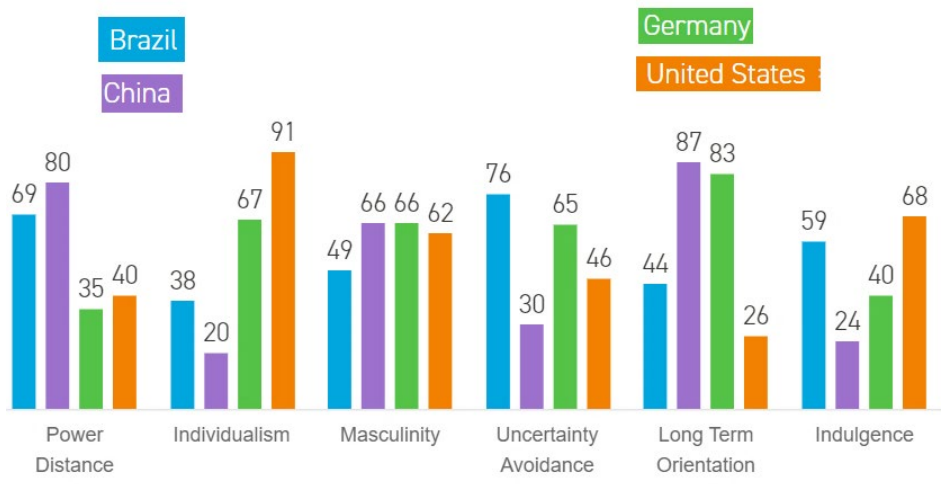

Figure 2 - Hofstede's cultural dimensions theory: Comparison of 4 countries: US, China, Germany and Brazil in all 6 dimensions of the model (Hofstede Insights, 2023).

Hofstede added a sixth dimension, indulgence versus self-restraint (Figure 2).

The outcomes of this research are freely accessible via the website of Hofstede Insights (Hofstede Insights, 2023). The site facilitates the comparison of the 6 dimensions for all countries. Hofstede warns that statements about just one culture on the level of “values” do not describe “reality”; such statements are generalisations, and they ought to be relative. Without comparison, a country score is meaningless (Hofstede Insights, 2023).

The 6 dimensions of culture, according to Hofstede Insights (2023)

POWER DISTANCE

This dimension expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally. The fundamental issue here is how a society handles inequalities among people. People in societies exhibiting a large degree of power distance accept a hierarchical order in which everybody has a place, and which needs no further justification. In societies with low power distance, people strive to equalise the distribution of power and demand justification for inequalities of power.

INDIVIDUALISM VERSUS COLLECTIVISM

The high side of this dimension, called individualism, can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. Its opposite, collectivism, represents a preference for a tightly-knit framework in society in which individuals can expect their relatives or members of a particular ingroup to look after them in exchange for unquestioning loyalty. A society’s position on this dimension is reflected in whether people’s self-image is defined in terms of “I” or “we.”

MASCULINITY VERSUS FEMININITY

The masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness, and material rewards for success. Society at large is more competitive. Its opposite, femininity, stands for a preference for cooperation, modesty, caring for the weak and quality of life. Society at large is more consensus-oriented. In the business context masculinity versus femininity is sometimes also related to as “tough versus tender” cultures.

UNCERTAINTY AVOIDANCE INDEX

The uncertainty avoidance dimension expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? Countries exhibiting strong uncertainty avoidance indices maintain rigid codes of belief and behaviour and are intolerant of unorthodox behaviour and ideas. Weak uncertainty avoidance index societies maintain a more relaxed attitude in which practice counts more than principles.

LONG TERM ORIENTATION VERSUS SHORT TERM NORMATIVE ORIENTATION

Every society must maintain some links with its own past while dealing with the challenges of the present and the future. Societies prioritize these two existential goals differently. Societies who score low on this dimension, for example, prefer to maintain time-honoured traditions and norms while viewing societal change

with suspicion. Those with a culture which scores high, on the other hand, take a more pragmatic approach: they encourage thrift and efforts in modern education to prepare for the future. In the business context, this dimension is referred to as "(short-term) normative versus (long-term) pragmatic".

INDULGENCE VERSUS RESTRAINT
Indulgence stands for a society that allows free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms.

Relevance

Hofstede's theory has been widely used in several fields as a paradigm for research and continues to be a major resource in cross-cultural management (Wikipedia, 2011):

- to measure, understand and shape organisational cultures. Organisational culture is the way in which the members of an organisation relate to each other, their work and the outside world in comparison to other organisations. The organisational culture can enable or hinder the organisational strategy.
- international communication. Cross-cultural communication requires being aware of cultural differences because what may be considered perfectly acceptable and natural in one country, can be confusing or even offensive in another.
- international negotiation. In international negotiations, communication style, expectation, issue ranking and goals will change according to the negotiators' countries of origin. If applied properly, an understanding of cultural dimensions should increase success in negotiations and reduce frustration and conflicts.
- international management. Decisions taken have to be based on the country's customs and values. When working in international companies, managers may provide training to their employees to make them sensitive to cultural differences, develop nuanced business practices, with protocols across countries. Hofstede's dimensions offer guidelines for defining culturally acceptable approaches to corporate organizations.
- international marketing. As companies try to adapt their products and services to local habits and preferences, they have to understand the specificity of their market. For example, if you want to market cars in a country where the uncertainty avoidance is high, you should emphasize their safety, whereas in other countries you may base your advertisement on the social image they give you. Cell phone marketing is another interesting example of the application of Hofstede's model for cultural differences: if you want to advertise cell phones in China, you may show a collective experience whereas in the United States you may show how an individual uses it to save time and money (Wikipedia, 2011).

Criticism

Even though Hofstede's model is generally accepted as the most comprehensive framework of national cultures values by those studying business culture, its validity and its limitations have been extensively criticized:

- questionable choice of national level.
- there are other factors on which culture can be analysed aside from Hofstede's six cultural dimensions
- the discrepancy between cultural dimensions and individual personalities
- the organizational level. In contrast with national cultures embedded in values, organizational cultures are embedded in practices. From 1985 to 1987, Hofstede's institute IRIC (Institute for Research on Intercultural Cooperation) has conducted a separate research project in order to study organizational culture. Including 20 organizational units in two countries (Denmark and the Netherlands), six different dimensions of practices, or communities of practice have been identified:
    - process-oriented vs. results-oriented
    - employee-oriented vs. job-oriented
    - parochial vs. professional
    - open system vs. closed system
    - loose control vs. tight control
    - pragmatic vs. normative
- gender differences are largely not taken into consideration

Organisation culture

According to Van der Voordt and Van Meel (2017) “there are many different definitions and models that try to describe what organisational culture is. Perhaps the most successful attempt to conceptualise organisational culture is Edgar Schein's much used 'layer model' (Schein, 2004) (Figure 3). This model is based on the idea that culture consists of several layers that build on top of each other.” Van der Voordt and Van Meel (2017, pp. 105-106) explain:

> ‘The model suggests that the deepest layer consists of a set of deeply embedded assumptions about fundamental issues such as human relations, human nature, time and power. These assumptions are often implicit and taken for granted by the people working in the organisation, but they have a strong impact on people's behaviour and the organisation's way of operating. The next layer consists of the espoused values of a company, i.e. the more formal or desired culture of an organisation. There are explicit principles, norms and values that are intended to guide staff behaviour and norms, often expressed in official vision statements or behavioural rules – which are not necessarily the same as the 'real' values at the core of the culture. The third level includes the tangible, overt artefacts of an organisation. These include the organisation's dress code and the language people use, but also the physical setting and buildings of the organisation. In Schein's model, the physical environment plays a fairly passive role. It is the part of the most outer layer which reflects and expresses the corporate culture, rather than influencing it.’

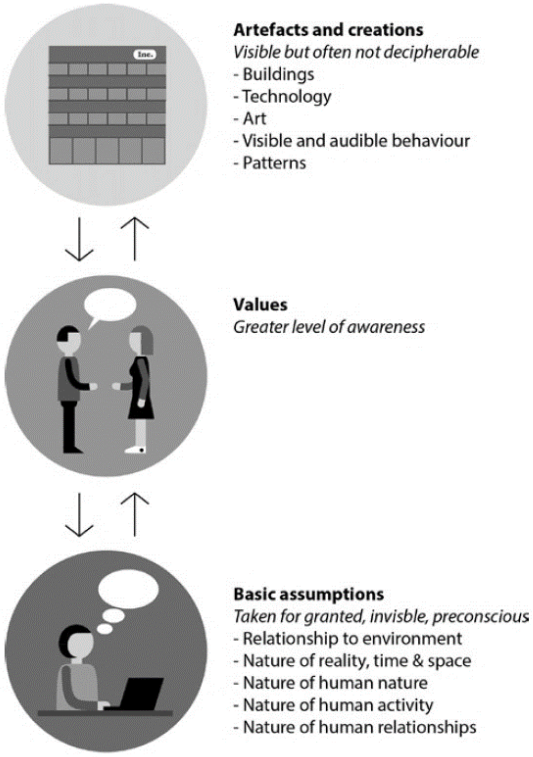

Figure 3 - Several layers of culture (Van der Voordt & Van Meel, 2017, p. 106, based on Schein 2004)

There are many factors that influence the culture of an organisation - for instance, its history and its founders, type of product, market, technology, strategy, type of employees, management style, and national culture. Furthermore, organisational cultures tend to consist of all sorts of subcultures on business unit level or team level. This makes it difficult to analyse culture in a structured way. Though, the 2021 survey of Gallup finds that just 22% of U.S. employees feel connected to their organization's culture (Gallup, 2023). Cameron and Quinn (2006) researched how organisational culture can diagnosed and changed.

Hierarchy of human needs

Scientists, when observing people and their values systems, developed abstractions and searched for innate, universal values systems of homo sapiens. A well-known model of this kind is the hierarchy of needs (Wikipedia, 2002b). This is a theory in psychology proposed by Abraham Maslow in his 1943 paper “A Theory of Human Motivation” (Maslow, 1943).

Maslow used the terms "physiological," "safety," "belonging and love," "esteem," and "self-actualization" to describe the pattern through which human motivations generally move. Maslow's theory claims that human beings want to attain the fifth level or stage: self-actualization. Interventions in the built environment are triggered by and respond to almost all levels. A building is a shelter against an aggressive climate and violence; it is also the place where one can express his culture and sense of beauty.

The Maslow hierarchy – mostly presented as a pyramid (Figure 4) – remains a very popular framework in sociology research, management training and psychology

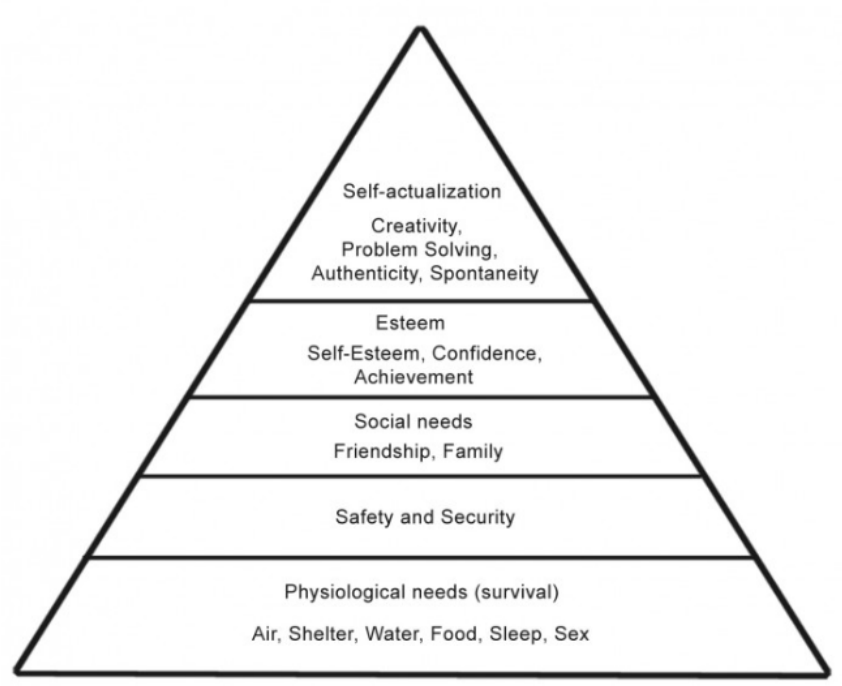

Figure 4 – The pyramid of Maslow (Wikipedia, 2002b).

instruction, although it is not uncontested (Cherry, 2022; King-Hill, 2015; Muller, 2018).

Sustainable Development Goals of the United Nations

A major values system, recent and global, is the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015 (Figure 5). It provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

History

The SDGs build on decades of work by countries and the UN, including the UN Department of Economic and Social Affairs. In June 1992, at the Earth Summit in Rio de Janeiro, Brazil, more than 178 countries adopted Agenda 21, a comprehensive plan of action to build a global partnership for sustainable development to improve human lives and protect the environment. In many consecutive declarations and conferences, the countries reaffirmed the global community's commitments to poverty eradication and the environment. The process culminated in the subsequent adoption of the 2030 Agenda for Sustainable Development, with 17 SDGs at its core, at the UN Sustainable Development Summit in September 2015.

2015 was a landmark year for multilateralism and international policy shaping, with the adoption of several major agreements:

- Sendai Framework for Disaster Risk Reduction (March 2015)
- Addis Ababa Action Agenda on Financing for Development (July 2015)
- Transforming our world: the 2030 Agenda for Sustainable Development with its 17 SDGs was adopted at the UN Sustainable Development Summit in New York in September 2015.
- Paris Agreement on Climate Change (December 2015)

Now, the annual High-level Political Forum on Sustainable Development serves as the central UN platform for the follow-up and review of the SDGs.

Figure 5 – 17 goals of sustainable development (United Nations, 2020a).

Content of the 17 SDG's

On their website, the United Nations extensively explain and visualise the content of the SDG's (Table 1).

Table 1 – Sustainable development goals: 17 goals to transform our world (United Nations, 2020c).

1	No poverty	End poverty in all its forms everywhere
2	Zero hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3	Good health and well-being	Ensure healthy lives and promote well-being for all at all ages
4	Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5	Gender equality	Achieve gender equality and empower all women and girls

6	Clean water and sanitation	Ensure availability and sustainable management of water and sanitation for all
7	Affordable and clean energy	Ensure access to affordable, reliable, sustainable and modern energy for all
8	Decent work and economic growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9	Industry innovation and infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10	Reduced inequalities	Reduce inequality within and among countries
11	Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient and sustainable
12	Responsible consumption and production	Ensure sustainable consumption and production patterns
13	Climate action	Take urgent action to combat climate change and its impacts
14	Life below water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15	Life on land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss
16	Peace, justice and strong institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17	Partnerships for the goals	Strengthen the means of implementation and revitalize the global partnership for sustainable development

Indicators

A global indicator framework for Sustainable Development Goals has been developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) and adopted by the UN General Assembly on 6 July 2017 (Figure 6). This indicator framework will be refined annually. The global indicator framework includes 231 unique indicators. The global indicator framework will be complemented by indicators at the regional and national levels, which will be developed by Member States.

Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development

Sustainable Development Goal indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics, in accordance with the Fundamental Principles of Official Statistics.[1]

Goals and targets (from the 2030 Agenda for Sustainable Development)	*Indicators*
Goal 1. End poverty in all its forms everywhere	
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.1 Proportion of population living below the national poverty line, by sex and age
	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services
	1.4.2 Proportion of total adult population with secure tenure rights to land, (*a*) with legally recognized documentation, and (*b*) who perceive their rights to land as secure, by sex and type of tenure

Figure 6 – First page of the global indicator framework for the monitoring of the implementation of the SDG's (United Nations, 2023).

Corporate Sustainability Reporting Directive (CSRD)

EU law requires all large companies and all listed companies (except listed micro-enterprises) to disclose information on what they see as the risks and opportunities arising from social and environmental issues, and on the impact of their activities on people and the environment (European Commission, 2023). This helps investors, civil society organisations, consumers, and other stakeholders to evaluate the sustainability performance of companies, as part of the European green deal.

On 5 January 2023, the Corporate Sustainability Reporting Directive (CSRD) entered into force. In their whitepaper about this new CSRD, the Dutch consultant SUB Platform (2023) explains that, among other things, "the CSRD requires companies to provide information on (1) the resilience of the business model and strategy against sustainability risks, (2) its compatibility with the transition to a sustainable economy (the Paris agreement) and (3) how it takes stakeholders' interests into account. In doing so, the information provided by companies should not only address the short-term, but also include the medium- and long-term horizon. At last, companies are required to explain in all cases how sustainable their business model is in the short and longer term (although limited to sustainability aspects)."

1.3 About values systems

Values change over time

Values systems change over time. This happens for universal values – slavery was once accepted; it is no longer. It happens also for more personal values – we all seem to start liking skyscrapers again, whereas in the 1990's they were not-done. These changes in values and goals are drivers for action.

Personal and group values systems

The above values systems, such as the generic values systems of home sapiens, as described by scientists like e.g., Maslow, the shared values systems of cultures, as described by e.g., Hofstede, the institutional rules and norms, form the basis for the values system of each individual person. The personal values system is the reference from which every person values the world around him and acts.

To better reach personal goals, people tend to form groups, which is one of the most powerful and common social techniques. People create political parties, pressure groups, interest groups, churches, unions, firms, non-profit organisations, nations, municipalities, supranational bodies, etc. to advance their values. These groups may become very powerful and dominant forces in society.

In management literature, the holder of a value system is often called an 'actor'. Actors become stakeholders through their relationship with the subject that is investigated (see further).

Trend towards more shared values

While every person forms his own values constellation and tends to organise groups with alike, as has been always the case, mankind has also started sharing values and setting common goals, more than ever. At the global level, e.g., the establishment of the United Nations itself, is an example of a major values settlement, i.e. that there is a need for a global forum to discuss issues with a global impact.

As explained above, one of the latest achievements of the United Nations is the development of the 2030 Agenda for Sustainable Development, better known as the 17 Sustainable Development Goals, adopted by countries in 2015. This is a major step towards a global set of shared values. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

And in 2016, the Paris Agreement on climate change entered into force, addressing the need to limit the rise of global temperatures. Both agreements have become major references for all decisions, whether taken by public or private governors, as globally the sense of urgency is growing fast.

1.4 Values differences

Conflicting values

People adhere to many values, and these are often conflicting. They want to be rich, e.g., but don't want to work hard nor take any financial risk. A group of people seldom agrees on a subject. An old Jewish saying goes: "ask two Jews, you'll get three opinions". Large values systems are often conflicting internally, as stated above. Management of conflicting values is thus essential. Several methods apply.

A first technique is the negotiation of the values before the start of action. This is the technique preferred in traditional project management. A second technique is to disagree on the values but agree on the means to serve these values. Different goals but one solution or one decision. Another technique is focusing on what is agreed upon already, and start working together on that basis while hoping that differences will dissolve during the collaboration. This is an approach used in process management. The toolbox of the 'value manager' or negotiator thus contains much more than the consensus model.

For the political scientist Chantal Mouffe *dissensus* may form the basis of a healthy and layered society (Hertmans, 2011). In this view the opponent is not seen as morally objectionable, i.e., not as an antagonist, but as a player in an agonistic model. "Antagonism is struggle between enemies, while agonism is struggle between adversaries" (Mouffe, 2000). "There is no enemy that needs to be destroyed (…); there is an 'other' whose ideas we are going to struggle but whose right to defend those ideas we will not put into question. An adversary is a legitimate enemy, an enemy with whom we have in common a shared adhesion to the ethico-political principles of democracy" (Mouffe, 1999, p. 755). "To come to accept the position of the adversary is to undergo a radical change in political identity, it has more of a quality of a conversion than of rational persuasion (in the same way as Thomas Kuhn has argued that adherence to a new scientific paradigm is a type of conversion). To be sure, compromises are possible; they are part of the process of politics. But they should be seen as temporary respites in an ongoing confrontation" (Mouffe, 1999, p. 755).

This creates room for something other than an obsessive politics of opposition, especially for forms of alternative negotiation and democratic models of participation. This view accepts that fighting is a primary fact of social life, and that it is impossible to find rational, impartial solutions. Living together is a matter of differentiation, not *pensée unique*. This starts with respecting the *alterity* – the being different – of the other, and the revaluation of the palaver democracy (in Dutch: polderen), hybridity, compromises, and "the art of the feasible". For some a sign of weakness, for others something to strive after.

Stakeholder theory

The stakeholder theory is a theory of organisational management and business ethics that addresses morals and values in management (Wikipedia, 2005). It

describes the preferences, needs, powers and influences of those affected by the business. It was originally detailed by Ian Mitroff in his book "Stakeholders of the organisational mind", published in 1983 in San Francisco (Mitroff, 1983) and further developed by Edward Freeman (Freeman, 1984; Freeman & Reed, 1983) (Figure 7). Freeman and Reed (1983) identifies and models the groups which are stakeholders of a corporation, and both describes and recommends methods by which management can give due regard to the interests of those groups. In short, it attempts to address the "principle of who or what really counts" (Freeman & Reed, 1983). In the traditional view of a company, the shareholder view, only the owners or shareholders of the company are important, and the company has a binding fiduciary duty to put their needs first, to increase value for them.

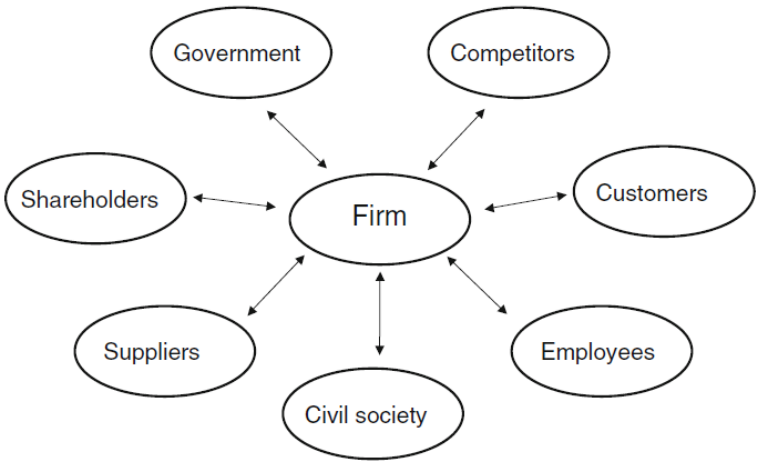

Figure 7 – The original stakeholder model (Freeman, 1984).

Stakeholder theory instead argues that there are other parties involved, including employees, customers, suppliers, financiers, communities, governmental bodies, political groups, trade associations, and trade unions. Even competitors are sometimes counted as stakeholders – their status being derived from their capacity to affect the firm and its stakeholders.

Stakeholder theory got a wide response in management sciences and practices. The nature of what constitutes a stakeholder is highly contested, with hundreds of definitions existing in the academic literature ((A. L. Friedman & Miles, 2002, 2006; Miles, 2012, 2017). Of interest is the distinction between stakeholders, stakewatchers and stakekeeper as developed by Fassin (2008, 2009) (Figure 8).

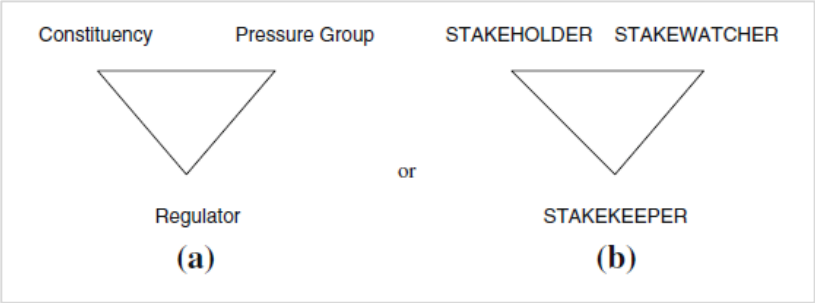

Figure 8 – The triangular relationship among stakeholder groups (Fassin, 2009, p. 122)

This made Fassin (2009) propose a new version of the stakeholder model (Figure 9). The superiority of this view over Freeman's model is that it clearly indicates the three levels of operation – the resource base, the industry structure and the social political arena – in four concentric ovals.

Currently, stakeholder management is a key-stone knowledge for every manager as it is a fruitful theory and method.

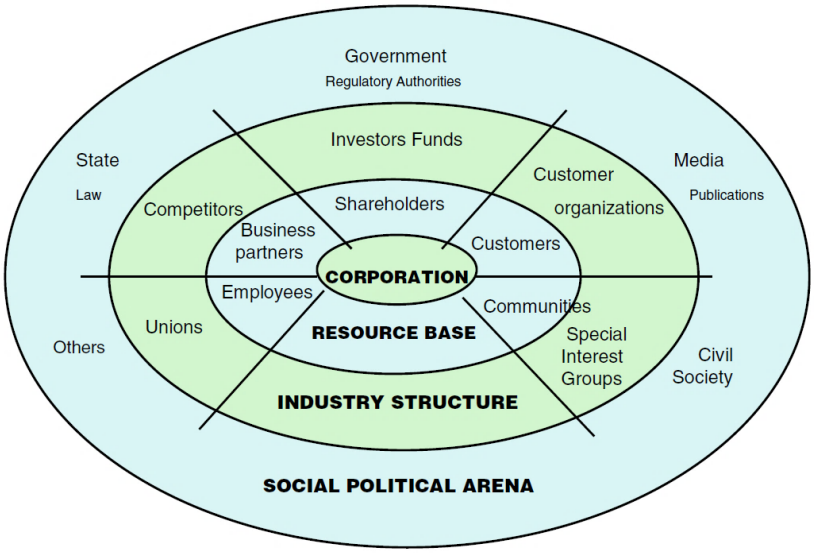

Figure 9 - The view on the firm of Post, Preston, and Sachs (2002a, 2002b) as adapted by (Fassin, 2009).

Globalisation and values

Due to globalisation and free trade, the different values systems unmistakably meet more than before, at all levels. People now know better what other groups prefer and dislike. For some, this exchange goes too far. They consider it a threat and withdraw within their borders and into their own great right.

Anyhow, more contacts trigger more values contradictions and differences. This makes the issue of dealing with values differences more actual than ever.

1.5 Object values

The personal and group values systems are the reference from which people value the world around them. Depending on the view on an object and the aim, the same object may get different values.

Within society, the interest in an object converts into a value of the object. Objects have no value from their own; it is the person or a group of people who attribute value to an object. People attribute value to objects for their usability, as they advance their aims. It is this usability of an object that gives it its value. The use value is at the origin of all other values given to the object.

The following example well explains the difference between use value, economic value, exchange value and price of an object.

Example

My damaged car

A few weeks ago, my car was hit. I stood still in front of a red traffic light when a driver who noticed the red light too late entered the back of my car. Result: a big dent in the back, and a deformation of the back bumper and left back door!

My heart broke! My car is 15 years old and has 360.000km on the mileage counter, but the engine is still energetic and there is hardly any rust on the body. My garage owner just recently estimated the service life of my car between 450.000 and 500.000 km. So, I hoped to drive this car for a few more years and at very a low price per kilometre! For me, it had a high use value.

But now there was that accident. The body repair company I consulted estimated the cost of the repair at 2500 Euro. Not cheap, but the problem of my insurer, I thought.

That was not his view, however: the estimated cost of the repair of my car was higher than the economic value of an undamaged car of that type and age, which was estimated 1500 Euro.

From my insurer's point of view, the repair of my car was ruled out. He advised me to look for some buyers of damaged cars, sell my car to them, and buy a new car. A few days ago, a buyer offered me 1800 Euro. Following my investigation on the internet, this price is not far from the market value of my car, that I estimate at 1750 Euro.

(From the personal experience of the author, 20-07-2019)

Use value

Use value or value in use refers to the tangible features of a commodity (a tradeable object) which can satisfy some human requirement, want, or need, or which serves a useful purpose. Use value refers to just one of the values of a commodity (an item or service produced for and sold on the market). Use value is not necessarily expressed in units of currency.

Exchange value (=market value)

People tend to compare things with each other. They compare one car with another car, or they compare a car with a house or a surgery. This the essence of exchange value: items aren't given an absolute value but a relative value. This comparison is institutionalised on the market, where people exchange goods: rice for meat, wood for a bike, etc. However, this is not convenient: when you need rice and can only offer wood, you need someone who has the opposite need to make the exchange possible… not easy a task!

To facilitate this exchange, the idea emerged to create a benchmark (the currency): gold, salt, money. The currency facilitated exchange in many ways. Tradesmen hadn't to memorise all the different exchange rates of rice for cows, rice for wood, wood for fuel, wood for honeybees, etc. They just memorised rice for X time the benchmark, wood for Y times the benchmark, etc. Second, the benchmark allowed the temporarily storage of surpluses: gold could be stored in a safe place (a cupboard or a bank) till it was needed to exchange it again for a commodity. The benchmark also allowed to easily bridge physical distances

between places of exchange. A farmer of Groningen can now easily sell the cows he bred in Groningen for X time the benchmark, then travel to Amsterdam with this ‘money’ in his pocket and buy there a ship for Y times the benchmark, which is a lot easier than travelling to Amsterdam with the cows!

The exchange value (or market value) is “the quantified worth of one good or service expressed in terms of the worth of another. For example, in the business of foreign exchange, the value of each currency is expressed in terms of the value of another currency. This creates an exchange value or exchange rate for each major currency relative to a benchmark currency like the U.S. Dollar.” The price of a commodity can (and will) differ from the exchange value.

In the case of the damaged car, the exchange value is obtained through a study of the different markets. It is expressed in Euro, the most common exchange standard on the European commodity markets.

Remember: exchange value and currency are conventions. They do not refer to anything real. When people no longer trust the currency, this currency loses its value very soon. The recurrent and dramatic devaluations of e.g., the Argentinian Peso illustrate this: an immense inflation and flight of capital were the consequences time after time.

Economic value

Economic value is a measure of the benefit provided by a good or service to an economic agent. It is generally measured relative to units of currency, and the interpretation is therefore "what is the maximum amount of money a specific actor is willing and able to pay for the good or service"? The economic value should not be confused with market value, which is the minimum amount a consumer will pay for a good or service. Thus, economic value is often greater than the market value.

The preferences of a given population determine the economic value of a good or service and the trade-offs agents make given their resources. For example, if an agent decides to buy a bag of apples, the economic value is the amount the agent is willing to pay for those apples bearing in mind that the money could be spent on something else. This choice represents a trade-off. Economic value is also directly correlated to the value that any given market puts onto an item (Banton, 2023).

- Economic value is the maximum amount of money an agent will pay for a good or service.
- The economic value of an item changes as the price or quality of similar or associated items changes.
- Producers use economic value to set prices for their products taking into consideration tangible and intangible factors such as brand name.

In the example of the damaged car above, the insurer calculated the economic value from the tables published by the association of car insurers and the report of the expert who judged the car after the accident.

Price

Economic value and exchange value are not the same as price. Price is the amount at which the transaction takes place. In the example of the damaged car, it would be the 1800 Euro when the owner of the car comes to an agreement with the buyer.

1.6 Adding value

What is adding value?

'Adding value' has become the central paradigm of management: what managers undertake should add value! But values differ between actors: value refers to how an actor subjectively perceives the value of a service or product (Jylhä, 2013, p. 3). It does not solely include the monetary value of the service or product.

What is adding value in an organisation (Figure 10)?

"On the basis of their preferences, stakeholders adopt a set of organisation aspects, define a target level for each adopted aspect and create a hierarchy within this set. Through negotiation between all stakeholders an organisation-wide hierarchy of organisation aspects emerges. The activities of the organisation change the level of organisation aspects. From the perspective of a single stakeholder, value is added when the weighted sum of the level changes of his set of aspects is moving into the direction of his weighted target level. When the same happens to the weighted sum of the level changes of all organisation aspects, value is added to the entire organisation." (Vande Putte, 2016)

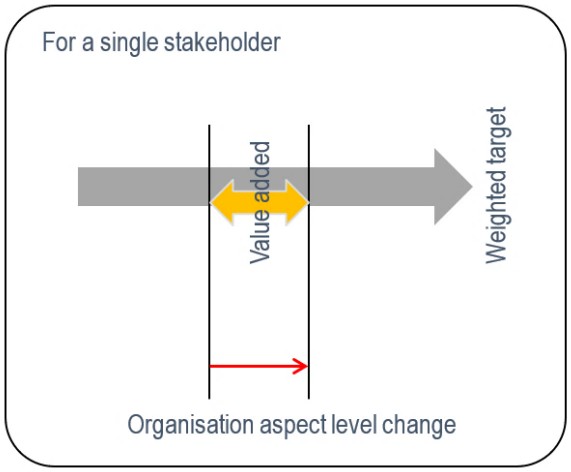

Figure 10 – Adding value from the perspective of a single stakeholder (Vande Putte, 2016)

Value chains

Adding value acts in a chain. A value chain is a series of consecutive steps that go into the creation of a finished product, from the raw materials to its arrival at a customer's door. The chain identifies each step in the process at which value is added, including the sourcing, manufacturing, and marketing stages of its

production. The eventual added value is often hidden as the value chain is in fact endless; it has no endpoint, and it hasn't an origin either. The product delivered at the customer's door will join another value chain, which is the very reason for the customer to buy this product.

Example

Adding value through a new ICT system

Imagine a manager who has to introduce an advanced ICT system in his organisation. He is asked to do this to satisfy the marketing and sales department who wants a cheaper and a state-of-the-art customer relation management system. The marketing and sales department decided to reorganise its customer relation management system, to better satisfy and serve the customers, as this is supposed to offer the firm a competitive advantage. It will allow to attract new customers and retain the existing ones more easily.

The turnover increase that will result from this innovation, will allow for better margins. This will increase profit, which in its turn satisfies the shareholders of the company. An increased return on equity allows shareholders, e.g. a pension fund, to fulfil their pension obligations and invest in the renewal of infrastructures in the country, which boosts the economy and cuts unemployment….

Corporate social responsibility (CSR) within the value chain

In traditional management approaches, managers have the task to serve the goals they are in charge of without bothering about the up- and downstream value chains. This is changing fast.

The quest for more corporate social responsibility not only drives managers to deal with all stakeholders and take responsibility for the origin of the resources employed, including labour conditions – the upstream –, it forces them also to pay more attention to the aims they serve and be more open about the downstream malpractices they know about.

Managers are asked to pay attention to the downstream beneficiaries that drive the value chain through the values and goals they set. Society no longer accepts serving the aim as an escort for the production of any product in any way. Fast fashion, for instance, is under attack for this reason: the unrestrained usage of resources and the unacceptable labour conditions of fast fashion serve shareholders that belong to the richest families in the world and have accumulated a fortune they will never be able to spend.

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2 Performance measurement

Herman Vande Putte

Contents

PM has its roots in the expectations of stakeholders and managers to be informed about the current state of an area in which they have an interest. This interest is derived from the values and goals of these stakeholders, e.g. a return on their investment, and from the goals these managers have set for the area, e.g. to implement a strategy. What an audience wants to achieve with the information it receives from PM is called the purpose of PM.

PM is also rooted in the audience's choice to use a technique of quantification to meet this information need. This choice is related to the audience's world view. It sees quantification as an appropriate and productive technique to serve this purpose. This is not uncontroversial (see, for example, the book "The tyranny of metrics" by Muller 2018). PM constructs ‘a partial and calculative rationality to value organisational actors and their achievements’ (Redden, 2019, p. 21), which in turn triggers a specific actor behaviour and management approach. This has social significance.

The worldview, values and goals of stakeholders and managers determine the models they apply to get a grip on the area. Think about the IPO model that creates a specific view on an organisation. Such a model gives structure and logic to the area the stakeholders and managers are interested in, so that this area can be understood and discussed.

The models applied together with the PM purpose determine the boundaries of the area wherein the PM will be executed (also called the PM scope or PM focus area) and the framework imposed on that area for that measurement. Such a PM framework consists of performance indicators and the relationships between them. Examples of PM frameworks are the Balanced Scorecard and the Six Capitals.

Models, frameworks and indicators are often nested. The purpose of PM is then to measure the higher level indicator. This is done by breaking this higher level indicator down, targeting a smaller area, selecting a lower level model to get a grip, defining narrower boundaries and developing a specific PM framework of subindicators and relations within these boundaries. These subindicators, when re-integrated, constitute the higher level indicator.

Example

Definition of a performance measurement system

"Performance measurement systems are designed to track selected measures of program, agency, or system performance at regular time intervals and report these measures to managers or other specified audiences on an ongoing basis. Their purpose is to provide objective information to managers and policymakers in an effort to improve decision making and thereby strengthen performance and also to provide accountability to a range of stakeholders, such as higher-level management, central executive agencies, governing bodies, funding agencies, accrediting organizations, clients and customers, advocacy groups, and the public at large."

(Poister, 2015, p. 110)

This chapter starts with a short description of the history of performance measurement. Then it reasons on the motivation of organisations to engage with performance measurement, on the impact and the unintended side-effects of PM. Central in this chapter is the explanation on the design, implementation and use of PM systems. The chapter closes with a discussion of the models that stakeholders apply and the requirements for PM systems.

2.1 History of performance measurement

The way we address performance has evolved. Compared with a century ago, performance measurement has become orthodox praxis in all sectors. As stakeholders have gained in power, the quantity of dimensions that are used to assess the performance of a focus area has increased significantly. How did it start?

Brudan (2010) links the emergence of performance measurement in business to the use of money. It can be traced back to Mesopotamia, where writing was first invented (3100 BC), banking was first developed (3000-2000 BC), and laws were first used to regulate banking operations (1792 – 1750 BC, The Code of Hammurabi).

Standards around measurement in business are owed to the Venetians. In the 13th century they started evaluating the performance of their sailing expeditions by

calculating the difference between the investment made by the ship owner and the money obtained by selling the goods brought back by the journey. Venice merchant's need for a more elaborate approach to evaluating outcomes lead to the double-entry bookkeeping system, described in 1494 by Luca Pacioli, the "father of accounting".

Still according to Brudan (2010), from this point, the evolution of measurement in business was driven by three institutions: church, military and the public service, at both organizational and individual level. In mid 1500s, Ignatius Layola instituted a procedure to formally rate members of the Jesuit Society. In 1648 Dublin Evening Post in Ireland evaluated legislators by using a rating scale based upon personal qualities. Most Western armies did appraisals as early as the 19th century.

One of the earliest books on performance measurement that used the term "measure" in the context of evaluating performance is *Efficient Democracy* written in 1907 by William Allen. Allen was a practitioner, secretary of the Committee on Physical Welfare of School Children and General Agent of the New York Association for Improving the Condition of the Poor.

The KPI Institute (2023) explains how in the first decade of the 20th century, Frederick Taylor developed the concept of scientific management. This was based on the analysis of existing work methods through observation and measurement. Radnor and Barnes (2007) say that Taylor's ideas were advanced by many others including Frank and Lillian Gilbreth, who developed the concept of time and motion studies, which required the measurement of every single movement undertaken by a worker in the course of their work. This newly developed discipline which came to be known as work study, incorporated the study of work methods and the measurement of work.

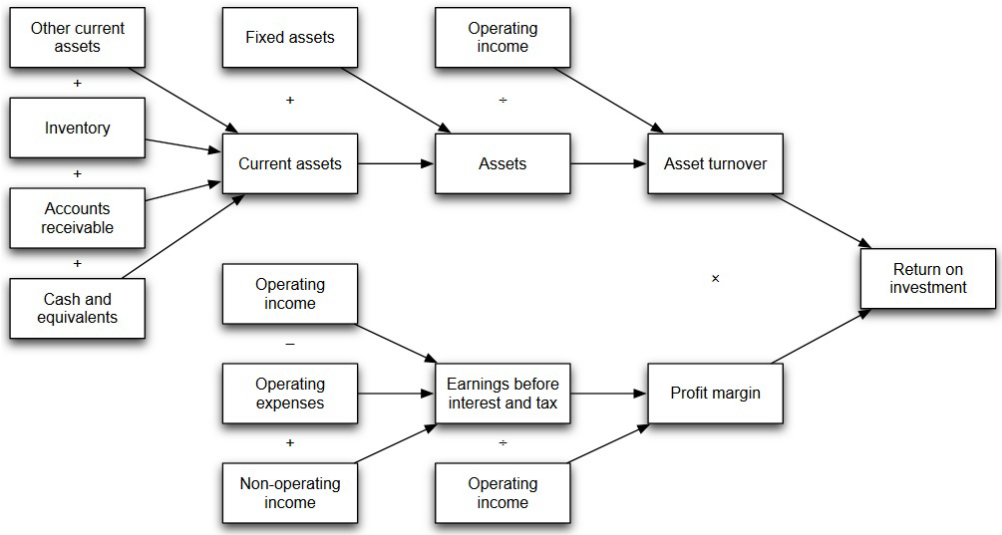

Figure 11 – Financial performance measurement started to be done by DuPont in 1920s, and it gained a lot of recognition and acceptance. It measures: Profitability (measured by profit margin) = Net profit/Sales, Operating efficiency (measured by asset turnover) = Sales/Assets, and Financial leverage (measured by equity multiplier) = Assets/Equity.

In the early 1920s, DuPont and General Motors experimented by introducing decentralized divisional structures with profit centres. As support for these reorganisations they also introduced the DuPont framework and with it the concept of Return On Investment (ROI) (Figure 11). This meant that management was now also held responsible for the achievement of budgeted ROI and therefore not only focused on measures such as margin and net income.

Stil according to the KPI Institute (2023), the "tableau de bord" has been quite popular in France ever since its introduction in 1930s, as a "dashboard" used by managers to monitor the operational performance of their organisations (Bessire & Baker, 2005). Although the majority of the large companies in France were using it, due to the limited availability of translated literature it had a minimal overseas diffusion (Bontis, Dragonetti, Jacobsen, & Roos, 1999).

In 1951, Brudan (2010) explains, it was General Electric who introduced the use of key corporate performance measures, through an initiative commissioned by the then CEO, Ralph Cordiner. The selected measures were grouped in categories such as market share, productivity, employee attitudes and public responsibility. In the 1970s, General Motors used a system of performance measures that included non-financial indicators, considered a precursor of the Balanced Scorecard as measurement tool as introduced in 1992.

Aureli (2010, pp. 82-84) explains how, at that time, performance measurement had grown into a tool to support the implementation of strategy at management level. When business conditions changed in the 1980s as a result of globalization, and competition emerged through differentiation and flexibility, performance measurement had to shift away from financial measures, which represent the results of previous actions. There was a need for metrics that could capture customer demand and customer satisfaction, as these provide insight into the company's ability to compete and endure in the future (Chakravarthy, 1986; Palmer, 1992). Researchers provided integrated performance measurement systems like the Performance Measurement Matrix (Keegan, Eiler, & Jones, 1989), the Performance Pyramid (McNair, Lynch, & Cross, 1990), the Integrated Performance Measurement Systems (Bititci, Carrie, & McDevitt, 1997), and the Performance Prism (Neely, Adams, & Crowe, 2001). The most famous model, however, is the Balanced Scorecard (BSC) proposed by Kaplan and Norton (1996).

How performance measurement evolved within public institutions in US, is described by Hatry and Urban Institute (2014). In the 1930’s there wasn’t hardly any examination of what public funds produced. Ridley and Simon (1938) suggested governments to move from reporting costs only, the inputs, to also tracking the amount of work done, the outputs, which they started doing. The performance measurement movement of the 1970s emphasized on adding the measurement of outcomes, that is, the results of services. This enables an organization to track progress in achieving public service objectives to improve the lives of citizens. In US, New York City might have been the first government to implement a reporting process that has regularly included outcome information in its annual Mayor’s Management Report since the early 1970s, a report mandated by the city charter since 1977. Many cities and state governments followed in the 1980s (Hatry & Urban Institute, 2014).

2.2 Why measure?

Performance measurement serves the organisation internally and externally, in different ways. Is there any evidence that organisations with performance measurement systems perform better than those without such a system?

Internal accountability and management

Performance measurement serves the internal accountability of organisations. The measurements disclose the actual state of the organisation and meet the information needs of the internal stakeholders, such as employees, management, and board. These stakeholders can then use this information to advance their goals in the organisation.

A first internal use of performance measurement, according to Aureli (2010, pp. 82-84), is of an operational nature. Performance measurements allow to increase control about the organisation, and to guide and sustain the organisation towards required returns. Organisations use different instruments 'to keep things on track' such as the establishment of corporate governance rules, the creation of an advisory committee, the nomination of an external auditor, the selection of board members, management control systems, and thus also performance measurement. Without feedback on what is going on in the organisation and without comparison of the current state of affairs with what is aimed for, a manager sails blind and has little chance for hitting targets and being efficient. Within public services, things are simple, as stated by Hatry and Urban Institute (2014): better performance measurement leads to better management, and this leads to better service to citizens.

Second, performance measurements allow organisations to keep focus on their mission and motivate personnel to act in line with their tasks (Epstein, 2010, p. 5). From the perspective of the self-determination theory, performance measurements create intrinsic motivation and give incentives to the personnel (Manzoni, 2010, p. 19). There is debate about personal goal setting through performance measurements (Manzoni, 2010, p. 21) and their exist systematic, powerful and predictable side effects of this management method.

Third, performance measurement delivers the information that managers need to make strategic decisions about their organisation. Measurements guide strategic management (Arnaboldi, Azzone, & Giorgino, 2015, pp. 5, 12).

Another internal application of performance measurement relates to monitoring innovation (Epstein, 2010, p. 5). Implementing sustainability e.g., in both for-profit and not-for-profit organisations, asks for managing simultaneously social and financial performances. Davila (2010) observed a tension between performance measurement and innovation, as organisations struggle with encouraging creativity while keeping control through systems of performance measurement. According to Davila (2010) organisations should sometimes go close to the edge where they do not know exactly what they are doing. Creativity cannot be planned or structured; it needs guided freedom (Davila, 2010).

External accountability

Performance measurement is also presented as relevant for the external environment of organisations. External accountability consists of disclosing information that corresponds to the needs of the external stakeholders of an organisation, such as funders, regulators, customers of the goods and services, and society at large.

Miraglia and Leotta (2010, p. 144) explain that the control problems of inter-firm transactional relationships, such as subcontracting, are linked to information asymmetry and recognition of partner trustworthiness. Sharing information, e.g. operational and performance information, reduces information asymmetry between partners. They show that this improves the relational atmosphere and positively impacts on partner's trust.

For this reason, to create a stable (inter)national economic ecosystem, all registered companies are obliged to share their financial statements publicly, at least every year and in a standardised way. This reporting and sharing is organised by the national governments and their institutions.

Example

Housing associations

For social housing associations, the purpose of a performance measurement system is a form of transparency and accountability to stakeholders (in the absence of shareholders). Because, as civil society organisations, housing corporations experience limited 'discipline' from the market and government. Transparency on current performance is an important pillar of their societal support. This is true not only in the Netherlands but also in many other countries where social housing providers operate.

The impact of performance measurement on organisation performance

Does the implementation of performance measurement system, including the adequate use of it for strategic and operational decision making, generate a difference? Why invest in a performance measurement system when it is not sure that organisations with such a system perform better than those without?

There is an immense literature developing around performance measurement, but much of it is prescriptive. Bourne (2004) sees worrying signs that all is not well. He gives the example of the Balanced Scorecard, a multi-dimensional performance measurement concept developed by Kaplan and Norton in the early 1990s that promptly gained a wide implementation. Bourne (2004) mentions two publications that report poor results. Lewy and Du Mee (1998) claim that 70% of Balanced Scorecard implementations fail and Frigo and Krumwiede (1999) found that manager's satisfaction with their performance measurement system was not significantly greater in those organisations that had implemented the Balanced Scorecard. Bourne (2004) also mentions specific cases that show how performance measurement can be misused, such as the case of Marks & Spencer.

Example

Marks & Spencer

On 1 November 2000, the Money Programme on BBC 2 gave viewers some insights to the rise and fall of the UK retailer, Marks and Spencer (M&S), as the company went from industry idol in the early 1990s to an investors' nightmare. During this period, M&S share fell to a quarter of their original value and there were rumours of a takeover.

During the early 1990s, M&S could virtually do no wrong. Sales grew and so did profits. Its Chairman and Chief Executive, Sir Richard Greenbury, was knighted and voted 'Retailer of the Year'. M&S profits grew year on year until 1998, when the bubble burst. Then sales fell, profits plummeted and the myth was shattered. Why did this happen?

The programme showed how M&S had survived the recession in the early 1990s by tight cost control. These cost controls continued, resulting in the numbers of shop-floor staff being strictly controlled after the recession had ended and at a time when competitors, such as Tesco, were investing in staff to provide better service. Store managers, apparently, were concerned about their inability to provide the level of service they fell their customers now expected, but were prevented from doing so by the strict cost-control regime.

Apparently, M&S did survey its customers and measured their satisfaction. In 1998 (its record year for profits came in May of that year) customer satisfaction for service dropped. Whereas in November 1995, 71% of customers rated M&S's service good or better, in March 1998, this percentage fell to 62%. Similarly, customers were asked to rate M&S's value for money. In 1995 69% responded that they considered this good, but in 1998 this had dropped to 57%.

The programme left viewers to draw their own conclusions, but it would be difficult not to come to the conclusion that there was some relationship between shop-floor staffing levels and levels of service perceived by the customer and between measures of customer satisfaction and financial performance in the next period.

The programme also showed that the Chairman appeared to be unaware of these changes in customer satisfaction. The information was being collected, but not being used for decision making.

Since the November 2000 Money Programme, M&S has started to see its fortunes revive. One important aspect of this revival has been the company's focus on performance and linking employee engagement, customer satisfaction and financial performance.

The M&S case has certain important lessons for performance measurement:

- The case strongly suggests that reliance on financial performance measures is not enough. M&S's customer satisfaction ratings were falling before the impact was seen in the sales figures and once the sales started to fall, the situation became very difficult to rectify. Therefore completeness and timeliness of information is extremely important for decision makers.
- There was a lag between the decline in customer satisfaction and the decline in sales which led to an inconsistent message.
- Information about current and future performance is often already available within the organisation. However, it needs to be communicated to and recognised as important by those who can take the decisions.
- Interestingly, M&S used its performance measurement system to manage its way back to health. Measuring and managing employee and customer satisfaction was one of the keys to better financial performance.

(source: Bourne (2004, pp. 45-46))

Bourne (2004, pp. 29-50) suggests to list the evidence that performance measurement makes a difference by type of study: surveys, case studies and specific studies. We added some recent specific studies to illustrate the complexity of this kind of research.

Surveys

Meta level surveys try to find a link between performance measurement systems and organisation performance across a wide range of organisations. The difficulty with such studies is that they cannot show causality. Organisations with higher performance may have performance measurement systems in place, but the higher performance may not be caused by the measurement system. It may be that higher performance enables companies the luxury of investing in a performance measurement system, or that both are caused by some other factor not yet identified. Bourne (2004) mentions the surveys of companies based in the US by Lingle and Schiemann (1996) and Gates (1999). They defined better performance in terms of market share or stock price, and the ability to change. These studies provide some indication of a link between the use of performance measurement and performance. Bourne (2004) also mentions the book of Buckingham and Coffman (1999). They show how the measurement of employee opinion can identify a high-performing workforce and how this is linked to different dimensions of business performance like staff retention, productivity, customer satisfaction and profitability. Furthermore, the book proves that 12 employee survey questions can be used to identify a highperforming workplace.

Example

Measuring the performance of a workplace

Buckingham and Coffman (1999) use 12 questions to measure the performance of a workplace:

1. Do I know what is expected of me at work?
2. Do I have the materials and equipment I need to do my job correctly?
3. At work, do I have the opportunity to do what I do best every day?
4. In the last seven days, have I received recognition or praise for good work?
5. Does my supervisor, or someone at work, seem to care about me as a person?
6. Is there someone at work who encourages my development?
7. At-work, do my opinions seem to count?
8. Does the mission/purpose of my company make me feel like my work is important?
9. Are my co-workers committed to doing quality work?
10. Do I have a best friend at work?
11. In the last six months, have I talked to someone about my progress?
12. At work, do I have opportunities to learn and grow?

The answers to each question is measured on a five-point Likert scale – with headings from strongly agree to strongly disagree. The authors claim that their research shows that the 12 questions distinguish between productive and unproductive work settings, as they have compared the answers received with performance across a wide range of work settings. There was also a question on overall satisfaction with the company as a place to work (question 0). Each of the 12 questions is significantly linked to workplace performance as follows:

Productivity	0, 1, 2, 4, 5, 6, 7, 8, 9, 10 and 11
Profitability	0, 1, 3, 4, 5, 6, 7, 9 and 12
Retention	0, 1, 2, 3, 5 and 7
Customer satisfaction	1, 3, 4, 5, 10 and 11

Case studies

Individual case studies purport to show that the use of performance measurement makes a difference. Kaplan and Norton (2001) in their latest book have included specific examples of companies with improved performance, which they attribute to Balanced Scorecard implementation. They include direct quotes from executives that give credence to this view. However, many other things were happening in these companies and their markets at the same time, which makes it difficult to link this performance increase to the implementation of a performance measurement system like the Balanced Scorecard.

A famous case study about the link between performance measurement and business performance is the Sears case published in Harvard Business Review (Rucci et al., 1998) (Figure 12). More than 100 top-level Sears' executives spent three years rebuilding the company around its customers. The managers developed a business model of the company – the employee-customer-profit chain – and an accompanying measurement systems that tracks success from management behaviour through employee attitudes to customer satisfaction and financial performance. The chain was tested statistically and showed that a five-point improvement in employee attitude drove a 1.3-point increase in customer satisfaction which drove a 0.5% increase in sales turnover. Others (see e.g. Barber, Hayday, & Bevan, 1999) have undertaken a similar approach and confirm the empirical basis of the service-profit chain. They identify the non-financial drivers

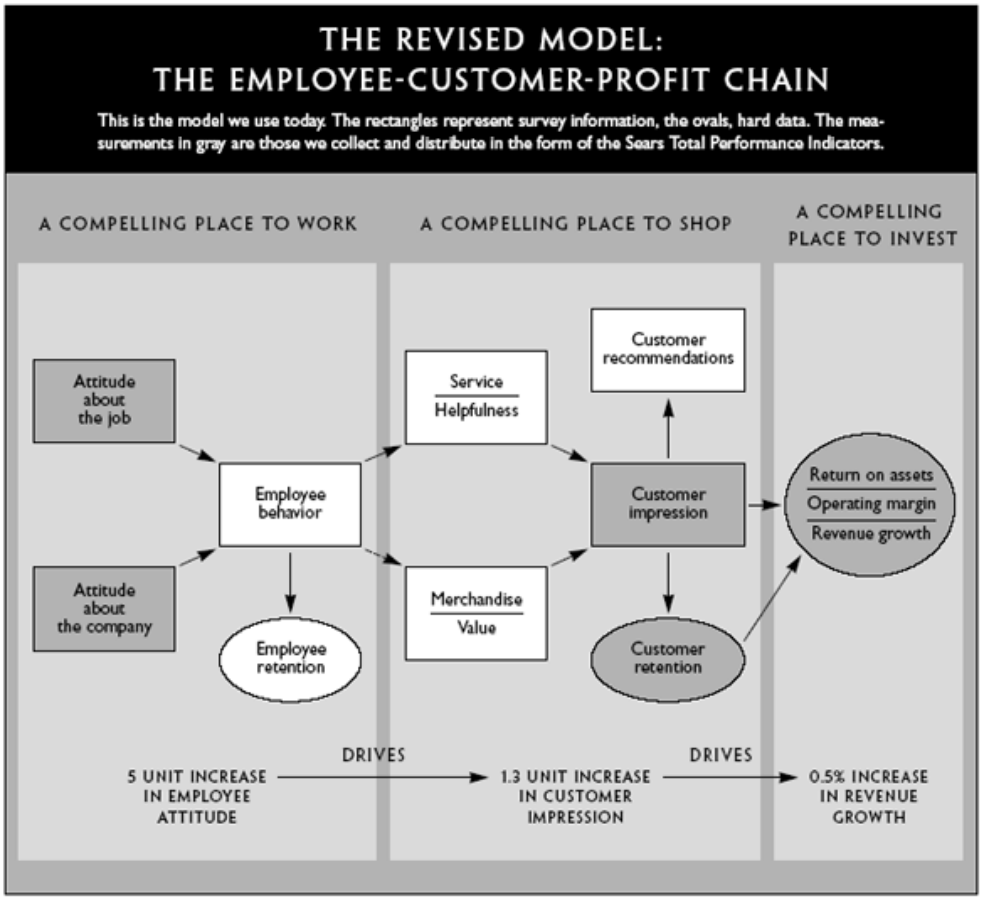

Figure 12 - The employee-customer-profit chain of Sears. Source: Rucci, Kirn, and Quinn (1998).

of business performance and link together the elements in a framework. They show managers which levers they need to pull to improve performance. Bourne (2004, p. 39) warns that companies should not copy these frameworks without testing the connection with their own data.

Specific studies

Specific studies about the way performance measurement makes a difference are scarce according to Bourne (2004). Although many authors have written about how they believe these systems make a difference, their claims remain a theory until empirically tested. In particular the Balanced Scorecard has been held up as a tool for 'translating strategy into action' (Kaplan & Norton, 1996). But how does it do this? Bourne suggests to research this through the roles of a performance measurement system in an organisation, which are (Bourne, 2004, pp. 589-604):

- establish position: external reporting and check of the basis health of the organisation, for comparison purposes e.g. for future improvements, internally, etc.;
- communicate direction: a good set of performance measures embed the strategy; the measures are alive, regularly updated to guide behaviour and action efficiently;
- influence behaviour: the measures should be designed to encourage appropriate action and discourage inappropriate action; they should create enthusiasm and motivation for improvement;
- stimulate action: 'what gets measured, gets done', the very act of attracting attention to a particular issue will help to ensure that effort is directed towards that issue;
- facilitate learning: high performance occurs when feedback is relevant and timely, changes perception and tests assumptions about the internal and external realms.

Recent specific studies

Among the recent specific studies that analyse the effects of using performance measurement systems on organisations' performance is the literature review of Owais and Kiss (2020). Owais and Kiss (2020) collect and review recent empirical pieces of evidence studying the effects of using these systems on organizational performance, covering a wide variety of industries in different regions. All reviewed articles were published in peer-reviewed journals in the period between 2014 and 2020. Almost all of the reviewed articles support the theoretical claims of having different positive impacts on organizational performance. However, the effects of these systems were not always direct, they vary between being direct, indirect, mediating, or moderating (Figure 13). And they affect various aspects of organizations such as the overall organizational performance, financial and non-financial performance, employees' behaviour, and many other aspects of organizations.

Figure 13 – On the left: conceptual model showing direct and indirect effect and the mediating factor; on the right: conceptual model showing the direct effect and the moderating factor (source https://drdanielleevans.netlify.app)

Speklé and Verbeeten (2014) also studied the effects of the use of performance measurement systems but focused on the public sector. They hypothesize that the way in which these systems are being used by managers – they consider the incentive-oriented and exploratory uses only (Figure 14) – affects organizational performance, and that these performance effects depend on the contractibility of the performance measurement system (Figure 15). Contractibility encompasses clarity of goals, the ability to select accurate performance metrics, and the degree to which managers know and control the production process.

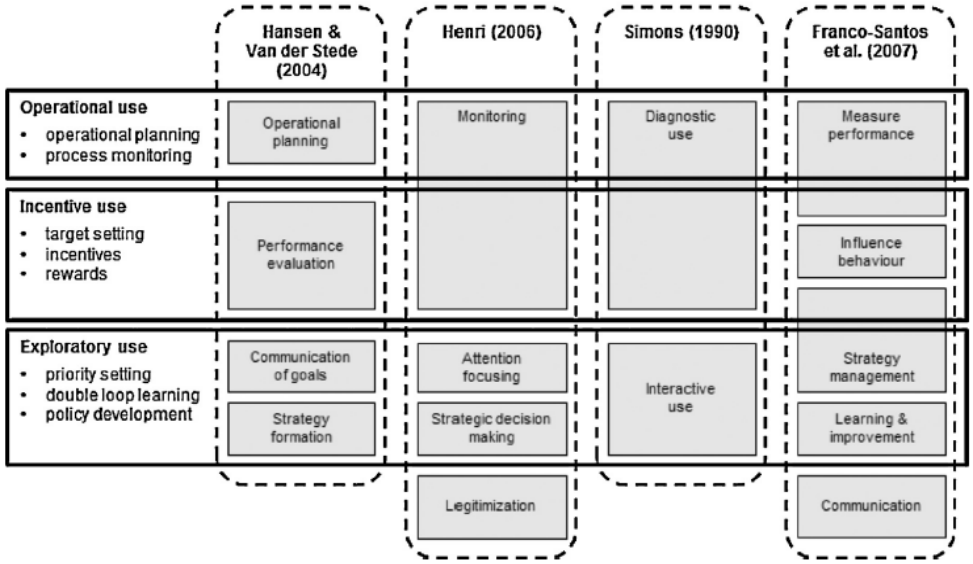

Figure 14 – Classifications of performance measurement system use (Speklé & Verbeeten, 2014)

They tested the three hypotheses (Figure 16) using survey data from 101 public sector organizations. Their findings indicate a positive association between contractibility and performance, which is consistent with literature. Next, their findings show that contractibility moderates the relationship between the incentive-oriented use of the performance measurement system and performance.

Contractibility	Incentive-oriented	Exploratory
Low	MISFIT lower performance due to distortion	FIT high performance
High	FIT high performance	MISFIT lower performance due to inefficiencies

Figure 15 – This figure summarizes the hypotheses H2 and H3 of Speklé and Verbeeten (2014). H2: the performance effect of using the performance measurement system for incentive purposes is more positive for high contractibility activities than for low contractibility activities. H3. The performance effect of using the performance measurement system for exploratory purposes is more positive for low contractibility activities than for high contractibility activities.

Using the performance measurement system for incentive purposes negatively influences organizational performance, but this effect is less severe when contractibility is high. Third, they also find that an exploratory use of the performance measurement system tends to enhance performance; this positive effect is independent of the level of contractibility. The effectiveness of the introduction of performance measurement systems in public sector organizations thus depends both on contractibility and on how the system is being used by managers. These findings have important implications, both for practice and for public policy.

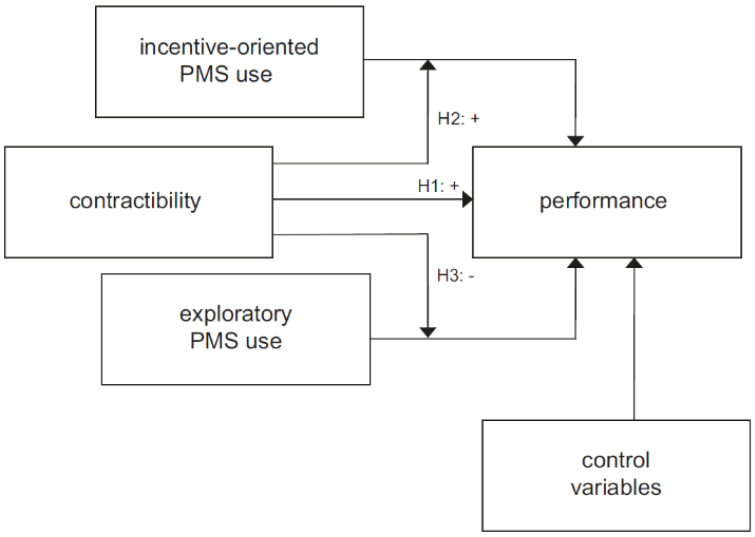

Figure 16 – Conceptual model of the study of Speklé and Verbeeten (2014) of the effects of the use of performance measurement systems in the public sector showing the three hypotheses of their study H1, H2, H3. The (+) indicate the positive effect, the (-) indicate the negative effect of the variable on the organisation's performance.

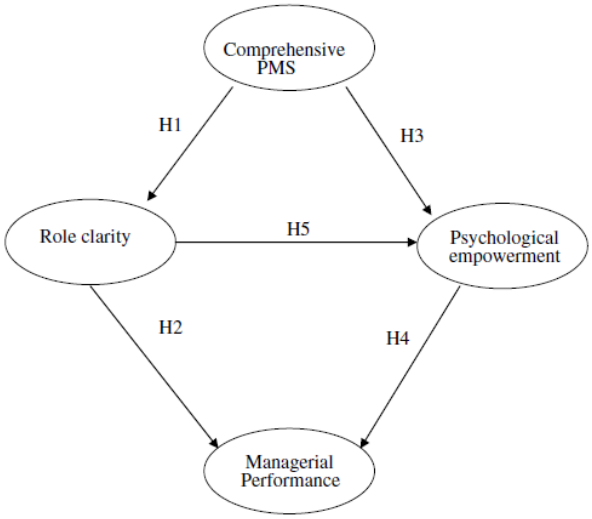

Figure 17 - Theoretical model: comprehensive PMS, role clarity, psychological empowerment and managerial performance. Source: Hall (2008).

A third recent specific study, by Hall (2008), examines how comprehensive performance measurement systems affect managerial performance (Figure 17). It is proposed that the effect is indirect through the mediating variables of role clarity and psychological empowerment. Data collected from a survey of 83 strategic business unit managers confirm the hypothesis. The results indicate that comprehensive performance measurement systems influence managers' cognition and motivation, which, in turn, influence managerial performance.

When Bourne (2004) observed that there is hardly any study that showed that the use of performance measurement increases business performance, more recent studies seem to have worked on this. Each study cannot prove the effect in itself, but together they provide a strong argument that performance measurement impacts on performance. The main message, which appears to be surfacing from these studies, is that if information leads to insights and these insights are acted upon, positive results are achieved from the performance measurement system. However, the key determinant of whether this happens is the quality of the performance measurement system itself and how well it has been developed, used and integrated into the business in which it operates (Bourne, 2004).

Unintended side-effects of PM

Performance measurement is not a neutral activity, as Bourne (2004, p. 16) explains:

> 'Performance measurement has an impact on the environment in which it operates. Starting to measure, deciding what to measure, how to measure and what the targets will be, are all acts which influence individuals and groups within the organisations. Once measurement has started, the performance review will have consequences, as will the actions agreed upon as a result of that review.'

For Muller (2018, pp. 2-3) in his book *The tyranny of metrics*, "the distortive effects of performance metrics" are obvious:

> "Studies have shown that when surgeons, for example, are rated or remunerated according to their success rates, some respond by refusing to operate on patients with more complex or critical conditions. Excluding the more difficult cases – those that involve the likelihood of poorer outcomes – improves the surgeons' success rates, and hence their metrics, their reputation, and their remuneration. That of course comes at the expense of the excluded patients, who pay with their lives. But those deaths do not show up in the metrics."

After having analysed the history and philosophical background of metric fixation, he presents several cases about how at universities, schools, medicine, policing, the military, business and philanthropy the act of measuring performance created unwanted side-effects. In the introduction (pp. 3-4) he states that:

> 'gaming the metrics occurs in every realm: in policing; in primary, secondary, and higher education; in medicine; in nonprofit organizations; and, of course, in business. And gaming is only one class of problems that inevitably arise when using performance metrics as the basis of reward or sanction. There are things that can be measured. There are things that are worth measuring. But what can be measured is not always what is worth measuring; what gets measured may have no relationship to what we really want to know. The costs of measuring may be greater than the benefits. The things that get measured may draw effort away from the things we really care about. And measurement may provide us with distorted knowledge – knowledge that seems solid but is actually deceptive.
>
> We live in the age of measured accountability, of reward for measured performance, and belief in the virtues of publicizing those metrics through 'transparency'. But the identification of accountability with metrics and with transparency is deceptive. Accountability ought to mean being held responsible for one's actions. But by a sort of linguistic sleight of hand, accountability has come to mean demonstrating success through standardized measurement, as if only that which can be counted really counts. Another assumption that is often taken for granted is that "accountability" demands that measurement of performance be made public, that is, 'transparent.'
>
> The metric fixation is the seemingly irresistible pressure to measure performance, to publicize it, and to reward it, often in the face of evidence that this just doesn't work very well. Used properly, measurement can be a good thing. So can transparency. But they can also distort, divert, displace, distract, and discourage. While we are bound to live in an age of measurement, we live in an age of mismeasurement, over-measurement, misleading measurement, and counterproductive measurement.

Mistrust of personal judgment

Muller (2018, pp. 3-4) further argues that:

> 'there are unintended negative consequences of trying to substitute standardized measures of performance for personal judgment based on experience. The problem is not measurement, but excessive measurement and inappropriate measurement - not metrics, but metric fixation. We are often told that gathering metrics of measured performance and then making them available to the public is a way to improve the functioning of our

> institutions. What has gone largely unnoticed is the recurrence of the same unintended negative consequences of performance metrics, accountability, and transparency across a wide range of institutions.'

And on page 6 he explains:

> 'While metrics are a potentially valuable tool, the virtues of accountability metrics have been oversold, and their costs are often underappreciated. The most characteristic feature of metric fixation is the aspiration to replace judgment based on experience with standardized measurement. For judgment is understood as personal, subjective, and self-interested. Metrics, by contrast, are supposed to provide information that is hard and objective. The strategy is to improve institutional efficiency by offering rewards to those whose metrics are highest, or whose benchmarks or targets have been reached, and to penalize those who fall behind. Policies based on these assumptions have been on the march for several decades.
>
> To be sure, there are many situations where decision-making based on standardized measurement is superior to judgment based upon personal experience and expertise. Decisions based on big data are useful when the experience of any single practitioner is likely to be too limited to develop an intuitive feel for or reliable measure of efficacy. Used judiciously, then, measurement of the previously unmeasured can provide real benefits. The attempt to measure performance – while pocked with pitfalls – is intrinsically desirable. If what is actually measured is a reasonable proxy for what is intended to be measured, and if it is combined with judgment, then measurement can help practitioners to assess their own performance, both for individuals and for organizations. But problems arise when such measures become the criteria used to reward and punish – when metrics become the basis of pay-for-performance or ratings.'

Metric fixation

Muller (2018, p. 17) observes a cultural pattern that has become ubiquitous in recent decades.

> 'One could call it a cultural "meme", an "episteme, a "discourse", a "paradigm; a "self-reinforcing rhetorical system" or simply a fashion. It comes with its own vocabulary and master terms. It affects the way in which people talk about the world, and thus how they think about the world and how they act in it. For convenience, let's call it metric fixation.'

For Muller (2018, p. 18), the key components of metric fixation are:

- "the belief that it is possible and desirable to replace judgment, acquired by personal experience and talent, with numerical indicators of comparative performance based upon standardized data (metrics);
- "the belief that making such metrics public (transparent) assures that institutions are actually carrying out their purposes (accountability);
- "the belief that the best way to motivate people within these organizations is by attaching rewards and penalties to their measured performance, rewards that are either monetary (pay-for-performance) or reputational (rankings)."

Recurring flaws

However, Muller (2018, p. 23) argues, “after decades of experience with the negative effects of metrics, we should be able to anticipate the recurrent flaws.” And he comes with a list to help identify and remember them. A first list relates to the distortion of information:

- Measuring the most easily measurable. What is most easily measured is rarely what is most important.
- Measuring the simple when the desired outcome is complex. Focusing measurement on just one aspect or goal often leads to deceptive results.
- Measuring inputs rather than outcomes. Organizations tend to measure what they've spent, rather than what they produce, or they measure process rather than product.
- Degrading information quality through standardization. Making things comparable often means that they are stripped of their context, history, and meaning.

And Muller (2018, pp. 24-25) observes problems of gaming the metric when much is at stake:

- Gaming through creaming. This takes place when practitioners prefer clients with less challenging circumstances and exclude cases where success is more difficult to achieve.
- Improving numbers by lowering standards. For example, graduation rates of high schools and colleges can be increased by lowering the standards for passing.
- Improving numbers through omission or distortion of data. This strategy involves classifying cases in a way that makes them disappear from the metrics.
- Cheating. Manipulating a phenomenon so that its frequency tends to increase directly with the stakes of the metric in question.

Unintended but predictable negative consequences

After having studied the recurrent perils of metrics in the different cases, Muller (2018, pp. 175-183) lists the unintended negative consequences of performance measurement. He hopes that knowing these 11 consequences will allow to avert them:

1. Goal displacement through diversion of effort to what gets measured. Workers who are rewarded for the accomplishment of measurable tasks reduce the effort devoted to other tasks.
2. Promoting short-termism. Measured performance encourages advancing short term goals at the expense of long-range considerations.
3. Costs in employee time. Metrics come at a cost of employee time by those tasked with compiling, processing and reading the metrics.
4. Diminishing utility. Newly introduced performance metrics will have immediate benefits in discovering poorly performing outliers, but soon the

marginal costs of assembling and analysing the metrics exceed the marginal benefits.

5. Rule cascades. In an attempt to staunch the flow of faulty metrics through gaming, cheating, and goal diversion, organizations institute a cascade of rules. Complying with them further slows down the institution's functioning.
6. Rewarding luck. Measuring outcomes when the people involved have little control over the results is rewarding luck. Those penalized rightly feel that they've been treated unfairly.
7. Discouraging risk-taking. Attempts to measure productivity through performance metrics discourage initiative and risk-taking. But great achievements often depend on them.
8. Discouraging innovation. Performance metrics incentivize what the metrics measure. Innovation means doing something that is not yet established in the metrics.
9. Discouraging cooperation and common purpose. Rewarding individuals for measured performance diminishes the sense of common purpose as well as the social relationships.
10. Degradation of work. Those subject to performance metrics are forced to focus their efforts on limited goals, imposed by others, who may not understand the work that they do. Work becomes a matter of filling in the boxes.
11. Costs to productivity. The culture of metrics – with its costs in employee time, morale, and initiative, and its promotion of short-termism – may have contributed itself to the economic stagnation of the 2010s in US.

So, knowing why PM is set-up, understanding that the added value of PM systems is not straightforward, and being informed about the unintended harmful side-effects of PM systems for an organisation, it is time to explain about the design, implementation and use of PM systems.

2.3 Design, implementation and use of PM systems

For Redden (2019, p. 14), 'despite variation across contexts, PM follows some common patterns in contemporary organizations'. Redden relies on the literature review of Bourne, Mills, Wilcox, Neely, and Platts (2000) to sort PM literature according to three categories: *design, implementation* and *use*.

> 'Design is the logical first step in establishing a measurement approach. It involves decisions about which performance metrics to use, data collection methods, and reporting protocols that fit the given purpose. lmplementation is the set of issues around successfully introducing the chosen techniques and integrating them within organizations. And use signifies that performance data itself is meaningless unless subsequently interpreted and acted upon so as to affect organizational practices' Redden (2019, p. 14).

Redden (2019) stresses that this division of PM activities into three streps rarely maps onto independent steps in time and that in literature the design of PM is too

often discussed in ‘green field’ terms. He refers to Lohman, Fortuin, and Wouters (2004, p. 268) who pointed out that ‘newly introduced PM approaches usually interact with already established ways of collecting and using data within organizations’. For Redden these indicate ‘how the field is concerned not just with techniques but with their ordering and relationships with other organizational processes’ Redden (2019, p. 14).

The explanation on the following pages uses the structure of the three categories: *design, implementation* and *use.* The text is based on chapter 2 of the book ‘Questioning performance measurement - Metrics, organisations and power’ published by Guy Redden in 2019. In this book Redden discusses the rise of performance measurement and interrogates its methods and objectivity from the perspective of the sociology of quantification. In chapter 2 ‘What is performance measurement - Nuts, bolts and critical issues’ he introduces the main components of a performance measurement system.

2.4 Designing performance indicators

Before thinking about how measurement frameworks are put together, Redden (2019, p. 15) considers their most important constituents. These are performance indicators, which are any 'measures of how well something is being done' (Borden & Bottrill, 1994, p. 6). Redden: ‘Whether applied to widgets produced, mistakes made, complaints fielded, deadlines met, cases resolved, satisfaction levels, perceptions of quality or outcomes created, the indicator is the concept through which PM becomes “an integral part of the daily routine” (Spooner, 2002, p. 116)’.

Indicators are fashioned for evaluation

For Redden (2019, p. 15), a performance indicator is more than just a measure or statistic. A performance indicator ‘is fashioned for a specific summative, evaluative purpose about something that is seen to matter in an organizational context. As Eckerson (2011, p. 192) puts it with regard to the private sector, an indicator is a metric designed to be read in terms of related business aims and plans. Or with regard to the public sector, statistics become indicators only “through a route map of policy” (Madden, 2005, p. 3).’

Performance indicators allow a certain kind of organizational reflexivity about organizational practices. They yield data that allows assessment of the significance of actors' performances to the enterprise.

Areas and indicator classes

Redden (2019, p. 16) describes how the ‘Performance Measurement Manifesto’ of Eccles (1991) was the impulse to apply indicators to non-financial areas, including those that might otherwise remain intangible. Today much PM is concerned with the quantification of quality. In general, indicators may support operational processes or provide more strategic information (Spitzer, 2007, p. 74), and they may focus on the processes or the outputs (Hronec, 1993, p. 9).

Literature often separate the indicators into dimensions, such as financial, output, impact, reaction, time (Armstrong, 2000, p. 53); quality, timeliness, productivity, cost control, quantity (Armstrong, 2000, p. 61); short term and long term (TQM International, 1996, p. 7); productivity, quality, timeliness, cost (Harbour, 2009, p. 8); and quality, time, cost (Hronec, 1993, p. 16).

Or, as Redden (2019, p. 16) further explains, the indicators are grouped by functional divisions - which may or may not coincide with organizational units - such as human resources, marketing, research and development; or they may refer to distributed or cross-functional responsibilities such as customer satisfaction and supply chain (Spitzer, 2007, p. 208).

Objective and subjective

For Redden (2019, p. 17) it is clear that different indicators may capture different phenomena in different ways.

> ‘As Kaydos says, if “measurement means assigning a number to a property of an object” (Kaydos, 1998, p. 19), much depends on the nature of the object. Output measures may involve straightforward counts of units produced, whereas assessing “outcomes” - the impact of organizational activities - is more likely to involve measures of stakeholder viewpoints. Measures are sometimes divided into objective and subjective. The former are 'already countable things' such as finances and outputs, rates of occurrence, and spatio-temporal dimensions of observable processes. Subjective measures, however, quantify perceptions of stakeholders derived from reflective techniques such as review, survey and audit (TQM International, 1996, p. 4). In other words, they involve human judgement translated into scores (Kaydos, 1998, p. 19). lnevitably, while they may be lauded tor providing insight, subjective measures can also be criticized because they are subject to bias (Spitzer, 2007, p. 207). Yet there is no guarantee that things that are more easily measured for already falling into an easily counted 'objective' form provide organizationally useful information (208). They might just be easy to count.’

Breaking *down*

The larger issue here is how practices and intangible states are to be quantified (Redden, 2019, p. 17).

> ‘Potentially complex abstract concepts like customer or employee satisfaction must be broken down into possible component indicators. How quickly or adequately are customers served? How many complained? Or what are staff retention or absenteeism rates, for instance? There can be no guarantees that such quantitative measures reveal what really matters in serving customers or the conditions under which staff innovate. When it comes to intangibles, direct measurement 'of the object or condition itself' is impossible. Only indirect indicators, 'measurement of an effect of the thing', are possible, such as in interpreting employee turnover or absenteeism as indicators of staff morale (Kaydos, 1998, p. 19). lndeed, some definitions of the term 'indicator' stress that it 'is characterized as an observable variable assumed to point to, or estimate, some other (usually unobservable) variable' (Bunge 1975, cited in (Frønes, 2009, p. 8).’

2.5 Designing connections between indicators

Redden (2019, p. 17) further explains:

> ‘Ultimately, many indicators are measurable proxies for larger intangible concepts for which they are taken to stand. They 'have to be used in combination with each other so as to cover all relevant aspects of an activity, product or service' (Fortuin, 1988, p. 9). Measuring in the area of human resources or information technology, for example, could involve a number of constructs of performance divided into multiple domains, measured by indicators across many dimensions that are then combined to provide a multi-dimensional model of performance in the area.
>
> The need to choose from an array of possible indicators means that a crucial part of the design expertise is the selection of those that capture the area of performance adequately, but also serve organizational aims. For example, 'if the principal aim is to achieve budgetary control and productivity, the focus will be on efficiency measures such as the costs of providing a certain volume of output on an annual basis' (Thomas, 2006, p. 11). The overall mix of indicators should ensure relevant information is given about every variable that ostensibly influences the outcomes of interest.’

Connections between indicators

Redden (2019, p. 18) continues:

> ‘Yet at the same time connections *between* indicators are crucial (Marchand & Raymond, 2008, p. 668). It is not only the sum total that matters, but also what they mean in a certain combination. This might include attending to possible trade-offs between conflicting imperatives, such as cost control, quality or marketing (Frost, 2007, p. 15). Any complex organization includes various, functions that could be done well or not so well when judged against particular criteria. But is it more important, say, to produce a thing or provide a service quickly or to a high standard? While in an ideal world organizations would achieve outstanding numbers for each, in the real one of constrained resources it might be crucial to determine what matters most and even what kinds of trade-off are preferable. Are delays acceptable if quality of service is high? Can certain levels of defect be lived with if delivery is on time? Attaining 'good' metrics is more challenging than just identifying self-evidently 'good' conditions and quantifying them. Decisions about the design and weighting of elements seen to constitute overall performance need to be made in line with organizational practices, structures and priorities.’

Integrated PM – Key performance indicators

Redden (2019, p. 18):

> ‘This skilful orchestration of multiple metrics is what *integrated* PM entails over the multiple sites that each add to data that makes organizational performance 'visible' and 'knowable'. As Parker puts it, information collected in sub-units 'must aggregate into organisation-wide measures' (2000, p. 65). Measures must tie in with each other at different levels (Hronec, 1993, p. 16). Otherwise managers, especially executives, would have to make sense of an unmanageable mass of specific indicators and values. Instead indicators at higher levels tend to become increasingly selective or abstracted from

organizational details, and the most important separated out from others for their importance in the organization's 'performance story'. These *key* performance indicators (KPIs) are chosen for their deeper significance for strategy and mission. Only a few tend to articulate the factors deemed most important for a given worker, unit or organization. PM experts often recommend that an organization has only 10 to 20 top-level KPIs of executive interest, even if nested performance indicators throughout it may run into hundreds (Parmenter, 2007, p. 32). Such suites of KPIs may even be overseen by a particular officer or unit within an organization (Eckerson, 2011).

One common kind of KPI is the global indicator that summarizes performance in a given area (Lynch & Cross, 1995, p. 77). Technically KPIs are often indexes - composite numbers 'you create mathematically combining several individual measures' that provide information for various dimensions of the larger construct or domain such as customer satisfaction (Frost, 2000, p. 74). In other words, 'Many indicators are composites of other indicators, a blending and weighting of established indicators into a new bundle' (Merry, 2018, p. 86). According to the (OECD, 2004), this requires elaboration of an 'underlying model of the multi-dimensional concept that is being measured'. Composites such as final scores or indexes tend towards summary of multifarious data sets, being useful for overview but potentially masking details and variations that reveal information about specific processes (Kaydos, 1998, p. 110). However, if constituent data also remains available, in theory at least, the headline values of KPIs and indexes can be disaggregated, through analytic 'drilling down' in a search for causes and relationships (Lynch & Cross, 1995, p. 149).'

The issues of measuring

To address the issues of measuring performance, it is useful to have a look at the results chain of Parsons, Gokey, and Thornton (2013) (see Figure 21). As explained by Arnaboldi et al. (2015), enterprises aim at providing outputs (products and services) to customers and to add value to employed inputs, which include human, financial and technological resources. Said differently: enterprises maximise outputs against inputs. When consumed, these outputs convert into outcomes and impacts consisting of respectively the benefits for the consumer and the higher goals that root in stakeholder values.

To measure performance, this simple logical thinking clashes with a fundamental calculation problem (Arnaboldi et al., 2015): there are different types of inputs (people, machines, patents) and outputs (various products, multiple services) and these convert into different types of outcomes and impacts, each of them with diverse units, which inhibits calculations. To solve this problem, money can be used as a reference measurement unit. Inputs and outputs can be expressed in cash equivalents quite easily, but for outcomes and impacts it is not.

However, also the traditional financial performance measures like return on equity, present value and others start falling short as more holistic measurements that include aspects like innovative power, and social and environmental sustainability gain importance.

2.6 Designing the reference value

For Redden (2019, p. 20) the reference value as set by the PM audience is central to all PM:

> ‘In the words of Davis, Kingsbury, and Merry (2012, p. 9): “All indicators are fundamentally comparative”. Designing indicators and collecting values are only part of the puzzle. Logic dictates that indicators can only be truly meaningful when read against desirable values regarding what a good performance might be on a scale of possibilities. If, according to Harbour (2009, p. 10), the job of indicators is to answer the question 'How well are we doing?', they must be comparative because 'They have little value unless associated with a goal or standard.' As Frost avers, metrics may be interpreted via various kinds of reference points or 'anchor points', with the caveat that one has to 'think carefully about what comparatives will lead you to valid conclusions and sensible action' (2000, p. 37). The kind of comparison at stake may be captured in particular terms such as 'benchmark', 'standard', 'goal' and 'target'. Each concept implies different processes of comparative valuation of current indicator data that allow performance to be viewed in relative terms.’

Benchmarks

Redden (2019, p. 20):

> ‘Benchmarks are one of the most commonly discussed comparators. Nominally a benchmark is any performance standard that allows comparison of achievements with those of peers. Benchmarking has grown to prominence since its development in corporations like Xerox in the 1980s, and it can take place both within and between organizations in the public and private sectors (Hope & Player, 2012, p. 86). However, it would make little sense to compare metrics with those available from other units or organizations at random. Benchmarking is a 'continuous search for and application of significantly better practices that lead to superior competitive performance' (Nandi & Dey, 2004, p. 102). Benchmarks generally illustrate via comparison that there are always higher achievable standards among alternatives, to provide a gauge of how well one is performing against shared criteria.
>
> Along these lines, benchmarking transforms the problem of determining what standard to judge performance by into the opportunity to discover high performance levels. According to (Nandi & Dey, 2004, p. 89), it reveals excellence. The very act of comparing is what allows the latter to become apparent. Yet comparison of the performance numbers alone is only the beginning. Ideally it is a “capability development approach” (90) informed by data. In this way benchmarking is linked to other commonplace concepts used in contemporary management to express high levels of performance, of which excellence is one, and best practice and world-class standards are others. These concepts should not be entirely conflated of course. It is possible to seek knowledge of good practices using non-quantitative evidence. However, benchmarking may be seen as the most obvious means of both identifying and evidencing best practice (Hronec, 1993, p. 70), while world-class benchmarking adds explicit comparison to the (apparent) best in the world (Frost, 2000; Hronec, 1993, p. 96).

> Benchmarking as an organized activity is usually the synchronic comparison between levels of performance achievement between organizations or units. As Madden (2005, p. 221) notes, though, “the kind of comparative study of the behaviour of one or more variables” that indicators allow can take place cross-sectionally, longitudinally or through techniques that combine both. Longitudinal approaches centre upon the comparison of performance achievements within a data unit at different points in time. Fundamentally this is often a comparison of current figures with those from previous periods so as to track improvement or lack of it (Parker, 2000, p. 64). And as Garrett and Strueby (2007, p. 20) propose, while benchmarking may usefully highlight relative weakness or strength of performance, comparing a performance over time facilitates the “why” question - that is, the search for possible explanations for change.’

Example

How to benchmark?

Comparisons can be made between similar activities or units in different departments of the same organization, or across different firms in the same industry (Anheier, 2005, p. 200). Three techniques used in benchmarking are:

- best demonstrated practise (BDP) is the comparison of performance between units within one organization. This way, superior techniques or greater efficiency can be isolated and identified;
- best related practise is similar to BDP but extends the comparison beyond a single organisation to related organisations, including competitors;
- relative cost position (RCP) is a detailed analysis of every element of the cost structure (i.e. supplies, labour, etc.) per dollar of sales, compared between two or more organisations.

Other techniques that complement the above three include:

- site visits to witness different management styles and procedures;
- systematic and formal collection of data to compare a range of performances;
- and the formation of “clubs” to exchange ideas.

Especially in the nonprofit field, benchmarking techniques are attractive because organizations share a common philosophy of social justice and social service and therefore value collaboration in working toward a common good. This is in contrast to the business world where firms view each other as profit-maximizing competitors and therefore may not be willing to share best practises or techniques.

Letts, Ryan, and Grossman (1999) argues that benchmarking requires strong organizational leadership and, despite a culture of collaboration and shared goals, organizations must “be willing to risk exposing their organizations’ strengths and weaknesses . . . to define their organizational learning needs . . . and present their case to funders and staff ” (Letts et al., 1999).

Targets are inherent to PM

Redden (2019, p. 20) repeats:

> ‘However, longitudinal performance comparison is rarely an entirely ex post exercise. Organizations typically set and assess progress towards desired targets and goals through periodically collected performance data and reporting cycles. While in some cases this might be fairly laissez-faire comparison with last year's figures, performance data is also compared with hypothetical values: goals that are set as part of the performance-monitoring

> process. In a review of the business literature, Franco-Santos and Bourne (2005, p. 116) find a consensus that use of targets is inherent to PM systems. For Fortuin (1988, p. 1), indicators are the basis of any target-setting organizational philosophy: they are essentially tools to 'compare actual results with a pre-set target, and to measure the extent of any deviation.'

Standards

Standards are a special sort of reference value. They come in different appearances like legal standards and norms (e.g. ISO, NEN). Standards not only define the value to be achieved, they mostly also define the measurement method.

Static and rolling goals

Should rolling forecasts replace budgets in uncertain environments? Reason for implementing rolling forecasts is that a budget in an organisation has a time horizon of 12 months, whereas a rolling forecast has time horizon of year-end, quarter, semester or whatever chosen period, and focuses on operational management. Lorain (2010, p. 177) found that 'rolling forecasts are considered to be a dynamic strategic planning tool, very useful for cash management and day-to-day decision-making process, but they cannot replace budget for evaluation and motivation purposes.' They conclude that the rolling forecast technique is complementary to the budget technique but can't replace it (Lorain, 2010, p. 177).

Goal displacement

Goal displacement is a process by which the original objective, while still being formally upheld, is replaced by new or secondary goals. For example, rather than working toward poverty alleviation, the organization may focus primarily on fundraising for its own survival and maintenance (Anheier, 2005, p. 189).

2.7 Implementing PM: data analysis and reporting

Redden (2019, p. 21) then explains what happens after the measurements are collected.

> 'Properties measured might commonly be expressed on nominal scales, as in summing up errors during a certain period, or ratio scales like errors per 1000 completions. However, the comparisons that result do not just illustrate 'how much' or 'how much per'. They also place achievements in order. This ordinal logic ensures that performance values are implicitly or explicitly plotted on a comparative scale of how good or bad they are. The interest in comparing this year's figures with last's, or our number with somebody else's, is indeed that one is better and one is worse.'

Gap analysis

Redden (2019, p. 21):

> ‘Hope and Player (2012, p. 86) identify the importance of 'gap analysis', an accountancy phrase aften associated with deviations from budgets, to foreground proximity to desirable levels of performance. Regardless of how rudimentary or sophisticated it may be, gap analysis compares present with past achievement, a goal or target, or a benchmark (TQM International, 1996, p. 16). In other words, comparisons may construct not only rank orders but also the magnitudes of relative differences such as in the percentage difference between benchmarks, targets and achieved values. So it is for instance that Tuomela finds, through a case study of one company, that the fundamental way of reporting and reviewing 33 performance measures in firm-level management meetings and some profit centre meetings was to assess their 'notable variances from targets' (2005, p. 308). Extent of deviation from other values is the most fundamental kind of calculation applied to performance data.

Visual reporting

Redden (2019, p. 21):

> ‘Data visualization methods are often used to help managers pick out rank orders and deviation levels. Software packages transform input data into performance dashboards (Marchand & Raymond, 2008, p. 673). Techniques such as trend charts, scatter diagrams and colour coding of results in traffic-light red, amber and green readily plot values against a spectrum of possibilities (Eckerson, 2011, p. 4; Harbour, 2009, p. 66; Pande & Holpp, 2002, p. 61). As Frost puts it, “In almost every case, graphs are the best way to present performance results ... a picture is worth a thousand words” (2000, p. 36).
>
> However, such packages may also facilitate data analytics beyond the 'head-line' level. In a book written for IT managers involved in PM, Eckerson (2011) stresses that well-designed performance dashboards not only summarize data visually, but also integrate back-end calculation with front-end presentation, allowing it to be sorted, refreshed and correlated through a methodology he labels MAO, standing for monitoring, analysis and drilling down. Others, though, have referred to dashboards as 'idiot lights' that occlude details and simplify reality 'for the measurement illiterate' (Spitzer, 2007, p. 170). This illustrates a tension between rigorous data analysis and overview.’

Robust analysis

Redden (2019, p. 21):

> ‘Multiple studies argue that robust analysis is required if measurements are to provide useful knowledge. They suggest that the organizational reality in many cases is that data collection is emphasized, sometimes with questionable methodology, while analysis remains intuitive and inadequate. indeed, the realpolitik of organizational politics may see both inertia and a range of pressures undermine the analysis process (Chapman, 2005). Measurement itself does not come with guarantees regarding its statistical integrity or deep investigation.

This is not to say analysis never happens. Morley, Bryant, and Hatry (2001, pp. 61-69) summarize a range of common options for comparative analysis of data items in public sector measurement. One can of course let the numbers speak for themselves to end users by simply presenting the data (perhaps the default). However, one can also: compare achievement with an average - a mean or median - and show the standard deviation of the data unit's achievement relative to comparators; rank units by indicator or in a composite index; rate each indicator (i.e. transform it from its original metric into a score on a grading scale that clearly differentiates levels of achievement); undertake trend analysis; break out and compare different groups; combine scores on individual indicators to provide an overall index; compare indexes; average or sum all ratings to provide a final score; and derive a final score from a set of indicator values that have each been given a different weighting.'

Interpreting data

Redden (2019, p. 21):

'But crunching data is not the same as interpreting and using it. Understanding the contextual significance of data is seen as a key management role, and determining cause-and-effect relationships is a key theme. As Lebas (1999) argues, PM makes little sense without attempts to ascertain how inputs affected outcomes, and how value is added. Morley et al. (2001, p. 69) note that to ask the causal question 'Why did X perform that way?' is actually to broach further questions about the internal and external factors that explain performance. Ideally those with oversight have a robust understanding of correlations between indicators that enables them to determine significant relationships (Harbour, 2009, p. 32).

One obvious answer to tensions between analysis and interpretation is to incorporate them both. For Moullin (2007, p. 181), quantification must lead to evaluation, a term that implies both analysis and interpretation, and that uses valid data to ask critical questions about what can be done. Truly significant patterns in collected data - as opposed to common or random variations, or the effects of statistical distortion or abstraction - need to be determined (Kaydos, 1998, pp. 109-115). In Spitzer's ideal-typical schema (2007, p. 105), data is regarded as facts out of context. It is transformed into information that provides perspective through 'sorting, combining, comparing, analysing, visualizing'. When the information is combined with other information and experience it becomes knowledge even wisdom. The question remains, however: how often are such ideals realized in practice?'

Example

Converting data to information

Poister (2015, p. 121) sees many techniques to convert data to information:

- comparing collected data with the reference value
- reporting the collected data over time and comparing these with the reference value
- reporting performance over time
- comparing collected data and/or performance among units in the same organisation
- internal benchmarking (the internal units against which performance is compared are not selected at random but considered best practices)
- external benchmarking

KPIs not understood

Aureli (2010, p. 100) report how managers found the interpretation of performance measurement demanding. Some KPIs were not understood. This applies for the very financial indicators as well as the non-financial ones, that are often non-quantitative. The PM framework 'Tableau de Bord', mainly used in French companies, was reworked in 2003. The framework is still mainly financial, but now also includes dimensions such as sales, budget, long-term production plan, etc. to feed the financial forecasting like cash needs. It better supports the target setting and the performance discussion in monthly meetings. Aureli (2010, p. 17) report however that when the chain between cause and effect becomes too long, managers have difficulties in understanding. The indicators then stop functioning as management tools.

2.8 Using PM systems

'How performance statistics really inform the reflection and practice of organisational actors is potentially variable', Redden (2019, p. 24) explains, and 'it comes as little surprise that how performance data is used is much less researched academically than design and implementation of frameworks are (Bourne et al., 2000). Nonetheless, the "how-to" literature ultimately rests upon the idea that PM can be useful, at least if recommendations are followed (Bittlestone, 1997, p. 10).'

Focus attention

Redden (2019, p. 24):

> 'The most basic claim is that PM systems focus employees' attention on issues that are important to address within the organization (Ukko, Tenhunen, & Rantanen, 2007, p. 40) and how their own actions may have a bearing upon them. The frameworks act as maps of what matters and are seen to facilitate its realization. For instance, if an organization seeks to develop a focus on the customer, or to become more dynamic, flexible and capable of change, it is logical to expect that translating those requirements into specific measures will help to engender the valued qualities (Lynch & Cross, 1995, p. xii). This is the common sense of PM as expressed in sayings such as 'What is measured is what matters', 'What gets measured gets managed' or 'What gets measured gets done' (Behn, 2003, p. 599; Bevan & Hood, 2006).'

Stimulate desirable responses

Redden (2019, p. 24):

> 'Beyond the focusing of attention, Neely, Gregory, and Platts (2005, pp. 1241-1243) suggest that measurement systems can also stimulate a number of desirable responses – from learning to motivation – because workers are liable to react to cues they provide in a calculative fashion, ascertaining best courses of action to take in light of the data. For Behn, 'managers can use performance measures to evaluate, control, budget, motivate, promote, celebrate, learn, and improve' (2003, p. 586). As Armstrong puts it, the

> 'fundamental goal of performance management is to establish a culture in which individuals and groups take responsibility for the continuous improvement' (2000, p. 6). Measurement scales allow a language in which the desire to achieve improvement may be articulated (Bititci, Garengo, Dörfler, & Nudurupati, 2012). Along such lines successful PM is seen to circulate the information necessary to make any organization's deliverables better, 'faster and cheaper' (Frost, 2000, p. 10).'

Implement the strategy

As mentioned above, PM is often used to implement the organisation's strategy. The indicators make the strategy operational for employees and inform management about its absorption in the workplace. But PM can also be used to design a strategy. PM then informs the strategy designers about the current state of the organisation and the deviation from the current targets. This use of PM should come with a warning, because the PM system that informs the strategy designers has been developed on the basis of the current external and internal contextual factors (Aureli, 2010, p. 89). Since the current strategy is one of these internal contextual factors, the PM framework and the PM indicators report according to the dimensions of the current strategy.

Reporting and controlling – the annual report

PM is often considered part of or identical to an organisational control system. But, it depends on the nature of the control system whether this is indeed the case. Next to a correct data collection about the current state using a framework of indicators – a technique that PM and control systems share – a PM system requires a set of reference values and a comparison of the indicator data with this reference values. These are not always present in control systems.

Think about the financial reporting as it is made by (almost) all organisations on a regular basis, and once a year at least. Most often they use standardised formats as imposed by their governments such as the three financial statements consisting of the balance sheet, income statement and cash flow statement. But, these statements contain data only. A judgement of the organisation’s performance depends on the references used by the audience. Often these references are hidden or pre-supposed: a growing turnover is better, losses are to be avoided, less capital use is better, etc. Listed companies, for instance, as they rely on external capital, are obliged to publish their reference values, the comparison of the achieved and the aimed, and thus to publicly report about the performance of the organisation according to the legally imposed PM frameworks.

Contingency factors apply on the diffusion of PM systems

Contingency theory indicates that there is no unique best structure to all organisations under all circumstances; instead each organisational structure is a response to a set of contingencies (Pavlatos, 2010, p. 501). Factors such as technology, size, environmental uncertainty, production technology, market environment, and recently corporate strategy affect the design and functioning of organisations (Covaleski, Dirsmith, & Samuel, 1996; Otley, 1995). A performance measurement system is a significant element of the organisational structure and

its particular features will depend upon the circumstances that the organisation faces (Otley, 1980).

According to the research of Pavlatos (2010) within the 112 leading hotels in Greece, the use of a performance measurement system like activity based costing system, is positively associated with business strategy and with the chief financial officer's (CFO) educational background. It is negatively associated with CFO age. Pavlatos' research found no association found between the use of PM systems and the quality of information technology, membership of multinational chain, and CFO tenure.

Carenzo and Turolla (2010) analysed the diffusion of management accounting systems in manufacturing companies in Italy and the impact of contingency factors, with a particular focus on the presence of foreign customers. The research used a statistical analysis of 274 questionnaires. It confirms the positive relationships between the presence of management accounting systems and traditional contingency factors such as company size, organisational structure and operational complexity. In addition, a positive correlation was found between the internationalisation and the implementation of activity-based costing and target costing.

2.9 Models

In order to get a grip on the PM focus area, the audience (consciously or unconsciously) imposes a model on that area. Through the model, the continuum of the focus area becomes an accessible reality. The model provides a common, shorthand language for the phenomena and dynamics in the focus area (Falletta & Combs, 2018). And together with the purpose of PM, defined by the same audience, the model shapes the PM framework and PM indicators.

Models vary in their level of specificity and applicability. To select the right model for the focus area, the audience should feel comfortable with the model, for example because it fits with their world view, the model should fit well with the focus area, and the model should be comprehensive enough to capture the factors of interest without overwhelming the audience. Audiences should not rigidly adhere to a model if there is evidence that the model may not be appropriate for a particular focus area.

Organisation models

In most cases, the PM focus area is an organisation or part of an organisation. Consequently, many models that are used to get a grip on the focus area are organisation models. Degreef (2016), a change management consultant, distinguishes five categories of organisation models (Figure 18): lifecycle models, diagnostic models, process models, culture models, and individual reaction models. Below, we discuss only a few.

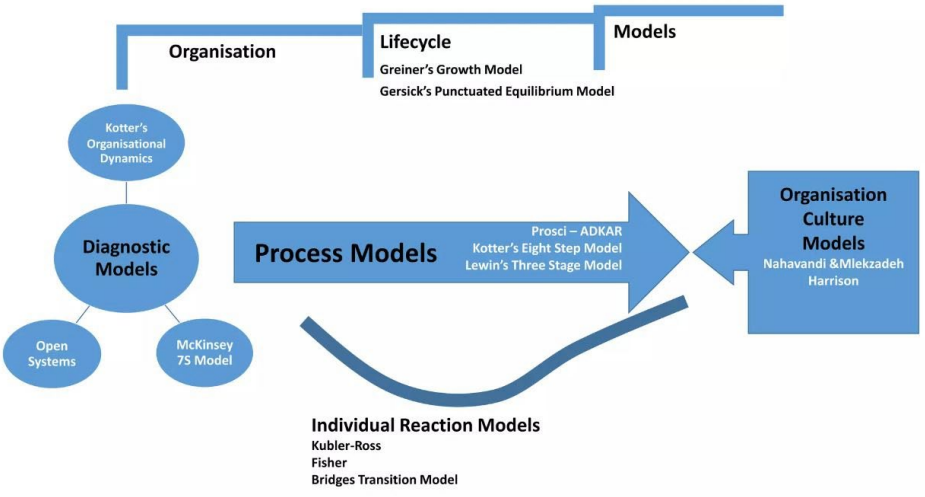

Figure 18 - Five categories of organisation models (Degreef, 2016)

McKinsey 7S Model

The 7S model is one of the best known diagnostic models (Figure 19). Diagnostic models are used in change management processes. They are used to examine the problem faced by the organisation before the corrective action is designed and implemented.

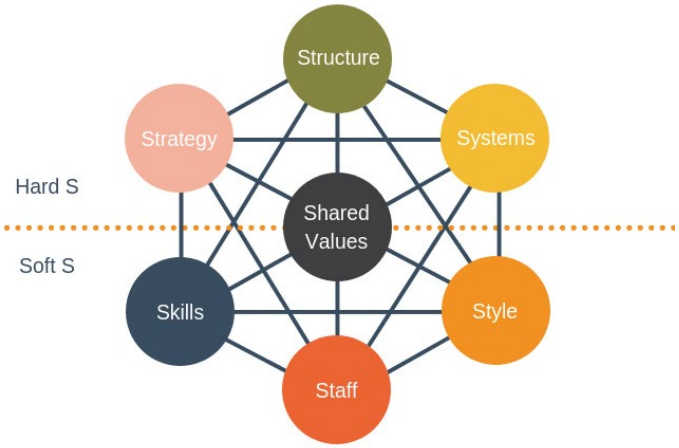

Figure 19 - McKinsey 7-S Model

The McKinsey 7-S Model has been tried and tested. It was developed in the late 1970s by Tom Peters and Robert Waterman, former consultants at McKinsey & Company. They identified seven internal elements of an organisation that need to be aligned for it to be successful (https://www.mindtools.com):

- strategy: this is the organisation's plan for building and maintaining a competitive advantage over its competitors;
- structure: this is how the company is organized, how departments and teams are structured, including who reports to whom;
- systems: the day-to-day activities and procedures that people use to get the job done;
- shared values: these are the core values of the organisation and reflect its general work ethic;

- style: the leadership style adopted;
- staff: the employees and their general capabilities;
- skills: the actual skills and competencies of the organisation's employees.

Excursus

Some examples of organizational diagnosis models

A chronological list of organizational diagnosis models, as published by Wikipedia and discussed by Falletta and Combs (2018):

- Force Field Analysis (1951)
- Leavitt's model (1965)
- Likert system analysis (1967)
- Weisbord's six-box model (1976)
- Jay Galbraith's Star Model (1977, 1995)
- Congruence model for organization analysis (1977)
- *Mckinsey 7s framework (1981-1982)*
- Tichy's technical political cultural (TPC) framework (1983)
- High-performance programming (1984)
- Diagnosing individual and group behaviour (1987)
- Burke–Litwin model of organizational performance and change (1992)
- McKinsey Growth Pyramid (2005)
- Falletta's organizational intelligence model (2008)
- Semantic Network Analysis (2014)

Many of these models are based on open system theory (Katz and Kahn, 1978). They look at the relationship between the organizations and the environment in which they are involved. This focus reflects on the organization's ability to adapt to changes in environment conditions.

(source: https://en.wikipedia.org/wiki/Organizational_diagnostics, consulted 21-10-2023)

The IPO Model

The Input-Process-Output model (IPO) is an organization model of the process models category (Figure 20). It identifies an organisation as a transformation of inputs into outputs. The IPO model can be applied to the whole organisation or to a specific part. It allows the measurement of what individuals and organisations use and do (inputs) and the products and services they deliver (outputs). The dimensions used for the measurement vary: unit, m², euro, time,... The measurements of input and output can then be used to calculate ratios, for instance:

- output – input = profit
- output/input = efficiency (of the transformation process)
- input – output = waste
- input/output = productivity (of the input factor)
- output/input of organisation 1, output/input of organisation 2, etc. (benchmarking)

As explained above, these measurements and ratios are not performance measurements yet. Thereto they need to be compared to the reference values set by the stakeholders.

Figure 20 - IPO model

The IPO model is a very common and powerful model and is at the basis of the standardised accounting reports that compare costs with benefits. Thereto the inputs and outputs are measured on their financial dimension, which allows for straightforward comparison.

The result chain model (Logic Model)

The result chain model (also called the Logic Model) is an extension of the IPO model. It is an organisation model of the process category as well. Next to inputs and outputs, the model considers what the delivered products and services lead to (outcomes and impacts) (Figure 21). Parsons et al. (2013) describe the five links in the chain as follows:

- inputs: the raw materials that provide a basis for the organisation. Inputs can include money, technical expertise, relationships, personnel, etc.
- activities: the actions of staff and partners that are designed to meet an organisation's objectives. Activities can include manufacturing, sales, support activities like hiring staff or purchasing equipment, management and decision making, research and innovation, etc.
- outputs: the tangible and intangible products that result from entreprise activities. Outputs include cars, a new banking service, an audit report, a surgery, an MSc degree, a police officer training program, etc.
- outcomes: the benefits that an organisation is designed to deliver, also called the effect. For example, a community policing project may be designed to improve confidence in the police or increase the willingness of crime victims to assist in investigations.
- impacts: the higher level goals to which you hope your organisation will contribute, such as sustainability, an inclusive neighbourhood, a safe place to work, increased access to justice for the poor, improvements in public safety.

Example

Legal education project model

Parsons et al. (2013) and illustrates the results chain for a legal education project (Figure 21)

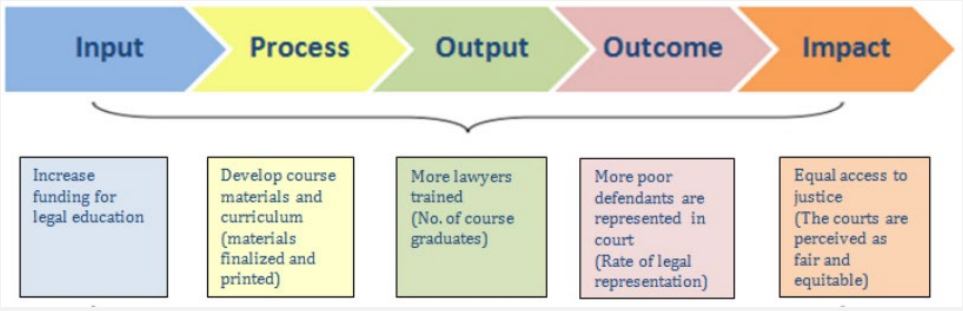

Figure 21 - Results chain for a legal education project

Example

Garden tooling model

Imagine a manufacturer of garden tools like water hoses, shovels, pruners, wheelbarrows, spades, saws etc. The managers of this company may want to know whether the new personnel is learning their job fast (input performance). Production teams may want to evaluate whether manufacturing processes in different plants are equally efficient (process performance). Tool designers may be interested on whether the new tools can well execute the tasks they are designed for and whether side-effects are within margins set (product performance). Clients, who purchase a pruning saw e.g., may evaluate whether they can cut tree branches safer and more easily now (outcome performance). The impact might relate to increased awareness of safe work at home and a type of garden maintenance that fosters biodiversity (impact performance).

Within each of these areas, a PM framework and indicators need to be developed. This might necessitate a model at a lower scale level, e.g. on how tool safety is achieved and perceived.

Applying the logic model to the focus area does not routinely result in a workable PM framework and list of PM indicators. Epstein (2010: 14-15) reports that some companies applying the logic model explicitly refuse to measure sustainability impacts directly because they are difficult to capture. “They do not want to invest the effort to measure social impacts because managers intuitively believe that their sustainability efforts are working. Rather, they choose metrics that relate to outcomes that are reasonably close to the cause-and-effect chain.” Epstein (2010: 14-15) agrees that "social impacts are sometimes considered more difficult to measure than financial results because they are often intangible, difficult to quantify, hard to attribute to a specific organisation, and have a long time horizon".

Culture model of Harrison & Stokes

Organizational culture is a core component of most diagnostic organisation models. Culture organisation models take this one step further. They essentially propose that 'organizations are culture’. They highlight the level of formalization and centralisation within an organisation, the cultures of individual groups, the connectedness and uniformity of the organisation culture, etc. These models allow for understanding the value of the own corporate culture compared to the attractiveness of new one, for instance during a merger.

The model of Harrison and Stokes (1992) distinguishes four organisational cultures by contrasting the degree to which an organisation is managed by formal rules and procedures with its degree of centralised control (Figure 22).

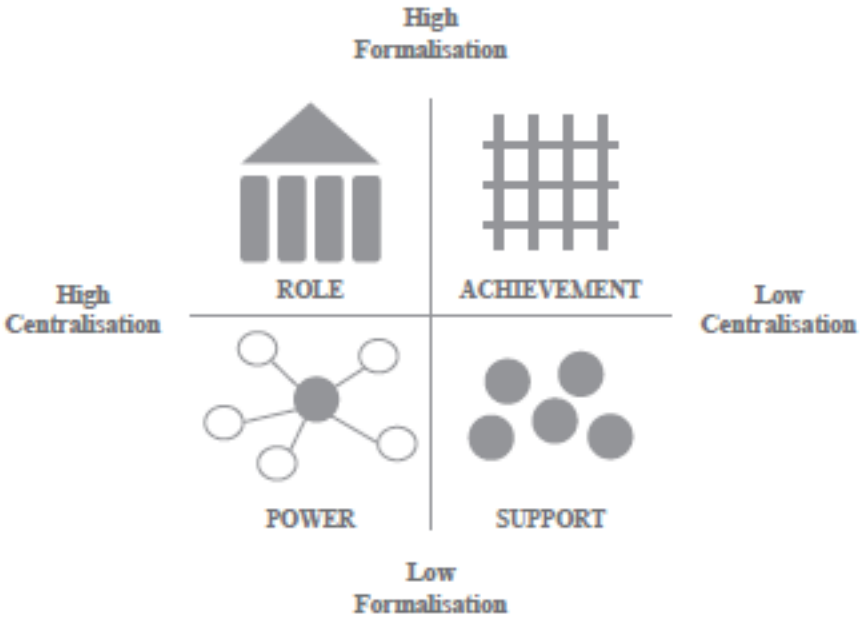

Figure 22 – The model of Harrison and Stokes (1992) is an example of a cultural organisation (source: www.scielo.org.co).

2.10 Requirements for a performance measurement system

For Poister (2015, p. 110), performance measurement systems are designed to track a selected set of indicators at regular time intervals and report these to specified audiences on an ongoing basis. Their purpose is to provide objective information. That makes some specific demands on a good performance measurement system.

Validity and reliability

According to Poister (2015, pp. 116-120):

> 'From a methodological perspective the sine qua non of good measurement is a high degree of validity, the degree to which an indicator accurately represents what is intended to be measured, and reliability, which concerns consistency in data collection.
>
> Validity is a matter of avoiding systematic bias or distortion in the data. Thus, in developing measurement systems, program evaluators must try to anticipate and guard against such problems as observer bias or subject bias, systematic overreporting or underreporting, poor instrument design, and nonresponse bias due to missing cases. (…)

> With respect to reliability, it is important to maintain consistency in data collection procedures in order to generate valid trend data over time. Thus, it is critical to develop a clear definition of each performance measure and the procedures for making observations and collecting data to operationalize it.'

Meaningful and understandable

A second criterion, according to Poister (2015, pp. 116-120):

> 'In order for performance data to be useful, they must have a high degree of stakeholder credibility. This means that the measures must be meaningful to decision makers, focusing on goals and objectives, priorities, and dimensions of performance that are important to them.
>
> In addition the measures should be readily understandable by their intended audiences. Thus, measures should have obvious face validity to the users, and where they come from and what they mean should be clear. More complicated or less obvious indicators should be accompanied by clear definitions of what they represent.'

Balanced and comprehensive

Still according to Poister (2015, pp. 116-120):

> 'Collectively, the set of measures tracked by a monitoring system should provide a balanced and comprehensive picture of the performance of the program or agency in question, in terms of both the components covered and the classes of measures employed. Using program logic models or a framework such as the balanced scorecard can be immensely helpful in this regard.'

Timely and actionable

Another criterion, according to Poister (2015, pp. 116-120):

> 'One common problem with performance monitoring systems is that they sometimes fail to provide timely results to decision makers. When data are no longer fresh when they are made available or are not provided to decision makers when most needed, monitoring systems are not particularly useful.
>
> In addition, performance measures are really useful to decision makers only when they are actionable, when they focus on results over which decision makers can exert some leverage, such as dimensions of performance that can be affected by program elements or organizational strategies.'

Goal displacement

Poister (2015, pp. 116-120):

> 'Performance measurement systems are intended to stimulate improved performance. In addition to providing information to higher-level decision makers, the very fact of measuring performance on a regular, ongoing basis provides a powerful incentive for managers and employees to perform well on the measures that are being tracked. However, with inappropriate or unbalanced measures this can lead to goal displacement, in which people will perform toward the measures but sacrifice the real program or organizational goals in the process.'

Example

No child left behind legislation

Newspapers around the United States have published hundreds of stories containing allegations of “collateral damage” from the standardized testing in the nation’s public schools required by the federal No Child Left Behind legislation. These reported harmful effects include administrator and teacher cheating, student cheating, exclusion of low-performing students from testing, counselling low-performing students out of school systems, teaching to the test, narrowing of the curriculum, and declining teacher morale

Source: Nichols and Berliner (2007) cited b(Poister, 2015)y Poister (2015, p. 118)

TABLE 5.1. REVIEW OF PERFORMANCE INDICATORS FOR DISABILITY ADJUDICATORS' CLAIMS PROCESSING.

Performance Indicators	Type of Indicator	Preferred Direction of Movement	Validity	Reliability	Actionable	Target	Resistant to Goal Displacement
Number of initial applications adjudicated	Output	N/A	Very strong	Very strong	Yes	N/A	N/A
Cases cleared per FTE work month	Labor productivity	Up	Strong	Questionable	Yes	≥ 20	No. Regions can pick and choose which files to do to meet target.
Workweeks pending	Workload	Down	Strong (denominator based on previous month's work, which can vary)	Strong	Yes	≤ 10	Yes
Cumulative expense per case	Efficiency	Down	Strong	Questionable	Yes	N/A	Yes
Percentage of cases adjudicated within 70 days	Service quality	Up	Strong	Strong	Yes	≥ 95%	No. Regions can pick and choose which files to do to meet target.
Initial accuracy rate	Service quality	Up	Fairly strong (based on small sample)	Fairly strong	Yes	≥ 98%	Yes
Percentage of claimants satisfied with process	Customer satisfaction	Up	Fairly strong (based on sample)	Fairly strong	Yes	≥ 80%	No

Figure 23 – Review of performance indicators for disability adjudicators’ claims processing (Poister, 2015, p. 120)

Practical considerations and cost

Poister (2015, pp. 116-120):

> ‘The need to incorporate well-balanced and meaningful sets of measures that are highly reliable and resistant to goal displacement is often offset by more practical considerations and cost factors. Although for some measures the data will likely be readily available, others will require the development of new instruments or data collection procedures. Some measures may simply be too difficult or time-consuming to collect in a systematic and consistent manner, and others might impose undue burdens on the employees at the operating level.
>
> In comparing candidate measures, performance measurement system designers must often weigh trade-offs between the usefulness of a measure

> and the quality of the data on the one hand and issues of feasibility, time, effort, and costs on the other.'

Figure 23 presents an example of a review of the strengths and weaknesses of various PM indicators.

Quality assurance

Poister (2015, pp. 116-120):

> 'Because the quality of the data is crucial for maintaining the credibility and usefulness of a performance monitoring system, it is important to have procedures in place for ensuring data integrity. Thus, it is imperative to define indicators clearly in terms of their constituent data elements and to develop uniform procedures for the collection of performance data.'

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3 Examples of performance measurement frameworks

Herman Vande Putte

Contents

A performance measurement framework identifies the indicators required to monitor and gauge the performance of an activity or organisation, the dimensions wherein these indicators can be grouped, and the relations between these indicators. Its purpose is to identify the measures and the connection to the focal area.

In this chapter we discuss one of the more important frameworks in business, the balanced scorecard. In the line of thinking of the balanced scorecard that reporting should exceed the financial dimension, and under pressure of the sustainability discourse, attention has shifted from operational and financial performance frameworks, who are matured, to frameworks that capture more dimensions. This chapter discusses four frameworks that aim at answering the main societal question of today's business: what do the delivered outputs of the business bring the world, what do they cost the world, and are the benefits and costs in balance according to the values of the stakeholders?

3.1 The balanced scorecard

The balanced scorecard (Figure 24) has its roots in the work of Johnson and Kaplan (1987) who realized that traditional accounting measurement systems are largely irrelevant because they focus on financial measures while ignoring clients and their needs. Also, they track past behaviour and do not measure activities

that drive future performance. Johnson and Kaplan (1987) affirm that financial measures alone are not sufficient to evaluate a company's performance, thus reporting should also include measures that drive future performance such as competence and knowledge, customer satisfaction, operational efficiency and innovation.

In 1992, Kaplan and Norton (1996) decided to include these business dimensions in the four fundamental perspectives analysed by the balanced scorecard model: finance, customers, internal business processes, and learning and growth perspectives. These dimensions are conceptually linked to each other by causal relationships. In fact, the model assumes that organizational learning and growth are drivers of improvements in internal business processes and that these processes, in turn, drive customer satisfaction, while the customer dimension influences financial results.

Since this procedure implies that strategy is translated into a set of hypotheses about cause and effect relationships, the balanced scorecard has evolved from a mere performance measurement system and a tool for management reporting (as initially proposed) to a strategic instrument that companies use to set and implement strategy at the operational level, aligning the entire organization with the company's goals (Kaplan & Norton, 1996). One important advantage of the balanced scorecard is to translate strategy into objectives and measures in a cascade process from top-level functions to the single lower-ranking individual.

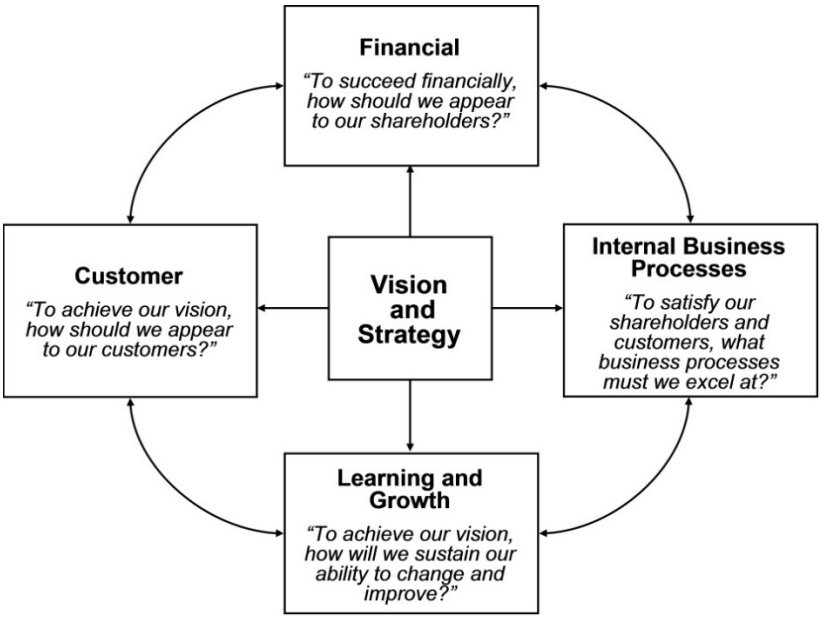

Figure 24 - The balanced scorecard, developed by Kaplan and Norton (Kaplan & Norton, 1996)

Balanced scorecard indicators consider performance over a range of dimensions and force managers to evaluate both the outcomes and the state of the organization producing them. There are four pre-determined groups of measures on a balanced scorecard:

- customer, measuring achievements of the organization's mission;

- internal business processes, measuring planning and service delivery processes;
- learning and growth, measuring organizational capacity, evaluation, and learning; and
- financial, measuring cost control, productivity improvements, capital use, profitability.

The balanced scorecard shifts the focus of organisations to the outcomes they are supposed to accomplish, and brings mission-related measures in contact with operational, learning, and financial aspects. Kaplan and Norton claim that all organisations have to use these four groups of variables to survive.

The balanced scorecard immediately got a wide response in business and academia. Leading scholars studied its diffusion and asked for empirical evidence on the positive performance implications of the adoption of the balanced scorecard (see for instance Burkert, Davila, & Oyon, 2010). Aidemark, Baraldi, Funck, and Jansson (2010, p. 364), for example, investigated the occurrence of the balanced scorecard in Swedish hospitals and the reasons for its implementation. They found that the balanced scorecard is valued by these hospitals because it provides them with a control system that helps to balance short-term (e.g. budget constraints) and long-term (e.g. quality development) aspects.

Scholars emphasize that the balanced scorecard concepts aren't new. Non-financial measurements and reflections of the organisation's strategy in the measurement system are also present in other performance measurement systems like the French tableau de bord (Aureli, 2010; Degos & Mattessich, 2006).

3.2 Triple bottom line accounting

Triple bottom line accounting (Anheier, 2014, pp. 313-315) goes well beyond financial reporting and extends into non-monetary dimensions. It is a holistic performance approach – not simply bookkeeping – that incorporates two dimensions in addition to finance: the social and the environmental. The three TBL dimensions are also frequently referred to as the three Ps: people, planet, and profits.

First introduced by Elkington (1994), most efforts to develop applications for TBL concern the measurement of the social and the environmental dimensions, the latter in particular in terms of frameworks for measuring sustainability. The three P's do not have a common metric: while economic performance is measured in currency units like dollars or Euros, the social dimension can be measured in terms of social capital or social equity indicators, while the environmental dimension can be measured in carbon emissions or footprints.

Thus far, no generally accepted standard method for calculating TBL has emerged, nor is there agreement whether to combine the three measures, and, if so, how each measure should be weighted (Savitz, 2013). For a nonprofit organization, the range of measures could include:

- economic measures

    - adequate cash flow;
    - achieving cost targets;
    - building reserves;
    - maintaining corporate credit rating;
    - increasing fund-raising targets;
    - diversifying revenue streams.
- environmental measures
    - lower carbon footprint through commuting;
    - waste management through better recycling;
    - using renewable energy;
    - green building design;
    - avoid hazardous waste.
- social measures
    - gender equity in staff and board composition;
    - family-friendliness;
    - staff development;
    - community relations;
    - functioning whistleblower policies.

3.3 Social return on investment (SROI)

Anheier (2014, pp. 315-316) describes SROI as follows: “Social return on investment (SROI) measures involve the assessment of outcomes by translating them into some metric, preferably a monetary indicator. SROI methods were first introduced by the Roberts Enterprise Development Fund in 1996 in the process of trying to measure the social benefits of reintegrating unemployed individuals into the labour market (Emserson, Wachowicz, Chun, & The Roberts Enterprise Development Fund, 2000). Emerson introduced the concept of “blended value” (Emerson, Brehm, & Bonini, 2003), with the central idea that assessing the value of any activity requires integrating different dimensions of economic, social, and environmental factors. In other words, the value itself is a "blend" of these varied factors (Bonini & Emerson, 2005; Emerson, 2003).

In general, SROI involves three core dimensions:

- Economic value: economic performance measures similar to standard return on investment measures;
- Socio-economic value: quantifiable costs such as taxes or social security contributions that accrue to the wider community; it also includes estimated opportunity costs, i.e. the implied costs of not conducting particular activity or investment.
- Social value: the non-quantifiable non-monetary revenue, for instance an improvement in quality of life or social capital effects

Indicators for each SROI dimension as well as the actual method may vary across projects or organisations. Indeed, building indicators fitting the circumstances of the project and organisation, and its environment is part of the SROI process (Foundation, 2004; Mildenberger, Münscher, & Schmitz, 2012, p. 295).

3.4 Six capitals – the integrated report

An integrated report is a concise communication about an organisation's strategy, governance, performance and prospects (IFRS, 2023). Presenting each topic in the context of the organisation's external environment, the report summarises how the organisation creates value in the short, medium and long term.

Originally published in 2013, the Integrated Reporting Framework provides a structure that companies can use to tell their story about how they manage their responses to the external environment and create value for shareholders. Using this Framework allows companies to 'connect' information about such environmental risks and opportunities and to connect this information with information presented in financial statements (IFRS, 2023).

The primary purpose of an integrated report is to explain to financial capital providers how an organisation creates value over time (Integrated Reporting, 2023). The best way to do so is through a combination of quantitative and qualitative information, which is where the six capitals come in.

The capitals are stocks of value that are affected or transformed by the activities and outputs of an organisation (Integrated Reporting, 2023). The Integrated Reporting Framework categorizes them as financial, manufactured, intellectual, human, social and relationship, and natural. Across these six categories, all the forms of capital an organisation uses or affects should be considered (Figure 25).

An organisation's business model draws on various capital inputs and shows how its activities transform them into outputs.

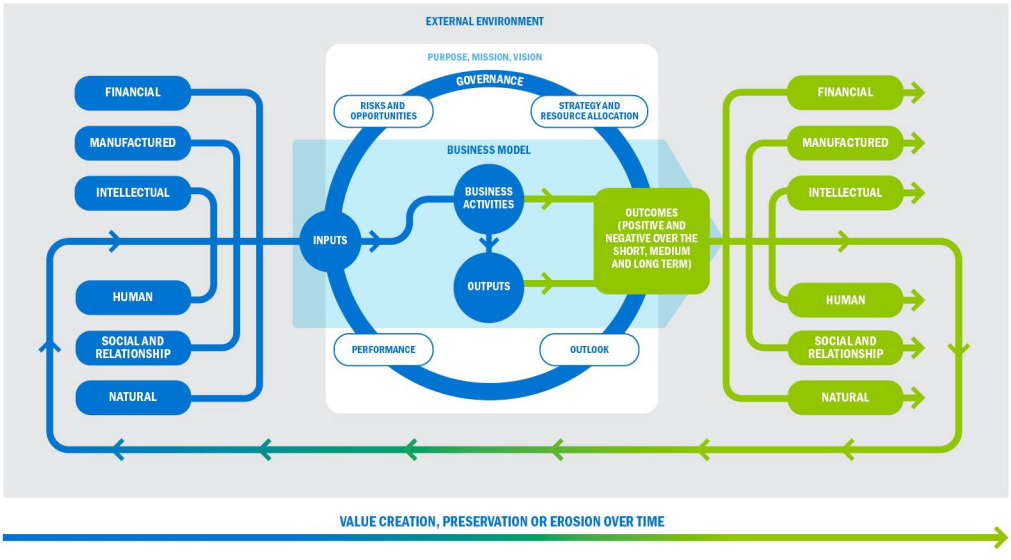

Figure 25 - Integrated reporting using six capitals (Integrated Reporting, 2023)

The integrated reporting framework has recently been adopted by the International Financial Reporting Standards Foundation (IFRS, 2023). The IFRS Foundation is a not-for-profit, public interest organisation established to develop high-quality, understandable, enforceable and globally accepted accounting and sustainability disclosure standards. Its standards are developed by two standard-

setting boards, the International Accounting Standards Board (IASB) and International Sustainability Standards Board (ISSB).

The IFRS has committed itself to further develop the integrated reporting framework building on the work of existing investor-focused reporting initiatives, aiming to ultimately becoming the global standard-setter for capital market sustainability disclosures (IFRS, 2023).

3.5 Impact weighted financial accounts

What does a company cost the world (NRC, 2019)? The finance industry prepares for a shift from just evaluating risk and return to adding global impact into investment calculations. The sector, however, faces many questions about how to measure that impact, and a variety of initiatives have popped up in response. Mainstreaming impact measurement will mean that eventually, there needs to be a consensus around definition and measurement.

For now there are more than a hundred different initiatives that have tried to define an approach to social impact measurement (Devex, 2019). If impact investments have to grow, then a standard needs to be developed for an impact weighted financial account. This will allow to compare the strictly financial performance of the business with an impact weighted performance. When you compare two companies and say they both make a billion dollars of profit, but on an impact-weighted basis one's making $300 billion and the other one's making $1.5 billion, then investors will begin to look at these companies in a different way.

Harvard Business School recently announced the development of a such a calculation method (NRC, 2019). The method captures the global impact of a company in an amount of money. Impact investing is still a niche part of the financial system, and there are concerns that things aren't moving fast enough to achieve the ambitious 2030 agenda.

Since 2012, the Dutch Impact Institute has been working on a calculation method for drawing up 'social annual accounts' (NRC, 2019). It has progressed so far that large companies are using it. ABN Amro, paint company AkzoNobel and network operator Alliander, for example, have already produced such an account. And telecoms company KPN and rail operator Prorail, among others, are now working on it (NRC, 2019).

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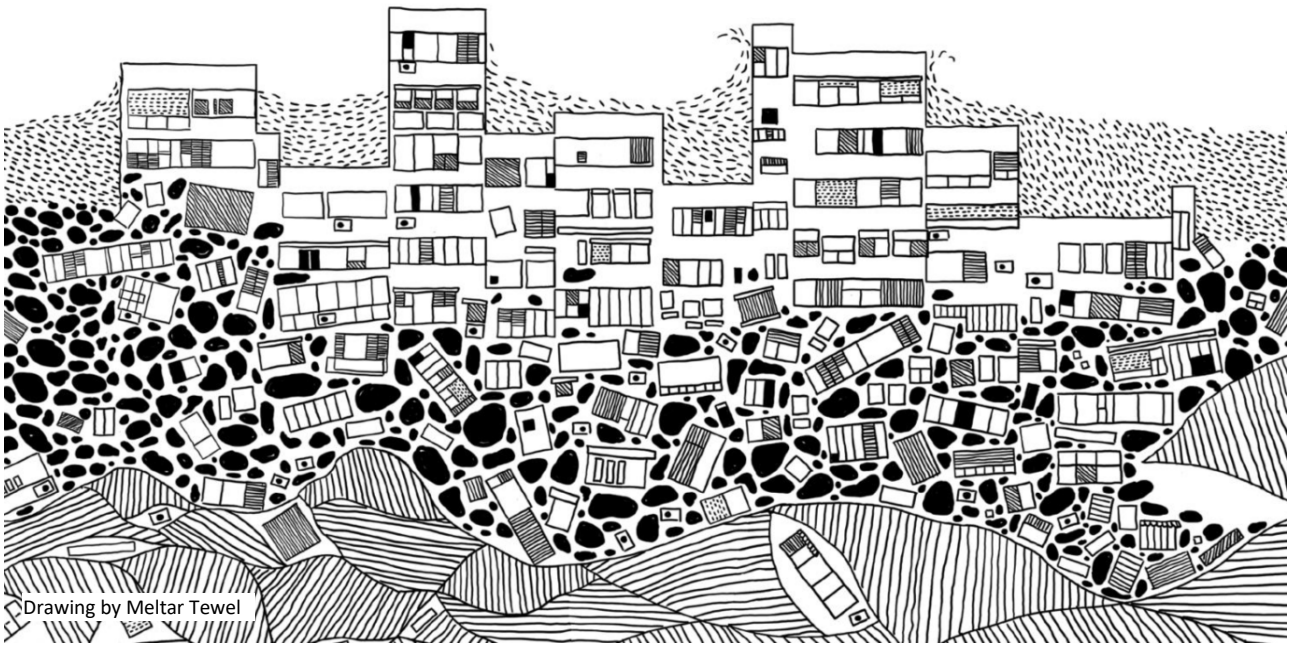
PART 2
PERFORMANCE MEASUREMENT IN THE BUILT ENVIRONMENT

4. Values in the built environment – *Theo van der Voordt*
5. Building performance measurement: dimensions and indicators – *Theo van der Voordt*
6. Ways to measure building performance – *Theo van der Voordt*
7. Input to building performance improvement – *Theo van der Voordt*



Drawing by Meltar Tewel

4 Values in the built environment

Theo van der Voordt

Contents

Generic values and its background in different values systems have been discussed in Chapter 1. Generic values are for instance civil rights, freedom of speech, equal treatment of people regardless of gender, age, education, sexual orientation, religion, and ethnic origin, respect, reliability, and trust. Chapter 1 showed that various generic values are adopted almost worldwide, and laid down in international declarations, constitutions, laws, and standards. Chapter 1 also explained that generic values may be context dependent, and differ between and within different countries, cultures, groups, and individuals, and change in time.

This also holds true for values in the built environment and the way they are laid down in building laws, standards, and regulations. The following sections elaborate the meaning of value in the built environment and discuss different value types, value dimension and value parameters, from the perspective of different stakeholders. It shows how different values may support each other but also may lead to conflicts and different priorities. The last section of this chapter discusses the concepts of added value and adding value, and the connection between building performance and organisational performance i.e., alignment between corporate real estate characteristics, organisational goals and objectives, and end user requirements.

4.1 Use of values in the built environment

In the built environment the concept of “value” refers to major beliefs that steer our behaviour and drive our everyday actions. “Our” beliefs and actions refer to all involved actors, such as clients, customers, end users, consultants, designers,

constructors, managers, and policy makers. Two main value types seem to be leading: use value i.e., functionality or usability, in its widest sense, and economic value i.e., the costs and financial value of buildings, land, infrastructure, and so on.

The ratio between quality and costs is one of the main topics in decision-making. In the healthcare sector, for instance, value-based health care (VBHC) is defined as the ratio between the healing effects of medical processes on patients and the total costs to attain these health effects. VBHC links the aimed outcome to the required input, and connects human values to financial values, in order to keep health care affordable and to provide health care that is both effective and efficient, and delivers 'value for money'. Applied to buildings, efficiency refers to smart use of time, efforts, and resources and an optimal ratio between input and outcome. Effectiveness refers to the relationship between the intended and actual results.

Incorporating human values in design

The literature on values in connection to architectural, urban, and interior design mainly focuses on addressing *human values* throughout the design process (B. Friedman, Hendry, & Borning, 2017; B. Friedman, Kahn, & Borning, 2002; Rocco, Thomas, & Novas Ferradás, 2022). Value is defined here as what is important to people in their lives, ethics, and morality. Lindholm and Nenonen (2006) state that values should be distinguished from preferences or interests of people and define values as "lasting convictions or matters that people feel should be strived for, in general and not just for themselves, to be able to lead a good life or realize a good society." Value sensitive design asks designers to be transparent about explicitly supported project values and their own individual values, i.e. designer values (B. Friedman et al., 2017).

Van den Hoven, Vermaas, and Van de Poel (2015) discuss how value-sensitive design is or could be applied in different domains, ranging from architecture to agricultural biotechnology, healthcare technology, economics, engineering and more. In *The politics of things,* Van den Hoven (2009) considers the use of technology to express moral values, for example, a car that will not start if the driver is drunk. Another example are mobile phones that turn out to affect traffic safety (Van de Poel, 2021), which resulted in a feature to stop the mobile phone automatically when the owner starts driving. Here, safety and protecting people against unsafe and illegal behaviour are underlying values in technological design.

In the *Handbook of ethics, values, and technological design* (Van den Hoven et al., 2015), a vast number of value dimensions are discussed, including well-being, inclusiveness, presence, privacy, regulation, responsibility, safety, sustainability, trust, accountability and transparency, and democracy and justice.

Equal rights, for instance, may be translated in "inclusion" i.e. taking care that anyone can use the built environment, including people with physical or mental impairments. Civil rights are translated in taking care for health and wellbeing, safety, reliability, and so on. Taking care for the planet has resulted in a growing

awareness of the need for sustainable and circular building, with concepts such as Cradle-to Cradle. This concept considers the whole life cycle of buildings and aims to enable the reuse of materials and building components in other projects, when a building is out of date and has to be renovated or demolished.

Example

Universal access

Until the sixties of the past century, designers, and managers in the built environment paid hardly any attention to accessibility and usability of the built environment for people with physical impairments, such as visual and hearing impairments and wheelchair drivers. The first Dutch book about this topic was published in 1967, not by an architect but by a medical doctor, called “housing for the disabled’. It took 34 years and timely efforts of interest groups, personal lobbying work, influence of politically engaged people, and input from researchers, until the Dutch standard *NEN 1814, Accessibility of buildings, dwellings and outside environments* was published. Nowadays, guidelines and regulations on inclusive design are available in well written handbooks and incorporated in National Building Codes.

Example

Building safety

European legislation about the safety of buildings reflects the collective value of the European nations of safeguarding the physical integrity of every person, whatever his involvement in the built environment and at all stages of the life span of a building (design, construction, use, maintenance, calamity, renovation and deconstruction). European citizens, represented by their policy makers, consider it unacceptable that workers may be killed or heavily injured during construction works, that occupants can’t use stairs safely, or window cleaners risk their life to clean the windows. From this viewpoint, a visit to countries where these values are not yet fully implemented, can be a shocking confrontation: construction methods are unsafe and stairs often dangerous to use, even in new public buildings.

Cultural differences

The examples about accessibility and safety show that values are embedded in a social, cultural, economic, and political context, and subject to specified conditions like time, money and regulations (Van der Voordt & Van Wegen, 2005). As has been discussed before in part one, according to Hofstede, Hofstede, and Minkov (2010), national cultural differences can be identified in five main value dimensions: small versus large power distance, collectivism versus individualism, femininity versus masculinity, weak versus strong uncertainty avoidance, and long-term versus short-term orientation. For instance, a feminine culture is associated with being more cooperative and caring for the quality of life, whereas a masculine culture is associated with being more competitive and striving for success.

Similar differences come to the fore in organisational cultures (Cameron & Quinn, 2006). In workplace design, for instance a high power distance may result in a higher level of privacy, territoriality, extra square meters and a luxurious interior

design for top managers, as an expression of their status and position in the organisation (Plijter, Van der Voordt, & Rocco, 2014). Organisations who adopt the concept of Corporate Social Responsibility will likely pay more attention to societal values such as sustainability and incorporate the triple P of People, Planet and Profit or Prosperity.

Incorporating organisational values and ambitions in design and management

It is not always easy to translate organisational user values and ambitions into real estate values and ambitions. The example shows how this is done by a Dutch academic hospital.

Example

Key values of a Dutch academic hospital and how these have been translated into its corporate real estate ambitions.

Mission statement and organisational ambitions

1. Our hospital wants to be in the top ten of best European academic hospitals.
2. Our patients are key. This requires excellent services, optimal care and communication, and a professional treatment.
3. All our scientific research should be at top level.
4. We are leading in regional education of doctors, nurses and other care staff, and provide state-of-the-art education.
5. We play an innovative role in our core activities.
6. We work evidence-based.
7. We are leading in identifying, stimulating and guiding young talented people who want to work in the care sector or on medical research.
8. As a leading institution we play a prominent role in the region of Amsterdam. Vice versa our activities are influenced by the local context.
9. We act both national and international.
10. Our staff has the right knowledge, skills and talents to conduct our core activities and supportive activities.

Corporate real estate ambitions

The accommodation policy of this hospital is derived from its organisational strategy and presents nine leading housing ambitions:

1. Optimal facilitating of our primary processes, and contributing to employee satisfaction and labour productivity.
2. Healing environment. Patients should feel themselves comfortable in our building. This supports their well-being and healing process.
3. Safety: being accredited by the Joint Commission International (JCI).
4. Innovation power: the building should stimulate the creativity of our staff.
5. Culture of collaboration.
6. Flexibility and future value, by a high level of adaptability to new developments.
7. Positive image, by attractive architecture and one-person bedrooms.
8. Sustainability.
9. Cost effectiveness: cost reduction but not at the expense of our objectives.

Source: Prevosth (2011)

4.2 Value systems in the built environment

Values are usually not separately incorporated in the design and management of the built environment, but combined in a value system that takes into account a number of different values in a more integrated way. Clients are usually both interested in the use value and the transaction value of their corporate real estate. Use value focuses on fit for purpose or fit-for-use. Transaction value regards the financial value and prices on the market.

An exploration of the different values as used within corporate real estate can be found in the book *The added value of facilities management* with contributions of authors from different countries, disciplines, and sectors like offices, universities, health care and industry (Jensen, Van der Voordt, & Coenen, 2012). The editors detected fifty different descriptions of the term value, which can be clustered in six types:

1) Use value: quality in relation to the needs and preferences of the end-users
2) Customer value: trade-off between benefits and costs for the customers or consumers
3) Economic, financial or exchange value: the economic trade-off between costs and benefits
4) Social value: connecting people by supporting social interaction, identity and civic pride
5) Environmental value: environmental impact of FM, Green FM
6) Relationship value, for example getting high-quality services or experiencing a special treatment.

The huge variety in value definitions and value parameters shows that this topic is still under development and needs more clarity and standardisation of the terminology.

In a follow-up book on *Corporate Real Estate and Facilities Management as Value Drivers*, Jensen and Van der Voordt (2017) compared many value parameters from different publications on corporate real estate and facilities management. Building on the work of inter alia Nourse and Roulac (1993), Lindholm and Nenonen (2006) and various PhD research projects at the department of Management in the Built Environment of the Faculty of Architecture at TU Delft, 12 value parameters showed to be leading:

- four people related values (satisfaction, image, culture, health and safety)
- four process and product related values (productivity, adaptability, innovation and creativity, risk),
- two economic values (cost, and value of assets), and
- two societal values (sustainability, corporate social responsibility).

These values may be supported or hindered by various types of interventions.

Here we present a brief summary of the 12 values and how they can be linked to the built environment (Van der Voordt, 2022):

1) End user satisfaction
2) Image
3) Culture
4) Health and safety
5) Productivity
6) Innovation and creativity
7) Adaptability
8) Risk reduction / risk control
9) Cost reduction
10) Value of assets
11) Sustainability
12) Corporate Social responsibility (CSR).

The next text explains the meaning of each value and how real estate may support these values. In the tables a column about the support of residential real estate has been added by Gerard van Bortel.

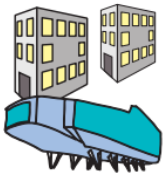
End user satisfaction

Employee satisfaction can be an objective in itself, or a means to attain other goals, such as to attract and retain talented staff, or to stimulate engagement, motivation and high work performance. Employee satisfaction can be supported by a functional spatial layout, spaces that support social interaction and privacy, ambiance, comfort, ergonomics, high quality IT equipment, and personal control of the indoor climate see Table 2. Numerous satisfaction surveys among office workers show that accessibility of buildings and opportunities to communicate rank high in employee satisfaction. The architectural appearance, interior design, atmosphere, and available facilities are usually also highly appreciated in flexible offices with activity-based workplaces, more than in traditional cellular offices. However, indoor climate, privacy, opportunities to concentrate, storage facilities, and acoustics are much less appreciated (Brunia, De Been, & Van der Voordt, 2016). Employee satisfaction with buildings, facilities and services can be measured by asking the employees how satisfied they are with various topics, what they find most important, and which option they prefer out of various alternatives, and why.

Table 2: Contribution of real estate to end user satisfaction

Corporate real estate, facilities and services	Residential real estate, facilities and services
Fulfilling the physical, functional, ergonomic and psychological needs employees, customers and visitors, by: - attractive location; - functional, attractive, safe and comfortable building; - attractive and comfortable interior; - optimal balance between communication, concentration and privacy; - pleasant and healthy indoor environment; - high-quality facilities (ICT, greenery, signage, entertainment, etc.); - adequate filing space; - prompt response to complaints.	Fulfilling the physical, functional, ergonomic and psychological needs of tenants, by: - attractive location; - functional, attractive, safe and comfortable home; - energy efficient home; - attractive amenities (kitchen, bathroom, other amenities); - sufficient floor space and storage room - pleasant and healthy indoor environment; - prompt response to repair requests, questions and complaints.

Image



The accommodation of an organisation can also be used as a means to support a particular image and to communicate brand values and corporate identity. The accommodation of a bank or law firm has a different look and feel than a building that accommodates a start-up or a high-tech firm. Transparency may be expressed by the use of glass, open voids or atriums, and open spaces. Caring for people may be expressed by user participation in the design and management process, and a user-friendly building. Hospitality might be translated into a nice and welcoming entrance area, a reception desk with friendly staff, easy wayfinding, and an attractive interior design. The Rotterdam Eye Hospital pays much attention to an attractive interior design to give patients a feeling of being welcome and comfortable and to reduce patient's stress (see Figure 26). A company's commitment to sustainability can be expressed by proximity to public transport, a high score on BREEAM or LEED, and the choice of sustainable equipment.

The contribution of architecture to a corporate identity (see Table 3) can be measured by asking people what image the building evokes, which values they associate with the accommodated organisation, and which characteristics of the building contribute most to particular brand values, or to assess how the organisation and its building(s) appear in the media and on social media.

Table 3: Contribution of real estate to image and identity

Corporate real estate, facilities and services	Residential real estate, facilities and services
Using the building, facilities and services as a means of "branding" the organisation, expression of the corporate identity, and contributing to a positive image, for example through: - visible sustainability measures (green image); - creating an inviting atmosphere (image of a welcoming organisation); - "look and feel" that suits the organisation; a law firm looks different than and office of a start-up or a global high-tech company; - better facilities and services; - move to another building; - sustainability measures.	Building should not stand-out as social housing in comparison to surrounding with regard to architecture, materials used and maintenance.

Figure 26: Eye Hospital, Rotterdam, the Netherlands. The spatial lay-out (above, left), paintings (above, right) and the patio (below, left) show that this is not just a building, but an eye hospital. The waiting room (below, right) shows two one-liners of Antoine de Saint-Exupéry: “one can only see with the heart”, and “what is essential is invisible for the eyes”, in order to distract visitors of worries about their eye problems. All these cluses are meant to make patients feel comfortable and less stressed.

Culture

Buildings act as cultural artefacts and symbols that reflect the culture of their inhabitants and express particular norms and values. Some companies put the CEO in an open plan work-area to demonstrate that the company wants to create a culture of openness and equality. Managers seated in spacious corner offices on the building's top floor express a hierarchical culture. In leading technology companies like Google and Facebook, the casual and informal culture is reflected in the interior design and facilities such as slides and game rooms. In individual cultures, kitchenettes and lounge rooms may be underused, whereas group cultures are more likely to make use of social places as gathering points to exchange knowledge, ideas, and ordinary gossip.

Organisations that are open to change and experimentation may be more successful in adopting innovative workplace concepts than organisations with a culture that is focused on stability and structure. So, it is important to understand if and how design decisions can support a current organisational culture or culture change (see Table 4). However, it should be noticed that a change in the physical environment will never suffice to change a company's culture and may even be counterproductive if it is not part of a wider change process. When moving people from cellular offices into open plan offices, this intervention alone will not suddenly create a collaborative culture.

Organisational culture can be measured by the Organisational Culture Assessment Instrument (Van der Voordt & Van Wegen, 2005). Interviews with clients and a survey among end users and visitors can shed light on how people rate an organisation on diverse cultural dimensions, and which design choices fit best with the current or desired culture.

Table 4: Contribution of real estate to culture

Corporate real estate, facilities and services	Residential real estate, facilities and services
- matching style/atmosphere of building and interior to core values; - culture of collaboration through shared use of workspaces, workplaces and meeting spaces; - culture change through a nurturing environment that contributes to desired human behaviour and a customer-focused attitude; - reduce hierarchical culture by avoiding status symbols, such as extra luxury or larger rooms for executives; - catering to different cultures; - rules of conduct (for example, regarding dress or a welcoming attitude)	- rules of conduct towards living together as neighbours (e.g. prevention of noise and other nuisances) - housing allocation of residents with different cultures or behavioural issues (e.g. mental problems, anti-social behaviour track record) - respond quickly and appropriately to complaints related to resident behaviour (e.g. anti-social behaviour) healthy indoor environment

Health and safety

The World Health Organisation defines health as a state of complete physical, mental and social well-being. This represents a wider scope than just the absence of disease. Design can contribute to health and well-being by creating a healthy environment, and to prevent or reduce work fatigue, occupational stress, headache, migraine, irritation of eyes, nose or throat, or worse dis-eases, such as a burnout. Important factors include a spatial layout that both supports social interaction and concentration, biophilic design (contact with nature, natural materials), appropriate lighting and acoustics, thermal comfort, ergonomic furniture, a healthy Indoor Air Quality (IAQ) without chemical and biological agents, and avoiding hazardous materials and radiation. “Active design” may stimulate active behaviour, for instance by providing an inviting staircase to seduce people to take the stairs instead of the elevator, and sit-stand desks.

Safety regards physical safety, such as prevention or reduction of accidents that may hurt people, and social safety, by protecting people against theft, burglary, and violent behaviour (Table 5).

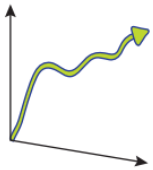
Health and safety are strongly regulated by authorities e.g., in Health & Safety Acts, and by national and international standards. Ways to measure health and safety are for instance collecting data about absenteeism and sick leave, the number of accidents (per week, month, or annual), self-measurement of health and health supportive behaviour by technical devices, and self-reported complaints in end user surveys. Nowadays, the WELL Building standard is a widely used tool as well (see also Figure 27).

Table 5: Contribution of real estate to health and safety

Corporate real estate, facilities and services	Residential real estate, facilities and services
- places where people can work quietly, without too many distractions; - spatial layout and facilities that encourage movement (e.g., sit-stand desks); - ergonomic furniture; - healthy indoor environment (temperature, ventilation, humidity, clean air); - good lighting, daylight, and acoustics; - view of greenery; - safe design in accordance with occupational health and safety guidelines; - healthy diet; - presence of medical devices and occupational health services; - fitness program; - respond quickly and appropriately to health complaints.	- functional spatial layout and facilities; - healthy indoor environment (temperature, ventilation, humidity, clean air); - good lighting, daylight, and acoustics. - view of greenery; - safe design in accordance with occupational health and safety guidelines (e.g. kitchen, toilet and bathroom); - presence of health services in the neighbourhood; - respond quickly and appropriately to complaints about unhealthy indoor environment (e.g. temperature, ventilation, humidity, clean air); - accessibility of the building for people with disabilities - central access facilities in apartment buildings

Figure 27: Menzis Building, Enschede, the Netherlands (Photos: Wouter van der Sar) - Menzis is a Dutch health insurance company, that puts much effort in providing a healthy work environment, by a healthy indoor climate, physical activity, a sound balance between collaboration and concentration, sufficient rest and relaxation, autonomy in ways of working, and healthy food. Design choices regard inter alia a clear zoning system, a variety of (small clusters of) activity-based workplaces, advanced acoustics, relaxation spaces, sit-stand desks, welcoming staircases, living rooms, attractive sanitary provisions, natural forms and materials, a nice outdoor terrace, reduction of travel time, and a focus on people.

Productivity



Productivity is usually defined as the ratio between output and input, or results and sacrifices, quantitatively and qualitatively. To ensure that a knowledge worker is optimally productive, it is important that he or she can attain personal and organisational objectives, and the environment fits with personal needs. An appropriate physical environment should optimally facilitate both collaboration and concentration, and different moods, from being calm and relaxed to being stressed or excited. Supportive characteristics of the built environment include a spatial layout that supports communication, concentration and privacy, proximity and short walking distances between features that are used frequently, an appropriate indoor climate, a healthy indoor air quality, daylight and outside view, personal control of environmental factors such as temperature, light and noise levels, and an attractive interior design with ergonomic furniture, nice colours and materials, plants, and other greenery (see Table 6).

Although measuring the productivity of knowledge workers is not easy, self-rated productivity support by the physical environment and surveys with questions such as to what extent people are able to collaborate and concentrate properly, or the frequency of being distracted, have shown to be highly valuable.

Table 6: Contribution of real estate to labour productivity

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
Support people in working more efficiently and effectively, for example by: - freedom of choice in working from home or the office; - provide activity-related workstations in the office; - location close to employees (less travel time); - short walking lines between people who work together a lot; - facilitating both communication and collaboration and concentrated work and privacy; - healthy indoor environment, daylight and views, good acoustics; - ergonomic furniture; - high-quality and flawlessly functioning ICT	Support people in combining living, caring and working more efficiently and effectively, for example by: - facilities to work or study from home - parking facilities (e.g. car, bikes, wheelchairs and other vehicles for residents with disabilities)

Innovation and creativity

Innovation and creativity are important prerequisites for the survival and growth of organisations. Worldwide, these value parameters are ranked highly in real estate strategies. For instance, by adopting new workplace concepts that increase knowledge sharing among employees. One of the influencing factors is proximity. Most interactions occur between colleagues sitting within 20-30 meters, with most interactions taking place between colleagues seated within eight meters. Visibility and placement in the room have an impact as well. Central spaces show more unplanned interactions with passers-by. Facilities on campus, such as cafeterias and fitness centres, contribute to inter-organisational interaction. Building design may support creativity by providing inviting settings for meetings and a nurturing environment, communal and private spaces, beauty, window view and sunlight penetration, plants, colours, positive sounds (e.g., music), fresh air, and personal control regarding lighting and noise (see Table 7). People also like opportunities to exhibit the products of innovation and creativity. Ways to measure the impact of design on innovation and creativity are for instance to ask people about their perceived level of support by the built environment and analyse these data in connection to enclosure/openness of the spatial layout of the building, walking distances between employees, level of personal control of indoor climate, the diversity of available workspaces and meeting areas, and perceived quality of visual cues.

Table 7: Contribution of real estate to creativity and innovation

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
Provide an inspiring (work) environment and adequately facilitate knowledge work by: - attractive use of colour and materials; - combination of formal and informal consultation and quiet areas; - plants and other greenery; - advanced ICT facilities, for example in the form of an "acceleration room" or "group decision room" (a room in which creative and decision-making processes can be accelerated and structured using advanced hardware and software); - host start-ups for innovative cross-pollination	Provide an inspiring living environment and adequately facilitate knowledge work by: - additional room for creative activities - places for creative hubs and start-ups

Adaptability

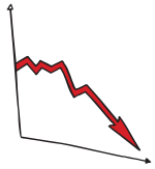
To enable a high-quality use and a high occupancy rate during its whole life cycle, a building should be able to move along with qualitative and quantitative changes in demands e.g., due to new ways of working, changing needs of the end-users, or new regulations by the government. The adaptive capacity of a building refers to all characteristics that enable to keep its functionality during the technical life cycle in a sustainable and economically profitable way. A high-level of adaptability also benefits adaptive reuse. Adaptability regards the ability to rearrange, extend or reject (parts of) a location, a building, or a unit, with minimum effort, cost, and disturbance. Design choices that contribute to adaptability include a spatial layout that can accommodate distinct functions, a clear subdivision of a building in different layers (e.g., the support level with a long lifespan and the infill level with a shorter life span), modularity, and construction components that allow reuse and recycling with a minimum of effort and loss of quality (see Table 8).

Flex 2.0, an assessment tool with 83 indicators of adaptability of buildings, and lighter versions like Flex 4.0, with 40 performance indicators (Rob Geraedts, 2016), are helpful instruments to identify the demand for adaptability in the briefing and design phase, and to assess the adaptability of buildings in the use phase. These tools also include transformation dynamics indicators from both the perspective of the owner and of the users of a building.

Table 8: Contribution of real estate to adaptability

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
Spatial, technical, legal and organisational adaptability can be supported by: - detachment of construction, installations and installation; - modular construction; - multifunctional use of space; - temporarily leasing additional space to accommodate peak operating times; - flexible working hours; - flexible and/or extended opening hours; - short-term leases; - mix of rental and ownership.	Spatial, technical, legal and organisational adaptability can be supported by: - detachment of construction, installations and installation; - modular construction; - shared facilities - multifunctional use of space; - temporarily leasing additional space to accommodate peak operating times; - flexible leases - mix of rental and ownership.

Risk reduction / risk control



Risk management regards a proactive approach to cope with future uncertainty and risks that may endanger people, property, financial resources, data and other information. It aims to prevent or limit the consequences of risks, and to implement suitable measures, such as security installations, guarding, and disaster or emergency plans in case of fire or threats by destructive behaviour or terroristic attacks. An interviewee in a biotech company mentioned preventing downtime as extremely important, and compliance to legal requirements to be top priority. In hospitals, reducing the risk of spreading infections is very important and one of the reasons to provide one-person bedrooms. Design choices to decrease the risk of hazards are for instance avoidance of harmful products, materials, and substances (see Table 9). Health and well-being, reliability, (data) security, business continuation, and reducing financial risks can be underlying values in risk management. A one-sided view on risk prevention may result in avoiding any risk, despite the favourable probability of success. Ways to assess the costs of risks and risk prevention in buildings-in-use are the total risk expenses, insurance expenses, damage prevention expenses, and actual damage expenses as percentage of company turnover.

Table 9: Contribution of real estate to risk reduction

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
Preventing or reducing safety, health, disaster, and financial risks, by: - avoidance of dangerous situations and hazardous substances; - ergonomic and occupational health and safety measures; - fire prevention; - security and surveillance; - careful management of access to buildings and facilities; - data security through proper software and backups; - periodic risk assessment; - company emergency response and medical support; - diversification into rental, ownership and leasing; - current properties that are relatively easy to dispose of; - easy adaptability to change through use flexibility, technical flexibility and layout neutrality; - thorough market analyses; - adequate insurance.	Preventing or reducing safety, health, disaster, and financial risks, by: - avoidance of dangerous situations and hazardous substances; - ergonomic and occupational health and safety measures; - fire prevention; - security and surveillance; - careful management of access to buildings and facilities; - periodic risk assessment; - company emergency response; - easy adaptability to change through use flexibility, technical flexibility and layout neutrality; - thorough market and housing needs analyses; - adequate insurance.

Cost reduction

Cost reduction and cost-effectiveness are often mentioned as one of the three most important value parameters in real estate and facilities management (Van der Voordt & Jensen, 2018), and plays an important role in the briefing and design phase of buildings and facilities. Companies with an own FM department tend to have more areas of cost savings than companies without an own FM department. Outsourcing of particular services can also be cost-effective. These findings are mainly relevant for cost-effective management of buildings-in-use. From a clients' point of view, the impact of design decisions on investment and running costs are very important as well. Gerritse (2004) analysed the impact of building height and percentage of inside space on building costs. The books by Mann (1992) and Jaggar and Morton (1995) are quite old but still valuable. Ways to measure the costs of buildings-in-use include the total cost of occupancy per m^2, workstation or full time equivalent (FTE), space cost per FTE etc., and workplace cost per FTE etc. In the design phase, benchmarking data from earlier projects can support cost-effective design decisions. Table 10 presents a number of ways to reduce costs by smart real estate choices.

Table 10: Contribution of real estate to cost reduction and cost-effectiveness

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
Reduce investment costs and reduce operating expenses by: - efficient use of space and facilities; - sharp m^2 -standardization; - reduction of energy consumption; - sharing flexible workstations; - efficient procurement; - use of economies of scale; - efficient maintenance and management; - optimal balance between in-house facility services and outsourcing; - smart use of government subsidies; - process optimization.	Reduce investment costs and operating expenses, without reducing quality, by: - efficient use of space and facilities; - sharp m2 -standardization were possible, customisation where needed; - reduction of energy consumption; - efficient procurement; - use of economies of scale; - efficient maintenance and management; - optimal balance between in-house facility services and outsourcing; - smart use of government subsidies; - process optimization.

Value of assets

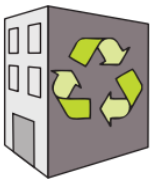
The economic value of assets refers to what assets are worth on the market. This value parameter is key in the economic theory of exchange value. The market value of a building is the amount of money that somebody is willing to pay for it. This depends on many tangible and intangible factors, such as its location, characteristics of the surroundings, the quality of the building (functional, architectural, technical), its uniqueness, government actions, the investment costs, and running costs to keep it up to date. The value of a building may go down in time, due to aging, a changing market demand, trends in society, changes in urban surroundings, or a misfit with new regulations. On the contrary, high quality, fit for multiple purposes, easy to be adapted, renovated, restructured, or adapted for alternative use, sustainability, and uniqueness may keep its value high, and higher than comparable buildings. For this reason, investors and clients may ask designers to incorporate the current and future financial value of the building in their design choices.

Common ways to measure the value of assets are a sales comparison approach (analysing the market price of similar buildings), a cost approach (analysing the cost of alternatives of renovation or building new), and an income capitalization approach (return on investment in the long run). The latter is the most common approach for investment purposes. It is based on an estimate of the annual potential gross income and annual operating expenses, taking vacancy and rent collection losses into consideration. Benchmarking data of the value of different buildings and its design characteristics can be used to incorporate the current and future value of a building in various design decisions. Table 11 shows some examples of how real estate choices may have an impact on its economic value.

Table 11: Contribution of real estate to economic value

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
- smart location choice; - invest in smart, flexible, healthy, sustainable and current buildings; - planned maintenance and timely renovation; - when expected to increase in value, choose to own real estate; - vacancy reduction through renovation, transformation and repurposing.	- smart location choice; - invest in smart, flexible, healthy, sustainable, high quality buildings; - adequately planned maintenance; - vacancy reduction through efficient housing allocation and maintenance processes; - thoughtful asset management decisions (e.g. sell, renovate, refurbish, demolish)

Sustainability



Sustainable design and circular building contribute to a reduction of the negative impact of buildings on the environment. For instance, by choosing a location close to public transport, an optimal fit with the criteria of certification systems such as the Building Research Establishment's Environmental Assessment Method (BREEAM) or Leadership in Energy and Environmental Design (LEED, and sustainable equipment (see Table 12). Sustainability is a crucial value dimension in the whole life-cycle of a building, and is influenced by what kind of materials (resources) are used, how the building is produced, components are transported, spaces are used, and a building is finally disposed. As such, sustainability includes more than energy reduction. In line with the triple People-Planet-Profit or Prosperity, sustainability is also connected to the impact of a building on social well-being and economic benefits to the business, inter alia through reduced maintenance and refurbishment costs. Key Performance Indicators are BREEAM and LEED scores, total CO_2 emissions in tonnes per annum, total energy consumption in kWh per annum, water usage in m^3 per annum, total waste production in tonnes per annum, and land use and ecological value of the site. Figure 28 shows how various Sustainability Development Goals of the United Nations can be connected to real estate.

Table 12: Contribution of real estate to sustainability

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
- efficient use of space; - energy-saving measures; - application of environmentally friendly materials; - sustainable installations; - sustainable purchasing; - circular construction; - 'waste' management, including reducing waste and water use; - reuse of facilities and the like; - high scores on BREEAM or LEED; - mobility management (less travel by car or plane); - reduction of goods transportation; - raising awareness through education and training.	- efficient use of space; - energy-saving measures; - application of environmentally friendly materials; - sustainable installations; - sustainable purchasing; - circular construction; - 'waste' management, including reducing waste and water use; - high scores on BREEAM or LEED; - mobility management (e.g. bike storage, shared car and public transport facilities); - raising awareness through education and training.

Figure 28: Connection between various Sustainability Development Goals and real estate (World Green Building Council, 2023)

Corporate Social Responsibility (CSR)

Over the last decades, organisations have become more aware of the social, ecological, and economic consequences of their activities, and seek for ways to incorporate their responsibilities in their governance and be transparent about it. An economic driver is the scarcity of resources, leading to lean processes and cradle-to-cradle principles. Morality has become an important factor as well, both from within organisations and from society. Due to social media, the public

opinion has gained influence by revealing corporate activities and denouncing misconduct. The internationally recognized *ISO 26000 Guidance on Social Responsibility* (ISO, 2010) acknowledges seven principles of social responsibility: accountability, transparency, ethical behaviour, respect for stakeholder interests, respect for the rule of law, respect for international norms of behaviour and respect for human rights. Other guidance focuses on inter alia sustainable development, health, safety and welfare of individuals and society, labour practices, consumer issues, and community involvement and development. These topics may also be used to assess whether designers behave in a social, responsible way and design decisions fit with social, ecological, and economic values (see Table 13).

Table 13: Contribution of real estate to Corporate Social responsibility

Corporate real estate, facilities, and services	Residential real estate, facilities, and services
Treating people and the environment with care, for example by: - adequate measures during construction; - high-quality, healthy and safe (work) environment; - consider the impact of buildings on the immediate environment (visual, economic, traffic, etc.); - involve users and local residents in decision-making throughout the housing life cycle; - inclusive human resources; - diversity policy; - stimulate local employment and economy.	Treating people and the environment with care, for example by: - adequate measures during construction; - high-quality, healthy and safe living environment; - consider the impact of buildings on the immediate environment (e.g. visual, economic, traffic) - involve residents and other relevant local stakeholders in decision-making throughout the housing life cycle; - inclusive housing allocation and housing management practices. - stimulate local employment and economy through the commissioning housing management activities.

4.3 Dealing with value differences and priorities

It is virtually impossible and also not necessary to control for all possible values at once. Corporate real estate managers may choose to focus on measures that are easy and cheap to implement. Besides, first things first, so practitioners also focus on what is most important and most urgent, now or in the short term. Feasibility and practicability play an important role as well, both financially (budget), functionally, technically (what does an existing building allow), and legally (what must be done, what is allowed).

The importance given to certain values can vary from one organisation to another, depending on, among other things, its mission, vision, objectives and strategy, and corporate culture. Commercial organisations tend to focus primarily on optimal operating results, profit maximisation, cost reduction, value development and risk management. There are also organisations that pay a lot of attention to social values and want to present themselves as a green organisation by having a highly sustainable building.

Incidents are also influential. If an infectious disease breaks out in a hospital and results in negative publicity, health and safety will soon be at the top of the priority list. Finally, the external context plays an important role, such as the prevailing laws and regulations and expected developments therein, social developments, the economy, the labour market and real estate market, and demographic developments such as growth or shrinkage, rejuvenation or ageing, and more or less diversity. In times of economic crisis, for instance, cost reduction is often the primary focus, whereas in more favourable economic times, there is often more focus on employee satisfaction and attracting and retaining scarce talent.

Prioritization also depends of whether values support each other or whether they conflict with each other. An example of synergy is steering for employee satisfaction, which also contributes to higher labour productivity. Using real estate as a marketing tool for a positive image and as an expression of the corporate culture contributes to the organisation's distinctiveness and profits. Managing for health and wellbeing through a so-called healing environment in a healthcare facility contributes to patient and staff satisfaction, labour productivity, and cost reduction through shorter patient stay and lower staff absenteeism. An example of conflicting values is the use of a lot of glass in the facade. This contributes to an image of transparency, but can have a negative impact on operating costs (expensive cleaning maintenance, high energy expenses).

Different stakeholder priorities

What is highly valued by one stakeholder may be less low ranked by another stakeholder. Therefore, in value-based design and management of the built environment it is important to identify all stakeholders, who will benefit from particular design and management choices, and who is responsible for the costs and sacrifices. Within one stakeholder category, differences come to the fore as well, dependent of their position in an organisation, values in life, phase in life, etc.

Shareholders are primarily interested in a good return on their shares and will therefore primarily want to focus on generating more profit through better housing or lower housing costs. The board of directors is usually primarily interested in the extent to which housing contributes to the organisation's strategic goals, image, culture, short- and long-term operating results, and costs and risks. The economic value of housing is also of great interest to top management. When owned, the building is on the books for a certain amount (book value) and represents a market value. In case of rent, the economic value largely determines the amount of rent. Middle management operates more at the tactical level and sets out lines to implement the strategy.

For the employees, the utility value and experiential value of real estate are particularly important. People want to be able to get to work easily and quickly and to work pleasantly and productively in a pleasant, comfortable, safe and healthy environment. Employees therefore benefit from a good location, adequate building layout, pleasant spaces and attractive architecture of building

and furnishings, and a good balance between communication and concentration. All these factors have a major impact on employee satisfaction.

For customers and visitors, good accessibility and accessibility are also very important, as well as a pleasant living environment. This is even more true if customers use the accommodation frequently or for long periods, such as students in a school building, patients and visitors in a healthcare facility and guests in a hotel. At the same time, customers do not want to feel that housing is unnecessarily expensive and negatively affects the price of products. From housing management, the focus is also on what is possible within the existing housing.

Neighbours are primarily interested in an attractive appearance, a positive contribution of buildings to their surroundings (in terms of perception or economic), as little nuisance as possible due to heavy traffic, parking problems or shadowing. Society demands that buildings, services and resources contribute to

Table 14: Different focus points to add value through hospital real estate (Van der Zwart & Van der Voordt, 2013).

added value of real estate	perspectives on real estate			
	strategic	financial	functional	physical
increase innovation	Innovation as a continuous process of optimising healthcare services;Co-location of healthcare providers	Financing system with seperated budgets for cure and care are contra-innovative	ICT patient information; Central waiting system; Use of patient lift systems;	Places for medical staff to meet each other; Facilities like skill slabs and knowledge centers; Minimal suregry in single patient bedrooms
increase user satisfaction	Human in general is central; Attracting and retaining good personnel	Extra investment in real estate for healing environment	Well being of patients; Planetree concept; Central waiting concept; Processes where medical process is central versus processes where patient stands central.	Architectural quality of patient rooms; Single patient bedrooms
improve culture	Real estate as the outboard engine of the organisation; Improve communication between staff and healthcare professionals		Front-back-office concept; Office concept (flex working, desk sharing or boxes); The building supports the interaction between people	.Paying attention to places where people can meet.
reduce costs	No more square meters as necessary	Future expansions based on new business plans; Investment level that fits the scale of the building; Controlling investment costs and real estate related costs	Space reduction by shared workspaces; Strict budgeting of space per department	Life cycle costs including maintenance and energy; Sober plans with slim-fit buildings Low initial investment costs; Sustainability to make hospital future proof and less reliant on traditional energy resources.
improve productivity	Ensuring that healthcare professionals can do their work as efficient as possible	Yearly space budgeting per department based on production and turnover; Production rates; Empty beds	Optimally facilitating the healthcare processes; Front/back-office concepts; Healing environment; Single person bedrooms	Centralization high technical functions in hot floor; Spatial clustering; Separating logistics from patient and personnel streams
improve flexibility	Supporting changing business processes during the lifespan of the building; In initial phase important, during occupational phase a given fact.	Extra investments in future flexibility; Pre investments in expandability; Possibilities to rent space.	Adaptability; Multi functional use of space; Sharing consultant and treatment rooms, wards and other facilities; Standardising spaces; Flexible office concept	Robust building that makes different layouts possible; Separated technical installations; Standardisation; Supporting structure and fill-in; Expanding possibilities
support image	Improve competitive advantage by using the building as a marketing tool, both for (potential) patients as employees	Extra investment in architectural quality	Healing environment; Percentage single bedrooms; Hospital as hospital recognisable	Nice and easy access location; Nice overall architectural appearance
control risks	Risk reduction in healthcare processes	Business case; Marketability of real estate; Real estate in Private Limited Company; External clinics rented	Longer opening hours to optimize available capacity	Slim fit building with no more square meters as necessary; Outsourcing maintenance for a longer period; Contractor and technology parrtner in initial phase and design procces
improve finance position	Real estate is more a resource for production than an asset	Banks as stakeholder; Private investment in hospital real estate; Marketability of real estate; Real estate as an asset; (Potential) location value; Urban Area Development	Choice between optimizing healthcare processes during lifespan of building or marketability afterwards.	Layer approach (hot floor, hotel, office and industry) ; Location potention

societal values such as safety, health and sustainability. Finally, the government sets the lower limit for desired housing performance in laws and regulations, such as the Occupational Health and Safety Act, the Building Decree and environmental legislation. By doing so, the government aims to ensure that buildings sufficiently meet the requirements for accessibility, usability, safety, health and sustainability. Table 14 presents the different views of various stakeholders in corporate real estate management of hospitals (Van der Zwart & Van der Voordt, 2013).

Appropriate corporate real estate and housing management requires integral management and a careful stakeholder analysis or 'stakeholder mapping': who are the stakeholders, what are their interests and preferences, what is their influence (see for instance: Fassin, 2008; Green & Jack, 2004; Henderson & Venkatraman, 1989; Jensen et al., 2012; Vande Putte & Jylhä, 2017; Winch, 2007, 2010). This is not only the responsibility of the accommodation manager, but also touches on other forms of management, such as financial management, marketing management, human resource management and the (top) management that drives change.

4.4 Adding value

Stakeholders want to advance their goals; they want to create value. Value-adding management focuses on reducing the difference between the degree to which goals and values are achieved before and after an intervention. In other words, value is created when, after an intervention, the ratio of the current state to the desired state is closer to 1 than it was before the intervention.

The last decades much has been written about adding value through corporate real estate and building related facilities and services. The shift from a cost-oriented approach towards a more value-based approach inspired Per Anker Jensen, professor in FM at the Technical University of Denmark (DTU) to start a EuroFM working group on the added value of FM. This work culminated in a huge number of papers and conference presentations, and two anthologies: *The added value of FM: concepts, findings and perspectives* (Jensen et al., 2012) and *Facilities Management and Corporate Real Estate Management as Value Drivers: How to manage and measure adding value* (Jensen & Van der Voordt, 2017).

Added value may is defined here as the extent to which the trade-off between benefits, costs, and risks of interventions in buildings, facilities and services contributes to the goals and values of organisations, end users, and society as a whole.

Within real estate, important questions about added value are for instance: what do the location and building characteristics mean for the use value of the properties? What is the experiential value from the perspective of customers and end users? Do the buildings still have sufficient future value, or is the end of its functional, technical or economic lifespan in sight? Can value be added by improving the location and/or current building characteristics, how, and for

whom? What are the costs and revenues of interventions in the built environment?

Example

Adding value through a warehouse expansion

An organisation needs a warehouse of 2000m². The current warehouse is 1000m². As such, the current real estate performance for the indicator 'area' is 1000/2000 = 0,5.

Management decides to expand the warehouse with 1200m². As a consequence, the value of the indicator 'area' changes to 2200/2000= 1,1.

The warehouse extension has added value to this organisation as the performance 1.1 is closer to 1 than the performance 0,5. The gap with the desired performance was 0,5 and has now been reduced to 0,1.

Example

The concept of added value in everyday language

When we talk about the added value of an object or service in everyday language, we seem to use the term in a different sense. For example, when we ask: "what is the added value of this department in our organisation?", we do not mention the two states that we are comparing and between which value would develop. This looks like a different use of the term added value.

In fact, it is not. We are still comparing two states, although we do not mention it. We compare the state with the object or service versus the state without it. Value is added when the performance of the state with the object or service is increased.

Value adding management model

In order to support decision makers in adding value through real estate, facilities and services, Hoendervanger, Bergsma, Van der Voordt, and Jensen (2017) developed a Value Adding Management (VAM) process model with four steps, see Figure 29. The VAM model is action oriented and follows the same steps in the renowned Deming cycle. The PDCA cycle is widely applied to support total quality management and is familiar to many practitioners. The steps from input-throughput-output-outcome/added value correspond with what to do and why, how to implement, and how to measure its output and impact. This phasing is quite similar as in the logic model that we discussed in chapter 2. The link with CREM and FM is key in the VAM model. It makes clear why building performance measurement is important in management of the built environment.

The VAM model guides decision makers through the process of adding value in four steps, from identification of performance gaps, objectives for improvement and selection of appropriate interventions to its implementation and a check on whether the objectives have been attained, what value has been added to whom,

and which key performance indicators are most appropriate to measure the added value by CREM and FM.

The main actions in the *Plan-phase* are to identify the drivers to change i.e., to define whether the actual performance of the organisation and its accommodation, facilities and services need to be improved, and through which interventions the gap between the current state and the desired state can be narrowed or closed.

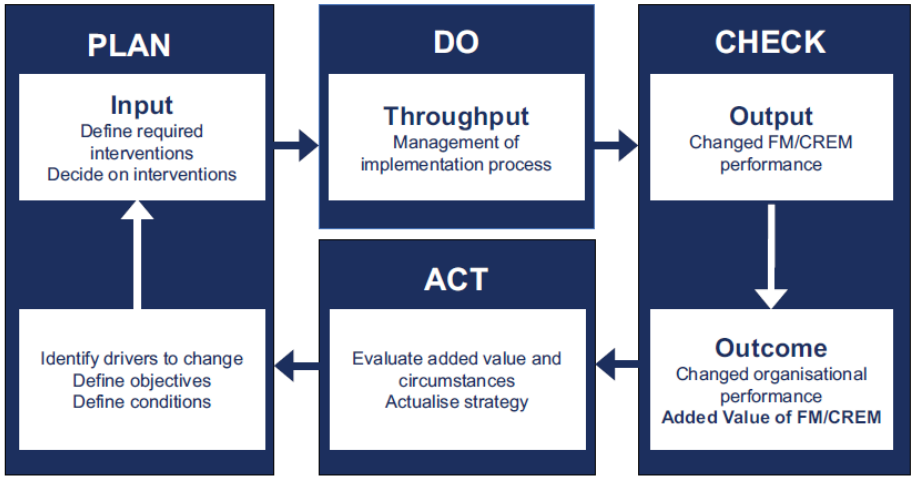


Figure 29: Value Adding Management process model - Source: Hoendervanger et al. (2017) in: Jensen and Van der Voordt (2017)

The Plan-phase ends with clear decisions about which interventions should be implemented and how to implement them. In order to support this first step, Jensen and Van der Voordt (2020) developed a typology of Value Adding FM/CREM interventions. Analysing the context of value adding management may start with exploring the different roles, interests and power of stakeholders involved, using stakeholder analysis. A SWOT analysis can help to identify the need and direction for change, concerning both the organisation and the FM/CREM processes and products.

The *Do-phase* encompasses the implementation of the proposed interventions and management of the change process. Decisions to be made include who should be involved in the process and how, time schedules, how to cope with resistance to change, and how to cope with the different needs of different stakeholders. A major challenge is to keep focus on the initial goals. Implementation processes tend to develop their own dynamics, which can easily shift the focus from long-term strategic organisational goals to short-term tactical and operational goals of the participants.

In the *Check-phase* the costs of the interventions and their impact on the performance of the organisation and its facilities has to be measured, both before the intervention (ex-ante, baseline measurement), during the change, and ex-post, after the implementation of the intervention(s) has been realized.

Connection between real estate, organisational performance and added value

The purpose of real estate performance measurement is to measure its current state and desired state, and if/how improved real estate performance contributes to organisational performance, and adds value to the organisation, end users and other stakeholders. Figure 30 shows the connections between real estate performance, organisational performance, and added value.

The left part of Figure 30 represents the demand side, whereas the right part represents the supply side of real estate, building related facilities, and services. Real estate is here perceived as one of the resources of an organisation that aim to support the mission, vision, objectives, values and activities of the organisation. As such, the model has to be read from left to right i.e. the organisational strategy defines the real estate strategy. However, it may also happen that current real estate influences the organisational strategy, for example due to the location and building characteristics.

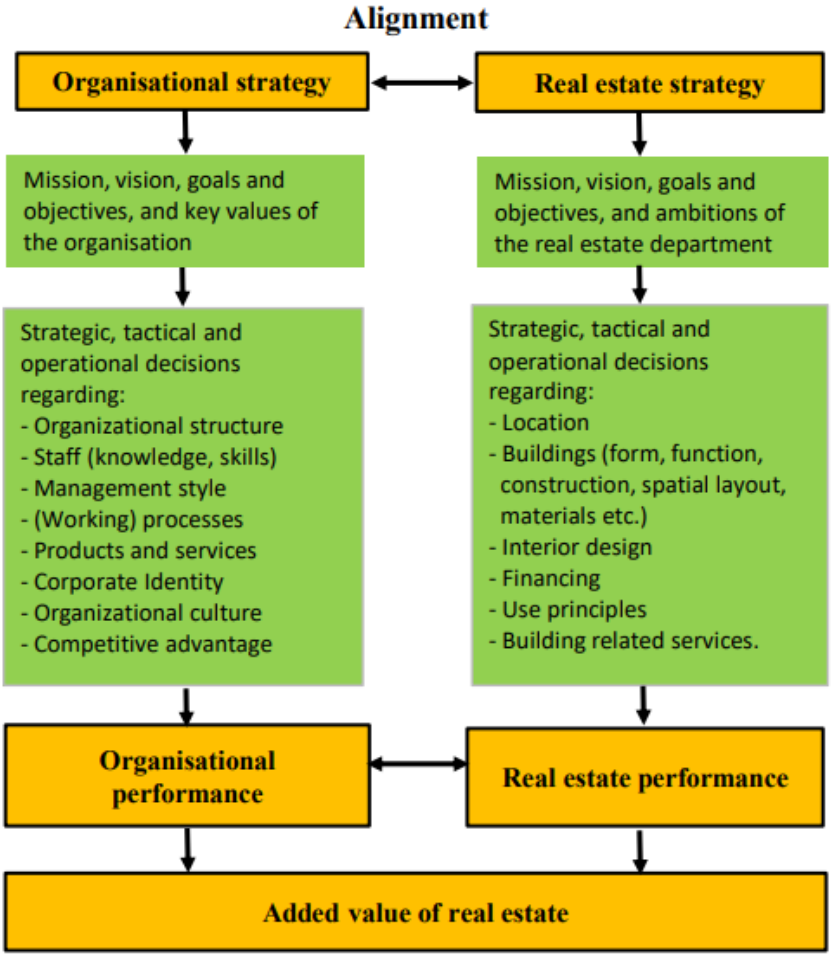


Figure 30: Relationship between real estate performance, organisational performance, and added value of real estate (Source: Hoendervanger et al. (2022))

The *Act-phase* updates the strategy. The way this is done is quite similar to the Plan-phase. When all objectives have been attained and maximum value has been

added, the Act-phase may be limited to consolidation of the new situation, until new drivers to change come to the fore. If the objectives are not sufficiently attained or not optimally, or if too many negative side effects come to the fore, new interventions or broadening of earlier interventions should be considered. Another option is to reconsider the objectives. It may happen that the aimed performance was not realistic and feasible within the current conditions. Moreover, the context or conditions of the original objectives may have changed, which might force the organisation to change its organisational or FM/CREM strategy. If new or revised interventions have to be implemented, the Plan- and Do-phases start again.

The cyclic character emphasizes that value adding management is or should be a continuous process. Evaluation of realized output/outcome/added value may be a starting point for new interventions.

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5 Building performance measurement: dimensions and indicators

Theo van der Voordt

Contents

In order to be able to assess whether the values stakeholders care about (see previous chapter) are well served by the built environment, a performance measurement system is needed, consisting of a performance framework and a set of indicators. Based on their world view, interests and role (e.g. designer, real estate manager, project manager, CEO, management team, end user, other stakeholders, society), people usually apply a particular model and a set of indicators, explicitly or implicitly. One's purpose for measuring performance influences the choice of a framework and indicators as well. What is measured depends, among other things, on

- the issues that stakeholders consider important;
- the scale levels of the built environment: real estate market; portfolio; buildings; building units; (work)places;
- the scope: global, national, regional or local area;
- the real estate life cycle: initiation, briefing, construction, buildings-in-use, transformation and adaptive reuse.

Input can come from a variety of disciplines, such as architecture, social sciences, law, economics, building technology, etc., or a combination of these.

As in general management, the number of frameworks and indicators used in the design and management of the built environment is vast. To get a grip on them, they are usually grouped into a limited number of performance dimensions. This chapter discusses various performance dimensions and different types of indicators.

5.1 Building performance dimensions

More than 2,000 years ago, in his ten books *De Architectura,* Vitruvius distinguished three basic components of architecture: utilitas, venustas and firmitas (utility, aesthetics, strength). Van der Voordt and Van Wegen (2005) added a fourth dimension regarding economics and linked this more explicitly to the concept of building performance.

Functional performance ('utilitas')

This refers to the practical usability of real estate i.e., the extent to which it is suitable for the people who use it and for the activities that take place in it. This is often referred to as 'fitness for purpose' or 'fitness for use'. The functional performance of real estate depends in particular on its location, the available floor space, the spatial-functional layout, and finishing and furnishing of buildings. All these supply characteristics must be tailored to the users and their activities, and meet requirements in terms of accessibility, usability, flexibility, health and safety, and so on.

Aesthetic performance (‘venustas’)

This aspect refers to perceptual quality, appearance, identity, recognisability, and cultural and historical values. One of the indicators may be the extent to which a building represents a particular architectural style or construction period, or a particular period in history. Appraisal of aesthetics depends inter alia on personal taste, surrounding buildings, cultural influences and the “time spirit’.

Technical performance ('firmitas')

Within technical performance, a distinction can be made between technical performance of the construction, building physics, and environmental performance. The first refers to the extent to which the foundations, supporting structure, envelope, built-in package and installations meet technical requirements, such as strength, stiffness, stability, durability, and maintenance conditions. Building physics refer to the extent to which the building is able to achieve an attractive, safe and healthy indoor climate in terms of temperature, humidity, lighting, sunlight and acoustics. Environmental performance refers to whether the building is designed and managed environmentally friendly and sustainable.

Financial or economic performance

This is the extent to which financial resources for the design and management of real estate are used effectively and efficiently, and whether an appropriate balance exists between costs and performance, or cost and quality. In the case of owning a building for one’s own use, important criteria are among other things:

- whether the investment costs stay within the intended budget,

- whether the capital costs (depreciation and management costs) are in reasonable proportion to the rest of the operating costs and revenues like turnover and profit,
- whether the real estate costs are in a proper balance with the ambitions,
- how the costs compare to the costs of similar real estate within one's own portfolio or externally.

If the building is an investment property, the financial performance is primarily determined by the return on investment, directly (proceeds on sale minus costs) and indirectly (value development compared to the initial investment, calculated annually on the basis of valuation and to be cashed in at the time of sale).

Seven performance dimensions

Not all relevant topics can be clearly allocated to one of these four dimensions. For instance, health and well-being are influenced both by aesthetics, a pleasant building layout, and physical comfort. Hospitality experience goes beyond aesthetic qualities. Sustainability is a technical aspect, but has also financial consequences. For this reason, Hoendervanger et al. (2022) partially adapted the four-way division and made a distinction in seven performance dimensions:

1. functional performance,
2. perception and experience,
3. health, wellbeing and happiness,
4. physical comfort,
5. sustainability,
6. technical performance, and
7. financial performance.

This distinction has been used in the next chapter as well. In addition, it is wise to also measure the performance of processes, such as the efficiency and effectiveness of briefing, design and construction processes, and management of buildings-in-use, regarding the role of different actors, information sharing, time and money spent on these processes, and effectiveness of decision-making.

Impact

All these performance dimensions affect the users and society as a whole. For example, inadequate functional quality can lead to loss of productivity in an organisation. An outdated or poorly maintained building has a negative impact on an organisation's image. A poor indoor climate has a negative effect on employee or tenants' well-being and can lead to increased illness ('Sick Building Syndrome'). Excessive real estate costs weigh heavily on the balance sheet and can cause financial problems for an organisation.

Unequal performance for different dimensions and indicators

It often happens that real estate performs well in some performance dimensions or regarding particular performance indicators, and less in others. Famous examples of buildings that are architecturally very appealing but have far

exceeded budgeted costs in terms of investment and operating expenses are the Sydney Opera House in Australia and the Stopera in Amsterdam. Consider also the many monumental buildings that perform highly on cultural value but often fall short in performance indicators such as wheelchair accessibility and fire safety.

5.2 Building performance indicators

To test whether real estate meets the requirements of organisations, end users and society, a common way is to measure different performance dimensions through a set of performance indicators.

Some performance indicators are relatively easy to quantify in so-called metrics. This applies, for example, to the economic performance of real estate, which is usually expressed in monetary costs and revenues. Technical performance can be expressed in terms of load capacity in N/m2 and energy performance coefficients like kWh/m²or CO2 emission/m^2, among others. Numerical indicators have the advantage that the information can be presented clearly and conveniently, and can be used for statistical analyses, as input for evaluating real estate performance and decision-making.

Determining the functional performance is more difficult. It is not easy to unequivocally determine whether a building effectively and efficiently facilitates the desired activities so that people can stay there pleasantly and work productively. Or to measure whether a building is easily adaptable to new developments such as growth, shrinkage, new ways of working or changing customer requirements. Measuring aesthetic performance and experiential value is not easy either. Their appreciation is subjective ('Beauty is in the eye of the beholder') and changes over time.

A common solution for indicators that are difficult to measure is to rate the indicators using a number on a 5-point scale, where 1 = very poor and 5 = very good. Variants of this are a 7-point scale or, similar to a report grade, a 10-point scale where 1 = very poor and 10 = excellent. This can be a well-functioning method, provided that the scale values are clearly described.

In the literature, various performance measurement systems can be found, in which a number of performance dimensions and indicators are incorporated, using metrics and rating scales, see the example on school buildings.

Example

Performance measurement of primary and secondary education buildings

In order to establish a nationally supported definition of basic quality, an Accommodation Quality Framework has been developed, which provides performance criteria for the location, architectural quality, functional quality and technical quality of primary and secondary school buildings and outdoor spaces. Quality requirements for health (see e.g. the program 'Fresh school' of the Kenniscentrum Ruimte-OK, 2021), sustainability (legislation & sectoral roadmap), accessibility (inclusivity) and outdoor spaces (VNG Model Ordinance/Climate Adaptation) are also included. In an annex, 25 basic performance criteria have been added. With this basic set, schools can be compared in a uniform way.

The Accommodation Quality Framework starts from the assumption that an appropriate school building has a positive effect on the behaviour, well-being and learning process of the pupils and teachers who use the building on a daily basis. The quality criteria are meant to be used as a guide and not as a standard. The framework goes beyond the minimum requirements from the national Building Code. The financial section provides an insight into the costs of the criteria compared to the minimum legal standards, based on objective measures. The calculations are based on two reference projects of respectively 1,312 m2 gross floor area for primary education and 5,000 m2 for secondary education.

The table shows the costs at Building Code level and the additional costs (approx. 32%) when complying with the quality framework (Price level date January 2021):

Cost in €/m² gross floor area	**Building-Code level costs**	**Additional costs quality framework**
Primary education		
Total construction costs excluding VAT	1.625	519
Total construction costs excluding VAT	1.918	613
Total construction costs including VAT	2.320	741
Secondary education		
Total construction costs excluding VAT	1.420	453
Total construction costs excluding VAT	1.675	535
Total construction costs including VAT	2.027	647

The actual costs of a school building are project-specific and depend, among other things, on the design and site-specific requirements. An indication of the bandwidth is +/- 5% for costs at Building Code level and +/- 15% for additional costs when meeting the criteria of the Accommodation Quality Framework.

The Accommodation Quality Framework can be used as:

- tool for stakeholder consultations;
- steering tool for integrated policies;
- checklist for a building scan;
- basis for a performance contract;
- basis for a business case.

Source: Kenniscentrum Ruimte-OK (2020)

5.3 Measurement on different scale levels

What is being measured depends inter alia on the scale level. The higher the scale level, the lower the number of performance dimensions and indicators that can be measured, due to the larger amount of buildings that this level contains. Here we make a distinction in five scale levels.

Real estate market

The widest scale is on real estate market level, split in different sectors such as housing, offices, educational buildings, health care facilities, retail and leisure, on local, regional, national or international level. Indicators of market performance include for instance financial performance (e.g. costs and revenues; affordability i.e., can buyers or renters afford the purchase or rental price) and social performance (e.g. waiting lists as an indicator of housing shortage; vacancy level (oversupply) or precariousness of rental housing).

Real estate portfolio

Large organisations usually own or lease more than one building. Measurement of the performance of real estate on portfolio level mainly aims to be able to make strategic decisions: where does an organisation or housing association want to go in the medium and long term and what does this mean for its real estate? Measuring the performance of a large real estate portfolio is not possible on a detailed level, so one has to choose what is key. Key indicators may include a selection of location characteristics (see Table 15), in particular the distance to the city centre and public transport and land prices), and building characteristics (see

Table 16), in particular the year of construction, available floor space, accommodation costs, rental income, type of ownership (owned, rented, or sale-and-lease-back), technical condition, and compliance with legal standards.

Table 15: Site characteristics

- Geographical location (place in the Netherlands or elsewhere)
- Location in relation to the city centre e.g. distance
- Access: traffic infrastructure, accessibility by public transport, parking facilities
- Size: dimensions and layout of the construction site
- Ratio between built/unbuilt area, on site and in the surrounding area (building density)
- Functions and destinations in the neighbourhood (business services, housing, shops, schools, recreational facilities, cultural facilities, water, green spaces)
- Demographic characteristics (age, education, country of origin, household composition)
- Socioeconomic characteristics (incomes, turnover rates, employment, crime, vacancy rates)
- Physical environment (sun, wind, smells, sounds);
- Pipes (gas, water, electricity);
- Laws and regulations (zoning plan, parking standards);
- Ownership (landlords, owners of buildings, lease)
- Land prices

Table 16: Building features

- Year of construction
- Capacity (net and gross floor area, net/gross ratio, lettable floor space, total and m2 per person or per FTE)
- Main building layout (building mass, number of floors, façade-to-floor area ratio)
- Building access (number and location of entrances, hall, corridors, stairs, lifts)
- Spatial layout (relationships between spaces, shape and dimensions of individual rooms)
- Fittings (nail proof fittings, loose fittings such as furniture, cabling)
- Skin (facade, roof, floor)
- Support structure
- Installations and piping: electrical, mechanical, other (climate, plumbing)
- Indoor climate (views, sunlight, daylight, lighting, heating, ventilation, acoustics)
- Technical condition i.e., state of maintenance
- Environmental features such as energy certificate and energy consumption/energy costs (total and per square metre).
- Financial parameters such as accommodation costs (total, per m2, per FTE); market value; rent and depreciation expenses; WOZ value; book value;
- Financing structure (owned, rented, sale-and-lease-back; purchase date or start and end dates of lease contracts)
- Compliance with legal standards, for example regarding energy performance, or the Occupational Health and Safety Act on safe and healthy working conditions.

Buildings and building units

At the scale levels of individual buildings and parts of buildings such as departments, wings, rooms and (work) places, more detailed analyses are needed to test whether certain a building still matches the demand and whether interventions are needed in the short or long term. For example, because the building is functionally or technically obsolete, costs are too high, or a building no longer fits with the corporate identity.

Interior, facilities and services

On a deeper level, performance measurement may also include the performance of interior design and characteristics of spaces, places, facilities and services, such as the ones in Table 17.

Table 17: Building-related facilities and services

- Kitchen units, sinks, plumbing, and loose fittings such as counters, furniture (ergonomic, height adjustable or not) - Cabling - Signage - Use of colour and materials - Technical maintenance and management (architectural, installations, fixed facilities, grounds) - Energy management - Water supply - Catering (food, drinks and refreshments) - Risk management (security, prevention) - Cleaning (inside and outside) - Green maintenance - Quality management - Waste management - Mobility management (bicycle and public transport support, lease cars, parking facilities) - Working conditions; - Procurement - Information and communication technology (hardware and software, support) - External facilities (remote workplaces e.g. at home, in coworking spaces or at third workplaces such as pubs and public transport); - Internal and external removals

Principles of use

Finally, performance measurement may regard whether people behave according to appointments about how to use the (working) environment and rules of commitment, for instance:

- personal workstations versus shared workstations;
- rules of conduct, e.g. no phoning in a silence zone;
- leaving a workplace clean ('clean desk');
- which rooms are accessible to whom.

Combining dimensions and scale levels

The five scale levels can be combined with the four performance dimensions that we mentioned before, to create a basic performance framework for the built environment, see Table 18.

Table 18: Performance dimensions and different scale levels

	Market	Portfolio	Building	Interior	Use
Functional					
Aesthetic					
Technical					
Financial					

Difficulties in data-collection

What makes collecting and managing data often difficult is that data come from different sources. Besides, data are stored in different systems that are not always compatible, and not all information is available digitally. As a result, important information is not always up-to-date. Appropriately and centrally sharing real estate information in a database is a prerequisite to be able to assess whether the supply is performing adequately, on its own and in comparison with other supply on the market.

Continuous process

Performance measurement is not a one-off thing, but should be done periodically. Only then can internal and external changes be anticipated in a timely manner. Recording and centrally sharing real estate information in a database is important to be able to monitor whether the supply is performing adequately, on its own and in comparison with other supply on the market.

5.4 Key performance indicators

As the former section has shown, numerous performance dimensions and indicators can be thought of. To efficiently steer for optimal performance of a real estate portfolio, as a whole, per building or at lower scale levels, it is wise to make a selection of so-called key performance indicators (KPIs). These are indicators that are most important for the success of an organisation.

An overview of KPIs is similar to a dashboard: decision makers can quickly see in which dimensions and on what indicators the property portfolio and individual buildings score well, where bottlenecks occur and which knobs to turn to increase performance.

Criteria for selecting indicators as key performance indicators are inter alia: easy to collect, informative, motivating and influential, and customer-oriented (Kerklaan, 2009). Leading is its alignment with the organisation's strategy and real estate objectives. As such, the selection of KPIs is organisation-specific. For example, if an organisation makes the strategic decision to have all buildings meet a certain energy label and includes this requirement in its demand for real estate, the obvious choice would be to focus performance measurement on annual

energy consumption. An organisation with limited resources usually steers strongly towards reducing costs. An organisation seeking to conquer a new market is likely to pay particular attention to the benefits of good accommodation such as representativeness, recognisability and customer loyalty.

There are also indicators that are important for every organisation. Virtually any organisation steers to a greater or lesser extent on cost efficiency, functionality, and a high level of sustainability. The intended performance may vary within a property portfolio. Often, for public relations reasons, a higher level of performance is aspired to for headquarters than for buildings that are less in the public eye.

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6 Ways to measure building performance

Theo van der Voordt

Contents

A first step in measuring the performance of a building is the choice of a performance framework consisting of performance dimensions, related performance indicators, and ways to measure. The chosen dimensions and indicators define which building characteristics have to be measured. A second step in building performance measurement is to define target values for these indicators. The third step is to establish the current building performance by comparing the measured results on all indicators with the target values, to analyse the performance on all indicators, and to identify which interventions are needed to get the current building performance on its desired level.

The selection of indicators depends on organisational and real estate strategies, and which aspects are most relevant and urgent, based on the current and future situation, available time and money, and laws and regulations.

This chapter presents seven dimensions of building performance and a series of indicators that can be used to measure building performance along these dimensions, both quantitatively and qualitatively:

1) functional performance
2) perception and experience
3) health, wellbeing and happiness
4) physical comfort
5) sustainability

6) technical condition
7) financial performance.

The follow-up i.e., what to do with the measurement results, will be discussed in the next chapter.

6.1 Functional performance

Functionality refers to usability i.e., fit-for-purpose. This dimension includes numerous aspects, for instance (Van der Voordt & Van Wegen, 2005):

- reachability and parking
- accessibility
- usability (ease of use, effectiveness, efficiency)
- adaptability (flexibility)
- safety (ergonomic, social)
- spatial orientation (being able to find one's way easily)
- territoriality, privacy and social contact

Various measuring instruments have been developed for this purpose, such as the generic Use Tool (Haron, Hamid, & Talib, 2013) and the Achieving Excellence Design Evaluation Toolkit (AEDET), which has been developed in particular for health care buildings (Tekin & Dincyurek, 2023). The Dutch REN standard and NEN 2881 both have a broad scope as well.

REN-norm

The Real Estate Norm (REN) was developed in the early 1990s by several consultancy firms, united in 'Stichting REN Nederland' (Stichting REN, 1992). The REN is a structured list of almost 200 quality aspects with corresponding quality classes. By comparing the supply profile (the actual situation) with the demand profile (the desired situation) on all aspects and assigning a weight to them, it can be quickly revealed whether the supply meets the demand of the owner/user. For example, by comparing the actual distance to a public transport stop with the targeted distance, it becomes clear to what extent the location satisfies in terms of accessibility by public transport; see the example. The REN was one of the first systematic methods in the Netherlands for being able to compare requested and delivered building performance.

Example

Measuring the reachability of a building

The real Estate Norm measures reachability by the distance from the entrance to a public transport stop. The REN distinguishes five performance classes for accessibility by bus and tram:

- further than 500 metres;
- 300 to 500 metres;
- 200 to 300 metres;
- 100 to 200 metres;
- less than 100 metres

René Stevens of Atelier V initiated an update and further digitisation of the REN. To underpin a holistic vision on real estate, he developed the so-called Real Estate General Performance Survey (RE-GPS). Through smart data collection regarding money, risk, organisation, time, information and quality, a function profile of real estate can be established. Nowadays REN is not widely used anymore. The philosophy of the REN has currently been adopted in the Dutch standard NEN 8021 for measuring building use performance.

NEN 8021

In *NEN 8021 Valuation utilisation performance of utility buildings,* use performance is defined as the extent to which an object supports the user's business processes. The standard also includes sustainability issues. NEN 8021 enables its users to assess and compare buildings based on functional quality requirements. The standard aims to make the functional value or user performance of utility buildings unambiguously and uniformly nameable and assessable. Standardisation ensures that interpretations about functionality and use are channelled and valued in one and the same language. Eight key performance indicators (KPIs) are distinguished, which are considered to be essential for the utilisation performance of a building: accessibility, comfort, sustainability, flexibility, use of space, representativeness, safety and amenities. The KPIs are divided into PIs (performance indicators), within which different subjects are distinguished. This leads to the following classification per performance area:

- KPI (e.g. comfort);
- 1.x PI (e.g. light);
- 1.x.x Subject (e.g. perception).

As in the REN, the indicators allow to compare building characteristics with user requirements. This is an effective means to identify whether a building meets the user requirements or deviates from it i.e., to assess its utilisation performance.

Users can make a distinction between 'minimum required performance level' and 'desired performance level'. This can be done through the use of a minimum and a desired target value for each indicator, or by setting a minimum performance level (e.g. 75 %) for each indicator. Users can also indicate a level of importance for the different performance indicators. This is part of the development of the performance framework.

Figure 31 shows the criteria for the performance indicator accessibility. Currently, the standards committee is working on a new format for NEN 8021 in the form of Excel tables that are easy to fill in.

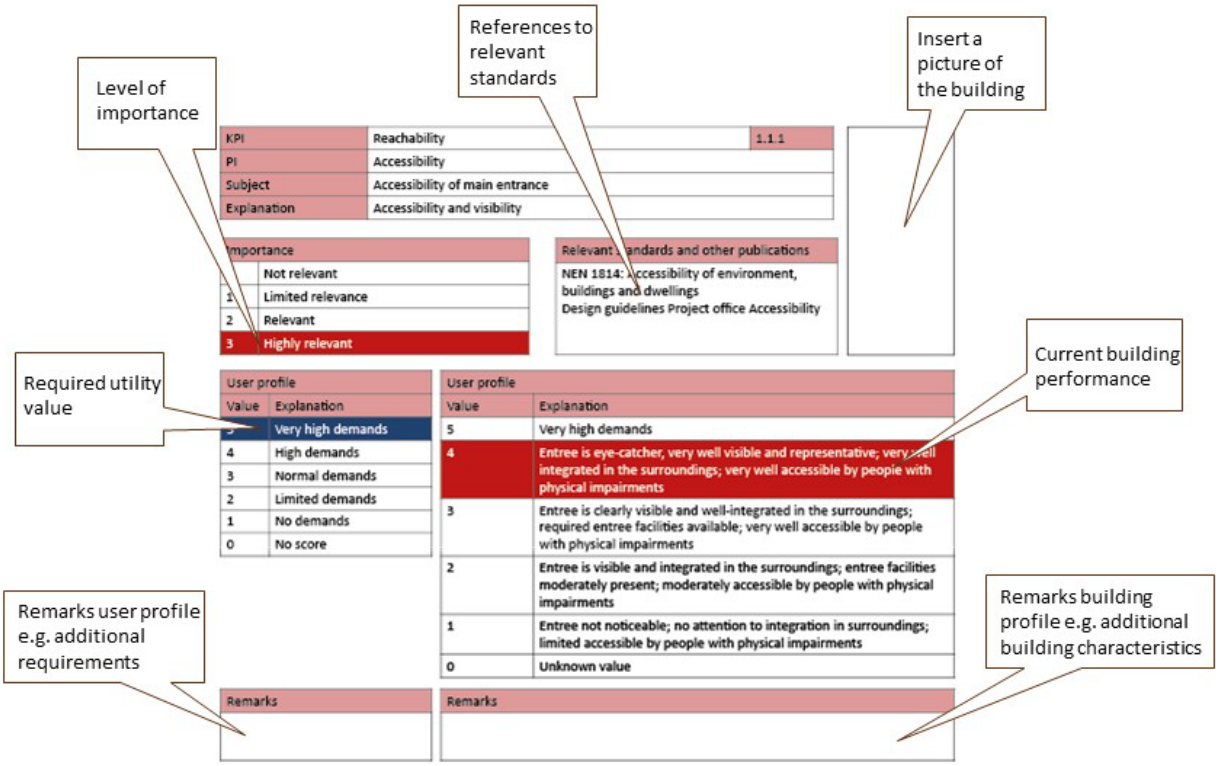

Figure 31: Rating form for reachability performance (source: NEN 8021 (2014))

Available space and used space

A key indicator of functional performance is the total available space in m^2, and the number and square metres of workplaces and other spaces, in comparison to the required quantities. Too little space results in crowding and poor usability. A surplus of space can be waste of money.

Many organisations conduct regular surveys of the occupancy and utilisation of their spaces. Occupied means that the space is in use; utilised refers to used capacity versus available capacity. For example, if six places are occupied in a meeting room for 12 people, the room is occupied but only 50% utilised. Modern technology like sensors and *beacons* (small transmitters that send out a signal via Bluetooth, often in combination with an app) make it relatively easy to measure the occupancy and utilisation of spaces quickly and real time at low cost. In addition, all kinds of tools are available to help employees find an available workplace, the so-called spot checker, and to book meeting rooms. Most Dutch universities measure the occupancy and use of teaching rooms and also use a place checker. For an overview of smart campus tools, see Valks, Arkesteijn, and Den Heijer (2019). The degree of utilisation of different workspaces can be visualised with a so-called heatmap; see Figure 32. A heatmap shows the current or average occupancy rate of workstations and other spaces by means of different colours.

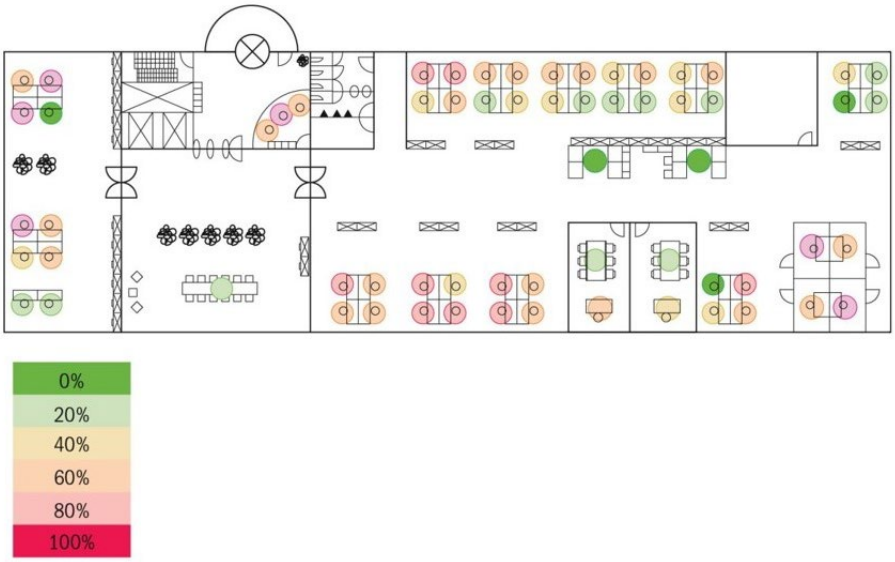

Figure 32: Heatmap of the ground floor of an office building (provided by Measurement)

Vacancy

Vacancy is a key indicator of the mismatch between supply and demand. It is therefore important to include vacancy rates in supply analyses, over a longer period of time, at different scale levels, and by sector. The Netherlands has seen high vacancy rates in the office stock for years. Vacancy rates are also high in the retail sector and among churches. Some vacancy (around 4%) is not bad and even desirable, to keep the property market moving and to allow for mutations. This is the so-called friction vacancy. Currently, however, the office vacancy rate is much higher. In the Netherlands, in 2021, 10.2% of office space was vacant. In 2022 this percentage dropped till 8.2%. The retail sector has an average vacancy of 7.2%. Part of the current vacancy is structurally vacant, which means a vacancy of over three years. One of the reasons why the vacancy rate in these two real estate sectors is quite high is a declining need for office space due to digitalisation, new ways of working, hybrid working, relocation of activities to other countries, and a declining need for shops due to e-commerce.

However, there are large regional differences. Despite high vacancy rates on national level, experts mention a shortage of suitable office space in the four major cities and at Schiphol Airport. Furthermore, it is important to distinguish between quantity and quality. If the quantitative supply is sufficient but the quality does not match demand, new construction may be needed to cope with current performance requirements. This may displace less desirable buildings from the market: 'good buildings drive out bad buildings'. For properties that are vacant or threatened with vacancy, and no longer taken up by the market, transformation and adaptive reuse i.e., the reallocation to other functions, may be an option. Sometimes only demolition remains.

In addition to vacancies that are visible in the supply on the property market, there is also so-called hidden internal vacancy: space that is rented but not occupied or well-utilised, e.g. empty workstations or meeting rooms that are not

being used to their full potential. Figure 33 provides an overview of the different types of vacancy.

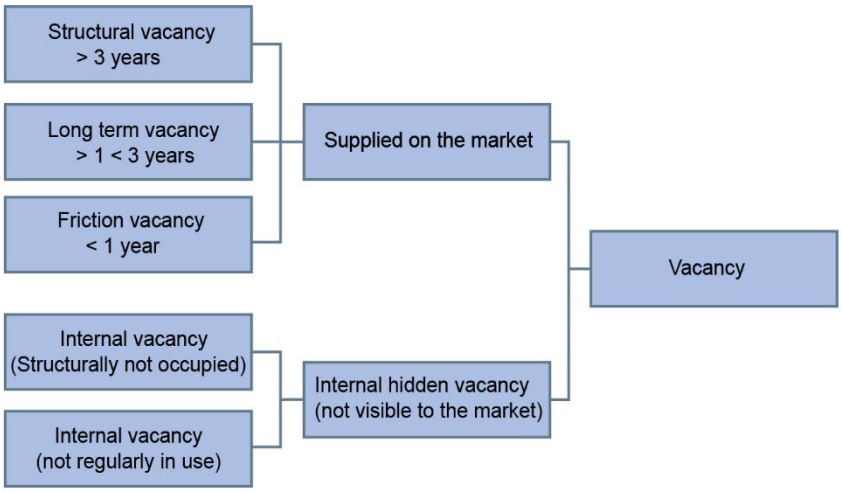

Figure 33: Different forms of vacancy (Van der Voordt & Knijnenburg, 2020).

Measurements of workplace occupancy show that on average 40-50% of office workstations are vacant. The bandwidth here is quite wide. Peak occupancies fluctuate between 75-80%, whereas on Wednesday and Friday occupancy rates are much lower. Empty spaces provide quietness and flexibility, but are inefficient from a cost and sustainability point of view. An average workplace occupancy of 75% is considered optimal. So there are still gains to be made here. Since the COVID-19 pandemic, when people were forced to work much more at home, hybrid working with a mix of working at the office and working at home is a trend in many organisations. This will result in even higher internal vacancy rates, be it that this will be partly used to create more space for social interaction and collaboration.

Adaptability

Adaptability of a building can be broken down into several sub-indicators:

a. Spatial flexibility: the degree to which it is possible to extend a building, vertically and horizontally, or to divide it differently, for example by cleverly sizing the supporting structure, making the building suitable for different functions.
b. Technical flexibility: the ability to adapt the building form and layout, e.g. by separation of support, built-in and installations and use of flexible built-in packages.
c. Legal-financial flexibility: the ability to respond quickly to changes in space requirements, for example through flexible leases that allow for the rapid addition of space or the disposal of part of the space, or through ownership of current buildings that can be sold or leased relatively quickly on the property market.

d. Flexibility of use: adaptability of spaces without structural intervention, for example by clever sizing or oversizing of spaces, making them suitable for multifunctional use of space. Another example is a folding wall, which makes it easy to split a space or join two spaces together.

In addition, organisational flexibility is the extent to which the organisation is capable of adapting itself and therefore can accommodate changes without having to adapt the building. Table 19 provides concrete measures to increase the adaptability of buildings and to measure the adaptability of current real estate.

Table 19: Building adaptability measures (source: Van der Voordt and Van Wegen (2005))

Performance indicators	**Concrete measures**
- Multifunctionality/furnishing neutrality: changeable without architectural interventions	- Additional floor space - Favourable size and ratio length/width - Sufficient wall length for furnishing purposes - Extra ceiling height - Additional sockets - Moveable attributes
- Flexibility of interior design: changeable by light architectural interventions	- Dismountable attributes -
- Variability of interior design: changeable by a professional	- Provisions for future piping
- Polyvalent space boundaries: changeable without architectural interventions	- Sliding doors, sliding walls, folding walls
- Flexible space boundaries: changeable by light structural interventions	- Movable or demountable inner partitioning
- Variable space boundaries: changeable by professionals	- Removable internal walls
- Layout neutrality: changeable without structural interventions	- Neutral height of the parapet - Wall finishes tailored to multiple functions - Sound insulation matched to multiple functions - Additional pipes and facilities - Zoning
- Layout flexibility: changeable by light structural interventions	- Disconnection of the casco and installations - Dismountable walls, facade, roof - Appropriate size grid (support structure, shell) - Over-dimensioning of the support structure
- Layout variability: changeable by professionals	- Removable walls, facade, roof - Dismountable pipes in easily accessible places - Various wall and façade connection options - No level differences in floors - Recesses in partition walls - Neutral, flexible and/or variable shell - Space or provisions for lift to be installed later

In 2014, the Centre for Process Innovation in Building and Construction (CPI) and the Brink Group developed a new method for measuring the adaptive capacity of buildings (Hermans, Geraedts, van Rijn, & Remøy, 2014). CPI defines adaptive capacity as “the extent to which a building is able to respond to changing use”. This method distinguishes seven categories of adaptability:

1. adaptability of the size and capacity of the building as a whole and of the internal subdivision (splitting, merging or repositioning spaces);
2. adaptability of individual building units;
3. adaptability of on-site facilities;
4. adaptability of the quality and finish of individual units and the building as a whole;
5. expandability of a building;
6. the ability to shrink a building;
7. movability of a building.

To measure these seven forms of adaptive capacity, 147 indicators were developed (R. Geraedts, Olsson, & Hansen, 2017). To make this measurement tool more accessible to practitioners, a shortened version has been developed as well, called Flex 4.0, with 12 general and 32 specific indicators.

6.2 Perception and experience

How people perceive a building, often referred to as 'user experience', is not only determined by its usability but also and in particular by its appearance, use of colour and materials, and physical and psychological comfort.

Architectural quality

A distinction can be made between expert judgements of architectural quality and the professional debate on architecture, and judgements by layman. The latter are less trained in assessing appearance and other architectural qualities. The two assessments each have their own value. Various criteria are mentioned in the literature for performance measurement of architectural quality, for example the ones cited in Van der Voordt and Van Wegen (2005):

Clarity and complexity
The extent to which the composition and spatial-functional structure of the building is coherent, clear and recognisable and yet perceived as engaging. Clarity and comprehensibility require a simple building structure and an appearance that can be quickly understood and recognized. To be captivating, a certain degree of complexity is desirable.

Object and context
Internally, this concerns, for example, zoning from public to private, from collective to individual use. Externally, this concerns, for example, the building's contribution to (and influence by) the characteristics and qualities of its surroundings, through its positioning in the urban planning context.

Use of architectural resources
For example, the way size proportions, material, texture, colour and light have been handled, and their effects on the experience and use of space.

Associative meanings
For example, the extent to which the form is an expression of the spatial-functional structure, expresses something of the functions, or represents the vision and mission of the housed organisation, and the corporate identity.

An interesting way to measure “design quality” is the so-called Design Quality Indicator (Gann, Salter, & Whyte, 2003; Prasad, 2004). In a literature review and field study by Khajehpour and Rasooli (2020), various dimensions and indicators of the quality of public spaces were investigated. In addition to interviews with experts, users of four outdoor spaces (patios) were asked the question: which space do you prefer, and why? Five main performance indicators of design quality were distinguished: functionality, visual and morphological quality, experiential value, social significance and ecological value, each with a number of sub-indicators.

To determine how users experience a building, scale values are also often used, e.g. by asking respondents to grade the extent to which they perceive the building as beautiful, captivating, original, pleasant, cosy, spacious, homely or business like. This method is known as the semantic differential or the Osgood scale, which goes back to the late fifties of the last century and Charles Osgood’s attempts to measure the semantics, or meaning, of words, particularly adjectives, and their referent concept (Snider & Osgood, 1969).

User satisfaction

To measure how end users perceive the building they live or work in, satisfaction surveys are quite common. An example of measuring employee satisfaction is the so-called WODI toolkit (Maarleveld, Volker, & Van der Voordt, 2009). This “work environment diagnostic toolkit” consists of a web-based questionnaire for collecting data on employee satisfaction, a method for measuring occupancy rates (Space Utilisation Monitor or SUM), and a satisfaction index (see also the chapter on benchmark data). A similar tool is the so-called Leesman Index, which is applied in various countries.

Another way to identify the perception of the working environment is the so-called Workplace Game, that has been developed by the Centre for people and Buildings (CfPB) in Delft (Figure 34). This game consists of a number of cards that describe different situations, for example: you are sitting at a silence spot and colleagues disturb the silence: what do you do? The game supports people to become aware of their own and each other's knowledge, attitude and behaviour in relation to (work) environments and dilemmas about office use (De Bruyne, Maarleveld, & Martens, 2008). The game can also be used to gain insight into argued preferences for certain office concepts or to establish jointly supported rules of behaviour.

Figure 34: Workplace game

Hospitality

A particular indicator of perception and experience is the extent to which the user perceives the environment as hospitable. Figure 35 shows a 4P model of factors that influence patients' experience of hospitality in a hospital. Besides the treatment by staff, services and facilities, and the design of business processes, the building also contributes to the perception of hospitality. For example, through the extent to which a building is perceived as welcoming, people-friendly and comfortable, and puts people at ease. Supportive measures include an easily accessible and attractively decorated building in which people can easily find their way, with sufficient space for their own activities, and freedom of choice and personal control regarding furnishing, lighting, indoor climate and contact with the outside.

For measuring hospitality experience, specific measurement scales have been developed with questions about inter alia the experience of feeling welcome, freedom of choice, and whether they matter in the eyes of the organisation (Pijls-Hoekstra, 2020).

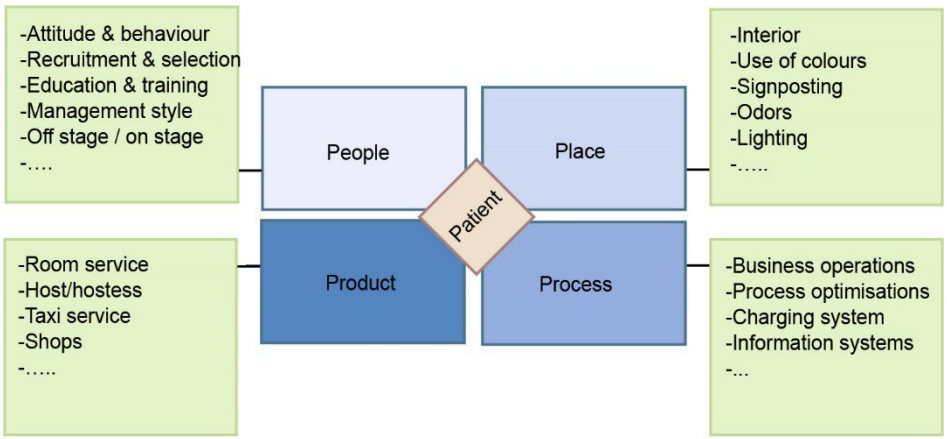

Figure 35: Influencing factors on perception of hospitality Van Alfen (2008) in Prevosth and Van der Voordt (2011).

6.3 Health, wellbeing and happiness

Research by Ulrich (1984) and Ulrich et al. (2008) showed the healing effect of a healing environment in healthcare facilities. A patient room's view of greenery compared to a view of a blind wall led to a somewhat shorter stay in the hospital and reduced medication use. Later, many studies appeared about evidence-based healthcare design. Some conclusions:

- A beautiful room, considered use of colour, good lighting and an attractive indoor climate have a positive impact on vitality and health.
- Careful use of smells and colours can contribute to relaxation.
- Sunlight and flowers have a pain-reducing effect and reduce the need for medication.
- Sunlight, especially morning sunlight, shortens the length of stay of depressed patients.
- A room with a view lowers the risk of delirium after surgery.

This knowledge from healthcare seems also applicable to offices, school buildings and other real estate. Research on healthy buildings has increased significantly in recent decades (Van der Voordt, 2021). Figure 36 visualises the influence of various physical environment characteristics on different aspects of health and well-being, with a focus on mental health.

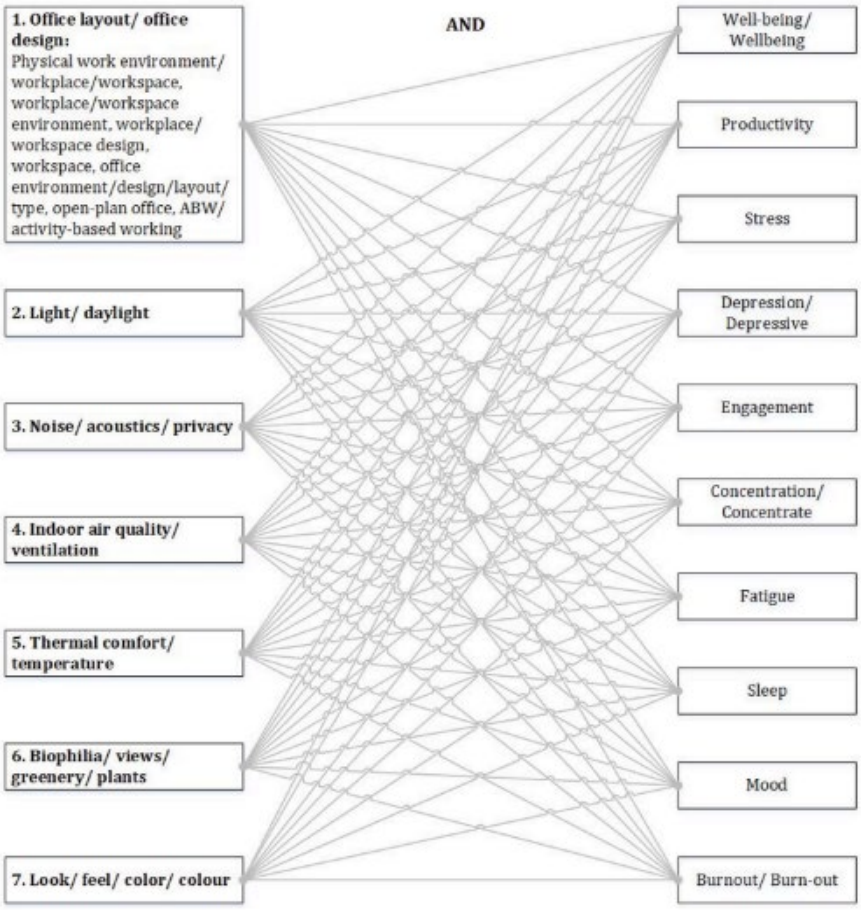

Figure 36: Influence of real estate on health and well-being (Bergefurt, Weijs-Perree, Appel-Meulenbroek, & Arentze, 2022).

WELL Building Standard

A standard for building performance on well-being and health is the WELL Building Standard, abbreviated WELL (International WELL Building Institute, 2016). This standard was developed by the International WELL Building Institute (IWBI) in Washington. WELL is a system for measuring, certifying and monitoring building performance, both functional and technical, that affects health and well-being. Criteria include clean air, clean water, healthy food, adequate lighting and comfort, all factors that affect the body and mind; see Figure 37. More than 100 criteria are included, divided into design features, behaviour and operational activities.

According to the developers, WELL is complementary to the LEED certification system for sustainable buildings developed by the U.S. Green Building Council (see section 5 on sustainability). The cost of implementing WELL is estimated by the International WELL Building Institute to be around 1.7% of construction costs. The benefits are health gains, higher user satisfaction and higher labour productivity.

Application of the WELL standard is now well under way in the Netherlands. The Blaak 16 office building in Rotterdam was the first building in the Netherlands to acquire a Well Gold certificate in January 2019. The 25.803 m² distribution centre of Pantos Logistics in Tilburg achieved the WELL Certificate Gold in May 2019. Edge Olympic in Amsterdam acquired a Well Platinum certificate in April 2019. In 2022 the Planon Innovation Campus received a Platinum WELL certificate as well.

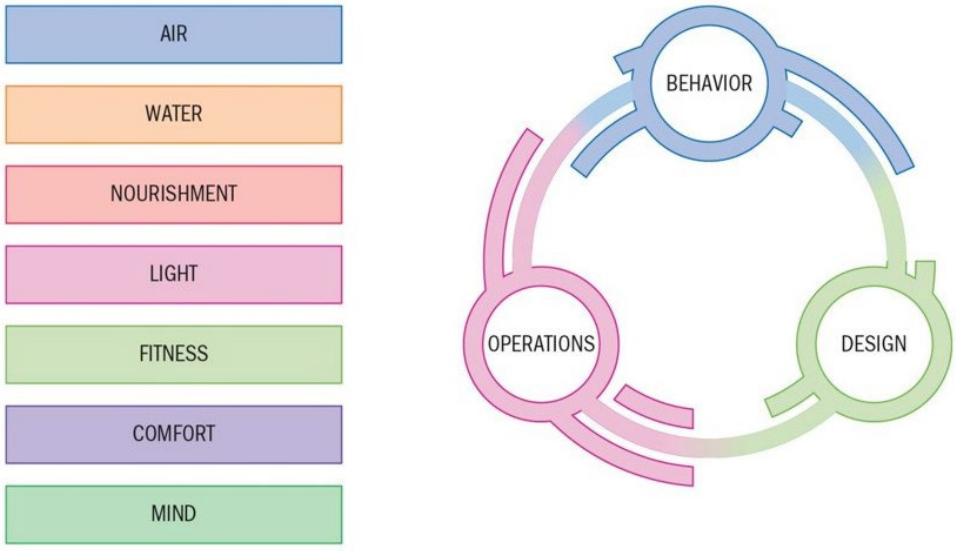

Figure 37: The basic concepts of WELL

Happy Building Index

The Happy Building Index (HBI) is an initiative of the Dutch Happy Building Index Foundation and is supported by the Healthy Buildings Coalition. The index aims to promote sustainable buildings that make users happy and can serve as examples for other buildings. On the Happybuildingindex.nl website, users can rate buildings they work in or visit on several aspects with a rating 1 - 10. The average of the various reviews determines the building's ranking in the Happy Building

Index. The Happy Building Index has a database of over 10,000 buildings and maps buildings with at least energy label C. As an owner, investor, asset manager and/or user, one can add information about these buildings. People can also add new buildings. This gives the Happy Building Index a somewhat Wikipedia-like character.

Once a year, the Happy Building Award is presented to the owner of the building that ranks highest in the Happy Building Index. Dutch buildings that recently highly ranked in the Happy Building Index are for instance Stationsweg 1 in Groningen (score 9.9), IJdok 5 in Amsterdam (9.8) and the Verzamelgebouw Reeuwijk (9.5). It should be noted that the scores are subjective and based on different and often small numbers of respondents. The scores therefore only give an indication.

6.4 Physical comfort

Physical comfort is strongly defined by the quality of the indoor climate (light, noise/acoustics, heat, draughts, moisture), and ergonomics of the interior design. Building on existing standards, several organisations have drawn up their own technical requirements for this. See the example of the Dutch Central Government Real Estate Agency.

Example

Measuring physical comfort by the Central Government Real Estate Agency

The Dutch Central Government Real Estate Agency developed a comprehensive technical programme of requirements regarding air quality, visual comfort, thermal comfort, acoustic comfort and use of low-emission materials. The requirements are elaborated in ventilation requirements per room type, indoor air quality (maximum allowable amount of CO_2 and airborne particulates), reflectance factors of walls, floors and ceiling, amount of daylight, illuminance of artificial lighting, temperature and humidity. The thermal comfort requirements are based on Fanger's comfort theory. The indoor climate rating is expressed as the predicted mean vote (PMV).

The predicted mean vote (PMV) is a computational indicator that represents the statistically expected mean rating of indoor climate. Within the limits of the comfort range ($-0.5 \leq PMV \leq +0.5$), the predicted percentage of dissatisfied users (PPD) is at most 10, which is defined as good. The real estate agency allows 5% undershoot and exceedance of these comfort limits, expressed as a percentage of usage time. NEN 5060, *Hygrothermal properties of buildings - Reference climate data*, is used as a reference.

A comprehensive list of comfort requirements and an integral fire safety plan can also be found in the technical program of requirements (Rijksvastgoedbedrijf, 2017) for the ongoing renovation of the Binnenhof, the Dutch houses of parliament in The Hague.

6.5 Sustainability

Sustainability in a broad sense refers to the 3 P's of People, Planet and Profit or Prosperity. In a narrower sense, sustainable building refers mainly to the P of Planet, i.e. building in such a way that future generations can also make safe and healthy use of the earth.

An interesting model in this context is the so-called LOOFD model from 2010, drawn up as part of the national FM competence model, see Figure 38. People are put at the centre. The model underlines to sustainably align real estate, facilities and services with user needs and activities.

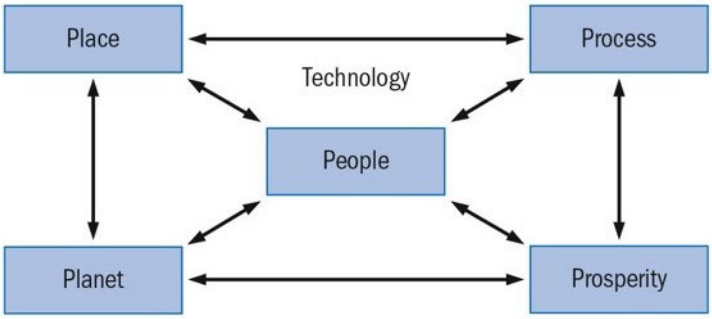

Figure 38: The six-P LOOFD model (LOOFD, 2010)

The top two blocks and the block in the middle represent the alignment between real estate ('place') with user needs ('people') and activities ('process'). These are the same three elements as in the 3P model of people-process-place that was introduced in the 1990s by the internationally renowned design and consultancy firm DEGW. The technology component represents the increased importance of ICT and other technology. The two blocks at the bottom and the block in the middle represent the triple P i.e. facilitating people ('people') and their activities while paying attention to our environment ('planet') and considering our well-being and prosperity ('prosperity'). 'Planet' refers to the importance of dealing carefully with scarce resources and climate change and ensuring a clean and safe environment, for the current generation and future generations. The term 'prosperity' represents that sustainability measures must be affordable and economically profitable ('profit').

Buildings are responsible for about 40% of the energy consumption and 36% of all CO_2 emissions in the European Union. High energy performance of buildings is key to the EU's climate and energy targets. Improving the energy performance of buildings is an important factor in the fight against climate change and to ensure energy security. Another important aspect of sustainability is circular building i.e., building in such a way that building materials and building components are not considered waste, but as raw materials for new building processes. One of the key statements in the cradle-to cradle concept of McDonough and Braungart (2002) is 'waste is food'.

Over the years, many international climate conferences have taken place under the banner of the United Nations to reach agreements on reducing global warming and fossil fuel use. A first attempt in Noordwijk (1989) was followed by

conferences in inter alia Rio de Janeiro (1992), Berlin (1995), Kyoto (1997), Copenhagen (2009), Paris (2015) and Madrid (2020). The Glasgow climate conference (2021) is already number 26 under the climate treaty of 1992. The most recent one is hold in Dubai in November-December 2023 (unfccc.int). In Paris, it was agreed that global warming should not exceed 1.5 to 2 degrees Celsius by 2100. The climate agreement in the Netherlands has set a target for the Netherlands to reduce CO_2 emissions 49% below 1990 levels by 2030. The Climate Act demands 95% less CO_2 emissions by 2050. Although much is already happening, accelerating policy measures is needed both nationally and internationally to meet all targets and to help poorer countries to better adapt to climate change. The European Union also introduced a Corporate Sustainability Reporting Directive (CSRD), with regulations about reporting ones current sustainability policy and related data (subplatform.nl).

Example

High sustainability ambitions of CBRE

CBRE, a global adviser and manager of commercial real estate, aims to be completely CO_2-neutral by 2040. Not only in terms of CO_2 emissions from its own operations, but also from the properties it manages for investors and tenants, and indirect emissions from the supply chain.

- As part of its strategy to be CO_2-neutral by 2040, CBRE has signed the Climate Pledge. This is an alliance of companies and organisations committed to being carbon neutral by 2040. By signing the Climate Pledge, CBRE intends to become net zero carbon ten years earlier than the target in the Paris climate agreement. This is an important step to make CBRE's ambitions and responsibility measurable.
- In the Netherlands, CBRE has started the 'Real Impact Project'. In this, an advance is being made to operationalise its sustainability ambitions into actual actions with and for clients.
- CBRE also recently signed the Business Ambition for 1.5°C commitment, a campaign led by the Science Based Targets initiative (SBTi) in collaboration with UN Global Compact and the We Mean Business coalition.
- In 2021, CBRE published its 2020 Corporate Responsibility Report, which highlights the company's environmental, social and governance (ESG) performance as a leader in the commercial real estate sector. The report can be found at www.cbre.com/responsibility. A similar report has been published in 2022.

Source: NEVAP newsletter, 20 October 2021 (www.nevap.nl)

Sustainable Development Goals of the United Nations

Companies and educational institutions are currently increasingly committing to the Sustainable Development Goals (SDGs) of the United Nations (United Nations, 2020b), which have been mentioned earlier in this textbook. The SDG’s go beyond energy efficiency and reducing CO2 emissions and call attention to 17 goals, including sustainability of buildings and cities, reducing poverty and hunger, and promoting health and well-being. Appropriate real estate can contribute substantially to several sustainability goals, by promoting health and well-being, responsible production and consumption, and (international) cooperation.

Illustrative for the growing awareness of the need for sustainability is the importance given to sustainability when organisations are faced with the choice of

staying in a current building or moving to another building, existing or new. Research on push factors (drivers to leave the premises) and pull factors (factors that make another premises more attractive) in relocation movements of large organisations shows that sustainability is significantly higher on the priority list than in the past.

Energy labels and sustainability certificates

Various labels and certificates depict the sustainability performance of buildings, focusing on energy performance:

1. *Energy performance coefficient* (EPC)
   Until 31 December 2020, the Dutch National Building Code referred to the energy performance coefficient according to NEN 7120: Energy performance of buildings - Determination method. Calculating the EPC was mandatory for every building application since 1995. A low figure indicates an energy-efficient building.

2. *NTA 8800*
   A new determination method for the energy performance of buildings came into use on 1 January 2021. NTA stands for Nederlands Technische Afspraak (Dutch Technical Agreement). The methodology applies to both new and existing buildings, residential and non-residential. For an overview of the different types of agreements and the difference between a norm (NEN) and an agreement (NTA) see nen.nl/en/verschillende-typen-afspraken.

3. *Energy label*
   This label, mandatory in The Netherlands since 1 January 2008, provides insight into the energy efficiency of a building and possible improvement measures that contribute to energy efficiency and comfort. Since 1 January 2021, the energy label is also determined by using NTA 8800. The energy label is based on the primary fossil energy consumption in kWh per m^2 per year for heating, cooling, hot tap water and ventilation. For utility buildings, primary energy use for lighting and for humidification (if any) also counts. The label has seven categories, from A (dark green: very good) to G (red: very poor). An awarded label remains valid for 10 years. Offices must have at least energy label C by 1 January 2023, otherwise they may no longer be used.

4. *BENG*
   Permit applications for all new construction in The Netherlands, both residential and non-residential, must comply with the requirements for nearly zero-energy buildings (BENG) since 1 January 2021. The requirements set a maximum value for energy demand and primary fossil energy use and a minimum value for the share of renewable energy. These three requirements are determined by using NTA 8800. BENG stems from the Energy Agreement for Sustainable Growth and the European Energy Performance of Buildings Directive (EPBD). For an introductory video, see www.rvo.nl/BENG.

5. *BREEAM*
   BREEAM stands for Building Research Establishment Environmental Assessment Method. BREEAM-NL is the Dutch version. BREEAM allows a

building to be assessed on nine themes: management, health, energy, water, materials, waste, pollution, transport, and ecology and land use. The tool awards points for meeting certain sustainable applications, for example on the energy theme. Based on a weigh for each theme, an overall score is calculated. There are five grades: pass, good, very good, excellent and outstanding, awarded one to five stars. BREEAM-NL Existing Buildings and Uses applies a scale of six stars for very old buildings (monuments). For pass (two stars here), the rating 'acceptable' has been added. By providing evidence to the Dutch Green Building Council (DGBC), which launched the tool, a label can be awarded (Breeam.nl).

6. *LEED*
   LEED stands for Leadership in Energy and Environmental Design. This label has existed since 1998 and was developed by the United States Green Building Council (USGBC). Like BREEAM, this certificate awards points to features identified as 'green'. LEED explicitly assumes US regulations and US references and is applied worldwide. Depending on the point score, the ratings are Certified, Silver, Gold and Platinum.

7. *GreenCalc+*
   The GreenCalc+ method has been developed in the Netherlands and expresses a building's environmental impact in a building environmental index (MIG: Milieu-Index Gebouw). The method measures three themes: energy, water and material use (GreenCalc.com). The MIG is calculated on the basis of a comprehensive life-cycle analysis, independent of the behaviour of users. This makes it possible to compare buildings with the same function. The score is determined by comparing the current sustainability of a reference building from 1990. GreenCalc+ has been integrated into BREEAM-NL.

8. *GPR Gebouw*
   GPR Gebouw was developed by the municipality of Tilburg as a municipal practice guideline for sustainable building. GPR is the abbreviation of Gemeentelijke Praktijk Richtlijn (Municipality Practice Directive). It is a digital tool to map the sustainability of a building by means of report grades for the themes energy, environment, health, usage quality and future value. The aim is to make sustainable building measurable and discussable. A building that scores a 6 meets the Dutch National Building Code; a 10 represents the maximum achievable sustainability degree of a building. It is suitable for both new and existing buildings (gprgebouw.nl).

9. *Cradle-to-cradle*
   Cradle-to-cradle (C2C) is a philosophy rather than a labelling method and advocates 'good' action towards sustainability, mainly through circularity. Buildings that comply with the principles can obtain a cradle-to-cradle certificate.

For a further elaboration of various measurement methods and calculation tools, we refer inter alia to the *Guideline on measuring CO_2 emissions, raw material consumption and circularity in building materials* (PIANOo Expertisecentrum

Aanbesteden, 2021). The following examples show an application of BREEAM and tools to support sustainable building.

Example

Jakoba Mulderhuis, University of Applied Sciences of Amsterdam

The Jakoba Mulder House is part of the Amstel Campus, where about 30.000 students study and meet. The building comprises about 25.000 m^2 gross floor area and is used by the faculties of Technology, Education and Education and Digital Media and Creative Industry of the University of Applied Sciences of Amsterdam. The building holds BREEAM Excellent and meets the Programme of Requirements of Fresh Schools. Green technologies such as clean air ventilation, a seasonal thermal energy storage system, climate ceilings, and intelligent LED lighting have been applied to achieve the sustainability ambitions. All materials in the building have been selected for its low environmental impact; 25% of the building materials consist of recycled materials. LED lighting, sustainable drinking water and water-saving toilets are used. Large attention has been paid to clean air, thermal comfort and noise prevention for the surrounding area. The low-rise buildings have green sedum roofs. Bird houses for swallows have also been installed.

Source: visserensmitbouw.nl/nl/projecten/detail/amsterdam-conradhuis

Example

Sustainability Measurement Guide

In 2014, the Sustainable Housing Platform, Property Management Netherlands and Jones Lang LaSalle launched the Greenlease Menu Card. This is an online tool to encourage owners and tenants to include sustainability targets in lease provisions. The Greenlease Menu Card is a logical follow-up to an earlier developed Green Lease Guideline. It should be avoided that the developer or owner of a building invests in energy-saving measures and only the tenant benefits from the returns through a lower energy bill. It is therefore important that both parties agree on their sustainability ambitions and how the costs, benefits and risks are shared when making a building more sustainable, the so-called split-incentive.

The guide provides great examples of sustainable leases. By distinguishing different forms of Green Lease, with different levels of sustainability ambition, it is possible to match the specific situation: renovation or new construction, single tenant (one organisation) or multi-tenant (several different organisations), existing tenants and/or new tenants. Several other tools have since been developed, such as the Sustainability Measurement Guide for real estate. Based on a questionnaire, this allows organisations to gain insight into which instrument is most suitable for arriving at a sustainability rating. Currently, the following instruments are represented in the Choice Guide: BREEAM-NL New Build, BREEAM-NL Existing Buildings and Use, GPR-Gebouw, Greencalc+ and the Energy Label.

Source: platformduurzamehuisvesting.nl

6.6 Technical condition

Buildings-in-use need to be appropriately maintained in order to keep their technical condition at the required level. The technical quality of a building deteriorates, due to external influences such as weather and wind, aging of materials, wear and tear of furnishings, stairs, elevators, and built-in attributes. Besides, changing regulations may result in a misfit between the current technical

condition and the required technical condition. Maintenance is needed to keep the technical performance at the required level, on a strategic, tactical and operational level. What interventions are most appropriate depend on what the owner intends to do with the building and whether he wants to be an innovator or a laggard in the ongoing conversion towards a sustainable building stock. For example, when an organization decides to dispose of a building or to move to a new building, the maintenance strategy will usually shift from planned maintenance to corrective maintenance. The choice of a particular maintenance strategy also depends on the purpose of maintenance: maintain in good condition i.e., to keep the building, installations and fixtures at the required level of quality and use, or to use a maintenance project to improve technical performance. The maintenance strategy is also influenced by the stage in the life cycle of the building and its equipment. The closer a building or part of a building approaches the end of its life cycle, the more maintenance based on complaints and failure reports is switched to limited necessary maintenance before the building is demolished or substantially renovated.

Steps in measuring technical condition

The development of a multi-year maintenance plan and its implementation requires expert knowledge about maintenance frequencies and service life of components, prices of materials, and maintenance, standards. Important steps include:

1. Inventory of the maintenance-sensitive elements. For a classification and coding of these elements the NL-SfB coding can be used. This is the Dutch variant of the Swedish classification and coding system SfB (named after the so-called Samarbestkommitte for Byggnadsfragor, the 'cooperation committee for construction issues'), which is used worldwide in construction.
2. Inspection of each component to determine its maintenance state or condition and to indicate what should be done and when. The Dutch standard *NEN 2767 Condition Measurement of Buildings and Building Installations* provides a clear guide to determine condition scores, see Table 20.
3. Prioritisation of the maintenance measures, and in what order the maintenance measures should be carried out. The maintenance strategy is an important starting point here
4. Planning of maintenance actions and the cost of maintenance for the coming years.

Table 20: Condition scores according to NEN 2767 (2019)

Score	Definition	Description
1	Excellent	New construction quality based on sound design, execution and choice of materials. Very incidentally, a defect may occur as a result of a calamity (e.g., vandalism), but not due to obsolescence.
2	Good	Influences from use, weather and wind manifest themselves to a slight degree. The building component or element has "caught up," the "newness" is clearly gone. Functional performance is guaranteed.
3	Fair	Influences from use, weather and wind manifest themselves in the first real defects such as wood rot, corrosion and the like. The aging process is clearly underway almost across the board. Incidental malfunction may occur.
4	Moderate	The aging process has clearly taken hold of the building component or element. The best time has passed, the end is approaching. Failures in functional performance occur locally and/or have occurred several times.
5	Bad	The aging process has become more or less irreversible. Serious defects occur regularly. The functional performance of the total is no longer guaranteed. In fact, the end has been reached.
6	Very bad	The aging process has progressed to the point where there is continuous failure in the functional performance of the building component or building element.

6.7 Financial performance

Financial performance refers to the monetary costs and revenues of a building and its value development. Important indicators of financial performance are investment costs (construction costs and ancillary costs) and operating costs (total, per square meters of gross and net floor area, per employee, per workplace). Revenues consist of income from rental, lease or sale. The value of a building can be expressed in various ways. These can be grouped in replacement values, accounting values, rental values, and transaction values. Determining the value of a building requires specific expertise and is often carried out by professional appraisers (Van Arnhem, Berkhout, & Have, 2013, 2015). Internationally, practitioners comply to the Global Standards of the Royal Institute of Chartered Surveyors (Royal Institute of Chartered Surveyors, 2022).

Replacement values

- Reconstruction value: the amount required to rebuild the property in the same place, in the same condition and using the same technology, excluding land costs
- Replacement value or functional replacement value: the amount that, at current prices, is required to replace a building with a building with a similar business function i.e. replacement by a building with the same functionality but using new techniques.
- New value: the amount required to obtain a new building of the same type and quality.

- Demolition value: proceeds from still usable and valuable parts of the building less the cost of having them demolished, removed, disposed of and dumped.

Accounting values

- Book value: the value at which assets and liabilities are listed on the balance sheet. In the case of real estate, the book value can differ substantially from the market value, for example if a building is almost written off or yields relatively little due to vacancy.
- WOZ value: in the Netherlands, this is the assessed value under the Property Valuation Act (Wet Waardering Onroerende Zaken); this value is issued every year by the municipality in which the property is located, based on the latest available valuation.
- Historical value: measurement based on the historical cost, original acquisition or manufacturing cost.

Rental values

- Gross market rental value: the rental value where for all plots of the property in question the annualised market rent has been retained as at the valuation date, assuming optimal marketing, a willing market and the possibility of letting to the highest-bidding candidate.
- Investment value: the present value of all scenario-based estimated future cash flows over the (assumed) remaining operating period.

Transaction values

- Market value: the amount that a building is estimated to fetch, whereby the buyer accepts the property in fulfilment of the current (rental) obligations, with all associated rights and obligations.
- Fair value (fair value): the amount for which a building can be traded between knowledgeable, willing independent parties.
- Sales value: the amount that could be obtained if the building – excluding the land – were sold in the ordinary course of business and assuming the same purpose.
- Net realisable value: the amount that sale of a building will generate minus the costs to be incurred for this purpose.
- Execution value: value at forced sale.

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7 Input to building performance improvement

Theo van der Voordt

Contents

The former chapter discussed how seven dimensions of building performance can be measured by making a distinction in a series of building performance indicators. The current chapter discusses what can be done with the measurement results.

An important step in building performance measurement is to compare actual values with target values. These targets can be derived from (1) building codes, common standards and norms, (2) reference outcomes set by stakeholders such as clients, end users and society, and (3) benchmarking against perceived best-in-class references for the case at hand (internal and external). Standard measurement methods are a powerful tool to enable benchmarking.

From this comparison it can be concluded whether the current property is performing well (performance close to 1), overperforming (performance > 1) or underperforming (performance < 1). Overperformance is usually seen as a waste of resources, and underperformance as an obstacle, both of which require further action. This is where real estate management comes in.

This chapter presents various examples of gaps between delivered building characteristics and required building performance, on its own and in comparison with benchmark data. The gaps between provided and desired performance can be used to assess which interventions are needed to improve the building performance till its desired level. What interventions are needed depends also on to what extent improved building performance adds value to the organisation, end users and society. The chapter ends with an example of a SWOT analysis, a

tool to identify strengths and weaknesses of current real estate (internal analysis) and opportunities and threats (external analysis), now and in the future.

7.1 Performance measurement in action

The objective of real estate management is to ensure that the property portfolio meets the (changing) needs of the end users, society and other stakeholders, which is an ongoing process. The steps in this process are explained below in the traditional order, from demand to supply. In practice, any step can be the starting point of the management process.

Identifying organisational objectives
This step – traditionally considered the first step in a real estate portfolio management process – consist of identifying the organisational objectives and core values, and user needs. This can be done by applying the 7S model of McKinsey, the balanced scorecard of Kaplan & Norton, the EFQM model of the European Foundation for Excellence, Treacy and Wiersema's value propositions, a customer journey assessment with different personas, and an analysis of ergonomic and psychological needs (see for instance chapter 5 in Hoendervanger et al. (2022)).

Identifying real estate objectives
The organisation objectives are translated into real estate ambitions and real estate targets.

Organising real estate performance measurement
To identify the ‘ist’ position, management will execute a performance measurement of the current situation. This assessment compares the current values with the target values for a series of indicators, which identifies the matches and mismatches ('gap') between supply and demand. To this end, supply and demand should be expressed in the same metrics, e.g. square metres of lettable floor area.

Developing a course for action
The current mismatches, together with the future organisational goals, ask for corrective action. The result is a strategic corporate real estate and plan – the ‘soll’ position – that determines what interventions at project level are necessary or desirable, when these will be executed, what the priorities are. The intended interventions are first tested for feasibility with the business.

Execution and feedback
The implementation of the interventions is done project-based, by drawing up programmes of requirements, plans for mutating and operating, or a combination of these. The portfolio adaptations are monitored, periodically evaluated and adjusted to assure the intended performance is achieved.

Operating the portfolio
The adjusted portfolio is then operated, revealing new underperformance or overperformance, whether due to changing objectives of the end user or other stakeholders, wear and tear of the building or external conditions. If the

underperformance is considered to be too great, management will repeat the steps.

7.2 Fits, mismatches and interventions - an example

Table 21 shows an example of a performance measurement using the performance measurement dimensions and indicators from the previous chapter. The (mis)matches can trigger interventions, some examples of which are shown in the right-hand column.

Table 21: Examples of fits and misfits between required and provided characteristics

Subject	Required	Provided	Possible interventions
Functionality			
Space requirement	Total: 20,000 m^2 gross floor space Per workplace: 16 m /fte^2	Total: 30,000 m^2 gross floor space Per workplace: 25m /fte^2	Number of m^2 disposal or to let
Accessibility	Distance to train station max. 800 m	Train station 2 km away	Adjusting ambitions, staff cycling plan, moving
Accessed	Integral accessibility, including people with physical or cognitive disabilities	Entrance only accessible via a 1.5 m high staircase	Make entrance from ground level accessible with a ramp or lift
Flexibility	Flexible rental contract	Continuous lease	Partial redemption of rental contact
Experience			
Appearance	Modern, atmospheric	Dated	Facelift, new look-and-feel
Welcoming building	Welcoming entrance	Dark hall, unattractive reception area	Modernising entrance area
Health			
Healthy workplaces	'Green' environment	Limited green	Greening work environment
Sufficient rest and opportunities to relax	Space for meditation and retreat	All spaces equipped for work	Converting some workstations into rest areas
Physical comfort			
Light	Very light and spacious, façade ≥ 50% glass	Facade 30% glass	Adjust ambitions or add additional facade openings
Ventilation	Ventilation ≥ 1.4 m^3 /h per m^2	Ventilation 1.2 m^3 /h per m^2	Adjust requirements or improve climate system
Sustainability			
Energy performance	Label B	Label D	Improving building insulation and applying LED lighting
Materials	Sustainable material application	Asbestos present	Asbestos remediation
Technical condition			
(not mentioned)			

Financial performance			
Rental costs	Local benchmark (€160/m)^2	185 €/m^2	Accept expensive rent because of high quality, break open lease, move out
Investment costs new building	Budget 100 million	Cost of new building 120 million	Adjust programme of requirements (less m^2 , adjust quality ambitions), find other location, seek additional funding

7.3 Benchmarking

When data on building performance are compared with the performance of a series of selected other buildings, which are considered good practices, the figures become more meaningful as well. The comparison shows whether one's own real estate is performing better or worse or on average level.

This comparison can be done in two ways:

- Internal benchmarking: comparison of the measured values of the assessed building with those of the buildings within one's own portfolio; and
- External benchmarking: comparison of the measured values of the assessed building with those of the buildings of competitors or a relevant part of the real estate market.

Benchmarking is a continuous process and an important basis for a continuous improvement programme. Collecting and analysing data costs time and money. Therefore, also in benchmarking, it is wise to make a selection of KPIs that are important for decision-making, depending on the organisational strategy and the related real estate objectives. Furthermore, it is wise to work from broad to fine, first identifying the best and worst-performing buildings based on a limited number of parameters, and then setting up an improvement programme based on a more detailed analysis.

In practice, different frames of reference are used for a benchmark:

- best practice: comparison with the best-performing property portfolio or building, on a specific theme or for the total;
- best in class: comparison with the best-performing building within a sub-area, for example in the office building category, or within a given region;
- competitive benchmarking: comparison with the performance of the property portfolio of major competitors.

Besides on the characteristics of the product (property portfolio, individual buildings, (work)places), benchmarking can also focus on the characteristics of the management processes, at strategic, tactical and operational levels. For example, how the property is managed and improvements are implemented and how their effects on profitability, efficiency, innovativeness and customer satisfaction are measured and monitored.

Benchmarking often focuses on hard factors such as the number of square metres of lettable floor area or net or gross floor area per employee or per FTE, costs of real estate per square metre, rental income or energy consumption. Benchmarking on more soft values, such as customer satisfaction and employee satisfaction, is also valuable as an input for measures to attract and retain employees and customers, or to increase productivity. Benchmarks can also relate to ratios, e.g. cost-quality, functional, aesthetic or technical. The chapter on benchmarking in the Capita Selecta presents a number of different types of benchmarks.

7.4 Measuring the added value of improved real state performance

An earlier chapter showed that buildings can add value to organisations, end-users and society by contributing to organisational goals and objectives, end-user needs, and societal requirements. Table 22 shows the 12 value parameters introduced earlier, with ways of measuring the value added by building interventions. The descriptions have been slightly adapted to include both commercial and residential buildings.

Table 22: Twelve value parameters and ways to measure the added value (source: Jensen and Van der Voordt (2017))

Value	Tools to measure real estate impact	Key Performance Indicators
Employee satisfaction	User surveys Observations Interviews Walk-throughs Narratives	End user or tenant satisfaction with: Work and residential places Collaborative space / common areas Indoor environment ICT and other equipment Facilities and amenities
Image	Stakeholder surveys Group discussions Analyses of historical sources Analysis of social media and other ways of communication	Perceptions of: Corporate and housing identity Support of corporate and tenants values Corporate brand Media exposure Shares and likes on social media
Culture	User surveys Observations Interviews Workshops	Perceptions of: Corporate and local culture Support of culture by real estate, facilities, and services
Health & Safety	Capture and react on complaint. Health & Safety assessment	Sick leave Number of accidents Absence due to accidents Number of complaints about H&S % (dis)satisfied users in surveys
Productivity	Observations Monitoring of computer activity Counting of output Measuring time spent or saved User surveys	Output per employee Quality of output. Perceived support of individual and team or group productivity
Adaptability	Building performance assessment, i.e. using Flex 2.0 or Flex 2.0 Light Observation of adaptations of the building-in-use	Weighted assessment values: scores on scales of Flex 2.0 or Flex 2.0 Light

Value	Tools to measure real estate impact	Key Performance Indicators
Innovation and creativity	Spatial network analysis Social network analysis Employee surveys Logbooks on knowledge sharing activities	Level of enclosure/openness. Average walking distance Level of personal control with indoor climate Diversity of available workspaces and meeting places Perceived quality of visual clues
Risk control and reduction	Measuring time of business interruptions Measuring risk expenses for insurance, damage prevention Actual damage	Uptime of critical activities Total risk expenses Total insurance expenses Total damage prevention expenses. Total actual damage expenses
Cost reduction	Accounting according to an appropriate cost structure Measuring space, number of workstations and f.t.e.	Cost/m^2 (or per workstation or f.t.e): Real estate and facilities, total Space & Infrastructure People & Organisation Space (Work)place
Increased value of assets	Estimated annual potential gross income and annual operational expenses Market valuation Estimated cost of new development	Capitalization Rent level Market value Cost of new development
Sustain-ability	Identification of critical success factors Survey Multi-criteria assessment Continuous review process.	Consumption of primary energy and water $C0_2$ emissions Material use, recycling and waste Life cycle cost Access to transport
Corporate social responsibility	Depends on corporate CSR policy and target	People: Diversity of staff or tenants Community satisfaction Planet: Utilization of space Use of resources Profit: Total occupancy cost

7.5 SWOT analysis

Performance measurement can be used as input for a SWOT analysis to identify the strengths and weaknesses of the current real estate, as well as its opportunities and threats. This is important input for an assessment of required interventions. What interventions are possible depends on current building characteristics and boundary conditions such as money, time, laws and regulations.

Table 23 shows a SWOT analysis of university property in the Netherlands. The themes assessed are partly related to this type of organisation and partly related to real estate. In this example, neither the perspective from which this SWOT analysis is made nor the real estate objectives are made explicit, which is not uncommon when using the SWOT technique (see Table 23 below). For a more extended discussion of its background we refer to Den Heijer (2011).

Table 23: SWOT analysis of Dutch universities' real estate (Source: adapted from Den Heijer (2011), updated by Hoendervanger et al. (2022))

Strengths	**Weaknesses**
- Owned land in urban areas - Location near economic centres - Buildings with a particular identity, often cultural heritage - Space can be flexibly used for different functions - Appropriate facilities for teachers and students	- Outdated buildings from the sixties and seventies, - High maintenance costs - Low occupancy rates of various spaces - High energy costs, large ecological footprint - Limited synergy between university and city with respect to shared spaces and facilities - Non-aligned planning processes
Opportunities	**Risks**
- Intensification of use of space - Marketing and branding by real estate, as a sustainable campus - Adaptability by exchangeability of staff space and student space - Horizontal circular space supports social interaction - Extension of opening hours result in lower peak occupancy rates and lower demand for additional space - Adding value by involvement of more stakeholders - International collaboration in the war for talent and attracting students from abroad - Development of a “university” to create better connections with the city	- Outdated building requite high investments - Insufficient financial resources - Difficulties in determining the value of assets - Complex curriculum and inflexible staff result is high fluctuations in need for space - Competitive advantage of the city due to its large amount of attractive facilities and amenities - Difficult forecasting of student numbers - Increased competition between universities due to globalisation - Uncertain public and private funding - High quality and sustainability demands require high investments

Any SWOT analysis is a snapshot in time. Internal and external developments can further weaken weaknesses, but also make them less important. The same applies to strengths, opportunities and threats. It is therefore prudent for an organisation to periodically conduct a SWOT analysis of its property portfolio.

Important considerations for a SWOT analysis are the choice of aspects to include and the risk of subjectivity in filling in the four quadrants due to lack of knowledge, insufficient or incorrect information or self-interest. What is a strength for one person may be a weakness for another from a different perspective. What is now a weakness may become a strength under different circumstances. The weight given to different aspects may also vary greatly between those carrying out the SWOT analysis. Having several people carry out a SWOT analysis and discussing the results together will give a more complete and reliable picture.

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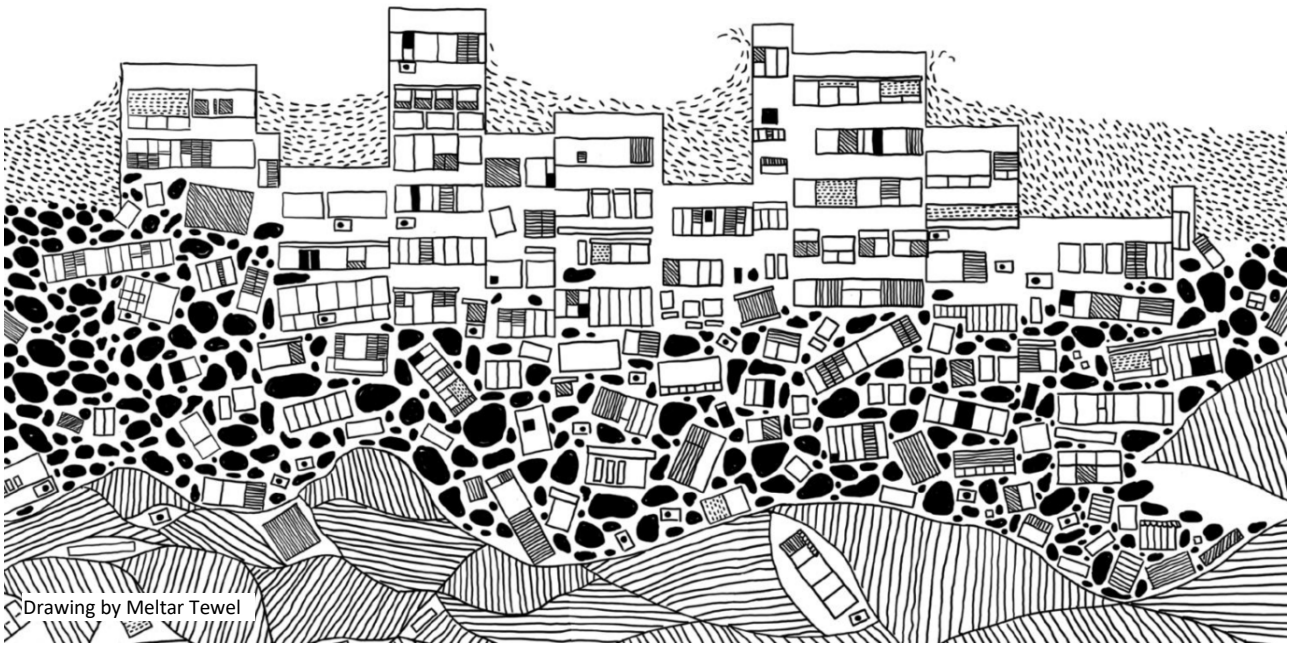
PART 3
CAPITA SELECTA

8. Financial performance of housing associations – *Gerard van Bortel*
9. Insecure tenure: the precarisation of rental housing in the Netherlands – *Carla Huisman*
10. Social performance of housing associations – *Gerard van Bortel*
11. Benchmark data – *Theo van der Voordt*



Drawing by Meltar Tewel

8 Financial performance of housing associations in the Netherlands[1]

Gerard van Bortel

Contents

The core mission of social housing providers is to deliver sufficient, affordable, sustainable and decent-quality homes. Social housing providers' main goal is to deliver these services efficiently and effectively. Social landlords differ from 'regular' for-profit enterprises because their emphasis lies on the fulfilment of social objectives instead of financial return (Gruis, De Kam, & Deuten, 2008). However, these providers also need to safeguard their long-term viability, making their financial performance important as well.

Dutch housing associations do not receive specific government subsidies for building and managing their social rental properties. Therefore, it is important that these providers carefully balance costs and revenues over the long term and leave sufficient financial room for new investments. This balancing act is often referred to as the 'revolving fund' principle.

Dutch housing associations do not have shareholders. Their only sources of income are rent and the proceeds from the sale of their housing properties. For new investments, housing associations mainly rely on bank loans. The value of their housing equity and the ability to pay interest on acquired loans are the main indicators that influence their investment capacity.

This chapter is divided into three sections. In the first section, we discuss various value concepts relevant to social housing providers. In the second section, we

[1] This contribution contains an edited and updated selection of paragraphs, focusing on the financial performance of housing associations, taken from the book chapter authored by Gruis, De Kam & Deuten (2008) 'Assessing the social and economic performance of housing associations', in M. Koopman, H. van Mossel, & A. Straub (Eds.), Performance measurement in the Dutch social rented sector. Amsterdam: IOS Press, pp. 15-35.

explore financial indicators that can be used to measure performance at the level of housing estates and on company level. The Dutch government wants housing associations to maximize their social housing investments, without endangering their financial health. The third section therefore discusses performance indicators that provide insight into the (unused) investment capacity of housing associations.

8.1 Value as an indicator of financial performance

Real estate, including housing, is a capital-intensive asset. It requires high initial investments but will (ideally) generate sufficient rental income, and asset value increase that can be monetised by selling the property or used as collateral for new loans. Table 24 presents several real estate value concepts. We have included both the English and Dutch terminology to maintain alignment with the Dutch context. All value concepts are relevant to Dutch social housing providers.

Table 24: Various value concepts

Value concept	*Dutch translation*
Total cost (Land and Construction costs, including additional costs such as advisory costs and taxes)	*Stichtingskosten*
Freehold market value when a property is sold	*Marktwaarde vrije verkoop*
Market value in rented condition	*Marktwaarde in verhuurde staat*
Policy Value [the value incorporating the value impact of social rental policies, for example charging rents below market value]	*Beleidswaarde*

Some value concepts presented in Table 24 are interrelated, such as policy value and market value in rented condition. The difference between both values is the result of the social mission of a social landlord, i.e. keeping a sufficient social housing stock and not selling properties to generate profit; charging affordable rents and not maximizing rents where possible; providing decent quality homes and housing services tailored to support the often vulnerable target group of social landlords (see Figure 39 below). These value concepts and their application in the Dutch social housing sector are discussed more in-depth later in this contribution.

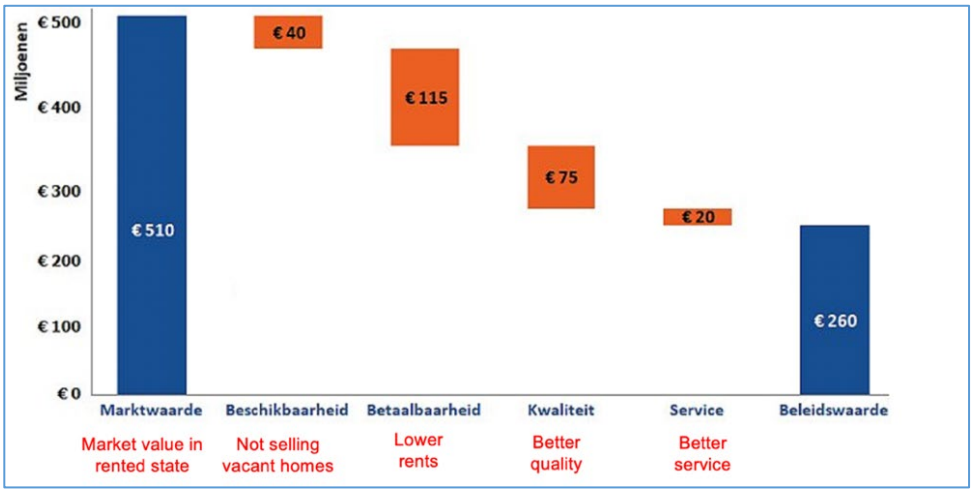


Figure 39: The interrelation between market value and policy value

8.2 Financial performance indicators

The financial return on social rented dwellings can be expressed in the same indicators as those used in the private sector (Gruis et al., 2008). Over the course of time, different measures of financial return have been developed. Commonly used indicators include (Rust, Seyffert, Den Heijer, & Soeter, 1995):

- the **gross or net return from income**: the income realized over a certain period (usually one year) divided by the capital value at the beginning of that period. (Gross or Net Return);
- the **capital return**: the growth in capital value which has been realized 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 **Net Present Value (NPV):** the discounted or present value of the expected net future income;
- the **Internal Rate of Return (IRR):** the 'average' financial return realized over the entire exploitation period of a dwelling. The IRR is the discount rate that makes the net present value (NPV) of all cash flows equal to zero in a discounted cash flow analysis. IRR calculations rely on the same formula as NPV does.

Net Present Value (NPV) and Internal Rate of Return (IRR)

Income, capital value and the total return on investments are all used to express the financial performance of a housing asset. All three elements can be subject to significant periodic fluctuations, for example, due to a concentration of maintenance expenditure, or a stagnation in the capital value development of an estate because of market circumstances.

In operating their dwellings, social landlords usually adopt a long-term perspective. Consequently, much more relevant for social landlords is the

financial performance measured over the entire exploitation period of a housing estate. Thus, for social landlords, the most interesting indicators of financial performance for their asset management are the IRR and the NPV. Calculating the IRR is problematic for dwellings that have already been brought into use (Van Der Flier & Gruis, 2002). Therefore, 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 (Gruis, 2000, 2002). Furthermore, social landlords can use the NPV to benchmark their financial performance (if 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.

Market value

In general, housing associations undertake their management and investment activities to improve or maintain the quality of housing and neighbourhoods. Consequently, many housing associations have become aware that, for their actions to be effective, they must be appreciated by the 'market', and thus the impact of their management interventions must be reflected in the market value of their asset.

Two market value indicators are used by housing associations: value in rented state (so including an active lease), and free hold value when the property is sold empty on the open market.

The market value is often (much) higher than the NPV which is usually calculated under the assumption that the social rent for housing estates will continue (see Figure 39). The difference between the NPV based on current policy and the market value is a measure of the economic opportunity costs of current policy (Gruis, 2002) and can be seen as an implicit subsidy of the tenants of social rented dwellings.

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 in a more efficient way. Thus, the difference between the policy value 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 (Gruis, 2002; Van Der Flier & Gruis, 2002) and as part of benchmarking.

8.3 Assessing financial capabilities

Dutch Social Housing guarantee system

To understand the relevance of financial performance indicators, it is important to discuss the way social housing is financed in the Netherlands. Dutch housing associations do not have shareholders that provide capital. To finance new housing construction projects and other investments, they rely on their own income, such as rent and housing sales revenues, supplemented by bank loans.

In many countries, governments support social housing development by providing subsidies, loans, tax incentives. In the Netherlands, housing associations only receive loan guarantees and (often) reduced land prices if the location is owned by the government.

The loan guarantees are provided by the Social Housing Guarantee Fund (‘*Waarborgfonds Sociale Woningbouw’*. Dutch acronym: WSW). In case of insolvency or illiquidity (i.e. not able to repay loans or pay interest due), housing associations are firstly collectively obliged to financially support their fledging colleague. Only after that, the government guarantee can be used.

The loan guarantee ensures a Triple A credit rating for social housing providers which results in loans at lower interest rates than most other parties can acquire. Often, it is also easier to take out these loans because banks require fewer guarantees for repayment (see Figure 40). In the Netherlands, there are no other specific social housing subsidies.

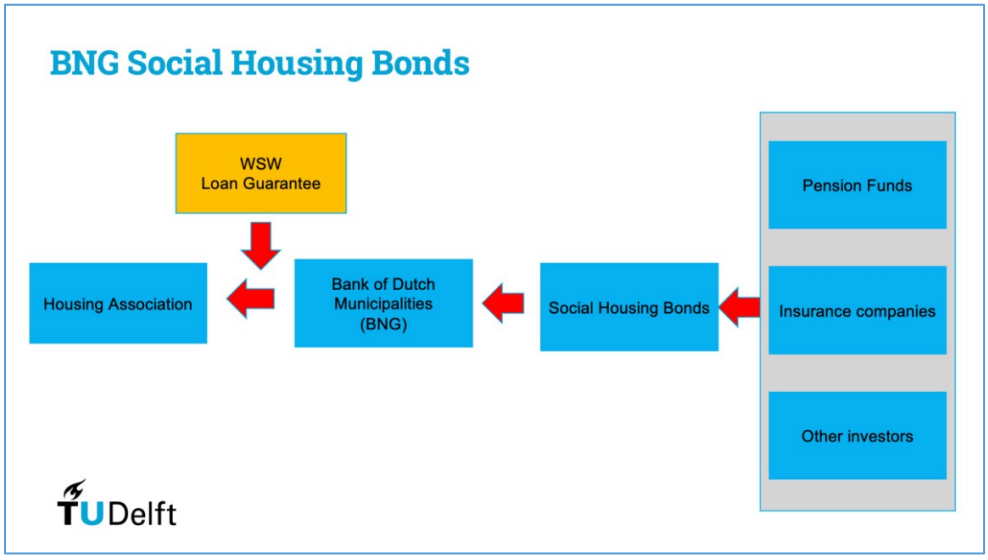


Figure 40: Example of loans provided by the Bank of Dutch Municipalities (BNG) (source: author)

Financial performance indicators

Housing associations have to meet financial performance standards to be eligible to take out new loans, and to ensure that the guarantee system continues to function properly, giving banks sufficient confidence that that system is robust

enough to warrant a triple-A rating. The three main performance ratios are listed below.

The Social Housing Guarantee Fund WSW, together with the *Social Housing Regulator (Autoriteit Woningcorporaties),* has set a performance standard for each indicator. Housing associations must meet each of these standards. Because housing associations want to avoid failing to meet the standards, they often apply stricter internal standards as a kind of safety margin.

- **ICR - Interest Coverage Ratio.** This ratio measures to what extent a housing association can pay the interest expenses on outstanding loan from their operational cash flow. (The ICR is connected to Debt Coverage Ratio (DCR) discussed in the AR1MBE025 Building Economics course).
  Performance standard used by WSW: > 1,4
- **LTV - Loan to value.** This ratio measures the extent to which the cash-generating capacity of the housing portfolio is in a healthy long-term relationship with the debt position.
  Performance standard used by WSW: < 85%
- **Solvency**. This ratio measures the equity of the housing association in relation to its total assets.
  Performance standard used by WSW: > 15%

Housing associations' indicative spending space

For several years, a new financial performance indicator has been developed specifically for housing associations: the *Indicative housing association spending limit (*in Dutch: *indicatieve bestedingsruimte woningcorporaties, IBW).* The indicator is based on data housing associations need to submit annually to the government.

The IBW indicator shows, in millions of euros, how much a housing association can spend or invest before it reaches the limit of one or more of the financial indicators mentioned in Section 8.3. The investment capacity is divided into three possible sources: new housing investment, housing refurbishment and rent deduction. This indicator was developed on behalf of the national government and is updated annually (See Figure 41 for an example)

The IBW is intended to support local discussions between housing associations, municipalities and tenant organisations about the expected performance of housing associations and the allocation of available investment resources. The performance agreed with a housing association is captured in a local performance agreement. This document also includes the support needed from the municipality and tenant organisations in order to deliver the agreed-on performance.

Housing Association	Number of housing units	New construction (x € 1.000)	Improvement (x € 1.000)	Rent reduction (x € 1.000)
3B-Wonen	4.207	84.400	68.500	2.670
Acantus Groep	13.095	169.000	137.000	3.140
Accolade	15.580	114.000	43.600	667
Actium	14.955	189.000	154.000	5.380
AlleeWonen	22.341	471.000	382.000	12.800
Antares Woonservice	5.849	53.000	43.000	1.960
Arcade mensen en wonen	7.294	150.000	122.000	4.900

Figure 41: Example of the Indicative Housing Association Spending Limit (Source: https://www.volkshuisvestingnederland.nl)

8.4 Conclusion

In this contribution we presented various value concepts and indicators to assess the financial performance of Dutch social housing providers. We also discussed the IBW-indicator that provides insight into the unused investment capacity of a housing association.

We only indirectly discussed the financing of real estate projects. This is mainly the responsibility of the finance department of social landlords. As discussed in the introduction, real estate management decisions greatly rely on, and impact, the financial performance of housing associations.

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9 Insecure tenure: the precarisation of rental housing in the Netherlands

Carla Huisman

Introduction

by Gerard Van Bortel

In her PhD thesis, Huisman (2020), explores the precarisation of rental housing in the Netherlands. Precarisation is a layered concept indicating the concentration of deprivation (e.g. poverty, social exclusion) in a person, a household, or in this case, the Dutch rental sector.

From a performance measurement perspective, precarisation indicates a lack of social performance in the Dutch rental Housing systems. This performance gap is based on the value that housing should be 'secure'. Huisman mentions several elements that are part of 'security':

- tenant security;
- affordability;
- state of maintenance.

The central question in Huisman's thesis is "To what extent is Dutch rental housing becoming more precarious, and how does this manifest itself?" As part of this reader on 'performance measurement' we mainly focus on the latter part of the research question: the manifestation of precarisation. According to Huisman, these 'manifestations' are the result of changing values (in her words: a more neo-liberal focus) implemented in housing policies and practices, but also (as Huisman states) the non-enforcement of governance rules and regulation.

The following text is the English summary of the PhD thesis, as published by Huisman (2020).

Secure housing is important for people's well-being. Uncertainty about if and when you will need to leave your home has a negative effect on ontological security, the psychological stability that people need to live a meaningful life. Home-ownership and permanent renting contracts offer more protection against insecurity than temporary leases. Such leases either end automatically at a certain moment, or might be terminated by the landlord at a moment beforehand unknown to the tenant, while the tenant has no agency to prevent this, i.e. the termination is not due to rent arrears or other violations of the contract. Affordability and state of maintenance are two other factors influencing security of housing. If tenants cannot afford the rent anymore, as a result of steep rent increases, their housing situation will become insecure. Likewise, when homes fall in a state of serious disrepair, they offer less security.

The main question of this thesis is *whether rental housing in the Netherlands, over the last twenty years, has become less secure*. There is ample anecdotal evidence of such a trend, but no scientific research has, so far, been undertaken. Given the importance of secure housing for people's well-being, and the ongoing deregulation of the rental market in the Netherlands, such research is urgent and relevant. This research takes a first step in closing this knowledge gap, by searching for answers to the question: to what extent is Dutch rental housing becoming less secure, or, in other words, more precarious, and how does this precarisation manifest itself?

In *Chapter 1*, entitled *Has Rental Housing Become Less Secure in the Netherlands, and Why Does This Matter?* , which is the introduction of the thesis, I sketch the contours of recent Dutch housing policy. While throughout almost all of the twentieth century the majority of Dutch households rented, from the early 1990s onwards the idea that dwellings with a regulated rent ('social housing') should only be for the minority of people who could not fend for themselves on the free market became dominant. This resulted in changes in the regulations concerning renting. Subsequently landlords have been able to convert many dwellings with a regulated rent into dwellings with an unregulated rent. At the same time, the rent levels of the remaining regulated stock have become progressively higher.

These developments can be explained through the context of current Dutch politics, which are based on meritocratic and neoliberal ideologies. The core idea of meritocracy is that a society is just when social-economic positions are based on personal achievements. That everybody has equal opportunities for self-development, starting with equal opportunities in education is deemed a necessary condition in the meritocratic ideology.

Neoliberalism contends that society best functions through an unfettered free market with the role of government restricted to ensuring a level playing field. It is a natural extension of the meritocratic idea that housing should reflect earned social-economic status, while from a neoliberal standpoint the best way to create and distribute housing is through market mechanisms.

The ongoing liberalisation of the Dutch rental housing market, according to the combined meritocratic neoliberal ideology, is resulting in ongoing precarisation, I argue. The abolishing of protection for tenants in terms of security of tenure, rent increases and maintenance is eroding ontological security. Although those with the least resources are impacted most, the changes in policy affect not only disadvantaged groups, but everybody. Looking at evidence from the United Kingdom, where the introduction of temporary leases quickly resulted in them becoming the norm, combined with the first corroboration from the Netherlands, I contend that current Dutch housing policy is stigmatising renting. One of the recurring themes of this thesis is that many incremental steps have a cumulative effect, leading to unintended consequences. Policy makers do not set out to discipline and punish renters, but the combined effect of all the policy measures is a strong message: You should not be renting at all.

In *Chapter 2, Non-Enforcement as a Technique of Governance: The Case of Rental Housing in the Netherlands* I query what the meaning is of a situation in which regulations do not work in practice, but which are presumed/asserted to work in

the accompanying political discourse. This chapter also provides a background into the workings of Dutch housing regulations concerning the main elements of rental security, namely regulation of starting rent levels and annual rent increases, (lack of) maintenance and termination of tenancies. Through analysing political and bureaucratic documents, and drawing on my previous ethnographic research, I argue that non-enforcement of regulations can function as a policy mechanism in its own right, as a method to secure and transmit the objectives of government in a more subtle way than an explicit, top-down exertion of power. As such, non-enforcement constitutes one of the main mechanisms behind renting in the Netherlands becoming less secure.

Chapter 3, A Silent Shift? The Precarisation of the Dutch Rental Housing Market focuses on the specific element of termination of tenancies. The chapter investigates why the rise of temporary rent in the Netherlands has thus far failed to stimulate any societal debate, systematically reviews the scarce available evidence and proposes a research agenda in order to find out how much non-permanent renting is going on, and also why.

I took up this challenge of research into non-permanent housing in *Chapter 4, Temporary Tenancies in the Netherlands: From Pragmatic Policy Instrument to Structural Housing Market Reform*. Here, I probe into how the shift has come about. To answer this question, I analysed policy documents, media content and parliamentary archives. I conclude that a period of slow bureaucratic expansion led to a tipping point. Once this was reached, temporary tenancies were no longer seen as solutions for specific problems, but had become viewed as a desired goal in themselves.

Chapter 5 addresses another important problem identified in the research agenda. The questions are contained in its title: *Insecure Tenure in Amsterdam: Who Rents with a Temporary Lease, and Why?* The goal of the chapter, which is co-authored with Clara Mulder, is to gain insight into the characteristics of those living with temporary tenancies and also to provide a baseline to be able to assess the shift towards more temporary leases empirically over the coming years. We employ the WIA data- set (Wonen in Amsterdam; Housing in Amsterdam), based on a biannual survey amongst a sample of Amsterdam households, for multinomial logistic regression analysis. We find that the majority of young adults in the age category 18-23 years in Amsterdam have a temporary contract. Also students and those with a Western migration background have a higher chance of having a temporary lease, as well as people who had to move from their previous home because their lease was terminated or had become too expensive.

Indeed, precarious rental arrangements may result in forced moves, or displacement. But displacement also occurs to tenants with (seemingly) more secure tenancies. As part of a national policy for urban renewal, in Amsterdam between 1997-2015 many renters of affordable rental housing were forced to leave their homes because of policies of state-led gentrification. In Chapter 6, entitled Displacement Through Participation I focus on how such displacement was being legitimized. Based on extensive ethnographic fieldwork, I conclude that citizen participation provides government a platform to impose its views in a

context of severe power asymmetries, while alternatives are marginalised and dissent is disciplined.

In the conclusion; *Chapter 7, The Precarisation of Rental Housing in the Netherlands*, I return to the central research question of this thesis: *To what extent is Dutch rental housing becoming more precarious, and how does this manifest itself?* It will not surprise the reader that, based on the preceding chapters, I do think that Dutch renting is becoming precarious to a significant extent. The successive introductions of new temporary contract forms goes very quickly (Chapters 3 & 4), as do the continuous steep rent increases and the increases of starting rents (Chapter 1). Rules on security of tenure, rent ceilings and maintenance are in theory still strong, but in practice knowledge of these regulations is almost non-existent, and enforcement is so weak that the rules have become largely meaningless (Chapter 2). An explicitly ideological discourse has been evident since 2013, in which temporary tenancies are now championed as a catalyst for structural housing market reform (Chapter 4). Empirical evidence shows that the majority of young adults in Amsterdam has a temporary renting contract, rather than a permanent one or being an owner occupier (Chapter 5).

I argue that this process of increasing precarity of the Dutch rental sector, or in other words, precarisation, manifests itself simultaneously through three processes. The most concrete, easily identifiable process *is the increasing widening of the situations in which temporary rental contracts are legally permitted*. Chapter 4 charts how in the last two decades the repeated use of temporary contracts as a technical instrument to solve unrelated problems in the housing market created increasingly many exceptions to the permanent rental norm. This created a momentum that in 2016 yielded the introduction of the unconditional two-year temporary contract. This constituted the first unconditional departure from the permanent rental norm in modern Dutch political history, and it is a departure that I myself had not anticipated when I started this research.

The process of legal widening is easier to observe than the second process, that of *non-enforcement of regulations*. This concerns the situation that the daily reality of renting in the Netherlands does not match the reality that policy-makers and politicians assume/declare exists. Although protection of tenants in the Netherlands should, in theory, still be quite strong, to a large extent this is not enforced. Many tenants and landlords are completely unaware of the rules. At the same time, the idea perpetuates that renters in the Netherlands enjoy outstanding, and possibly too much, protection. This paradoxical duality leads to a situation in which renters are deemed to be responsible for securing their rights themselves, which in practice turns out to be very difficult or even impossible. This contributes strongly to renting becoming less certain and undermines ontological security.

The third process of precarisation concerns the *overt discursive shift against renting in recent decades* or, expressed differently, the changing moral connotations attached to renting. After decades of stimulating home-ownership and putting emphasis on the point that “housing associations should return to focussing on their core task”, renting is increasingly seen as something negative.

Renting is framed as something that you should only encounter briefly in your life, as a step towards buying a house. Long-term renting is reserved only for poor people, or those that for some other reason belong to another 'problem group'. In this way, a social rental home becomes a form of welfare benefit.

It is likely that these three processes influence and strengthen each other: the legal widening might lead to changes in the daily reality of renting and the discourse surrounding renting, while the shifting discourse around renting drives, for example, further legal widening.

More research into the increasing precarisation of renting in the Netherlands is urgently needed, both at scientific and policy level. At the moment, for example, there is no attempt to keep track of how many temporary renting contracts there are in the Netherlands. The ongoing widening of the situations in which temporary renting is permitted occurs at such a rapid tempo, with each reform quickly followed by another, that it is not possible to claim that changes in the law are based on any rigorous evaluation. Until recently the strength of the Dutch rental sector was that it offered almost as much security as buying a house. However, this strength is now being rapidly eroded – and it will not be easy to reverse this situation once it is too late. Rescinding recent regulatory relaxations, in particular the two-year temporary contract, would be a step in the right direction.

For now, the sad conclusion of this thesis is that, in terms of the precarisation of Dutch housing, the worst is probably still to come. I anticipate that the silent shift will continue, with the result that renting will become an unattractive alternative, but at the same time the only housing option for those who do not have the possibility of escaping to the greater security of buying their own home. I hope that, one way or the other, this thesis helps people to understand the importance and urgency of housing security, and to appreciate the impact of insecure tenure on people.

10 Social performance of housing associations in the Netherlands[2]

Gerard van Bortel

Contents

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 based on 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.

10.1 Measuring social performance

In this contribution, we present a general overview of approaches to measure social performance, building on the work of Gruis et al. (2008), Deuten and De

[2] This contribution contains an edited and updated selection of paragraphs, focusing on the social performance of housing associations, taken from the book chapter authored by Gruis, De Kam & Deuten (2008) 'Assessing the social and economic performance of housing associations', in M. Koopman, H. van Mossel, & A. Straub (Eds.), Performance measurement in the Dutch social rented sector. Amsterdam: IOS Press, pp. 15-35.

Kam (2005), and De Kam and Deuten (2006). Measuring 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 outcomes can be measured (Patron, 2003). When a relevant outcome 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 because of a programme's strategies and actions (Shapiro, 2005, p. 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. 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 contribution is quantitative, we will pay due attention to the necessity of the qualitative side of performance measurement.

10.2 Public and social performance

Housing associations have been essential institutions in Dutch housing policy for more than a century. 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. Consequently, 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 far stricter mandate of housing associations in the revised 2015 Housing Act. However, the prevailing attitude in the Dutch social housing sector is corporatist cooperation at the national, regional and 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 (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 2015 Social Housing Supervisory Decree (Dutch Acronym: BTIV).

Within their complex environment, the supervisory board and the managers of Dutch housing associations 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' (Deuten & De Kam, 2005). Putting it in more positive terms, a housing association may be considered 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 the contribution on the financial performance of housing providers). However, measuring social performance is far less developed, and only partly standardized.

Therefore, the challenge is to develop a comprehensive method for measuring social performance. Ideally, such an approach should measure the sum of the performance of various relevant subsystems (policies, projects). 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.

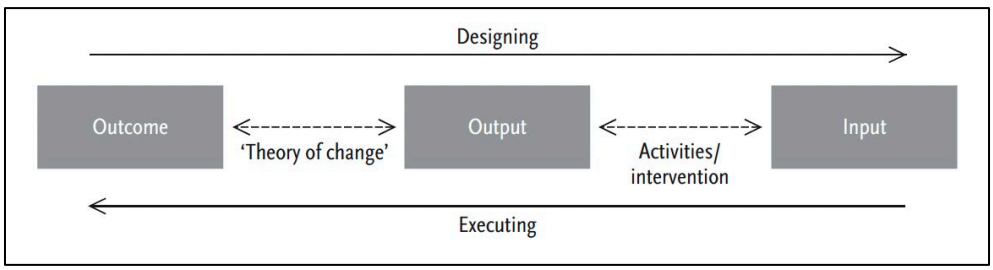

Figure 42: Management of social performance in the policy cycle (Gruis et al., 2008, p. 20)

10.3 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, for information about performance to become a real instrument for management and accounting we must relate achievements to inputs.

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 & 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 stimulates debate on what the essential outcome should be, and because it may open doors to considering alternative output. The validity of the theory of change is equally important as measuring various indicators of output and outcome because it attributes meaning to these indicators. Moreover, paying due attention to the theory of change enhances the organisation's awareness of unintended, negative, and/or uncertain outcomes (see Figure 42).

Now that we have identified these two problems of measuring social performance, we present a reworked version of the basic systems approach (see Figure 43). It has been reworked to express the cyclical character of the management process and 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 (design). 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 execution). 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 25 contains an abstract of a (hypothetical) impact map of a housing 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).

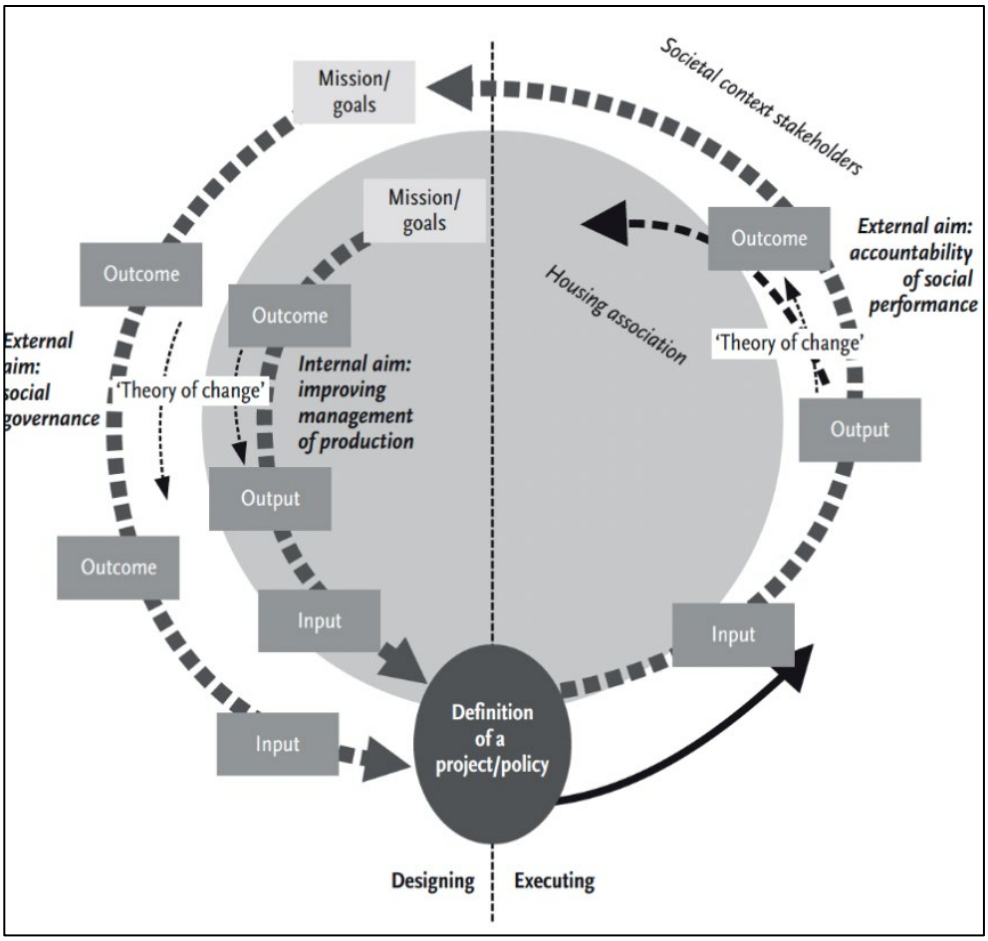

Figure 43: The three aims of measuring social performance framed within the policy cycle (Gruis et al., 2008, p. 21)

Table 25: Simplified example of an impact map (Gruis et al., 2008, p. 22)

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

The impact map will help the management to identify stakeholders and to be as specific as possible about outputs and outcomes, 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, experimental 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.

Most existing 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, nor is the social performance of a subsystem, i.e. project or policy, especially in the day-to-day management of the housing association. In the remainder of this chapter, we will briefly discuss the most promising approaches, in the light of the abovementioned deficiencies in the existing toolkit.

10.4 Smarter use of indicators

The first approach is simply to employ a better, smarter and/or more consistent set 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 organisation will start to conceive 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.

Social Return on Investment (SROI)

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 € 100,000. 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 the maintenance of public spaces. In all, the value of the outcome for several stakeholders may add up to € 300,000. The SROI ratio is then 3:1 - every euro invested generates 3 euros in 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.

Value Sieve method

Another 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.

10.5 Further development of measuring social performance

In the private sector, reporting on social and environmental matters is an issue. Standards such as the EU Corporate Sustainability Reporting Directive (CSRD) make reports comparable. Accordingly, housing associations can make a greater effort in producing a more comprehensive report of their social performance. However, a standard framework is still lacking.

The act of external 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 (see the discussion on the performance assessments ('visitaties') in the Appendix).

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

Appendix - Examples of social performance measurement instruments

Performance Assessments Housing Associations (Visitaties)

For more than 20 years, the Dutch social housing sector has had a performance auditing system ('visitaties'*)* in place. This system started in the late 1990s with a voluntary approach in which an independent committee assessed a housing association's performance. Initially, audit results were confidential, for internal use by the housing association only.

Over the years, the auditing system evolved, and results were made public. As a next step, 'visitaties' became mandatory for all housing associations that were members of Aedes, the social housing umbrella organisation.

In 2015, the revised Housing Act made 'visitaties' mandatory for all housing associations. Performance assessments are executed by accredited audit companies using a standardised method that is managed by an independent organization, governed by representatives from tenant organisations, housing associations, national and local governments.

The 'visitaties' have a two-fold goal: providing feedback on the housing association's performance and highlighting points for improvement. Secondly, the audit results can be used to compare the performance of housing associations. A key element in the auditing approach is the assessment of performance by stakeholders, such as tenant organisations and municipalities.

More information on 'visitaties' in the Dutch social housing sector can be found on the website of 'Stichting Visitaties Woningcorporaties Nederland': https://visitaties.nl/

Aedes Housing Association Benchmark

Since 2014, the Aedes Benchmark has offered housing associations insight into their performance and made it comparable. Housing associations can learn from each other and collaborate to improve their performance. In doing so, the benchmark contributes to a more efficient housing association sector. Aedes is the national umbrella organization of Dutch housing associations.

The indicators included in the Aedes Benchmark are determined in collaboration with housing associations and their main stakeholders (i.e. tenants, municipalities, Ministry of the Interior and Kingdom Relations, Social Housing Guarantee Fund and the Housing Association Regulator).

The overarching goal of the benchmark is the promotion of efficient and effective housing associations, by sound business processes, acceptable operating costs, and customer-friendly

services. These core focus points are reflected in the 5 performance fields of the benchmark (see below).

Housing associations participate in the benchmark on a voluntary basis. Almost all housing associations participate; 274 participants in 2020, representing 97% of all social housing units.

The Aedes benchmark provides insight into housing associations' key performance areas and organisational costs. The following five performance fields have been developed for this purpose:

- **Tenant satisfaction** with a number of primary housing association processes (e.g. moving in and out of a property and repair requests).
- **Operating expenses** (e.g. staff, office, ICT) that associations incur to achieve their goals. This refers only to costs that housing associations can actually influence.
- **Sustainability** deals with the energy label value and CO2 emissions.
- **Maintenance and improvement** deals with the costs and investments made by housing associations to maintain and improve housing. This is contrasted with tenant-perceived housing quality and technical housing quality.
- **Availability and affordability** is about a housing corporation's social performance to offer affordable housing.

Housing associations are assessed on these five performance fields, and divided into three equal sized categories A, B or C. The best 1/3rd of the housing associations receive label A, the second group label B and the third group label C.

In addition to the five performance fields, additional thematic fields are added yearly that receive specific attention. In 2023 two additional topics were added: ‘new housing construction’ and ‘liveability’.

More information on the Aedes Benchmark can be found on the following website: https://benchmark.aedes.nl/

Corporate Sustainability Reporting Directive (CSRD)

On 5 January 2023, the Corporate Sustainability Reporting Directive (CSRD) entered into force. This new EU directive modernises and strengthens the rules concerning the social and environmental information that companies have to report. A broader set of large companies, as well as listed SMEs, will now be required to report on sustainability.

The new rules will ensure that investors and other stakeholders have access to the information they need to assess the impact of companies on people and the environment and for investors to assess financial risks and opportunities arising from climate change and other sustainability issues. Finally, reporting costs will be reduced for companies over the medium to long term by harmonising the information to be provided.

The first companies will have to apply the new rules for the first time in the 2024 financial year, for reports published in 2025. Most Dutch housing providers do not need to follow this regulation. However. The CSRD is a useful standard to look at the performance fields that need to be measured.

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11 Benchmark data

Theo van der Voordt

Contents

In former chapter we briefly discussed the aim and methods of benchmarking. Benchmarking is a relevant follow-up of real estate performance measurement on its own. It sheds light on whether particular real estate performs better or worse in comparison to other real estate. In this chapter we present benchmark data about: 1) return on investment, 2) office rents, 3) office costs, and 4) employee satisfaction in offices.

11.1 Benchmark data about return on investment in real estate

A commonly used benchmark in the investment world is the IPD Real Estate Index. This index was formerly known as the ROZ/IPZ Real Estate Index. IPD stands for Investment Property Databank, ROZ for Real Estate Council (‘Raad voor Onroerende Zaken’). The ROZ/IPD real estate index started in 1995 as an independent index and benchmark for real estate investments in the Netherlands. At the end of 2018, the ROZ Real Estate Index Foundation ceased operations.

The IPD index measures returns on investments in real estate properties and real estate portfolios on an annual and quarterly basis and provides insight into average values and spread in net rental income and value development. Besides the property-level index, there are indices for the various segments of the property market: retail, offices, residential and industrial. The indices enable an objective assessment of an investment fund's performance and a comparison of real estate's financial performance with that of other assets. The indices can also be used to analyse a property portfolio for potential yield improvements.

Table 26 shows the average gross initial yield (NL: bruto aanvangsrendement, BAR) of offices. This is the gross annual rent at the time of purchase as a percentage of the total investment. The table shows that the figures can fluctuate widely from year to year and depend on the location. Figures are also kept of the net initial yield, defined as the net annual rent (rental income minus operating costs) at the time of purchase as a percentage of the total purchase price including acquisition costs and transfer tax. The so-called total return takes into account the increase or decrease in value.

Table 26 - Average gross office yields in % (Source: Cushman & Wakefield, in Bak (2020))

Location	2012	2014	2016	2018	2020
Randstad					
Best locations	7,45	7,00	5,25	4,60	4,10
Other locations	9,35	9,50	8,35	6,60	5,70
Outside the Randstad					
Best locations	8,75	9,00	8,60	7,50	6,75
Other locations	10,25	10,50	10,10	9,00	8,00

11.2 Benchmark data about office rents

A key cost indicator is rent per square metre of lettable floor area per year. Table 27 shows average office space rents in various Dutch cities over a period of six years, excluding VAT, service charges and tenant-specific fit-out costs. The table shows large local differences. At the time of writing, figures for 2021 and later were not yet available.

Table 27 - Average rental price of office space in some Dutch cities, per m^2 lettable floor area (Source: Bak (2020))

City	2015	2016	2017	2018	2019	2020
North						
Groningen	114	125	122	126	130	122
Leeuwarden	95	105	105	100	105	110
Assen	90	80	90	90	104	100
East						
Apeldoorn	105	95	113	105	108	114
Arnhem	113	120	130	124	116	119
Zwolle	95	114	114	114	114	119
Middle						
Amersfoort	107	117	115	122	133	135
Utrecht	158	150	158	171	174	173
Almere	111	95	95	115	115	118
West						
Amsterdam	192	197	205	216	221	221
The Hague	148	140	141	149	155	157
Rotterdam	139	144	146	161	160	156
South						
Breda	129	126	126	132	130	135
Eindhoven	119	115	121	137	132	134
Heerlen	85	85	90	105	110	100

European office rent data are available as well, for instance in the Cushman & Wakefield Quarterly *The DNA of Real Estate.* Figure 44 shows that office rents has increased over 30% since 2013.

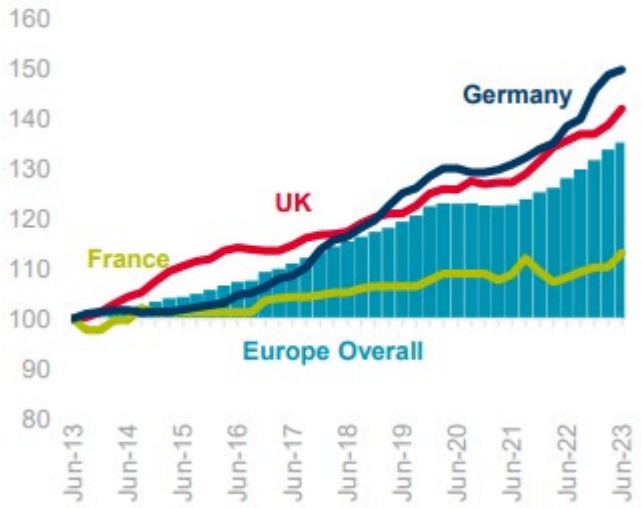

Figure 44 - Increase in office rent in Europe; 2013 = 100 (Cushman & Wakefield, 2023)

Table 28 presents the figures in Q2 of 2023 for a number of European cities. Take care of the different currencies, floor area units and time period units (€/sq.m/year; €/sq.m/month; GB£/sq.ft/yr).

Table 28 - Office rents in various European cities (Cushman & Wakefield, 2023)

Country	City	Rent	Growth Q2-Q1	Growth 2023-2022
Belgium	Brussels (Leopold)	340 €/sq.m/year	0.0 %	6,3 %
Belgium	Antwerp (Centre)	165 €/sq.m/year	0.0 %	0.0 %
France	Paris (CBD)	970 €/sq.m/year	1.0 %	3.75 %
France	Paris (La Défense)	575 €/sq.m/year	0.0 %	5.00 %
France	Lyon (Town)	318 €/sq.m/year	-1.5 %	4.25 %
France	Marseille (Town)	257 €/sq.m/year	10.8 %	4.75 %
Germany	Berlin (Centre)	44.5 €/sq.m/month	1.1 %	6.0 %
Germany	Frankfurt (CBD)	48 €/sq.m/month	1.1 %	1.1 %
Germany	Hamburg (Centre)	33 €/sq.m /month	0.0 %	3.1 %
Germany	Munich (Centre)	44.5 €/sq.m/month	1.1 %	4.7 %
Luxembourg	Luxembourg City	54 €/sq.m/month	0.0 %	3.8 %
Netherlands	Amsterdam (South Axis)	555 € sq.m/year	0.0 %	11.0 %
Netherlands	Rotterdam (town)	300 €/sq.m/year	0.0 %	22.4 %
Netherlands	The Hague (town)	240 €/sq.m/year	0.0 %	0.0 %
United Kingdom	London (West End)	130 GB£/sq.ft/yr	4.0 %	10.6 %
United Kingdom	London (City)	77.5 GB£/sq.ft/yr	5.4 %	0.0 %
Unted Kingdom	Manchester (City centre)	40.0 GB£/sq.ft/yr	0.0 %	3.9 %
United Kingdom	Edinburgh (City centre))	42.5 GB£/sq.ft/yr	9.0 %	9.0 %

11.3 Benchmark data about real estate costs

A commonly used indicator of real estate efficiency is the number of square metres per employee or per workplace and the cost of one's own real estate compared to that of other organisations and best practices. According to the

annual NFC Index® Offices, facility costs in 2021 were €489 per m^2 Lettable Floor Area (LFA), excluding VAT (www.nfcindecx.nl). In 2021, the lettable floor per workplace counts 20 m^2, almost the same as in the years before. In general, flexible workplaces are more expensive per workstation than fixed workplaces because giving up one's own workstation is often offset by better facilities and costs are shared by fewer workplaces. Because fewer workstations are needed, the total housing cost per employee drops significantly. This is related to the flex factor i.e. the number of workstations divided by the number of employees or FTEs. Some cost items, such as information and communication technology (IT) costs, show an upward trend. The NFC Index predicts a cost increase of at least 17% to as much as 26% by 2023. This is the highest increase in the 15 year existence of this index. Rental costs rise with inflation (10-15%) and energy costs quadruple. As a result, the item “energy” approaches rental costs as the largest cost item in this index.

Consultancies also keep figures on real estate costs. It is important to pay attention to which cost items are involved, for example construction costs, building costs or operating costs, and how the costs are expressed: per m^2 gross or lettable floor area, per workplace, per FTE, including or excluding VAT, and over which time period (often on an annual basis). Table 29 presents some accommodation-related costs for a hospital. The figures show large ranges here as well.

Table 29 - Real estate costs of a hospital (Twynstra Gudde, 2019)

Annual costs in €/m^2 gross floor area including VAT	Low	Average	High
Building, grounds and parking spaces	174	214	311
Taxes and duties	2	4	6
Building insurance	1	2	2
Building and grounds maintenance*	28	32	44
Cleaning	27	32	35
Energy and water	21	25	29
Acquisition, disposal and operation	pm	pm	pm
Total housing-related costs	253	309	427

*) excluding personnel costs and technical service

It is recommended to relate estate costs to real estate objectives and ambitions and not only to look at costs but also at benefits. Suppose the real estate costs of organisation A per square metre are 13% higher than at organisation B. Thus, organisation A appears to perform worse than organisation B with respect to real estate costs. However, looking at the real estate costs as a percentage of profit, in this example organisation A scores 24% lower than organisation B. On 'profit per m^2 ', A scores almost 50% higher than B. Per FTE, the difference is smaller, but still 25% in favour of organisation A. So actually, organisation A performs better in terms of the ratio between costs and benefits.

11.4 Benchmark data about employee satisfaction in offices

Important indicators of the perceived performance of office buildings from an end users' perspective are the Leesman Index (Lmi) (leesmanindex.com) and the satisfaction indicator of the Center for People and Buildings (CfPB) in Delft (cfpb.nl). Leesman has now become the international standard. The numbers of measurements are impressive. In September 2023, the Leesman database includes data of 1.244.727 employees and 420.603 home workers in 114 countries. Aspects measured include:

- the importance of various activities
- the extent to which the environment is perceived as supportive of work productivity
- the perceived importance of different types of workplaces
- to what extent employees are proud of their work environment
- sense of community.

Leesman Average gives the average score of all surveyed employees worldwide. Leesman+ represents the average scores of 'high performance' buildings i.e., all buildings with an Lmi ≥ 70. The difference is the so-called Global/Leesman+ gap. This gap is an indication what improvement in performance is needed to be in the leading group. Table 30 shows some figures from the Leesman Index.

Table 30 - Some figures from the Leesman Index (Leesman, 2021)

Statements in the Leesman survey	% agree Total	% agree in high performance group Lmi ≥ 70	'Gap'
The design of my workplace is important to me	84,8	88,8	4,0
My workplace supports sharing knowledge and ideas with colleagues	70,8	81,1	10,3
My workplace allows us to work productively	65,9	81,1	15,2
My workplace allows me to work productively	64,2	78,3	14,1
My workplace is a pleasant environment to work in	61,2	79,6	18,4
My workplace contributes to a sense of community	61,1	74,5	13,4
My workplace is a place to proudly display to visitors	55,3	82,3	27,0

The CfPB satisfaction indicator shows the average percentages of (very) satisfied and (very) dissatisfied respondents for 21 work environment aspects and some organisational and work-related aspects. The remaining employees score neutral: not satisfied, not dissatisfied.

Figure 45 shows the average satisfaction rates from the CfPB satisfaction indicator in 30 projects with activity-based workplaces surveyed by this knowledge centre in the pre-COVID period (< 2020). During the COVID-19 pandemic, hardly any office-based satisfaction surveyas have been carried out.

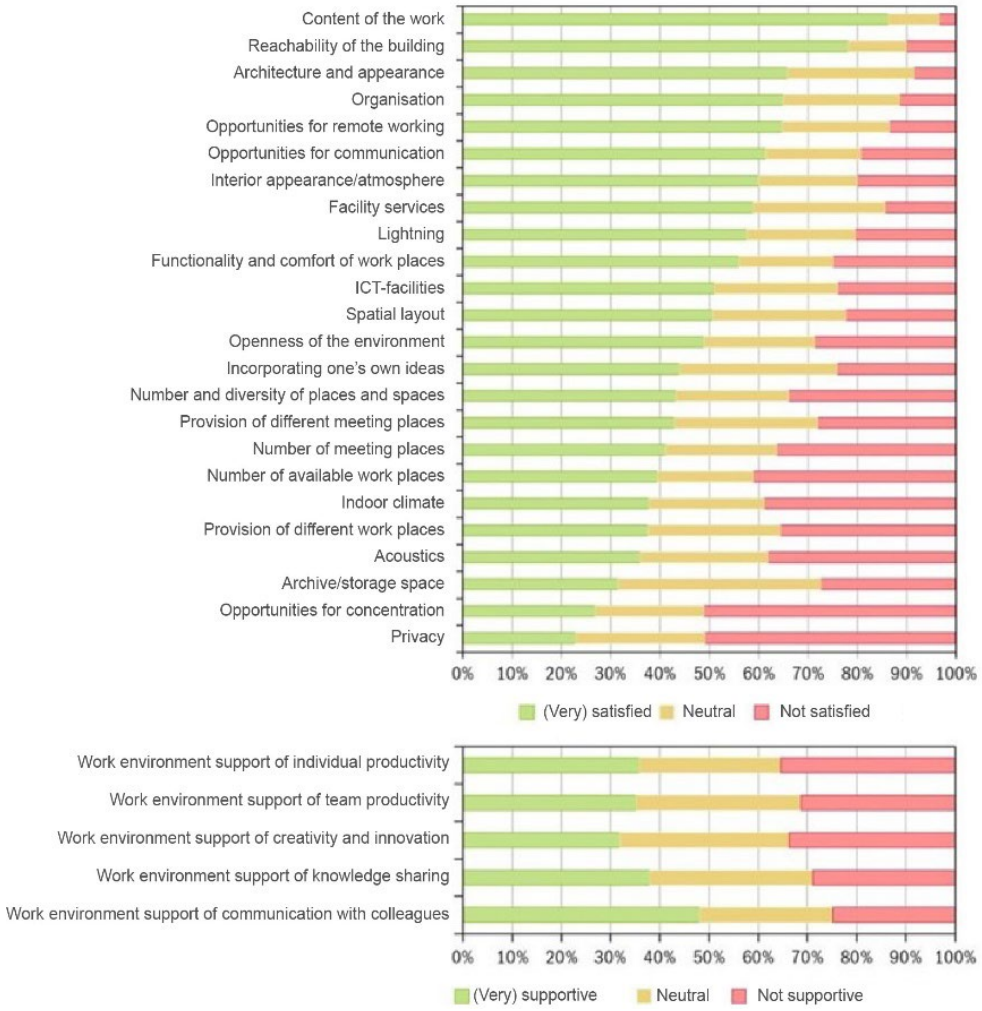

Figure 45 - Average satisfaction in 30 flex offices according to CfPB satisfaction index

Data over a longer period show a wide range and cases vary from worst cases to best practices. Large differences come to the fore between office types as well. Combi offices with fixed workstations score better on many points than flex offices with varying use of activity-related workstations. Regarding perceived work productivity support, traditional cubicle offices with fixed workstations score the highest on average; see Figure 46, based on data from 2021.

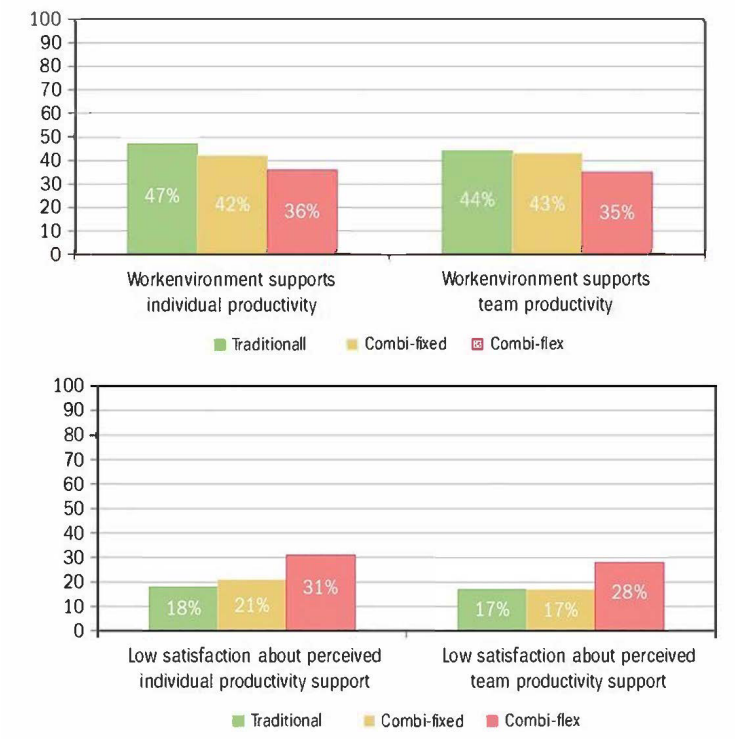

Figure 46 - Perceived productivity support by the work environment in three different office types

On average, flex offices with activity based workplaces score better on the following points:

- appearance of the building;
- atmosphere and appearance of the interior;
- indoor climate;
- light;
- opportunities to work outside the office.

Conversely, traditional cellular offices score better relative to modern flex offices:

- input own ideas about the working environment;
- privacy;
- concentration opportunities;
- communication capabilities;
- archive and storage facilities;
- acoustics;
- supporting one's own labour productivity;
- supporting team productivity.

Overall, modern flex offices outperform cellular offices with fixed workstations in terms of architecture, atmosphere and appearance, indoor climate and being able to work outside the office. At the same time, privacy, concentration, acoustics and filing are important areas for further improvement, both to increase employee satisfaction and labour productivity. Given the low satisfaction rates, the indoor climate in many offices also requires further improvement. Although satisfaction with communication facilities is quite high in all office types, it is notable that

traditional cubicle offices score better on this than modern flex offices. A substantially lower percentage of satisfied employees or a much higher percentage of dissatisfied employees than average or compared to a target standard set in advance by the organisation may be reason for adjustments to the existing accommodation or moving to another building.

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