Tackling urban transition in public space

Exploring an integrated policy arrangements of managing public space in Dutch municipalities

MSc Spatial Planning | Eva Duivenvoorden BSc

Colophon

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Abstract

Urban areas face major transitions concerning mobility, climate adaptation, energy, and a circular economy. These transitions require changes in public space – above- and belowground – in terms of infrastructure, buildings, and urban design. This not only applies to newly developed or redeveloping areas, but in particular changes are needed in the existing urban realm. The existing urban realm, however, is a blind spot of in most spatial planning and urban design approaches, and management of public space is mostly left to fragmented sectors within urban administrations, instead of an integrated approach. While in spatial planning and urban design, an integrated approach to urban transitions is much discussed, the integrated management of public space in existing urban areas remains underexplored. As result of this, the complex and interdependent urban transitions are hampered by the existing policy arrangement of managing public space.

An integral approach of managing public space, however, implies fundamental shifts in the existing policy arrangement. This study explores this challenge by first gaining knowledge of the existing policy arrangement of managing public space in Dutch cities before identifying constraints and challenges to tackle urban transition. Therefore, a qualitative multiple case study is conducted on average-sized Dutch municipalities.

The results of this research showed that the strategic management of the municipalities stimulates an integral approach to the management of public space but often fails to implement this approach due to various obstacles in all dimensions of the policy arrangement. The differences between the policy arrangements of the municipalities leads both to obstacles that apply to each case and to obstacles that are case-specific. The in the research defined obstacles to an integrated approach, mainly expressed in the discourse, require more interaction between the actors, the development of the needed knowledge and competence and a change in the informal rules. In addition, some obstacles to applying an integral approach can also be overcome by working in an integral manner. Consultation and coordination between actors removes these obstacles. In order to achieve the transition to integral management and tackle the transition in public space, municipalities must invest time in transforming their policy arrangements.

Keywords: Integral management of public space, policy arrangement approach, obstacles

Preface

In recent years I have studied the science of spatial planning. I have developed myself in a very broad sense and dealt with the themes: climate adaptation, foodscapes, water management, participative planning, strategic planning, real estate development, mobility, justice and governance. In the final year of my master's, I came into contact with the theme of management of public space. The large number of themes in which I have been involved in the last years will largely be physically manifested in the existing urban realm. This means that these themes not only concern planners but also the managers of public space. The great social importance of generating knowledge about the management of public space made me decide to take the adventurous step of choosing this subject, about which there is no scientific debate, for my master thesis.

Six months later, I look back on the process of doing research with satisfaction and would like to thank a few people. Firstly, I would like to thank my supervisor Thomas Hartmann for all the substantive feedback, discussions and his enthusiasm. This has brought my thesis to a higher level and allowed me to further develop my scientific competences. Secondly, I would like to thank the Foundation Managing Public Space for their enthusiasm, interest and network. Last but not least, I would like to thank all the interviewees for all the energy and time they put into the research and making all the data available. The contribution of all of you has helped me learn so much over the last few months for which I would like to thank you.

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Introduction

Public space is of great importance to the functioning of urban areas, which serve as a place for meeting, interaction, and social cohesion, thereby making various functions accessible (Van Melik, 2008). In addition, the functionality and design of public space ensure that people identify with the city (Jacobs, 1961). The public space thereby determines the quality of life and attractiveness of a city (City of Apeldoorn, 2020), municipalities therefore, refer to public space as the "living room" or "showcase" of the city (City of Amsterdam, 2017; City of Apeldoorn, 2020). Public space is coming under increasing pressure due to major transitions concerning mobility, climate adaptation, energy, and the circular economy, all of which pose a challenge to urban areas (Maring & Blauw, 2018; CROW, 2018a). These transitions require changes in public space that have a huge effect on above- and below-ground infrastructure, buildings, and the design of public space.

All major transitions have physical implications that mainly needs to be realized in public spaces. In the future, mobility will predominantly involve electric passenger transport, shared mobility services, stimulation of public transport and bicycle use, and the reduction of the need for mobility at all (PBL, 2018). This means that the expansion and renewal of the current infrastructure such as charging stations, bicycle parking, hubs, and internet cables is required. Climate adaptation means that we must protect cities against drought, flooding, and the urban heat island effect. This requires a greening of the city and a change in sewage systems (CROW, 2010 ; kennis voor klimaat, 2014). The energy transition also has a major impact on both above- and below-ground infrastructure. The implementation of zero-energy concepts requires a different space and size of energy infrastructure (PBL, 2003; PBL, 2018). In addition to the increased space requirements for zero-energy concepts, space is needed for a transition phase in which new and old energy infrastructure exists simultaneously. The transition towards a circular economy means that waste is no longer seen as an end product but rather as a resource (Korhonen et al., 2018). The change of resource flows in the city means that resources and therefore public space must be managed differently and that infrastructure must be adjusted accordingly. These necessary changes to the design of public space not only applies to newly developed or redeveloping areas, but to the existing urban realm, in which changes are particularly needed.

The existing urban realm, however, is a blind spot in most spatial planning and urban design approaches. This makes that the adjustment of public space to the transitions is a task not only of spatial planners and designers but also of managers of public space. However, there is a contradiction between the great social importance of a well-functioning public space and the lack of interest of politicians and academics in management of public space (Esmail et al., 2020). The redesign of public space in the existing urban realm is a complex task. Managers of public space are bound to the current surface of public space, which is largely occupied by infrastructure both above- and belowground, and addressing all the major challenges requires more space. The scarcity of public space in cities makes the coordination of the various physical implications of the transitions important. This means that tackling these complex and interdependent challenges requires an integral approach.

In this study, management by means of an integral approach entails that the public space is coherent, multiple goals are achieved with one measure and simultaneous implementation of management tasks. While in spatial planning and urban design, an integrated approach to urban transitions is widely discussed, the integrated management of public space in existing urban areas remains underexplored. Only a few articles about managing public space have been produced, but these focus exclusively on infrastructure, the short term (regular management and maintenance) and medium term (the redevelopment of areas), and not on all functions of public space or integration (Brinkhuijsen et al., 2019). The existence of a scientific journal or issue specifically aimed at the management of public space is lacking (Esmail et al., 2020). As a result, there is a lack of the necessary scientific knowledge for the transition to integrated management of public space.

An integral approach will not only result in physical changes but also require institutional changes. In the future, there will no longer be one responsible actor, but rather a complex management structure. As a result of this policy arrangement of managing, public space will change. Due to the lack of knowledge, the needed institutional changes are not identified. As a result of this, complex and interdependent urban transitions are hampered by the existing policy arrangement of managing public space. This leads to the main research question:

How can the obstacles to the integral management of public space be overcome?
Many obstacles make the integral management of public space difficult. Various parties have different views of the situation and identify other obstacles. This research examines the obstacles perceived by municipalities. The technical obstacles are clearly visible, but the obstacles related to the organisation of the process are not easily perceptible. In order to identify these obstacles perceived by municipalities, and create solutions to them, this thesis examines the policy arrangements of municipalities. An explorative study has been conducted among various Dutch municipalities that are part of the G40 urban network. The municipalities that are part of this network are all medium-sized cities. The main question is answered by employing three sub-questions. The first aims to provide insight into the current policy arrangement of managing public space of municipalities.

How are the current policy arrangements for the management of public space constructed?
The second sub-question examines how the current policy arrangement relates to an integral approach and what obstacles arise from this.

What are the obstacles to the integral management of public space?
The third sub-question examines what can be learned from solutions employed by the municipalities examined in this study to overcome these obstacles to the integral management of public space.

Which methods are municipalities currently using to overcome obstacles to the integral management of public space?

What is public space?

Before answering the research questions, it is important to define the research field. In this chapter, the term "public space" is explored, and the definition used in the research is formulated.

The Ministry of Housing, Spatial Planning and the Environment (VROM; ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer) states that the 50 largest Dutch cities account for 24% of public space (VROM, 2005). The VROM (2005) defines public space as all freely accessible spaces, both public and private, including train stations, libraries, and shopping areas. However, this definition of public space is not the only one, and science and institutions use different, sometimes even conflicting, definitions of public space (Burgers, 2000; Van Melik, 2008). Some examples of definitions of public space found in this research include the following:

> *Eriksson et al. (2007, p.31): a public space is a place open to all, free of charge. In democratic countries, public space is considered a space where people can express themselves politically, e.g. through demonstrations, and live out their lives within the law.*

> *UNESCO: A public space refers to an area or place that is open and accessible to all people, regardless of gender, race, ethnicity, age or socio-economic level. These are public gathering spaces such as plazas, squares and parks. Connecting spaces, such as sidewalks and streets, are also public spaces. In the 21st century, some even consider the virtual spaces available through the internet as a new type of public space that develops interaction and social mixing.*

Staeheli and Mitchell (2007) analysed 218 geographic books and articles on the definition of public space from the period 1945 to 1998, see Table 1. From this research, it was concluded that 37% of the authors defined public space as a physical setting, 27% as a social meeting place, and 23% as a site of negotiation, contest, or protest.

Table 1. Definitions of public space found by the research of Staeheli and Mitchell (2007)

Definition of public space *	Number of articles	% Articles
Physical definition	80	37%
Meeting place or place for interaction	58	27%
Sites of negotiation, contest or protest	51	23%
Public sphere, no physical form	34	16%
Opposite of private space	32	15%
Sites of display	28	13%
Public ownership, public property	25	12%
Places of contact with strangers	23	11%
Sites of danger, threat, violence	21	10%
Places of exchange relations	19	9%
Space of community	18	8%
Space of surveillance	17	8%
Places of open access- no or few limits	16	7%
Places lacking of control by individuals	15	7%
Places governed by open forum doctrine	12	6%
Idealized space- no physical form	5	2%

* Multiple definitions in an article are possible. Definitions are not mutually exclusive.

To gain more insight into the results of this research and thus the definitions of public space used, Van Melik (2008) has classified these different definitions into five approaches derived from scientific articles and books. (1) The topographical approach is the least complex definition of public space and is based on the physical setting. Public space is the whole of public and private infrastructure: streets, squares, parks, sewage systems, sidewalks, the energy grid, the telecommunication grid, and so on (Iveson, 2007). A contrasting approach is (2) the procedural approach, which focusses on the function of a space to define whether it is public or not. Here, the use of space as a social meeting place and/or a site for negotiation, contest, or protest is a key (Van Melik, 2008). Iveson (2007, p. 17) states that from the procedural approach that public space can be defined as “any space that is put to use at a given time for collective actions and debate.” This means that public space is not be a physical place by definition, but can also manifest itself virtually, for example, a forum on the internet (Van Melik, 2008). Another view on the definition of public space

is (3) the Olmstedian approach, which is based on linking the topographical approach and the procedural approach. The Olmstedian approach owes its name to the American landscape architect Frederick Law Olmsted. Known for his park designs and books about creating order in industrial cities (Van Melik, 2008). The Olmstedian approach defines public space as "a range of places where people from all children or backgrounds can congregate and learn from each other, resulting in new insights, social ties and tolerance – and ultimately in cosmopolitan citizens" (Van Melik, 2008, P 37). Public space here serves as a place for social cohesion, pride in the city, and fraternization (Banerjee, 2001). The fourth form of definition falls under the (4) ideal-typical approach (Van Melik, 2008). According to this point of view, public space is defined as it would be in the most ideal situation. However, this definition is a utopia in practice and is therefore not a useful definition of public space (Brunt and Deben, 2001). Finally, academic literature describes (5) the socio-psychological approach to public space (Van Melik, 2008). This definition of public space was developed by Madanipour (2003) and is based on the ownership of space and social-psychological relationships. "The way space is subdivided and the relationship between public and private spheres in general are a mirror of social relations and a main indicator of how a society organizes itself" (Madanipour, 2003, pp .: 2). Many definitions have thus been used for public space based on function, ownership, access, and physical form.

The distinction between private and public space is not black and white or absolute (Van Melik, 2008). For example, the Olmstediam approach defines a space as public only if it is freely accessible to everyone at any time. However, in practice, many places are understood as public that do not meet these criteria due to opening times, entrance fees, restrictive policies, or fences (Deben, 2001). For example, city parks often have opening hours, and homeless people are not allowed to stay at railway stations. In the future, an increase in the privatization of public space will create an increasingly vague dividing line between public and private (Madanipour 1995). However, few definitions in scientific articles use ownership as an indicator of public space. This indicates that property is considered irrelevant or that authors assume that public space is by definition a public property (Van Melik, 2008). In line with the procedural approach and the Olmstedian approach, Needham (2007: 197) states that public space is not necessarily from the public, but for the

public. Depending on culture, era, and the social and economic context, the boundaries between public and private are constantly shifting, as does the definition of public space (Leclerq, 2018). This study used the following broad definition of public space:

A physical inside or outside space that is accessible to everyone or with a restrictive policy – functioning as infrastructure, social meeting place, site for negotiation, contest, or protest – which is owned or managed by private or public parties.

Steering methods through the years

In order to increase our insight into the management of public space, this chapter lays out the various steering methods that have developed over the years. This knowledge provides us with insight into how today's thoughts and actions have come about. Public space has over time been managed in various ways, beginning with frequency-driven management, in which management occurred at the same fixed frequency every year. This was followed in the late 1980s and early 1990s by quality-driven management, whereby maintenance and replacement occurred depending on the quality of the public space (Ter Wal, 2019), which was determined by municipalities through visual inspection to determine whether the assets physically met the desired quality. To determine the desired quality, municipalities often use the image book developed by CROW, which contains several photos of the same situation with different quality standards. determining and considering the desired quality as a standard it is decided which management is needed (CROW, 2018b).

This was followed by an integrated management approach, in which the different government departments responsible for management began to work together. After this, a social form of management called societal management was introduced, according to which management occurs depending on the wishes and needs of the citizens. The municipality can realize these management tasks itself or transfer the responsibility to the citizens. Societal management was followed by opportunity-driven management, which links management tasks to large overarching themes, such as climate change. This does not necessarily mean that different themes are resolved simultaneously or in coordination with each other. The various forms of management are all still being applied by municipalities (Ter Wal, 2019). Municipalities often use different forms of management approaches and continue to improve their management of public space by embracing new approaches.

An emerging approach in the management of public space is asset management, which is seen by many actors in the world of public space management as the answer to the major challenges and their associated transitions. Asset management can be defined as "an coordinated activity of an organization to realize value from assets, [an asset being] an item, thing or entity" (Maring & Blue,

2018: 391). Applying asset management to the management of public space it will be expressed as, replacing and maintaining assets in public space as efficient and effective as possible within the framework of acceptable risks. The cost efficiency, effectiveness and value creation are measured over the entire lifecycle of an asset (Giglio et al., 2018). The process of asset management is based on different phases which follow each other circularly, as depicted in Figure 1. While many see asset management as an answer to the transitions, this model falls short of managing public space with the needed integrated strategic approach.

Asset management is an approach that was not originally designed or used for management or public space, and as a result, it does not fully meet the needs of public space. Public space consists of multiple assets, which are not only objects but also entities that have social value. Maring and Blauw (2018) therefore suggest that asset management approach should be extended to make it suitable for the management of public space. Asset management should not focus on separate objects but on the system of assets, as well as on maintaining functions instead of maintaining objects (Maring & Blauw, 2018). The major challenges that public space must address, such as mobility, climate adaptation, energy transition, and circular economy, are wicked problems and require an integral approach. This means that the different asset cycles existing in the same space, assigned to various government departments, with different lifespan and circulation speeds, and situated in different phases, must become integrated with each other.

Finding technical solutions and transitioning from quality-driven management to asset management will not eliminate all obstacles to integrated management of public space. The actions of the municipality are determined by many more elements than just the tools they apply, and asset management is only one tool as part of a larger whole. The entire way of thinking and acting of the municipality is determined by the policy arrangement.

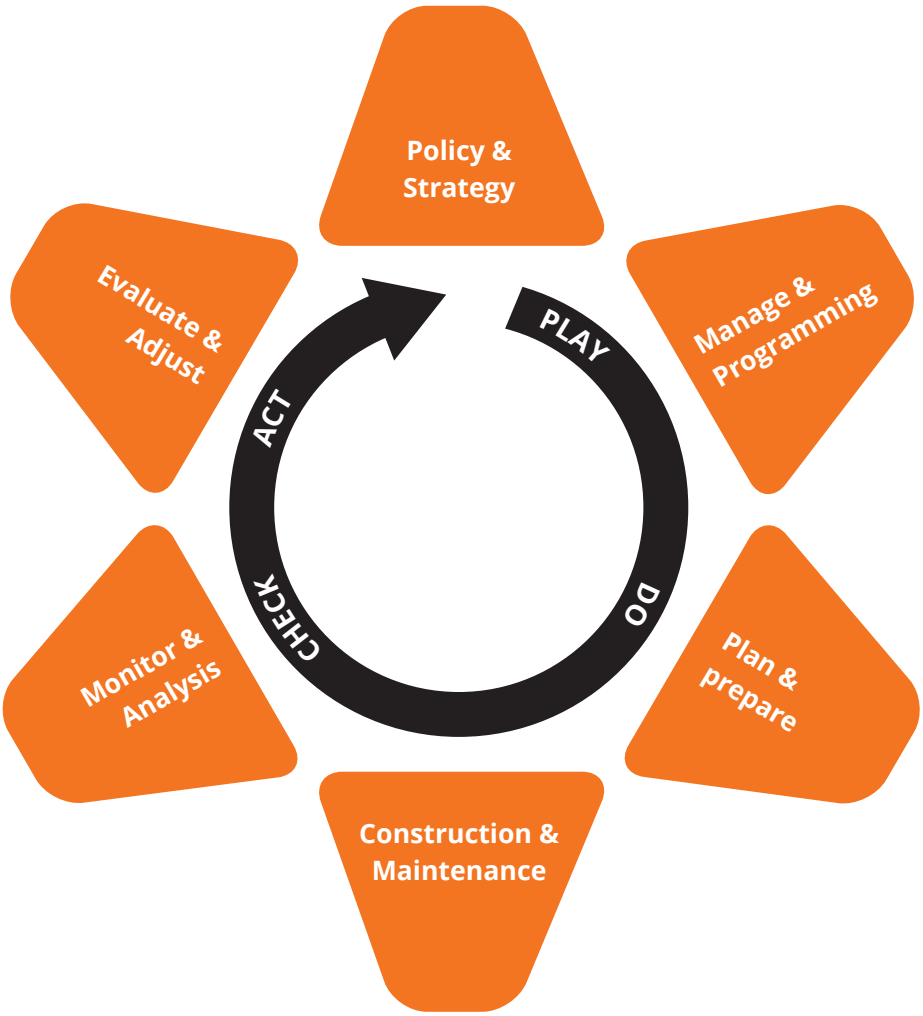


Figure 1. Asset management cycle

Policy arrangement approach

The various steering methods are part of the policy arrangement of the management of public space. An integrated approach will not only influence the steering methods used but the entire policy arrangement. The policy arrangement approach is the theoretical basis for the analysis of the policy arrangement of public space management in the Netherlands. Based on this framework, the sub-questions and the main research question will be answered.

The policy arrangement approach (PAA) can be defined as "the way in which a certain policy domain - such as water management - is shaped in terms of organization and substance" (Van Tatenhove et al., 2000; Wiering & Arts, 2006, 328). A policy domain is constantly subject to the processes of political modernization and institutionalism. The PAA allows "the temporary stabilization of the content and organization of a policy domain" to be analysed (Arts, Leroy, & van Tatenhove, 2006, p. 96). This approach originated at the end of the twentieth century in response to the widely used public administration analyses of policy processes. The PAA is not a new stand-alone theory, but rather an approach consisting of theories that describe the organization and substance of a certain policy domain. The theories are based on networking (Marsh and Rhodes, 1992; Kickert et al., 1997), institutionalism (March and Olsen, 1989), discourse analysis (Hajer, 1995; Van Tatenhoven, 2000), and advocacy coalition (Sabatier and Jenkins-Smith, 1999). With this, the PAA combines the social and political structures with the dynamics of daily policy processes.

As already stated in the definition, the PAA makes a distinction between the aspects of organization and substance. These aspects are again subdivided into the four dimensions: actors, resources, rules of the game, and discourse. Actors, resources, and formal rules are part of the organizational aspect, while informal rules and discourse comprise the substance aspect (Wiering & Arts, 2006). Figure 2 shows the interdependence of the dimensions. The policy arrangement can only be determined when all aspects are viewed in conjunction, given that the interdependence of the dimensions ensure that a change in one dimension influences the other dimensions (Liefferink, 2006). Wiering and Arts

(2006) have linked "indicators"[1] to the four dimensions that form the basis for assessing the policy arrangement and how this changes over time. In Figure 2 the operationalization of the PAA is shown.

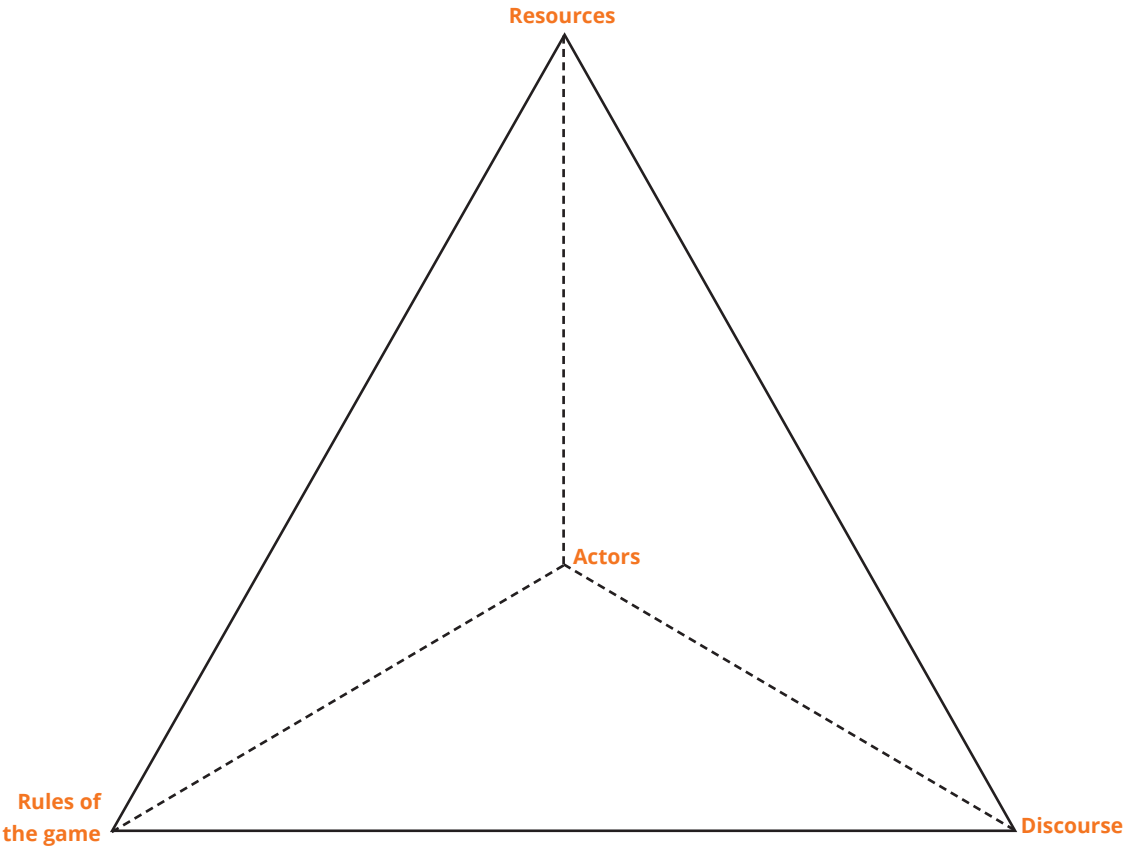


Figure 2. Relationship among the dimensions of the policy arrangement

The first dimension, actors, refers to actors who are active in a certain policy domain (such as management of public space) and the coalitions that are formed by these actors. This study, defines actors as all individuals, institutions or organizations that are involved in or have an interest in the management of public space. Actor coalitions have the same opinion in terms of discourse and rules of the game and use their resources together to achieve policy goals (Van Tatenhove et al. 2000, p.54). Different coalitions therefore interpret the world in different ways, which can lead to conflict (Sabatier, 1998; Arts, Leroy, & van

1 The notion of an indicator is placed between brackets because in a strict methodological sense, it is not a "true" indicator, since it is not an empirical asset which can be immediately observed (Wiering & Arts, 2006).

Tatenhove, 2006). The actors dimension can be analysed based on the indicators: actor constellation, interaction patterns, and coalitions and oppositions (Wiering & Arts, 2006). The Actor constellation refers to which actors, both informally and formally, are involved in the policy domain. The indictor Interaction patterns relate to the quantitative and qualitative interaction among the actors and coalitions. Since a change in interaction patterns does not immediately mean a change in coalitions and oppositions, this is a separate indicator.

Liefferink (2006) emphasizes the necessity to perform an actor analysis in order to gain insight into the role of the actors and how these actors influence the policy. In this study, the relevant actors are identified and their role(s) are expounded. The seven distinct roles are:

- Agenda-setter: Actor takes care of the policy and/or projects.
- Supervisor: Actor ensures that laws and regulations are observed.
- Implementer: Actor physically implements the policy and/or project.
- Supporter: Actor assists other party/parties in the implementation of their activities.
- Adviser: Actor advises on the policy and/or projects to be pursued without having direct means of power.
- Informer: Actor provides other parties with information.
- Coordinator: Actor coordinates different activities.

The second dimension, resources, refers to the presence of resources and the power that the actors have, depending on the extent to which they can mobilize these resources. The term “resources” includes both tangible and intangible resources, which include competencies, knowledge, money, organization, human resources, authority, legitimacy, strategic capability, and means of production (Klijn & Koppenjan, 2004). The extent to which actors are able to mobilize resources depends on the interrelation of the actors or actor coalitions and their ability to change their physical and social environment (Arts, van Tatenhove, & Leroy, 2000). Resulting from this definition, Wiering and Arts (2006) have drawn up the indicators constellation, power relations, and political influence. The indicator constellation refers to the resources or assets that an actor has and can mobilize whereby it creates power. “Generally, these assets are not equally divided among policy actors, which leads to a situation in which not all of the actors share similar capacities to achieve (political) outcomes” (Wiering & Arts, 2006, p. 330). These

differences create a dependency among actors, and these interactions among actors are subject to the power relations indicator (Arts, van Tatenhove, & Leroy, 2000; Koppenjan and Klijn, 2004; Wiering & Arts, 2006). The third indicator is political influence, which considers the extent to which an actor actually uses his or her resources and power to achieve a goal and thus have political influence (Wiering & Arts, 2006).

The power conferred upon an actor by a certain resource depends on the replaceability of the resource and the importance of the resource to achieve the goal. This – and the disproportionate distribution of resources among the actors – creates a degree of dependence among actors; see Table 2. How an actor uses his or her resource(s) depends on the power of the resource and the social relationships among the actors (Koppenjan and Klijn, 2004).

Table 2. Degree of dependence among parties, Koppenjan and Klijn (2004)

		Replaceability of the resource	
Importance of the resource to achieve the goal		High	Low
	High	Low dependence	High dependence
	Low	Independent	Low dependence

The rules of the game are the third dimension and refer to the informal rules, formal rules, and norms present within a policy domain. The possibilities and constraints are mapped out in this dimension. This is possible based on the indicators legislation, pre-procedures, and political culture, established by Wiering and Arts (2006). Legislation refers to the binding laws in which the policy discourse is formally embedded. In addition to the applicable formal rules on substance, rules also apply to the organizational aspect of the policy arrangement. The second indicator, procedures, refers to the legal procedures, such as participation and decision-making processes, that apply within the rules of the game (Wiering & Arts, 2006). In addition to legal rules, the rules of the game also consist of informal rules. These informal rules are also known as political culture (Arts, van Tatenhove, & Leroy, 2000).

The rules of the game are subdivided by Ostrom (2007) into the following seven types of rules:

- Entry and exit rules: These rules determine which and how the actors can enter the policy process and how they can leave this process.
- Position rules: These rules determine which position an actor may take and when this actor may change positions.
- Scope rules: These rules determine the boundaries' of the policy, both geographically and organizationally.
- Authority rules: These rules determine which actions an actor may or may not do depending on their function. This includes both limitation and exemption from rules.
- Aggregation rules: These rules determine how the policy is formed. Which actors are involved and in which order things are determined.
- Information rules: These rules determine the publicity of available data and thus the transparency of the policy process.
- Pay-off rules: These rules determine which sanctions apply for breaking a rule and how these are enforced.

The pay-off rules and the information rules do not apply to this research into the policy arrangements of the management of public space policy domain. The entry and exit rules, scope rules, position rules, authority rules and aggregation rules are the legal representation of the dimensions actors, resources, and discourse. The entry and exit rules and position rules influence the actor constellation and depend on the resources that the actors have at their disposal. The scope rules depend on the discourse and determine the actor constellation. The authority rules and aggregation rules determine the resources and degree of power that actors can exert with their resources.

The final dimension of PAA is discourse, which can be defined as a "specific ensemble of ideas, concepts, and categorizations that are produced and transformed into a particular set of practices and through which meaning is given to physical and social realities" (Hajer, 1995, p 355). The dominant discourse and changes in discourse can be recognized by the indicators, paradigms, utopias, and policy programs. Paradigms are the ontological nature of discourse and represent how we see the world and define objects within it. The second utopias indicator is normative in nature and considers what value we give to certain assets or goals. The strategic nature of discourse can be determined based on the policy programs indicator: what we see as reality or as desirable within the policy process from start to finish.

Table 3. Operationalization of the PAA

Concept	Aspects	Dimensions	Indicators	
Policy arrange-ment	Organi-sation	Actors	Actor constellation Interaction patterns Coalitions and oppositions	Agenda-setter Supervisor Implementer Supporter Adviser Informer Coordinator
		Resources	Resource constellation Power relations Political influence	Financial Authorities Knowledge Means of production Competences High dependence Low dependence Independent
	Substance	Rules of the game	Legislation	Entry and exit rules Position rules Scope rules Authority rules Aggregation rules
		Discourses	Procedures Political culture	
			Paradigms Utopias Policy programmes	

Management levels

A policy arrangement is partly constructed from unwritten rules, procedures, and customs, but is also largely laid down in policy documents. These policy documents can be divided into three different levels: tactical, strategic, and operational; see Figure 3 (De Leeuw, 2000). The tactical level involves all documents in which the vision, standards, and value of vision of the future are described. In strategic policy documents, these tactical elements are translated into objectives and indicators. Policy documents of the operational level describe the plan of action: who, what, where, when, and how (with what resources). These policy documents together involve the management of public space.

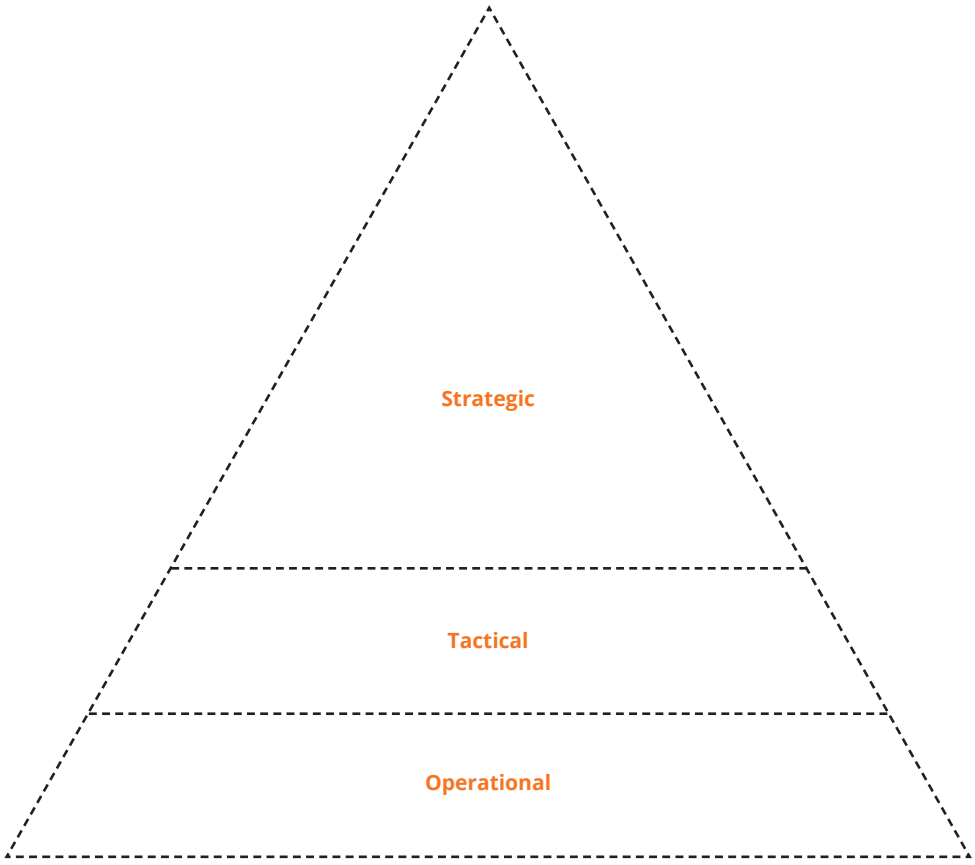


Figure 3. Diagrammatic representation of the management levels

Methodology & Method

This chapter introduces the research strategy and methods (data collection and analysis) based on the previously described conceptual framework in order to answer the research question and sub-questions.

Research strategy

This thesis employs inductive research based on qualitative research methods. Since little or no knowledge is available on this topic, this research serves as an exploration, and there is therefore no need to quantify. Qualitative research methods enable the researcher to analyse complex situations from the perspective of various stakeholders (Swanborn, 2013).

Given the inductive character of the research objective and qualitative nature of the research questions, the grounded theory approach developed by Glaser and Strauss (1967) is used. Using this approach, this research formulates a theory by going through two data collection and analysis circles. The theoretical framework and research questions are operationalized and transformed into research elements. The first moment of data collection took place among the cases. The recorded interviews were converted to a transcript. During the execution of the transcripts, the themes brought up in the interview were noted. The data obtained was coded and analysed, and an initial theory was formulated based on these results, after which the second part of the data collection process took place from the same cases, extended with the results of the first analysis. From the transcription notes, interesting themes emerged that had not been found in every interview. During the second part of the data collection, these themes were translated into questions posed to the cases in which this knowledge was lacking, so that new elements were added and/or the focus shifted. This data collection was again followed by an analysis and formulation of the grounded theory. As this research consists of several cases, not only were the codes of the analysis adjusted between the two circles, but new properties and categories of codes were also added during both analysis phases arising from the different findings between the cases. Figure 4 shows a schematic representation of the research methodology.

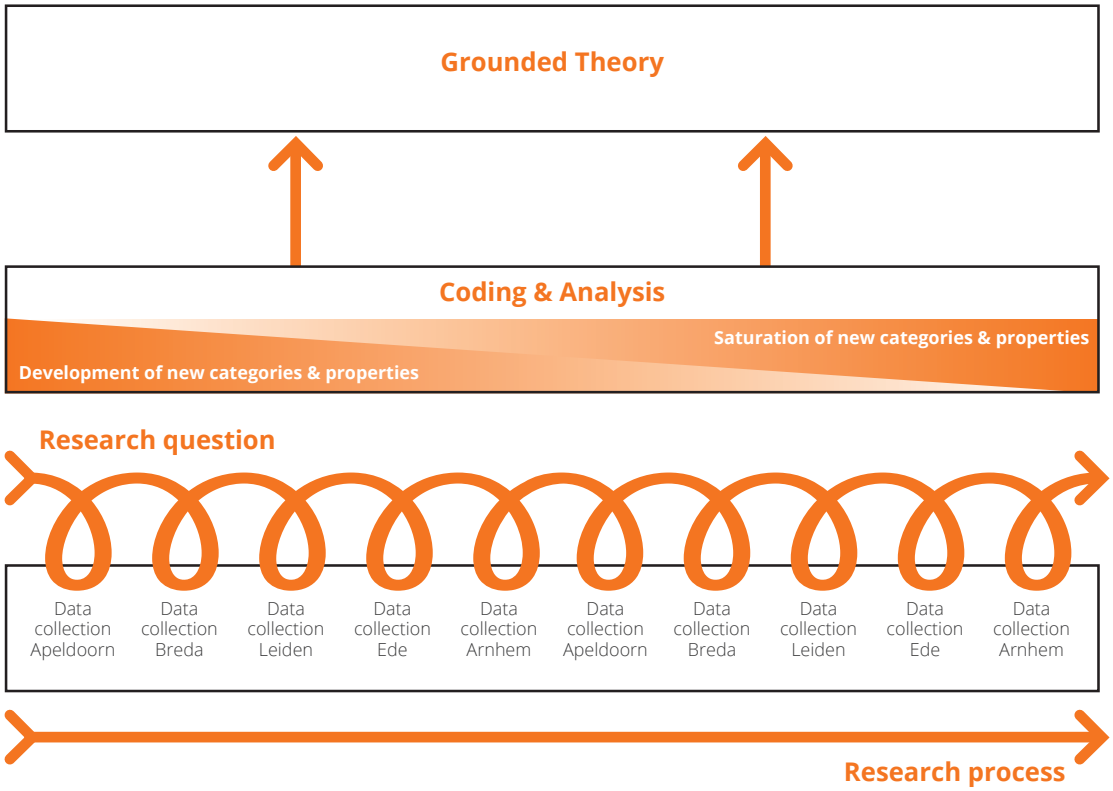


Figure 4. Schematic representation of the research methodology based on grounded theory

The grounded theory approach was conducted in the form of a multiple case study. A multiple case study "explores a real-life, contemporary multiple bounded systems (cases) about time, through detailed, in-depth data collection involving multiple sources of information . . . and reports a case description and case themes" (Creswell, 2013 , p. 97). This results in a nuanced view of reality, a detailed understanding of complex phenomena and context-dependent knowledge (Flyvbjerg, 2006; Yin, 1994). Given the general lack of scientific knowledge on the theme of management of public space, it is important to collect as much data as possible. A large amount of data and the diversity make it possible to gain a holistic picture of the policy arrangements of the Dutch G40 municipalities of Apeldoorn, Breda, Leiden, Ede and Arnhem and the obstacles to an integral approach. In addition, it enables the researcher to analyse the data within a case as well as across situations, which lead to an understanding of the differences and similarities among the cases (Baxter & Jack, 2008; Yin, 2003; Stake, 1995).

This multiple case study consisted of five cases, which were municipalities randomly selected based on their G40 status and their geographical distribution across the Netherlands. As a result, the cases are uniform in size and are therefore highly comparable, though they all have region-specific characteristics.

Case description Apeldoorn

The Municipality of Apeldoorn is located in the Dutch province of Gelderland, on the Veluwe, with forests and heathlands located on the moraines. In addition to the City of Apeldoorn, divided into the five city districts of Binnenstad, Noordwest, Zuidwest, Noordoost and Zuidoost, the municipality consists of the villages Hoog Soeren, Hoenderloo, Loenen, Oosterhuizen, Lieren, Beekbergen, Klarenbeek, Beemte-Broekland and Wenum-Wieselund Uddel. These villages are part of the sixth district, called Villages (AlleCijfers.nl, 2020a). The municipality, situated on sandy soil, has a total surface area of 34,115 hectares, a large part of which consists of outlying areas. The Municipality of Apeldoorn is growing, seeing an 8% increase in inhabitants between 1996 and 2020. A peak in building was seen between 1950 and 1970 (AlleCijfers.nl, 2020a), as a result of which the department management of public space must deal with a large replacement task of the public space of the neighbourhoods built during this time. The high degree of replacement will decrease very slowly in the future, because the construction of new buildings in the Municipality of Apeldoorn has only gradually decreased since 1970 (AlleCijfers.nl, 2020a).

Case description Arnhem

The Municipality of Arnhem is located in the Dutch province of Gelderland. The city is located on the edge of the moraines of the Veluwe and spans the river Rhine. In addition to the City of Arnhem, the municipality, located on clay and sand soil, contains the villages of Elden and Schaarsbergen and the hamlets of De Preats and 't Vlot (Allecijfers.nl, 2020b). The total surface area of the Municipality of Arnhem is 10,154 hectares, consisting largely of densely populated urban area (AlleCijfers.nl, 2020b). The city continues to grow in size and population, and the number of inhabitants has increased by 19% since 1996, to 161,368 inhabitants on 1 January 2020. Between 1950 and 1970, there was a construction peak (AlleCijfers.nl, 2020b), as a result of which the managers of the city face large replacement tasks, involving the replacement of bridges over the Rhine, management the quays and the tasks

associated with major transitions (Department head management of public space, Municipality of Arnhem, 2020). The municipality must therefore deal with a great diversity in the management of public space.

Case description Breda

The Municipality of Breda is located in the Dutch province of Noord-Brabant. In addition to the City of Breda, which consists of the seven districts of Breda Centre, Breda West, Breda East, Breda North, Breda Zuid, Breda Zuidoost and Breda Noordwest, the municipality consists of the residences of Bavel, Prinsenbeek, Teteringen and Ulvenhout (AlleCijfers.nl, 2020c). The municipality, built on sand and clay soil, has a total surface area of 12,868 hectares. Approximately 40% of this surface area is outlying (BN DeStem, 2020; AlleCijfers.nl, 2020c). The use of this outlying area as agricultural land is steadily decreasing as farmers move away from the region or practise a different profession. However, despite the departure of farmers, the Municipality of Breda has seen strong population growth for many years (BN DeStem, 2020). Since 1996, the population has increased by 41%, to 184,271 in 2020 (AlleCijfers.nl, 2020c). The strong increase in the number of inhabitants is reflected spatially in the arrival of the Vinex neighbourhoods. The Municipality of Breda has chosen to localise the development of 16,000 homes imposed by the government in the form of small, newly built districts. These new housing districts have largely been realised within the existing city and in the expanded areas Westerpark, Nieuw Wolfslaar and Teteringen (City of Breda, 2015). During the reconstruction after World War II, the city expanded on a large scale, and from 1950 to 1965, the famous districts of Hoge Vucht, Overakker, Brabantpark, Boeimeer and Heuvelkwartier were built (City of Breda, n.d.).

The strong peaks of growth and the current changes have resulted in a variety of management tasks. First, the residential districts realised during the reconstruction are in need of large-scale replacements. Second, the public space of the Vinex neighbourhoods must grow to match the needs of the inhabitants, for where it was once equipped for young families, it now must fit with families with adolescents. The change in activities in the outlying area places different demands on the public space. Finally, the major transition challenges call for a different layout of the public space, which managers of the public space face major challenges in addressing.

Case description Ede

The Municipality of Ede is located in the Dutch province of Gelderland on the western side of the moraine of the Veluwe. In addition to the City of Ede, the municipality consists of the towns of Bennekom, Deelen, Ederveen, Harskamp, Hoenderloo, De Klomp, Lunteren, Otterloo and Wekerom. The municipality, situated on sandy soil, has a total surface area of 31,862 hectares (AlleCijfers.nl, 2020d). Ede consists largely of rural areas in the form of forests, nature reserves and many agricultural areas (Manager programming Municipality of Ede, 2020). Since 1883, the municipality has had 2000 hectares of forest and 400 hectares of nature in the form of heathland and drifting sands (City of Ede, 2009). The Municipality of Ede is growing, with the number of inhabitants having increased by 17% since 1996, to 117,166 on 1 January 2020. From 1950 to 1970, the municipality experienced a strong increase in the number of inhabitants, and there was a large construction peak (AlleCijfers.nl, 2020d), and as a result, The public space of the neighbourhoods built during this period is in need of replacement. The municipality has budgeted extra money in the coming years for all the roads to be replaced in these neighbourhoods (City of Ede & SWECO, 2017).

Case description Leiden

The Municipality of Leiden is located in the Dutch province of South Holland. The municipality consists only of the City of Leiden, which is attached to adjoining towns and cities. The public space of the city is divided on the basis of use and density into the areas Binnenstad, Bio Science park, Stationsgebied and the Mantel (City of Leiden, 2012). The municipality, which situated on peat soil, has a total surface area of 31,862 hectares and consists entirely of urban areas. The number of inhabitants has increased by 7% since 1996, to 125,174 on 1 January 2020 (AlleCijfers.nl, 2020e). The Municipality of Leiden is thus one of the most densely populated municipalities in the Netherlands. The largest urban expansion of the municipality took place between 1950 and 1980 and was not the result of a strong increase in population but was part of the post-war reconstruction. Since 2000, there has been a strong increase in new building construction (AlleCijfers.nl, 2020e). In managing the public space, the municipality therefore must deal with major replacement tasks of the neighbourhoods created from 1950 to 1980, which are relatively new residential areas, and with the challenges of major transitions.

Data collection

This thesis uses interviews, document analysis and surveys as data collection methods to investigate the five cases. This enables a holistic view of the situation to be gained. Although the four dimensions of actors, resources, rules of the game and discourse are reflected in policy documents, the necessary information about informal rules, social structures and context also remain unwritten. In addition, the perceived obstacles for an integrated approach are reflected in documentation but are not designated as such. Therefore, it is necessary to conduct interviews. Gathering information through various research methods also makes it possible to view the situation from different angles and to separate subjectivity from objectivity (Verschuren and Doorewaard, 2007). The methods used to address each sub-question are shown below in Table 4. The manner in which these different data collection methods were applied in this research is described below.

Table 4. Data collection methods

Item	Method(s)	Data	Source
SRQ 1	Interviews	Transcripts	Interviewees
	Document analysis	Transcripts	Policy documents and reports
	Survey	Transcripts	Interviewees
SRQ 2	Interviews	Transcripts	Interviewees
	Document analysis	Transcripts	Scientific articles, and policy documents and reports
	Survey	Transcripts	Interviewees
SRQ 3	Interviews	Transcripts	Interviewees
	Document analysis	Transcripts	Policy documents and reports
	Survey	Transcripts	Interviewees

Interviews

In this research, data is mainly collected from semi-structured interviews. This interview method ensures high reliability due to the consistency of the questions and themes presented in each interview. In addition, it allows interesting topics to be pursued and clarifications to be made, resulting in more details and depth (Swanborn, 2013).

The first round of data collection took place on the basis of interviews, one of which was conducted at each of the five municipalities. The three research questions per case were examined using the operationalization shown in Appendix 1. During the interviews, the questions from the operationalization table were not asked word for word in every interview. During the interviews, it was ensured that the necessary information was obtained in each interview. Most of the time. the interviewee had already provided the information by answering an earlier question; alternatively, I used a free formulation of the interview questions. An attempt was made to have a conversation that was as natural as possible in which specific topics were included but with room left for the interviewee's input. This also made it possible to align the questions with the interviewees' expertise.

The interviewees in this study were selected based on first contact at the annual congress 'Management of Public Space' and through snowballing. After the cases were selected, the contact persons were approached for an interview appointment with them or with a colleague, depending on their role within the municipality. This means that all interviewees are experts in the field of management of public space and have a holistic view of the situation within their municipality. As a result, knowledge can be obtained about the actual social constructions and problem perceptions that cannot be found in written rules (Yin, 2003). An overview of the interviews is shown in Table 6.

Table 6. Overview of the conducted interviews.

Function interviewee	Date interview
Director of public space, municipality of Apeldoorn	10-01-2020
Manager of public space, municipality of Breda	23-01-2020
Project and program manager, management of public space, municipality of Leiden	29-01-2020
Manager of programming, municipality of Ede	24-02-2020
Department head, management of public space, municipality of Arnhem	04-03-2020

Document analysis

In addition to interviews, this study also uses data collection based on document analysis.

The document analysis tests whether the information obtained from the interviews is also vouched by the policy documents. The literature used in this research consists of published Dutch and/or English scientific articles and government reports such as policy reports, vision, and management programs. The documents were collected using the search engines and libraries of Wageningen University, Google, and Google Scholar. The keywords are based on the products, capital goods and specific documents mentioned in the programme budget. Besides, documents were collected by means of a personal presentation by interviewees. The documents selected to study through this research method are listed in table 7.

Table 7. Document list

Title	Author	Publication date
Gemeentelijk rioleringsplan 2016-2020	City of Apeldoorn	2015
Verkeersvisie	City of Apeldoorn	2016
Groenplan	City of Apeldoorn	2018
Meerjaren programma begroting 2018-2021	City of Apeldoorn	2018
Beheerprogramma 2020-2021	City of Apeldoorn	2019
Ambities & speerpunten	City of Apeldoorn	2020
Waterplan Arnhem 2009-2015	City of Arnhem	2009
Nota ruimte voor de jeugd (spelennota)	City of Arnhem	2010
Ontwerp-structuurvisie 2020 met doorkijk 2040	City of Arnhem	2011
Gemeentelijk rioleringsplan 5	City of Arnhem	2015
Groenvisie 2017-2035	City of Arnhem	2018
Bomenplan Arnhem	City of Arnhem	2019
Programmabegroting 2020	City of Arnhem	2020
Visie Openbare Ruimte Breda 2020	City of Breda	2008
Beleidskader beheer kapitaalgoEderen openbare ruimte	City of Breda	2014
Verbreed GRP Breda	City of Breda	2014
Gemeentelijk Plan Bomen	City of Breda	2016
Onderhoudsconcept verhardingen	City of Breda	2018
Stedelijk Waterplan 2019-2023	City of Breda	2018
Programmabegroting	City of Breda	2019
Onderhoudsconcept civiele kunstwerken	City of Breda	2019
Bosbeheerplan	City of Ede	2009

Table 7. Continued

Title	Author	Publication date
Visie openbare ruimte gemeente Ede	City of Ede	2016
Strategisch plan wegen	City of Ede & SWECO	2017
Gemeentelijk rioleringsplan Ede	City of Ede	2017
Nota onderhoud en vervanging kapitaalgoederen	City of Ede	2017
De Edese participatie-aanpak	City of Ede	2019
Kadernota kwaliteit openbare ruimte 2025	City of Apeldoorn	2012
Handboek kwaliteit openbare ruimte 2015	City of Apeldoorn	2017
Integraal waterketenplan leidse regio 2019-2023	City of Apeldoorn	2018
Omgevingsvisie Leiden	City of Apeldoorn	2019
Programmabegroting 2020	City of Apeldoorn	2020

Surveys

After analysing the obtained data and formulating a theory based on this, a second round of data collection took place. In this second round of data collection we asked about interesting themes and aligned the differences in data between the cases. During the first round of interviews, the interview respondents also suggested themes by themselves. If this knowledge was lacking in the other cases, this was specifically asked for. A personalized survey was sent by email to each case. This survey consisted of open questions with examples for clarification if necessary. The examples were obtained from the suggestions and answers given during the interviews. If necessary, telephone contact was made to explain the completed questionnaire.[1]

Data analysis

All data collected through interviews, surveys and document analysis have been analyzed in a structured way. Analyzing data gives the possibility to understand, compare, integrate, differentiate themes and patterns, test and develop theories and to draw conclusions (Saunders et al., 2011). Using the ATLAS.ti software, the data obtained is analyzed trough open coding to gather as much information as possible inductively. This first loop of coding is flowed by two loops of axial coding. Hereby the open codes are arranged according to their connections. The first

1 Initially, this second and third loop of data collection would also take place in the form of interviews. However, because of corona, these interviews have been replaced by surveys.

loop of axial coding subdivides the open codes into the indicators of the four dimensions of the PAA. In the second loop of axial coding, the indicators are code based on the four dimensions. The coding scheme described is shown in Table 8.

Table 8. Axial coding scheme

Axial code 1	Axial code round 2	Axial code round 3
Agenda-setter	Constellation	Actors
Supervisor		
Implementer		
Supporter		
Adviser		
Informer		
Coordinator		
	Coalition & opposition	
	Interaction patterns	
financial	Constellation	Resources
Authorities		
Knowledge		
Means of production		
competences		
High dependence	Power relations	
Low dependence		
Interdependent		
	Political influence	
	Paradigms	Discourse
	Utopias	
	Policy programs	
Entry & exit rules	legislations	Rules of the game
Position rules		
Scope rules		
Authority rules		
Aggregation rules		
	Pre-Procedures	
	Political culture	

Methods of validation

Having discussed the methodology of the study, it is important to reflect on the effect of the involvement of the researcher on the results of the study. This research will not describe the irrefutable truth but a truth based on the subjective interpretation of the data collection and analysis by the researcher, by applying the theoretical lens or the policy arrangement approach (Schwartz-Shea & Yanow, 2012). This section discusses the methods used to eliminate the subjectivity of the researcher as much as possible and therewith increase the trustworthiness of the study.

Triangulation

The triangulation method can be used to increase the reliability of the data collection (Schwartz-Shea & Yanow, 2012). This prevents the researcher from unconsciously making a biased selection in the data collection and analysis. This can be a result of the willingness to vouch for an initial impression. Triangulation is the use of different methods and sources in data collection and analysis. This research applies triangulation across sources and triangulation across methods. The data collected comes from the source form documents and participants and the methods of collection used are semi-structured interviews and a literature study.

Thick description

The research uses a thick description to emphasize that the results and therefore the described policy arrangements are context-specific. This triggers the reader to consider whether the findings can also be applied to other situations. This is important since this is qualitative research and not quantitative research.

Member-checking

As described, the researcher always has a subjective interpretation of the data. To prevent that data obtained from interviews was misinterpreted, member-checking was used. The transcripts of the interviews were sent back to the participants to check whether they contained factual inaccuracies. As this research uses the grounded theory approach, there is a second loop of interviews among the same participants. The second interviews are partly used to check whether the interviews have been correctly interpreted by the researcher (Creswell, 2013; Schwartz-Shea & Yanow, 2012).

Ethical considerations

In advance of the interviews, the participants were asked whether they agreed to record the interview. During the interview, the interviewees had the option of refusing to answers a question. The participants permitted the use of the results from the interviews before publication. To protect the source -despite all the permissions- even more, the anonymity of the interviewees is guaranteed by coding the interviews.

Description of policy arrangements

This chapter presents a description of the policy arrangements for each case. Definitions of terms used are provided below.

Cluster: Municipal organisations consist of several clusters, each with expertise in a specific field, such as, sports, youth and management. Examples of clusters include social development, economics and space, urban management and public space. The clusters develop policy into a broad framework for the city implemented on a project basis or on the basis of a district council. The clusters are then subdivided into departments, each of which is responsible for a specific component. The research shows that the cluster responsible for the management of public spaces usually consists of a programming department, an urban engineering office and a management department.

Product or asset: The public space consists of several elements, which are divided into categories also referred to as product or asset. Examples are greenery, cleaning, roads, sewers, plays, civil works of art and public lighting. The majority of these products consist of various capital goods, which are the things the municipality needs in order to produce the services and goods it provides to its citizens. These include bridges, trees, lampposts, traffic lights and streets.

General rules and regulations

The description of the rules of the game of the policy arrangements for each case deals with case-specific rules. In addition to case-specific rules, the management of public space involves a number of rules that apply to every municipality, which mainly consist of scope rules, position rules and authority rules. This section addresses the most important universal rules. For the cases discussed below, under the heading ‘Rules of the game’ only the case-specific rules are discussed.

Article 21 of the Constitution of the Netherlands states that the government shall ensure the habitability of the land and the protection and improvement of the environment. This also includes the management of public space, as the care of above- and belowground infrastructure is seen as the responsibility

of the government (City of Ede, & SWECO,2017). In addition to the national definition, this principle is also decentralized in the Roads Act (Wegenwet), which states that the municipality is responsible for the good condition of the roads within the municipality. For the roads outside the built-up area, it should be specified who the manager is and what his or her rights and obligations are. It therefore obliges the municipality to maintain facilities regularly and sustainably (Dutch government, 2017). According to the Road Traffic Act (Wegenverkeerswet) of 1994, the manager must comply with measures that guarantee the safety of the road user and the functionality of the roads. If the management of the infrastructure is faulty and someone suffers damage as a result, the municipality is liable according to the Civil Code (Burgelijke wetboek; City of Ede, & SWECO,2017). In addition to these regulations for infrastructure management, the municipality is obliged to offer cable and pipeline companies a route, which must be requested from the municipality by means of a permit which the municipality is obliged to grant (Department head management of public space Municipality of Arnhem, 2020).

In addition to the duty of care for above- and belowground infrastructure, the municipality, together with the water board, is responsible for caring for the sewage system, which includes responsibility for urban wastewater, rainwater and groundwater. These rules are defined in Articles 3.4, 3.5 and 3.6 of the Water Act (Waterwet; City of Apeldoorn, 2015). The implementation of this duty of care and general management must at all times be carried out in accordance with the Environmental Management Act, the Flora and Fauna Act, the Nature 2000 Act and the Soil Quality Decree. According to these regulations, the province supervises the management and maintenance of the municipality. Interaction among the actors has also been established by means of tendering rules and contracts (Manager programming Municipality of Ede, 2020). This legislation therefore requires strong cooperation between the municipality, the water board and the province.

Management regulations not only are of a physical nature, but also contain financial guidelines. The municipality is also bound by the Besluit begroting en verantwoording provincies en gemeenten (BBV; Decree on the Budget and Accountability of Provinces and Municipalities), which prescribes a fixed budget structure, see Figure 5. The municipal council has the right to choose where

money is spent. By approving the budget, the council authorises the College of Mayor and Aldermen to make expenditures and enter into commitments, and an independent committee supervises the unambiguous implementation and application of the BBV. If, for example, the cluster management wants a change in the budget, this must be approved by the council (Project and program manager management of public space Municipality of Leiden, 2020). According to the rules of the BBV, it is possible to transfer money by means of approval procedures. the financial guidelines provide guidance to the municipality and thereby keeps the financial situation healthy (Wet BBV 2019).

In addition to the above-mentioned legal frameworks, the process of managing capital goods by the municipality is influenced by the Municipalities Act, Article 212 of which states that the municipal by-laws must deal with the handling of capital goods. The legal frameworks described above relate to capital goods in the public space and therefore automatically fall within the scope of Article 212. The Municipal Council draws up basic principles for financial organisation, financial management and financial policy (art. 212 Wet Gemw 2020). This ordinance drawn up on the basis of Article 212 guarantees lawfulness, accountability and control (art. 212 Wet Gemw 2020).

“In any case, the regulation contains:

- Rules for valuation and depreciation of assets;
- Principles for the calculation of the prices to be charged by the Municipal Executive and of rates for duties as referred to in Article 229b, as well as, insofar as they are levied, for the levy referred to in Article 15.33 of the Environmental Management Act;
- Rules concerning the general objectives and the guidelines and limits to be applied to the financing function” (art. 212 Wet Gemw 2020).

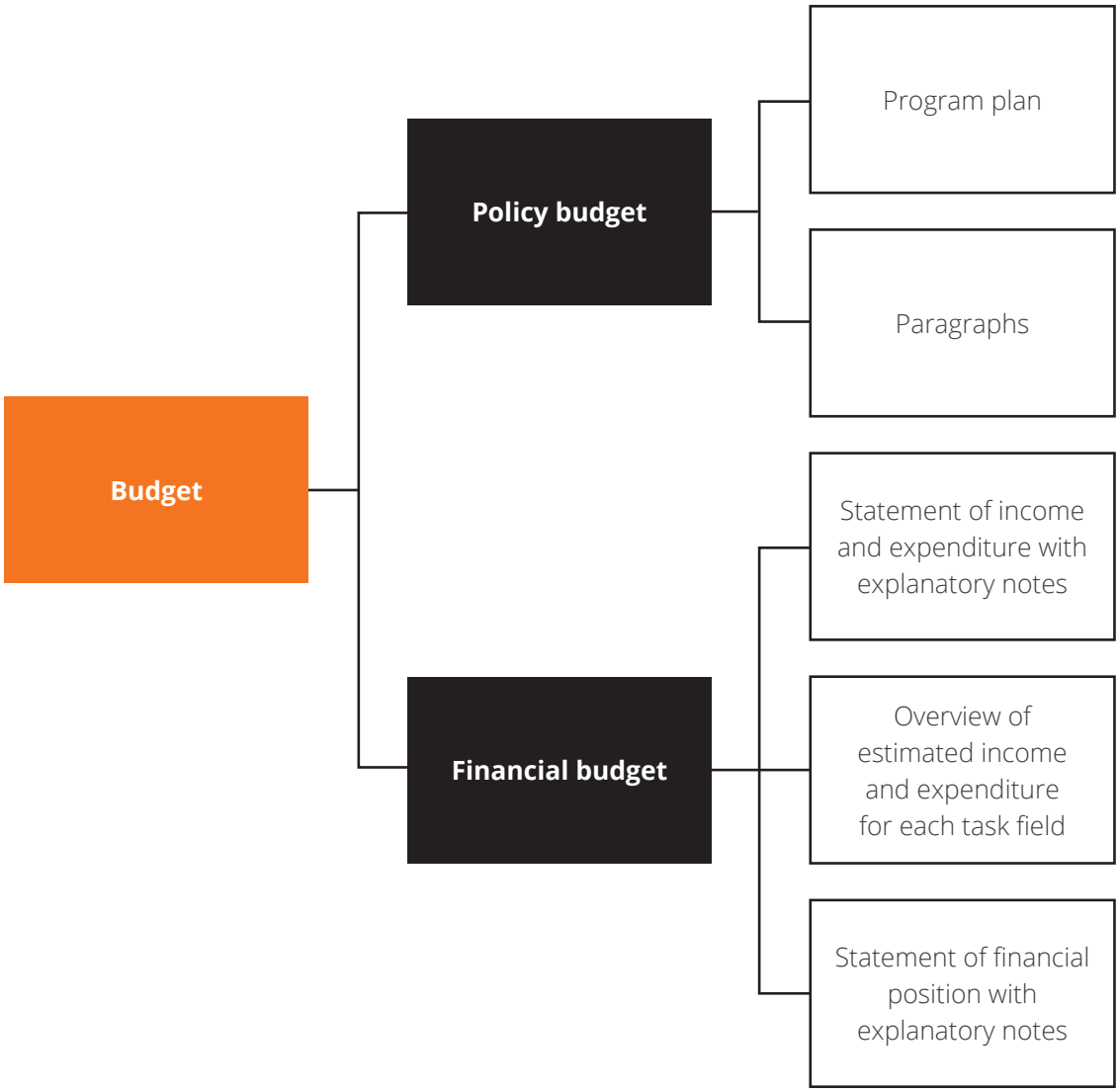


Figure 5. Schematic representation of the Decree on the Budget and Accountability of Provinces and Municipalities.

Apeldoorn

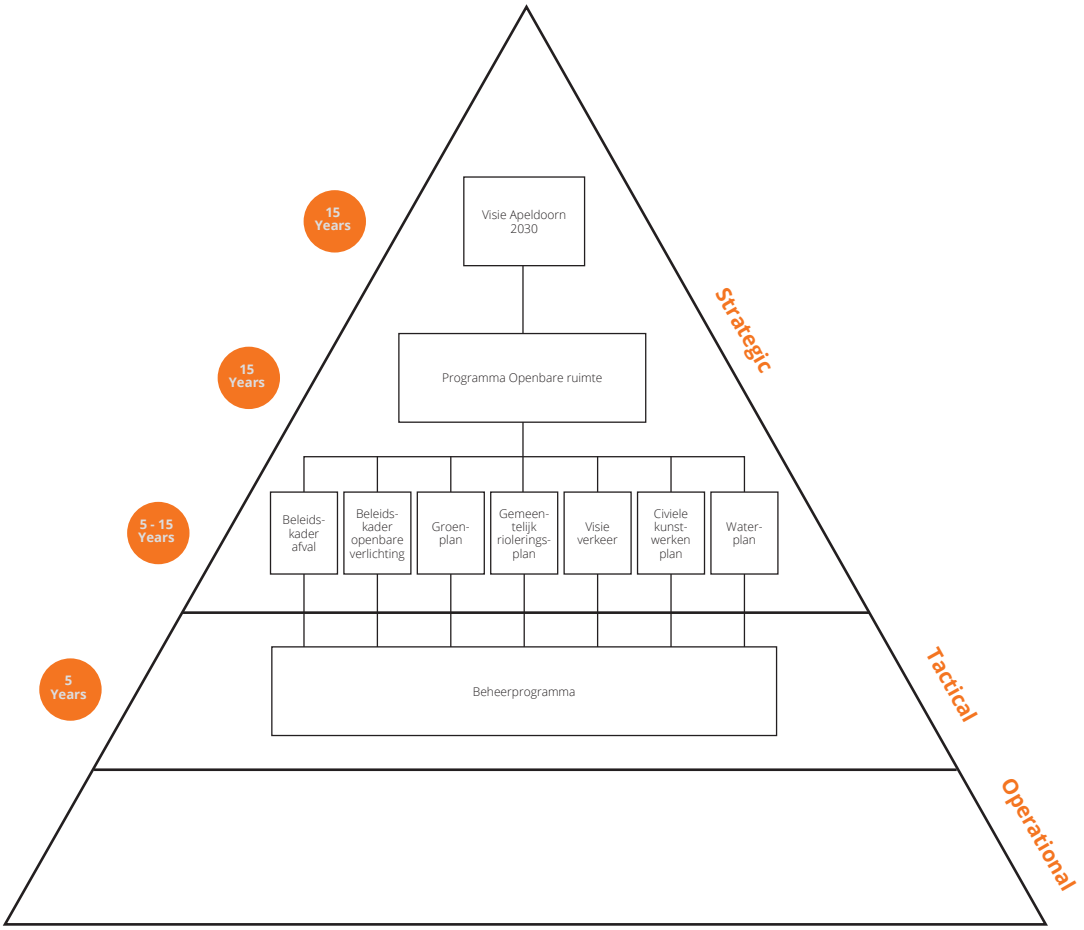


Figure 6. Schematic classification of policy documents applicable to Apeldoorn's management of public space

Apeldoorn's management of public space is documented in policy documents which are updated at varying frequencies. At the strategic level, the general vision of Apeldoorn 2030 has been translated into a vision specifically for public space called Programma Openbare Ruimte (Public Space Programme). This programme describes the ambitions that Apeldoorn has for public space (City of Apeldoorn, 2020). This is a general document and used not only by the management cluster, but also by other clusters, such as the cluster that is involved in the development of new urban areas. At the strategic level, this has been translated into the Visie Verkeer (vision traffic), Groenplan (green plan), Beleidskader vastgoed (real estate policy framework), Beleidskader openbare verlichting (public lighting policy framework), Civiele kunstwerken plan (civil engineering plan), Waterplan (water

plan) and the Gemeentelijk rioleringsplan (municipal sewerage plan). These policy documents describe the value to which these specific themes should contribute (City of Apeldoorn, 2015, 2016, 2018a). Although these policy documents all operate at the same strategic level, they each have their own time frame. The traffic vision is established every 15 years and the municipal sewerage plan every 5 years, and the green plan has no fixed renewal date but fluctuates between estimates of 5 and 15 years. "The documents are not consulted on a daily basis but are in the head of the administrators. They do act on these documents. Changes are not reflected in an update of the documents but in an update of the budget" (Director public space Municipality of Apeldoorn, 2020). The documents at strategic level are therefore not developed in a coherent way and are often not up to date.

The policy documents at a strategic level form the foundation for the general Beheerprogramma (Management Programme), which applies at the tactical and operational levels. The document is partly based on the different products used by the Apeldoorn management cluster. For each product, the tactical elements are discussed as indicators and guidelines. In addition, it states which projects will be carried out in the coming year and which resources will be used for this purpose (City of Apeldoorn, 2019). Apeldoorn lacks an operational policy document that specifically describes who will carry out these projects and how and when they will do so. However, the managers of Apeldoorn do make such an annual plan, but this is not established in official policy documents (Director public space, Municipality of Apeldoorn, 2020). So the operational documents exist to a certain extent but are not officially recorded and transparently presented to external parties.

Actors

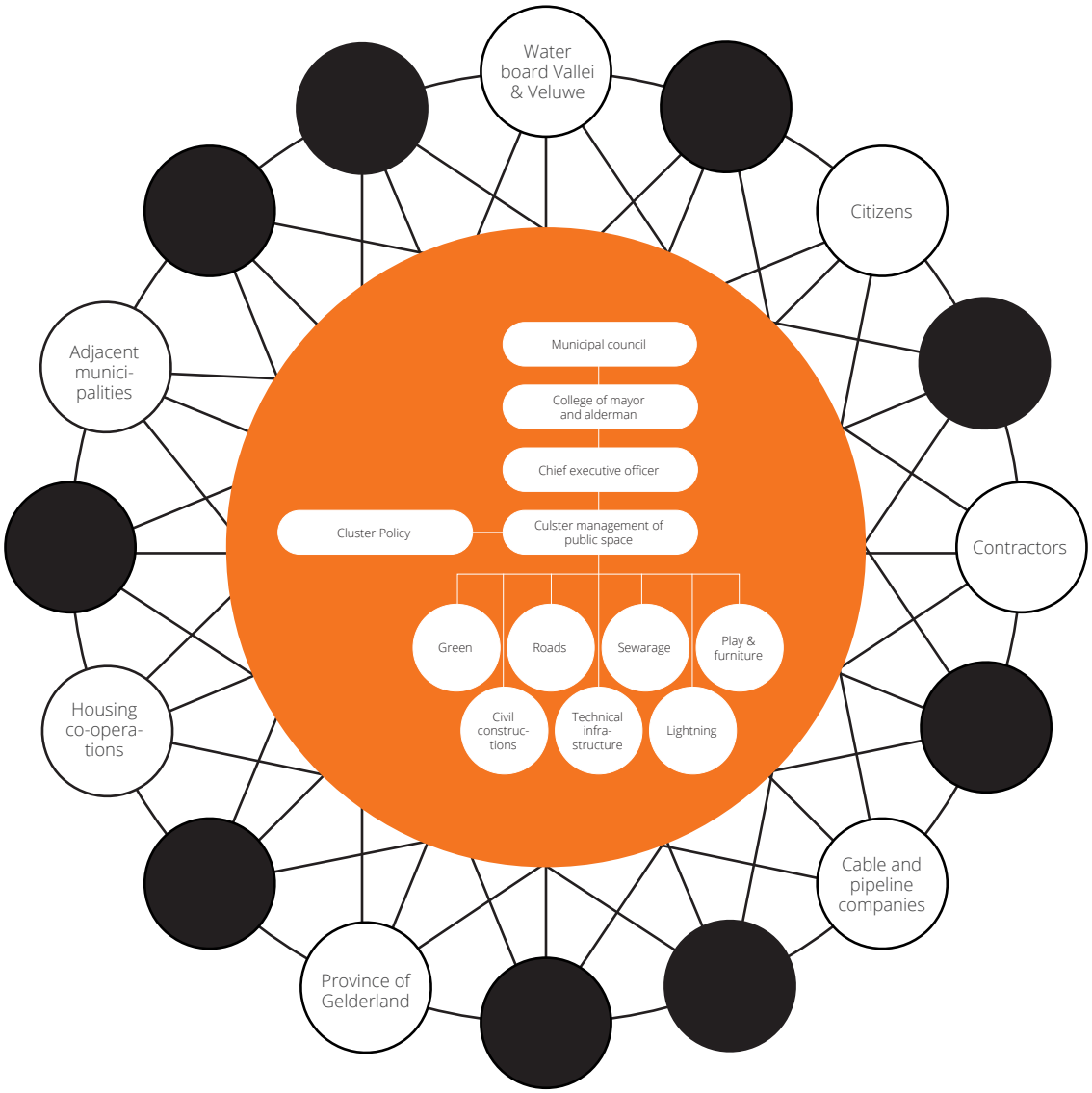


Figure 7. Actors involved in the management of public space of Apeldoorn

The actors involved in the management of public space of Apeldoorn can be divided into eight groups; see Figure 7: City of Apeldoorn, water board Vallei and Veluwe, province of Gelderland, housing co-operations, cable and pipeline companies, citizens, adjacent municipalities and contractors. Since this research focuses on the policy arrangement of the Municipality of Apeldoorn, the municipality is regarded as a combination of several actors. Each department of the municipality is a separate actor with its own authority and role(s). The municipal council determines the political direction of Apeldoorn. In cooperation

with the College of Mayor and Aldermen, it draws up the vision for Apeldoorn and approves the budget (Director public space Municipality of Apeldoorn, 2020). The College of Mayor and Aldermen includes various clusters. The management cluster and policy cluster are responsible for the management of public space. The policy cluster draws up policy documents on a strategic and tactical level, while the management cluster provides input from its experiences in practice. The management cluster then converts these policy documents into the management programme. The management cluster is divided into product-based departments: green, civil constructions, roads, technical infrastructure, sewerage, lightning and play and furniture (Director public space Municipality of Apeldoorn, 2020).

As mentioned above, the management cluster has no officially established operational programme, and in practice, each product group draws up an annual programme. The management cluster is also responsible for carrying out day-to-day maintenance, coordinating large-scale replacement tasks, facilitating the laying of cable and pipeline routes in the public space, informing the public and other parties involved, and providing advice on the design of public space to other parties responsible for the management of this space (Director public space Municipality of Apeldoorn, 2020). The year programmes also include the tasks that will be carried out integrally. Once the tasks have been mapped by means of viewings and inspections, they are programmed by the management cluster. The integral tasks can be worked out and prepared by the internal engineering consultancy. “Within the cluster management, an integral approach is already being used to a large extent. Only an integral collaboration with other clusters is lacking. There is no programming department that works across the entire municipality” (Director public space Municipality of Apeldoorn, 2020). As a result, tasks in the public space of parties within the municipality are still partly carried out in a fragmented manner.

The product groups do not have a standard procedure for coordinating the various annual programmes. However, according to the director of public space of the Municipality of Apeldoorn (2020), this is not a problem: “We know how to find each other and we manage to link tasks to each other. However, there is still room for improvement in the interaction between the clusters”. This is not a lack of communication, but a mismatch of the cycles. Because the various clusters do not work with the same cycles, an integrated approach is often lacking:

It happens that the cluster management presents its annual programme and that the cluster policy wants to tie in with this project. The funding for the management component has already been completed and can therefore be implemented immediately. However, the cluster policy still has to make budget available. This will be done by means of a special request to the council. However, the implementation for the management cluster cannot wait for the slower cycle of the policy cluster. The policy cycle is organized so differently that it does not automatically connect to the regular management cycle that we have here, so that they do not success in making a link to our projects (Director public space Municipality of Apeldoorn, 2020).

The lack of coherence between the various clusters results in a fragmented implementation of tasks

The municipality of apeldoorn is not only responsible for the management of the public space but also cooperates with external actors. Water board Vallei and Veluwe is involved in the management of the public space through its shared responsibility for the sewerage system with the municipality. In cooperation with the municipality, it draws up an agenda based on the municipal sewerage plan and supervises its implementation by a third party (City of Apeldoorn, 2015). This legal sewer care duty is further described in the general "rules of the game" section. The actor groups housing co-operations and cable and pipeline companies are both responsible for the management of part of the public space. These parties draw up their own agendas and take care of their own implementation. The Municipality of Apeldoorn organizes separate consultations with each party in which the agendas are presented and opportunities for cooperation and an integral approach are sought (Director public space Municipality of Apeldoorn, 2020). In addition, the municipality advises the housing co-operations on the best design of the public space. The housing co-operations can decide for themselves whether act on this advice. Just like the housing co-operations, the cable and pipeline companies themselves are responsible for the implementation of their plans. The municipality offers the cable and pipeline companies a route and repairs the roads after the work of the cable and pipeline companies, which implement the tasks themselves. The housing co-operations and the municipality, meanwhile, delegate the implementation to third parties, namely, the so-called actor group of contractors, each of which has their own specialisation (Director public space Municipality of Apeldoorn, 2020). The province is responsible for

monitoring the management of the municipality. In addition, the province has a designation authority to prevent contradiction with provincial plans (City of Breda, 2014). Table 9 shows the various roles that the actors play in the management of public space.

Table 9. Role(s) of the actors Apeldoorn

Role	*Actor(s)*
Agenda-setter	City of Apeldoorn, housing co-operations, Water board Vallei & Veluwe, cable and pipeline companies, Province of Gelderland
Supervisor	City of Apeldoorn, Water board Vallei & Veluwe, Province of Gelderland
Implementer	City of Apeldoorn, contractors, cable and pipeline companies, citizens
Supporter	City of Apeldoorn
Adviser	City of Apeldoorn, Citizens, Water board Vallei & Veluwe, Housing co-operations
Informer	City of Apeldoorn, housing co-operations, Water board Vallei & Veluwe, cable and pipeline companies
Coordinator	City of Apeldoorn, Water board Vallei & Veluwe

Resources

Based on the theory, the actors can dispose the following categories of resources: knowledge, authority, competences, means of production and financial. All actors have the means of production at their disposal, meaning that they have access to infrastructural capital, natural capital, machinery and tools. In addition, all actors have their own specific knowledge and competencies. Because the municipality retains some of the responsibility for implementation, it has not only organisational and legal knowledge, but also knowledge in the field of implementation. The financial resources and the resource authority do not apply to all actors involved. Only the Water board Vallei and Veluwe and the Municipality of Apeldoorn have authority and thus legitimate power over the other actors, which they can exercise through the granting of permits and the zoning plan. The actors Water board Vallei en Veluwe, cable and pipeline companies, housing co-operations and the Municipality of Apeldoorn also have financial resources at their disposal (Director public space Municipality of Apeldoorn, 2020). The financial resources are thus not distributed evenly among the actors.

The financial resources of the municipality are fixed in a budget allocated to various products, namely, green, roads, civil engineering works, sewerage, technical infrastructure, lighting and games and furniture. These products are also divided into sub-categories, each with their own part of the budget (Director public space Municipality of Apeldoorn, 2020; City of Apeldoorn 2018b); for example, green is divided into sub-categories such as shrubs and trees. The budgets of the products consist of two parts. Daily maintenance is paid for from the exploitation account, and large-scale maintenance and replacements have a provision with depreciation over the economic lifespan. The amount of the budgets is determined on the basis of previous years, with an adjustment for inflation and the change in area (Director public space Municipality of Apeldoorn, 2020).

The power that an actor has with a certain resource depends on the replaceability of the resource and the importance of the resource to achieve the goal (Koppenjan and Klijn, 2004). Within the current situation, the actors have very specific knowledge and competencies at their disposal, and only a few players on the market could fulfil the role of one of the actors. This results in a high degree of dependency between the municipality and the other actors.

Discourse

The management vision drawn up by the Municipality of Apeldoorn reads as follows:

> *We keep the base in order and the public space clean, whole and safe. By means of integral management, we are optimally committed to the strategic objectives of Apeldoorn and thus realize the ambitions of the municipality in the public space. We are an inclusive organization and rooted in society. (City op Apeldoorn, 2019, pp. 4)*

This vision is reflected to a greater or lesser extent in practice. The inclusive character of the organization is reflected in the choice of the municipality to take some of the maintenance management into its own hands. These management tasks are carried out by people with a disadvantage on the labour market (Director public space Municipality of Apeldoorn, 2020). The motto that management aims to keep the public space clean, whole and safe is widely shared among staff members, and the people working in the management department have a great

passion for their profession and, based on this motto, see the life span of an asset as a priority. This passion for their product also makes them consider their own product as most important, and they see the budget for their product as their money and not as the money of the entire management cluster (Director public space Municipality of Apeldoorn, 2020).

The Municipality of Apeldoorn uses a variety of steering methods for the management of public space. Frequency-controlled management is still used for, among other things, mowing grass (Director public space Municipality of Apeldoorn, 2020). Theme-based management also exists, based on the themes of climate adaptation, sustainability and circularity (City of Apeldoorn, 2019). However, the most dominant steering method is quality-driven management. Public space is managed and maintained according to the image quality B established by CROW (City of Apeldoorn, 2019). The Municipality of Apeldoorn is currently in the process of introducing asset management (Director public space Municipality of Apeldoorn, 2020), which means that management will be based on risks. This kind of management has already been introduced in the municipal sewerage plan, in which "quality is important, but we weigh the risks even more against the costs" (City of Apeldoorn, 2015, pp. 32). The Municipality of Apeldoorn wants to apply this idea to the other products in the future as well.

Based on these steering methods, the task of management is mapped out in various ways. By means of viewing through the CROW system, the image quality of the public space is determined, as a result of which the initial care maintenance management tasks are mapped. Assets that are included in large-scale maintenance and replacements are subjected to a technical inspection in accordance with the NEN2767 standards on the basis of the viewing (Director public space Municipality of Apeldoorn, 2020). In addition, an annual survey is conducted among the public, and socially controlled tasks are drawn up. The various tasks that emerge from the viewing, technical inspection and survey are carried out separately or merged into an integrated project (Director public space Municipality of Apeldoorn, 2020). The emergence of integral projects is highly dependent on the state of Apeldoorn's leading asset. In Apeldoorn, given the physical characteristics of the soil, the leading asset is roads. If the road must be replaced, other tasks at the same location can be linked to it. In this linking process, a balance is sought among the lifespans of various assets. It is

possible that an asset will be replaced at a later stage in its life so as to coincide with another project. “If the municipality is going to replace assets now that are replaced again during the project, there is a destruction of capital” (Director public space Municipality of Apeldoorn, 2020). The municipality tries to work as integrally as possible by carrying out replacements at the same time, but only if the capital destruction does not become too large.

The existence of a dominant discourse certainly does not mean that everyone within the cluster is doing the same thing. “You see that Pietje does it differently from Jantje and that a lot of the choices hang on Pietje, so to speak. Then it becomes almost personal. One does the sister and the other does it like this. You can see the influence of different people or managers” (Director public space Municipality of Apeldoorn, 2020). Because of a difference in actions, actors do not know where they stand, which makes cooperation difficult.

Rules of the game

Most of the case-specific rules are scope rules, which are laid down in the policy documents and framework notes. These concern in particular which ideals are pursued and how the specific space should be organised. The guidelines for the Municipality of Apeldoorn are not very detailed and only describe the levels of ambition (City of Apeldoorn, 2019). The documents can apply to the strategic, tactical or operational level, as shown in Figure 6, all of which are binding for the implementation of management.

The Municipality of Apeldoorn exchanges information individually with the actors in order to draw up an integrated plan (Director public space Municipality of Apeldoorn, 2020). The fact that information is exchanged in a fixed manner indicates an informal information rule. In this process, the municipality determines with which actors it will exchange information individually. In this way, the municipality determines who will be admitted to the information exchange and the drawing up of integral plans. In other words, there is an informal entry and exit rule.

Breda

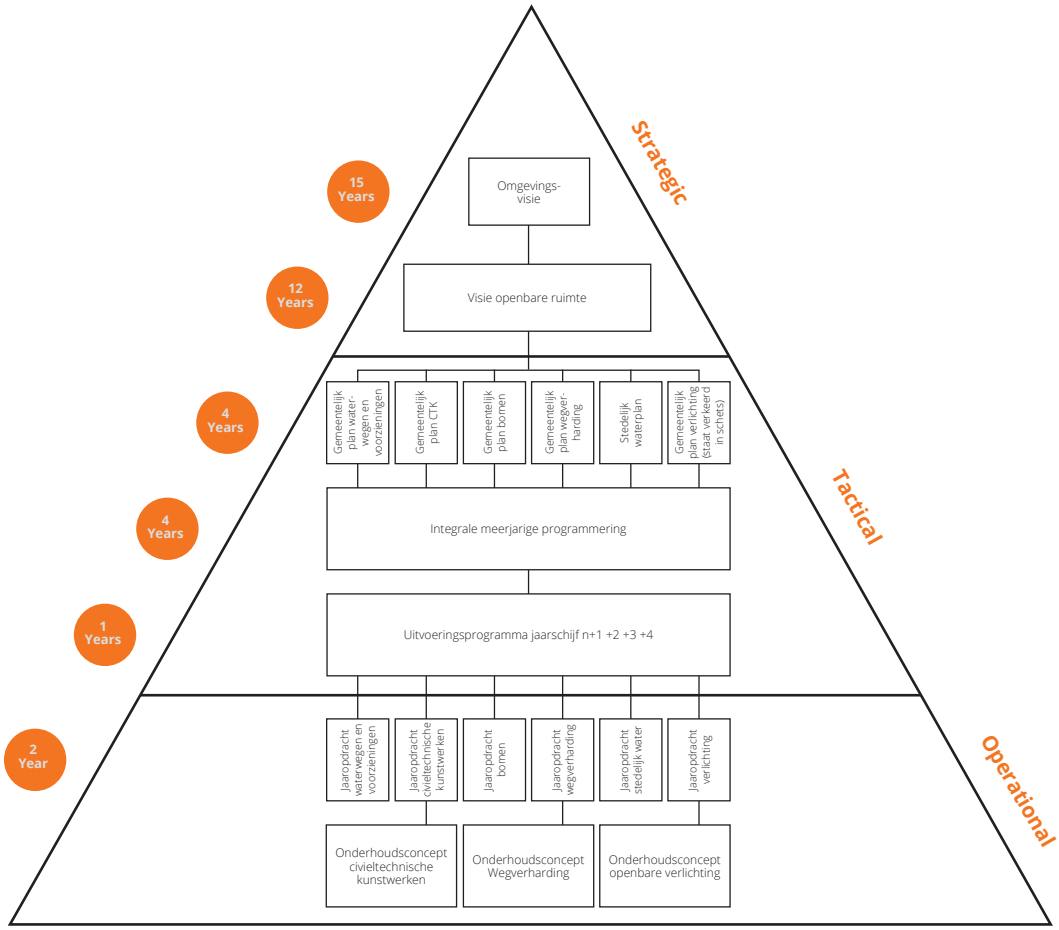


Figure 8. Schematic classification of policy documents applicable to Breda's management of public space

The management of Breda's public space is based on the strategic documents Omgevingsvisie (environmental vision), Visie openbare ruimte (vision public space) and the nota kapitaalgoederen (note on capital goods); see Figure 8. These documents, the so-called municipal plans, have been translated into tactical policy documents that focus on a specific capital asset (Manager public space municipality of Breda, 2020). Based on these municipal plans, the municipality determines its management task for the coming years. This agenda is coordinated with the other actors involved in the management of public space. The whole set of tasks together is translated into an integral large-scale maintenance multi-year programme for the next four years.

After the multi-annual programming, the projects are processed and project proposals are submitted to the internal engineering consultancy. The internal engineering office then usually undertakes a feasibility study and a plan of approach to which it becomes a project. These projects are translated into annual implementation programs, which are integral in nature and divided into annual assignments based on the capital assets (City of Breda, 2014a). The capital goods civil engineering works, road pavements and public lighting are enriched with a maintenance concept (City of Breda, 2018a; 2019b), which serves as a superstructure and working document for the management and maintenance of these assets. The maintenance concepts describe the necessary materials, knowledge, competences, parties and goals (City of breda, 2019b). By describing standard processes and solutions, the maintenance concept ensures that the policy is translated to operational reality.

In contrast to most Dutch municipalities, the Municipality of Breda does not have a municipal sewerage plan and instead has included the legally required municipal sewerage plan in the urban water plan. In addition to the statutory duty of care of the municipal sewerage plan, the urban water plan also consists of goals regarding climate change, citizen participation and other common goals. This plan includes city water, groundwater, sewerage and water storage facilities (City of Breda, 2018b).

Actors

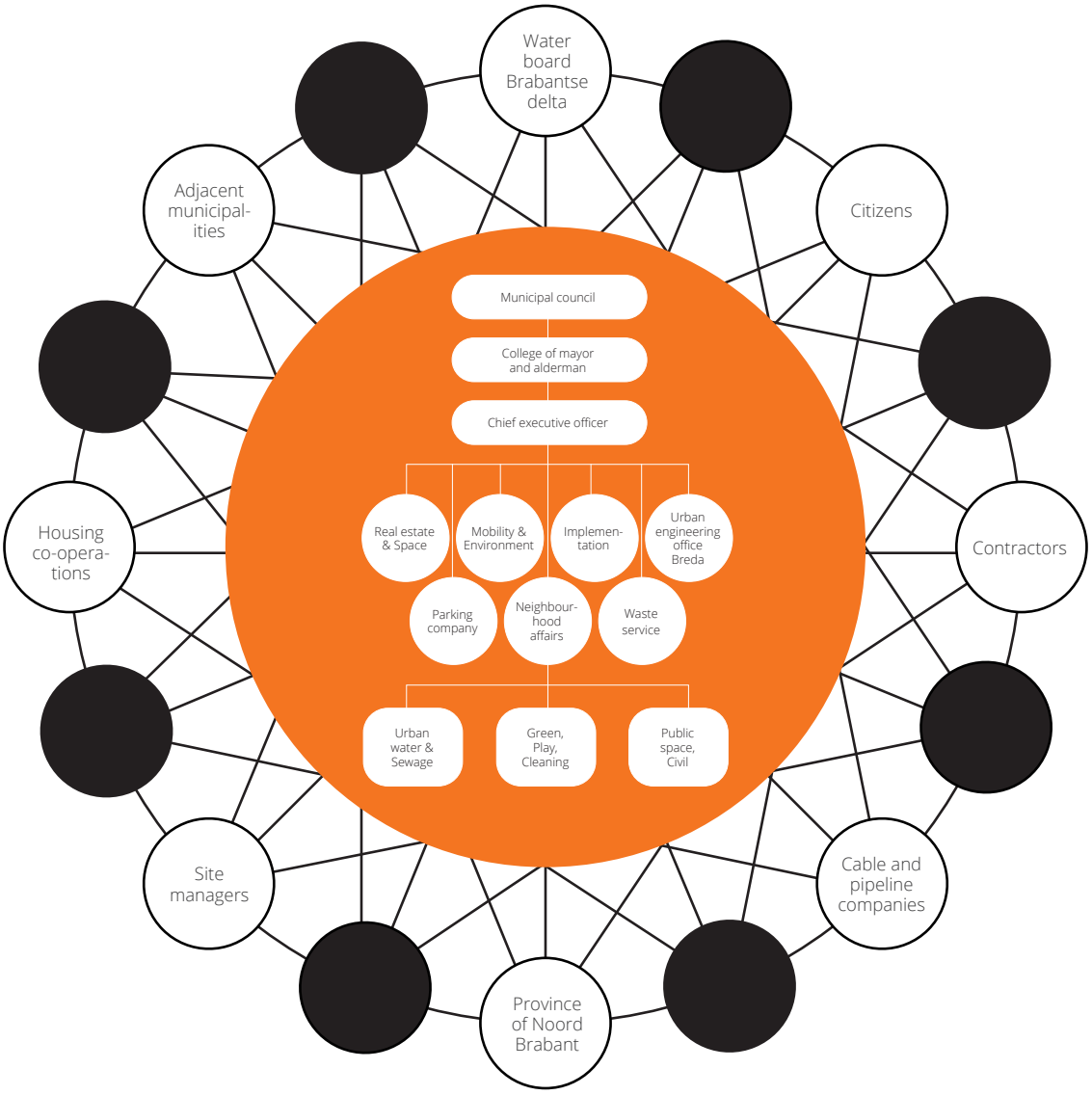


Figure 9. Actors involved in the management of public space of Breda

In addition to the actor municipality of Breda, the actors water board Brabantse Delta Province of Noord Brabant, housing co-operations, cable and pipeline companies, contractors and citizens are involved in the management of public space; see figure 9. The citizens are only responsible for management on a small scale, such that by means of neighbourhood deals, they can realise the construction of facade gardens and such, with the municipality reimbursing expenses, materials or a pleasant activity. Citizen participations aims to adapt the management of the municipality to the wishes of the citizen (Manager public space municipality of Breda, 2020).

The actor municipality consists of the municipal council, which provides political guidance to the college of mayor and alderman. Under the decision-making authority of the college, seven departments are involved in the management of public space. These are the waste service, implementation, real estate and space development, parking company, mobility and environment, urban engineering office Breda and the department of neighbourhood affairs (Manager public space municipality of Breda, 2020). The waste service is divided into a production team and a production support team, which together are responsible for garbage and bulky waste. The implementation department is responsible for a large part of the execution of the management of the public space, and only when it does not have the knowledge and competences required is management carried out by a third party (Manager public space municipality of Breda, 2020). Stadsingenieurs Breda is responsible for designing, preparing, advising, supporting and supervising large-scale management tasks, which are mapped out by the department of district affairs. This department is divided into a team of affairs and a team of districts. Each district in Breda has its own district leader, who considers what is going on in the district and what the management tasks are.

For each product, the district department makes an inventory of the management tasks per product. The items found are communicated to the "project tuning table" (Manager public space municipality of Breda, 2020). The administrators of the municipality, classified by product, meet every two weeks to communicate the plans for their product. Once every quarter, the municipality, water board, housing co-operations and the cable and pipeline companies communicate their plans for the next five years. The tasks are digitally mapped out and overlaid. This may now lead to the reinforcement and linking of plans. The small maintenance tasks for which the municipality is responsible are immediately transferred to the execution department, while larger tasks enter a management cycle of approximately two to three years. The first year of this cycle is the aforementioned inventory. Where possible, the various management tasks are linked to an integral project proposal, which is sent to the urban engineering office Breda (Stadsingenieurs Breda). In year two of the cycle, the engineering office carries out the programming of the tasks, which is followed by a year of preparation. In the last year of the cycle, the implementation department carries out the program. If the execution requires specialist knowledge, it is carried out by external contractors under the supervision of the engineering office Breda (Manager public space municipality

of Breda, 2020). Because the parties involved both internally and externally are aware of each other through the project tuning table, plans can be adjusted to accommodate each other and can thus be executed integrally.

Table 11. Role(s) of the actors Breda

Role	*Actor(s)*
Agenda-setter	City of Breda, housing co-operations, water board Brabantse delta, cable and pipeline companies, Province of Noord Brabant
Supervisor	City of Breda, water board Brabantse delta, Province of Noord Brabant
Implementer	Contractors, cable and pipeline companies, citizens
Supporter	City of Breda
Adviser	City of Breda, Citizens, housing co-operations
Informer	City of Breda, housing co-operations, water board Brabantse delta, cable and pipeline companies
Coordinator	City of Breda, water board Brabantse delta

Resources

The citizens only have knowledge and competences as a resource. Due to the lack of means of production and financial resources, management at the citizens' initiative will always be expressed on a small scale. The contractors are hired by the other actors and only need to have competences, means of production and knowledge. The knowledge of the contractors is very specific, and there are therefore few players on the market (Manager public space municipality of Breda, 2020). The housing co-operations and the cable and pipeline companies are themselves responsible for part of the management of the public space and, in addition to knowledge, competences, means of production in the form of infrastructural capital and natural capital, they also have financial resources at their disposal. These actors are financially entirely independent of the municipality. Contracts stipulate who bears which responsibility. Among other things, the municipality is responsible for repairing paving after an intervention by a cable and pipeline company (Manager public space municipality of Breda, 2020).

The Province of Noord-Brabant, water board Branbantse Delta and the Municipality of Breda have the resources of knowledge, competences, means of production, finances and authority. The Province of Noord-Brabant has a designation authority. If the management of the municipality conflicts with plans

of the province, the province may give the municipality a reprimand (City of Breda, 2014b). The budget of the municipality is classified according to the products (Manager public space municipality of Breda, 2020). The products trees, public lighting, civil engineering structures, pavements, waterways and traffic control installations are capitalized and are financially divided into facilities, exploitation and investments. The small and cyclical maintenance is paid by exploitation, large-scale maintenance from facilities and replacements from investments (Manager public space municipality of Breda, 2020). Investments are mainly for large-scale replacement of public lighting, replacement of civil engineering structures, and "raising" and "rehabilitating" pavements. The product sewerage is divided into exploitation, investments and facilities (Manager public space municipality of Breda, 2020). In this respect, facilities function as an equalization facility (Manager public space municipality of Breda, 2020). This means that the municipality forms a reserve in this financial year for costs and charges that for a future peak in expenditure. No work is therefore carried out from the equalization provision; it is rather a savings account for high maintenance costs for the sewerage system in the future.

The products green maintenance, decorative elements, event cabinets, bollards, marking, signs, street furniture, playing facilities, ecology, maintenance of cemeteries, animal infestation control, weed control, smoothness control, cleaning and recreational facilities are funded by exploitation and investment (Manager public space municipality of Breda, 2020). The level of the budgets is adjusted annually on the basis of an increase in the acreage, and every two years, it is calibrated and, if necessary, adjusted on the basis of agreements made, current quality/inspections and market price (Manager public space municipality of Breda, 2020). This concerns the expansion of the area. Separately from this, the municipality also has the capital goods process. This consists of an evaluation (every two years) and an update (every four years). This allows changes in budgets, qualities and control philosophy for the five capital goods: waterways, trees, public lighting, civil engineering works and pavements (Manager public space municipality of Breda, 2020).

The power an actor has with a certain resource depends on the replaceability of the resource and its importance to achieve a given goal (Koppenjan and Klijn, 2004). As with the other cases, there is a high degree of dependency among the municipality

and the other actors. The municipality, however, is less dependent on contractors than municipalities that completely outsource implementation. The Municipality of Breda has its own engineering consultancy and implementation department, as a result of which it possesses a large amount of knowledge and competencies itself, and only in the case of highly specialised tasks is it dependent on contractors.

Discourse

The vision for public space drawn up by the municipal council reads:

> *The use, design and management of public space in towns and villages must promote the well-being of Breda's citizens, commuters and tourists. This is done by increasing the possibilities of sharing the public space together, by strengthening the identity of the neighbourhood, district, village and city and by using, designing and managing the public space in a sustainable way. (City of Breda, 2008)*

In order to achieve this objective, public space is divided into the characteristics of use, design and management. Usability is paramount, and the design and management create and supportive (City of Breda, 2008). The management of the public space must be sustainable, strengthen the identity of the city and increase the possibilities for use (City of Breda, 2008). With the management of public space, the Municipality of Breda not only wants to pursue being clean, whole and safe, but also to achieve higher goals, such as ensuring quality of life, spatial quality, cultural-historical value and sustainability (Manager public space municipality of Breda, 2020). Sustainability is very important to the managers. For an integral approach, however, it is important to find a balance between the replacement moments of the various products. This requires the manager to think about the possibility of applying an integral approach to the various products and the availability of data about the condition and characteristics of the products. Integral thinking is increasingly present in Breda (Manager public space municipality of Breda, 2020). In addition, the district affairs department is improving the digital infrastructure to provide a clear overview of the data available on the products, which makes it easier to find possibilities to apply an integrated approach.

Determining the condition of the products in order to map out the management tasks is done by means of quick scans, technical inspections and surveys among the citizens. The frequency of technical inspections depends on the product.

As a result, the Municipality of Breda manages public space mainly through a combination of risk- and quality-driven management. The municipality has drawn up quality levels that consist of image quality and a risk level. Currently, the municipality manages at levels A, B and C (City of Breda, 2019a). Level B means that the public space is obstacle-free and can be used optimally, comfortably and safely. Level C designates a public space that can be used safely with sufficient quality for economically optimal, fast and comfortable use. In the case of a quality level C product, management is carried out in a reactive manner. Reactive management means that management is only carried out if the quality is too low, and using this approach, there a high risk of destruction of capital because intervention takes place at a late stage (City of Breda, 2019a). Products that are managed at level C include civil engineering structures and waterways. The entire inner city is managed at level A, B and C, also called B minus. However, this does not mean that every element has this level, as long as all the elements within a product are managed at level B. In a district, the trees which form the main structure are managed at a higher level than environmental trees (City of Breda, 2016).

The Municipality of Breda does not go through the complete asset management circle but only uses the first four steps. The manager of public space of the Municipality of Breda (2020) stated that integral working also requires more than just following the asset management circle, "Because you are dealing at the same time with asset circles that are in different stages, it is not only a matter of rational consideration of risks, but also of determining the right replacement moment based on intuition". Roads are the leading asset, and if they must be replaced, the manager intuitively determines which other assets are included in the project.

The Municipality of Breda also makes use of frequency-driven management for tasks such as pruning trees (Manager public space municipality of Breda, 2020). A socially managed approach is a steering method which is growing in popularity in the Municipality of Breda. The participation of citizens is becoming increasingly important in the management process. The municipality invites citizens to participate in the interpretation of new management tasks, examining whether the management still meets the needs of the district, which interpretation of the implementation is best and whether there are desires on the part of the citizens that can be taken into account (Manager public space municipality of Breda,

2020). Where the municipality looks at the interests of citizens and society as a whole, the housing co-operations and the cable and pipeline companies are commercially driven. As a result, they have different interests than the socially driven parties. These actors manage according to the needs of the client. This means that if a customer needs a certain cable, it is placed directly in the public space. As a result, the cable and pipeline companies have not only a long-term agenda, but also a very short-term agenda (Manager public space municipality of Breda, 2020). This customer-driven character of the commercial companies applies to all cases.

Rules of the game

The vision drawn up by the municipal council is the guideline for how to act in the management of public space. This vision should be pursued and has been translated into management plans, maintenance concepts and annual plans. The maintenance concepts provide a very detailed account of the material, equipment, knowledge, skills and abilities required to manage a particular product. In the management of the public space, not only should the vision be pursued, but the management should be carried out in accordance with the guidelines of the maintenance concepts.

If the municipality wants to deviate from the budget, it can do so without the consent of the council and the college of mayor and aldermen if the money is only shifted within the product.

In addition to the general and case-specific formal rules, informal rules can also be identified. The municipality decides which actors participate in the project tuning table (Manager public space municipality of Breda, 2020), and there is thus an informal entry and exit rule. At the project tuning table, information is exchanged between the actors who draw up an integral plan. There is therefore an informal information rule that determines what information is made available by the actors and how it is shared.

Leiden

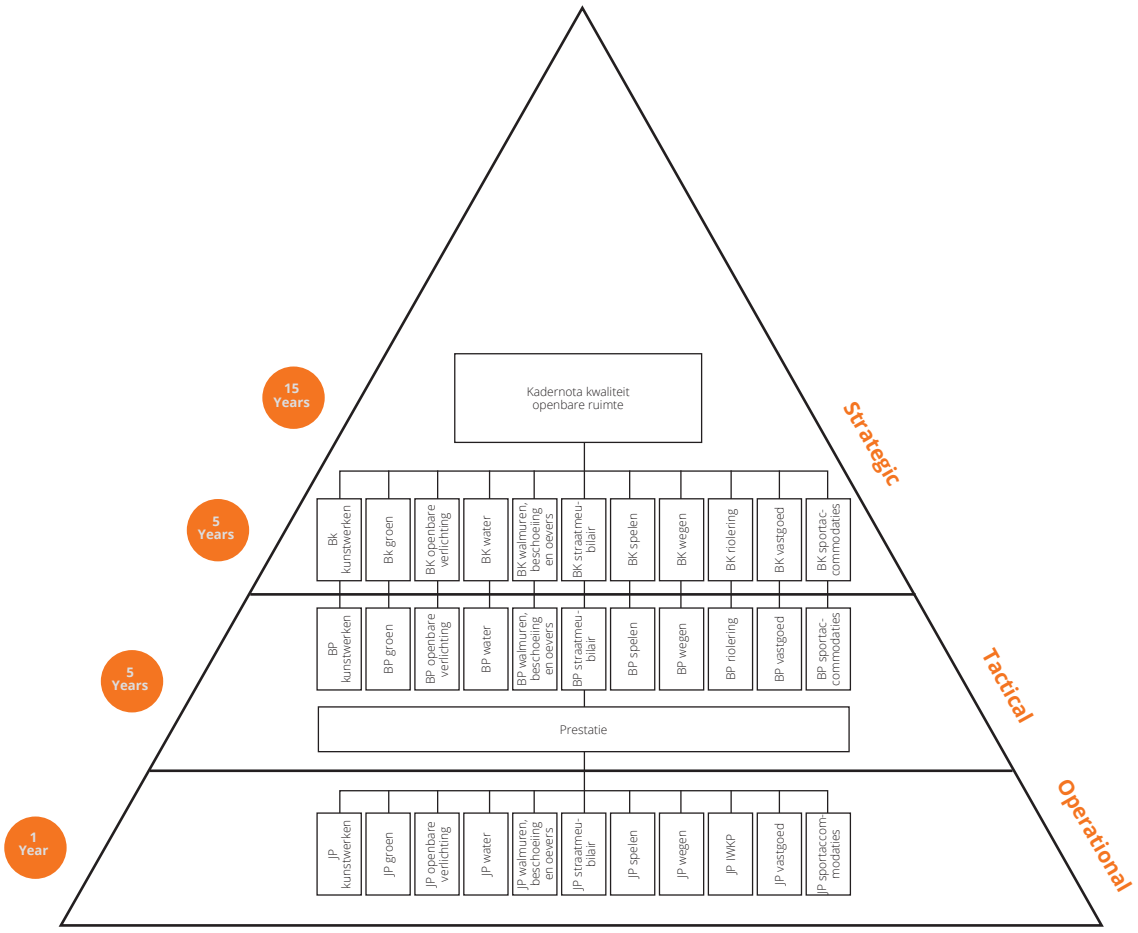


Figure 10. Schematic classification of policy documents applicable to Leiden's management of public space

The environmental vision for Leiden 2040 (City of Leiden, 2019) indicates the politically desired direction of development for the Municipality of Leiden. The environmental vision has been translated into various policy frameworks. Related to management of public space is the policy framework for public space. At the strategic level, within the public space policy framework, the Kadernota kwaliteit openbare ruimte 2025 (framework note on the quality of public space 2025) has been drawn up, complemented by the Handbook on the Quality of Public Space (City of Leiden, 2012). These policy documents together describe the design principles for the development, design and management of public space. On the basis of the framework note on the quality of public space 2025, policy frameworks have been drawn up for each capital asset. These policy frameworks are updated every five years.

At the tactical level, the public space policy framework consists of management plans drawn up on the basis of capital assets with an updating frequency of five years; see Figure 10 (City of Leiden, 2020). In addition to the policy frameworks for each capital good, these management plans are fuelled by programmes and notes that go beyond the policy frameworks, such as the Inner City Programme, the Knowledge City Programme, the 2012 Sports Note and the Water Note (Project and program manager management of public space Municipality of Leiden, 2020). The management plans describe for each asset the steering method and guidelines that apply to the management of public space. Each manager draws up an annual plan for inspections, investigations and regular maintenance together with the project coordinator of the supporting management team. Major maintenance is worked out over the duration of the programme and distributed on the basis of urgency and suitability for other projects and tasks in the city. The approach for the replacements is articulated in the presentation. The performance is divided into annual plans for each capital good (Project and program manager management of public space Municipality of Leiden, 2020).

Under the Environmental Management Act, Article 4.22, municipalities have the legal obligation to draw up a Municipal Sewerage Plan (GRP). The Municipal Sewerage Plan of the Municipality of Leiden is part of the Integral Water Chain Plan 2019–2023 (IWKp; City of Leiden, 2017). The Integral Water Chain Plan, mainly tactical and operational in nature, concerns the entire water chain and consists of the municipal duty of care for the management of urban water, waste water, rainwater and groundwater, and the duty of care of the water board for the processing of waste water (City of Leiden, 2018).

Currently, the management plans have an updating frequency of five years. The municipality is in the process of extending this to an update frequency of ten years. A longer duration of the management plans makes it possible to program in a more forward-looking manner. During the transitional phase, the municipality works with a neighbourhood replacement programme for the period 2019–2024 and a programme for 2020–2050 (Project and program manager management of public space Municipality of Leiden, 2020).

Actors

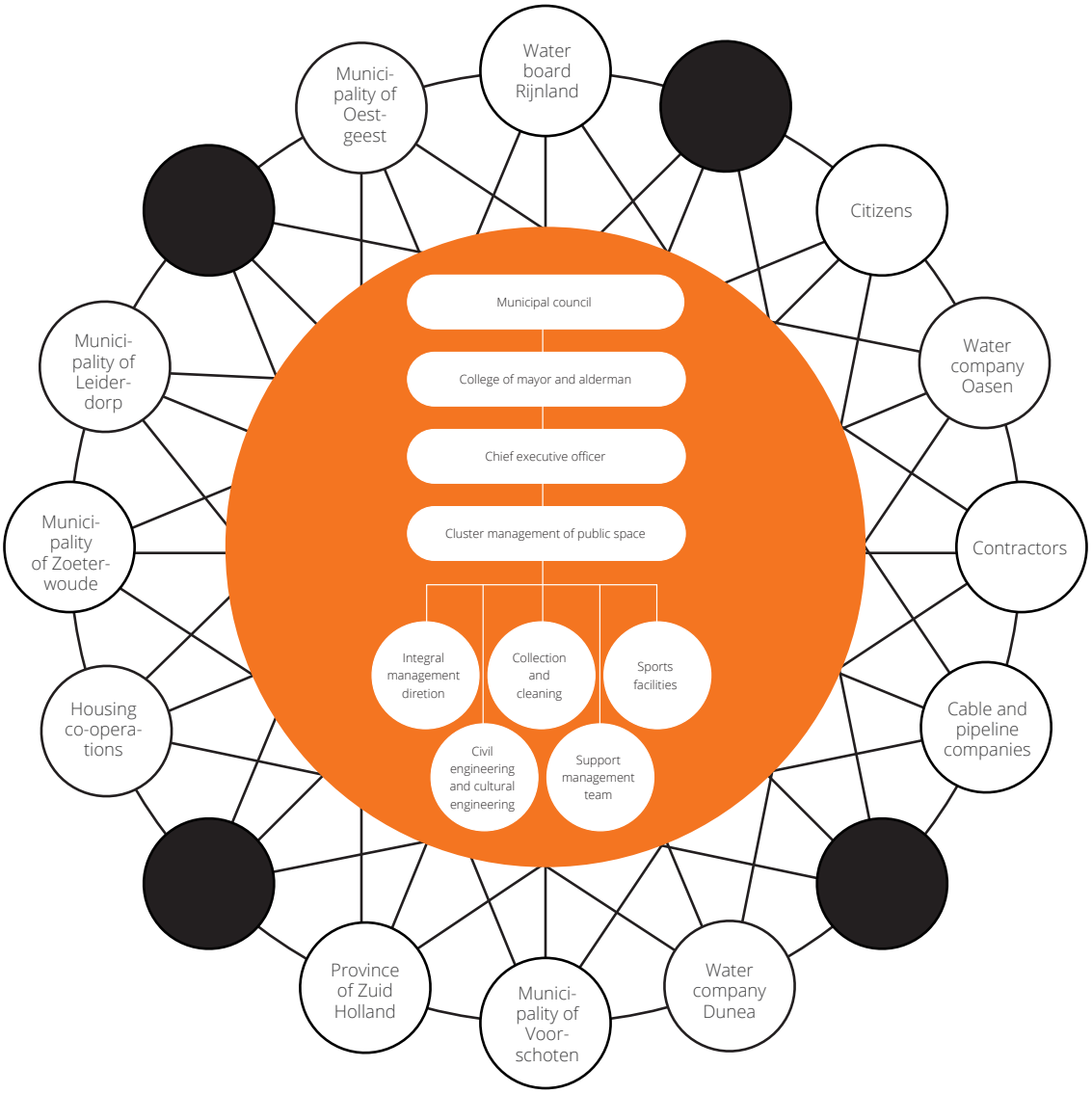


Figure 11. Actors involved in the management of public space of Leiden

As is the case for many municipalities, to manage public space, the municipality works together with housing co-operations, cable and pipeline companies, citizens, contractors and the province. As shown in Table 13, the municipality fulfils all roles except that of implementer. Because of its many roles, the municipality acts as a directing actor. The implementation programmes are implemented by contractors on behalf of the municipality. “Each contractor has knowledge of a specific component and carries out the work autonomously. The municipality links the various contractors to each other” (Project and program

manager management of public space Municipality of Leiden, 2020). This can be tasks that are on the agenda of the municipality or that the municipality carries out as a result of the agenda and the housing co-operations and cable and pipeline companies. The management tasks that are the responsibility of the housing co-operations and cable and cable companies are carried out by these parties themselves after notifying the municipality (Project and program manager management of public space Municipality of Leiden, 2020).

Citizens advise the municipality on management tasks and is responsible for the management of the public space on a very small scale. “We try to include the initiatives of citizens in our plans by means of the programme Getting Started Together (Samen aan de slag)” (Project and program manager management of public space Municipality of Leiden, 2020). This often involves the construction of vegetable gardens, facade gardens, meeting places and the like. If a citizens’ initiative results in a change in design, the plan is assessed by the Assessment and Advice Committee for Public Space (TACOR) as to whether it accords with what is stated in the Framework Note and the Handbook on the Quality of Public Space (City of Leiden, 2017). The entire management of the public space of the Municipality of Leiden takes place under the scrutiny of the Province of Zuid Holland, and if the management is not in accordance with the plans of the province, the latter may issue an instruction (Manager programming Municipality of Ede, 2020).

In contrast to other municipalities, the Municipality of Leiden does not work with a Municipal Sewerage Plan but with an Integral Water Chain Plan. As previously described, this water plan not only deals with the water management of the Municipality of Leiden, but also takes into account the entire water chain. It considers the municipal duty of care of Leiden and the surrounding municipalities and the duty of care for processing waste water from the water board (City of Leiden, 2018). The waste water is part of the water chain, which also includes drinking water preparation and drinking water supply, and the Integral Water Chain Plan is therefore a partnership among various actors: the Municipality of Leiden, the Municipality of Leiderdorp, the Municipality of Oegstgeest, the Municipality of Zoeterwoude, the Municipality of Voorschoten, water board Rijnland and the water treatment companies Dunea and Oasen. However, the Municipality of Wassenaar has recently also become part of the partnership, and

its water is being purified by another water purification company (City of Leiden, 2018), as a result of which it only connects to the policy module and not to the other modules. “The reason for the integrated water chain plan [. . .] is to reduce the costs of sewerage and waste water treatment, to reduce the vulnerability of tasks within individual organisations and to improve the quality of services. [. . .] By looking more at common goals, investments can be better coordinated and tasks can be combined” (City of Leiden, 2018). The integral cooperation with other parties not only takes extra time and effort but also provides technical and financial benefits.

In addition to cooperation with external actors, there is interaction between the actors within the management cluster and with other departments of the municipality. The departments within the management cluster jointly draw up the management tasks for the coming years, ensuring that they are attuned to the management tasks of the external parties, and vice versa (Manager programming Municipality of Ede, 2020). The municipal programming department translates the various tasks into a project assignment, also including tasks from other clusters. If the project assignment is known, there are often more external and internal actors who want to connect their tasks to the project. The municipality directly assigns the small-scale maintenance within the project assignment to contractors. Large-scale maintenance and replacements are transferred to the internal engineering office, which is responsible for preparing the project assignment and supervising its execution by contractors. The degree of interaction between internal actors therefore depends on the scale of the management assignment (Manager programming Municipality of Ede, 2020).

Table 13. Role(s) of the actors Leiden	
Role	***Actor(s)***
Agenda-setter	City of Leiden, housing co-operations, cable and pipeline companies, Water board Rijnland, Province of South Holland, City of Leiderdorp, City of Oegstgeest, City of Zoeterwoude, City of Voorschoten, Dunea, Oase
Supervisor	City of Leiden, Water board Rijnland, Province of South Holland, City of Leiderdorp, City of Oegstgeest, City of Zoeterwoude, City of Voorschoten
Implementer	Contractors, cable and pipeline companies, Dunea, Oase
Supporter	City of Leiden
Adviser	City of Leiden, Citizens, Dunea, Oase, Water board Rijnland, housing co-operations
Informer	City of Leiden, housing co-operations, Water board Rijnland, cable and pipeline companies, Dunea, Oase
Coordinator	City of Leiden, Water board Rijnland,

Resources

The actors described above have different resources at their disposal. The degree of power of an actor depends on these resources. Some resources make an actor important and indispensable for the management of public space.

The housing co-operations, water board Rijnland and the cable and pipeline companies all own assets in the public space or land. Their ownership gives them the authority to make adjustments in the public space. In addition, these actors have knowledge and skills, financial resources and means of production at their disposal in order to actually implement the necessary measure (Project and program manager management of public space Municipality of Leiden, 2020). The availability of these resources to these actors makes them powerful. Without the involvement of these actors, effective, efficient and integrated management of public space is not possible. There is therefore a high degree of dependency between the Municipality of Leiden and these actors. In addition to the power they have through the management of their own assets, water board Rijnland also has the ability to influence the management of the municipality through the Integral Water Chain Plan.

The Province of Zuid-Holland supervises whether public space is properly managed by the municipality. If this is not the case or if the management conflicts with the plans of the province, the latter has the authority to issue instructions

(Manager programming Municipality of Ede, 2020). Furthermore, the province is only responsible for the management of provincial networks, such as provincial roads, which it has the knowledge, competences, financial means and means of production to carry out.

In both the Municipality of Leiden and the Province of Zuid-Holland, the physical implementation of management is carried out by contractors, who are paid from the financial resources of their clients. The contractors have means of products, knowledge and competences, and each has his or her own specific knowledge and skills and is therefore responsible for the execution of a specific part and not for the entire execution of a project. The contractors are not tied to a fixed location but operate throughout the country or region. As a result, they are not specific to the policy arrangement of the Municipality of Leiden. However, the Municipality of Leiden is highly dependent on these actors, as it does not have the resources to itself undertake the physical execution.

As described above, the citizens of the municipality are only responsible for advising and managing their own small-scale citizens' initiatives, for which the citizens have the necessary financial resources, knowledge, competences and means of production. However, the municipality is not heavily dependent on the citizen, as it has the tools to take care of such management itself; the municipality is dependent only on the citizen's knowledge of what needs there are in the neighbourhood. This knowledge provides insight into the presence and nature of management tasks.

As director of public space, the municipality has all the resources at its disposal (Project and program manager management of public space Municipality of Leiden, 2020), including the authority to manage public space because it has land as means of production. If the management requires a major change, it is able to change the zoning plan in its favour. In addition, it can influence the management of the public space by housing co-operations and cable and pipeline companies by means of its control over zoning plans and permits. The municipality has the knowledge about which management tasks there are and has the ability to collect the necessary data. In addition, it has the knowledge, competences and means of production to design and prepare the entire project. This knowledge lies mainly with the programming department and the urban engineering department. The

municipality obtains the necessary financial resources by collecting taxes. The municipalities participating in the Integral Water Chain Plan can only influence the management of the municipality by means of this plan; their resources are not directly applicable to the Municipality of Leiden.

The budget of the municipality is divided on the basis of the capital assets (Project and program manager management of public space Municipality of Leiden, 2020). Each capital asset has an exploitation account for daily and small-scale maintenance and a provision for large-scale maintenance. The budget for provisions can be spread over several years. This is necessary because in larger cities the implementation programme can fluctuate slightly. In addition, some capital goods have an investment programme. "The amount of the budgets have been determined on the basis of the area differences and the key figures for management costs" (City of Leiden, 2020). So in addition to the standard annual adjustment of the budget, it is also possible to shift money between the years when practice turns out to be different from what was thought beforehand.

Discourse

The vision of the Municipality of Leiden reads:

> *The public space will continue to be managed and maintained in the coming year on the basis of statutory regulations, the ambitions set out in the policy agreement, duty of care and the intended functionality and quality as set out in the policy frameworks and policy plans. In managing the public space, particularly in the case of renewals (replacement maintenance), we take account of social, technological and climatological developments, including climate adaptation and the energy transition, including reserving the necessary space in the subsurface. We approach the projects in a district-oriented manner. The integrated working method and coordination between policy, design and management is the new standard. (City of Leiden, 2020).*

Compared to the old motto, "clean, whole and safe", the new vision responds much more to current social issues such as integrality, climate adaptation and energy transition (Project and program manager management of public space Municipality of Leiden, 2020).

The integral approach to management is not only addressed from the point of view of policy but is also actually applied. In addition to aligning the agendas of the actors involved, the municipality is already thinking ahead to the future. If there is a task to replace the sewer or road, space will be reserved in the subsurface for a future heat network and the like (City of Leiden, 2020). The municipality has decided not to wait for the permit application by customer-driven cable and pipeline companies but to take matters into its own hands, which makes it possible to carry out the work in an integrated manner. The result is that the residents experience less inconvenience as a result and that the management is financially more advantageous (City of Leiden, 2020), as the basic costs have already been paid for by the work on the sewers or roads and only the costs for the additional work are added. The Municipality of Leiden tries to work integrally on as many tasks as possible in order to gain a financial advantage, if necessary advancing (Project and program manager management of public space Municipality of Leiden, 2020) the costs that will be borne in the future by the other actors involved. This approach requires good cooperation within the municipality and between the municipality and other actors. "I think that all managers working in public space are aware of the power of cooperation. Pooling money, pooling measures because alone you really won't get there" (Project and program manager management of public space Municipality of Leiden, 2020). However, the project and program manager of public space also indicated that this way of thinking alone is not always translated into action by every manager. Integral action is necessary because the autonomous execution of many tasks leads to too high costs for the municipality. The integral execution of management tasks has a financial advantage of at least 30% in comparison to independent execution of every task (Project and program manager management of public space Municipality of Leiden, 2020).

The municipality strives for a sustainable design of the public space which has a long lifespan and is easy to maintain (City of Leiden, 2012). If there is an intervention, it must be carried out at the right time, at the lowest possible social cost and without destruction of capital (City of Leiden, 2020). The integral approach described above has called for the shifting in time of the replacement moment. The sewer is the leading asset and determines the moment of replacement (Project and program manager management of public space Municipality of Leiden, 2020). The other assets are replaced integrally with this moment, so that some assets are replaced earlier

or later than their optimal lifespan. However, it is difficult to determine the optimal lifespan, which makes it necessary to find a balance:

> *That is why we try to work with bandwidths of years. We will discuss these bandwidths with housing corporations, energy transition, road manager and traffic programme so that you and each other can determine the optimal implementation period when we are going to completely redesign such a neighbourhood. (Project and program manager management of public space Municipality of Leiden, 2020)*

The use of bandwidths makes it possible to carry out tasks comprehensively and to avoid capital destruction as much as possible.

In addition to an integral approach to replacements, the municipality also works cost-efficiently by applying standardisation. The Framework Note and the Handbook on Quality of Public Space describe the guidelines that result in the standardization of processes, execution and materials (City of Leiden, 2012). Standardization guarantees the quality of public space by avoiding a jumble of assets placed ad hoc (City of Leiden, 2012). The guidelines ensure that a procurement advantage is created, because large numbers of assets can be ordered. In addition, a great deal of time is saved in the preparation of projects because it is already clear in advance which implementation is to be done and how it is to be carried out (City of Leiden, 2012). These advantages of standardization together make service maintenance and minor maintenance financially more advantageous.

At the moment, the municipality mainly works with quality as a steering method. The public space is maintained at image quality level B of CROW (City of Leiden, 2020). The image quality of the public space is determined by means of a viewing, during which the management tasks are assigned. Daily and small-scale maintenance is immediately assigned to contractors and large-scale maintenance and replacements are first prepared by the programming department and the city's engineering office (Project and program manager management of public space Municipality of Leiden, 2020). Major maintenance and replacements require more knowledge of the condition of the assets. These assets are therefore subjected to a technical inspection. The frequency of this inspection depends on the theoretical lifespan of the asset (Project and program manager management of public space Municipality of Leiden, 2020). The mapped management tasks are supplemented with socially controlled tasks. The

needs of citizens that emerge from the annual survey and from the project-based participation processes are taken into account in the management (City of Leiden, 2020). Working with image quality ensures that frequency-driven management is also possible. Most service maintenance, such as mowing and cleaning, is done on the basis of frequency (Project and program manager management of public space Municipality of Leiden, 2020). In the planning period 2022–2026, the municipality wants to work in a more risk-steered manner (City of Leiden, 2020). Working with a risk-driven method as asset management makes it possible to weigh up measures and thus determine the joint replacement moment. In addition, it is possible to determine which assets do not need to be replaced or what intervention does not need to be applied based on risk considerations, which can reduce costs.

Rules of the game

The Framework Notes are binding guidelines that must be observed in the management of public space. The Framework Note and Spatial Quality Handbook not only define strategic goals but also provide detailed guidelines at the tactical and operational levels, laying down how standard measures should be implemented. The managers are obliged to go through a fixed process and adhere to the predefined materials and designs (City of Leiden, 2012).

In addition to measures, the Integral Water Chain Plan also identifies the financial aspects, which are determined administratively. As a result, it is not necessary to apply for permits relating to the waste water chain (City of Leiden, 2018). The BBV lays down the guiding principles for the management of public space. If it is necessary to move the budgets between products, this is possible with the approval of the council. The sewerage budget cannot be shifted, however, as this has been passed on from the sewerage tax (Project and program manager management of public space Municipality of Leiden, 2020). In practice, shifting money between assets is not common, because people are historically not used to doing so (Project and program manager management of public space Municipality of Leiden, 2020).

As with the other cases, the Leiden case involves informal information rules and entry and exit rules. The informal entry and exit rules mean that the municipality determines who participates in the joint consultations between the actors. The fact that information is exchanged and that this is done via the fixed method of consultation means that there is an informal information rule.

Ede

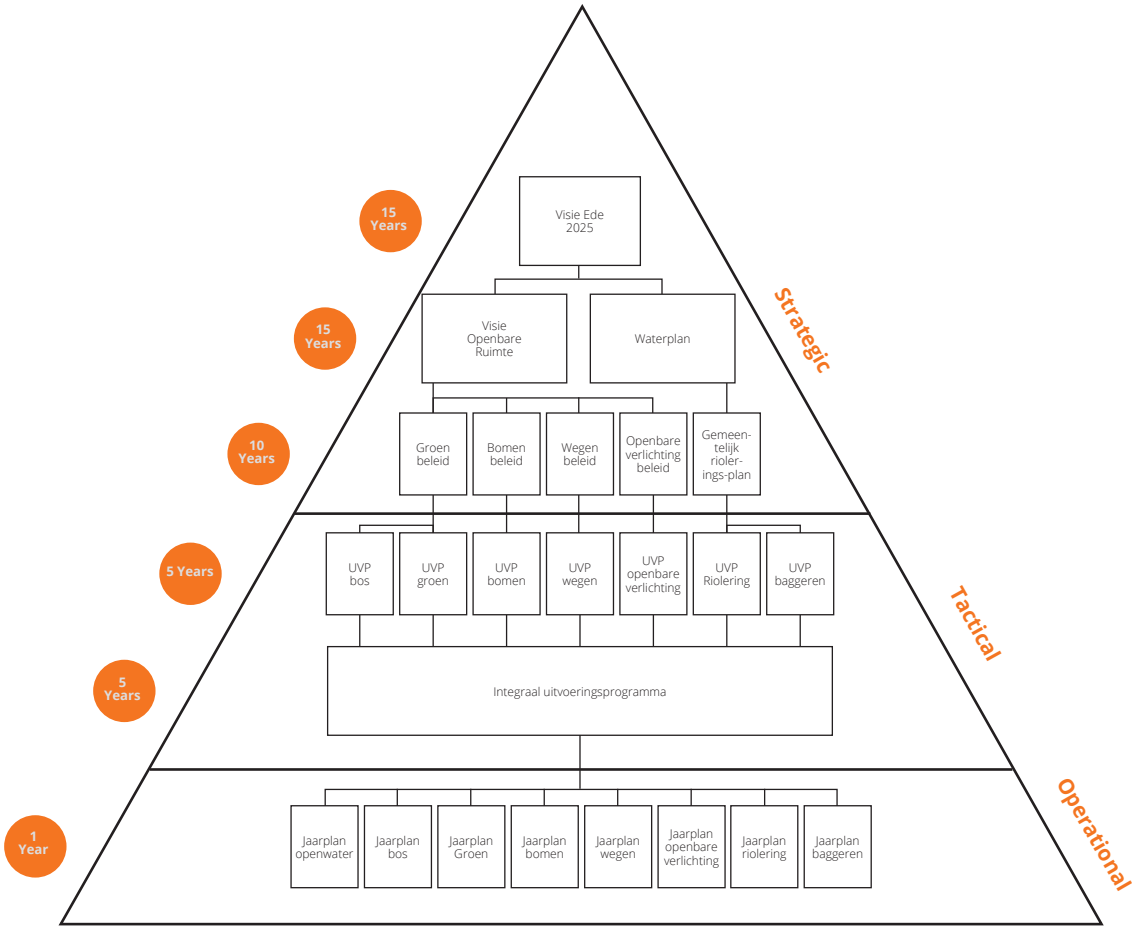


Figure 12. Schematic classification of policy documents applicable to Ede's management of public space

The management of the public space of Ede on a strategic, tactical and operational level is described in a series of documents; see Figure 12. The documents can be divided into two types: policy plans and management plans. The policy plans are all documents on a strategic level which all have a lifespan of 10 to 15 years (Manager programming Municipality of Ede, 2020). These plans present the vision for the public space, consisting of the goals that the municipality wants to achieve with design, management, maintenance and use. The tactical and operational level consists of management plans, in which the policy is translated into a five-year implementation programme per product (City of Ede, 2009; 2017a; City of Ede, & SWECO, 2017). These implementation programmes are juxtaposed and translated into an integrated implementation programme with a lifespan of

five years. The integral implementation programme is operationalised in annual plans, which describe for each product who, what, where and when management will take place (Manager programming Municipality of Ede, 2020). Because this is a translation of the multi-year integral programme, there is coherence between the annual plans, and in the case of a joint project, the annual plans describe the role that each product plays within the project.

As shown in Figure 12, the annual plans cannot all be traced back to an implementation programme or a policy plan: For example, there is an annual playground plan, but no playground policy. This is because Ede is currently in a transition period. In 2014, the study 'Basis in beeld' concluded that the municipality lacked documents on the tactical and strategic levels (City of Ede, & SWECO, 2017) and that the municipality was focused on the operational level. For the management of the public space, this meant that one product had a plan for the next six months and the other for the next five years. Currently, the municipality is in the process of creating these missing documents or adapting existing ones. "By defining a policy for each product and an implementation programme based on five years. As a municipality, we can visualise our total management and maintenance task in the same way. And with that we can be a better partner for other parties" (Manager programming Municipality of Ede, 2020). Since the Policy Arrangement Approach is a temporary stabilisation of a policy domain, the current situation is used in this study, as shown in Figure 8.

Actors

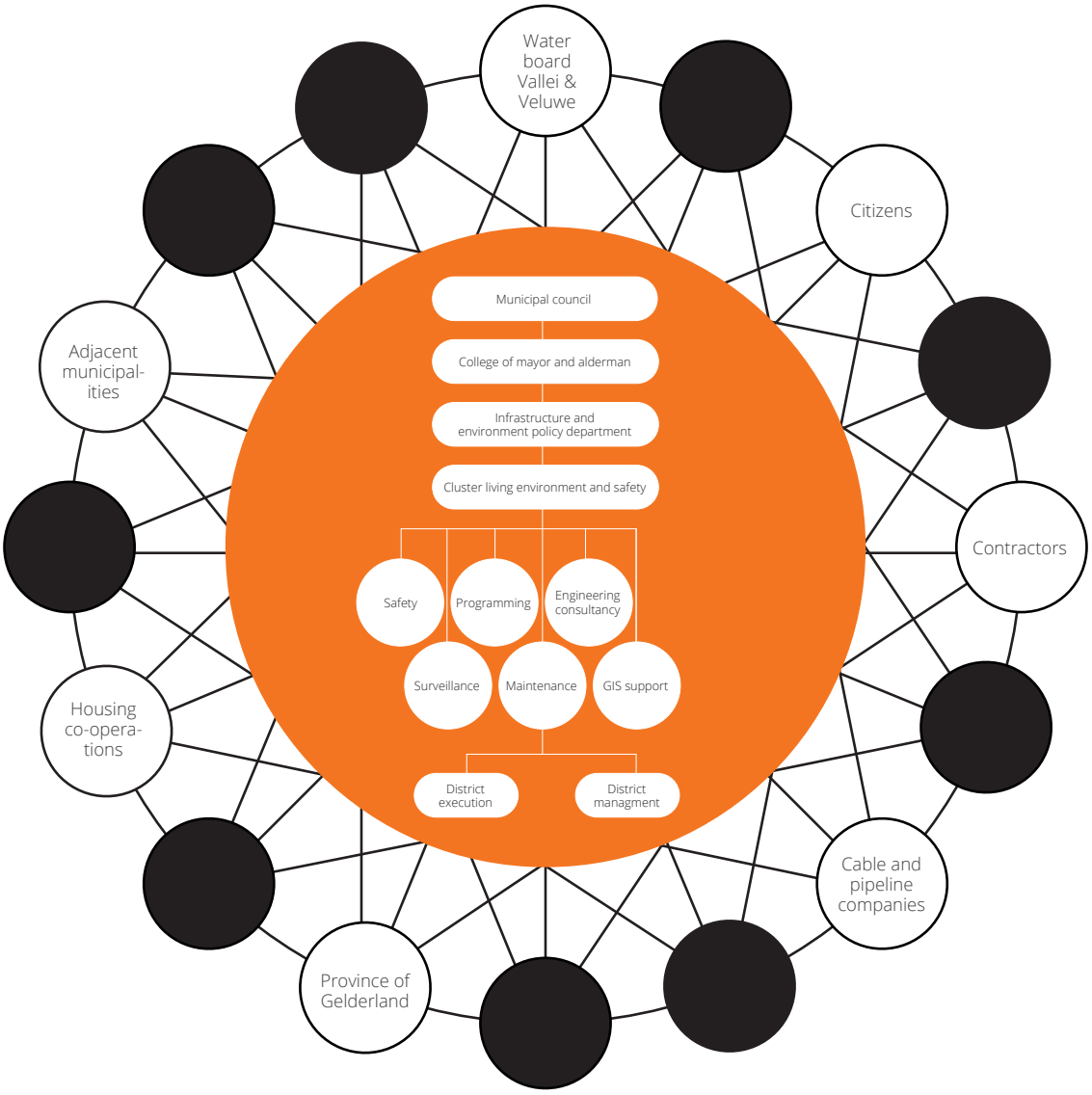


Figure 13. Actors involved in the management of public space of Ede

In addition to the City of Ede, the water board Vallei and Veluwe, Province of Gelderland, housing co-operations, cable and pipeline companies and contractors, a sixth actor is involved in Ede: the citizen, who plays a significant role in the management of public space (Manager programming Municipality of Ede, 2020). The municipality stimulates citizens' initiatives that enhance the quality of the public space (City of Ede,2019; Manager programming Municipality of Ede, 2020). These initiatives are often expressed on a small scale: "Most of it is about creating a bench, vegetable garden, trash can, or a playground" (Manager programming Municipality of Ede, 2020), for example, in the form of the realisation of a vegetable

garden, playground or meeting place managed by citizens. In addition, public space in Ede is also managed by citizens on a large scale. The neighbourhood De Valk is managed by the citizens themselves, with the exception of the sewerage system, lighting poles and cables and pipes. The residents of this neighbourhood take care of, among other things, cleaning ditches, mowing verges and maintaining gravel roads (Manager programming Municipality of Ede, 2020). "This is mainly possible due to the fact that they are farmers who already have the necessary machinery" (Manager programming Municipality of Ede, 2020). This means that in addition to citizen participation based on advice, the municipality must also support the process of citizen participation in which the citizen is implementer and agenda setter.

The actor municipality of Ede is divided into different departments on the strategic, tactical and operational levels; see Figure 13. At the top is the municipal council, which determines the political direction of Ede. This direction is then translated into a general vision for the entire municipality of Ede. The municipal council transforms this policy into cluster-specific policy and plans (Manager programming Municipality of Ede, 2020). The exact decision-making authority of the municipal council and college of mayor and aldermen is highlighted in the rules of the game. Management and maintenance is, in the Municipality of Ede, is classified in the clusters policy, infrastructure and environment; liveability and safety; and spatial development and land affairs (City of Ede, & SWECO, 2017).

The policy, infrastructure and environment cluster consists of more than 30 strategic policy advisors in the fields of water and sewerage, traffic and transport, climate and sustainability, soil, noise and air quality, green and road maintenance, archaeology, ecology, conservation of monuments and waste (Manager programming Municipality of Ede, 2020). This cluster is responsible for drawing up policy plans and handbooks and providing administrative advice. The spatial development and land affairs cluster is involved in the management of public space through its responsibility for land policy (City of Ede, & SWECO, 2017).

The most important cluster for this study is liveability and safety, which consists of the programming, maintenance and engineering departments. The programming department proposes integral management projects for the public space and as such is responsible for drawing up management plans, integral long-term

plans and the budget and is principally for the maintenance and engineering consultancy departments of Ede (City of Ede, & SWECO, 2017). The maintenance department is divided into district management and district execution. District management is responsible for service maintenance and is mainly concerned with addressing notifications. District execution is responsible for drawing up and executing plans for regular maintenance (City of Ede, & SWECO, 2017). The Municipality of Ede has an internal engineering consultancy that is responsible for advising, preparing and supervising large-scale maintenance and replacements. The Municipality of Ede outsources the execution of public space management to contractors, only solving minor emergencies themselves (Manager programming Municipality of Ede, 2020). Service maintenance and regular maintenance is directly managed by the maintenance department. In the case of large-scale maintenance or replacements, a management plan is prepared by the Ede engineering consultancy by order of the programming department. The engineering consultancy of Ede makes drawings and draws up specifications, supervising the execution by contractors (Manager programming Municipality of Ede, 2020).

The role and tasks see (Table 10) of the actors requires a lot of interaction between internal departments and external parties. Each year, the municipality maps out the management tasks for the next five years. These plans are visualised by means of digital maps and linked by the programming department. This creates integral plans that are translated into annual plans for each product (Manager programming Municipality of Ede, 2020). Because of the clear role and division of tasks within the municipality, the departments are better attuned to each other than they used to be (City of Ede, & SWECO, 2017). The drawn up agenda is communicated to external actors after official and internal preparation, and these actors can adapt their agenda to that presented by the municipality Ede (Manager programming Municipality of Ede, 2020).

Table 10. Role(s) of the actors Ede

Role	*Actor(s)*
Agenda-setter	City of Ede, housing co-operations, water board Vallei & Veluwe, cable and pipeline companies, Province of Gelderland
Supervisor	City of Ede, Water board Vallei & Veluwe, Province of Gelderland
Implementer	Contractors, cable and pipeline companies, citizens
Supporter	City of Ede
Adviser	City of Ede, citizens, housing co-operations
Informer	City of Ede, housing co-operations, water board Vallei & Veluwe, cable and pipeline companies
Coordinator	City of Ede, water board Vallei & Veluwe

Resources

The resource constellation is similar to that of the Municipality of Apeldoorn, differing only because of the different role of the municipality and the presence of the actor citizens. The Municipality of Ede outsources the implementation of the plans entirely to contractors (Manager programming Municipality of Ede, 2020), as a result of which the municipality lacks knowledge about implementation. The citizens have the resources of knowledge, competences and means of production, and because the citizens of De Valk have means of production at their disposal, they are able to carry out management on a large scale. Due to the lack of this among other citizens, citizen participation in management is often expressed on a small scale.

The management of the public space of the Municipality of Ede is divided into four categories: service maintenance, regular maintenance, large-scale maintenance and replacements. Each category has its own financing method (City of Ede, & SWECO, 2017; Manager programming Municipality of Ede, 2020). Service and small-scale maintenance is financed from exploitation. Large-scale maintenance is financed from exploitation, reservations or facilities. Replacements are financed by credit or by external financing (City of Ede, & SWECO, 2017; Manager programming Municipality of Ede, 2020). The budget for each of these management categories is drawn up in accordance with the Decree on the Budget and Accountability of Provinces and Municipalities (BBV). This budget is divided by product and further subdivisions thereof, the amount of these budgets is based on the costs in past years (Manager programming Municipality of Ede, 2020).

As with the other cities, there is a high degree of dependence between the City of Ede and the other actors, but since the actor constellation and their roles differ, there are also differences in the available resources and the resulting power relations among the actors. The lack of knowledge on implementation of the Municipality of Ede lessens its power and increases that of the contractors. The degree of dependence of the citizens is very low. The activities of the citizens can easily be taken over by a contractor commissioned by the municipality. In the De Valk neighbourhood, work cannot be carried out by other citizens because they lack the means of production. If the management is done by the citizens, the inhabitants have a lot of power; otherwise, the power of the citizens is very low.

Discourse

The vision for the management of Ede's public space is "Ensuring basic quality, in which sustainability plays an integral role, at a socially responsible cost level" (City of Ede, 2016). In this formulation of the vision, various steering methods can be found. The dominant control methods in the Municipality of Ede are quality-based management and asset management (Manager programming Municipality of Ede, 2020). The Municipality of Ede works with a differentiation in quality levels for the management of public space. The ambition level for the quality of the public space has been set by the municipal council and based on the integrated management plan for public space (IBOR). The quality ambitions are high, since there is no political support for a low level of quality in Ede (City of Ede, & SWECO, 2017; Manager programming Municipality of Ede, 2020).

the municipality of Ede makes use of various steering methods. The established policy is that approximately 90% of public space is managed at the basis level (IBOR B), while that areas that are used intensively, about 10% of public space, are managed at the high level (IBOR A; City of Ede, & SWECO, 2017). In addition to quality-driven management, increasing use is being made of asset management, according to which management tasks are mapped out according to risks and an assessment is made as to whether or not to carry out the management task. In Ede, management is based on risk, but the asset management components of monitoring and evaluating are not yet reflected in practice (Manager programming Municipality of Ede, 2020). Service maintenance is to a large extent frequency controlled. "By commissioning the contractor for frequency driven management, you give the contractor the space to carry out these tasks in a period of low work"

(Manager programming Municipality of Ede, 2020). The last control method that applies to the Municipality of Ede is socially controlled management, wherein by stimulating citizen participation in management, management tasks are created that arise from a need of the citizen. This social management can be organized by the municipality or by the citizen him- or herself (Manager programming Municipality of Ede, 2020).

Data on the condition of public space is needed to arrive at a management task from the above-mentioned steering methods. This data is collected by means of technical inspections and viewing, with the frequency of inspections varying per product. Main roads, technical installations, lighting masts and playground equipment are technically inspected annually, sewage once every 12 years and trees every three years. The execution of regular maintenance tasks is monitored on the basis of viewing. Monthly viewings are carried out at 150 locations by an independent company. The municipality itself supervises the execution of large-scale maintenance and replacements carried out by contractors (City of Ede, 2017b).

Rules of the game

The scope rules laid down by the municipality in its management and policy plans vary from very general to very detailed. On an operational level, everything is laid down in detail from buffer zones for pipes to the type and size of the tiles.

The Municipality of Ede is in a transition phase, as a result of which it has established management plans and policy for part of the products. According to the rules of the BBV, this makes it possible to bundle budgets. However, this only applies to products for which there is a management and policy plan. If this is not the case, an adjustment of the budget will have to be approved by the municipal council or the college of mayor and aldermen (Manager programming Municipality of Ede, 2020). The municipal council has the authority to make decisions regarding vision documents and policy plans including finance and to give advice to the municipal executive on tactical spatial planning. This gives the municipal council decision-making authority at the strategic and tactical level (City of Ede, & SWECO, 2017). The college of mayor and aldermen has decision-making authority over the operational level and part of the tactical level, deciding on matters relating to the engineering consultancy, neighbourhood management, neighbourhood execution and programming (City of Ede, & SWECO, 2017).

The Municipality of Ede communicates its agenda with the other actors involved, which it does frequently and in a standardized manner (Manager programming Municipality of Ede, 2020). Thus, there is an informal information rule, which ensures that the various actors continue to act within their own areas of expertise. The municipality does not immerse itself in the area of expertise of the other actors. In addition, the municipality determines with whom they share their agenda, resulting in is an informal entry and exit rule.

Arnhem

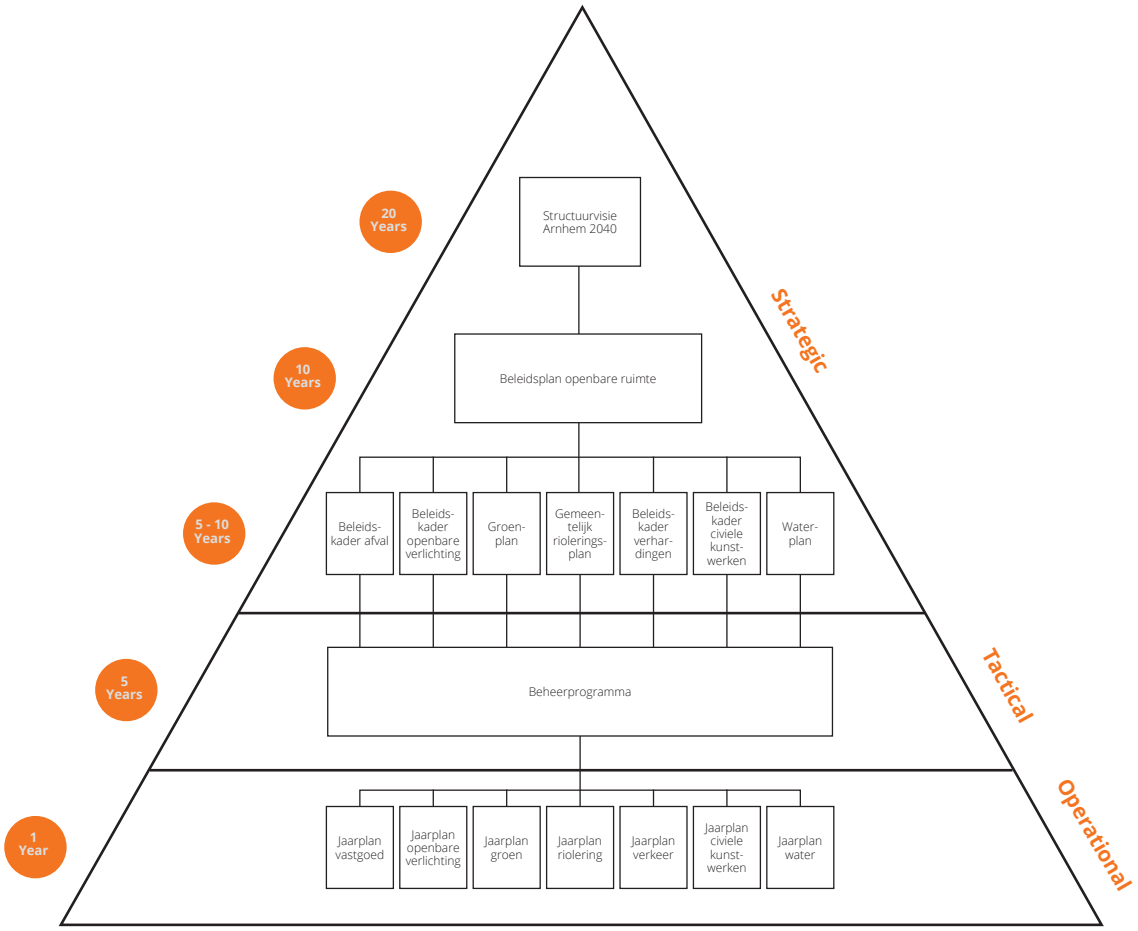


Figure 14. Schematic classification of policy documents applicable to Arnhem's management of public space

The management of Arnhem's public space is laid down in policy at the strategic, tactical and operational levels; see Figure 14. The overall environmental vision of Arnhem has been translated into the Structuurvisie Arnhem 2040 (public space policy plan) (City of Arnhem, 2011). This policy plan describes the spearheads and ambitions for the public space. These spearheads and ambitions not only relate to the management of public space, but also apply to urban expansion and redevelopment. Underneath the public space policy plan, plans and framework notes can be found on the basis of products. The renewal frequency of these documents varies between five and ten years. Part of this policy level is the water plan, which is the only policy document concerning not only the Municipality of Arnhem but other bodies as well. This policy document is a joint water plan of the Municipality of Arnhem, the

Rivierenland Water Board, the Rijn and IJssel Water Board, Water Company Vitens, the Province of Gelderland, the Directorate General for Public Works and Water Management for the East Netherlands and the water board Vallei and Eem. This plan does not cover the entire territory owned by these parties, only the territory of the Municipality of Arnhem (City of Arnhem, 2009). The management tasks are mapped out on the basis of the policy frameworks and plans, and they are translated into a tactical Beheerprogramma (management programme) for the coming years. This document is then operationalized into annual plans (Department head management of public space municipality of Arnhem, 2020).

Actors

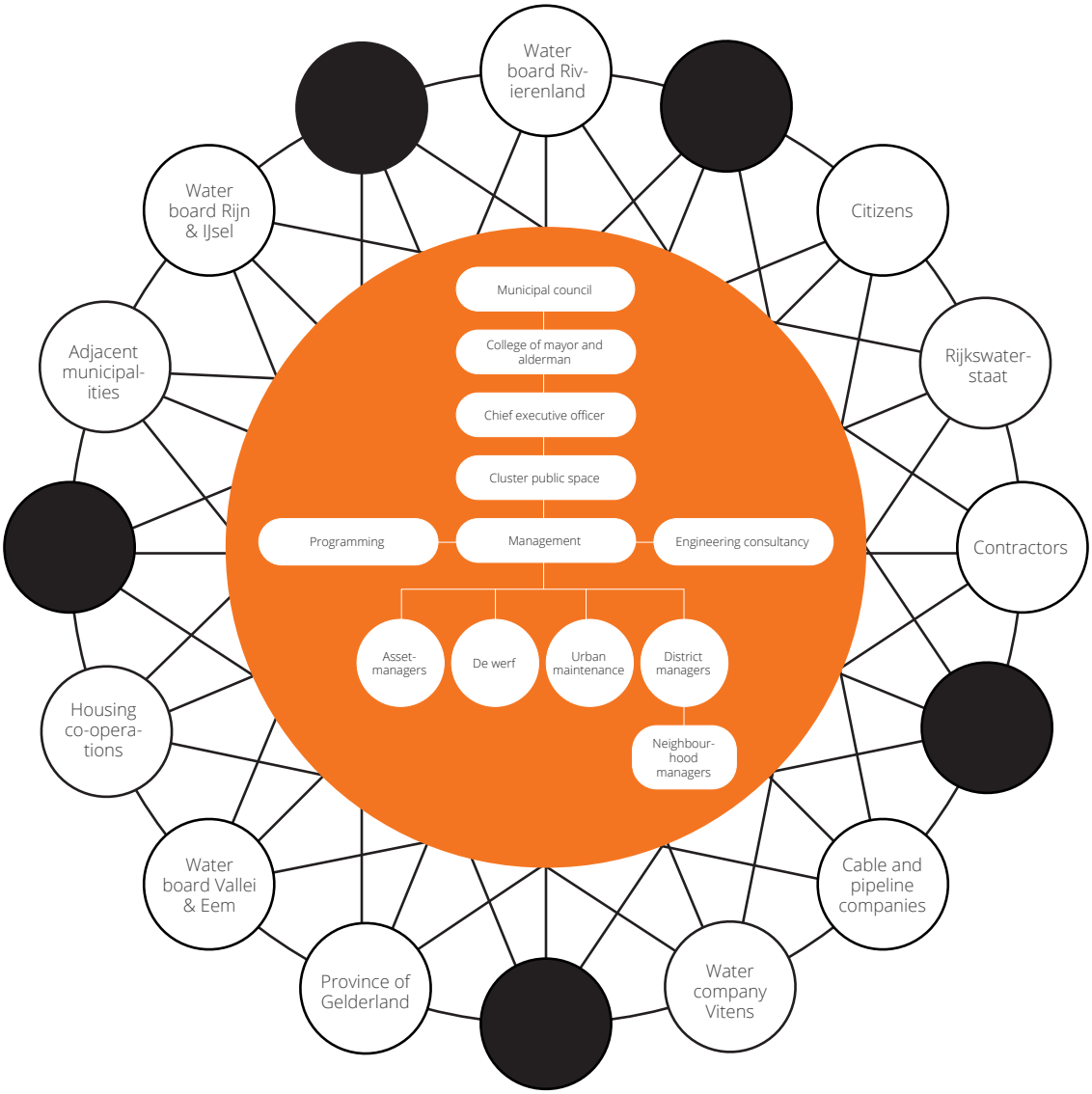


Figure 15. Actors involved in the management of public space of Arnhem

The actor constellation of the Arnhem case, as shown in Figure 15, consists of the Municipality of Arnhem, adjacent municipalities, cable and pipeline companies, housing co-operations, site managers, the Province of Gelderland, citizens, contractors, water board Rivierenland, water board Rijn en IJsel, water board Vallei and Eem, water company Vitens, and the Directorate General for Public Works and Water Management for the East Netherlands.

The site managers with which the Municipality of Arnhem mainly works are Gelders Landschap, Natuurmonumenten and Defence. The municipality has agreements with these parties about how they can contribute to the management of public space and the ambitions of the municipality (City of Arnhem, 2019). Another actor that owns public space is the housing co-operations. Together with the municipality, they are responsible for the public space and its appearance. In cooperation with the municipality, the housing co-operations draw up a plan for the design of the public space (City of Arnhem, 2010). By tailoring the design of the public space and sharing knowledge, the public space fits in well with the wishes and needs of the residents. The result of the collaboration is an attractive and high-quality public space (City of Arnhem, 2010). Once the plans have been established, the municipality will ensure that this is executed by the actor constructors, as they have more knowledge and skills in this area (Department head management of public space municipality of Arnhem, 2020). The cable and pipeline companies are not landowners but do own assets within the public space, which makes them responsible for the management of the cables and pipelines in the subsurface. The municipality and the cable and pipeline companies coordinate their agendas for the coming years, which means that maintenance and replacement moments are shifted on both sides to arrive at an integral approach (Department head management of public space municipality of Arnhem, 2020).

Together with water board Rivierenland, the municipality has a duty of care for rainwater, waste water and groundwater. Since the waste water chain does not end at the municipal boundary, the Municipality of Arnhem also cooperates with water board Rijn and IJssel and the municipalities of Rheden, Overbetuwe and Lingewaard (City of Arnhem, 2015). By means of the water plan, the municipality also cooperates with water board Vallei and Eem, water

company Vitens and the Directorate General for Public Works and Water Management for the East Netherlands. The management of the entire water system of the Municipality of Arnhem is thus determined by various parties.

An authority body that is involved, as in the other cases, is the Province of Gelderland. Again, the province has the task of supervising the management of the public space of the Municipality of Arnhem. The last actor involved in the management of public space alongside the municipality is the citizens. The municipality stimulates citizen participation and supports citizen initiatives (green vision). In Arnhem, citizens are not responsible for the management of an area on a large scale, but there are viewing groups that monitor the parks and forests and citizen groups that advise on major maintenance and replacements (City of Arnhem, 2018).

The actor municipality of Arnhem, which acts as director of the management of public space, is divided into several levels of government; see Figure 15. Subordinate to the council and the college, the municipality is divided into several clusters. The management of public space is covered by the public space cluster, which consists of a management department, a programming department and an engineering consultancy. The management department consists of various managers, each of whom is responsible for a product (Department head management of public space municipality of Arnhem, 2020). They obtain the data about their assets from external parties responsible for inspections and from urban maintenance, district managers and neighbourhood managers. Urban maintenance examines the main infrastructure that covers the entire city. The neighbourhood managers are active in a specific neighbourhood and make an inventory of all the tasks and are the point of contact for citizens. The district manager is responsible for several neighbourhood managers and gives all the data to the product managers (Department head management of public space municipality of Arnhem, 2020). Daily maintenance, also known as service maintenance, is the responsibility of De Werf, which consists of a manager and a project manager, who manage the external contractors responsible for the execution (Department head management of public space municipality of Arnhem, 2020).

The product managers translate the data into statements and plans. The large-scale maintenance and replacements are passed on to the programming department, and service maintenance is passed on to De Werf (Department head

management of public space municipality of Arnhem, 2020). The programming department turns the various tasks into an integral project attuned to the agenda of the other actors. In order to facilitate the cooperation with the other actors as much as possible, the municipality invests in facilitating this. To facilitate cooperation with the cable and pipeline companies, the municipality has 1fte on the permits and 1fte on supervising the implementation (Department head management of public space municipality of Arnhem, 2020). This ensures that the projects run as smoothly as possible so that the municipality has a good relationship with the cable and pipeline companies and maintains control. The product managers consult each other once a month in small groups, for example, with the product manager of pavements consulting with the product manager of traffic control and of installations and traffic. An integral consultation among all product managers is not yet in place (Department head management of public space municipality of Arnhem, 2020). The integral tasks that have come about in the programming department are transferred to the engineering office, which is responsible for designing, preparing, advising, supporting and supervising management tasks. The execution of maintenance and replacements is fully subcontracted to contractors (Department head management of public space municipality of Arnhem, 2020). The roles of the actors described in this section are shown below in Table 12.

Table 12. Role(s) of the actors Arnhem

Role	*Actor(s)*
Agenda-setter	City of Arnhem, housing co-operations, cable and pipeline companies, water board Rivierenland, water board Rijn en IJsel, water board Vallei and Eem, Rijkswaterstaat, Vitens, Province of Gelderland, site manager, adjacent municipalities
Supervisor	City of Arnhem, water board Rivierenland, water board Rijn en IJsel, water board Vallei and Eem Province of Gelderland, site manager, Vitens
Implementer	Contractors, cable and pipeline companies, Vitens, citizens
Supporter	City of Arnhem, housing co-operations
Adviser	City of Arnhem, citizens, housing co-operations, water board Rivierenland, water board Rijn en IJsel, water board Vallei and Eem, adjacent municipalities
Informer	City of Arnhem, housing co-operations, water board Rivierenland, water board Rijn en IJsel, cable and pipeline companies, Vitens
Coordinator	City of Arnhem, water board Rivierenland, water board Rijn en IJsel

Resources

The cable and pipeline companies, housing co-operations and site managers have financial resources, knowledge, means of production and competences at their disposal, in addition to having authority because they own a plot of land or an asset. Ownership is a resource that is indispensable for achieving the goals. As a result, the municipality is highly dependent on these actors. The high degree of dependence on the part of the municipality also applies to the other actors who have authority: the Province of Gelderland, adjacent municipalities, water board Rivierenland and water board Rijn and IJsel. The actors without the resource authority are the citizens and the contractors. The citizen has the resources knowledge and skills but after enough has no power. However, the opinion of citizens is taken into account, since participation is part of the current discourse (Department head management of public space municipality of Arnhem, 2020). The contractors have the same resources as the citizens but have highly specialized knowledge and skills. Due to the scarce presence of this knowledge in the Netherlands, this actor is relatively powerful.

As director of public space, the municipality itself has financial resources and the resources authority, knowledge, means of production and competences (Department head management of public space municipality of Arnhem, 2020). The municipality attempts to increase its power in relation to the other actors by having sufficient knowledge and skills. The manager has technical knowledge about his product, but is also very good at estimating the lifespan of a product (Department head management of public space municipality of Arnhem, 2020). In addition, the municipality keeps a lot of knowledge and competences in-house with an internal engineering consultancy.

> *The philosophy is to have external parties carry out as much work as possible. But we believe that we should know what the work entails. By keeping this knowledge and skill, the municipality knows what to commission the contractor and is able to communicate in one and the same language. (Department head management of public space municipality of Arnhem, 2020)*

Because the municipality has the right knowledge, it ensures that they keep the role of director and are in control.

The financial resources established in the budget approved by the board are divided into budgets based on product. The amount of the budgets is determined on the basis of key figures established by the CROW. Each product has its own budget, for which the product manager is responsible. This budget consists of an operation for service maintenance and small-scale maintenance, as well as a provision for large-scale maintenance and replacements (City of Arnhem, 2015). The management department has its own financial strategist, which is a unique situation for a Dutch medium-sized municipality. The financial strategist keeps the department financially healthy and stimulates innovation. In recent years, in consultation with the budget holders, the strategist has rearranged the amount of the budgets according to current technical and societal needs (Department head management of public space municipality of Arnhem, 2020).

Discourse

The vision of the Municipality of Arnhem in terms of the management of public space is to keep the public space clean, whole and safe by means of sustainable management tailored to the desired image and user function. Sustainable means avoiding the destruction of capital (City of Arnhem, 2018). "The most important thing is that we want to avoid destruction of capital at all times" (Department head management of public space municipality of Arnhem, 2020). Capital destruction occurs only if there is a situation in which an integral project is realised in the short term at the location in question and the situation remains safe (Department head management of public space municipality of Arnhem, 2020). The avoidance of capital destruction is related to the view of the life span as the most important characteristic of an asset by the product managers.

These product managers are very adept with their field of expertise and their own products. The product manager is therefore reluctant to give money to another product manager. They are focused on their own product and sometimes risk losing sight of the bigger picture. Since integrality is a spearhead of the public space cluster, the financial strategist has been deployed to facilitate the financial needs of an integrated approach. "Without a financial strategist, we as a municipality wouldn't be in control" (Department head management of public space municipality of Arnhem, 2020). The impetus for

an integral approach often depends on the asset roads, as replacing roads means that many other assets also must be replaced. The sewerage system is not leading, given its longer lifespan due to the soil characteristics.

The condition of the assets is determined by viewing based on the CROW image quality book and technical inspections. Viewings are carried out by citizens and independent parties, and the technical inspections are carried out by independent parties. The frequency of the technical inspections depends on the lifespan of a product (Department head management of public space municipality of Arnhem, 2020). During the inspection, the visual quality of an area is determined. The quality steered management of the Municipality of Arnhem focuses on levels A, B and C as determined by CROW. Main structures and the centre are managed at level A and remote areas such as business areas at level C. In residential areas, a combination of levels A and B is used. The municipality has set out specifications for this management to contractors. Part of these visual specifications is frequency-controlled management; for example, street cleaning is carried out on the basis of frequency-based management but contributes to the visual quality (Department head management of public space municipality of Arnhem, 2020).

Now that integral management is a spearhead of the municipality, management by weighing up various assets is important. Many municipalities use asset management for this purpose. In the coming years, the Municipality of Arnhem will switch to management based on the CROW management system (Department head management of public space municipality of Arnhem, 2020). The choice for the CROW management system stems from the resistance of the product managers to asset management. Asset management is experienced as a tool of the province and other large bodies. “At the municipality, you shouldn’t talk about asset management. A Directorate-General for Public Works and Water Management and a provincial authority that have huge assets on the road are fine. But here they are just a product manager” (Department head management of public space municipality of Arnhem, 2020). The product managers do not see the connection between asset management and their current activities (Department head management of public space municipality of Arnhem, 2020). However, the management system does not differ much from the asset management cycle; see Figure 16. The gears management and programming and planning and preparation are split up such that we first

consider each subject area or asset and only then consider the integral framework (CROW, 2019). This is in line with the current state of affairs in the Municipality of Arnhem, as described in the actors section. The municipality has not yet implemented the cogwheel monitoring and analysis and evaluation and adjustment (Department head management of public space municipality of Arnhem, 2020).

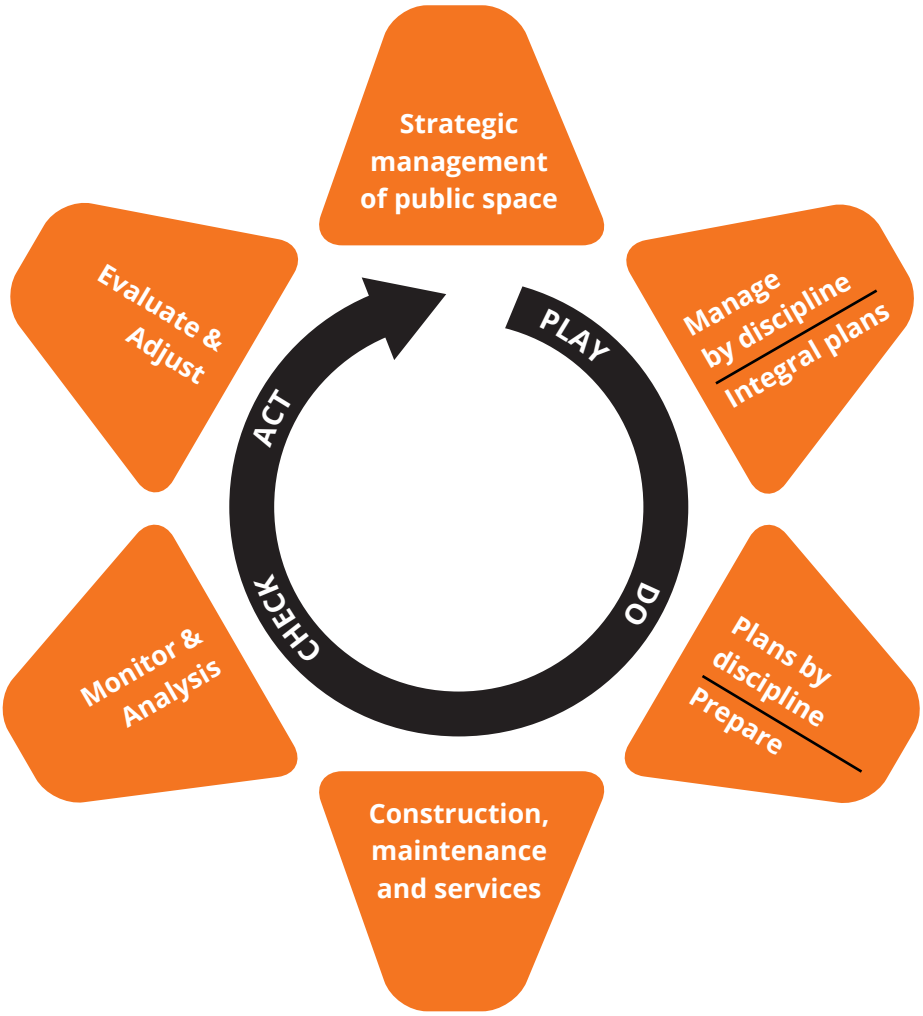


Figure 16. CROW management system

Rules of the game

The scope rules laid down in the policy documents are not very detailed. However, due to the large amount of nature under its management, the municipality is often bound by nature conservation laws and regulations. This means that the municipality imposes few rules on itself for the management of public space, but is still bound by many national or European rules.

The Municipality of Arnhem organises joint meetings with actors within the municipality and from outside. During these meetings information is exchanged about the management tasks and integral plans are drawn up. The fixed means of exchanging information and the fact that the cable and pipeline companies do not provide all the information indicates an informal information rule. By inviting the actors to the meetings, the municipality determines the informal entry and exit rules.

The head of the Management of Public Space Department of the Municipality of Arnhem says, “More and more consultation is taking place between the products. That has to be the case. But everyone is still focused on their own thing”. This indicates that those involved in the management of public space are still acting very much within their own areas of expertise. The actors ensure that their expertise plays a role in the management plans and projects, but the various product managers pay less attention to mutual communication.

State of play

The policy arrangements of the municipalities described above are summarised in Figure 17, 18, 19, 20 and 21. In order to be able to conclude which changes to the policy arrangement are necessary for an integral approach, the current policy arrangements are analysed with respect to an integral approach, and the obstacles are highlighted.

Resources:

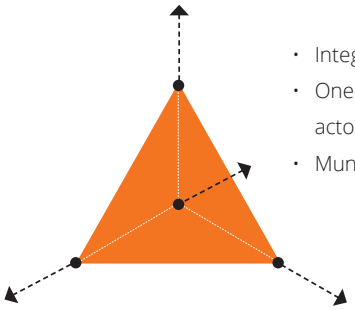
- High dependency between municipality and the other actors
- Budget fragmented into product-based budgets
- Lack of communication skills

APELDOORN

Actors:

Municipality of Apeldoorn, Citizens, Water board Vallei & Veluwe, Contractors, cable and pipeline companies, Province of Gelderland, Housing co-operations, Adjacent municipalities

- Integral coordination within cluster
- One-to-one alignment agenda's with external actors
- Municipality fulfils the role of implementer



Rules of the game:

Formal rules:

- BBV, Water Act, Road Act, Civil code, Municipalities Act
- Wide scoperules due to lack of policy documents at operational level

Informal rules:

- Entry and exit rules
- Information rules

Discourse:

- Quality-driven management
- Assetmanagement
- Long lifespan assets considered as important
- Integral approach mentioned in vision
- Sense of self-ownership money by product managers
- Reluctance to innovation

Figure 17. Succinct summary of the policy arrangements of the Municipality of Apeldoorn

S

Resources:

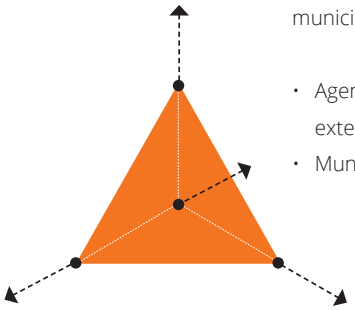
- High dependency between municipality and the other actors
- Budget fragmented into product-based budgets
- Budget available for citizens' initiatives

BREDA

Actors:

Municipality of Breda, Citizens, Water board Brabantse delta, Contractors, cable and pipeline companies, Province of Noord Brabant, Housing co-operations, site managers, adjacent municipalities

- Agenda large-scale maintenance aligned with external actors
- Municipality facilitates citizen participation



Rules of the game:

Formal rules:

- Formal rules:
- BBV, Water Act, Road Act, Civil code, Municipalities Act,
- Scopesrules: implementation must fit within the guidelines set out in the policy documents

Informal rules:

- Entry and exit rules
- Information rules

Discourse:

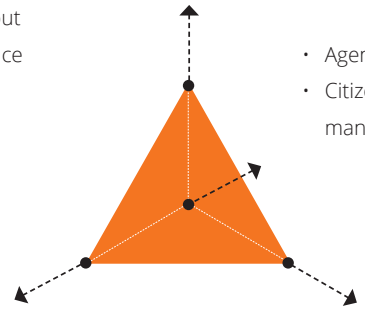
- Quality-driven management
- Assetmanagement
- Long lifespan assets considered as important
- Citizen participation considered as important
- Managers focused on their own product
- Sense of self-ownership money by product managers
- Reluctance to innovation

Figure 18. succinct summary of the policy arrangements of the Municipality of Breda

Resources:

- High dependency between municipality and the other actors
- Budget fragmented into product-based budgets
- Citizens have the resources to carry out large-scale maintenance of public space

EDE



Actors:

Municipality of Ede, Citizens, Water board Vallei & Veluwe, Contractors, cable and pipeline companies, Province of Gelderland, Housing co-operations, Adjacent municipalities

- Agenda not aligned with external actors
- Citizens responsible for large-scale management of public space

Rules of the game:

Formal rules:

- Formal rules:
- BBV, Water Act, Road Act, Civil code, Municipalities Act,
- Scopesrules: implementation must fit within the guidelines set out in the policy documents
- Nature conservation rules and regulations

Informal rules:

- Entry and exit rules
- Information rules

Discourse:

- Quality-driven management
- Assetmanagement
- Long lifespan assets considered as important
- Managers focused on their own product
- Sense of self-ownership money by product managers
- Sustainability plays an integral role, at a socially responsible cost level

S

Figure 19. Succinct summary of the policy arrangements of the Municipality of Leiden

Resources:

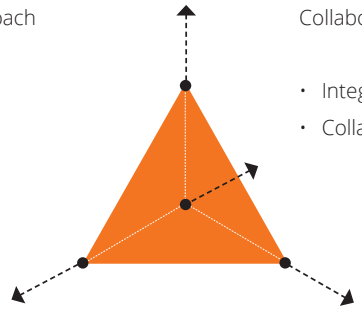
- High dependency between municipality and the other actors
- Budget fragmented into product-based budgets
- Financial benefit due to integral approach

LEIDEN

Actors:

Municipality of Leiden, Citizens, Water board Rijnland, Contractors, cable and pipeline companies, Province of Zuid Holland, Housing co-operations, Water companies Dunea & Oase, Collaborating municipalities

- Integral coordination with other clusters
- Collaborations with other municipalities



Rules of the game:

Formal rules:

- BBV, Water Act, Road Act, Civil code, Municipalities Act,
- Scopesrules: implementation must fit within the guidelines set out in the policy documents. standardization of design, process and implementation

Informal rules:

- Entry and exit rules

Discourse:

- Quality-driven management
- Assetmanagement
- Long lifespan assets considered as important
- Integral approach mentioned in vision
- Anticipate on the future by space reservation
- Standardization of design, process and implementation

Figure 20. Succinct summary of the policy arrangements of the Municipality of Ede

S

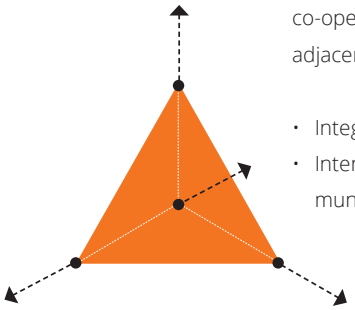
Resources:

- High dependency between municipality and the other actors
- Budget fragmented into product-based budgets financial strategist

ARNHEM

Actors:

Municipality of Arnhem Citizens, Water board Rivierenland, Water board Rijn & IJsel, Waterboard Vallei & Eem, Contractors, cable and pipeline companies, Province of Gelderland, Housing co-operations, Water company Vitens adjacent municipalities



- Integral water plan
- Intensive support of contractors by the municipality

Rules of the game:

Formal rules:

- BBV, Water Act, Road Act, Civil code, Municipalities Act,
- Scopesrules: implementation must fit within the guidelines set out in the policy documents
- Nature conservations rules and regulations

Informal rules:

- Entry and exit rules
- Information rules

Discourse:

- Quality-driven management
- Assetmanagement
- Long lifespan assets considered as important
- Avoidance of capital destruction
- Managers focused on their own product
- Sense of self-ownership money by product managers
- Reluctance to innovation

Figure 21. Succinct summary of the policy arrangements of the Municipality of Arnhem

S

Role(s) of the municipality

Integral management of public space means that various user functions are developed in mutual coherence. This means that management tasks are carried out jointly and are in line with each other. To achieve this, it is important to have a holistic view of the situation. A great deal of data is therefore required on the management tasks of the public space. The municipality is not the only actor and therefore also needs information from the other actors involved in the management of public space. An integral approach to the management of public space therefore requires a transdisciplinary process. In the current policy approaches, the municipality fulfils many roles and is therefore the director of the management of public space, meaning that the municipality must ensure that the various departments and managers within the municipality are attuned to one another and that its own agenda

is attuned to that of the other actors involved. In addition, the municipality must direct the contractors responsible for implementation. The municipality must therefore not only have technical knowledge and competences, but also good communication skills.

In the policy arrangements of all five cases, the contractors have much power because they have specific knowledge. As a result, there is a high degree of dependency of the municipalities on this actor, meaning that the contractor has free game and that there is a possibility that the contractors do poor-quality work. The Municipality of Arnhem has 2 fte on supervising the contractors, who control the work so that the agreed-upon quality is delivered and a smooth process of applying for permits is ensured. A smooth running of the process is advantageous with an integral approach, and the work can be carried out when needed. If the permit application process does not run smoothly, implementation can be postponed, as a result of which it cannot be carried out integrally.

Apeldoorn is the only case in which the municipality fulfils the role of implementer, being itself responsible for the implementation of service and small-scale maintenance. It thus has more eyes and ears on the street and more data at its disposal. This data also makes it possible to perform minor maintenance and service maintenance integrally in some cases.

> *This does mean that the municipality will have to facilitate this. The importance and possibility of an integral approach must be communicated to the executive staff. They will have to digitize the tasks in map form and the municipality will have to provide them with information on how it should be carried out. (Director public space Municipality of Apeldoorn, 2020)*

However, the Municipality of Apeldoorn outsources large-scale maintenance and replacements to contractors. As a result, the categories of actors they qualify with remain the same as in the other cases. The municipality only has other resources at its disposal than the other municipalities. They have the means to carry out service and small-scale maintenance, and they have the knowledge they acquire about the state of the public space and what is going on in the municipality.

Compared to the other cases, the Municipality of Arnhem has an additional category of actors. A large part of Arnhem's territory is owned by private individuals, including public space owned by managing authorities such as the Gelders Landschap, Natuurmonumenten and the Ministry of Defence. As a result, the Municipality of Arnhem must coordinate its management with more parties and respond to the resources and objectives of this additional party. This can complicate the process, because the more actors and opinions are involved, the more difficult it is to align policies and decisions. Another difference in the actor element of the policy arrangement of the Municipality of Arnhem compared to the other cases is cooperation with the housing co-operatives. The municipality made the design for the public space of the housing co-operatives in which the wishes of the housing co-operations are reflected, which makes it easier to plan it integrally with other of the municipality's projects adjacent to this territory. In addition, the design is integrally aligned with the rest of the public space. Rather than being an anomaly on the map, the climate adaptive measures, for example, match those of the rest of the public space.

Citizen Participation

The transdisciplinary character of integral management of public space will make the knowledge of citizens increasingly important in the future. The citizens play a relatively large role in the management of public space in the Municipality of Ede. In addition to carrying out small-scale management and providing advice, a group of citizens is also responsible for managing the public space on a large scale. The transition to integral management of the public space would also mean that management by the residents of the De Valk neighbourhood would be carried out integrally and geared to the management tasks that fall under the responsibility of the other actors. This requires a different level of knowledge and competences of these residents than that which they currently need. This lack of knowledge and competences can therefore become an obstacle to the integral management of the public space. The increasing degree of citizen participation in the form of advice in all municipalities may, in addition to generating crucial knowledge, also become an obstacle to the management of public space. "A participation process takes a lot of time. This means that the urgency of the management task is not heard" (Manager programming Municipality of Ede, 2020). Aside from the fact that it takes a lot of time, the municipality also needs knowledge about leading a participation process. "Each project requires a different form of participation. We

consciously choose which projects we let people participate in and how. That also depends on where they live" (Manager public space Municipality of Breda, 2020). In order to make integrated management possible, the municipalities will have to develop knowledge and competencies to guide tailor-made civic participation processes.

Research by Bakker et al. (2011) shows that education and demographic factors influence willingness to participate in a citizens' initiative. Citizens with a higher income, their own home, children living at home, a high level of education, a large social network and a long residential history in the neighbourhood tend to participate more often. The diversity of projects and locations means that the municipality must enter into a participation process with citizens from different backgrounds. In the case of participation in the form of an informal citizens' initiative, the government can assume three roles: a stimulating approach, a facilitating approach and a co-production approach. The role of the municipality can change during the process, because the citizen has different needs in the different phases (Denters et al., 2013). In the stimulating approach, the municipality plays an active role in initiating and realising an informal citizens' initiative, stimulating citizens to start an informal initiative by making money available, through voucher schemes or by organising competitions (De Raad voor het openbaar bestuur (ROB), 2012). In the facilitating approach, the government offers support to the informal citizens' initiative where necessary without taking over control. Initiatives are devised independently by local residents, who often lack the knowledge, skills and money to realise them (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2010). The municipality can facilitate these needs. The last role the government can take is that of co-producer. This involves intensive cooperation between the municipality and the initiators, and both parties have an interest in the realisation of the initiative. The municipality supports the citizens in the process, but can also put the latter to good use. Mutual interest arises in cases in which, for example, the citizens want to adapt their living environment in a way that is consistent with the policy agenda of the municipality (Denters et al., 2013). In the context of the various roles that the municipality can take on, the latter must develop a strategy that matches the characteristics of the participating citizens, and it must also develop a strategy for civic participation in the absence of a citizens' initiative. The municipality thus needs sufficient knowledge to develop and apply tailor-made solutions.

The fact of whether there is a participation process and the way in which these participation processes are fulfilled is determined by entry and exit rules and position rules drawn up by the municipality, which may differ across management projects. The rules of the participation process determine which resources of the citizens the municipality has at its disposal.

Aligning the agendas

The extensive policy structure of the municipalities of Ede, Breda, Leiden and Arnhem, in which the management of the public space is defined at strategic, tactical and operational level, makes integrated management easier. Translating the strategy into policy and implementation programmes based on products with an equal lifespan provides transparency and unity. This makes it possible to map out all the tasks for the coming years. In this way, the tasks of the municipality can be attuned to each other and to the tasks of the other actors. The programming department translates the various agendas into an integrated implementation programme. With the internal engineering office, the municipality has the knowledge and skills to effectively deploy the integrated implementation programme among the contractors.

As described in the description of the policy arrangements, there are small differences among the cases, which makes them suitable for other actors or in a different relationship. The municipalities of Breda, Leiden and Arnhem coordinate their agendas integrally with the actors in frequent joint consultations. These interactions are necessary, because the actors depend on the resources that the others have at their disposal (De Bruijn et al., 1993). The Municipality of Ede does not align its agenda with that of the other actors, instead presenting its agenda to the other actors, which gives it the opportunity to adapt the agenda. The informal information rule of not aligning the agenda of the Municipality of Ede with those of the actors involved can result in a lack of opportunities for an integral approach. Aside from the fact that the availability of resources and the interaction between actors is strongly influenced by the informal information rules, the informal entry and exit rules also have a great influence. Because the municipality determines which actors participate in the integral consultations, it determines which resources are available. It is therefore possible that parties that have valuable resources do not participate in the integrated consultation process because they have not been invited by the municipality.

The Municipality of Apeldoorn lacks up-to-date policy documents on a tactical and strategic level. The municipality itself, however, does not see this as a problem since the BBV is up-to-date and the managers have the correct version in their head. “Because we have few managers, everyone knows each other and we can easily exchange information. This makes documentation less important” (Director public space Municipality of Apeldoorn, 2020). However, this attitude has a negative effect on an integral approach to management. The lack of up-to-date policy documents makes it difficult to look ahead in the medium and long term in order to detect risks and develop maintenance strategies (City of Ede & SWECO,2017). In addition, the municipality is a more difficult interlocutor for the other actors. In the absence of a long-term strategy, the other actors are unable to adapt their strategies accordingly. This means that actors carry out management tasks autonomously, which can otherwise be approached integrally.

In addition, unlike in the other cases, the Municipality of Apeldoorn does not engage in integral consultation with all the actors. The municipality organises consultations per actor in which they coordinate the agendas, which means that the municipality is aware of all agendas but that the other actors are not automatically aware of each other’s agendas. The municipality thus determines which tasks can be carried out integrally, while the other actors are unable to respond to each other’s agendas. For example, an actor with the knowledge of another actor’s agenda might decide to carry out something that they would otherwise only do much later. One such case would be the installation of a heat network that a cable and pipeline company might want to take advantage of by laying a cable that they would otherwise not lay for another eight years and would not communicate to the municipality about because it would only happen in the very long term. As a result, not all possibilities for the integral execution of management tasks are capitalised on.

As a result of the above-mentioned coordination of the agendas between the municipality and the other actors, one would expect most of the tasks to be carried out integrally wherever possible. In reality, however, this is not the case. In fact, the interviewees representing the municipalities of Breda, Apeldoorn and Ede reported competition among the various cable and pipeline companies that provide the same service. As a result, telecommunications companies, for example, only state very late what work they want to carry out. This often

means that it is no longer possible to carry out these activities integrally with management declarations from the municipality or other actors. In addition, these commercial companies are customer-driven, thus responding directly to the customer's request. "So if the customer wants an internet connection, he gets it. Then they had no work last week and today they did" (Manager public space Municipality of Breda, 2020). These short-term tasks are also almost impossible for the municipality to include in integral projects.

Despite the joint objective of the municipal departments and the integral consultation between the municipal departments and the external actors, it is not always easy to align the various departments within the municipality. In the case of the Municipality of Leiden, there is no integral public space policy. Each department dealing with public space, of which management is one, has its own policy programme, leading to competition among the policy programmes despite the desire for coordination. There is a lack of a person with final responsibility, as a result of which there is a certain lack of coherence in the design and integral execution of tasks. "Because this direction is currently lacking, the public space is sometimes of insufficient quality" (City of Leiden, 2020). The Municipality of Apeldoorn experiences a difference in financial management as an obstacle to the integral execution of projects of different departments. The policy department is concerned with achieving the general goals of the municipality, for example, improving safety and adaptation to climate change. It is difficult, for example, for the management department to carry out a task which the policy group can join to achieve one of the higher goals: "They do not always know how to find that connection because they do not have the finances ready or because they need a separate decision from the council to make extra money available" (Director public space Municipality of Apeldoorn,2020). Achieving the extra goals integrally with the management project means that the project will cost extra money, for which the policy group must apply to the council. This is a slow process for which the management department, feeling the urgency of the task and having the money on the operating account, cannot wait.

Determining the management tasks and drawing up and aligning the agenda is performed on the basis of steering methods. The policy arrangement of the cases described in the previous chapter shows that the municipalities use different steering methods. The most commonly used steering method is qualitatively

steered management based on the CROW image book. This method is used by most municipalities, which have been steered by CROW. “CROW determines very much how management is set up. Because of this, there are many similarities between municipalities” (Department head management of public space municipality of Arnhem, 2020). Asset management makes it possible to compare different assets on the basis of risk and thereby to determine which management tasks have a higher urgency. Ideally, the municipality would like to carry out all interventions at the highest possible level. Of course, this is not possible in relation to space, but it is also financially impossible. One criticism of asset management is that it is based on the optimal lifespan of an object, which does not align with current social dynamics. As described above, striving for such a long lifespan is not desirable. An asset management cycle can also be used to determine an optimal point of replacement, which does not have to be as long as possible. In addition, criteria other than lifespan can also be considered using the asset management cycle, which has the advantage that it runs through the steps play, do, check and act, so that the process of management is continuously improved. The actors can go through the cycle together, and it can be used to analyse, evaluate and improve the cooperation of the actors.

From vision to action

In the current discourse of the municipalities, there is an increasing interest in the integral management of public space. The visions of the municipalities include characteristics of an integral approach, whether or not it is mentioned explicitly. The managers speak positively about an integral approach and see it as both important and necessary. The Municipality of Leiden and Arnhem are a frontrunner in acting along these lines. As described above, all municipalities coordinate the agendas with the other actors and, where possible, carry out the tasks integrally, but Arnhem and Leiden takes this a step further by drawing up policy together with other municipalities, such as the integrated water chain plan. Leiden takes an additional step on top of this, reserving space to respond to the management challenges of the future. “In the past, cable and pipeline companies had a monopoly or almost a monopoly. The cable and pipeline companies therefore already laid cables and pipelines in advance” (Department head management of public space Municipality of Arnhem,2020). The present day demands a change of management and solutions like this one.

Currently, more players on the market compete among themselves, and the cable and pipe companies customer driven, which has a negative effect on integral working, as the agendas of cable and pipe companies change daily as a result. These constant changes make it impossible for the municipality to orient its work towards the agenda of these players and thereby carry out integral work. The Municipality of Leiden has tackled this obstacle:

> *We have calculated the largest profile of the alternatives that exist. This makes the heat network the largest profile. We are now ensuring that all the neighbourhoods we are replacing already take account of the possible future heat network. We then call this space reservation in the subsurface (Project and program manager management of public space Municipality of Leiden, 2020).*

Thus, in case of district-oriented maintenance and replacement of sewers, the preliminary work required for future cables and pipes is already carried out in full. As a result, the municipality also knows what the belowground infrastructure will look like in the future and can also take the aboveground infrastructure into account integrally. If the belowground infrastructure were to change in the future, the aboveground infrastructure would also have to change if all assets were not combined. For example, a tree cannot stand above a belowground cable route. Carrying out the preliminary work for future routes now means that the municipality will have to advance the costs for the cable and pipeline companies.

Despite the risks associated with such integral execution, the municipality has opted for this because integral execution has major financial advantages over autonomous execution of management tasks (Project and program manager management of public space Municipality of Leiden, 2020). The financial advantage of 30%, as described in the description of the policy package of the Municipality of Leiden, is not directly achieved by every municipality. The Municipality of Ede is currently still making a financial loss by applying an integral approach.

> *If you have more experience as a government, you can set up the process more efficiently. We have been doing this for three years now, but it takes a long time. Since our cycle is one year you have to wait another year each time to make improvement. (Manager programming Municipality of Ede, 2020).*

In addition to financial incentives for an integrated approach, citizen satisfaction is also a driver. Municipalities see the value of public space for citizens to experience as important. Implementing these new strategies requires time, cost and attention but will bring many benefits in the longer term.

Reluctance to innovate

The integral implementation of a management task begins with the leading asset of a given municipality. The sandy soil of the Municipality of Leiden is continuously subsiding, as a result of which the sewerage system is also subsiding, which will worsen its condition and shorten its lifespan. This makes the sewer system the leading asset. The solid sandy soil of the municipalities of Arnhem, Apeldoorn, Ede and Breda ensures that the sewage assets do not have a shortened lifespan, and the replacement of the roads asset is therefore the start of a major integral task in these municipalities. The policy arrangements of the municipalities show that the sustainability of an asset in the form of a long lifespan is considered very important. One might wonder whether considering such a long lifespan as the most important characteristic of an asset still fits in with today's issues. The director public space of the Municipality of Apeldoorn (2020) also wondered this:

> *When I look at social developments, I see that developments are accelerating. So does it still make sense to construct public space that can last a hundred years? Because if we want something different in twenty years from a functional point of view, there is quite a lot of destruction of capital if we want to intervene at that point in time. So perhaps in some areas you should make a conscious choice to construct public space that you think is temporary. That might last 20 or 30 years.*

Not viewing a long lifespan as the ultimate property of an asset would also make it possible to align the lifespan of the assets. In the current policy arrangements, the managers look for a balance in the optimal replacement moments of the assets in order to carry out a task integrally but to minimize capital destruction. After a change of mindset, there is hardly any need for capital destruction, since the lifespan of the various assets is largely the same.

Among the municipalities, there is a reluctance for innovation for several reasons, including seeing the lifespan as the most important property of an asset. Municipalities are afraid to apply new technologies because there is no evidence that the theoretical lifespan will actually be realised in practice. This reluctance for innovation is reinforced by the high costs involved. “The first iPhone is more expensive than the second. So innovation costs money” (Manager programming Municipality of Ede, 2020). If the theoretical lifespan is not achieved, the result is a major financial setback for the municipality. In addition, the technical uncertainties associated with innovation are accompanied by social uncertainties, which relate to the question, “will the technology actually be used in the future?” For example, it is uncertain whether home owners or housing co-operations will switch from a central heating boiler to a heat network. “In the really big task everyone is looking at each other and waiting for each other” (Director public space Municipality of Apeldoorn, 2020). It is therefore social and technological uncertainties and the thinking behind these uncertainties which hinder innovation.

In addition, the rules of the game also ensure that new innovations are not implemented. The rules specific to each case consist mainly of scope rules. The policy documents, framework notes and management plans contain rules for approaching management tasks. This standardisation has financial advantages but also limits the possibilities for an integrated approach and innovation, and adding new objects is not possible. If it is necessary to apply a different design, process or implementation for an integral approach, the regulations must first be amended.

Innovation is very important for an integrated approach to the management of public space, ensuring that the development of new knowledge and will lead to integrated technical solutions. A current example of this is in smart LED streetlights that, in addition to emitting light, emit a Wi-Fi signal, measure fine dust, chase away loiterers and so on. As a result, objectives such as social cohesion, safety and sustainability are achieved in an integrated manner. Integral technical solutions ensure the efficient use of scarce public space. While the reluctance to innovate is an obstacle to integrality, an integrated approach can largely address this reluctance. If the various actors determine integrally which innovations they will apply in the coming years, municipalities and other actors will no longer have to worry about investing in the wrong technology.

The effect of the regulations on managing public space

The financial budget of the cases was drawn up on the basis of the regulations of the BBV, meaning that for each asset, a budget is divided into exploitative and provisional costs. In addition, municipalities make use of investments for replacements issued by the Dutch bank. In the case of applying an integral approach, various management tasks are carried out in a project. This means that the replacement moment of various assets is shifted. As a result, the costs can differ greatly from the budget. In addition, an integral approach stimulates a district-oriented approach. The condition of the assets is very different for each district. In the case of an integral approach, the costs of managing the public space fluctuate greatly across the assets. It is therefore desirable for an integral approach to be able to easily change the amounts in the budget to suit changing needs. At present, an amendment to the budget must be approved by the College of Mayor and Aldermen or by the municipal council, so while it is possible to shift the budget where necessary, the legal fragmentation of budgets is an obstacle to the application of an integral approach to the management of public space. Budget regulations have determined the current discourse of the budget holders and financial guardians, and at the moment there is little or no shifting of money within the budget.

The long history of legal and financial fragmentation of budgets and the lack, until recently, of the need to shift them has created the feeling of "owning their own property", wherein budget holders feel that they own money for the product they manage. The idea that the money should be used to promote the general social interest has disappeared. "The product managers are very much on their own island and want the best for their own product. In doing so, they sometimes forget that you have to look at the entire management of the public space" (Director public space Municipality of Apeldoorn). If money is not redistributed, an integral approach to management tasks is not always possible because the money for one or more products is missing and other product managers are unwilling to spend "their" money. The Municipality of Arnhem tries to overcome this obstacle by deploying a financial strategist. This financial strategist maps out the changing financial needs and predicts the desired distribution of the budget for the coming years, then shares this with the budget holders. The director public space of the Municipality of Apeldoorn (2020) warned that "the product managers feel this is like surrendering some autonomy". Changing the fragmented nature of the financial budget will not always be without a struggle as it requires a change of mindset on the part of the budget holders

Lack of time

In summary, the following obstacles emerge from the research:

- Reluctance to innovate due to scope rules, technical uncertainties, social uncertainties and the view of the longest possible lifespan of an asset as an ideal.
- The late passing on of information by cable and pipeline companies due to customer-driven character and competition.
- Lack of resource knowledge, competencies and time for an effective and efficient participation process.
- Informal information rules and entry and exit rules that determine the interaction between the municipality and external actors.
- Financially fragmented thinking and acting.
- Lack of coordination between departments of the municipality due to difference in cycle and policy.

Since the four elements of the policy arrangement approach influence each other, the origin of an obstacle often lies in multiple angles. For example, the budget, policy structure and organisational chart of the municipality based on products affects the fragmented thinking of the product managers. Most of the obstacles to applying an integral approach can be overcome by moving away from the social practice determined by history. By changing the discourse element of the policy arrangement, the actors, resources and rules of the game elements will also change.

Changing the discourse and the transformation of the entire policy arrangement takes a lot of time. Consideration must be given to how the municipality wants to organise its management of the public space to which the changes must be implemented. “There are a lot of everyday things that give you little time to think about how we would like this to be done differently” (Manager programming Municipality of Ede, 2020). The lack of time slows down the transition to an integral approach.

Conclusion

In this chapter, the results of the research are used to answer the research questions. First, the three sub-questions are answered, followed by the main question. The answer to the main question will also consist of recommendations concerning the improvement of the policy arrangements of the cases.

Sub-question 1:

How are the current policy arrangements of management of public space constructed?

In addition to the differences between the policy arrangements of the cases, there are also major similarities. These similarities are mainly caused by the generally applicable rules and the use of the methods drawn up by CROW (Centre for Regulation and Research in Soil, Water and Road Construction and Traffic Technology).

Actors

The actors involved in the management of public space are the municipality, citizens, contractors, housing co-operations, cable and pipeline companies, the water board, the province and adjacent municipalities. The extent to which these actors influence the management of the public space of the relevant municipality depends on their resources and role in the process. The adjacent municipalities have more influence in the Municipality of Leiden than in the other municipalities because of a partnership in the field of waste processing and water management. In the Municipality of Ede, the citizens of the De Valk hamlet have more influence on management because they are responsible for the entire management of the public space of the hamlet (except sewerage).

This thesis does not extensively describe the relationship between the case municipality and its adjacent municipalities due to a lack of data. However, the research has shown that, as mentioned above, there are collaborations between municipalities in specific areas. However, there is no joint coordination of the entire management agenda. This means that the management of public space sometimes literally stops at the municipal boundary.

All municipalities fulfil the role of agenda-setter, supervisor, supporter, adviser, informer and coordinator in the process of managing public space. The Municipality of Apeldoorn also fulfils the role of implementer. By fulfilling all these roles, the municipality is in control and coordinates the cooperation among the actors. The municipalities of Breda, Leiden and Arnhem coordinate their agendas with the other actors during joint discussions. These discussions are held on a very frequent basis. They align the agendas for the coming years and discuss ongoing projects. The municipality Ede presents its agenda during a meeting with all actors. This gives the other actors the opportunity to align their agendas with those of the municipality. However, the municipality does not align its agenda with that of the external actors. The Municipality of Apeldoorn coordinates its agenda with that of the external actors on an individual basis. Therefore, there is no joint discussion in which all actors are present. The municipality does adjust its agenda to that of the actors and vice versa. As a result, it is not possible to make use of all the opportunities for an integral approach.

The case municipalities all have more or less the same structure, including a municipal council, which determines the political direction; a college of mayor and aldermen, which outlines the political direction and has the authority to decide on the budget; and a lower management level, consisting of the chief executive officer, in charge of all the clusters of the municipality. This is followed by the management cluster, which is subdivided into product managers based on the capital goods. These product managers each carry out their own annual programme and provide joint programming. The projects consisting of replacements and large-scale maintenance are prepared and calculated by the internal engineering office. This engineering firm is not part of the cluster and also carries out assignments for other clusters. Within the management cluster, there is increasing consultation among the various managers. The municipalities are very pleased with the current coordination of the departments within the cluster; however, coordination among the various clusters is still lacking, as the various clusters have a different year cycle, their own policy and their own agenda. There is no integrated policy for all clusters involved in public space, and there is no programming at the municipal level.

Resources

The actors involved in the management of public space are highly dependent on each other's resources. As a result, the power of the various actors is very great. This makes good communication among the actors even more important. The municipality increasingly takes on the role of director and outsources the physical implementation of projects to external actors. As a result, the knowledge and competences in the field of implementation are declining.

The financial resources of the municipality are divided into three forms. A budget is set for each product and divided into an exploitation account for service and small-scale maintenance, facilities for large-scale maintenance and investments for replacements. Not every product has all three forms of financing, as not all products have capital assets.

Discourse

The motto of the municipality changed from "clean, whole and safe" to "integral". In the visions of the municipalities, characteristics of an integral approach can be found, explicitly or otherwise. This change goes hand in hand with the transition from mainly quality-driven management to asset management. Currently, the municipality mainly uses image quality as a steering method. This method has been developed by the CROW, which means that all municipalities use the methods they offer. Currently the CROW stimulates the use of asset management in the form of the CROW management system. This method is gradually being adopted or implemented by the municipality as it sees fit. However, there is some resistance from the product manager towards asset management due to the feeling that the method does not fit in with daily activities. The employees of the municipality on a strategic and tactical level are positively disposed toward asset management, seeing it as a method that supports them in making the step towards integral management of public space.

The integral approach is increasingly reflected in the visions on the management of the public space of the municipalities, but the product manager does not always act accordingly. The product managers are traditionally accustomed to focus only on their own product, seeing it as the most important, which makes

them unwilling to share money budgeted for their product with other products. They see the portion of the budget allocated to their product as their own money and lose sight of the common goal of product managers.

The clusters responsible for the management of public space are generally reluctant to innovate. This hesitation is mainly caused by tree factors. First, the managers see as ideal the longest possible lifespan. Second, there is the uncertainty as to which technology the various actors will apply. The last reason is that new technologies can often not be implemented because they are outside the scoping rules set out in the policy documents. For these reasons, the implementation of new technologies often remains out. As a result of which not all possibilities for integrated management of public space are exploited

Rules of the game

The responsibilities of the municipality for the management of public space are defined in the Water Act, the Road Act, the Civil Code and the Municipalities Act. In addition to these general rules, the BBV sets out how the municipality's budget is to be drawn up. In addition, it stipulates that a change to the budget must be approved by the municipal council or by the Municipal College of Mayor and Aldermen.

Each municipality has laid down scope rules in its own policy to which the municipality must adhere. These scope rules are distinct to each case, making the scope what determines the rules. One municipality has elaborated its policy in more detail than another.

In addition to the formal rules, informal information rules and entry and exit rules influence the interactions among the actors. The information rules determine which information is exchanged and how. With whom this information is exchanged is determined by the informal entry and exit rules.

Sub-question 2:

What are obstacles to the integral management of public space?

The first obstacle is the lack of a common agenda. This obstacle, expressed in the dimension discourse, is caused by the applicable informal information rules and entry and exit rules. Municipalities generally do not coordinate their agendas

with those of neighbouring municipalities, and if they do, only in a few areas. In addition, this obstacle applies specifically to the municipalities of Apeldoorn and Ede. The failure to coordinate the agenda with the neighbouring municipalities, the individual coordination of the agendas of the actors by the Municipality of Apeldoorn and unilateral coordination of the agenda in the Municipality of Ede ensure that not all opportunities to apply an integral approach are taken advantage of.

The second obstacle is the lack of coordination within the municipality. This is first caused by a difference in cycle between the clusters, which makes it difficult for the clusters to connect to projects. If clusters see opportunities for an integrated approach, this is often not possible because funding is not timely. Second, the municipalities lack an integrated policy for public space. As a result, the various clusters that relate to public space often have a competitive policy, and the process, design and implementation are different, which means that there is a lack of integrality. Third, most cases lack municipality-wide programming, as a result of which projects within each cluster may be carried out integrally, but there is no integrality among the projects of the different clusters.

The third obstacle is the lack of up-to-date and in date aligned policy documents. The Municipality of Apeldoorn's failure to update the policy documents makes it less of a clear communicator to other actors. Because adjustments are only recorded in the budget and not in the policy documents, it is not clear to actors outside the cluster which policy is being pursued. The lack of alignment of the update frequency makes the document hard to compare and align in vision. As a result, other actors are not able to respond, and opportunities for integrality are wasted.

The fourth obstacle is the lack of resources for an integrated approach. Civic participation will play a greater role in an integral approach. In addition to time, which is very scarce in the municipality, this also requires communication skills. At the moment, the municipality does not have sufficient knowledge and skills to lead the participation processes optimally. In addition, an integral approach also requires other resources from the citizen. With small-scale management, this will not cause major problems. However, for the citizens of the De Valk hamlet, it is highly questionable whether they have the resources to carry out their management integrally.

The fifth obstacle is the fragmented thinking of the product managers. In an integral approach, it is important to strive for the best possible overall result. This means that resources must be deployed where necessary. Because the product managers focus on their own product and see it as the most important, they are often unwilling to make financial concessions and hand over money that has been budgeted for their product to other products. This can make it impossible to use the money where necessary and therefore to carry out tasks in an integrated manner.

The sixth obstacle is the reluctance to innovate due to technical and societal uncertainties. An integral approach also means that multiple goals are achieved with a solution. Technical innovations can ensure that space is used more efficiently, for example, by using a single cable for multiple purposes. Because of this reluctance for innovation, implementation and thus integrality are not achieved.

The seventh obstacle is the lack of ability to implement innovation. It is often not possible to implement new products directly due to scope rules drawn up in the policy of the municipality. If implementation is desired, the rules must first be changed.

The eighth obstacle is the short-term actions of cable and pipe companies. Because the cable and pipe companies respond to the demand of the customer, their tasks in the public space are known only very late. This makes it impossible for the other actors, including the municipality, to include these tasks in an integral agenda.

The ninth obstacle is a lack of transparency by cable and pipeline companies. If these companies do know long in advance what they want to do in public space, they often do not communicate this to the other actors due to the competitive sensitivity of this information. This also makes it impossible for the other actors, including the municipality, to include these tasks in an integrated agenda.

Sub-question 3:

Which methods are municipalities currently using to overcome obstacles to the integral management of public space?

The research shows that the Municipality of Leiden and Arnhem have found solutions to overcome certain obstacles.

Obstacle 2, the lack of coordination within the municipality, is partly overcome by having a programming department that works across the municipality. Programming makes a multi-year plan of the agendas of the various clusters. It looks for possibilities for integral implementation. This multi-year plan is converted by the management cluster into annual plans for each product.

Obstacle 5, fragmented thinking of the product managers, is addressed by the Municipality of Arnhem through the use of a financial strategist. Due to an integral approach, budgets must be divided differently in the future. The financial strategist predicts where the money will be needed in the future and, through discussion, convinces the product managers and budget holders of the importance of changing the current budget. In this way, the financial strategist keeps the cluster healthy, stimulates innovation and reduces fragmentation.

The Municipality of Leiden responds to obstacles 8 and 9, the short term actions and the lack of transparency of cable and pipeline companies, respectively, by means of space reservation. In the case of large-scale maintenance and replacements, the municipality carries out the groundwork that is expected to be needed by the cable and pipeline companies in the future. This prevents the municipality from having to carry out this work again at another time. This integral approach is cost-saving for the municipality and reduces inconvenience to citizens.

Main research question:

How can the obstacles to the integral management of public space be overcome?

The integral management of public space has a transdisciplinary character. This means that, in addition to technical skills, the municipality, as director, must also have communication skills. The municipalities must improve these skills and take the lead in coordinating the agendas of the various actors. It is important that a

joint agenda be drawn up in a consultative structure in which all actors participate simultaneously. This means that the agenda is coordinated not only between the municipality and the external actors, but also between the external actors themselves. The municipality, which has the role of director, must ensure that all the actors involved in the management of public space take part.

In addition to drawing up a joint agenda with the external actors, the municipality must also improve the coordination of the clusters within the municipality. If possible, the clusters will work with the same year cycle; otherwise, funding possibilities must be looked into, allowing clusters to quickly link up with projects of another cluster. In addition, the municipality would benefit from drawing up an integrated policy for all clusters involved in the management of public space. Programming at the cluster level should be scaled up to programming at municipality level.

The changing role of the citizen also requires an expansion of the municipality's communication skills so as to facilitate the development of a participatory process. Depending on the situation, the municipality will have to take on a role that suits the desired approach with the corresponding interaction pattern between the actors – a stimulating approach, a facilitating approach or a co-production approach.

These first three obstacles of the lack of a common agenda, alignment of clusters and citizen participation are reflected in the dimensional discourse and call for more interaction between the actors, change of the entry and exit rules and the gathering of the necessary resources to lead a transdisciplinary process.

When jointly drawing up an agenda, transparency is very important in order to exploit all opportunities for an integrated approach. The municipality will have to radiate transparency to the other clusters and external actors. Making up-to-date policy documents and management plans available is part of this. It is also desirable for the other actors to be transparent. However, it is highly unlikely that the cable and pipeline companies will reveal all their plans. The municipalities can overcome this obstacle to integrality by applying space reservation. By applying space reservation, the obstacle of customer-driven actions is also addressed.

In addition, the municipality should not only provide a joint agenda but also ensure that the rest of the management process runs smoothly. The Municipality of Arnhem has ensured good cooperation with the contractors by putting 2fte on the application for permits and checking the implementation by the contractors. This ensures that scarcely any unforeseen circumstances prevent integral implementation.

In order to successfully implement the above-mentioned, the municipality will have to ensure that the idea of integral management of public space as a new ideal is shared by all employees of the cluster. The project managers are positively opposed to an integral approach but still think and act according to a sectoral approach. The awareness that money is a common good and that the longest lifespan may no longer be the ultimate goal will have to be disseminated to everyone. The fragmentation of money is not a problem because of the rules of the game, resources or actors but has its origin in the discourse. Addressing the latter concern should help address the reluctance to innovate. In addition, the reluctance to innovate can be caused by social uncertainties which can be removed by applying an integral approach, and through discussion, the actors can reach agreement on which technology will be applied. In addition, the municipality should be open to the implementation of innovation by reconsidering scope rules drawn up in policy if new technologies are introduced. The change from a discourse to one that fits in with an integral approach will ensure this and ensure that the changes mentioned above are acted upon.

The application of asset management or the CROW management system can support the municipalities in the transition to integral management. In addition to enforcing a systematic approach to management, it forces the municipalities to be critical of their actions and to rethink the way they do things. When using the management system, it is not necessarily required to take risks as criteria for assessment; the municipality can also use other criteria that are more in line with the integral management of public space. The CROW can play a key role in this transition from quality-driven management to asset management. “In the past, the CROW has strongly determined how management is organised. As a result, there are many similarities between municipalities. However, their position weakens” (Department head management of public space, Municipality of Arnhem, 2020). If the CROW is able to regain its strong position, it is expected

that many municipalities will soon apply the management system, ensuring that most municipalities apply the same management method and that the differences between the municipalities is thus small. This makes it easier to coordinate the management of public space between neighbouring municipalities. The CROW can therefore accelerate and improve the transition to integral management.

The entire process of changing from the current policy arrangements to the new policy arrangements of integral management, in order to tackle the transitions in public space, costs much in both time and money. The management clusters currently do not have the ability to make these resources available, and as a result, the transition will take place very slowly. "The transition will only really start when politicians start to steer and shout" (Department head management of public space, Municipality of Arnhem, 2020). If the municipal council sees the urgency and importance of the transition to integrated management of public space, they will make money available for this transition to take place. It is therefore important that the managers of public space ensure that integrated management is placed on the political agenda.

Contribution to society and science

This research provides insight in which dimensions the obstacles originate. Knowing this origin makes it possible for municipalities to adapt their current policy arrangement to one that fits an integral approach. In this way, the research contributes to the social relevance of tackling transitions in public space.

In addition to the social contribution of this research, it also makes several scientific contributions to the PAA of Wiering & Arts (2006). Firstly, this research applies PAA to a policy domain other than the usual domain of water management. This increases the social relevance of this theory since in practice a policy arrangement is not a separate dimension but an interrelated whole. Applying the PAA to a different policy domain and mapping the connections between the dimensions provides a theoretical and empirical development of the approach.

Finally, this research is one of the first studies on the theme of the management of public space, thereby contributes to filling the large knowledge gap on this theme, and with its partly descriptive description of the PAA it can serve as a starting point for other scientific research.

Discussion

This chapter reflects on the results of the research and the method used. In addition, recommendations are made for further research.

Reflection on Theory

This research investigates what changes to the policy arrangement are needed to manage public space using an integral approach. The research thus assumes that integrated management is the solution to dealing with the increasing pressure on public space. However, this leaves the question of whether this is the case and to what extent an integral approach should be adopted. This research shows that many management tasks can easily be carried out autonomously. The Municipality of Apeldoorn argues that replacing a lighting pole is only a matter of removing a few tiles from the ground and installing a new pole. Autonomous action can be taken more quickly, since preparing an integral project takes much time. In addition, many lampposts can be replaced at once without waiting for other tasks, resulting in a tendering advantage. This raises the question of whether an integral approach is better in all circumstances.

This study discusses how aligning the lifespan of assets facilitates integral management of public space. While this is the case, the Municipality of Breda points out that such is not desirable for all assets. If all asset trees are given the same lifespan, only a limited number of trees can be used. This results in a monotonous image of the outdoor space, detracting from the experiential value and demonstrating how equalizing the lifespan of all assets can have a detrimental effect on the quality of the public space. So it is questionable in which cases and on what scale integral management has added value.

It is concluded that the fragmented thinking of the product managers will have to change in favour of the idea of jointly achieving a goal. With respect to this fragmented thinking, partly caused by the fragmented classification of the budget as a result of the Decree on the Budget and Accountability of Provinces and Municipalities, no advice has been given to change the rules. The Decree on the Budget and Accountability of Provinces and Municipalities monitors the financial health of the municipality and allows to shifts within the budget. In addition to obstacles to the integrated management of public space, the fragmented character also brings

benefits. “Fragmentation of the budgets is not a problem because everyone then has an accountability and an interest in the realization” (Project and program manager management of public space municipality of Leiden, 2020). It is therefore important that the budget continues to be managed by different budget holders, but that these budget holders are willing to shift the budget among each other.

Finally, the Municipality of Leiden works in a district-oriented manner, which, in discussions about an integral approach to management, is often mentioned as desirable. District-oriented work is related to the fact that entire neighbourhoods from the construction peak of 1950 to 1970 are now in need of a complete renewal of the public space. District-oriented work makes it easier to carry out management tasks integrally within a neighbourhood. There is, however, a high probability of destruction of capital, as the municipalities indicate that neighbourhoods do not age uniformly. For example, area access roads must be replaced at different intervals than small access roads. Working in a district-oriented manner therefore does not fit in with the desire to manage by means of an integral approach in which there is as little destruction of capital as possible. So there is a need for research into the right spatial scale for management.

Reflection on methodology

This paragraph reflects on the effect of the methodology used on the results of the research, discussing the selection of cases, the selection of interviewees, the availability of information and the use of the policy arrangement approach.

Five cases were investigated in this research. Due to this large number, the results of each case could be compared with those of other cases, putting the results in a broader context. The disadvantage of examining a large number of cases over a six-month period is that it is not possible to examine the cases from the perspective of all the actors. The absence of the perspective of these actors results in a less complete picture of the prevailing policy arrangements. The five cases selected were chosen randomly with the criteria that the municipality should be part of the G40 city network. As a result, a broad palette of municipalities was investigated. If the cases were not randomly selected, more frontrunners could have been included in the study, resulting in more knowledge about existing solutions. Adding criteria would have made the municipalities more comparable, but the results would have been less relevant for municipalities that fall outside these specific criteria.

In addition, the selection of the criteria of the case studies resulted in knowledge about municipalities that are part of the G40 network. The policy arrangements of smaller and larger municipalities would be different, with other obstacles experienced. The knowledge is therefore only applicable to cities with more than 100,000 inhabitants that are not part of the G4.

The interview participants were chosen for their managerial position within the cluster responsible for the management of public space. This made it possible to get a holistic view of the case with only one interview per municipality. As a result, other perspectives remain underexposed, and there is a chance that things are portrayed as better than they actually are. A manager is ultimately responsible for the course of events within the cluster and can therefore be held accountable for negative outcomes. As a result, choosing other participants will lead to different results.

In addition to the interviews, the policy arrangements were examined by analysing policy documents. The policy documents were obtained through the internet or through the interview participants. During the research there was no access to all existing policy plans and management plans. The results are therefore only based on the information that was made available. In addition, only documents that are current were used. Many cases are in the process of renewing their policy documents. In addition, municipal sewerage plans will disappear in the near future with the advent of the new Environmental Act, which means that these issues will be dealt with in a new manner. Changing the policy documents and thus the discourse will have an effect on all dimensions of the policy arrangement. The policy arrangement approach is therefore the temporary stabilization of the content and organization of a policy domain. This means that the obstacles will also change.

The use of the policy arrangement approach as a theoretical framework has insight into the way in which the policy domain management of public space is shaped in terms of organization and substance. However, this theoretical framework does not provide any insight into the effectiveness of the policy arrangements, nor does it provide a measure of the degree of integrality of a policy arrangement. A second disadvantage of the policy arrangement approach is that the various dimensions are interpreted differently by individuals. By applying an expert check, an attempt has been made to eliminate a misinterpretation by the researcher.

Future research

Due to the general lack of scientific knowledge, more research on all subjects within the theme of management of public space is recommended. From this research, other specific research topics will emerge.

First, the relevance of this research to society can be increased by using the theory in deductive research. This will provide insight into whether the obstacles apply to other cases. Second, research should be conducted into the obstacles to the integrated management of the public space and the policy arrangements of small and G4 municipalities, because these municipalities, too, will have to adopt an integrated approach as a result of the increasing pressure on public space. In addition, this research can provide lessons for other municipalities.

Third, it is important to investigate what criteria appropriate for an integral approach to the management of public space should be considered for the asset management cycle. The social demand for these assessment criteria will increase as a result of the transition from image quality as the dominant management method to CROW's management system.

Fourth, it is important to research on which scale and in which tasks an integral approach has added value. A different relationship herein will mean that a different policy arrangement will be needed.

Finally, it is important to investigate the effects of the Environmental Act on the policy arrangements of municipalities and the associated obstacles. It would also be interesting to investigate how the transition to the new Environmental Act can be used to remove the current obstacles.

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Figures

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Appendix 1

Operationalization of the PAA into an interview			
Item	**Dimension**	**Indicators**	**Main Questions**
SRQ 1	Actors	constellation	Which actors are involved in the policy arrangement of managing public space?
			What are the role(s) of the actors involved – agenda-setter, supervisor, implementer, supporter, adviser, informer, coordinator?
			Are there changes in the constellation of the actors involved or in their role? If so, why?
		Coalition & oppositions	Which actors within the municipality and third parties are working together?
		Interaction patterns	How often do the actors interact, and in what manner?
			Are there changes in the interaction patterns among the involved actors? If so, why?
	Resources	Constellation	Which resources are available for the actors involved in the policy arrangement of managing public space?
			Are there changes in the constellation of the available resources? If so, why?
		Power relations	How are these resources distributed over the actors?
			Are there changes in the distribution of the available resources along the actors? If so, why?
		Political influence	Do the actors use their resources effectively? Do they use them in a manner that has political influence?
			Which resources or actors can be substituted?

Operationalization of the PAA into an interview - Continued

Item	Dimension	Indicators	Main Questions
	Discourse	Paradigms	Which problems does your municipality face in managing public space at the moment?
			What do the actors think of an integral strategic approach?
		Utopias	What is the ideal approach to deal with the transitions in the management of public space?
		Policy programs	Which policy documents are in force in the management of public space?
			What is the current approach the municipality uses to manage public space?
			Are there changes in the policy program of managing public space? If so, why?
	Rules of the game	Legislations	What legislation shapes the practice of management of public space?
		Pre-procedures	Are there formal and informal procedures for the management of public space?
		Political culture	What is the general attitude of the actors with regard to the world of management of public space playing a key role in the solution to the challenges of mobility, energy, circular economy and adaptation to climate change?
SRQ 2			How do you define the integral management of public space?
			What is the ideal approach for the management of public space to deal with the transition?
SRQ 3			What are obstacles of the dimensions of the current policy arrangement to achieve the utopian or ideal approach for the management of public space?

A