

## article

# Applying design in public administration: a literature review to explore the state of the art

Margot Hermus, [hermus@essb.eur.nl](mailto:hermus@essb.eur.nl)  
Arwin van Buuren, [vanbuuren@essb.eur.nl](mailto:vanbuuren@essb.eur.nl)  
Victor Bekkers, [bekkers@essb.eur.nl](mailto:bekkers@essb.eur.nl)  
Erasmus University Rotterdam, Netherlands

The attention for applying design-oriented approaches in public administration has increased significantly. Applying design is seen as a promising way to deal with wicked problems and create more responsive policies and services. We aim to contribute to the debate on the value of design for public administration and the development of the latter into a design science by conducting a systematic literature review into the empirical applications of design. We analyse the goals, processes and outcomes of 92 empirical studies. Based upon this we distil six design approaches, varying from traditional scientific and informational approaches to innovative, user-driven and thus more 'inspirational' approaches. The more traditional (science-driven) approaches still dominate the field. The impact of these types of studies is correspondingly low. We argue that further developing and refining the whole range of design approaches can foster both the scientific rigour and the societal relevance of a design-oriented public administration.

**key words** design • design science • policy design • public administration • literature review

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## Introduction

Public sector organisations face many intractable issues, such as climate change, migration and integration, chronic diseases, aging and inequality. These issues touch upon different interests and values and are surrounded with uncertainty and controversy. Furthermore, governments also face financial pressures, urging them to come up with cost-efficient solutions. Citizens, simultaneously, expect governments to develop policies and services that fit their needs without causing excessive bureaucracy or unwanted inequalities (Bason, 2017; Kimbell, 2016). As a result, the problems governments are dealing with have become increasingly complex, and so have the solutions – policies and services – they develop: they have become increasingly integrated, spanning across levels of public administration and involving different actors (Chindarkar et al, 2017). As a result, governments are confronted

with a significant design challenge: how to deal with ‘wicked problems’ (Rittel and Webber, 1973) in such a way that effective and efficient policies and services result, which are perceived as legitimate.

Design is advocated as a promising development in public administration for various reasons. Design processes are supposed to result in feasible and reliable policies, services and interventions, while addressing complex or even wicked social problems. They are said to foster creativity and develop innovation capabilities, by helping participants to imagine alternative solutions and features. In addition, design is supposed to help integrate insights from different fields, sources or actors, thus increasing the chances of a successful implementation of a policy that meets the needs of users. Designed policies and services are potentially more responsive to the needs of those who work with them (Bailey and Lloyd, 2016; Blomkamp, 2018; Chindarkar et al, 2017; Steen, 2011).

The question how scholars in public administration can contribute to this challenge and enhance the design capacities of public governments is far from new within the field. At the first Minnowbrook Conference (1968), Herbert Simon held a set of lectures on artificial or design sciences. These sciences focus on the artificial – the manmade – as opposed to the natural sciences. Artificial sciences therefore incorporate design, which is ‘concerned with how things ought to be, with devising artefacts to attain goals’ (Simon, 1969: 133). For Shangraw and Crow (1989), public administration fits Simon’s definition of an artificial science neatly. They notice that this notion of public administration as a design science was broadly supported in the academic literature, but that there were few applications. Providing an analysis of the design of a policy was more common than providing a design for a policy. The (mostly normative) discussion about the alleged necessity to define public administration as a design science has continued to this day (for example, Barzelay and Thompson, 2010; Blomkamp, 2018; Frederickson, 2000; Howlett and Lejano, 2012; Meier, 2005; Peters, 2018; Walker, 2011).

Recently, attention for the potential of design in public administration is growing. Public organisations are looking to apply design as a way of working (for example, Bason, 2017). Simultaneously, there is a shift within the design field from designing products to designing for purposes (such as experiences, interactions and services) (Buchanan, 2015; Junginger, 2017; Mintrom and Luetjens, 2016). This movement is described as the transition from ‘design’ to ‘design thinking’ and has now spread from the private to the public sector (Brown, 2009; Clarke and Craft, 2019). This development and the discussion surrounding it provide an excellent opportunity to take stock of the ways in which design is currently used in the field of public administration.

We aim to contribute to the debate on the value of design (thinking) for public administration and the development of the latter into a design science by conducting a systematic literature review into the empirical applications of design in public administration – encompassing both policy and administration – since the reviving of the discussion by Shangraw and Crow in 1989. We answer the question: what kind of design applications can be found in the field of public administration and how can they be understood in terms of goals, processes and outcomes? In the following section, we present a conceptualisation of design in the public sector. The next section presents the research strategy. Then we present a systematic literature review of articles on design published in public administration journals between 1989 and 2016. Our findings show an increase in design-oriented studies, representing a broad variety in processes and methods – currently mostly focused on the application of scientific

knowledge but sometimes also departing from a user perspective. Based upon this variety we present a typology that represents the various design approaches in terms of aims and methods. This typology is a useful starting point for further developing and refining design approaches in public administration. This can help deliver the promise of design to combine scientific rigour and societal relevance.

## Design for policy and services – a conceptualisation

Design has different meanings and appearances in different contexts, due to differences in philosophical, epistemological and disciplinary backgrounds (Johansson-Sköldberg et al, 2013). This section therefore does not aim to come up with an authoritative definition of design, but rather to explore the concept and its potential contribution to the field of public administration in order to facilitate the interpretation of the results found in our systematic literature review. It also presents a useful distinction – devised by Brown (2009) – of three spaces that helps to structure analysing design processes: the spaces of inspiration, ideation and implementation.

Design is concerned with how things ought to be, rather than how they currently are (Simon, 1969). A designer comes up with a solution and tries to realise this ideal by giving it form and shape (Nelson and Stolterman, 2012: 1). In the context of policy design, design is seen as instrumental in the sense that it links problems to solutions and rational in the sense that the process should be knowledge and logic driven. In other words, policy or service designs are systems, instruments and institutions that address public demands in an effective and efficient manner (Hoppe, 2018; Howlett et al, 2015). Designs are as such focused on achieving specific results and therefore should be judged on their value and utility for users (Cross, 2006).

Within the design literature, however, design is often conceived as inherently different from science in three ways – especially because of its instrumental, utility-driven purpose (Cross, 2006; Dorst, 2011). First, unravelling causal relations or understanding the outcomes of current designs requires different ways of thinking than developing them. When solving a problem, scientists traditionally conduct an analysis of the problem by systematically exploring it to discover the underlying mechanisms. Designers, however, take a solution-focused approach, by taking the needs and wishes of the ‘users’ into account. They move back and forth between problem and solution, working iteratively and allowing the problem definition to evolve in light of what emerges as a possible solution (Cross, 2006; Hillgren et al, 2011). Second, designers focus their efforts on those elements of a problem they perceive as actionable, rather than analysing the problem in its entirety. Designers thus not only define the problem, but also the problem or design space: those aspects that can be influenced by their design (Brown, 2009; Cross, 2006; Howlett et al, 2015). The third difference is the type of logic that is employed within the process. Science uses either the logic of induction to generalise theoretical explanations, or the logic of deduction to predict consequences. Designers, with their ambition to come to novel forms, use the logic of abduction – the logic of what could be – making educated guesses and provisional hypotheses to generate ideas to develop valuable designs (Cross, 2006; Dorst, 2011).

Design processes thus need to enable solution-focused, abductive thinking, targeted at actionable elements of the identified problem and/or solution. Brown (2009) proposes to think of these processes as a trajectory through three overlapping spaces – the spaces of inspiration, ideation and implementation. The space of inspiration

explores the problem or opportunity that started the process. The space of ideation encompasses the processes of generating, developing and prototyping or testing ideas. The last space, the space of implementation, brings the designed solution from the experimentation phase to being used within the intended context. Because ideas and designs are constantly reworked and refined, a design process develops iteratively rather than linearly.

Following this line of reasoning, it is sensible to expect that design processes in the public sector will take many forms and shapes. A useful distinction in design perspectives or approaches differentiates between studies that aim to combine design with more academic or scientific logic and which are aimed at translating knowledge into evidence-based solutions, and studies that stress the role of creativity, innovation and empathy in processes to come to (user-centred) solutions. Both perspectives, strikingly characterised by Sanders (2005) as the informational and the inspirational approach of (research for) design, are present in the discourse on design for public administration.

The informational approach is based on the scientific model and its measures of quality: reliability, validity and rigour. Processes are characterised by investigation, analysis and planning and rely primarily on extrapolation from the past (Sanders, 2005). Applied to public administration, this approach focuses on the analysis of problems, instruments and outcomes. Designs are based on (expert) knowledge of and experience with relationships between means and ends (Howlett et al, 2015; Linder and Peters, 1984; Peters, 2018). The context in which a design is to be implemented is of great importance. This is because it is necessary to understand both how an organisation works and how a change will affect its performance to ensure the success and reliability of a design (Ostrom, 1974; Shangraw and Crow, 1989). The informational approach takes values, governance structures and the policy logic present within this context into account as fixed assumptions. The designer aims to develop the optimal way to reach a predetermined goal, in a more or less systematic way (Howlett, 2014; Howlett et al, 2015; Shangraw and Crow, 1989).

The inspirational approach focuses on the extent to which the perspectives of those involved in the design and implementation process are included. The focus is on the (future) appropriation of the design in the implementation phase, in which users make it part of their daily practice (Bjögvinsson et al, 2012). Proponents of this approach argue that lack of insight in how citizens and bureaucrats experience policies and services leads to unintended consequences and therefore hampers implementation (Mintrom and Luetjens, 2016; Mulgan, 2014). Including the perspectives of citizens and bureaucrats provides a deeper, more empathetic understanding of the problem and leads to better, tailor-made solutions. In turn, these tailor-made solutions ensure ownership of the solution both in- and outside the public sector organisation and improve (long-term) cooperation between different actors (Bjögvinsson et al, 2012; Junginger, 2017; Steen, 2011). Curiosity and empathy are seen as a way to transcend organisational and procedural silos, established hierarchies or bureaucratic categories and thus, design is explicitly seen as a way to challenge the status quo (Bason, 2017; Bjögvinsson et al, 2012; Mintrom and Luetjens, 2016; OECD, 2017).

We will use this distinction and the three spaces distinguished by Brown (2009) as structuring devices for the remainder of this article. Our review will show to what extent these discourses and approaches are applied in public administration literature

and how they contribute to the challenge of designing efficient, effective and legitimate policies and services that can tackle the wicked problems societies are dealing with.

## Research strategy

In order to provide a comprehensive state of the art of design applications in public administration, we have conducted a systematic literature review, following the guidelines of the PRISMA framework (Liberati et al, 2009) to ensure the quality and transparency of the review process. Our review covers the period between 1989 and 2016, starting from the seminal article of Shangraw and Crow (1989) that revived the discussion on public administration as a design science.

### *Search strategy*

Our search process encompasses three steps. First, we searched the Web of Science (WoS) database using the broad search term 'design'. We searched for articles published in English from 1989 up to and including 2016 and restricted our search by using the WoS category 'public administration', to ensure that our search was confined to public administration journals only, since our aim is to provide an overview of the empirical applications of design in public administration. We used the term 'design' to include as many different approaches as possible. It is possible, however, that scholars apply design without labelling it as such and that, therefore, their articles were not retrieved in our searches. Adding more search terms, however, also increases the risks of contamination of the findings. We found 2176 hits. As a second step, we then did an additional search using the term 'lab', using the same restrictions to ensure we included any policy or living labs that did not show up during our first search. This search resulted in 15 hits.

After peer review, received at the 2017 ICPP conference, we decided to include a third search in a different set of journals. Because of the developments in the design field, we decided to check a number of relevant design journals to see if any articles that meet our criteria are published there. We looked for English articles published from 1989 up to and including 2016 that use one or more of the terms 'policy', 'government', or 'governance'. We retrieved 36 abstracts and selected two articles for full-text examination.

### *Eligibility criteria and record selection*

Based on the conceptualisation of design described in the previous section, we developed the following study eligibility criteria to use for record selection:

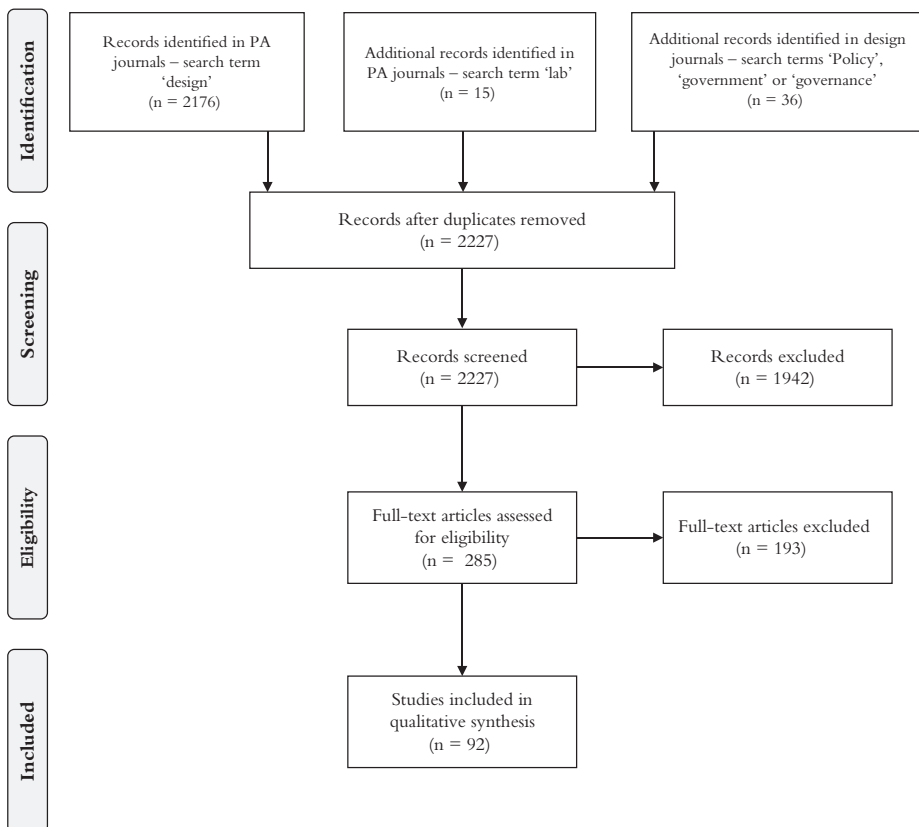
- 1 The research has a design goal or ambition with a focus to come up with a solution to address a specific problem.
- 2 The end product (designed artefact) is specified and focused towards the central goal/value/problem that the process was focused on and changes the status quo.
- 3 There is a description of (elements of) a design process and/or method.

The last two criteria are straightforward when it comes to the design of material objects, but are more difficult to apply when it comes to (intangible) services, systems

or policies, given the multitude of possible end products. However, it is important to have these criteria to exclude incremental policy adjustments (that are often constructed with a specific goal in mind) and evaluations or other types of studies that end in reflections but not in a concrete and ‘tangible’ product. The criteria used try to make a clear demarcation, while being open enough in terms of topics and methods to allow for a rich variance of design applications that can be expected based on the conceptualisation in the foregoing section. We explicitly aim to select studies that represent different approaches to design in the public sector, to ensure that we capture the different applications of design currently present in the field of public administration.

We used a two-step process for article selection, as is depicted in Figure 1. An overview of all included articles can be found in Appendix 1. In both steps, we used the eligibility criteria described above. First, we assessed titles and abstract only. We mostly excluded studies that did not aim to come up with a specific solution for a problem – for example, articles that either focused on research design or on a normative discussion of design. In case of doubt, articles were included for the next step. Second, we conducted a full-text read on all articles. In this step, articles were mostly excluded because they did not present a specific end-product or because they presented an evaluation or analysis of a (given) design rather than a description of a design process.

**Figure 1: Flowchart of article selection**



In order to have a systematic selection of articles, the assessment was done by one of the authors. During assessment of titles and abstracts, articles were always included in case of doubt. In this phase, 1942 articles were excluded because they did not meet the eligibility criteria, leaving 285 articles for full-text assessment. During the phase of full-text assessment, one of the other authors assessed about 10 per cent of articles (including those articles of which inclusion was doubted) to ensure intercoder reliability; 92 articles were included in the review.

Of included articles, the following data is collected and coded using Excel:

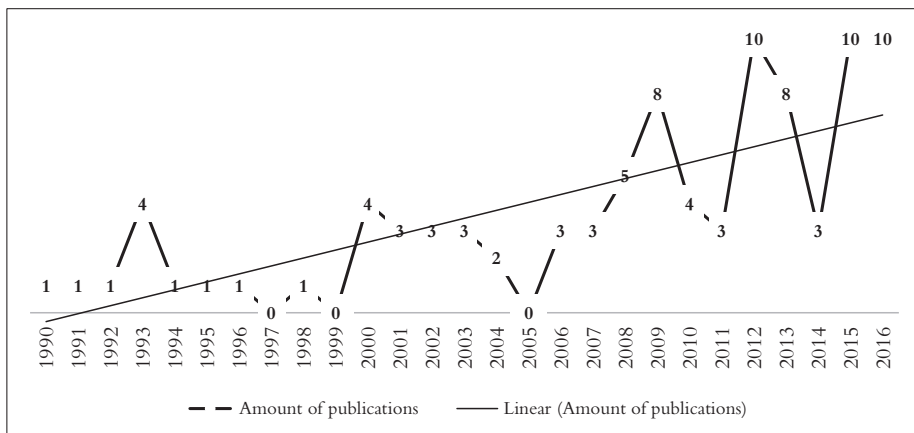
- metadata about authors, year of publication, journal and country of study;
- purpose/aim/problem central to the study;
- end product/result;
- design methods;
- involved parties/stakeholders in the design process;
- extent of stakeholder involvement in the design process;
- sources of knowledge used.

### Results: design in public administration

Over time, we can see an upward trend in the amount of publications on design application in Public Administration (see Figure 2). Between 1990 and 1999, on average 1.1 article was published per year. Between 2000 and 2009 the average was 3.4 and between 2010 and 2016 it was 6.9.

The selected articles (n = 92) are published in no less than 38 different journals: 37 public administration journals and one design journal (*The Design Journal*). The most frequent journals are *Administration in Social Work* (9.8%), *Public Management Review* (8.7%), *Climate Policy* (7.6%), *Journal of Homeland and Security Management* (6.5%) and *Public Personnel and Management* (6.5%). In the rest of this section, we will discuss the different applications of the design represented in these studies. We categorise our findings using the three spaces of Brown (inspiration, ideation and implementation) presented above. We also use the distinction between a more informational and a

Figure 2: Amount of publications per year





more inspirational approach as a sensitising device to order the variety of design approaches which we came across.

### *Design problems: the inspiration space*

The studies in our selection comprise a broad range of subjects and problems. An overview of domains can be found in [Table A1](#) (Appendix 2). One notable finding is that in 32.6 per cent of articles, the design process was focused on the inner workings of government; on the management of public organisations or policy processes itself. Other studies focus on a specific domain and on the development and/or implementation of (parts of) policies and services. The two (policy) domains most frequently mentioned are health and social care (18.5%) and environmental or climate policy (15.2%).

One of the elements described in the conceptualisation that distinguishes design from traditional science is its focus on the actionable aspects of a problem, by defining a design space, a context in which designs can be actualised. In the inspiration space, the problem is explored to see which needs, flaws and opportunities emerge from the current situation. These perceived needs and opportunities determine what design capacities are needed. We have found four different design goals. These goals show some overlap with the distinction between informational and inspirational approaches to design which we described previously. An overview of the frequency of those goals can be found in [Table A2](#) (Appendix 2).

A majority of the articles (over 50%) see the application of scientific knowledge and methods as their goal and the perceived need emerging from the current situation – fitting with an informational approach to design (where knowledge or information is collected to inform the analysis and improve its results). The intention is to make social science usable, or to provide systematic ways of generating options (compare [Askew et al, 2010](#); [Buurman and Babovic, 2016](#)). The second goal, integrating knowledge from different sources, encompasses studies that combine, for example, scientific knowledge with empirical data and/or user/local knowledge to gain knowledge on the context in which the design needs to function.

The two other goals – incorporating local/user knowledge and generating (user) support – both point to a central position of the user within the design process, an indication of a more inspirational approach. Including local or user knowledge into the design, to ensure it meets the needs of a specific case, is among others used in cases of strategic planning (compare [Collion and Kissi, 1993](#); [Iglesias Alonso, 2014](#)). Generating support is a related, but separate goal: the focus is less on understanding the perspective of these users, and more on ensuring that they will work with the design – while the latter can be primarily based on scientific knowledge (compare [Abrams et al, 2013](#)).

This difference in goals is also reflected in the variety of methods that is used in the inspiration space. It is difficult to determine exactly which method is used and with what purpose, because in academic articles, process descriptions are often dense and subordinate to theoretical considerations or empirical findings. Most articles present a theory section. However, articles using a more informational approach use this section as an exploration of the problem rather than an introduction on the topic. They make an inventory of all scientific knowledge pertaining to the topic, supplemented by information on the case at hand (sometimes from non-academic, existing data sources).



A subset of articles is formed by articles that supplement scientific knowledge by empirical data collected to determine the opportunities and constraints stemming from the context that influence the design space. An example of this approach is the study by [Adaman et al \(2009\)](#). They assessed that a policy change did not lead to effective preservation of the Burdur basin. In order to find out why, they conducted interviews, focus groups and a survey to find out how citizens and other stakeholders experienced the current situation and what demands a new solution should meet.

Inspirational processes are focused on generating rather than applying knowledge. In general, we see that inspirational processes are more holistic, where the inspiration and the ideation spaces – and sometimes also the implementation phase – overlap. For studies using this approach, the main goal of the inspiration space is to visualise the perspective of the user and make their tacit, experiential knowledge visible. There are specific methods available for this purpose. [Radnor et al \(2014\)](#) and [Trischler and Scott \(2016\)](#) both use service design methods. Both studies are conducted in the context of a university, looking at the experiences of international students with the service systems at the universities. Service design methods are used to make a detailed map or blueprint of the current service processes. This map is made with students, so that it reflects their experience and to ensure that the experience becomes palpable for staff members of these universities.

*Designed solutions: the ideation space*

Our review revealed a great variety of products or artefacts, developed for different levels of government. [Table 1](#) provides an overview of the design products, organised by type and (intended) level of implementation.

Almost half of the design products are policies and services (or strategies, programmes, systems and so on). Examples are a reform agenda for the housing market for migrants in China ([Huang and Tao, 2015](#)), and a redesign of the student enrolment process at a university ([Radnor et al, 2014](#)). Sometimes a design process delivers an instrument or tool that can be used as part of a policy or service. A web-based portal to help local governments to share expertise, for example ([Ford and Murphy, 2008](#)). A small category of designs is formed by management or organisational

**Table 1: Type of solution and level of (intended) implementation (%)<sup>1</sup>**

	Framework	Method	Management structure	Policy or service	Instrument	Total
Generic	2.1	2.1	-	-	-	4.2
Supranational	1.1	-	-	3.2	1.1	5.3
National	3.2	1.1	1.1	11.6	2.1	18.9
Regional	1.1	-	-	2.1	4.2	7.4
Local	1.1	2.1	1.1	8.4	2.1	14.7
Interorganisational	2.1	2.1	3.2	4.2	-	11.6
Organisation	9.5	4.2	-	18.9	5.3	37.9
Total	20.2	11.6	5.4	48.4	14.8	100

Notes:

<sup>1</sup>Some articles resulted in more than one design. N=95.

structures, focusing not so much on the content of the policy or service, but on the way it is managed. Examples are an organisational structure for cross-sector research networks (Klenk and Hickey, 2012) and a service delivery system meant to overcome fragmentation of health and human services (Libby and Austin, 2002). Frameworks and methods are specifically developed for use in multiple contexts. For instance, Kahan et al (2009) developed an operational framework that organisations can use to incorporate resilience.

When we look at the designed solutions and the used approaches, the link between design approach and targeted level of government stands out. Studies using an inspirational approach focus mostly on the lower levels. Only two articles using this approach aim to design a policy or a method intended for national governments. All other studies focusing on the national or supranational level are informational in nature. Designs aimed at higher levels of government thus seem focused at designing optimal solutions by applying scientific knowledge. One of the articles proposes a redesign of the American constitution in order to repair the distorting influences of minority interests on public governance (Cook, 2016). Cook designs this redesign by theoretical reasoning, based on literature on the interaction between public bureaucracies and private parties. At the regional, local, or (inter)organisational level, the picture is much more balanced.

Design-oriented studies regarding climate policy offer an interesting illustration of these differences in approaches on different levels. Schott (2013) provides (theoretical) arguments for harmonising carbon prices between different countries. In a similar vein, Buurman and Babovic (2016) present scientific methods to help national governments to deal with the uncertainty that comes with climate adaptation. Studies using an inspirational approach deal with similar problems, but in different ways. Van de Kerkhof (2006) describes the value of a deliberative approach within environmental policymaking at the national level. Stakeholder groups were explicitly asked to develop multiple strategies to reduce emissions in their sector, then they individually scored all options and gave conditions under which a specific option was acceptable to them. The outcomes of these steps were integrated in a policy strategy that was written collaboratively. Cloutier et al (2015) look at climate adaptation measures at the local level, and more specifically at the involvement of stakeholders, in order to link climate-related issues with urban and social issues and to overcome barriers in implementation. Instead of systematically comparing options, as in the study of Buurman and Babovic, generating possible measures from a more inspirational stance is the main focus of the process. However, this kind of approaches is still in a minority. For researchers it is much easier to design in a way that suits their normal repertoire instead of applying a more explorative and open approach.

Informational and inspirational approaches differ in their processes of ideation. Informational approaches look for designs that are reliable, valid and are based on rigorous analytical processes. In addition, they try to design for the future by extrapolating from the past (Sanders, 2005). The ideation space is the space where solutions are generated, developed and tested (Brown, 2009). The studies of Cook (2016) and Buurman and Babovic (2016) show two different types of informational approaches: Cook has a more theoretical approach, focusing on the translation of knowledge, whereas Buurman and Babovic focus on providing a design based on a rigorous analytic process, using empirical data from a case to illustrate their method. Stakeholders can inform such a systematic approach, as shown by the article by

Hajkowicz et al (2013), who design a decision model for human services departments to target investments. They review the available literature on similar models, identify the objectives, criteria and decision options relevant to decision makers and create an evaluation table in which they present performance data against the identified criteria. They ask bureaucrats, who work in these departments, to weigh the criteria. Then they design their model using a multiple criteria analysis.

Stakeholders can thus participate in the development of ideas within an informational approach. More often, stakeholders are involved in the testing of an idea or prototype. This can be by giving feedback (for example, Abrams et al, 2013), but also by participating in field or lab experiments. In the UK, the Cabinet Office's Behavioural Insights Team led a large randomised controlled trial, designed to test the effectiveness of mobile phone text messaging as an alternative method to induce people to pay their outstanding fines. Citizens with outstanding fines thus participated in this trial not actively influencing the design by suggesting ideas or improvements, but purely by their behaviour (Haynes et al, 2013).

Within the inspirational approach, the focus is less on the reliability and validity of the designs, and more on the generativity, evocativeness and relevance of the process, which can be characterised by experimentation, ambiguity and surprise (Sanders, 2005). The processes are therefore more open, researchers are less central to the design (process) and stakeholders have more influence on the content of the design. Their input is more central to the course of the process. This can be done in different ways. In some studies, researchers deliberately collect input from relevant stakeholders. An example of this is in two strategic planning processes for cities in Spain, where long-term strategies were developed in a continuous process of reflection, in which citizens and other relevant stakeholders were actively involved (Iglesias Alonso, 2014; Ruano, 2015).

### *Designs in use: the implementation space*

The third space, the implementation space, is an important one, especially because design is often promoted as a way to improve the societal impact of public administration as a scientific discipline. Table A3 (Appendix 2) shows the implementation status of all studies included in our selection. Strikingly, in the majority of the cases (52.2%), the researchers did not intend or attempt to implement the design they came up with. In 29.3 per cent (which is the majority of those instances of design at which implementation was really aimed), the design was implemented successfully. Implementation failed in only 4.3 per cent of cases. This ratio can possibly be explained by a publication bias: articles describing an implemented design might be easier to publish, and proponents of design might be more likely to publish them. For some studies, implementation was not the focus of the article and implementation status and/or intent were unclear or outside the scope of the article.

Within the informational approach, implementation not only seems to be less relevant from the perspective of the designer, but it seems also to be more difficult compared to the inspirational approach. The latter is clearly illustrated by Klauer et al (2006). They present a method for structured decision-making, meant for participatory settings that need an interdisciplinary approach in order to take both environmental and socioeconomic consequences of decisions into account. However, their project ended prematurely because political decision makers backed out of the process when

they sensed the outcome was not going to be acceptable to them. In this type of design project, a design is made based on scientific knowledge and/or empirical data, which is then presented to the implementers with the explicit intention to generate support and ensure the use of the design, rather than to enrich the solution by including their perspective (as is more common within the inspirational approach). An example of this informational approach is the previously mentioned study by Abrams et al., focusing on the development of a performance indicator report regarding cardiac arrests for the Boston emergency services. The manager made a draft report based on scientific literature and existing field data. He presented this prototype to the professionals during a training exercise, actively invited feedback and reworked his design (Abrams et al, 2013).

Within the inspirational approach, the focus on the future implementation of the design is often more central to the process. The most intensive type of stakeholder participation seen in this approach, is a process within which researchers only facilitate the process and intend to help professionals to generate, test and implement ideas. An example of this way of working is the article by Kellie et al, (2012). A large NHS trust aimed to reduce to number of healthcare associated infections. An action learning process was set up to develop the skills and abilities of nurses in order for them to feel comfortable with implementing and experimenting with solutions. The process was considered a pivotal success, not necessarily because the chosen solutions were innovative, but because the process was perceived as legitimate by all employees.

It holds true for both the informational and inspirational approach that projects that have a close connection to practice from the start – for instance because they are commissioned by public sector organisations – have higher chances of being implemented. This kind of embedding ensures that the people who need to work with the design are involved from the start and the implementation space is brought to the front from the beginning. The implemented studies of Abrams et al (2013) and Kellie et al (2012) were both conducted within a public sector organisation and thus strongly embedded in the context of application. These examples represent a pattern we distinguish when we look at stakeholder participation in design processes. Table 2 provides an overview of the types of stakeholders included in the different processes and their level of involvement. It shows that civil servants

**Table 2: Stakeholders: types and level of involvement<sup>1</sup>**

	No role	Input	Design	Feedback	Test	Unclear	Total
No stakeholders specified	19	-	-	-	-	-	19
Experts	-	5	2	4	-	1	12
Civil servants (implementers)	10	22 (1*)	19 (6*)	19 (1*)	16 (1*)	1	87
Policy-makers	8	-	2 (2*)	-	-	-	10
Interest groups & private actors	-	7	5 (4*)	3	-	1	16
Citizen(s) (groups)	-	4	4 (3*)	3	1	-	12
Service users	-	4	6 (1*)	3	4	-	17
Total	37	42	38	32	21	3	173

Notes:

\* = group/committee with representatives of stakeholder groups

<sup>1</sup> Because multiple groups of stakeholders can be involved at multiple stages in one process, this table works with absolute numbers (of instances of stakeholder involvement) rather than percentages.

are the most common stakeholders in design applications. Citizens, as recipients of services and ‘targets’ of policies, are not as often involved. This could have different causes. [Table A1](#) (Appendix 2) shows that a significant part of design processes is focused on the inner workings of governments and public sector organisations. In these cases, civil servants are the main users of the designs (although they are seldom involved as co-designers). Processes aimed at policies or services relevant for citizens and other external stakeholders have a broader range of users. [Table 2](#) shows that design processes in which they are involved are less common. Studies such as the article of [Van de Kerkhof \(2006\)](#) and [Cloutier et al \(2015\)](#) show that inspirational processes aimed at integrating stakeholder perspectives can lead to enriched policies, supported by stakeholders, but their designs have not (yet) been implemented. Although these inspirational processes are more focused on the future implementation of their design, the actual implication of the results of these processes within (political) policymaking processes is not a given (compare [Clarke and Craft, 2019](#)).

### Design approaches in public administration: a typology

The previous sections have described a great variety of applications of design in the public sector context. In our conceptualisation, we discussed the distinction made by [Sanders \(2005\)](#) between informational and inspirational approaches. She states that both approaches are necessary if design is to contribute to solving complex social issues. From our review, it has become clear that this distinction is useful to structure the variety of approaches used within public administration, but that we have to complement it with another distinction to justify the variety of approaches we found. We thus present a two-level typology (see [Table 3](#)) that complements the informational/inspirational distinction with a distinction between approaches focusing upon the content of design (the way knowledge is used), the context of design (the situation in which it has to be employed) and the impact of design (the cognitive or practical changes design evokes).

The informational approach accounts for 71.7 per cent of the articles. Articles within this approach aim to contribute to better policies and services by applying scientific knowledge and methods to public sector problems. Within this approach, the first, knowledge-focused, subtype is theory-driven design, purely focused on the application of scientific knowledge – such as the redesign of the American constitution by [Cook \(2016\)](#). None of the 26 studies in this type are implemented. They target all levels of government and most notably also the supranational level, with studies focusing on climate policy and the EU.

**Table 3: Different approaches to design in public administration**

	Informational approach	Inspirational approach
Knowledge-focused	Theory-driven design	Synthesis-oriented design
Situation-focused	Evidence-driven design	User-oriented design
Implementation-focused	Consensus-driven design	Change-oriented design

The second subtype – an example of a situation-focused approach – is evidence-driven design, formed by studies who supplement their theoretical argumentation or systematic analysis with empirical data on the studied context, either collected from stakeholders or from existing sources. The previously cited study of [Buurman and Babovic \(2016\)](#) is an example. This category is very broad in terms of end products.

The third subtype is implementation-focused: consensus-driven design. Articles in this group work towards the best supported solution rather than the best solution per se. Most of the designs within this subtype are implemented. The processes are mostly done within public organisations and focus quite often on HRM topics. An example of this subtype is the performance indicator report developed by [Abrams et al \(2013\)](#).

Within the inspirational approach, we discern a similar subdivision. The inspirational approach focuses on the perspective of the user, on including local knowledge and designing new solutions by embracing creativity and experimentation. The first (knowledge-focused) subtype is synthesis-oriented design, an approach oriented to integrating knowledge from different actors, sources and perspectives. Comparison between this subtype and consensus-driven design shows that both types focus on accomplishing a supported solution, albeit that within the inspirational approach local knowledge is equal to scientific knowledge and the perspectives are to be integrated, whereas in the informational approach the local knowledge of stakeholders is used to fine-tune a design primarily based upon scientific evidence. Studies in this subtype often focus on reforms, policies and strategies. Implementation is unclear in a remarkable number of cases, indicating that generating ideas might be more important in these processes than implementing them. Examples of this subtype are the studies of [Van de Kerkhof \(2006\)](#) and [Cloutier et al \(2015\)](#).

The second, situation-focused subtype – user-oriented design – is focused on understanding the user perspective as a way to gain better insight in the situation at hand. This approach has not been used very often (3.3%). It is thus far only applied in the domains of education and healthcare, in which users are easily identified and interaction with users forms a significant part of service provision. Examples of user-oriented design are the articles of [Radnor et al \(2014\)](#) and [Trischler and Scott \(2016\)](#).

The third subtype is the implementation-focused approach. Within the informational approach, stakeholder-oriented meant seeking consensus and support of stakeholders. Within the inspirational approach, the perspectives of users come to the fore within all three subtypes. Change-oriented design, however, is characterised by the fact that the process is not so much aimed at generating solutions rather than transferring skills and tools to the participants so that they can design and implement solutions within their own organisations. These processes are conducted within public sector organisations and have the highest implementation rate of all types. They are quite often related to HRM and/or conducted in care related organisations. An example of this approach is the study of [Kellie et al \(2012\)](#).

Our analysis shows that there is a strong dominance of more informational approaches, which fit nicely in a more science- or expert-driven approach of design that predominates the traditional line of thinking about PA as a design science. Currently, design is mostly seen as a way to translate scientific knowledge into something useful for practice, either or not in consultation with stakeholders. The large variety of approaches and methods shows that there is no overarching design methodology underlying all these processes. There are however many existing methods that can be used in these processes (see also [Table A4](#) in Appendix 2). This clearly



shows that there is no common design methodology in public administration, but that scholars in the field look for ways to come up with new, more state-of-the-art methods for solution-driven research.

## Discussion, conclusions and research agenda

We started this article with the question how public administration as a design science has evolved since the article of [Shangraw and Crow \(1989\)](#). First of all, we can conclude that there is an increase and proliferation in design-oriented studies reported in PA journals, in which a wide variety of designs is accomplished, but mostly oriented towards delivering concrete policies and services at the level of national or local governments or public sector organisations. We can see that on the one hand knowledge-driven approaches are popular within public administration. This seems to fit the idea of a design science that is concerned with ‘how things ought to be’ rather than how they are ([Simon, 1969](#)), and with giving form and shape to ideal solutions ([Nelson and Stolterman, 2012](#)). More recently, we can see efforts to involve (future) users of the design and integrate their perspectives.

Our review shows a great variety in design processes and methods. The distinction between more informational approaches and more inspirational approaches proved very useful. We used it as a basis to develop a two-level typology of six design approaches that represent the state of the art. There is a strong overrepresentation of design approaches following an informational logic. This logic is represented on all levels of government, whereas the inspirational approach is currently concentrated on the lower levels of government and on public sector organisations. Commissioned designs have a better chance of being implemented than unsolicited designs. The same holds true for designs that are accomplished within public sector organisations compared to designs invented elsewhere. The range of actors involved in design processes is often rather limited, with an exception for public servants, relativising the user-centeredness of many design attempts in public administration.

Design is more and more applauded as a creative and collaborative approach to find more effective and responsive solutions for wicked problems and (co-)create policies and services that are more responsive to the needs of citizens. Although we found some examples of such approaches and their number appears to be growing, more traditional, expert-driven forms of design, with quite low levels of participation, let alone co-creation, characterise the current state of public administration as a design science. Design is more often seen as a way of ‘translating’ knowledge than as a way of ‘producing’ knowledge.

To strengthen the design-orientation within public administration, it is first of all important to more systematically analyse design efforts and their outcomes. Currently, studies that present a design attempt are often not very clear about the design problem they try to solve and the ultimate design they deliver. Many studies only mention but a few elements of a design process and do not explicitly present their methods. In addition, many studies do not explicate their contribution to their scientific field. Knowing how and why design works, can help scholars in the field to take part in such design processes and to use them as a way for societal validation of their academic knowledge. Our typology of design approaches can form a basis for a more elaborate portfolio of (validated) design methodologies in public administration, but this certainly necessitates more rigorous analyses of how they work out in practice.



More importantly, however, it is valuable to explore the possibilities of strengthening the design orientation in public administration and policy studies. One of the most challenging avenues for doing so is to explore how a more ‘designerly’ way of thinking and current ideas about design-thinking can be applied in public policy and public administration research as a way to come to actionable knowledge. For example: can we approach policymaking as prototyping (Kimbell and Bailey, 2017)? And how to embed typical design methods, like ideation, future-oriented visioning, reframing and evocative sketching in administrative processes aimed at delivering services and interventions (Bason, 2014)?

Finally, we are convinced that applying design does not only hold promise for the practice of public administration, it can also contribute to scientific research by providing opportunities to translate scientific knowledge to applicable interventions and test their working which also means that new findings can be added to the disciplinary knowledge base. In addition, design can help to intertwine scientific and societal validation, by developing and testing artefacts based upon state-of-the-art knowledge, which contributes to the societal impact of public administration as a discipline. However, for this potential to be realised, it is important that design approaches and methodologies are developed further and that scholars reflect on their merits for both theory and practice, to come to a more coherent and substantive image of public administration as a design science.

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## Appendix 1: overview of articles included in review

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## Appendix 2: Tables

**Table A1: Design problems ordered by domain**

Domain of study	Number	Percentage
General management and policy processes	30	32.6
Health & social care	17	18.5
Environmental/climate policy	14	15.2
Economic/financial policy	9	9.8
Safety & security	6	6.5
Urban & rural planning	4	4.3
Education	4	4.3
Justice	3	3.3
Development cooperation	2	2.2
Strategic planning	2	2.2
E-government	1	1.1
Total	92	100

**Table A2: Design goals and their frequency<sup>1</sup>**

Framing	Number	Percentage
Apply scientific knowledge and/or methods	50	54.3
Integrate knowledge from different sources	11	12.0
Incorporate local/user knowledge	30	32.7
Generate (user) support	16	17.4

Note:

One article can mention multiple goals.

**Table A3: Implementation status of designs**

Implementation status	Number	Percentage
Implemented with success	27	29.3
Implemented with limited success	3	3.3
Implementation failed	4	4.3
Intention to implement	2	2.2
Unclear	8	8.7
No implementation intent/attempt	48	52.2

**Table A4: Design methods mentioned in included articles**

Method	Number
<b>Analytic methods:</b>	
A priori approach	1
Multiple criteria analysis	2
Evolutionary approach	1
Game theory	1
Laboratory/field experiments	1
Strategic planning	2
<b>Mapping methods</b>	
Adaptive policy making/adaptation pathways/real options analysis	11
Adaptive trial design	
Context-driven approach	1
Innovation policy roadmapping	1
<b>Participatory methods:</b>	
(Participatory) action research	7
Collaborative governance/process	3
Co-production intervention	1
Information system development	1
Strategic planning	3
Inquiry-based communications	1
Participatory (policy) approach	2

**Table A4: Continued**

Method	Number
<b>Mapping methods</b>	
Exploratory concept mapping/Delphi	1
Integrated assessment of decisions under uncertainty for sustainable development (IANUS)	1
Interactive backcasting/dialectical approach/grid method	1
Impact diagramming/Venn diagramming	1
<b>Design methods</b>	
Service design	2
Iterative redesign	1
Design experiment	1
Design team intervention	2
Service blueprinting	1

## Conflict of interest

The authors declare that there is no conflict of interest.

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