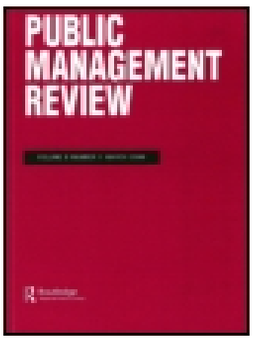

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Ambidextrous practices in public service organizations: innovation and optimization tensions in Dutch water authorities

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ABSTRACT

For public service organizations (PSOs) it is essential to be able to simultaneously optimize and innovate policies, processes and services. This article explores how PSOs shape these dual practices by examining optimization and innovation practices in eight Dutch regional water authorities (RWAs) using focus groups. It uncovers mutually reinforcing differences in culture, strategy and management leading to different ambidextrous configurations. In low ambidextrous RWAs a legalistic task-orientation goes along with a transactional management style and focus on optimization only. In high ambidextrous RWAs a societal value-orientation, integrative strategies, and a more transformational management style lead to more embedded innovation practices.

KEYWORDS Public sector; ambidexterity; practices; innovation; optimization

Introduction

The public sector is urged to innovate and at the same time enhance efficiency and lower cost (e.g. Osborne and Brown 2011; Pollitt and Bouckaert 2004, 8). March (1991) already argued that finding the optimal balance between exploitation and exploration is essential to improve the performance of organizations: i.e. balance optimizing existing practices, building on existing skills and knowledge, with innovation, breaking with established practices and mindsets. The ability to be both explorative and at the same time exploit existing competences, is called ambidextrous ability (e.g. Duncan 1976; Tushman and O'Reilly 1996; Bressant 2005).

Ambidexterity is studied extensively in the private sector (e.g. O'Reilly and Tushman 2013; Gibson and Birkinshaw 2004; Junni et al. 2015), but is also highly relevant to public service organizations (PSOs), that experience tensions to accommodate innovation due to their formal processes (Plimmer, Bryson, and Teo 2017) and a strong focus on efficiency and accountability (e.g. Hartley, Sørensen, and Torfing 2013). Although research into ambidexterity and its antecedents in PSOs is emerging (e.g. Smith and Umans 2015; Choi and Chandler 2015; Gieske, van Meerkerk, and van Buuren 2018; Boukamel and Emery 2017; Kobarg et al. 2017; Plimmer, Bryson, and Teo 2017), still a lot remains unknown on ambidextrous practices of PSOs and on how organizational

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antecedents shape these practices (Palm and Lilja 2017; Bryson, Boal, and Rainey 2008). Ambidextrous practices of similar PSOs can differ widely due to a different strategic intent, culture, managerial focus and informal routines (Cannaerts, Segers, and Henderickx 2016; Smith and Umans 2015).

In this article we contribute to the insights on organizational antecedents of ambidexterity in PSOs by empirically analysing the organizational strategies and practices that PSOs apply to combine innovation and optimization and how they deal with the tensions between both – we use optimization rather than exploitation as the former more explicitly implies incremental continuous improvement. We elaborate on how organizational antecedents like strategies and procedures, leadership style, culture and informal routines shape ambidextrous practices of PSOs. To elicit how these antecedents impact on practices and mutually interact we compare their configurations among similar PSOs, that are relatively lesser or more ambidextrous. We study the practices of eight Dutch regional water authorities (RWAs) following a focus group design. RWAs are functional democracies tasked with water management, flood protection and sewage treatment. We build on the outcomes of a survey under the 22 RWAs (Gieske, van Meerkerk, and van Buuren 2018), that quantitatively tested the impact of innovating and optimizing on performance, and the contribution of connective, learning and ambidextrous capabilities. The survey results revealed differences in the extent RWAs engage in innovation and optimization, as we will elaborate below. This paper aims to elicit drivers underlying these differences. We compare two highly ambidextrous, three moderately and three low ambidextrous RWAs.

This paper is structured as follows. First of all, we elaborate on the concept of ambidexterity. We discuss antecedents of organizational ambidexterity identified in previous research (e.g. Junni et al. 2015; Smith and Umans 2015; Plimmer, Bryson, and Teo 2017; Cannaerts, Segers, and Henderickx 2016; Bryson, Boal, and Rainey 2008; Palm and Lilja 2017). We then present the results of the focus group discussions, and discuss the ambidextrous configurations that surfaced when we confronted the different practices of the low, moderate and high ambidextrous RWAs, and the interrelation and mutual reinforcement of organizational antecedents. We conclude this paper by highlighting the relevance of our findings for research and practice, describing the limitations of our study and formulating suggestions for further research.

Theoretical background

PSOs experience tensions between – on the one hand – increasing demands to innovate, and – on the other hand – be more transparent, accountable and efficient in reaching their goals (Plimmer, Bryson, and Teo 2017). It is highly relevant to explore how PSOs deal with these tensions and can improve their ability in simultaneously innovating and optimizing processes and services. Exploration or innovation is usually associated with adaptation to a changing environment and anticipating future performance, by pursuing new knowledge and developing new products and services to new clients. Exploitation or optimization is associated with enhancing efficiency and alignment of current operations to maintain or enhance short-term performance, by incremental improvement of existing designs, products and services for existing clients (e.g. Gupta, Smith, and Shalley 2006; Jansen, van den Bosch, and Volberda 2006; Cannaerts, Segers, and Henderickx 2016; Plimmer, Bryson, and Teo 2017). In public sector research innovation is generally conceptualized as the implementation of a new concept, breaking with existing mindsets, generating new knowledge,

risk-taking and experimentation, in discontinuity with the past, in order to create public value (e.g. Rogers 2003; Moore 2005; Osborne and Brown 2011; Hartley, Sørensen, and Torfing 2013). This in contrast with optimization, i.e. gradual, incremental improvement of current practices, products and services, exploiting existing knowledge and skills, within current mindsets, and representing continuity with the past (e.g. Moore 2005; Osborne and Brown 2011; De Vries, Bekkers, and Tummers 2015).

Organizational ambidexterity, i.e. the ability to balance and reconcile the interdependent processes of innovation and optimization, is essential for enhancing performance, and has shown a significant and positive relationship with performance (March 1991; Cao, Gedajlovic, and Zhang 2009; Junni et al. 2013; Plimmer, Bryson, and Teo 2017). The way in which organizations organize this duality can differ significantly. Raisch and Birkinsaw (2009) review different approaches to organizational ambidexterity. *Sequential* approaches separate exploration and exploitation in time. *Structural* approaches include dual structures to separate exploration and exploitation, in organizational units or in secondary structures such as project teams or networks. The latter can also be described as *temporal ambidexterity*. *Contextual* approaches advocate a supportive organizational context to shape individual-level ambidextrous behaviour with a set of processes, systems and believes that enable simultaneous exploring and exploiting, and encourage individuals to divide their time between the two (Gibson and Birkinshaw 2004).

Organizational antecedents that have an impact on ambidexterity are organizational strategy and vision, structure (including formalization, specialization and centralization), organizational culture and leadership (O'Reilly and Tushman 2013; Junni et al. 2015; Boyne 2003; Bryson, Boal, and Rainey 2008). In addition, informal routines of organizational members are needed to cope with 'eventualities' that are not pre-described in organizational policies and procedures or by management (Brown and Duguid 1991). If formal and informal systems are congruent they are mutually reinforcing and beneficial for organizational ambidexterity (Plimmer, Bryson, and Teo 2017). We will elaborate on these determinants below.

Organizational strategies, policies and procedures

Innovation and optimization should be strategically integrated (O'Reilly and Tushman 2013), and supportive procedures are needed to conciliate the tensions between different demands, aiming at using the organization's resources in such a way that both innovation and optimization are achieved (e.g. Sarkees and Hulland 2009; Plimmer, Bryson, and Teo 2017). High levels of centralization, formalization, and specialization stimulate optimization, whereas low levels of centralization, formalization, and specialization foster innovative environments (O'Reilly and Tushman 2013; Cannaerts, Segers, and Henderickx 2016). Andrews et al. (2009) analyse organizational strategies of PSOs and find that 'prospecting organizations' (Miles and Snow 1978), that continually search for new opportunities and experiment with responses to emerging trends, are positively correlated with decentralization, while 'defenders' (Miles and Snow 1978), that take a conservative view on new developments and focus on improving the efficiency of their existing operations, are positively correlated with hierarchical authority. Prior research has not shown a direct relationship between formalization and ambidexterity (Junni et al. 2015). For example, Jansen, van den Bosch,

and Volberda (2006) found that formalization positively affects optimization, and does not influence innovation. Public organizations are usually highly formalized, and often associated with substantive amounts of 'red tape' (Bozeman 1993). Well-designed enabling procedures facilitate task performance, enhance commitment and reduce role conflict and ambiguity (Adler and Borys 1996). In PSOs good formal systems can be effective 'green tape' that clarity responsibilities and allow for effective discretion (Plimmer, Bryson, and Teo 2017).

Managerial style

Ambidextrous managers have the skills to deal with the tensions between innovation and optimization, by using differentiation and integration tactics (Andriopoulos and Lewis 2009), combining innovation and optimization related activities (Mom, Fourné, and Jansen 2015) and ensuring connectedness between different organizational units (Taylor and Helfat 2009). Managers should support contextual ambidexterity (Gibson and Birkinshaw 2004), and be able to orchestrate the allocation of resources between regular and new activities (O'Reilly and Tushman 2013). A management style that combines a transformational with a transactional style, is viewed as an antecedent for organizational ambidexterity (Raisch and Birkinsaw 2009; Junni et al. 2015). A transformational style, that encourages employees to move beyond self-interests through inspiration, intellectual stimulation and individualized consideration, is generally related to innovation (e.g. Ricard et al. 2017); whereas a transactional style, that establishes an exchange-based relationship by clarifying goals, rewarding goal achievement and by intervening only when necessary, is generally related to optimizing (Bass 1999, 11; Rosing, Frese, and Bausch 2011; Jansen, Vera, and Crossan 2009).

Culture and organizational identity

Organizational identity and culture are important for implementing and sustaining ambidextrous designs over time (O'Reilly and Tushman 2013). Schein (1984) defines organizational culture as 'the pattern of shared basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.' These basic assumptions and beliefs operate unconsciously and define an organization's view of itself and its environment (Schein 1984). An organizational culture that supports ambidexterity promotes seemingly paradoxical values, such as flexibility and control, creativity and discipline (O'Reilly and Tushman 2013) and balances cohesiveness and diversity (Andriopoulos and Lewis 2009). Knowledge-sharing, openness to diverse opinions, tolerance to uncertainty, psychological safety and trust were also found to contribute to ambidexterity (Nemanich and Vera 2009; Lin and McDonough 2014). Junni et al. (2015) propose that a culture that fosters ambidexterity supports differences and unity simultaneously, emphasizing both creativity and implementation. Different subcultures could be allowed while at the same time unity at the organizational level is emphasized (Junni et al. 2015).

Informal routines

However, even if ambidextrous strategies and procedures are in place, actual practices may deviate. As mentioned above, relying solely on formal organizational routines is not enough for organizations to perform well (Brown and Duguid 1991). Brown and Duguid (1991) state that 'it is the actual practices, however, that determine the success or failure of organizations', in dealing with continuously changing external demands. Ellström (2010) refers to the explicit, formal dimension of innovation practices that concerns how work processes are codified, prescribed and organized, versus the implicit, informal dimension that concerns how work processes are perceived by different actors and performed in practice. In similar vein Ferguson, Burford, and Kennedy (2013) stress the importance to better understand the impact of informal routines to understand the emergence of innovation and innovative practices, knowledge sharing and the degree of alignment between strategic intent and practice, including the extent – if any – to which emergent knowledge and innovation feeds into corporate knowledge and strategies.

Methods

Our case study concerns Dutch RWAs. These are regional governments responsible for water management, flood protection and sewage treatment. Since medieval times they are tasked with keeping the Netherlands safe and dry (Lazaroms and Poos 2004; Kaijser 2002). As functional – special purpose – democracies they have an elected board and regulatory and taxing powers (Mostert 2017). They are hierarchical, centralized, professional organizations with clear goals (O'Toole and Meier 2014), which are measured against norms set by a higher tier of government. However, as democratic organizations, they have considerable freedom in defining how to reach those goals, which is laid down in obligatory six-year strategic plans. They are often portrayed as inward looking and technocratic (Toonen, Dijkstra, and van der Meer 2006). However, in recent years they have been become more open and responsive to society (Edelenbos and van Meerkerk 2015), and have increasingly engaged in innovation of all sorts, from technical innovations like fully automated water level control to co-designing rainwater storage solutions with citizens to improve their neighbourhoods (Unie van Waterschappen 2011; Unie van Waterschappen and Rijkswaterstaat 2016). They thus provide a good empirical setting to study how PSOs deal with the tensions between innovation and optimization.

We build on the results of a survey under the 22 Dutch RWAs (Gieske, van Meerkerk, and van Buuren 2018). The survey yielded insight into the extent of optimization and innovation of the RWAs, which were operationalized as outcomes. Typical items for innovation were: 'To improve performance for my work field my organization has during the last five years: Implemented really new policies; [...]technology; [...]services; [...]processes; experimented with really new policies or techniques. Typical items for optimization were: 'To improve performance for my work field my organization has during the last five years: Improved existing policies; [...]techniques; [...]services; [...] processes. It also measured ambidextrous management, procedures and resource allocation. The ambidextrous managers scale included items on transformational and transactional leadership. The ambidextrous procedures scales contained items on the presence of supporting policies and procedures. The ambidextrous resource scale contained items on HRM and resource allocation. See Table 1 in the Appendix for measurement scales.

Focus groups

To gain a more detailed insight in the ambidextrous practices of water authorities with different scores on innovation and optimization we designed a focus group approach (Morgan 1996; Robinson 1999; Tong, Sainsbury, and Craig 2007). Focus groups discussion is an efficient technique for qualitative data collection through group interaction (Morgan 1996; Robson 2002; Robinson 1999), eliciting collective views about a specific topic and providing insights into the sources of complex behaviours and motivations, that would be less accessible without this interaction (Morgan 1996; Ryan et al. 2014). They allow for natural quality controls on data collection as participants interact and thereby tend to provide checks and balances on each other, and group dynamics help in focusing on the most important topics, and to assess the extent to which there is a consistent and shared view (Robson 2002; Robinson 1999). A focus group design that generates data on an individual as well as collective opinions and experiences is best suited for theory building (Ryan et al. 2014). We aimed to take stock of opinions and experiences of two target groups within the RWAs, i.e. employees and managers, because of their different roles in the organization and the survey scores of managers and employees differ (Gieske, van Meerkerk, and van Buuren 2018). We convened two separate focus groups per RWA because this approach enhances safety for employees in expressing concerns and reduces the risk of influence of hierarchy and power dynamics (Robson 2002).

We invited the RWAs by e-mail to the CEOs to participate in a focus group that would elaborate on the results from the survey for their own organizations. Ten RWAs showed an interest and were included in the research. We did a test workshop in one of the RWAs to test the design of the focus groups. Another RWA had recently merged; thus, the survey results were no longer representative of the new organization. We excluded these results from our analysis, which left us with eight focus groups. This selection resulted in quite a good sample, with three RWAs that score below the means for optimizing and innovating, three that score around the means, and two above the means, thus we decided that there was no need to invite additional RWAs. The selection of the participants was done by a contact person assigned by the CEO, usually an innovation coordinator. In absence of such a role, a manager or senior employee took care of the selection. In most focus groups this resulted in employees mainly from primary task fields, whereas in the managers sessions also managers from supportive teams were present (e.g. HRM, finance, communication). In each parallel session in average six people participated, resulting in total about 95 participants. The focus groups took place from December 2016 to May 2017. To collect data on the ambidextrous practices of the RWAs we followed a semi-open design that allowed participants to formulate individual opinions and experiences as well as explore and express collective experiences (Ryan et al. 2014). After a brief introduction on the survey results for their RWA, we initiated parallel group dialogues following two guiding open questions:

- We invited them to start a dialogue on ‘what works well’ in their organization in relation to innovation and optimization, explaining that this would enable them to share their views on actual practices and describe best practices.
- We continued the dialogue asking ‘what could be improved’, in order to help them reflect on their current practices and to identify barriers and enablers.

This approach led to a dialogue in which current optimizing and innovation practices and tensions between the two were mentioned and discussed. We summarized the comments of both employees and managers on flip charts, occasionally asking clarifying questions and encouraging to elaborate on a topic. The dialogues were recorded, and reports summarizing the findings were sent to the contact persons of each organization for feedback (Tong, Sainsbury, and Craig 2007). Transcripts of the dialogues were coded according to the organizational antecedents described above, i.e. organizational strategies, policies and procedures; managerial style; culture and organizational identity; and informal routines. We used a combination of a theory-driven deductive approach and a data-driven inductive approach (e.g. DeCuir-Gunby, Marshall, and McCulloch 2011). For the two constructs that were addressed in the survey (Gieske, van Meerkerk, and van Buuren 2018), i.e. 'Organizational strategies, policies and procedures' and 'Managerial style' we sub-coded following the themes addressed in the survey items (Fereday and Muir-Cochrane 2006), which we inductively adapted as new themes emerged from our data (Ryan and Bernard 2003), and other categories remained unfilled. For 'culture' we initially identified two themes ('identity' and 'norms and values'), building on our conceptualization above, and added codes as the themes relevant for the RWAs gradually became clear reading and re-reading our data (Ryan and Bernard 2003). These included themes like 'task-orientation' and 'communication' (i.e. rhetoric and framing). For 'informal routines' we looked for statements in our data that describe informal actual practices (Ellström 2010). Themes describe how things are actually or normally done in practice, e.g. 'on the job', by 'entrepreneurial employees', 'under the radar' and a rest category 'other informal routines' (e.g. 'using the informal network'). In fact, our analysis indicates that the survey scales for ambidextrous procedures and leadership (Table 1 in Appendix) could be further improved, e.g. adding an item on 'optimization procedures'. Vice versa, the qualitative themes for culture and informal routines could be further developed into new scales, building on existing scales in literature. After establishing the coding strategy within our team, the transcripts were coded by the first author, thereafter test samples were cross-checked by the other authors.

To allow for comparative analysis we divided the RWAs in a 'low ambidextrous', a 'moderate ambidextrous' and a 'high ambidextrous' group, and subsequently grouped the statements according to these categories. We used the strategic plans of the RWAs and the survey results to cross-check patterns emerging for the plans and survey results with the focus group outcomes (see Table 2 in the Appendix). Statements about organizational culture and informal routines were more difficult to triangulate given our data and resources. These data supplemented the quantitative survey results and the document analysis.

Results

We grouped the 22 RWAs in three groups: those that score below average on both optimization and innovation in a 'low ambidextrous' group (innovation <4.6, optimization <4.8), those that score average in a 'moderate ambidextrous' group (innovation 4.6–5.0, optimization 4.8–5.0), and those that score above average in a 'high ambidextrous' group (innovation and optimization >5.0), as illustrated in Figure 1. RWAs participating in the focus groups are numbered. Assignment of RWAs at the boundary of the groups was done on the basis of the focus groups results.

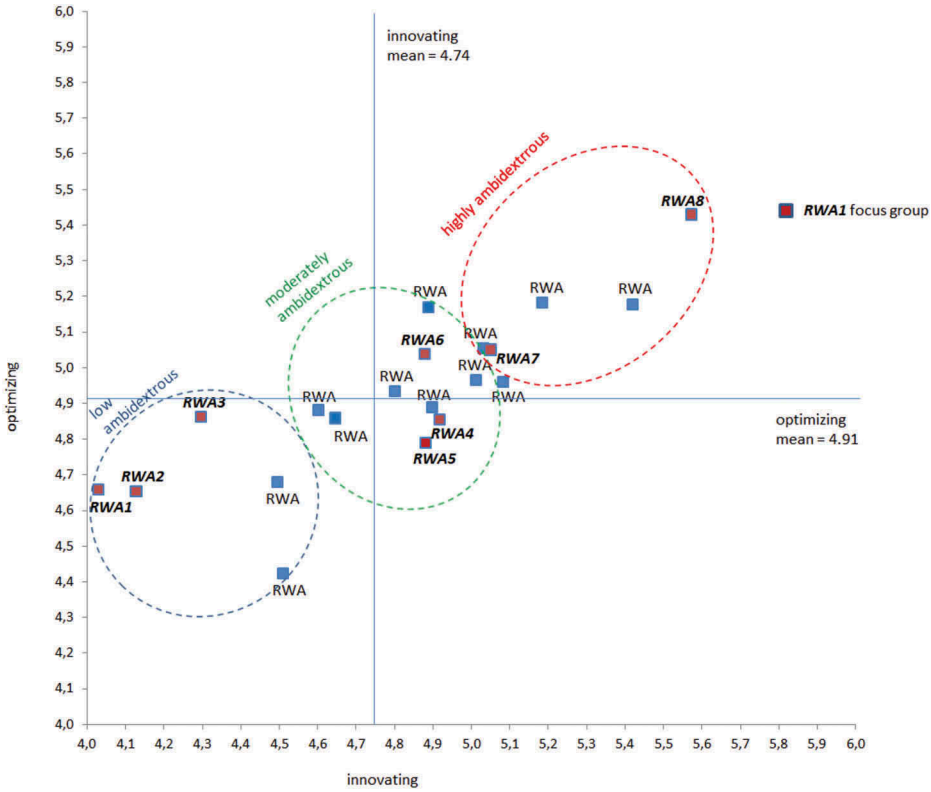

Figure 1. Grouping of RWAs based on their scores on innovation and optimization on a Likert-scale from 1 to 7 (Gieske, van Meerkerk, and van Buuren 2018).

Ambidextrous practices

As we will elaborate further below the practices of the three categories of RWAs participating in the focus groups can be summarized as follows (Table 1).

The *highly ambidextrous RWAs* want to contribute to societal goals. Innovation is needed to attain those goals, in conjunction with optimization. Innovation is embedded in strategies and policies and connected to regular operation. Managers steer on attaining organizational goals, by inspiring employees, connection, cohesion and learning. Small scale innovation is done 'on the job', larger scale optimizations and innovations get organized as projects.

The *moderately ambidextrous RWAs* consider innovation necessary to remain efficient and effective in the future, and as way to stand out in society, they want to be seen as innovative. Strategic plans and innovation policies support the invention phase of innovation. Implementation takes place within regular procedures. Much effort is put in optimization, e.g. by lean approaches (Radnor and Walley 2008). Managers steer on goals attainment within strict time frames and procedures. Small-scale innovations are 'just done', besides regular work. Bigger innovations are taken up as projects.

The *low ambidextrous RWAs* embrace a strict interpretation of their legal tasks and consider innovation as a high risk activity that in general is not part of their mandate.

Table 1. Ambidextrous configurations in low, moderate and high ambidextrous RWAs. Overview of the results of the focus groups.

	Low	Moderate	High
Organizational strategies, policies and procedures	Innovation hardly mentioned in strategic plans, no innovation policy. Some optimization. No ambidextrous design.	Innovation emphasized, sometimes as a goal in itself. Procedures support invention phase of innovation, limited connection with regular operation and implementation. Focus on optimization, e.g. by lean approaches. Structural ambidextrous design.	More integrative strategies that conciliate optimization and innovation activities. Procedures support both innovation and optimization, and connection to organizational goals and regular operation. Contextual ambidextrous design in addition to structural design.
Managerial style	Strong orientation on results and cost-control. Mainly transactional.	Strong result- orientation. Mainly transactional, some transformational.	Orientation on goal attainment, connection, cohesion and learning. More transformational than transactional.
Culture/ organizational identity	Strict, legal interpretation of tasks, important values are cost reduction and results attainment.	Future-oriented task orientation. Want to be seen as 'innovative'. Result-orientation.	Societal value-oriented task orientation. Innovation and optimization both valued.
Informal routines	Innovation takes place, initiated by entrepreneurial employees, but is (kept) invisible.	Innovation on the job and/or as a project. Strategic innovative intent hardly inculcated in practices.	Innovation on the job and/or as a project. Strategic intents and practices more aligned.

Important organizational values are cost-reduction and result-orientation. They have no innovation policy. Managers steer on results and costs-reduction, and do not support innovation. In practice innovation is not planned for, taken up when a need is felt, and often kept invisible. There is relatively little attention for optimization.

These results are in line with the survey results for the RWAs in our sample (Gieske, van Meerkerk, and van Buuren 2018; Table 2 in Appendix), that show that high ambidextrous RWAs in their strategic plans and policies systematically analyse the need to either innovate or optimize to enhance performance, and that resources are well divided over the two. With respect to leadership styles, the survey results show higher scores on transactional management than on transformational management for low ambidextrous RWAs, and vice versa for high ambidextrous RWAs. The survey results further indicated that in none of these RWAs regular processes and innovation processes are well connected.

Below we will expand the results per organizational antecedent for the three groups.

Highly ambidextrous water authorities

Strategic plans, policies and formal procedures. These RWAs have embedded innovation in their strategy, policies, work processes and internal and external communication. In their view innovation is necessary to create societal value. Ambitions and visions give direction and focus, in conjunction with other focal areas such as service provision, organizational development and information technology. They involve a wide range of external stakeholders when developing their visions and policies, including unusual parties. An employee of RWA7 explains: '*We have our visions, our Delta vision. [...] We formulated that vision with all stakeholders. [...] We asked very different parties, not the usual suspects, [...] from companies, education, culture, care, ..: "What do you expect from us?" If you incorporate the outside world you create urgency. [...] You create connection [...] and acceleration.*'

They have been optimizing processes through improvement programs, such as lean management, process certification and computerization. A RWA7 manager says: *'We have been focussing a lot on the quality of processes. Those are all certified. [...] You must put things in your organization in order before you can think of innovation. If you are worried about the datasets you have, or deficient systems ...'* Most projects are evaluated systematically. There is systematic attention for organizational development and continuous improvement. Feedback on client processes is used for organizational learning. This is illustrated by a statement of an RWA8 manager: *'We consider new service concepts. [...] Make things easier for license applicants or others who deal with us. I think it was a step forward to not only look for innovation of technology but also in client processes. Client processes also support organizational learning because feedback is very quick.'*

However, they experience that it is easy to formulate new ideas, but more difficult to bring ideas further into implementation. Evaluating innovations using a business case approach hampers innovation as it does not account for societal values. They feel they created too many internal rules, mainly to avoid risks. And according to an RWA8 manager organizational learning is still fragmented, comprehensive evaluation of the entire policy cycle, or along different organizational levels – from the work floor to top executives and board –, and adapting to what is learned is not well arranged.

Managerial style. These RWAs pay structural attention to leadership development. Mobility of managers is encouraged. New leadership styles are incurred, aiming at

inspiring and empowering employees. Managers state that they steer on continuous improvement, connection, cohesion and learning. They mention that they must indicate which way to go, inspire, encourage, deal with resistance, facilitate connections, coach employees and help them establish and use their network. They try to adjust to the individual needs of employees and stimulate them to think of what could be done better or different. They take care that basic processes, data, etc., are in order. However, they struggle with the pressure for performance and results. *An RWA7 manager says: I recognize the pressure for performance and tangible results [...]. And that we as managers find it difficult to value non-tangible results. While this is in fact most of our work.*' And in relation to innovation another RWA7 manager says: *'For me the struggle is..we say there is space, there is money, and if you have a good idea, it can always be done. That is the story we tell, and that is what we believe in. However, in practice, people have a planning for the year in which things must be realised, dikes must be built, treatment plants designed. If they then say they want time for innovation. [...] What do we do then? How flexible are we?'*

Culture and organizational identity. These RWAs want to be externally oriented organizations. They value performance, they feel the urge to get things done. However, they decided to no longer focus solely on austerity and core tasks. The RWAs identify with innovation and consider it as a core value. Innovation is considered as a means to an end, i.e. enhancing (future) performance. The employees are encouraged to bring up new ideas and innovations are put on display. They advocate the necessity of continuous improvement as well as renewal, and stimulate employees to contribute. Adagios like *'think different'* are promoted to get the message across that everybody can contribute. As an RWA8 employee explains: *'Our motto "every day a little better" makes it so easy to join in for everybody. You can apply it to big, radical innovations, but also to "I print a little less". [...] It is good that you are working on optimizing and innovation, but one is not more holy than the other.'*

Informal routines. These RWAs prefer embedding innovation in the organization rather than assigning special teams, such teams should rather help others than carry out innovative project themselves. Small-scale innovations get done 'on the job', and large-scale innovations get organized as projects. The RWAs also pay attention to mid-range optimizations. An RWA7 employee: *'You see that we have the people, means and competences to do large-scale innovations. But the mid-range, the larger optimizations, we were not picking up. [...] Now we score also the mid-range optimizations, they have the biggest impacts, so we decided to include those too.'* Nevertheless, RWA7 managers feel that they often focus too much on *'doing things'* and too little on reflection. And '*shaking the idea-tree*', as an RWA7 employee puts it, is easier than putting it all into action. Implementation would benefit from involving operational and maintenance units earlier. RWA8 managers see disadvantages in their perceived '*brain power*' and '*high critical mass*', they perceive that sometimes they keep searching for new knowledge and analysing information, and could benefit from faster decision-making.

Moderate ambidextrous water authorities

Strategic plans, policies and formal procedures. The strategic plans of these RWAs include long-term goals that take future technological and societal developments into account. Innovation is deemed necessary to achieve those long-term goals. The

RWAs have an innovation policy and allocate budget for pilots. An innovation coordinator or a small group of employees helps initiatives get off the ground. However, as RWA4 and 6 bring forward, strategic plans hardly trickle down to actual practice. Typically in every focus group, there were participants indicating that they had not heard about the innovation policy and budget, or were not involved, as this quote of an RWA6 employee illustrates: *'There is an innovation policy and budget, you say? Where can I find that policy?'* Furthermore, innovation is perceived as invention, and implementation is not well arranged and carried out under regular project management regimes.

There is much focus on internal processes and procedures, and effort is put in optimizing these, e.g. by lean approaches. Some state that formalization has increased in recent years, due to a professionalization of the organization and increased pressure for accountability. Supportive procedures, for innovation management, but also for knowledge management, evaluation and learning, are often not in place, not known, or felt as '*extra workload*'. A RWA4 manager comments: '*I think we have arranged our processes for an organization that is fully geared to optimizing. And we use those processes for innovation. But they are not designed for that, so you get bottlenecks.*' Another RWA4 manager agrees: '*We want to be innovative, but we treat it as regular work*'. Despite the RWAs efforts to capture everything in policies and procedures some still feel their data and systems are not sufficiently in order to make good innovation decisions.

Managerial style. Most managers steer on goals attainment and delivering on time, within budget and with agreed quality, imposing strict time frames and structures on themselves, their employees and the organization. An RWA6 manager says: *'We create time pressure ourselves, we present a planning to the board that is too optimistic, eliminating other possibilities, [...] we pose structures on ourselves that are too tight. For 80 per cent we are causing this ourselves. [...] We want to show how well we are in control.'* They value optimization of processes, also because it reduces work pressure and costs. Although some managers promote the concept of the learning organization and encourage employees to learn from mistakes, most managers acknowledge that they sometimes lack courage and fear the risks of innovation, as the following quote of a RWA6 manager illustrates*: 'There is a fear..[...] we should start showing courage and give space…and accept to fail sometimes.'* They are thus hesitant to encourage and support new initiatives, according to an employee of RWA5 even if the board has a positive attitude to innovation.

Culture and organizational identity. These RWAs value their culture of performance. An RWA4 manager says: *'The RWA has aspects of the public service provider I worked for before. Time, performance, quality, accountability, that is a valuable culture.'* An RWA6 manager states: *'We impose strict structures on ourselves. It is our culture, really. We want it somehow.'* All recognize a risk-averse attitude. Some plea for more safety and trust. An RWA6 employee mentions that they '*prefer certainty over adventure*'. However, as stated above, they do have a positive attitude to innovation. The positive rhetoric about innovation helps in creating energy around the topic. And employees feel encouraged to do things different and to come forward with their ideas and be proud of their successes. However, this positive attitude towards innovation is not felt by the whole organization, as an RWA5 employee

explains: *'When we started the [innovation] program [five years ago] the board already said: "We want that everybody in the entire organisation is working on innovation in his or her own way.[…] Think different, act different."[...]But I think we had a separation. We [the innovation team] have regular meetings, and around us there is a small group of others, who also take part. We have to change our approach ...[to involve more people].'* And in RWA4 some feel innovation is over-emphasized and favoured over optimization, hampering the latter.

Informal routines. Small-scale innovations are 'just done', besides the regular work, often triggered by a practical problem. Some think this is the case for most innovations, e.g. this RWA6 manager: *'There are a lot of practical problems where colleagues find each other, and find a solution. […] people were just working on it and then realised: "Hey, wait…this is actually innovation". That is the largest category.'* Bigger innovations are taken up as a project. This differs per task field: large scale innovations are possible in sewage treatment plants because RWAs are in charge. In regional water management innovation is more incremental, as the interaction with the external network is more decisive. Innovation in the field of flood protection is even harder, as dike safety norms set by the national government are strict.

However, general experience is that for a good idea that is well-motivated, i.e. besides efficiency and effectiveness also addressing more immaterial board level interests such as image and publicity, time and money are made available. The informal organization plays an important role, according to managers and employees of RWA6. If an innovation fits in an existing internal network, it gets done far more easily. An RWA6 *manager says: 'You see that systematic organising and facilitating, we do that very little. I don't know if we have to start doing that. [...] It is also a strength of the organisation, in the informal routes beautiful things can happen very quickly.[...] Systemizing also provokes resistance and power games.'* And entrepreneurial employees get things done, as a RW5 employee says: *'First you have to take some hurdles yourself, not bother too much about the resistance of management. [...] You need to arrange support from a board member [...] You must create room for yourself. [...] Don't ask for permission beforehand.'*

Implementation of innovation is not well arranged, little resources are made available for adapting the innovation and existing processes and regulations. Policy innovations are often not well translated into work processes and regulations. Often organizational units that have to implement the innovation have not been involved or consulted beforehand.

Low ambidextrous water authorities

Strategy, policies and formal procedures. The strategic plans of the low ambidextrous RWAs do not include innovation, although RWA3 has an innovation policy for the sewage treatment section. The RWAs monitor and may adopt innovations that have proven effective in other RWAs. In that case, innovations have to be immediately relevant for the core tasks or actual problems, preferably result in cost-reduction, and involve proven technology, which fits with existing techniques and procedures. These RWAs focus on the efficient execution of core tasks, on short-term performance and cost control. In the opinion of the focus group participants the RWAs stick to optimizing current processes and techniques as a result of a lack of a longer term vision. An RWA1 employee feels that their cost reduction policy also hampers optimization. The RWAs

indicate that they are very conservative related to risks. An RWA3 employee states: *'We don't manage risks, we try to eliminate every possible risk'.*

Managerial style. Managers steer on productivity, on goals attainment and achieving results within agreed time and budget. They do so from a risk averse perspective and a focus on control. As an RWA3 manager says: *'We have an enormous focus on achieving results, on what we have to realise now, and on cost reduction. And we are afraid to take risks. We know we will be held accountable. [...] We do not include innovation in the performance plans of the employees. […] Thus both [employee and manager] say to each other that there is no time for innovation.'* Managers rather tolerate than stimulate innovation. They indicate that they need commitment and support from the CEO or board level to take up a more initiating and stimulating role. Managers state that (their) previous rejection of innovative initiatives may have discouraged employees. They acknowledge that they focus on optimization, sometimes too long, where an innovation strategy would have been more effective. Employees mention that they would favour more support from management, and a less directive and more coaching leadership style, based on more autonomy and trust.

Culture and organizational identity. These RWAs characterize their cultures as '*conservative*', '*basic*', '*straight-forward*', '*down-to-earth*', '*modest*' or '*inward-looking*'. Dominant values are result-orientation and cost-control. As an RWA2 manager says: *'What you see here is that the values of result-orientation and cost-reduction get accentuated.'* Innovation is perceived as a '*luxury*', or even as a '*hobby*', something that should happen '*on the side*', that is tolerated, additional to the regular workload. An RWA3 employee mentions: *'Innovation is seen as something extra, not as part of how to do your job.'* It is certainly not something to draw attention to or to be proud of. In the words of an RWA1 employee: *'[…] this is not an organisation where you should put the spotlight on it [an innovation], you will just get questions and critique. You better just start. This is the atmosphere, the culture around here.'* Employees and managers expect that they will be held accountable for failure. Market parties (private sector firms) are rather approached with suspicion than with a positive attitude towards collaboration.

Informal routines. There is not a lack of ideas; small innovations take place all the time, especially if they fit within regular budgets. Larger scale innovations also take place but are – often deliberately – not labelled as such. Innovative employees tend to prefer to '*stay under the radar*'. For a large part innovation 'just happens' is not planned for, but taken up when a need is felt, e.g. following an incident or calamity, on the initiative of an entrepreneurial employee, or after pressure from an external party. Entrepreneurial employees who create support, span boundaries, frame the issue in the right terms, use opportunities, such as national or international programmes that subsidize innovation, can get large-scale innovation projects off the ground. *An RWA2 employee says: 'At a certain moment you feel a strong conviction that things can be done much better and newer […], you think: "what can we do to achieve that", no matter how hard that road can be.'* And when the benefits of an innovation for the core tasks are clear, and it fits in the culture of the RWA, things can go really swift, as an RWA2 employee explains: *'If it fits with the gut feeling of the*

board, – like we stand for safety, and the story sounds logical -, we don't have to substantiate it all with figures. [...] But for sustainability it is more difficult. We have to calculate [the business case] to the decimal point.'

Discussion

The attitude of the RWAs towards innovation is strongly related to their organizational identity. Although the legal tasks of the RWAs are the same, their perspectives on their role in society range from strictly core task-oriented to societal value-oriented. Nevertheless, a strong results-orientation characterizes all RWAs. As RWAs are fully funded by the taxes they levy, the relation between performance and costs is quite direct, and transparent by benchmarking (Admiraal and van Helden 2003). Consequently, result-orientation is a very powerful and valued logic in the RWAs and causes a bias towards optimization.

In low ambidextrous RWA no ambidextrous design (Cannaerts, Segers, and Henderickx 2016) is in place at all. Moderately ambidextrous RWAs apply a structural and temporal approach (Raisch and Birkinsaw 2009), installing an innovation unit or team and an innovation policy that support the invention phase of innovation, and carrying out innovation as separate projects. As a result of this design implementation of innovations is not well arranged, which causes tensions between innovation teams and operational units. The high ambidextrous RWAs show more contextual ambidexterity (Gibson and Birkinshaw 2004), formulating cohesive strategic visions and plans, encouraging employees to both optimize and innovate, and putting processes in place that support connection to organizational goals and current operation. Implementing innovations also takes place under regular operational regimes but is legitimized by the cohesive visions, and supported by intra-organizational connectedness and less fragmented organizational learning processes.

Managers struggle with the strong focus on results. They discern that their organizations are burdened with often self-imposed rules, designed to enhance accountability and avoid risk (cf. Hartley, Sørensen, and Torfing 2013; Brown and Osborne 2013). Managers and employees in the low and moderately RWAs frequently express a fear of being held accountable for failure, whereas managers in the high ambidextrous RWAs seem more tolerant of uncertainty and risk. Managers in low and moderate ambidextrous RWAs adopt a more transactional management style, whereas in the more ambidextrous water authorities managers embrace more transformational management styles, in addition to transactional styles.

In practice, small-scale innovations take place all the time, if problems call for innovative solutions or employees perceive opportunities for improving their work. This indicates the ambidextrous behaviour of employees (Caniëls and Veld 2016) and synergetic effects between optimizing and innovating (Bledow et al. 2009). For larger scale innovations the informal leadership of entrepreneurial employees is important. They are driven by a passion to optimize or innovate their professional practice and to contribute to enhancing public value (Perry 1996; Miao et al. 2018), and either utilize procedures or find their ways around them to bring innovations forward. Reference to the role of entrepreneurial employees was made more often in low ambidextrous RWAs, possibly indicating that innovation in those RWAs is more dependent on individual entrepreneurial activity than in more ambidextrous RWAs.

The constituting elements of these practices appear to be mutually reinforcing. A strict legalistic task orientation and risk-averse culture goes along with a transactional, results- and cost-oriented management style and little attention for innovation in strategic plans and policies, which leaves no room for embedding innovation in the daily routines of the organization. As a result, informal innovation routines are not connected to formal strategies and organizational goals and the managerial style prevents rather than stimulates innovation. In moderately ambidextrous RWAs future goals-oriented strategies and formal innovation policies allow for and reward formal, legitimate innovation routines within the formal innovation programme, but do not stimulate innovation efforts nor ambidextrous behaviour in regular operations. A different pattern can be observed for high ambidextrous RWAs in which a more open, societal value-oriented perception of responsibilities is reflected in more integrative strategies and intra-organizational alignment, a more transformational management style and more embedded innovation practices. As this context and management style supports ambidextrous behaviour there seems to be less necessity to resort to informal routines. In the high ambidextrous RWAs a positive feedback relation seems to exist between a more ambidextrous strategy, culture, managerial style and formal and informal routines.

Conclusions

From our analysis of optimizing and innovating practices, we have seen that different strategies, procedures, managerial activities and informal routines shape different practices, and that the organization's perspective on its tasks and role in society is decisive for the specific configuration that emerges (Andrews et al. 2009). This perspective on the organization's identity is grounded in underlying values and norms and results in a different perception of the legitimacy and contribution of innovation. As a result PSOs in a similar context, with similar legal tasks, democratic structures, knowledge and skills (O'Toole and Meier 2014), show very different ambidextrous configurations (Cannaerts, Segers, and Henderickx 2016) of mutually reinforcing organizational antecedents.

Tensions between innovation and optimization exist and will persist. We have seen several informal 'coping' routines to deal with these tensions, ranging from rather subversive 'under the radar' routines in low ambidextrous RWAs, to 'using the informal network' routines in moderately ambidextrous RWAs, and entrepreneurial strategies of employees in both low and moderate ambidextrous RWAs. However, a more solid approach appears to be the one embraced by the high ambidextrous RWAs. Their external societal value-orientation is reflected in more integrative strategies and procedures that support interaction and mutual reinforcement of innovation and optimization or an informed choice between the two, and the more ambidextrous leadership style of their managers supports ambidextrous behaviour of employees.

Although literature emphasizes the important role of managers in organizing ambidexterity (e.g. Smith and Umans 2015; Trong Tuan 2017), public managers experience considerable tension in fulfilling this role. They are strait-jacketed in result-oriented performance management systems (Wynen et al. 2014) and the abundant rules and procedures installed to safeguard accountability and reduce risks (Brown and Osborne 2013). And they are often not tasked to support innovation, indicating that political and upper echelon support for innovation is important (Bartlett and Dibben 2002).

Dedicated organizational innovation policies and procedures are helpful to support the invention and selection phase of the innovation cycle (Bressant 2005), but the intricacies of implementation and institutionalization in the organization's policies and routines are often overlooked, indicating the need of procedures and allocation of resources that support also the implementation phase (Plimmer, Bryson, and Teo 2017; Palm and Lilja 2017). Our study shows that PSOs benefit from contextual ambidextrous designs (Gibson and Birkinshaw 2004) that support the ambidextrous behaviour of employees (Caniëls and Veld 2016), in addition to structural and temporal designs.

Our research contributes to the emerging body of literature on ambidexterity in PSOs in several ways. We identified determinants of organizational ambidexterity in PSOs. By comparative analysis of fine-grained empirical accounts of actual ambidextrous practices of similar PSOs we were able to identify different configurations of culture, strategy, management and informal routines related to different levels of ambidexterity. Furthermore, our research enhances insights from previous literature that focusses on the contributions of a single antecedent (e.g. the role of managers) to organizational ambidexterity, as it revealed a close, mutually reinforcing interrelation between those determinants (Boyne 2003). Finally, it indicates that contextual designs support the integration of innovation and optimization practices in PSOs.

Ambidexterity is an academic construction that practitioners do not use, as Birkinshaw and Gupta (2013) note. Nevertheless, practitioners in PSOs clearly experience tensions between innovating and optimizing, and struggle with the integration of innovation within their performance management routines as well as in their operational routines. Our findings imply that it is important to strengthen the capacity to deal with these tensions, as innovation and optimization are both needed to enhance public service performance. To strengthen ambidextrous capacity it is important to formulate and communicate an integrative vision and strategy that stimulate the creation of societal value and to engage in a recurring dialogue at the strategic as well as operational level on the need for optimization or innovation to reach both short-term and long-term goals and enhance performance. Given the impact of the perceptions of organizational identity and role in society, strategic planning and visioning processes can be used as a leverage to support reflection on these perceptions.

To support an ambidextrous context our empirical findings confirm that an ambidextrous leadership style is needed that combines transformational and transactional elements: stimulating new ways of thinking, coaching and motivating employees, ensuring connection and cohesion, and stimulating learning, needs to be combined with steering on results, making performance agreements with employees and facilitating regular work processes. Supporting organizational learning, allowing for learning from mistakes, and developing risk management procedures and competences (Brown and Osborne 2013) are also needed.

Policies and procedures at the organizational level should not only support the invention phase of innovation but should also anticipate and support implementation by ensuring connection to organizational goals as well as to regular operation. Performance management systems should include measures for innovation as well as for optimization and support ambidextrous behaviour and learning both at the individual and unit level, as well as dialogue and comprehensive evaluation on how public performance is best served (Bedford, Bisbe and Sweeney 2019).

This implies that public organizations should not focus on a specific determinant to enhance ambidexterity, but rather pursue a comprehensive approach, by jointly

addressing strategy and leadership style, culture and identity, and create an ambidextrous context that empowers managers and encourages and supports employees.

Limitations and further research

Our research concerns a rather specific type of PSOs. Further research is needed to elicit ambidextrous configurations in different contexts and refine our understanding of the interrelation between the different determinants. A longitudinal design may also reveal how ambidextrous configurations of organizational determinants evolve in time. Furthermore, PSOs operate more and more in networks which are important drivers and sources for continuous improvement as well as for innovation, and thus call for – as well as impact – organizational ambidexterity (Plimmer, Bryson, and Teo 2017). Further research may contribute to our understanding of this interrelation. Our research also revealed the ambidextrous behaviour of employees. Further research is needed to elicit how their ambidextrous behaviour is influenced by the organizational context and can be supported by managers (Trong Tuan 2017). Future research could also broaden our insights on the contribution of leadership style to ambidexterity, e.g. considering aspects of distributive styles.

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Appendix

Table 1. Measurement scales for innovating, optimizing, ambidextrous procedures and ambidextrous manager (Gieske, van Meerkerk, and van Buuren 2018).

INNOVATING
To improve performance for my work field my organization has during the last five years: Implemented really new policies; implemented really new technology; offered really new services; implemented really new processes; experimented with really new policies or techniques
OPTIMIZING
To improve performance for my work field my organization has during the last five years; Improved existing policies; improved existing techniques; improved existing services; improved existing processes
AMBIDEXTROUS PROCEDURES
We have a strategy or plan that addresses both innovation as well as optimization; we systematically evaluate if either innovation or optimization is required to improve performance; innovation is part of our strategic plan, year plan and team plan; our innovation policy contributes to good innovation processes; we have clear procedures for innovation; regular and innovation processes are well connected
AMBIDEXTROUS MANAGER
Managers: stimulate employees to think in new ways; have vision; look for new opportunities for the organization; coach employees to develop their talents; motivate employees to contribute jointly to the goals of the organization; delegate challenging responsibilities to employees; arrange good working conditions for employees; make agreements on results and rewards; see that agreements are met; live up to agreements
AMBIDEXTROUS RESOURCE ALLOCATION
Our HRM takes innovation into account (in selection, training, career support, personnel evaluation); resources (money/time) are allocated well to regular tasks as well as to innovation; there are enough resources (money/time) for innovation

Table 2. Survey results (Gieske, van Meerkerk, and van Buuren 2018) for the scales (in bold) and items discussed in this article. Items were measured using a 7-point Likert scale.

Ambidexterity	Low				moderate				High			All
RWA	RWA1	RWA2	RWA3	ALL	RWA4	RWA5	RWA6	ALL	RWA7	RWA8	ALL	TOTAL
n	18	33	82	178	52	34	22	284	90	25	134	596
INNOVATING	4,03	4,12	4,30	4,29	4,91	4,86	4,88	4,83	5,08	5,54	5,22	4,74
OPTIMIZING	4,53	4,67	4,86	4,66	4,87	4,86	5,05	4,94	5,10	5,35	5,17	4,91
AMBIDEXTROUS MANAGER	4,19	4,53	4,67	4,49	4,48	4,83	4,58	4,51	4,69	4,52	4,72	4,83
Transformational leadership style	3,91	4,35	4,72	4,48	4,62	4,85	4,84	4,57	4,85	4,54	4,83	4,69
Transactional leadership style	4,47	4,72	4,63	4,50	4,33	4,81	4,31	4,45	4,54	4,50	4,61	4,52
AMBIDEXTROUS PROCEDURES	3,42	3,30	3,93	3,70	4,03	4,23	4,50	3,90	4,25	4,81	4,37	4,00
1. We have a strategy that addresses both innovation and optimization	3,70	3,23	4,02	3,84	4,03	4,36	4,69	3,95	4,24	5,48	4,55	4,07
2. We systematically evaluate if innovation **or** optimization is required to improve performance	3,52	3,29	4,04	3,67	3,58	4,06	4,25	3,72	4,20	4,78	4,30	3,88
3. Innovation is part of our strategic plan, year plan and/or team plan	3,48	4,07	4,57	4,38	5,08	4,95	5,77	4,88	5,13	5,44	5,25	4,90
4. Our innovation policy contributes to good innovation processes	3,22	3,17	3,92	3,71	4,27	4,50	4,35	4,00	4,50	5,33	4,75	4,13
5. We have clear procedures for innovation	3,12	2,79	3,48	3,23	3,63	3,64	3,88	3,36	3,59	4,29	3,68	3,44
6. Regular and innovation processes are well connected	3,46	3,26	3,58	3,36	3,59	3,88	4,08	3,46	3,84	3,53	3,65	3,58
AMBIDEXTROUS RESOURCE ALLOCATION	3,12	3,32	3,42	3,43	3,86	4,15	3,56	3,85	4,27	4,34	4,41	3,87