

Changing the Rotterdam-Rijnmond regional fire service

A multi-dimensional approach for analysing strategies of change

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Abstract

Purpose – The purpose of this paper is to identify critical success factors for the management of complex change processes in fire service organizations and to apply these in a case study of the Rotterdam-Rijnmond fire service.

Design/methodology/approach – The paper provides review of literature on organizational change, case study of the Rotterdam-Rijnmond fire service supported by the analysis of policy documents and 30 semi-structured interviews with key persons.

Findings – Combining different theoretical approaches helps to get a more complete picture of important issues and dilemma's in the management of change processes – which is a first step in the successful implementation of changes – whereas other approaches tend to emphasize only some and overlook others. Applied in a case study, this approach revealed serious weaknesses in the management of change within the Rotterdam-Rijnmond fire service and offered practical guides for solutions.

Originality/value – This paper combines insights from different theoretical approaches into a more integrated perspective that aims to be helpful as a practical tool for designing and implementing complex changes in fire service organizations.

Keywords Organizational change, Fire service, Change management, Multiple stakeholder perspectives, Third-order change

Paper type Research paper

1. Introduction

From the international literature we learn that the fire services and emergency organizations and public organizations in general in developed nations face pressures to modernize and are going through comparable processes of organizational modernization. This often implies opening up to managerial coordination and a shift from traditional fire extinction activities (like firefighting or accident/crime/ill-health fighting) toward prevention and proactive activities like information an education activities, investment in design and early warning and community engagement (Thurnell-Read and Parker, 2008; Loftus, 2010; Charman, 2015)[1]. This evolution raises questions about the mechanisms influencing the processes of change

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and reforms and about the challenges and dilemmas change managers have to address in designing and implementing their change strategies.

The fire service in the Netherlands is involved in a longstanding process of change that started in 2010, when the new Safety Regions Act was ratified by Parliament (Ministry of Security and Justice, 2010). The regional fire service of Rotterdam-Rijnmond (*Brandweer Rotterdam-Rijnmond: BRR*) is one of the largest regional fire services in the Netherlands, and an exemplary case in several aspects. Like all other fire services in the Netherlands, BRR is involved in a transition. At the request of the BRR management, the authors of this paper have made an *ex ante* evaluation of the change strategy that BRR has adopted, in terms of the expected impacts on the implementation process of the strategy (Koppenjan *et al.*, 2014; BRR, 2014).

In this paper, we present this *ex ante* evaluation and its findings. The aim is to contribute to a better understanding of the conditions influencing the management of complex change processes in public emergency organizations like the BRR.

The central question addressed in this paper is:

- RQ1.* To what extent are conditions for success in the change management strategy of the regional fire service of Rotterdam-Rijnmond (BRR) fulfilled and what lessons can be drawn from the assessment of BRR's strategy with regard to the tensions and dilemmas organizations like the BRR will encounter in change management processes?

We utilize theories that identify generic conditions for success and failure in change processes in order to describe and assess the change strategy of BRR. This assessment also provides direction for improvements of this strategy. Since this assessment is guided by generic theoretical insights, we argue that it can inform managers in these types of organizations on the challenges and dilemmas they have to address in designing and implementing their change strategies (compare Yin, 2018). Our overall objective is to contribute to the understanding of the mechanisms influencing the processes of change and reforms in public emergency organizations of how to assess change management processes.

In order to answer our research question, we have taken the following steps. First, we have done a review of the literature in trying to arrive at a more comprehensive understanding of the success and failure conditions in change management processes in complex contexts. This results in an assessment framework consisting of four analytical questions that function as a heuristic tool for analyzing and advising on change strategies (Section 2). In the next section (Section 3) we explain the methods we used. Section 4 presents the findings and the analysis of the BRR-strategy. We assess to what extent the success conditions as identified in our framework are fulfilled. Section 5 draws the conclusion of our research and discusses the tensions and dilemmas that our analysis revealed and their possible solutions. We end our article with a discussion of the implications of our findings for further research and the management of complex change processes in emergency service organizations (Section 6).

2. Conditions of change management in complex multi-actor contexts: insights from literature

Different theoretical approaches

Within the literature on organizational change and reform a variety of theoretical approaches can be found. In the field of public administration there are two dominant perspectives; the public reform point of view (with a predominant focus on context variables) and a generic change management perspective that primarily focuses on change processes and the way they are managed. Pettigrew has developed a contextual approach (Pettigrew, 1987; Pettigrew *et al.*, 2001) that includes contextual and internal conditions in complex multilevel change processes and the accompanying tensions and contradictions

that need to be addressed. Network theory helps to elucidate how organizations may create (external) network arrangements (Kim *et al.*, 2006) and, by participating in these networks, also shape the context of their organizations (e.g. Grantham, 2001) and therefore their change (Kickert, 2014). Finally, there are notions on the specific features nature of emergency service organizations with a strong operational focus which can help to understand the “logic” of change processes in this type of organization (Loftus, 2010; Charman, 2015; Thurnell-Read and Parker, 2008).

Instead of opting for one best suitable theory, we consider these approaches as complementary perspectives each focussing on important dimensions of complex change processes. Combining these perspectives enable us to build on the various relevant theoretical underpinnings of change management and reform, and will result in a more comprehensive understanding of contextual and internal conditions that need to be addressed, doing justice to their complexities and contradictions.

In the analysis of both reform and organizational change the content of the change involved and the process by which it emerges are, of course, essential. Context is also often taken into account. However, in multi-actor networks the same process and content get different meanings from different actors, who, accordingly, will behave differently. Thus they generate different interaction and transformation processes simultaneously, constituting each other’s context and produce outcomes in mutual interplay. This is what in our reading Pettigrew refers to with his concept of contextualization.

Building on this, we distinguish the following conditions that relate to the various dimensions of the change management process: context, content, process, and meaning and behavior (a.o. Kuipers *et al.*, 2014; Schmidt *et al.*, 2017; Lehmann, 2017; Pettigrew *et al.*, 2001; Christiansen, 2006; Weick, 1995). Together, they represent a four-dimensional approach to change management and reform processes that point to conditions that may be used as criteria to assess change strategies in complex multilevel, networked contexts. This approach also allows for detecting possible tensions that stem from internal inconsistencies within as well as between these different dimensions. Below, we discuss these aspects and the way they interact.

A four-dimensional approach

Context: why and where do these change processes emerge and how do they interact? Change processes come about in a context in which internal and external pressures produce threats and opportunities for the organization. These drivers may be factors (political, economic, social, demographic or technological developments) but also actors (stakeholders) within, or in the environment of, the organization (Van der Voet *et al.*, 2016; Pollitt and Bouckaert, 2004; Jaffee, 2001; Dimaggio and Powell, 1983). Besides the presence of an internal and an external environment, it is also important to acknowledge that change and its drivers can be found simultaneously at different organizational or system levels (e.g. operation, management, administration, context, society, politics, inter-organizational relations) (By *et al.*, 2018; Perrott, 2009; Mintzberg, 1988). This multilevel characteristic of change processes produces contradictory pressures for organizations pursuing change (Pettigrew *et al.*, 2001). An important question is the extent to which change strategies succeed in dealing with these environmental pressures (Fernandez and Rainey, 2006).

Content: how does the nature of the change matter? The content of the organizational change pursued also influences the change process and its outcomes. Theory gives indications about the way content matters. First, the order of change matters. Incremental change is assumed to be realized more easily than radical, comprehensive change (Wollmann, 2000). In the literature, three types of change are distinguished (Kuipers *et al.*, 2014). First-order changes are aimed at the introduction of new processes, systems, and

procedures, and are limited to a subsystem or an organizational process. Second-order changes affect the organization as a whole and are aimed at reorganizing its structure or its culture. Third-order changes go beyond the level of the individual organization and involve the change of whole sectors and include mergers, reforms, and system transitions.

Besides the order of change, the difference between blueprint change and open-ended, emergent change is important (Van de Ven and Poole, 1995). If the content of change is defined in detail, the change management process becomes a matter of implementing a blueprint, without much room for negotiation and adaptation. This may result in resistance that may complicate the change process considerably (Seo *et al.*, 2004). An open-ended process allows for gradual change and the stepwise build-up of support (Loorbach and Rotmans, 2010).

In addition, it can be assumed that the specifics of the content matters. Some change proposals may be inconsistent and create dilemmas for change managers. Some pursued changes may match the culture or realities of organizational practices, whereas others may prove to be incompatible. Especially in emergency service organizations with their strong professional cultures the content of the change should match the requirements of the operations and build on the proudness of the professionals involved (Loftus, 2010; Charman, 2015; Thurnell-Read and Parker, 2008, Van den Brink and Benschop, 2018).

The process: how is the change approached and implemented? In attempts to deal with the complexities of change processes, various models or pathways for organizing and managing change and reform processes can be discerned. Inspired by Rusaw (2007) among others, we distinguish the following pathways: top-down interventions based on blueprints (Fattore *et al.*, 2018; Di Giulio and Vecchi, 2018; Hill and Hupe, 2009), decentralized models in which change managers leave a lot of room to implementing bodies on lower organizational levels, a pluralistic approach in which various parties collaboratively pursue organizational changes (Pollitt and Bouckaert, 2004; Klijn and Koppenjan, 2016; MacKillop, 2018) and a learning approach in which a group of change agents initiates bottom-up experiments, selects promising practices, updates visions and prepares next rounds of experiments (Sminia and Van Nistelrooij, 2006; Loorbach and Rotmans, 2010). Some approaches see change as intended and discontinuous, whereas others view change as emergent and continuous (Weick and Quinn, 1999).

Deficits in processes may influence the trajectory and the outcomes of change processes. Reichard (2003) has studied governmental reforms in Germany, the Netherlands and Switzerland. He concluded that these reforms could suffer from weak management, weak participation and weak involvement by politicians. These are three important process conditions that influence the success of complex change management processes and reforms, especially in public sector organizations with a strong hierarchal structure and culture, and a high dependency on political decision making.

Meanings and behavior: how do stakeholders enact the change? The presence of internal and external stakeholders implies that various rationalities, interests and meanings are also present. These stakeholders not only operate as drivers of the initial change (as part of the context), but also are affected by, and affect, the (process of) change itself (e.g. Specht *et al.*, 2018). Because they are affected in different ways given their positions and interests, they attach different meanings to the proposed change and the way it is pursued (Ohemeng *et al.*, 2018; Hameed *et al.*, 2016; Weick, 1995; Piderit, 2000; Christiansen, 2006). Actors may see change as an opportunity to improve their position or accomplish their ambitions. They may also experience change as a threat. These meanings may be influenced by the content of the change, but also by the way the process is organized and managed, and the trust actors have in the fairness of the process and its leadership (Poole and Van de Ven, 2004; Kotter, 1996; Ajzen, 1991).

Fire services are known as organizations with a strong professional culture and team ethics, determined by the risk-taking nature of their operation, focusing on dealing with acute emergency situations and extinguishing fires. It may be argued that their strong professional culture, the nature of their operational process, the role of teams, and the antagonistic relationship between professionals and management will shape and direct meanings, attitudes and behaviors; various layers within the organization will develop *vis-à-vis* the change proposals that they put forward or with which they are confronted (Thurnell-Read and Parker, 2008; Loftus, 2010; Archer, 1999; Lucas and Kline, 2008).

However, Thurnell-Read and Parker (2008) argue that culture in these organizations is not monolithic, hegemonic and static, but complex, dynamic and differentiated, offering opportunities for change, both intended and unintended. Charman (2015) states that the very characteristics of this culture, like the hero cult, acting upon a sense of urgency, and humor and storytelling, can be used to support change processes.

From theoretical considerations to analytical questions. These theoretical considerations help to understand and grasp the complexity of the change processes involved, and indicate conditions for success. They result in the formulation of the following analytical questions, that together shape an assessment framework that will be used to evaluate change and reform processes and the strategies used to manage them:

- (1) Context: are drivers pointing in the same direction or producing contradictory tensions? How did the BRR address and reconcile these tensions?
- (2) Content: how can the content of the change be characterized: is the proposal for change a blueprint or is it open-ended? Is the envisioned change coherent?
- (3) Process: does the process have features of a pluralistic and/or learning approach, going beyond a near top-down or bottom-up orientation? And to what extent do the process conditions management, participation and political leadership support the change process?
- (4) Meanings and behavior: were meanings regarding the change process that emerged at the various levels within and outside the organization communicated and aligned?

In the remainders of this paper we will report our analysis of the change strategy of BRR using the above questions as to assess to what extent the conditions for the strategy to be successful are fulfilled.

3. Research methods

The research for this paper is based on a single case study of the Rotterdam-Rijnmond fire service, using qualitative research methods. The research was carried out in 2014 and aimed at assessing the change strategy as developed in the period 2010–2014. Given the large number of variables and relationships involved in the complex, multilevel and networked change processes we studied, which cannot be controlled or isolated by the researchers, a case study was an appropriate approach (compare Yin, 1994).

An inherent question to his type of research is the issue of the limited generalizability of the findings, the external validity (Van Wynberghe and Khan, 2007). However, according to Yin, findings of case study can be used to arrive at analytical or theoretical (contrary to statistical) generalizations. This requires a case study to include a theoretical frame that guide the collection and analysis of data. In our study we did not test causal relationships, but explored the presence of the theoretically derived conditions in the case of the change strategy and its context. In doing so our evaluation has been conducted using theoretically generalizable terms, giving the findings value beyond the specifics of the case.

In attempting to improve the generalizability of their findings further, researchers can opt for an exemplary case, i.e. a case that is an example for others. Smaling (2016) calls this exemplary generalizability. Such a strategy requires being very clear on the (local) specifics and the differences and similarities of the selected cases, so that other researchers can assess whether there exists an analogy and whether findings can be transferred. Such an approach accounts for not only knowledge and theories on a more abstract and general level, but attention for field and domain specific and local knowledge as well (Smaling, 2016). This benefits not only academic purposes (theory development and testing) but also the relevance for practitioners.

The BRR in our understanding is not simply an exemplary case, although it will be comparable with fire service organizations with a relative highly developed level of professionalization, operating in metropolitan areas like the Rotterdam region. Within the Netherlands the BRR is seen as a frontrunner. In 2016 the Safety Region Rotterdam-Rijnmond, of which the BRR is part, was elected as best public service organization of the Netherlands. BRR can be seen as trendsetter, going through change management processes and experiencing lessons that other fire service organizations may draw from.

For the evaluation of the change strategy of the BRR we have used different research methods. For our empirical research we have analyzed a significant number of policy documents and reports, both from the BRR, The Safety Region Rotterdam-Rijnmond, other regional fire services and The Netherlands Fire Service (see Appendix 1). In addition, we have interviewed 30 key persons. Our objective was that our research population would represent all groups of actors that were involved in or affected by the change process. The selection of interviewees was done in two steps. A first list of potential interviewees was drawn up based on their role and position. A next criterion for selection was that stakeholders must have demonstrated an active interest and involvement in the change process in the (recent) past and must have expressed themselves on this subject. This was in particular relevant for interviews at mid level and operational level within the BRR.

In the external environment of the BRR we have interviewed fire service commanders of two other fire services – one of them being the chairman of The Netherlands Fire Service – a coordinator of volunteer firefighters, three mayors in the board of the Safety Region Rotterdam-Rijnmond, the managing director of the Safety Region Rotterdam-Rijnmond, and two scientist of the Delft University of Technology.

Within BRR, we have interviewed managers at top level (the fire service commander also the head of the safety region, the director of operations and the director of research and analysis, also the change manager), three cluster commandants and heads of support departments (senior managers and mid-level managers), three supervisors (at operational level). In addition, we have interviewed members of the support staff and operational firefighters (firefighting unit commanders, duty officers and both professional and volunteer firefighters) and the chairman of the works council.

By far the most interviews were face-to-face interviews. In a few cases group interviews were held (with volunteers and professional crew members). The interviews were semi-structured, guided by a topic list with questions regarding the change strategy of the BRR and its success and failure conditions, reflecting the four dimensions of our framework (see Appendix 2). The topics addressed in specific interviews differed depending upon their relevance for the respondents we spoke at that occasion. Most interviews took about one hour. All interviews were recorded and fully transcribed. These interview data are qualitative data. The data have been structured first by open coding, labeling text fragments, and then axial coding in order to explore differences and similarities. Next, the results have been thematically analyzed by one researcher, in closed collaboration with the other members of the research team.

In the next section we present the findings of our analysis of the Rotterdam regional fire service. The structure follows the order of the four dimensions and questions of the

assessment framework we developed in Section 2. First, we briefly describe the background of the case. Then we present our findings and we analyze what these findings mean for the success and failure conditions with regard to change strategy by providing an answer to the four analytical answers.

4. Findings: the case of the Rotterdam-Rijnmond regional fire service

Background

The regional fire service of Rotterdam-Rijnmond (BRR) is one of the largest fire services in the Netherlands and operates in a complex working area that covers not only the metropolitan area of the city of Rotterdam, but also smaller municipalities and one of the largest ports in the world with a tremendous variety of port operations, many of which relate to energy: from petrochemical industries and transshipment to transport and production. BRR has a staff of over 1,300 firefighters spread over 50 fire stations. BRR is part of the public body known as the Safety Region Rotterdam-Rijnmond, together with the Regional Ambulance Services, 1-1-2 Emergency Control Room and the Risk- and Crisis-Management department. The safety region spans an area comprising 15 municipalities with 1.2m inhabitants.

Like all other fire services in the Netherlands, BRR is involved in a transition following the vision document *Fire Service for Tomorrow*. The fire service in the Netherlands is involved in a longstanding process of change that started in 2010, when the new Safety Regions Act was ratified by Parliament (Ministry of Security and Justice, 2010). In 2014, the operation of building up new regional safety and emergency services was formally finished, resulting in 25 safety regions in the Netherlands. Also in 2010, the Netherlands Fire Service (*Brandweer Nederland*), the national umbrella for the Dutch fire services, published a document entitled *Fire Service for Tomorrow (Brandweer over morgen)* with a vision on the future of the Dutch fire service. The Netherlands Fire Service is headed by the Board of Fire Chiefs (*Raad van brandweercommandanten*) consisting of the 25 fire chiefs of the safety regions. That document sketches the outlines of a new fire service. All the regional fire services have embraced *Fire Service for Tomorrow* and have used it as inspiration for modernizing their organization (The Netherlands Fire Service, 2010).

BRR's ambitions and change strategy focus both on internal changes in the fire service and on changes regarding relations with other organizations, citizens and society in general.

In the following we present our findings with regard to the extent to which conditions that influence the change process' success, notably context, content, process and meaning and behavior, were fulfilled, and were adequately addressed by the change management strategy. We begin the analysis of each condition by repeating the questions of our framework that guided our assessment.

Context and change drivers

What are the main drivers and motives behind the envisaged changes? Are drivers pointing in the same direction or producing contradictory tensions? How did the BRR address and reconcile these tensions?

An important driver is the pressure from central government to rationalize and modernize the fire service, based on cost considerations. This reasoning underlies the regionalization and modernization as required by the above-discussed Safety Regions Act. The fire services and the regional ambulance services were brought under one management board. This should facilitate effective steering and a coordinated approach to the emergency services. The commander reports to the regional management board and no longer to individual mayors. The security region's management board consists of the mayors of the participating municipalities. One of the mayors is the chairman of this

board (Ministry of Security and Justice, 2010). This operation of building up new regional safety and emergency services was formally finished in 2014, resulting in 25 safety regions in the Netherlands.

The Safety Regions Act was supplemented with an implementation decree, which contains rather detailed standards for basic fire services provision, such as maxima for fire response times (within eight minutes for most buildings) and detailed instructions on how to man firefighting vehicles and support vehicles. A basic firefighting unit comprises a commander, a driver (who is also a vehicle operator), and two teams of two men (in jargon: TS6). These standards are obligatory for all the regional fire services; they serve as indicators of their performance. Only the suppressive firefighting tasks are subject to results-based assessments.

Another driver stems from with the fire services themselves. Anticipating external challenges and governmental pressures, the Netherlands Fire Service came up with a radically new vision on firefighting in the future as outlined in *Fire Service for Tomorrow*. Also in 2010, the Netherlands Fire Service, the national umbrella for the Dutch fire services, published a document entitled (*Brandweer over morgen*) with a vision on the future of the Dutch fire service. The Netherlands Fire Service (*Brandweer Nederland*) is headed by the Board of Fire Chiefs (*Raad van brandweercommandanten*) consisting of the 25 fire chiefs of the safety regions. This vision document advocates a modern-day fire service with the focus on prevention and innovating suppressive firefighting (smart fire extinction) by deploying new technologies, and on broadening the traditional suppressive approach to include a care-oriented approach to fire safety and a local focus by involving citizens and cooperating with organizations operating at local level. A local focus is also necessary to foster the commitment of volunteers. All the regional fire services have embraced *Fire Service for Tomorrow* and have used it as inspiration for modernizing their organization (The Netherlands Fire Service, 2010).

For BRR, two circumstances further enhanced the sense of urgency for change.

Firstly, the board of the RR safety region cut BRR's budget following the merging of municipal fire services into one regional fire service. This resulted in the repositioning of fire stations in the region and the establishment of ten geographical clusters, more uniformity in operations, and concentration of training and instruction, materials and logistics. The organization structure was simplified with fewer layers. The function of new style duty officer was introduced with management responsibilities alongside the introduction of cluster commanders (BRR, 2012a, b). Clusters had started working with annual plans. As a result, local governments in the RR region were increasingly critical of BRR's performance in relation to cost. A mayor who was reappointed after a few years states:

In 2001, the quality was quite high for that time, even though professional standards were not completely met. But when I returned in 2012, I was shocked by the level: a reduction in terms of equipment, due to enormous efficiency strikes that had been made.

Second, there was an imminent shortage of volunteers who form the heart of the fire service. About 80 percent of all firefighters are volunteers (Kerstholt *et al.*, 2013). This problem is not new. All fire service have difficulties recruiting sufficient qualified volunteers, like most organizations in the Netherlands. The fire service commander states:

We get fewer and fewer volunteers who want to join the fire service. The number of volunteers is decreasing. Many volunteers no longer work at the same place where they live. The staffing of the fire service is different than before. Continuity is a concern for the organisation. Is 24/7 fire fighting service guaranteed? We say it is, but whether it really is is doubtful.

To conclude, in the context of the change process a variety of drivers underlined the plans for reorganization, stemming from various sources (new risks and technological developments, government policies, professional community, local politicians and societal trends

like individualization). They result in diverging and sometimes conflicting pressures. For instance, pressures to regionalize and standardize conflict with the call for differentiation and embedding in local communities. Also, the need to build support for reorganization is jeopardized by politically motivated budget cuts. Implementing the vision of *Fire Service for Tomorrow* created professional pressure for the BRR. BRR had to commit itself to a further process of change while still implementing the earlier regionalization process.

Content

What is the content of the change strived for? Is the proposal for change a blueprint or is it open-ended? Is the envisioned change coherent?

BRR has embraced the vision in *Fire Service for Tomorrow* and has further developed it into a new, integrated model for firefighting (BRR, 2013a, 2014a, 2015a). In this model, the focus is not only on fire extinction, but certainly also on prevention and the concept of “fire-safe living,” which jointly determine the level of fire safety in the region. The foreseen shifts involve slimmed-down but smarter fire extinction, flexible and rapid responses with smaller vehicles, more attention to professionalism and skills, to connect with citizens via the neighborhood fire officer, and the further development of fire-safe living (information, home checks, installing smoke detectors). Fire-safe living has consequences: firefighters’ social skills are becoming more important. Strong local embedding remains important for the BRR because of the importance of citizen’s self-reliance and participation (BRR, 2017). The fire service commander puts this as follows:

We must remain firmly committed to fire-safe living and to fire fighters who connect to the population. I think it helps if we are visible in senior centres, in migrant organizations and schools. It helps to prevent fires.

Eventually, as the dot on the horizon, fire-safe living is to evolve as an integral part of the broader concept of community safety, to be tackled by the police, the health service and the fire service in close collaboration. For this purpose, the fire service has to participate actively in local and national networks in order to develop partnerships. The regional fire services have to evolve in the direction of a networked organization, supported by service hubs at interregional and national level, in order to increase professionalism and to facilitate the exchange of knowledge and expertise (BRR, 2017).

The content of the change can be characterized by the attempt to develop an integrated strategy and matching organization that naturally follows the national *Fire Service for Tomorrow* transition. The simultaneous shift toward prevention, developing new ways of fire extinction and building collaboration and networks with other organizations is a big challenge given the traditional predominance of fire extinction. This foreseen change requires firefighters to adapt their perception of what they see as the core of their profession and their appreciation of the team as key in coping with the risks there are in performing their duty. A senior manager states:

Getting the organization on board is a matter of concern. The fire service is a traditional organisation.

The plans, developed at the national level by a highly selective group of high ranked officers in the context of the Netherlands National Fire Services, have the nature of a blueprint with a highly technocratic flavor, although they allow room for further elaboration at the implementation level.

So, the content of the change foresees a simultaneous shift toward prevention, developing new ways of fire extinction, and building collaboration and networks with other organization. Although these plans leave room for further elaboration during implementation, they already provide indications of clashes to be expected with existing practices, preferences, and core interests of internal and external stakeholders and

prevalent performance systems that reflect existing fire extinction practices. Our interviews showed that they tend to diverge from definitions of professionalism by rank and file and with the meanings attached to them by stakeholders at the various levels within and outside the BRR. The practical relevance of proposals and the evidence base of many ideas are contested. Many ideas on required innovation were controversial within the executive organization of the fire service. According to a member of the work council some innovations were pushed forward without taking into account their concerns with regard to their safety:

In the meeting with the works council, we were only informed of this by way of notification.

Firefighters have professional views of their own, and it is extremely difficult to convince them with management rhetoric, scientific claims and probability calculations. Traditionally, volunteers (professionals as well in some respects) are strongly motivated to join the fire service by the excitement that goes with the job and operating as part of a fixed team; but their motivation also arises from the appreciation they get from their local community for their work, for helping people (Kerstholt *et al.*, 2013). It is precisely these aspects – fixed teams with local anchorage that are solely engaged in firefighting – that are under pressure.

The change process

Does the process have features of a pluralistic and/or learning approach, going beyond a near top-down or bottom-up orientation? And to what extent do the process conditions management, participation and political leadership support the change process?

According to the Netherlands Fire Service, each regional fire service has to find its own way, supported and coordinated by program boards and internal research groups. Their ambition is that fire services should act in concert wherever possible. However, activities are at most loosely coupled and coordinated. There is no master plan at national level because of the decentralized character of the Dutch fire services, which operate within the frame of the safety region. BRR has the ambition to be a frontrunner:

Anyone who wants can join us. But we don't want to be slowed down. It is ok to be a follower, since you can have input and you can have a voice and you can exert some influence. But if you raise barriers because your region is not ready yet, then we move on. (senior manager BRR)

BRR has not drawn up a detailed timetable for implementation, but there is a global timeframe that prioritizes improving the current level of fire service and business operations (until 2017). This is seen as a preparatory phase, after which the desired level of fire safety, the desired model for firefighting, and the new organization will be developed (by 2020) and gradually implemented (2021–2024) (BRR, 2014b, 2015a).

BRR had started some pilots to experiment with the new model for integrated firefighting. In some rural parts of the region, the 24/7 availability of the fire service (8 min response time with a TS6) can no longer be guaranteed. In these areas, the fire service consists solely of volunteers. Often, there are not enough volunteers on duty to man a TS6. Solutions have been tried out in combination, with the future in mind, such as: the use of alternative units (vehicles and their crews) like the rapid responder, reviewing the spread of fire stations and distribution units on the basis of risk analysis, the design and implementation of a program for fire-safe living. After the pilot, the BRR has started to use fast intervention vehicles, with a crew of two firefighters instead of the standard six. In this way, tailor-made interventions are possible, and the response time of the voluntary fire service can be shortened.

We now take a closer look at the management, participation and leadership of the BRR change process so far.

Management. The change process was left to a member of the BRR management who acted as process manager as a side task. The idea was that this process manager should be a person with sufficient authority in both the formal and the informal sense, both within the organization and in its relationship with the management, administration and the Netherlands Fire Service. It was considered important that this person could take an independent position and not be seen as a representative of management or the board. However this also implied that the management of the change process was on the shoulder of one person.

Participation. In recent years, the BRR reorganization has reduced management layers, thus reducing the distance between management and work floor. Cluster commanders are seen as intermediaries and interlocutors of the management. As a result, the internal vertical communication lines have strengthened, and the top BRR management personnel are seen as open and approachable. The enthusiasm, openness and accessibility of the BRR management are highly valued in the organization. However, there is criticism as well. A member of the works council states:

Communication from the top is much more open than it was three years ago. But you have to involve the mid-level as well by giving them room for manoeuvre. What we need is a board that cares for our safety and that consults us on a regular basis.

Our interviews showed that the communication is perceived by rank and file as being of a one-way nature: management informing the organization rather than the other way around, not as a two-way activity in which members of the organization are stimulated to contribute to deliberations, suggest alternatives and take the initiative.

Political leadership. The safety region board (of which mayors are members) might function as the principal of the change trajectory on the basis of the stated mission. However, mayors leave this to the BRR management. The mayors that we have interviewed experience a greater distance from the fire service. According to a mayor of a small municipality:

There is no structure for consultation with the local fire chief as before. Now we have a cluster commander. I have seen him once and that was two years ago.

Some mayors experience difficulties with their dual role as (co-) director of the regional fire service and their local responsibility to the municipal council for the quality of the local fire service.

The growing distance between the now regional fire service and the local community is a concern that is shared by volunteers and mayors. Mayors' prime concern is a quick and effective response by the fire service in the event of a local emergency. Their local interest and accountability relationships make it difficult to generate their support and leadership at regional level. A mayor put this as follows:

The regionalization has led to throwing things over the wall. The sense of collective responsibility is absent in this region. Municipal councils as a rule are not interested in the collective interest. Mayors are supposed to support the regional fire service, but they don't.

To conclude, we can say that the BRR had established something like an agenda for the change process. Our study reveals that there is a general vision on where to go (the dot on the horizon), there is a phased implementation scheme, and there is room for decentralized development and differentiation. The management of BRR saw the change process as partly open-ended because of the rather interactive nature that would be needed during its realization. As far as the change plans are concerned, they have been developed at a high level, in collaboration with the Netherlands Fire Service, and without much input from internal or external stakeholders. Experiments have been carried out, but often without the participation of the rank and file beyond those directly involved.

A strategy on how to implement the change process was not elaborated; the ideas on vision and the implementation process were not communicated. With regard to the conditions management, participation and political leadership we can state that they were not addressed in a way that supported the change process. Participation was limited. Two-way communications that connects the top-down elements of change management with sense making at the different levels of the fire service were absent.

Meaning and behavior

Were meanings regarding the change process that emerged at the various levels within and outside the organization communicated and aligned?

Compared with other Dutch fire services, the BRR management viewed its organization as being a change champion. The BRR management sees the projected innovations as based on scientific insights and on the positive outcomes of pilot projects. Budget cuts and the increasing difficulty in recruiting volunteers require a kind of paradigmatic shift from fire extinction and response time to a combination of prevention and a risk-oriented preparation for extinction. Technological developments can support such a shift. Prevention requires justification for differentiated and risk-based firefighting and an argument to get rid of one-sided performance indicators like fire response times. According to the fire service commander:

It was impossible to continue in the way we did, because it had become unaffordable. Besides, I could not guarantee the 24/7 availability in the region any longer. Sometimes, it was a game of chance whether we could find six colleagues to man a TS6. That is no way to run a fire service.

The BRR management does not recognize a sense of urgency at lower levels. The top talks about the middle management in terms of “clay layers”: impossible to pass through. It sees a culture of low willingness to change in the organization as a whole. Insofar as firefighters themselves take initiatives, these initiatives are tolerated, but mostly considered as marginal innovations, not contributing to the overall change through which the fire service has to go.

Our interviews showed that the vision *Fire Service for Tomorrow* and the modernization strategy are not widely known at lower levels in the organization. This is especially true for volunteers. However, they do experience the negative effects of the modernization. Our interviews show that operational firefighters (and mayors) think that prevention may be nice, but it does not extinguish fires and (hence) might better be taken up by people other than the fire service. Prevention at the expense of extinction is seen as problematic and irresponsible. Rapid responders can handle many incidents, but sometimes they do not. According to a duty officer:

We can park the rapid responder at strategic locations and hence meet the response time, which is important, but what about the quality of our deployment?

The firefighters fear for their safety when the scale of the first fire unit is reduced. They have the impression that the top has insufficient insight into practice and the problems arising there, and that the top does not listen to remarks from below. Many firefighters at middle and lower levels in the organization may have ideas and insights, but they do not feel welcome to speak their mind, or are not heard. According to an experienced fireman:

Current management doesn't have a background in fire fighting, and there are too many managers. In the past, you started as a fire fighter and eventually you could become chief of a fire station. These managers were very close to the work floor. But now there is no connection anymore. Top management has become oversized, and they are not involved in operational fire fighting.

In addition, there has been an accumulation of changes in recent years. The previous regionalization is not yet fully implemented. Frustration with “loose ends of the reorganization,”

like shortcomings in central management of the equipment and of central purchasing, leads to a lower receptivity to new changes:

Downstairs, we keep a boat. But for the second time the central planning unit has not included this boat in the distribution plan for equipment. How competent are these people? They don't know what goes on in the workplace. They think they know best.

To summarize: far as meanings and behavior are concerned, communication on the urgency, direction, and process of change has been minimal so far. The management has not succeeded in finding ways to align the change process with the specific challenges and potentials provided by change within emergency service organizations. Some within the organization see what appears to be an accumulation of changes without meaning, and all this comes on top of earlier regionalization that has not yet been fully digested.

5. Conclusions on conditions and dilemmas

What did our assessment find with regard to the conditions on the four dimensions of the change management process?

With regard to the context, we observe that there are a variety of drivers underlying the plans for reorganization. They result in conflicting pressures. The management had difficulty to cope with these different pressures, which also had an impact on the conditions of the other dimensions of the change process.

The content of the change can be characterized by the attempt to develop an integrated strategy and matching organization that naturally follows the national *Fire Service for Tomorrow* transition. The simultaneous shift toward prevention, developing new ways of fire extinction, and building collaboration and networks with other organization is a big challenge, since rank and file see fire suppression as the central mission of the organization. The plans have the nature of a blueprint with a highly technocratic flavor, allowing room for further elaboration at the implementation level.

Our analysis of the change process reveals that there is a general vision on where to go (the dot on the horizon), there is a phased implementation scheme, and there is room for decentralized development and differentiation. However, the change content has been developed in a top-down way. The limited involvement of others will complicate the change process, as the lower levels oppose these plans. No wonder that BRR is hesitant to set the actual implementation process in motion, as this requires sharing the idea with the rest of the organization, in a situation where massive resistance can be expected. Overall, it is observed that the management of the change process is understaffed, participation limited, and political leadership weak.

As far as meanings attached to the change are concerned, they are divergent and not supportive for the envisioned change. In line with theoretical insights in the strong professional culture in emergency service organization, the nature of their operational process, the role of teams, and the antagonistic relationship between professionals and management, various layers within the organization have developed diverging and hostile positions *vis-à-vis* change proposals (Thurnell-Read and Parker, 2008; Loftus, 2010; Archer, 1999; Lucas and Kline, 2008). The communication on the urgency, direction and process of change has been minimal so far. No attempts are made to enhance communication among the various levels within the fire service or with stakeholders in the environment.

Some authors suggest possibilities to create positive attitudes toward modernization of emergency service organizations, by acting upon characteristics of this culture, like the hero cult, a sense of urgency, and humor and storytelling (see Thurnell-Read and Parker, 2008; Charman, 2015; O'Neil and McCarthy, 2014). However, none of these elements were part of the change strategy of RBB.

Dilemmas

Our evaluation of the change strategy of the BRR shows that conditions regarding the various dimensions of the change management process in a number of ways are not favorable and that the strategy as defined and implemented so far did not succeed in addressing them adequately. In order to bring this process further, the issues related to these conditions need to be addressed. A complicating factor is that these issues cannot be handled in an incremental way, one by one, since they are related and impose contradictory demands upon the management of the change process. To the management that pursues change they manifest themselves as tensions and dilemmas. Each attempt to solve one issue may have negative repercussions for other issues. Change management therefore, to large extent, is a balancing act: managing tensions and dilemmas. In the following we reflect upon the dilemma's we derived from our empirical analysis and the possible ways they might be dealt with.

Dilemmas regarding context. BRR faced the dilemma of how to combine the efficiency and effectiveness inspired regionalization with the need to motivate the various internal and external stakeholders in investing and supporting the new vision and the new ways of working that come along with it. Direct ways to accomplish this may not be sufficient, also given the limitations of available resources. Perhaps searching for indirect ways of extending support and increasing legitimacy by using the context may be a way out. Participating in alliances and sharing efforts with other (fire) services, including setting up lobbies, may generate additional resources and help to enhance the reputation of the BRR as frontrunner and herald its vision, providing its firefighters with a feeling of self-esteem and proudness.

With regard to content. How to combine elements of top-down in order to keep direction and momentum with the need to involve rank and file and other stakeholder in order to get support? Clearly, the presence of the vision of the fire service of the future is a stronghold. This is one of the reasons why the safety region Rotterdam-Rijnmond in 2016 was proclaimed to be the best public organization in the Netherlands. More energy could be put in efforts to share the vision within the ranks and files of the organization. At the same time rank and file should be invited to collaborate and come up with initiatives to elaborate the vision in new practices. A vision by itself does not resolve in new ways of doing.

With regard to process. How to motivate rank and file for the new ways of working, while they still are in the process of learning to cope with the earlier reorganization in their operational activities? We have recommended BRR to temporize the process, in order to first handle the issues that stem from the former reorganization. But at same time this should not result in lack of direction and commitment. Communicating milestones for further and future actions may provide the organization with a perspective that prepares rank and file for developments ahead.

With regard to leadership. How to enhance political leadership in a situation in which the regional structure undermines local ownership and strengthens the inclination of local politicians to defend their positions by keeping the fire services to legal requirements that make a shift to prevention difficult? This dilemma is especially difficult to handle, since this issue is related with contextual factors beyond the control of the strategists of BRR. They might seek to gain support from politicians and especially mayors by using the room for differentiation and elaboration as present in the current vision. Intensifying contacts between the various layers of the fire service organization on the one hand and mayors and local politicians on the other may be a first step toward enhancing political leadership.

With regard to participation. How to elaborate the technological and managerial inspired vision in such a way that it aligns with the definition of professionalism of firefighters and the requirements of the firefighting practice? The vision should provide room for involving

rank file, politicians and local communities in experiments aimed at the development of new practices as set out by the vision. Involving middle management, the cluster commanders and duty officers, as ambassadors of the change process and spokesmen of the firefighters might be the way to bridge organizational levels.

With regard to meaning and sense making. In order to overcome the problem that innovation will be interpreted as a threat to professionalism and as contrary to the essence of firefighting practice, management might involve firefighters in developing new role models and professional practices that are meaningful to them and for which they develop a sense of ownership.

With regard to change management requirements and sustained operations. How can the change process be implemented and these dilemmas managed, in a situation of limited administrative and management resources, while the quality of the operation of fire service has to be safeguarded at the same time?

6. Discussion

In this paper, we have studied the change management process of the BRR in order to get a better understanding of the issues in managing complex change processes in fire service organizations. Our case analysis reveals that although the strategy of BRR had its merits, overall it did not succeed in adequately addressing a number of critical conditions for a successful change management process. What is more, our analysis revealed the interdependent relationship of these conditions resulted in tensions and dilemmas. Managing change in the BRR, and probably in public emergency organizations and public organizations in general, is a multi-dimensional process in which contradictory requirements at various levels of the organization and its environment have to be balanced; it is about managing tensions and dilemmas.

This paper contributes to theory by combining policy reform and change management approaches and ideas on network theory and the specifics of emergency organizations like fire brigades, resulting in a multi-dimensional approach, that allows for a more comprehensive analysis of change processes. Its application has shown the potential of this approach in getting a more complete picture of relevant issues and dilemmas in the management of change processes in general – which is a first step in developing successful change strategies – whereas other approaches tend to emphasize only some and overlook others. This article also contributes to the assessment of change management processes, since the four-dimensional approach can be seen as a generic assessment framework for the evaluation of change management processes and strategies in organizations like the BRR. It can be used as an instrument to map change management strategies, assess their weaknesses and strengths and identify tensions and dilemmas that need to be addressed in order to manage these processes. While the issues regarding the four dimensions manifest themselves in cases like BRR in a specific way, the theoretical basis of our instrument implies that these are specific manifestations of generic conditions and tensions present in all complex change management and reform processes (compare Yin, 2018).

Our research confirms theory that managing change in emergency organizations like fire services meets specific challenges. The cultural characteristics of fire service organizations (such as their strong professional culture and team ethics) make pursuing change a particularly demanding task. New strategic choices to focus more on prevention and risk management may result in antagonism between the rank and file in the organization and its management, and in persistent skepticism of new procedures and organizational changes. Fire services share these characteristics with other emergency service organizations that operate in “the frontline,” like the police, the army, the health services, care, social work, public transportation, and so forth (Archer, 1999; Lucas and Kline, 2008; Person *et al.*, 2013).

On the other hand, the literature also shows that it is possible to address these issues and involve rank and file in change processes, thus providing the BRR and other emergency organizations with directions for the development of change strategies.

Finally, our assessment framework also provides insights and conceptual theoretical building blocks that may guide further research aimed at gaining knowledge on these generic tensions and the ways to deal with them in change management process within fire services and presumably other emergency service organizations. While we applied the framework in assessing the quality of a change strategy, and our framework may inform future *ex ante* and *ex post* evaluations of change management processes, further research might also be aimed at testing the theoretical assumptions underlying the framework by linking process conditions to effects. Comparative case studies of various types of emergency organizations and quantitative research design may contribute to the refinement of the framework and strengthening our knowledge on its generalizability.

Note

1. See for an example the Strategy 2017–2020 from the National Fire Chiefs Council (NFCC) in the UK (the professional voice of the UK fire and rescue service for development and improvement) which contains the strategic commitments for this period. Drivers for change include financial constraints, changes in local government, technological changes, society's demand for a representative fire service and workforce reform, and new service delivery models. These have put pressure on the fire service to change their strategy (NFCC, 2018). New strategies include not only innovations such as the introduction of evidence-based risk assessments and the systematic use of open data, but also building partnerships and engaging in community safety activities in collaboration with other agencies and local governments, and broadening the rather limited traditional role of firefighting to include.

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