

# Master Thesis

## The effect of the safety regions on the strategic position of the fire department

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# ABSTRACT

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Within the Dutch safety regions in the Netherlands, the relationship between the safety region as a corporation and the fire department as a division of this corporation is somewhat problematic. This research investigates the role of value creation and organizational structure in context of the Dutch safety regions and the effect it has on the strategic positioning of the fire department. It investigates if the business model acts as a blueprint for the organizational structure of the safety regions and its divisions. This study also looks at the way safety regions are organized and asks the question: is there uniformity between them?

Based on the analysis of 34 relevant documents and several theories, insight is given in the research problem. One of the main findings of this study is the discrepancy between theory and practice. Where theory describes how an organization with a divisional structure can be organized, it is found that this theory does not apply to the practice of safety regions. Moreover, where theory states that the business model acts as a blueprint for the organizational structure, the analyses show that this relationship cannot be supported in this research, creating a possibility that value is destroyed instead of added within the organization. It is therefore recommended for the safety region to look carefully investigate what the optimal organization form is for their organizations.

*Keywords: safety region, fire department, brandweer, veiligheidsregio, organizational structure, business model*

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# 1 INTRODUCTION

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In 2011, the Act Safety Regions (Wet Veiligheidsregio's, Wvr.) has come into effect. This act divided the Netherlands into 25 safety regions and an equal amount of regional fire departments. According to this act, the fire department is formalized and preserved by the safety region (Rijksoverheid, 2010). Next to the fire department, the safety region may house departments such as an ambulance service, dispatching center, special department for disaster management, or the GHOR. The latter specializes in scaled up medical care. The majors of the regional municipalities form the board of majors (Algemeen Bestuur, TH). This board sets the budget and design parameters for the safety region organization. However, the safety region is not an alliance: the safety region is an independent organization, with a board of majors controlling the organization. There has to be consensus across this board to make organizational decisions: for example, a single major cannot decide about the fire department in his or her community without consensus / approval from the others.

The fire department can be seen as a business unit of the corporate organization safety region. This distinction between corporate headquarters and business unit is made because the fire department has its own performance targets and is accountable for it (Rijksoverheid, 2017). Next to that, it needs to have its own business-unit strategy (Hessels, 2017b). These characteristics are in line with the characteristics of a corporate-HQ – business unit separation (Campbell, Whitehead, Alexander, & Goold, 2014, p.239). The fire departments operate on the basis of a standard operating procedure, which is uniform throughout the Netherlands. This procedure prescribes the equipment of fire trucks, and sets the training programs of staff. However, there are no such prescriptions about how the fire department and the safety region should be managed. This will be illustrated in the examples in the next paragraph.

During the last years, conflicts started to emerge among the safety regions. Within multiple safety regions, serious disagreements emerged between the management of the safety region and the management of the fire department. In one example which took place within the safety region Gelderland-Zuid, the chief of the fire department and the head of the safety region were not able to cooperate (De Gelderlander, 2017). In practice this meant that they were unable to come to an aligned strategy for the organization, resulting in a management crisis. This caused friction between the headquarters and the fire department as a business unit. In the end, the management crisis was solved by restructuring the organization (Veiligheidsregio Gelderland-Zuid, 2018), removing the specific director for the safety region and introducing two directors, both responsible for separate parts of the organization. Not only in Gelderland-Zuid they experienced problems in coming to an aligned strategy. Also the safety region of Zeeland

encountered similar problems (Provinciale Zeeuwse Courant, 2017). In this region, the board, management team and employees were not able to come to an aligned strategy and function as one organization (NOS, 2017). Next to that, this region experienced a blurring of standards, which resulted in new policy if current policy was not followed. Also, problems from a financial origin emerged within some safety regions. An example of this were the troubles in the fire department in Brabant-Noord. In this case, the fire department was in financial hard times, causing a financial problem for the safety region (Brabants Dagblad, 2018). The organization was according to the newspaper not able to fulfill all its tasks, for example the supervision of high risk companies. To solve this problem, the municipalities involved had to increase their funding to the safety region to solve the acute problems within the region (De Gelderlander, 2018). The fire department of Noord-Oost Gelderland also experienced a deficit in the budget due to mismanagement (De Stentor, 2019). This in multiple cases lead to budget cuts, which are presumed to lead to a loss of quality for the customer: the citizen (Vakvereniging Brandweer Vrijwilligers, 2019).

When reflecting on the examples described above, it is seen that there are multiple conflicts between the safety region and the fire department as a business unit. Financial, as well as problems from strategic issues, are the root cause of these conflicts. These conflicts emerged after the strategic positioning of the fire department had changed due to the Act on Safety Regions. It is therefore seen that there is a clear root for conflict within the organizational structure of the safety region. Conflicts within organizations lead to inefficiencies (Simon & Barnard, 1947). Also, De Wit (2019) presumed that the institutionalization of the safety region is at the expense of the identity of the fire department and therefore might decrease its quality.

To summarize the above, it is seen that some safety regions experience hard financial times (Brabants Dagblad, 2018; De Stentor, 2019) and the institutionalization of the safety region can possibly cause a decrease in quality of the fire department. This therefore makes the problem at hand urgent to investigate.

As derived from above, the strategic positioning of the fire department most likely plays a role in the conflict situation. It is therefore interesting and relevant to investigate and discuss the strategic positioning of the fire department within the safety region: how does the business distinguish itself from the others (Wickham, 2001, p.230), and in the special case of the fire department, how does it distinguish itself from the other departments concerned with safety, for example the safety region and the GHOR. The strategic positioning in this case is a result of the organizational structure of the safety region: how are tasks divided, duties determined and how is this coordinated and the interaction with the external environment (Mintzberg,

1979). The organizational structure therefore influences the relationship between the corporate organization and its business units. The way the organization is structured is also closely related to the governance structure: the governance structure is a direct consequence of the organizational structure (Grandori, 1997). The problem described earlier is therefore not only one of organization structure or governance structure, but comes from a combination of both. In this perspective it is also relevant to involve the aspect of value creation into the matter. Value creation is the ultimate purpose of corporate strategy and is therefore a vital part in the way a corporate organization is organized (D. J. Collis & Montgomery, 1997). Therefore, value creation should be key in determining the optimal organization and governance structure of organizations. The way value creation takes place within an organization is described in the business model (Zott & Amit, 2010).

What can be summarized from the above is that there are three aspects that determine the strategic position of the fire department as an operating agency within the safety region: organizational structure, governance structure and value creation. As the business model forms the blueprint for the organizational structure (Zott & Amit, 2010), it is interesting to see what this relationship does with regards to the positioning of the fire department within the safety region. This study will therefore focus on this positioning, as it leads to conflict and root for conflict.

The objective of this research is to get insight in the way safety regions are organized in regard to the fire department and how the fire department is positioned. This research also gives insight if there is uniformity in the way safety regions are organized within the Netherlands and the resulting effect on the position of the fire department within the safety region.

Taking this into account, together with the earlier described existing troubles within the safety regions and the presumption of De Wit (2019), this leads to the following research question:

**What is the role of value creation and organizational structure in context of the Dutch safety regions and what influence does this have on the strategic positioning of the fire department?**

This research adds value to the existing literature in three way Firstly, no prior research has been done in the relationship between the fire department and the safety region in The Netherlands. As the safety regions have organized their corporations in different ways (Hagelstein & Genderen, 2013), and conflict only, as described earlier, emerged in some of them, this research also gives insight in a broader perspective. Namely, if there is a dominant structure which has a relative higher chance on conflict between business-unit and

corporations in semi-public organizations. If this is found, measures can be taken in order to prevent these conflicts.

Secondly, this research gives insight in the different interpretations of the Act Safety regions. Recently, the government installed a committee responsible for the evaluation of the Act Safety Regions (Ministerie van Veiligheid en Justitie, 2019). This research might therefore be useful for this committee to gain insights in the different ways the safety regions implemented the Act.

Lastly, this research is also at the request of Crisislab, a foundation which supports the chair of Politics of Safety and Security at the Radboud University. They requested to take specifically a strategic management perspective as the focus point to investigate this relationship. This research therefore takes a business administration perspective and tries to find a solution through the use of organizational literature. This perspective is uncommon in the current conduct of business, as the safety region and fire department are mostly investigated from a public administration point of view. Therefore, the political choices regarding (the design of) the safety region are out of scope for this research. There are also airport and company fire departments and the Institute of Physical Safety (Instituut Fysieke Veiligheid, IFV), which are also out of scope.

In this thesis, first the theoretical background of the problem is given. Second, the research methodology is addressed. Next, the results will be analyzed. Following the analysis, the conclusions are drawn. Finally, the discussion and the recommendations are addressed.

## 2 THEORETICAL BACKGROUND

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In this chapter an outline of the relevant theories and perspectives with regard to the problem is provided. As this research primarily focusses on the relationship between value creation and organizational structure in relationship between the fire department and the safety region, organizational structuring and the business model are addressed in this chapter. As described in the first chapter, the organizational structure is closely related to the governance structure (Grandori, 1997). Therefore, relevant theories about the governance structure are also covered in a separate section. In this chapter, first theories about organizational structure are discussed. Next, the governance structure and value creation are addressed. In the fourth section the strategic positioning is defined. In the final section of this chapter, a theoretical framework that reflects the problem is given.

### 2.1 ORGANIZATIONAL STRUCTURE

The structure of an organization defines how activities such as supervision, coordination and task allocation are directed towards the organizational goals (Pugh, 1971). In other words: it is a plan that outlines who is responsible for what and who reports to whom. There are two main school of thought present in the literature about the structuring of organizations: the structure of organizations as an emergent process and organizational structure as design. The first school describes the structuring of organizations as a continuous changing process due to the ever-changing landscape in which they operate (Truex, Baskerville, & Klein, 2001). According to Mintzberg (1989), who described the organizational structure from design, the organization structure emerges from the interplay of the environmental forces the organization experiences, the structure itself as well the organizations strategy. When these three elements fit together, they combine to create an organization that can perform well. In case these elements don't fit, the organization may experience (severe) problems.

Organization structure knows different configurations. Mintzberg (1979) in his work identifies five organizational structures:

- The professional organization.
- The divisional (diversified) organization.
- The innovative organization ("adhocracy").
- The entrepreneurial organization.
- The machine organization (bureaucracy).

As described in Chapter 1, the organization under investigation can be seen as a divisional organization. In this structure, the organization consists out of several (quasi-)autonomous entities, which are coupled together by a central administrative organization (Mintzberg, 1979). An important characteristic of this structure is that each business division could have its own



strategy. This strategy could be defined without much coordination with the other divisions in the company (Campbell et al., 2014, p.242). The corporate headquarters sets a set of broad guidelines for the strategy of the different business units, making it possible for the business units to develop its own separate strategy for their business unit. Another characteristic of a business unit is that a business unit is a part of an organization that could be treated as a company on its own (Campbell et al., 2014, p.242). This means the business unit is set-up as a self-managing and accountable business.

The divisional structure is a decentralized structure: every division has its own director. These directors report to one general director: the CEO of the organization, which each organization should have (Campbell et al., 2014, p.281). It also implies that the governance structure is closely related to the organizational structure: the governance structure follows the organization structure (Grandori, 1997), as the organizational structure describes who reports to whom (Pugh, 1971). Next to this internal relationship between the organizational and governance structure, the governance structure can also be influenced by other factors. This can be external factors in the form of regulatory relations, such as new laws or governance codes like the code Tabaksblad, or other (internal) factors such as cultural shifts, compliance issues or process and system issues (Deloitte, 2013). It should be noted that these internal and external mechanics of governance are interrelated, „but at present the effects of the internal governance characteristics of the focal firm on its choice of external governance remain relatively unexplored.” (Filatotchev & Nakajima, 2010, p. 603).

It is often seen that an organization with a divisional structure is structured according to the output generated by the products (Hax & Majluf, 1981). This output is also referred to in terms of products delivered or the functions of an organization. Another possibility is to organize the organization according to geographical areas. It is seen that the organization under review in this thesis, the safety region, is responsible for a certain geographic area. On a corporate level, the organization is organized according to functions or products. It is often seen that on a business unit level, the business unit can have a geographical oriented structure.

To specify this method of organizing according to products, it is often seen that the divisions are organized according to brands or brand names, leading to division wise branding (Albarran & Moellinger, 2002). However, this can differ per organization. For example, years ago Philips' brand identity was 'Philips', yet the divisions were each responsible for a product or product line (Kroeze & Keulen, 2013). It therefore depends per organization what the degree of freedom is the different business units' have to determine their branding.

When looking one layer deeper at the organization, the question arises how the spread of information flows across the different business units. It is often found that a division structure comes with problems in the coordination and control of communication (Zannetos, 1965). The bigger the group of employees, the higher the cost of setting up and maintaining communication channels. To prevent the problems described by Zannetos (1965), lateral relationships are needed at different levels of the organization (Galbraith, 1973). For instance, these relationships consist of informal contacts between managers, but also out of permanent coordinating teams or the creation of a liaison role. Therefore, lateral relationships have to be formal to ensure cooperation and coordination between different divisions of the organization, as the possibility to manage on ad hoc relationships is small (Willem & Buelens, 2006).

When staying one layer deeper in the organization at the business unit level, the fire department finds its place. This business unit is, according to the typologies of Mintzberg, organized as an adhocracy (Hessels, 2017a; Mintzberg, 1979). This organizational form is characterized by being flexible, task-oriented, (very) specialistic, a lot of horizontal relationships and a lot of mutual trust and respect. This is also the case in the fire department. The organization is task-oriented, is known for its high flexibility and specialist knowledge and has a lot of horizontal relationships within the different sub-departments. Next to that, there is a high sense of trust and commitment among the organizational members.

The divisional structure has several disadvantages. Its main disadvantage is the tension the structure places at the top team of the organization (Campbell et al., 2014, p. 252). Every decision which is cross-functional rises to the top of the organization. Unless this team performs well, the top of the organization can easily become the bottleneck in the decision-making process. Another disadvantage is that the divisions can act up as silos: all skills are compartmentalized by division. Therefore, it can be difficult to transfer skills or best practices throughout the organization.

Closely related to the divisional structure is the professional structure (Mintzberg, 1979). This organizational structure is characterized by highly specialized employees, specialization of tasks, standardization of skills and a relatively small top- and middle management. It can be noted that this organizational form has several characteristics in common with the safety region (Hessels, 2017a). However, it is seen that the power is still at the management level instead of in the operating core. Next to that, the divisions within the safety regions are organized according to functions. Examples of these functions are public health, firefighting and the dispatching center. Therefore, the divisional structure is more in place for the safety region.

To summarize there are several important – measurable – aspects that determine if an organization has a divisional structure. This are the way an organization is branded (division wise or corporate) (Albarran & Moellinger, 2002; Hax & Majluf, 1981; Kroeze & Keulen, 2013), if it has a CEO at the top of the organization (Campbell et al., 2014, p.281) and if formal lateral relationships are present (Galbraith, 1973). Reflecting back at the research question, it is important to distinguish if the safety regions have the divisional structure that is for their organization.

Combining these aspects leads to the first proposition:

Proposition 1: If a safety region has division wise branding, a CEO and formal lateral relationships, it has a divisional structure.

## **2.2 GOVERNANCE STRUCTURE**

The governance structure, which is also often called the governance framework of an organization, gives insight in the management roles within an organization and describe the structure and delineate of power (Williamson, 1984). One of the key elements in the governance of organizations is the control and monitoring of the management by the board (Provan & Kenis, 2008). Effective control of the organization also means the good use of resources. Gregory & Simms (1999) state that in order to make efficient use of resources, effective corporate governance is needed. This is highly applicable in the case of the safety regions, as these organizations make use of public funding (Hagelstein & Genderen, 2013). If this is done in the right way, effective corporate governance also leads to effective corporate performance (Haniffa & Hudaib, 2006).

Issues in the governance structure arise when there are two elements present (Hart, 1995). First, there must be an agency-setting problem or a conflict of interest between managers or employees within the company. An agency problem is a conflict of interest inherent in any relationship where one party is expected to act in another's best interests. Second, the transaction costs are such that this problem cannot be dealt with through a form of contract or agreement. An example of this is, according to Hart (1995, p.680): „the parties will not write a comprehensive contract. Instead they will write a contract that is incomplete. That is, the contract will have gaps and missing provisions - future actions will be specified only partly and, in some cases, not at all.”

Issues, and therefore conflicts in an organization are not rare. As conflicts are a part of the life of people, they are therefore inevitably part of organizations (Omisore & Abiodun, 2015).

Conflicts within organizations are commonly caused by differences in opinion about governing the organization (Nebgen, 1978). In almost every decision there is cause for conflict, especially if interests differ.

These conflicts can result from personal-cultural factors, as well as organization structure factors (Rahim & Bonoma, 1979). In case of personal-cultural factors, the problems occur from differences in personalities and cultural background within organizations. The conflicts that come from organization structure problems originate from differences in rules, procedure and systems.

Governance structure, and therefore corporate governance, finds its roots in the principal-agent theory. This theory states that there are two persons in situations: one who is having the authority to make decisions (the principal), the other has to take on the jobs assigned (the agent) (Eisenhardt, 1989). This causes inefficiency, because the agent is inclined to take his own interests into account when looking after the interests of the principal. According to the principal-agent theory (Eisenhardt, 1989), the head of a business unit should, in case of a divisional structure, get approval from his superior regarding financial decision. This is in line with Grandori (1997), who states that the centralization of control and decision rights in one single actor has widely been considered as the main cost-efficient coordinating mechanism. This in essence means that there must be agreements about the mandating of decision rights regarding funding. Hart (1995) states that the principal-agent relationship, in combination with a conflict of interest or agenda, is the main cause of governance problems within organizations.

One of the characteristics of the governance structure within a divisional organization is that the divisions are allowed to run their own business, however, the headquarters allocates the financial resources over across the divisions (Mintzberg, 1979, p.389). It is often seen that when there are agreements about the financial allocation present, the corporate organization maintains a higher level of control over the business division, therefore encouraging greater monitoring (Boone, 2003).

As is seen in practice, budgets lead to conflicts within safety regions. In two cases, the fire department caused the safety region to have financial problems (Brabants Dagblad, 2018; De Stentor, 2019). In two other cases, the head of the organization was not able to come to an aligned strategy about the organization, resulting in a conflict (De Gelderlander, 2017; Provinciale Zeeuwse Courant, 2017). It is therefore interesting to see how the headquarters keeps its business divisions in (financial) control. According to theory (Boone, 2003; Eisenhardt, 1989; Mintzberg, 1979), agreements between the head of the corporate

organization and the head of business unit must be in place to ensure that the safety region keeps the fire department in control.

This leads to the following proposition:

Proposition 2: There are agreements between the head of the safety region and the head of the fire department to keep the corporate-business unit relationship 'in control.'

## **2.3 BUSINESS MODELS**

Business models are about the place where value is created within organizations: it is about the logic of profit generation (Morris, Schindehutte, & Allen, 2005). In other words: it is about how value is created by making use of the business opportunities (Amit & Zott, 2001). Next to that, a business model outlines the structure of costs, profit and revenue-stress across the organization (Teece, 2010).

But how is this value captured in a public organization where there is no incentive or (informal) obligation to make profit? Next to that, there is no possibility to access new markets and gain value there, because most of the tasks and responsibilities of a public organization are anchored in a law.

As described in Chapter 1 of this research, the quantification of the (economic) value of the organization in this research is hard. A way of expressing value can be by expressing the value of statistical lives (VOSL) (De Wit, 2019). The VOSL is a way to determine the economic value of life in order to quantify the benefit of avoiding a fatality (Office of Best Practice Regulation, 2014). However, there is no empirical estimate known for the VOSL in the Netherlands which is solid enough to thoroughly determine the value of the fire department. Another way of expressing the value of a fire department can be the saved ratio metric (Saylors, 2015). Where nowadays the performance of the fire department can be measured in terms of tangible loss, Saylors (2015) states that this measurement does short to the unmeasured performance of the fire department. He states that the damages and business losses that could have occurred, but are prevented by the actions of the fire department should be taken into account. However, this method is not in use in the Netherlands. Therefore, output measurement in safety regions and fire departments is near to impossible for this research.

However, Lepak, Smith, & Taylor (2007) state that to capture value at the organizational level, which is also applicable at the level of divisions, the allocation of resources can be used. Therefore, a solution to the lack of output quantification of the value creation of the safety region and fire department is to use the allocation of resources. Therefore, the allocation of

money and personal (FTE's) will be used to represent value creation within the safety region and its departments.

To summarize the above, it is seen that measurement of output is impossible in this research. However, input in the form of allocation of resources can function as a proxy for quantification of the created value (Lepak et al., 2007).

Another aspect to take into consideration is the relationship between the organizational structure and the business model. The business model, so the way value is created in the organization, serves as a plan on which the organization structure can be build (Osterwalder, Pigneur, & Tucci, 2018). Therefore, the organizational structure depends on the business model.

It is therefore interesting to see if the business model, and thus in this case the allocation of resources (people and money), reflect the way the organization is organized. As is stated in paragraph 2.1, the organizational structure consists of multiple divisions with on top a corporate headquarters. The average headquarters takes up 1.86% of the organizations FTE (Collis, Young, & Goold, 2007). Mintzberg (1979) on his turn does not come up with the average size of a business unit. It is therefore hard to state what the (relative) size of a business unit should be. However, as a business unit can be an organization of its own (Campbell et al., 2014, p.242), it is expected to have certain characteristics. A small business should at least have a headcount between 10 and 49 persons or have between €2 million and €43 million on the balance sheet (European Commission, 2015), where a medium business has a headcount between 50 and 250 people or more between €10 and €43 million on the balance sheet. A large business has more than 250 people and €43 million. For a divisional structure, it can be expected that the business units have about an equal size

Combining this, it is interesting to see if the allocation of budget is in line with the way the organization is structured. This leads to the following proposition:

Proposition 3: The divisional structure is in line with the allocation of resources within the safety region.

## **2.4 STRATEGIC POSITIONING**

This master thesis is about the strategic positioning of the fire department within the safety region. But what is strategic positioning?

Strategic positioning can be defined as the way in which a business distinguishes itself from its competitors in such a way that it delivers value to a specific customer segment (Wickham, 2001). In other words: it is about the company's relative position to his competitors in the industry in which it operates.

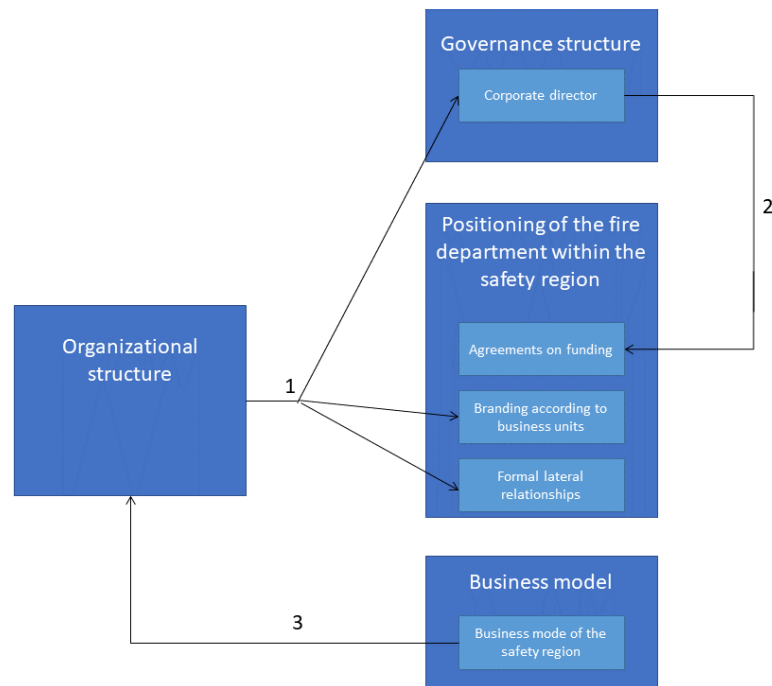
However, the context in which the safety region and fire department operate is different. As they provide emergency services, they do not know any form of competition in the 'market' in which they operate. The context is about their value for the society. As the safety region is by law the organization that is responsible for all forms of incident, crisis and disaster management, it can be stated that the safety region is responsible for the entire 'market.' The fire department, as a business unit, is only responsible for a part of the tasks within this market. Where safety concerns also public health and public order, the fire department is only responsible for the firefighting, fire risk mitigation and assistance at for example traffic accidents.

When looking to the theories of Mintzberg, Ahlstrand, & Lampel (1998), strategic positioning is about the exchange between the internal and external context. It is therefore also concerned with identity of the organization and how this is related with the image others have from the organization.

The external context is, as mentioned above, less relevant for the fire department and the safety region. Therefore, strategic positioning in this thesis is not about the positioning of the safety region within the market. This positioning is only relevant for the fire department as an operating agency, as the fire department is only responsible for a part of the market. Strategic position in this thesis is more in line with the ideas from Mintzberg et al., (1998): how should the organization be positioned with regards to its internal and external context.

## 2.5 CONCEPTUAL MODEL

In this section, the conceptual model is displayed and explained. The model is displayed in Figure 1.



*Figure 1 Conceptual model*

In Figure 1, the different theoretical concepts (organizational model, governance structure, business model) are displayed, as well as the goal variable (positioning of the fire department within the safety region). The different variables per theoretical concept are:

Organizational structure:

- Divisional structure

Governance structure:

- One-headed director

Business model:

- Business model of the safety region

The target variable is the positioning of the fire department. This positioning has been defined earlier in this thesis in chapter 2.4 as the strategic position of the fire department as an operating agency within the safety region. It is therefore about the structural positioning of the fire department. The multiple variables that follow from the theoretical concepts give insight in the strategic positioning:

- Agreements on funding
- Branding according to business units
- Formal lateral relationships



Within the model, the different relationships between the variables can be found. The corresponding propositions are:

- 1: If a safety region has division wise branding, a CEO and formal lateral relationships, it has a divisional structure.
- 2: There are financial agreements between the head of the safety region and the head of the fire department
- 3: The divisional structure is in line with the allocation of resources within the safety region.

### **3 METHODOLOGY**

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In this chapter of the thesis, first the methods used during the research are described. Next, the data sources are described. Afterwards, the data analysis procedure is explained and insight is given in the limitations of the research project and how research ethics will be addressed.

#### **3.1 METHOD**

In this study, a qualitative methodologic approach is chosen, with document analysis as main source of data collection.

The analysis of documents is a systematic procedure for the reviewing of documents of any electronic materials like websites or computer based files (Bowen, 2009). The study will use historical information, for example annual reports, websites and job advertisement for the gathering of information. The choice has been made to use document analysis as main source of information because the documents contain factual/credible information. This results in less room for wrongful interpretation. Next to document analysis, document screening is used to gather numerical data on, for example, information regarding the business model of the safety regions (O'Leary, 2017).

In collaboration with the initiators of this study, the choice has been made not to make use of in-depth interviews or surveys as way of data collection. This is because the agendas of the regional chiefs of the fire department and the directors of the safety regions are fully packed. Therefore, it will be impossible from a practical point, as well as a time point of view to either interview or conduct surveys with all persons involved.

#### **3.2 DATA SOURCES**

The most important data sources are (public) documents from the 25 safety regions under consideration. The safety region is a public organization and must therefore, according to the general administrative law (algemene wet bestuursrecht, TH), make its information public. This includes for example information about the organization structure, financial statements as well as decisions that have been made. Therefore, these documents will be the primary source of data regarding the safety regions.

Secondary sources of data will contain news articles, documents from municipalities involved in the safety region and information available in (scientific) articles or research reports.

In this research, the data points that will be gathered are given in Table 1. They are summarized per proposition. The first two data points are the control question. Also, as some safety region have more departments than statutory necessary (Hagelstein & Genderen, 2013), these departments are also gathered.

*Table 1: Data points*

Proposition	Data point	Measurement
0: Control question	Is there a specific department (corporate holding) safety region?	Yes (1) / No (0)
0:	Number of divisions outside the mandatory divisions (fire department, GHOR, dispatch center)	number, and if >0, name(s)
1	Is there one (1) specific director safety region?	Yes (1) / No (0)
1	If no, out of how many members does the board of the safety region exist?	Number
1	Way of branding	1: Safety region 0: Division wise
1	Are there formal lateral relationships?	Yes (1) / No (0)
2	To wat extend is the director of the safety region allowed to spend?	Number
2	To wat extend is the regional fire chief allowed to spend?	Number
3	Spreading of FTE across safety region / fire department / GHOR / other	Number
3	Spreading of funding across safety region / fire department / GHOR / other	Number

Because of the scope of this research, the dispatching center as well as the municipal crisis management are not taken into account in the collection of the data<sup>1</sup>. In consultation with the initiators of this study, the data regarding the funding and FTE of the “safety region” are about the department which is responsible for the multidisciplinary crisis and disaster management. The costs for “overhead,” like financial services and HR, are not collected as part of the safety region, as these have a supportive role to all departments and can therefore also be placed within divisions, as is the case in some regions (Ruikes, 2018).

<sup>1</sup> Except when the entire municipal crisis management is organized on a regional scale instead of per municipality.

The sample of this study contains 34 documents. This sample contains descriptions of the full population. The sample consists out of:

- 23 annual financial statements from 2017,
- two job offers,
- one social annual report,
- four budget reports,
- one website,
- two annual reports,
- one mandating resolution and
- collective file budgets 2018.

The entire list of documents and which regions have replied to the information request per email can be found in Appendix 1: Sources of documents.

Because the annual reports and financial statements of the most recent year 2018 were not published at the start of the research, the year 2017 is chosen as financial year under review. This also means that this is a cross sectional study about the current state of affairs and does not take time dimension into account.

### **3.3 PROCEDURE**

In this research, the data will be acquired by first searching through the primary sources of data. These are available on the website of the safety regions and fire departments involved. In case this does not lead to the needed information, the earlier mentioned secondary sources of data will be addressed to search for the desired data. For this secondary data, the following search terms will be used: “brandweer,” “regionale brandweer,” “veiligheidsregio,” or a combination of “brandweer” or “veiligheidsregio” and the name of the region, for example, “veiligheidsregio Brabant Noord.” Next to that, “jaarstukken” or “jaarverslag” in combination with the name of the safety region can be used as a search term.

In case the (online) search on the primary and secondary data sources does not lead to the desired information, the researcher will first email the safety region with the request for information. If they do not respond within a week, the researcher will call the safety region to remind them of the information request. When this still does not lead to the data, the researcher will request the data via the initiators of his study. In the worst case scenario, the researcher will request for the information via the Freedom of Information Act (WOB-verzoek, TH).

According to the scheme of O'Leary (2017), after gathering the relevant documents, the raw data will be stored on the hard drive of the researcher. The raw data will be organized per safety region. A back-up of the original raw data will be made on an external drive, making it possible to have annotations in the documents. Before analyzing the raw data, it is important to explore the background of the documents, as well as the documents possible agendas or biases (O'Leary, 2017).

### **3.4 DATA ANALYSIS**

After collecting the data from the various sources, it will be recorded in an Excel document. The data will be checked for completeness, typos and missing values. Next to that, a codebook is made containing a list of codes used in the research. The codebook can be found in Appendix 2: Codebook.

As the sample is known, the choice for the statistical method per proposition can be based on the sample. Qualitative Comparative Analysis (QCA) is chosen as the method for analyzing of the propositions. This method was introduced as a method which creates a bridge between qualitative and quantitative methodology (Pattyn, Gerrits, & Verweij, 2015). It uses elements from quantitative methodologies, but the purpose of these methods has a qualitative purpose: a better understanding of the conditions of a certain outcome of phenomena. QCA is used to gather in-depth insights in the different cases and tries to capture its complexity (Pattyn & Verweij, 2015). Therefore, QCA be seen as a qualitative technique (Pattyn et al., 2015). As this research has a relatively small sample and tries to get a better understanding of the phenomena leading to a certain outcome in the different cases, QCA is highly applicable for this research.

For QCA, a minimum of 10 cases is used as a practical minimum for the method (Simister & Scholz, 2017). If there are less than 10 cases, it should be doubted if it is worth implementing QCA. QCA also cannot cope with missing data. Therefore, missing data will be deleted from the analysis. Outliers will also be deleted. An outlier is a case which has as a score of  $\pm 2.5$  the standard normal score or higher (Hair, Black, Babin, & Anderson, 2010). In practice this means that the missing data or outliers will be deleted listwise, as QCA cannot deal with missing data.

### **3.5 LIMITATIONS**

The main limitation of this research is the availability and completeness of the documents. This leads to a dependency on other parties to have completeness of the data.

Next to that, an important limitation is the size of the data set. Due to the small number of safety region (25), the data available for analyzes is relatively small. This can decrease the robustness of the study.

Another important limitation of this research project is the fact that there is no (good) possibility to conduct interviews or send out surveys, as described in section 3.1. This might have led to a decrease in the data available for this research.

Also, the fact that the political aspects and choices of the different organizational models are left out gives a limiting factor. The choices that lead to the current organizations came from these political aspects and choices: they made the organization as it is now. Local conditions that made the specific regions as they are now are therefore left out of the research

It is also good to keep in mind that the documents were not created with the intention of data research (Bowen, 2009). Therefore, according to Bowen (2009), some investigative skills are needed in order to analyze the data. The data will also not perfectly contain all the information needed.

### **3.6 ETHICS**

The data used in this research is public information regarding public organizations. Therefore, this information will not be anonymized, as this information is already publicly available. However, it should be noted that when there is any form of personal information in the documents or used in this research, this will always be anonymized. This to make sure that the persons will not be traceable in any way (Zimmer, 2010). The raw data from this research are publicly available and can therefore also be requested at the researcher. The dataset created by the researcher will only be available to the supervisors of this study, as well as the initiators.

### **3.7 RELIABILITY AND VALIDITY**

The validity of the study is the extent to which the concepts are accurately measured (Heale & Twycross, 2015). To increase the validity of this study several (informal) “fact-check” interviews are held with experts out of the field of the safety regions and the fire department. In these interviews, the researcher checks if the results coming from the gathered data match with the image these experts have about the safety regions. These interviews are informal, as they are not following a structured questionnaire. With this the researcher aims to prevent a misfit between theory and practice. By conducting these interviews, a form of triangulation takes place: the results from one methodology are checked with another methodology (Jick, 1979). In this case, the study is checked with the help of a qualitative method: interviews. In these interviews, the researcher handed the experts the chapters about the analysis and asked them if the results are correctly interpreted, and if not, a discussion was held in order improve the analysis. By doing this several times, multiple viewpoints are gathered.

The reliability of the study is about the consistency of the measurement (Heale & Twycross, 2015). The sample of this research is available on the internet. When using the search terms as mentioned in section 3.3, others should find the same documents. Next to that, the sample used in this study contains (mostly) public documents. These documents should be available on the website of the corresponding safety region. The data coming from the sample is not subject to change, as it comes from the past. However, it should be noted that the documents are not part of a structured database, meaning that an intensive online search or request via the Information of Freedom Act can be necessary to get a hold of the required documents in case of a repetition of the research. The homogeneity of the sample, the extent to which all items measure one construct, is high. The data required for this research is the same for all 25 safety regions. In all 25 regions, for example, the same monetary value is used. This makes it in the future still possible to conduct a similar form of research in which budgets are compared, as currency fluctuations have no influence on the comparison.

## 4 ANALYSIS

In this chapter the analysis of the data is made. First, a check is done to see if a safety region is present in all the 25 cases. Also, the number of departments outside the mandatory departments are mentioned. Next, per section of the report, an analysis of the available data is made per proposition.

### 4.1 SAFETY REGION AND OTHER DEPARTMENTS

It is first checked if within the 25 districts, a safety region is present. From the dataset it follows that all 25 regions have indeed a safety region (of some form) present. Therefore, all 25 regions are included in this research.

In this research, it was found that a part of the safety regions has more departments than statutory necessary. From Table 2 it is derived that from the 25 safety regions, twelve do not have departments in addition to the mandatory. Ten regions have one extra department and three regions have two departments above the mandatory.

*Table 2: Number of additional departments*

		Frequency	Percent
Valid	0	12	48,0
	1	10	40,0
	2	3	12,0
	Total	25	100,0

The specification of these departments is given in Table 3.

*Table 3: Specification of departments*

Ob: Names of departments	Frequency
Ambulance service	3
Ambulance service and Safetyhome	1
Area Health Authority	2
Area Health Authority and Ambulance service	2
Municipal crisis management	5
Total	13

Table 3 shows that 13 out of the 25 safety regions have more departments than prescribed by law. It is mostly seen that the ambulance service as well as Area Health Authority (Gemeenschappelijke gezondheidsdienst (GGD), TH) are the extra departments. In the other regions, these organizations are independent organizations. For example, in these regions, the Area Health Authority is an independent organization and therefore not part of the safety



region. Next to that, some regions have also organized the municipal crisis management at a regional scale. This fits in the divisional structure as described in section 2.1. As these extra departments are also part of the world of health and safety, these departments fit within safety regions. It is however noteworthy that the extra departments differ per region, meaning that there is on a national level no general consensus what should be part of the safety region and what not. This implies that there is a high variety among safety regions across the Netherlands when it comes to the scope of the field in which the safety regions operate.

## 4.2 PROPOSITION 1

For the first proposition, which stated *“If a safety region has division wise branding, a CEO and formal lateral relationships, it has a divisional structure,”* first the descriptive statistics of the data are presented and discussed. Next, an analysis of the available data is made.

### 4.2.1 Descriptive statistics

For the division wise branding, data is gathered about the way of branding of the safety regions. Most information was gathered at websites. If the different divisions had their own websites or explicit logos, this indicated division wise branding. If the divisions were branded with a safety region logo, this was an indication for corporate branding. Another source of information were job advertisements. In case there is division wise branding, for a job advertisements stated: „you are applying as a firefighter at the fire department.” In case the branding was corporate, a job advertisement stated: you are applying as a firefighter at the safety region.” The results of this analysis are given in Table 4. The data for this hypothesis has been checked by a communication advisor.

*Table 4 Way of branding*

Way of branding		
	Frequency	Percentage
Division Wise	10	40,0%
Corporate	15	60,0%
Total	25	100,0%

For the CEO of the safety region, data was gathered if a specific one-headed director of the safety region is expected to be present. The results are displayed in Table 5.

*Table 5 Presence of a specific director safety region*

<b>Is there a specific director safety region?</b>		
	Frequency	Percent
No	18	72,0
Yes	7	28,0
Total	25	100,0

Where there was expected to have 25 directors solely for the safety region, it is found that there are seven. These other 18 cases are further explained in Table 6.

*Table 6 Specification of "no" in Table 5*

<b>Number if no</b>		
Number of directors	Frequency	Percentage
1	9	50,0%
2	6	33,33%
3	1	5,55%
5	1	5,55%
8	1	5,55%
Total	18	100%

The "1" in Table 6 needs clarification. In these nine cases, the director has multiple roles within the organization and is therefore not a specific director: in seven of the cases, the regional fire chief and the director of the safety region are the same person. In two of the cases, the director of the safety region is also the head of public health (Directeur Publieke Gezondheid, DPG, TH).

In the other nine cases, the direction of the safety region consists out of two or more persons. In case of a two-person managing board, these are for example the regional fire chief and the director of public health. In case of three or more directors, the additional directors can be the coordinating functionary of municipal crisis management, a delegate of the police department or a delegate of the prosecution.

For the formal lateral relationships, the data for this part of the proposition has been gathered with the information from the annual reports. If these reports stated that there were multidisciplinary teams, for example teams that conduct risk mitigation for the fire department and on a multidisciplinary level. The results are given in Table 7.

*Table 7 Formal lateral relationships*

<b>Formal lateral relationships</b>		
	Frequency	Percentage
Not present	17	68,0
Present	8	32,0
Total	25	100,0

For the last part of the proposition, the presence of a divisional structure, it is checked if funding is allocated to the (substantive part of the) corporate headquarters<sup>2</sup>. If funding is allocated, a divisional structure is present. If not, then it is assumed the organization does not have a divisional structure in place. The results of this are given in Table 8.

*Table 8 Divisional structure*

<b>Divisional structure</b>		
	Frequency	Percentage
Present	18	72,0
Not present	3	12,0
Missing	4	16,0
Total	25	100,0

---

<sup>2</sup> As mentioned in paragraph 3.2, the costs for “overhead,” like financial services and HR, are not collected as part of the ‘substantive’ safety region, as these have a supportive role to the ‘substantive’ departments.

#### 4.2.2 Data analysis

First, the corresponding data matrix for the crisp set QCA is set up. Crisp set QCA only uses binary variables, and as can be seen above, all variables have a value of 0 or 1. As QCA cannot deal with missing values, these cases are left out of the analysis. This results in the following data matrix in Table 9.

*Table 9 Data matrix proposition 1*

Region	Formal lateral relationships	Branding	Specific director safety region	Outcome: divisional structure
	1: yes, 0: no	1: Division wise, 0: Corporate	1: yes, 0: no	1: present, 0: not present
R01— Groningen	0	0	1	1
R02— Fryslân	0	0	1	1
R03— Drenthe	0	0	0	0
R04— IJsselland	0	0	0	1
R05— Twente	1	1	0	1
R06— Noord- en Oost-Gelderland	1	0	1	1
R09— Utrecht	1	0	1	1
R10— Noord-Holland-Noord	0	0	0	1
R12— Kennemerland	0	0	0	1
R13— Amsterdam-Amstelland	0	1	0	1
R14— Gooi en Vechtstreek	0	1	0	1
R15— Haaglanden	0	0	0	1
R16— Hollands Midden	0	1	0	1
R17— Rotterdam-Rijnmond	0	0	1	1
R19— Zeeland	0	0	0	0
R20— Midden en West-Brabant	1	0	1	1
R21— Brabant-Noord	0	1	0	0
R22— Brabant-Zuidoost	1	1	0	1
R23— Limburg-Noord	1	0	1	1
R24— Zuid-Limburg	0	1	0	1
R25— Flevoland	0	1	0	1

Using the software of Cronqvist (2019), this data matrix results in the following corresponding truth table:

*Table 10 Truth table*

Formal lateral relationships	Branding	Specific director safety region	Number	Outcome: divisional structure	Region
0	0	0	6	C	R03, R04, R10, R12, R15, R19
0	0	1	3	1	R01, R02, R17
0	1	0	6	C	R13, R14, R16, R21, R24, R25
1	0	1	3	1	R06, R09, R20, R23
1	1	0	2	1	R05, R22

From the analyses it follows that there are two implicants:

*Formal lateral relationships: R05, R06, R09, R20, R22, R23*

*Specific director safety region: R01, R02, R06, R09, R17, R20, R23*

And one outcome:

*Formal lateral relationships + specific director safety region*

From the analyses several things can be derived. At first, it is seen that there are two contradictory outcomes. These contradictory outcomes, characterized by a “C” in the outcome column, can be found in the first and third row of Table 10. A contradictory row means that this configuration produces the outcome in one case, but a non-outcome in another case (Verweij, 2015). In this research this means that there are some regions that either have none of the characteristics, but do allocate budget to the substantial safety region, as well as regions that also have none of the characteristics, and do not allocate budget to the safety region. The same implies for branding: there are several regions which do have division wise branding and allocate budget to the substantial safety region, but also regions who have division wise branding but do not allocate budget to the substantial safety region.

The contradiction does not imply that the outcome of the analysis is false. QCA is a dialogue between cases and theory (Verweij, 2015). Therefore, the contradiction that occurred is a gap between theory and practice, as the contradiction indicates that a region does not have the characteristics as stated in the second chapter of this research, but from the data shows that it has a divisional structure.

Further interpreting the QCA analysis it is seen that formal lateral relationships and a CEO for the safety region are predictors of the divisional structure. This contradicts with the theory from

Hax & Majluf (1981), who state that a division organized structure leads to division wise branding. As is seen in the descriptive statistics of this characteristic, it is seen that 60% of the safety region have corporate branding. A possible explanation of this can be found in the book of Muller (2012). He states the professional within a public organization always wants to further professionalize unless you stop them to do so. This is applicable to the case of the safety regions. As this organization is new, wants to establish itself and wants to survive in the external environment, the safety region therefore wants to establish its own collective identity (Wei Zheng, Qing Qu, & Baiyin Yang, 2009). This search for identity conflicts with the already existing brands of the different divisions like the fire department and GHOR. Therefore, it can be stated that in some cases, the search for corporate identity has led to the finding that safety regions are branded corporate wise to the outside world instead of the expected division wise branding.

Reflecting back at the proposition, *“if a safety region has division wise branding, a CEO and formal lateral relationships, it has a divisional structure,”* it is seen that in none of the regions, all three elements as stated in the proposition are present. Therefore, the proposition can be seen as false. Due to the sheer variety of configurations – most safety regions have only one or none of the predicted characteristics – an alternative proposition could be that *“if a safety region has or division wise branding, a CEO or formal lateral relationships, it has a divisional structure,”* this proposition would be seen as true. However, it can be doubted if having only one characteristic is a robust enough criterium to fulfill the needs of a divisional structure.

### 4.3 PROPOSITION 2

For the second proposition, which stated *there are agreements between the head of the safety region and the head of the fire department to keep the corporate-business unit relationship ‘in control.’*, data is gathered about the mandating limits of the head of the safety region and the regional commander of the fire department. This mandating limit is the amount of funding the official is agreed to decide on within the budget set by the board of majors.

*Table 11 Mandating director safety region*

<b>2b: Mandating Director Safety region</b>		
	Frequency	Percent
100000	1	4,0
1000000	1	4,0
Missing	1	4,0
Not applicable	18	72,0
No limitation	2	8,0
Within budget	2	8,0
Total	25	100,0

*Table 12 Mandating regional chief fire department*

<b>2b: Mandating Regional Chief Fire Department</b>		
	Frequency	Percent
100000	2	8,0
12000	1	4,0
250000	1	4,0
Missing	10	40,0
No limitation	1	4,0
Under-mandated	1	4,0
Until tender ceiling	2	8,0
Within budget	7	30,0
Total	25	100,0

From Table 8 and Table 9 can be derived that from the seven CEO's of the safety region, data of one is missing. 18 cases are not applicable, as these regions, as follows from section 4.2, do not have a specific director of the safety region. From the 25 regional chiefs of the fire department, data of 10 out of 25 is missing. The high amount of missing data is caused by 1) the fact that this information is not available in the sources nor does it pop up in the search for documents and 2) the fact that the corresponding safety regions did not respond to the request for information regarding these agreements. As stated above, there are only seven CEO's of the safety region. Therefore, this group is too small to draw solid conclusions or use QCA, as the minimum number of cases for QCA is advised to be 10 (Simister & Scholz, 2017). However, the differences in mandating between the director and the regional chiefs is interesting to see in these seven cases. These differences are visualized in Figure 2. In the first column of this figure, the different mandating plafonds of the director of the safety region are displayed. In the second column, the corresponding mandating plafonds of the regional chief of the fire department are displayed.

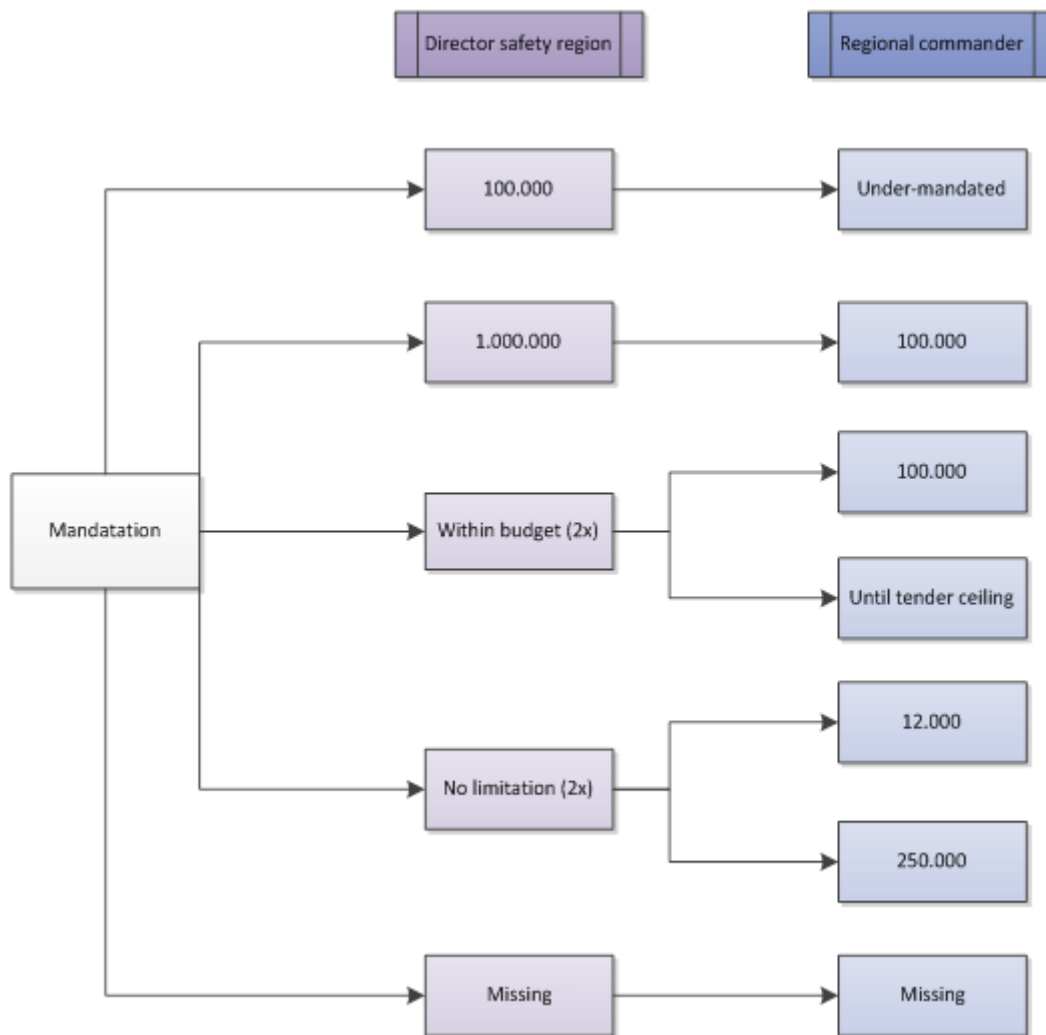


Figure 2 Agreement differences

Noteworthy are the differences between the director of the safety region. The decision authority that they have differs between €100.000 and no limitation<sup>3</sup>. Two other directors are mandated to spend within their budget, and two others are mandated to spend €1.000.000 or €100.000. The regional chief of the fire department is, when there is a specific director of the safety region present, mandated to spend between €12.000 and the ceiling for European tenders. In one case, the regional chief has no budget authority himself, because all his decision authority is under-mandated.

Especially in the case where the regional chief has the authority to spend €12.000, the chance on conflict is high according to the principal-agent theory (Eisenhardt, 1989). In this case, he is for example not mandated to buy a single person-car. The commander therefore has to address to a higher level for relatively small decisions, which can increase the change of

<sup>3</sup> Both respondents noted that, in case of no limitation, the expenses should be in compliance with the law and existing frameworks



conflict due to a conflict of interest (Hart, 1995). This contradicts with the other commanders, who have at least €100.000 to spend and have therefore less change on conflict.

However, from the data, this phenomenon is not to be seen. Only in the case of the safety region Noord-Oost Gelderland, the region experienced a deficit in the budget due to mismanagement (De Stentor, 2019). Within this region, the CEO of the safety region may spend within the budget, where the commander of the fire department is mandated to spend to the level where a tender ceiling is necessary.

Reflecting on the proposition, the data is too small to draw solid conclusions. However, it is seen that in five out of seven cases, the safety director has mandated his decision rights to a lower level. In one of the cases, the decision rights have been mandated even two levels below the director of the safety region. The data also shows that, although there are only seven cases, the variety among them is large, meaning there is no uniformity among them. However, the reason for this was not found in this research, but gives ground for further research.

## 4.4 PROPOSITION 3

For the third proposition, which stated *the divisional structure is in line with the allocation of resources within the safety region*, it is investigated what the relationship is between the organizational structure and the business model. Therefore, it is analyzed if there is a relationship between business model the divisional structure

### 4.4.1 Descriptive statistics

For this proposition, the descriptive statistics are displayed in Table 10. From this it can be derived that there is more information known about the allocation of resources than about the allocation of FTE's. Therefore, it is chosen to use the allocation of resources as indicator for the business model, as this gives more insight.

Table 13 Descriptive statistics (1)

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Spreading of FTE across safety region	20	139,00	2,00	141,00	26,2745	30,76589
Spreading of FTE across fire department	21	568,00	95,00	663,00	288,0238	158,85662
Spreading of FTE across GHOR	14	11,40	6,60	18,00	10,7286	3,23904
Spreading of FTE across other	6	482,10	8,90	491,00	221,4900	188,18831
Spreading of funding across Safety Region	21	7,436	,000	7,436	2,17019	1,984761
Spreading of funding across Fire Department	23	79,380	8,095	87,475	41,66900	20,679331
Spreading of funding across GHOR	19	2,248	,951	3,199	1,64637	,599995
Spreading of funding across Other	15	40,343	,230	40,573	13,57507	14,301935

Between the regions, and especially within the fire department division, a high variety exists among the number of FTE's as well as the spreading of funding. However, the explanation for the variety is logical. The safety regions are organized on a regional level. This means every region has its own, unique characteristics. The city of Amsterdam is for example much more densely populated as the region of Drenthe, which means a higher risk of accidents and therefore increasing the size of the organization. Also, the surface of a region of influence: a

region with a large geographical surface needs more resources than a region with a smaller geographical surface.

The spreading of „FTEs across other” only has 6 cases. Therefore, it is chosen to leave this variable out of the analysis, as this will lead to only 6 usable cases in total, which is too less for a QCA analysis. Therefore, the corresponding “Spreading of funding across other” is also left out of the analysis, as these two are closely related.

#### **4.4.2 Data preparation**

For the divisional structure, the size of the business unit is used to represent the divisional structure. The average of the number of FTE’s of a department is used as the baseline for the size of business unit. The size of the business unit has a relative wide variation. However, the assumption is made that if the size of a department is large (mostly due to geographical factors), this will also lead to more funding.

If size of the business unit is between  $\pm 0.5$  Standard deviation of the average number of FTE, it will be assigned the value 1. If it is between  $-1.5 \leq X \leq -0.5$  or  $0.5 \leq X \leq 1.5$  standard deviation, it will be assigned the value 0.5. If the business unit number of FTE is  $X > 1.5$  or  $X < -1.5$  standard deviation, it will be assigned the value 0. From the three values that follow from this, the average is taken. This results in the value as can be seen in the column “DivisionStructure” in Table 14.

The average of the spreading of funding of a division is used as an indication for the business model. If the business unit funding is between  $\pm 0.5$  Standard deviation of the average funding, it will be assigned the value 1. If it is between  $-1.5 \leq X \leq -0.5$  or  $0.5 \leq X \leq 1.5$  standard deviation, it will be assigned the value 0.5. If the business unit funding is  $X > 1.5$  or  $X < -1.5$  standard deviation, it will be assigned the value 0.

#### **4.4.3 Data analysis**

For the analysis, a fuzzy set QCA will be used. A fuzzy set QCA allows for all values between 0 and 1 (Verweij, 2015). All missing data from Table 14 will be deleted, resulting in the data matrix in Table 14.

For this proposition, the relationship between the divisional structure and the business model is investigated. Therefore, it is chosen to use the business model as the conditions, and the divisional structure as the outcome.

Table 14 Data matrix proposition 3

Regio	FundingSafetyregion	FundingFireDepartment	FundingGHOR	DivisionStructure
R01— Groningen	0.5	1	1	0.5
R04— IJsselland	0.5	1	0.5	0.5
R05— Twente	1	1	1	1
R06— Noord- en Oost- Gelderland	0.5	1	0.5	1
R09— Utrecht	0.5	0	1	0.833
R10— Noord-Holland- Noord	1	0.5	0.5	0.667
R12— Kennemerland	1	1	1	0.833
R13— Amsterdam- Amstelland	1	0	0	0.167
R14— Gooi en Vechtstreek	0.5	0.5	0.5	0
R15— Haaglanden	1	0.5	0.5	0.5
R16— Hollands Midden	0.5	0.5	0.5	0.667
R20— Midden en West- Brabant	0	0.5	0.5	0.167
R21— Brabant-Noord	0.5	1	0.5	0.833
R22— Brabant-Zuidoost	0.5	1	0.5	0.833
R24— Zuid-Limburg	0.5	1	0	0.67

Using the software of Cronqvist (2019), this data matrix results in the following corresponding truth table in Table 15. In the fuzzy set QCA analysis, the logical remainders are left out of the analysis. A fuzzy set threshold of 0.0 is chosen to gather insight in all possible solutions. The Business model is chosen as outcome.

Table 15 Truth table proposition 3

Funding Safetyregion	Funding FireDepartment	Funding GHOR	Divisionstructure	Consistency	Regio
0	1	1	1	1	R20
1	0	0	1	1	R13
1	0	1	1	1	R09
1	1	0	1	1	R24
1	1	1	1	0,909091	R01, R04, R05, R06, R10, R12, R15, R16, R21, R22

Out of the analysis follows two implicants:

*FUNDINGFIREDEPARTMENT*\**FUNDINGGHOR*: 0.917; R01, R04, R05, R06, R10, R12, R14, R15, R16, R20, R21, R22

*FUNDINGSAFETYREGION*: 0.929; R01, R04, R05, R06, R09, R10, R12, R13, R14, R15, R16, R21, R22, R24

And one solution:

	Consistency	Coverage	Unique Cov.
FUNDINGFIREDEPARTMENT*FUNDINGGHOR + FUNDINGSAFETYREGION	0,933333	2,47E-15	
FUNDINGFIREDEPARTMENT*FUNDINGGHOR	0,916667	1,94E-15	1,76E-16
FUNDINGSAFETYREGION	0,928571	2,29E-15	5,29E-16

From the analyses it can be derived that the consistency, which is a reference to the percentage of casual configuration of similar compositions that results in the same outcome value (Roig-Tierno, Gonzalez-Cruz, & Llopis-Martinez, 2017), is high. This means that the configurations as displayed in the solutions above are valid for the number of cases. However, the coverage, which „assesses the empirical relevance of a consistent subset” (Ragin, 2006, p.1) of the effect is very low and can be seen as 0. This means that „the number of cases following a specific path to the outcome divided by the total number of instances of the outcome” (Ragin, 2006, p.9) is low. Therefore, the solution only covers a small proportion of the instances. This means that the outcome is empirically not seen as important.

In can therefore be stated that the business model in case of the safety regions does not act as a blueprint for the organizational structure. Where theory expects that the organizational structure follows the business model (Osterwalder et al., 2018), this seems not to be the case in this research. Therefore, the proposition can be classified as false.

## 4.5 ADDITIONAL ANALYSIS

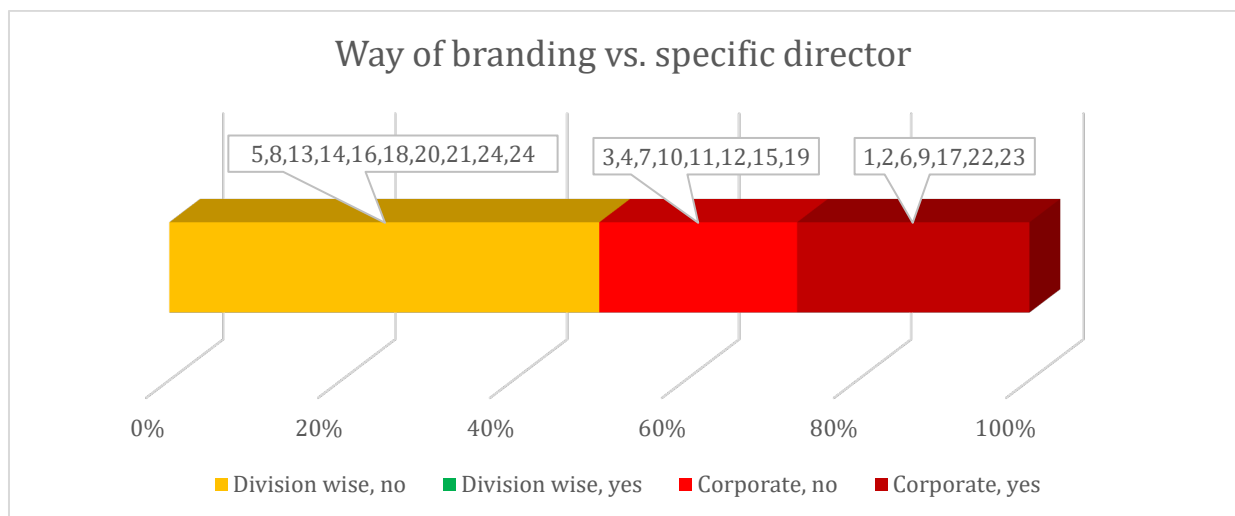
With the data available from this research, an additional analysis can be made. From section 4.2.1 it can be seen that a specific director and division wise branding were not present in all forms. It is therefore interesting to see if a relationship exists between those regions. The results of this analysis are given in Table 16.

*Table 16 Way of branding & Specific director safety region*

<b>1d: Way of branding * 2a: Is there a specific director safety region? Crosstabulation</b>				
		2a: Is there a specific director safety region?		
		No	Yes	Total
1d: Way of branding	Division Wise	10	0	10
	Corporate	8	7	15
Total		18	7	25

From this table it can be derived that in case of division wise branding, a specific director safety region is missing. If the director is present, it is seen in all of the cases the branding is

corporate. It is therefore interesting to see this unexpected relationship, namely, that a specific director of the safety region leads to corporate branding. However, this is in line with the theories from Muller (2012), who states that professionals want to professionalize even further. A specific director for the safety region means that this professional has as core business managing the safety region, in contrast to a regional commander of the fire department who does the directorship of the safety region next to this normal job. This ongoing process of professionalization implies that this director wants to establish the brand identity for his firm, resulting in a strong presence of the safety region in external communication, and therefore corporate branding.



*Figure 3 Way of branding & specific director<sup>4</sup>*

Another interesting aspect to look at is the relative size of the business units in comparison to each other. Therefore, the budgets of the safety region, fire department, GHOR and other departments are cumulated. This creates the budget for the safety region, excluding overhead, the dispatching center and municipal crisis management. Next, the percentage of the division in comparison with the total budget is gathered. From this, the descriptive statistics of this are gathered. These are displayed in Table 17.

<sup>4</sup> The numbers in the figure correspondent with the numbers of the safety regions. The list of the numbers with the corresponding safety region is given in Appendix 3: Safety regions.

Table 17 Relative budgets

Descriptive Statistics					
	N	Minimum*	Maximum*	Mean	Std. Deviation
Safety region	21	,000	11,470	3,41048	2,949102
Fire department	22	44,030	95,300	81,62364	16,792268
GHOR	19	1,800	6,800	3,69474	1,480816
Other	12	1,040	50,940	21,87083	19,697299
Valid N (listwise)	9				

\* = in millions of euro's

The table gives some interesting insights. From the analysis, it is derived that, on average, the fire department has 82% of the budget of the safety region. This GHOR and the (substantive part) of the safety region only take about 3,5% of the budget. On average, the “other” departments take about 21% of the budget. This means that the fire department as a business unit is by far the largest business unit within the safety regions. In some cases, the fire department is even responsible for 95% of the entire budget. This brings up a question: is the divisional structure in place, if 95% of the budget of the safety region goes to one business unit: the fire department. The data is also illustrated in Figure 4.

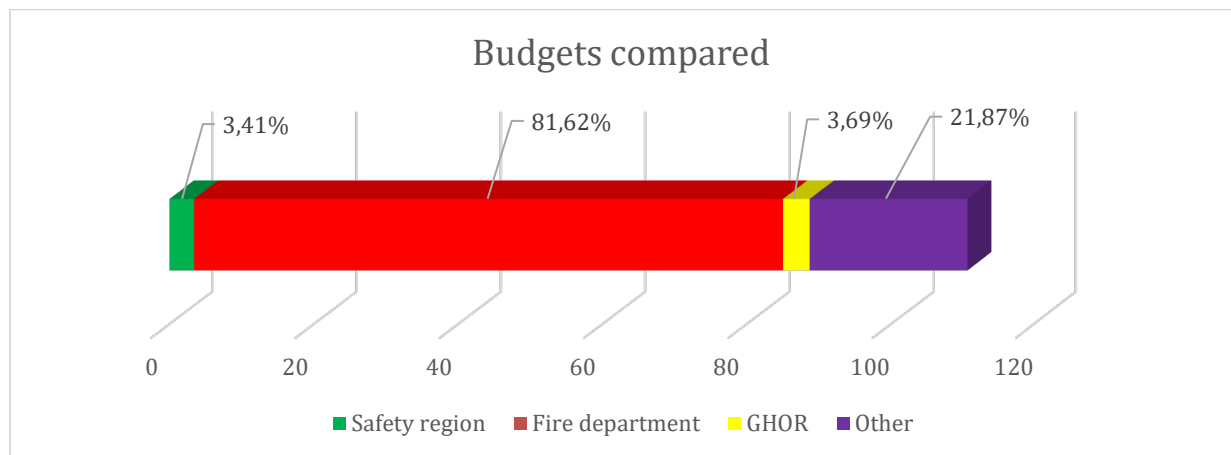


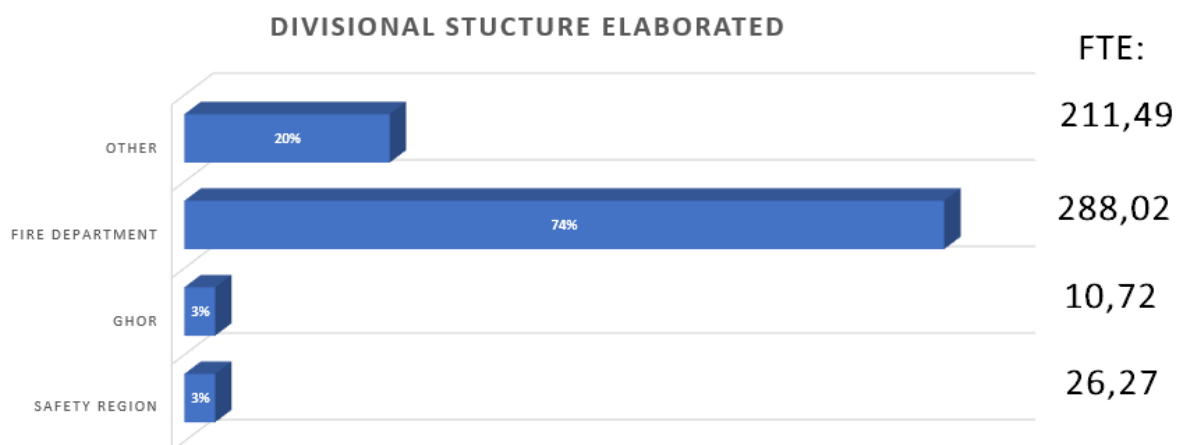
Figure 4 Budgets compared

These data can be reflected to the organizational structure of the safety region. Therefore, the percentages have to be normalized to a total of 100%. This results in the new percentages as displayed in Table 18.

*Table 18 Normalized percentages*

Business part	Within group mean	Normalized mean
Safety region	3,41%	3%
Fire department	81,62%	74%
GHOR	3,69%	3%
Other	21,87%	20%
Sum	110,59%	100%

Next, the mean number of FTE's is gathered from section 4.4. With these data, the organizational structure of the safety regions is plotted in Figure 5.



*Figure 5 Divisional structure elaborated*

In this illustration, the different parts of the organization represent the average size of this unit within the organization. Noteworthy is the size of the fire department in comparison with the other business units, in FTE as well as in budget. It takes almost three quarters of the entire budget of the organization, and in some cases even more.

Reflecting this to the research question, it is interesting to see what this does to the strategic position of the fire department. From the illustration above, it is seen that the fire department has a very dominant position within the organization in terms of funding and number of FTE's. Therefore, it has a dominant presence in the business model. This is however not reflected in the theoretical organizational structure as described in section 2.1, where the fire department is "just" one of the business units. This can result in the fire department being overshadowed by the safety region and other business units. This for example happened in the case of the Veiligheidsregio Gelderland-Zuid (De Gelderlander, 2017).

If this is reflected to the third proposition, does the business model lead to a divisional structure, this data does not support this proposition. The size of the fire department is that large in



comparison with the safety region and the GHOR, that a divisional structure is not in place here. Only when divisions are added, like the ambulance service or the Area Health Authority, a divisional structure becomes relevant, as these “Other” divisions can take up to 50% of the entire budget. In this case, the spreading of funding is more equal across the divisions within the organization, making it relevant to have different business units.

## 5 DISCUSSION & CONCLUSION

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### 5.1 DISCUSSION

This research is the first research to investigate the safety regions from a business administration point of view. Theories from business administration were used to reflect on the practice of the safety regions within The Netherlands. What is found is a gap between these theories and practice. For example, only seven safety regions have a specific director for the safety region, whereas theory states that a divisional organization has a specific CEO (Campbell et al., 2014; Mintzberg, 1979). Also, when looking at the different business units, they are according to theory structured according to their output (Hagelstein & Genderen, 2013). Therefore, it is expected that the branding follows this way of structuring (Albarran & Moellinger, 2002). However, the analysis in this research shows that the branding is not one of the conditions that lead to the divisional structure of the safety regions. It is seen that 60% of the safety regions are branded as corporate organizations. As new organizations want to establish their own identity (Wei Zheng et al., 2009), this can explain the finding that a part of the safety region are branded corporate wise instead of division wise. Reflecting this to the second part of the research question, which is about the strategic positioning of the fire department, this implies that the positioning of the fire department can be buried under by the safety region, where it was expected by theory that the fire department was dominant.

According to Mintzberg (1989), the organization structure emerges from the interplay of the environmental forces the organization experiences, the structure itself as well as the organization strategy. If these three elements (strategy, structure and environment) do not fit together, the organization is more prone to (severe) problems. Within organizational structure, Mintzberg (1979) gives in his theory on organizational structure several characteristics of this structure. As is seen in this research, none of the safety regions uses all of these characteristics. Next to that, as described in the introduction, multiple safety regions experience conflicts (Brabants Dagblad, 2018; De Gelderlander, 2017; De Stentor, 2019; Provinciale Zeeuwse Courant, 2017). Therefore, it can be argued that these conflicts are a result of a lack of fit of the three elements (structure, strategy and environment), in this case the organizational structure. However, this research was not able to show which specific characteristic of the organizational structure was the cause for these conflicts and therefore influence the strategic positioning of the fire department within the safety region.

As can be concluded from the sections above, most of the safety regions do not follow the recommendations the theories state. However, these theories are not cast in stone. They try to give an explanation of the phenomena being observed. Therefore, the gap between theory and practice does not have to be seen as a mismatch. It can also be seen as an enrichment

of the current theories with the practices of an organization in the public sector, broadening the scope of the existing literature. Further research is therefore needed in how strategic management theories can enrich from the practices of (large) public organizations.

Reflecting at the relationship between value creation and the organizational structure, it was expected to find an organizational structure that follows the way value is created within the organization (Osterwalder et al., 2018). However, from the QCA analysis it was found that this relationship was not present in case of the Dutch safety regions. This implies a mismatch between how value is created within the organization and how the organization is structured. This creates a possibility that value is destroyed instead of added within the organization, which means that the role of these within the safety region is possibly harmful.

From the additional analysis it can be concluded that the divisional structure is not in place for the safety region, as, on average, 74% of the substantive funding of the organization goes to the fire department. This means that the fire department as a business unit is dominant within the business model, especially in comparison to the other business units. In some regions, there is less diversification than what should be expected. For example, the GHOR is placed within the Area Health Authority, meaning that these regions have less organizing according to output than is expected. The safety regions therefore show more characteristics of a professional organization than a divisional organization. This structure can decrease the pressure at the top, preventing a bottleneck in decision making at the top-management. It also reduces compartmentalization by division, creating more transfer of skills throughout the organization (Campbell et al., 2014, p. 252).

This research shows (as seen in section 4.2) that the commander of the fire department is in some cases also the director of the safety region. Where this is not in line with the theory outlined in the second chapter of this thesis, it is understandable if taken into account the findings mentioned above. In some regions, the fire department takes up to 95% of the entire budget, meaning that the safety region and the GHOR both count for less than 5% of the budget of the organization. This means that these parts of the organization are smaller than most of the departments within the fire department, resulting in imbalance within the organization. From this it is a logical step to combine both functions in one person: it would be strange to have a director in control over the entire organization, where then one division head then has control of 95% of the budget. As both the CEO of the safety region and the commander of the fire department want to have influence on 95% of the organization's budget, this creates a high (potential) chance on organizational conflict.

An important limitation of these findings is, as described in section 3.5, that the data was not created with the intention of this research (Bowen, 2009). However, because of the nature of the data, this eliminates a bias in data-gathering, as the data was created by third parties.

## **5.2 CONCLUSION**

To conclude this research, the different propositions have been addressed in chapter 4 of this thesis. Referring back to the research question, which stated:

**What is the role of value creation and organizational structure in context of the Dutch safety regions and what influence does this have on the strategic positioning of the fire department?**

It can be concluded that the role of value creation and organizational structure in context of the Dutch safety regions deviates from what is expected within strategic management theories. From theories on business models and organizational structure, such as Lepak et al. (2007), Mintzberg (1979) and Osterwalder et al. (2018), it is found that the safety region has most characteristics in common with a divisional organization. However, in practice it is found that there is a great variety among the different regions, and that the divisional structure is in some cases not the best structure for the regions. This is especially in cases where the fire department can take up to 95% of the budget of the region. In these regions, the fire department has a very strong presence within the business model. Where according to Osterwalder et al., (2018) the organizational structure follows the business model, this research states that this relationship is not to be seen within the safety region.

This also has its influence on the strategic position of the fire department. In some of the safety regions, the fire department can take up to 95% of the substantive budget of the organization. In these cases, the fire department can be overshadowed by the safety region, because the safety region is formally leading, but only forms a (very) small part of the organization. This gives a potential cause for conflict.

## **5.3 IMPLICATIONS**

This study is the most recent study that takes into account the perspective of strategic management in regard to way the Dutch safety regions are organized. This research therefore sheds a new perspective on these safety regions. Through the use of this new perspective, it helps safety regions to reflect (critically) on the way they are organized and how their business

is structured. For example, they should ask themselves the question: is a professional organization more in place than a divisional structure?

This thesis also gives insight in the different organizational forms of the safety regions within the Netherlands. It also displays the sheer degrees of freedom that exist in interpreting the law, in this case the Act Safety regions. Where there is only one statute, it is found that there are great differences in the way it is organized in practice. This finding is relevant for the current evaluation of the Act Safety Regions.

This study contributes to the existing literature by giving insight in how theories from the field of business administration reflect to a governmental organization. It is seen that there is a gap between the theory and practice when it comes to way the safety regions are organized. This gap is, as far as the researcher knows, not addressed in literature and can therefore be interesting to look at in further research. It can therefore also be seen as an enrichment of the theories that exist nowadays.

## **5.4 RECOMMENDATIONS**

This research is the most recent study in the way safety regions are organized from a strategic management perspective and therefore can be used as a starting point for further research. For example, further research is needed into the interpretation of the Act Safety regions. In other words, why did one statute lead to so many different interpretations? Also, further research is needed in the optimal organizational form of the safety regions. As there are so many ways it is organized now, best practices have to be gathered in order to work more efficiently and uniformly.

From a Strategic Management point of view a recommendation that follows from this study is to come, on a national scale, to a shared view on the Act Safety regions. This study shows that, while there is only one Act Safety regions, the variety of organizational configurations is high. With one uniform and single interpretation, safety regions can be structured in a similar way, making for example comparison between organizations easier. It also increases the possibility to share best practices across the different regions, as these are then organized in the same way.

Another recommendation is two-fold. As this research shows, the fire department plays a major role in the business model of safety regions, creating a form of discrepancy within the business model through its dominance. However, the safety region was created with the intention of having an organization responsible for the coordination between emergency services. It is therefore be recommended to reflect on the idea of the multidisciplinary organization that the

safety region is ought to be. To do right to the idea of a multidisciplinary organization which is accountable for the safety within the region, the safety region should be responsible for the fire department, police and ambulance service. In the extreme, these organizations can even be centralized within the safety region. In this way, an organization is formed where the corporate part of the organization, the safety region, is responsible for all activities when it comes to safety. Next to that, this organization will have three strong monodisciplinary divisions which are responsible for their own part in the field of emergency management. It can even be argued to also add the Area Health Authority as a fourth division, to have all organizations regarding safety in one corporation

It can also be argued the other way around. In 13 out of 25 regions, the fire department takes up more than 90% of the budget. In these organizations, it can be doubted if the current way these safety regions are organized does right to the situation. While the safety region is formally leading in these situations, more than 90% of the budget goes to one division. As the business model acts as a blueprint for the organizational structure (Osterwalder et al., 2018), it can be recommended to make the fire department the leading organization in these situations. The content wise part of the safety region and the GHOR can be placed as a separate department within the fire department. This can be for example as a department specialized in “crisis and disaster management.” In this way the position of the fire department does right to the dominant position the fire department has in the business model in these regions. Therefore, in these regions, a professional organization can be more in place (Mintzberg, 1979)

Recommendations on a smaller scale are the implementation of formal lateral relationships within safety regions. In this way, the coordination across the different divisions is guaranteed. Next to that, it is also advised to introduce divisions wise branding to the safety regions that have corporate branding, as the organization is also organized according to the output. Also, it is recommended to conduct further research to the differences in financial agreements between the CEO of the safety region and the regional commander of the fire department.

## **5.5 LIMITATIONS**

As mentioned earlier in section 3.5, an important limitation of this study was the availability of the data. For one proposition, the dataset was too small to thoroughly answer the proposition with QCA. Alternatives could be the use of in-depth interviews, however, that was not possible through the practical limits of this study.

This research also does not take into account the (political) choices that have been made when implementing the Act Safety regions back in 2013. These choices lead to the organizations as

they are now. As these design parameters are not taken into account, a possibly explanation of the gap between theory and practice has been left out.

As this study describes the current state of the safety regions, the factor of time has been left out of this research. This means that the development of the different safety regions over time, is not taken into account in this study.

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# APPENDIX 1: SOURCES OF DOCUMENTS

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## General:

*Collective file budget 2018, version 19 november 2018 (Verzamelbestand begroting 2018, versie 19 november 2018)*

## 1 – Groningen

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: [https://issuu.com/vrgroningen/docs/jaarstukken\\_2017\\_issuu](https://issuu.com/vrgroningen/docs/jaarstukken_2017_issuu)

Date accessed: 15-04-2019

*Job offer policy advisor crisis management (Vacature beleidsadviseur Crisisbeheersing)*

Source:

[https://www.veiligheidsregiogroningen.nl/over\\_ons/vacatures/20181123\\_vacature\\_beleidsadviseur\\_crisisbeheersing](https://www.veiligheidsregiogroningen.nl/over_ons/vacatures/20181123_vacature_beleidsadviseur_crisisbeheersing)

Date accessed: 15-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

## 2 – Fryslân

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: <https://vrf-prod-cdn-end.azureedge.net/media/2900/jaarrekening-2017.pdf?rnd=131759467020000000>

Date accessed: 16-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

## 3 – Drenthe

*Annual report 2017 (Jaarverslag 2017)*

Source: <https://www.vrd-jaarverslag-2017.com/>

Date accessed: 16-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

#### **4 – IJsselland**

*Annual financial statement 2017 (Jaarrekening 2017)*

Source: <https://ris.dalfsen.nl/Ingekomen-stukken/Ingekomen-stuk/afgehandeld-ter-afdoening-in-handen-van-het-college-stellen/Brf-Veilighedsregio-IJsselland-Jaarverslag-en-Jaarrekening-2017-10-april-2018-zaaknr-575522-20180416.pdf>

Date accessed: 16-04-2019

*Annual report 2017 (Jaarverslag 2017)*

Source: <https://www.vrijsselland.nl/wp-content/uploads/2018/02/00-Jaarverslag-Veilighedsregio-IJsselland-2017.pdf>

Date accessed: 16-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

#### **5 – Twente**

*Annual financial statement 2017 (Jaarrekening 2017)*

Source: <https://www.vrtwente.nl/media/351348/vastgestelde-jaarrekening-vrt-2017-incl-controleverklaring.pdf>

Date accessed: 16-04-2019

*Mandation resolution 2016 (Mandaatbesluit 2016)*

Source: <https://www.vrtwente.nl/media/1186/mandaatbesluit-vrt-2016.pdf>

Date accessed: 16-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

#### **6 – Noord- en Oost Gelderland**

*Annual financial statement 2017 (Jaarrekening 2017)*

Source: [https://www.vnog.nl/images/Bestuur/AB\\_28\\_juni\\_2018/7.\\_Jaarstukken\\_2017.pdf](https://www.vnog.nl/images/Bestuur/AB_28_juni_2018/7._Jaarstukken_2017.pdf)

Date accessed: 17-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

## **7 – Gelderland-Midden**

*Annual report 2017 (Jaarverslag 2017)*

Source:

[https://www.vggm.nl/ufc/file2/hgm\\_internet\\_sites/unknown/a4128f81a0c81d7ad28593e2f47f2b8a/pu/2017\\_Jaarverslag.pdf](https://www.vggm.nl/ufc/file2/hgm_internet_sites/unknown/a4128f81a0c81d7ad28593e2f47f2b8a/pu/2017_Jaarverslag.pdf)

Date accessed: 17-04-2019

*Budget report 2019 (Begroting 2019)*

Source:

[https://www.vggm.nl/ufc/file2/hgm\\_internet\\_sites/unknown/b4cae3392f080b25a2df6ee8f57aeb17/pu/2019\\_Begroting.pdf](https://www.vggm.nl/ufc/file2/hgm_internet_sites/unknown/b4cae3392f080b25a2df6ee8f57aeb17/pu/2019_Begroting.pdf)

Date accessed: 17-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

## **8 – Gelderland-Zuid**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: <https://online.ibabs.eu/ibabsapi/publicdownload.aspx?site=Nijmegen&id=bfcc0d3e-46c3-45ed-9729-11a895206622>

Date accessed: 17-04-2019

*Reaction to the mail request for information:*

This region was not willing to cooperate.

## **9 – Utrecht**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: [https://vru.nl/images/Documenten\\_standaard/Besluiten\\_en\\_publicaties/Jaarstukken-2017.pdf](https://vru.nl/images/Documenten_standaard/Besluiten_en_publicaties/Jaarstukken-2017.pdf)

Date accessed: 17-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.



## **10 – Noord-Holland-Noord**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: <https://regiowestfriesland.nl/sites/default/files/2018-06/5b%20Jaarstukken%202017.pdf>

Date accessed: 17-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

## **11 – Zaanstreek-Waterland**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source:

[https://www.veiligheidsregiozaanstreekwaterland.nl/fileadmin/user\\_upload/Jaarstukken\\_VrZW\\_2017\\_vastgesteld.pdf](https://www.veiligheidsregiozaanstreekwaterland.nl/fileadmin/user_upload/Jaarstukken_VrZW_2017_vastgesteld.pdf)

Date accessed: 18-04-2019

*Budget report 2019 (Begroting 2019)*

Source:

[https://www.veiligheidsregiozaanstreekwaterland.nl/fileadmin/user\\_upload/Begroting\\_VrZW\\_2019\\_vastgesteld.pdf](https://www.veiligheidsregiozaanstreekwaterland.nl/fileadmin/user_upload/Begroting_VrZW_2019_vastgesteld.pdf)

Date accessed: 18-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

## **12 – Kennemerland**

*Annual financial statement 2017 (Jaarverslag 2017)*

Source: <https://www.vrk.nl/-/media/Veiligheidsregio/Bestuur/Jaarverslagen/Jaarverslag-2017-vastgesteld-9-juli-2018.ashx?la=nl-NL>

Date accessed: 18-04-2019

*Annual social statement 2017 (Sociaal jaarverslag 2017)*

Source: [https://www.vrk.nl/-/media/Veilighedsregio/Bestuur/Jaarverslagen/VRK\\_Sociaal\\_Jaarverslag\\_DEFINITIEF.ashx?la=nl-NL](https://www.vrk.nl/-/media/Veilighedsregio/Bestuur/Jaarverslagen/VRK_Sociaal_Jaarverslag_DEFINITIEF.ashx?la=nl-NL)

Date accessed: 18-04-2019

*Job offer advisor public health (Vacature adviseur Publieke Gezondheid)*

Source: <https://www.werkenbijdevrk.nl/Home/PrintVacancy?vacancyId=2190>

Date accessed: 18-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information

### **13 – Amsterdam-Amstelland**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: [https://assets.amsterdam.nl/publish/pages/848767/jaarstukken\\_vraa\\_2017.pdf](https://assets.amsterdam.nl/publish/pages/848767/jaarstukken_vraa_2017.pdf)

Date accessed: 18-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

### **14 – Gooi & Vechtstreek**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source:

[https://bestuur.gooisemereren.nl/fileadmin/user\\_upload/wind\\_meetings/765996\\_5. Ontwerp\\_Jaarstukken\\_2017\\_tbv\\_raden.pdf](https://bestuur.gooisemereren.nl/fileadmin/user_upload/wind_meetings/765996_5._Ontwerp_Jaarstukken_2017_tbv_raden.pdf)

Date accessed: 18-04-2019

*Reaction to the mail request for information:*

This region was not willing to cooperate.

### **15 – Haaglanden**

*Annual financial statement 2017 (Financieel jaarbericht 2017)*

Source: <https://www.vrh.nl/sites/default/files/2019-03/Financieel%20jaarbericht%202017.pdf>

Date accessed: 18-04-2019

*Reaction to the mail request for information:*

This region was not willing to cooperate.

## **16 – Hollands-Midden**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source:

[https://www.vrhm.nl/publish/pages/39615/b\\_1\\_jaarstukken\\_vrhm\\_2017.pdf#PagCls\\_232508](https://www.vrhm.nl/publish/pages/39615/b_1_jaarstukken_vrhm_2017.pdf#PagCls_232508)

Date accessed: 19-04-2019

*Budget report GHOR 2019 (Begroting GHOR 2019)*

Source: <https://www.ghorhm.nl/wp-content/uploads/2018/09/Ontwerpbegroting-2019-GHOR-en-IZB.pdf>

Date accessed: 19-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

## **17 – Rotterdam-Rijnmond**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: <https://raad.ridderkerk.nl/documenten/Mededelingen/VRR-2017-Jaarverslag-2017-vastgesteld.pdf>

Date accessed: 19-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information

## **18 – Zuid-Holland-Zuid**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source:

[https://www.papendrecht.nl/pdrecht/up1/ZawmfvwJuB\\_Jaarstukken\\_VRZH\\_Z 2017.pdf](https://www.papendrecht.nl/pdrecht/up1/ZawmfvwJuB_Jaarstukken_VRZH_Z 2017.pdf)

Date accessed: 20-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information

## **19 – Zeeland**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: [https://www.veiligheidsregiozeeland.nl/sites/veiligheidsregiozeeland/files/2019-04/180710\\_jaarstukken\\_vrz\\_2017\\_def.pdf](https://www.veiligheidsregiozeeland.nl/sites/veiligheidsregiozeeland/files/2019-04/180710_jaarstukken_vrz_2017_def.pdf)

Date accessed: 20-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

**20 – Midden- en West-Brabant**

*Annual financial statement 2017 (Jaarrekening 2017)*

Source: <https://www.vrmwb.nl/Organisatie/Regelingen>

Date accessed: 20-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

**21 – Brabant-Noord**

*Annual financial statement 2017 (Jaarrekening 2017)*

Source: [https://www.vrbn.nl/publish/pages/24264/2018\\_07\\_04\\_-\\_vastgestelde\\_jaarverantwoording\\_2017\\_vrbn.pdf](https://www.vrbn.nl/publish/pages/24264/2018_07_04_-_vastgestelde_jaarverantwoording_2017_vrbn.pdf)

Date accessed: 23-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

**22 – Brabant-Zuid-Oost**

*Annual financial statement 2017 (Jaarrekening 2017)*

Source: <https://www.vrbzo.nl/wp-content/uploads/2018/05/Jaarrekening-2017-VRBZO.pdf>

Date accessed: 23-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

**22 – Limburg-Noord**

*Annual financial statement 2017 (Jaarverantwoording 2017)*

Source: <https://www.vrln.nl/file/562/download>

Date accessed: 23-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

### **23 – Zuid-Limburg**

*Annual financial statement 2017 (Jaarstukken 2017)*

Source: <http://www.maastrichtbeleid.nl/beleidsinformatie/Raadsvergadering/2018/05/29/42-3018%20Veiligheidsregio%20Zuid-Limburg/Raadsvoorstel%2042-2018%20-%20Veiligheidsregio%20Zuid-Limburg%20%20%20-%20Bijlage%204%20-%20jaardocument%202017%20VRZL>

Date accessed: 23-04-2019

*Reaction to the mail request for information:*

This region was willing to give the necessary information.

### **25 – Flevoland**

*Budget report 2019 (Begroting 2019)*

Source: [https://secure.dronten.nl/gemeenteraad/agenda-gemeenteraad\\_42929/agenda/gemeenteraad\\_16410/bijlage-4-ontwerp-programmabegroting-2019-en-meerjarenraming-2020-2022-vrfpdf\\_937176.pdf](https://secure.dronten.nl/gemeenteraad/agenda-gemeenteraad_42929/agenda/gemeenteraad_16410/bijlage-4-ontwerp-programmabegroting-2019-en-meerjarenraming-2020-2022-vrfpdf_937176.pdf)

Date accessed: 23-04-2019

*Reaction to the mail request for information:*

This region did not respond to the request.

## APPENDIX 2: CODEBOOK

Variable	Position	Label	Measurement Level	Missing Values
Regio	1	<none>	Nominal	
SafetyRegion	2	1a: Safety region	Nominal	
OutsideMandatory	3	1b: Number of departments outside mandatory	Scale	
Names	4	1b: Names of departments	Nominal	
Lateralrelationships	5	1c: Formal lateral relationships	Nominal	
Branding	6	1d: Way of branding	Nominal	
FTEsafetyregion	7	1e: Spreading of FTE accros safety region	Scale	
FTEfiredept	8	1e: Spreading of FTE accros fire department	Scale	
FTEGHOR	9	1e: Spreading of FTE accros GHOR	Scale	
FTEother	10	1e: Spreading of FTE accros other	Scale	
Director	11	2a: Is there a specific director safety region?	Nominal	
Numberifnot	12	2a: Number if no	Scale	
MandatationRegCom	13	2b: Mandatation Regional Chief Fire Department	Nominal	
MandatationDirector	14	2b: Mandatation Director Safety region	Nominal	
FundingSR	15	3a: Spreading of funding accros Safety Region	Scale	99999,000
Fundingfiredept	16	3a: Spreading of funding accros Fire Department	Scale	,000
FundingGHOR	17	3a: Spreading of funding accros GHOR	Scale	,000
FundingOther	18	3a: Spreading of funding accros Other	Scale	,000

## APPENDIX 3: SAFETY REGIONS

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R01— Groningen
R02— Fryslân
R03— Drenthe
R04— IJsselland
R05— Twente
R06— Noord- en Oost-Gelderland
R07— Gelderland Midden
R08— Gelderland-Zuid
R09— Utrecht
R10— Noord-Holland-Noord
R11— Zaanstreek-Waterland
R12— Kennemerland
R13— Amsterdam-Amstelland
R14— Gooi en Vechtstreek
R15— Haaglanden
R16— Hollands Midden
R17— Rotterdam-Rijnmond
R18— Zuid-Holland-Zuid
R19— Zeeland
R20— Midden en West-Brabant
R21— Brabant-Noord
R22— Brabant-Zuidoost
R23— Limburg-Noord
R24— Zuid-Limburg
R25— Flevoland

## APPENDIX 4: LIST OF TABLES AND FIGURES

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