More Reforms, Less Innovation?
The Impact of Reform Fatigue on Innovation-Oriented Cultures in the Public Sector

WORK IN PROGRESS

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\textbf{Abstract:} In the last decades, a reform fever has affected public sector organizations worldwide. Public sector organizations were subjected to a wide range of structural reforms happening in rapid succession. While the main purpose of these reforms was to make the public sector more adaptive and innovative, this paper advances that the rapid succession of structural reforms causes reform fatigue which may lead to the exact opposite. Reform programs thus may defeat their own purposes. Research has however largely neglected the impact of such sequential, repeated and often-conflicting structural reforms on public sector organizations. Therefore, this article explores the relation between an organizations history of reforms and the degree to which the culture within these organizations is innovation-oriented. Results indicate that reform fatigue does exist and that too many reforms negatively affect an innovation-oriented culture.

\textbf{Keywords:} organizational culture, reform fatigue, innovation

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1. Introduction

In response to economic pressures and increasing demands on public sector performance, subsequent waves of public sector reforms were introduced over the last decades. Politicians and public managers moved to develop comprehensive reform programs to modernize their government structures, supported by reform rhetoric that emphasized the positive effects reorganizations would have. One of the objectives of these reform programs was to make public organizations more innovative and adaptable in the face of changing demands in their environments (see e.g. Bumgarner & Newswander, 2012; Christensen & Lægreid, 2011; Denhardt & Denhardt, 2000). However, as wave after wave of reforms were implemented to create lean and adaptable organizations, critics began to question whether reform programs had actually achieved their intended results (e.g. Pollitt, 2009). A growing body of literature emerged indicating that the expectations put forward by reform rhetoric have often been overestimated, and that transforming cultures to be more innovative and adaptable has been more difficult than anticipated (Lapsley, 2009; Pollitt, 2007; McMurray, 2010; De Vries, 2013). Despite the increasing amount of evidence that public sector reform programs have missed their objectives, similar reforms keep being imposed on public sector organizations and policy-makers remain strongly convinced that such initiatives will result in organizational cultures that promote innovativeness and efficiency.

While varying reasons have been put forward to explain the absence of the desired outcomes of reform programs, one important element seems to be the difficulty that policy-makers and managers have in adjusting pre-reform organizational culture to match the post-reform structure of public organizations. Culture is to a large extent ingrained in the organization and its members through long-term socializing, attrition of personnel with differing values and the selection of new members which have beliefs and behavior that do fit the organization’s culture (Quirke, 1995). This means that even if a reformer changes the
structure of the organization, parts of the pre-reform culture that do not emphasize aspects such as innovation and flexibility may persist until long after the reform (see e.g. Arnaboldi & Lapsley, 2008).

A second reason why reform programs may have missed their intended goals is that the frequent waves of reforms that have hit the public sector have subjected organizations to a continuous change in organizational structure, management styles, work-methods, politics-agency relationships and citizen-agency relationships. As this unceasing and sometimes contradictory change is imposed on public sector organizations, the shared perceptions and social ties necessary for a coherent organizational culture are constantly disrupted (De Vries, 2013). No stable identity and goal will be developed and different – in some cases incompatible – cultures and identities will emerge.

The combination of unstable culture and disrupted internal cohesion caused by repeated reforms leads to a state of ‘reform fatigue’. Instead of the organizational culture being transformed to reflect innovation and change as values, the exact opposite may occur. The continuous disruptions resulting from imposed reforms may spur tendencies towards centralized decision-making, as senior management attempts to avert the threatening situation and maintain legitimacy with internal and external stakeholders (Staw, Sandelands & Dutton, 1981; Dutton, 1986). As employees are faced with uncertain futures and as their social ties and established work-patterns have been disrupted, their willingness and capability to act independently is reduced. Thus, through reform fatigue the organizational setting may become unconducive to innovative behavior, and reforms intended to promote discretion may paradoxically promote hierarchical modes of command and control.

As organizational culture can be seen as an important element of reform programs, it is surprising that there is only a limited empirical understanding of culture (Sinclair 1991) in the public sector. After all, one may wonder what such abundant, sequential and repeated reforms
imply for public sector organizations, a topic which has received scarce scholarly attention (De Vries 2013). The goal of this article is therefore to empirically examine the effect of an organization’s history of reforms, as an indicator for reform fatigue, on the innovation-oriented culture of public sector organizations. A better understanding of organizational culture in the public sector, and more in particular an understanding of the effect of reform fatigue on organizational culture, will contribute to assessing the appropriateness and outcomes of a reform process (Parker and Bradley 2000, Gouldner 1594, Wilson 1989).

This article examines, for 45 Flemish public sector organizations, the effect of an organizations reform history on the innovation-oriented culture within these organizations. The selected organizations cover a broad array of legal forms, tasks and policy fields, allowing us to study the effects of reforms on innovation throughout the entire Flemish public sector. This broad selection also provides us with the ability to control for the spurious effect of various organizational characteristics. Purely private-law based entities in the hands of the Flemish government were excluded from our selection, as the mechanism underlying reform stress in the public sector may not be generalizable to such hybrid organizations.

The remainder of the paper is organized as follows. The next section discusses the importance of culture and the effect of an organizations reform history in more detail. The used data is discussed in section 3. Section 4 presents an in-depth analyses of the examined relationship, and section 5 concludes.

2. The importance of organizational culture and the link with an organizations history of reforms

Management literature on innovation argues that organizations in changing and turbulent environments require an organizational culture that stimulates innovativeness, flexibility and change (Damanpour, 1991; Dorabjee, Lumley & Cartwright, 2003). In the private sector,
innovation allows companies to pre-empt rivals and changing environments in order to remain competitive (e.g. Damanpour, 1991). While the pressure of competition is often absent in the public sector, environmental factors such as rapid technological change, economic fluctuations, globalization and social change nonetheless confront public organizations with changing and tumultuous sets of demands that require organizational adaptation (Parry & Proctor-Thomson, 2002). Thus, developing cultures that stimulate innovation and flexibility is important to adapt services and processes to the organizational environment and to sustain or increase performance (Damanpour, 1991). It is therefore unsurprising that the NPM and post-NPM reforms of the past decades have both attempted to increase the extent to which an organization is innovative, flexible and adaptable (Bumgarner & Newswander, 2012; Christensen & Lægreid, 2011; Denhardt & Denhardt, 2000). While NPM reforms stressed organizational autonomy to allow organizations to develop customer-oriented policy in a flexible manner, post-NPM reforms stressed policy innovation through more horizontal mechanisms, such as network governance, horizontal coordination and integration, participatory governance and public-private partnerships (Lægrid, Roness & Verhoest, 2011; Christensen & Lægreid, 2011).

The question is, however, to what extent such – often politically imposed – reform programs can stimulate the development of innovation-oriented cultures in organizations that have already developed strong tendencies towards other culture types. Culture is considered a relatively stable factor in organizations, which is difficult to mold through rational change initiatives. Indeed, Quirke (1995) argues that culture can sometimes impede perspective changes, noting that “the force of the culture is for the status quo, culture is the means by which we bring stability to the threat of change”. However, while culture is difficult to steer in a desired direction through top-down change initiatives, this is not to say that culture remains static after its initial development. Instead, organizational cultures are dynamic in the long-term, gradually undergoing change as external and internal factors emerge to shape it.
Following Schein (2000), we have therefore opted to define culture as follows: “Culture is a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.” This interpretation of culture implies that external reforms hold the potential to influence culture in desired directions to some extent (see e.g. Wynen & Verhoest, 2015), but that they may also have unintended consequences when the impact of reforms is filtered through the internal perceptions of the organization’s leadership and employees. Frequent and severe reforms of the organization’s structure may be perceived as threatening, paradoxically stimulating the gradual development of a culture leaning towards risk-averseness and rigidity instead of flexibility and innovation.

To understand why large amounts of reforms implemented in quick succession can be detrimental to the development of an innovation-oriented culture, the response of organizations to the challenges that reforms pose must first be examined. The threat-rigidity effect explored by Staw, Sandelands & Dutton (1981) provides a useful starting point. On the organizational and group levels, Staw, Sandelands & Dutton (1981) argue that as threatening situations demand urgent action and threaten the legitimacy of organizational leadership, there will be a tendency to reserve decision-making to a small set of central leaders. Moreover, these leaders will opt to introduce more central steering, in order to prevent lacking coordination and mistakes on the decentral level that would further threaten the organization (see also Mishra, 1996). Dutton (1986) tested the centralization link in the context of an organizational crisis and found that crisis issues were indeed related to increased monitoring and control initiated by top-level management, and that lower-level echelons were excluded from decision-making by excluding them from communication on the issue. Thus, in the face of threatening, uncertain
and hostile environments, organizations will most likely show a reflex towards greater centralization.

Public management literature provides strong indications that successive reforms constitute situations that could cause the threat-rigidity effect. It has been argued that public managers faced with implementing successive reforms are forced to cope with continuously changing external demands from political superiors through new sets of performance indicators and performance contracts (Pollitt, 2007; McMurray, 2004). In addition to these new output requirements, the political superior itself may change due to a reform, forcing managers to rebuild social ties and trust with the new principal of the organization and to reaffirm that they lead the organization effectively (Pollitt, 2007; De Vries, 2013). These external demands are moreover accompanied by internal demands for management to lead the organization through the reform as well as possible. Public managers tasked with the implementation of successive reforms are therefore confronted with multiple legitimacy crises, which will lead to cognitive perceptions of threat on part of the managers. We therefore expect that management will operate in line with the predictions made by Staw, Sandelands & Dutton (1981), and will attempt to improve internal coordination by focusing on the proliferation and improvement of control mechanisms and uniform work-methods, as well as draw decision-making power towards themselves to make the urgent decisions they perceive as necessary to maintain legitimacy.

On the individual level, Staw, Sandelands & Dutton (1981) argue that employees will have to cope with stress and anxiety during a threatening situation, causing them to fall back on established work patterns and avoid deviant behavior. This argument finds support in both psychological and management literature on the effects of reforms. The continuous surge of structural changes imposed on the organization has been observed to sever social ties, disrupt manager-employee relationships, destroy valued elements of organizational identity and place employees in unfamiliar settings and positions (e.g. Palma, Pina e Cunha & Pereira Lopes,
2010; Pollitt, 2007; McMurray, 2010; De Vries, 2013). In addition to these social and organizational disruptions, employees are repeatedly faced with the direct threat of layoffs, changes in tasks and rank and reductions in benefits (e.g. Amiot et al., 2005; Nelson & Cooper, 1995). Their focus will therefore be on surviving the variety of reforms imposed as well as possible. In this context deviant behavior will form a risky strategy, as negative appraisals of behavior may potentially have far-reaching effects on the interests of the employee during a reshuffling of the organization. Therefore, in the context of continuous organizational upheaval, we expect that a bottom-up process of risk-aversion will reinforce the centralization process, aiding in the generation of a more control and command oriented culture, which emphasizes rule compliance over discretionary action.

As the organization gradually moves towards (or maintains) a culture of hierarchical control and compliance due to its increasing reform fatigue, its subsections become less well-suited for discretionary action. It is exactly this potential for discretionary action, however, which has been shown to be vital in stimulating innovation and bottom-up change in organizations. Helpful in this regard is the concept of the ambidextrous organization (Damanpour, 1991; Tushman & O’Reilly III, 1996; O’Reilly III & Tushman, 2004; T O’Reilly III & Tushman, 2011). In their investigation of 35 organizations that maintained viable structures to stimulate the innovation of new breakthroughs, O’Reilly III & Tushman (2004) for instance noted that successful organizations often established an independent unit with its own structures and work-processes, subject only to senior management. The independent unit could focus on the development of new products or processes and would not be bothered by the forces valuing inertia and old work-methods in other sections of the organization. The ambidextrous organization therefore implies the existence of several cultures in the organization, one associated with existing work-processes and one that is allowed to develop independently. Moreover, they argue that senior management must be particularly sensitive to
the differing needs of the various parts of the organization – they have to be ‘consistently inconsistent’ (O’Reilly III & Tushman, 2004, p.4). Similarly, Damanpour (1991) notes that although centralized structures may be more effective in implementing changes, he also states organizations that possess low degrees of centralization and formalization are better equipped to initiate the development of innovations.

While literature on the effect of reforms on centralization and – in turn – public sector innovation does not yet exist to our knowledge, some contributions do hint at a similar link between centralization and decentralization and the extent to which an organization is equipped to initiate innovations. Wynen et al. (2014) for instance conclude that in public agencies, innovation oriented culture is related to the extent to which senior management receives managerial and financial autonomy from its superior. This allows them to be more flexible with personnel and budgets, and thus initiate differentiation in the organization. Aiken, Bacharach & French (1980) observe that in public organizations with tall hierarchies, proposals for innovation will more likely be centralized at the middle-management level, in order to address coordination problems stemming from organization’s multilevel nature. In lower echelons, higher degrees of boundary spanning activities, influence within the organization and external contacts were found to be predictors of proposals for innovations. They suggest that external contacts in particular can be utilized by employees as a power base in the relationship with superiors (Aiken, Bacharach & French, 1980). This is consistent with our argument of the relevance of discretion and empowerment of decentralized personnel to facilitating an innovation-oriented cultures.

Based on the above, we therefore expect that frequent reforms imposed on public sector organizations will generate reform fatigue, which causes the organization to reflexively centralize in face of the ongoing threat. As the organization focuses more on control, coordination and uniformity, the degree of innovation-oriented values present in its
organizational culture will gradually be reduced. Thus, we expect that an extensive history of reforms, which are often *inter alia* intended to produce flexibility and innovation, will paradoxically result in reduced levels of innovation-oriented cultures. The remainder of this paper will be devoted to empirically testing our expectations.

3. **Data source, variables and descriptive statistics**

In order to empirically test the relationship between reform fatigue and an organization's innovation-oriented culture, we make use of 2 different data sources. An indicator for the reforms organizations experienced is constructed with the help of the Belgian State Administration Database (BSAD) while data on innovation-oriented culture is provided by the COBRA-network (“Comparative Public Organization Data Base for Research and Analysis”)

The BSAD captures all politically imposed structural reforms Flemish organizations experienced during their lifetime. The database includes three general types of such reforms: starting events (referring to the creation of the organization), maintenance events (reforms occurring between the creation and ending of an organization) and ending events (referring to the death of an organization). As we are interested in the effects of reforms on the culture of existing organizations, only maintenance events are taken into account. Structural reforms leading to the creation or ending of public organizations are thus not included in our analysis. The following maintenance events, categorized according to their expected impact on the organization, are available:

- **Major impact** on the organization – level 3 reforms:
  - Restructuring the organization by absorption of (parts or tasks from) another organization

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2For more information, see: [http://soc.kuleuven.be/io/cost/index.html](http://soc.kuleuven.be/io/cost/index.html)
- Restructuring the organization by secession of parts or tasks of the organization (which are shifted to other organizations)

**Mild impact** on the organization – level 2 reforms:
- Restructuring the organization by changing its legal status
- Restructuring the organization by imposed internal reorganizations (different from those listed above)
- Restructuring the organization by the attribution of new tasks, not existing before in the public sector

**Minor impact** on the organization – level 1 reforms:
- Restructuring the organization by shifting organizations to another ministerial portfolio (sub-ordinance to another ministry)
- Change of name

The complete list of structural events (starting, maintenance and ending events) included in the BSAD can be consulted in appendix.

Data on organizational culture comes from the COBRA-network which developed a common questionnaire in order to survey senior managers of public sector organizations in particular, (semi)-autonomous agencies located directly beneath ministries and ministers. The top level management (Chief Executive Officers (CEOs)) of these organizations was asked to fill in a web-based questionnaire containing several types of questions (i.e. perceptions of autonomy and control, innovative activity, management and organizational culture). Although the COBRA data originally included 15 different countries, we only use the Flemish data since these can be combined with the BSAD. The combination of both datasets gives us, for 45 Flemish public sector organizations, an overview of the reform trajectory per organization as well as information on the organizational culture. This allows us to empirically test the relationship between an organization’s reform history and the degree to which the organization
has an innovation-oriented culture. The main characteristics of these 45 organizations are included in table 1.

Please include Table 1 here

Figure 1 provides an overview of the amount of organizations that have accumulated a given amount restructuring events. It illustrates that, although the number of organization on which no reforms have been imposed is reasonably high at 16, the number of reformed organizations is far greater at 29. Additionally, it is interesting to note that many of the organizations in our sample have encountered multiple reforms in their histories.

Please include Figure 1 here

Figure 2 gives an example of the reform trajectory of the Flemish public sector organization Vlaamse Dienst voor Arbeidsbemiddeling (VDAB), or Flemish Service for Employment Mediation. The figure shows how in 1989 the organization is transferred to the Flemish level after a transfer of competences from the national level, which we regard as its founding moment. Subsequently, the VDAB undergoes reforms in 2006 and 2009.

Please include Figure 2 here

The changes in 2006 were imposed in the context of the Flemish whole-of-government reform program dubbed “Beter Bestuurlijk Beleid” (Better Administrative Policy), which introduced specialization and a separation of policy execution and policy development according to the NPM model. In the context of these reforms, VDAB seceded units to the newly
formed Flemish Subsidy Agency for Work and Social Economy (VSWSE) and Department of Work and Social Economy (DWSE), while receiving a section from the simultaneously reformed Flemish Fund for the Social Integration of Persons with a Handicap (VFSIPH). Moreover, as Beter Bestuurlijk Beleid introduced a new typology of (semi)independent agencies, the legal form of VDAB was modernized from a so-called institution of public use category B to its new analogue, an external autonomous agency under public law. In 2009 the VDAB subsequently absorbed a section of the personnel of the VSWSE, before absorbing the personnel and tasks of the abolished Redeployment Fund a month later. Due to there being a time difference between the legal imposition of the two absorptions we regard these as separate events. Thus, two clusters of change events can be distinguished, which together add up to four major changes (with a weight of 3) and one mild change (weight of 2). This makes the VDAB an organization that – in the spectrum of our sample – possesses a moderately extensive reform history.

Unfortunately, we cannot use panel-econometric methods and thus have to apply cross-sectional regressions. These methods however do not allow saying much about the direction of causality. Reforms are, generally, aimed at increasing efficiency and intuitively will thus be targeted to those organizations that are doing the worst. Specific organizational cultures (e.g. organizations that are too bureaucratic) can hence provoke reforms. Yet one has to keep in mind that, regardless of this drive for increased efficiency, reforms are also strongly politicized. Hence some organizations are, due to politics, more often the target of reforms, even if these are doing well. Moreover, and as discussed above, organizational cultures will also be the result of reforms. As such, examining the relationship between organizational history and an innovation-oriented culture this way makes sense.

3.1. Innovation-oriented culture
A measurement instrument for organizational culture as developed and tested by Tepeci (2001) was used in the survey. Following Tepeci’s clustering of culture-items (2001), the following set of items is used to construct the dependent variable on an innovation-oriented culture:

- Innovation,
- Risk taking,
- Willingness to experiment, &
- Creativity.

Each organization was asked to indicate on a scale of 0-6 how distinctive each of these items was for their organization as a whole. These scores have been aggregated and the sum has been divided by 24, resulting in a value between 0 and 1. This index has been found to be reliable (Cronbach's Alpha is 0.8425). This was also confirmed by an explanatory factor analysis\(^3\), whereby all four items load on the same factor.

As discussed by Wynen & Verhoest (2014), there is a high likelihood that this kind of measurement of culture is biased. Organizations may report to have an innovation-oriented culture, but this doesn’t mean that they also exhibit innovative behavior. Hence we will conduct a similar robustness check as the one proposed by Wynen & Verhoest (2014). Hereby we will correct the original index with an index capturing the actual use of ‘new’ and ‘innovative’ management techniques. This index is constructed based on the following items:

- Use of quality standards for production and/or services,
- Use of quality management systems such as; ISO, CAF, EFQM, etc.,
- Use of customer/user surveys; use of service points for users, &
- Use of customer/user panels.

\(^3\) A polychoric correlation matrix was employed in order to take the categorical nature of the items into account.
For each of these management techniques the agency CEO was asked to which degree these were implemented and used in their organization (scale from 0-4). These items were aggregated and divided by 16, leading to a value between 0 and 1. This index was found to be reliable (Cronbach’s Alpha of 0.79). Moreover, all items load on the same factor when running an explanatory factor analysis\(^4\).

As a robustness check, a ‘corrected’ index was created by comparing the original index with the index on the use of these innovative management techniques. In case of a divergence between the two indexes, penalties were given. If the index on the use of innovative management techniques has a value which is between 0.1 and 0.2 points lower compared to the original index on innovation-oriented culture, the latter was reduced with 0.1. If the difference was between 0.2 and 0.3, the innovation-oriented culture index was reduced by 0.2. This was only done in one way; if organizations reported to have a higher score for innovation-oriented culture than the actual score on the use of innovative management techniques. This kind of robustness check thus corrects for an overestimation of the value for innovation-oriented culture. A complete list of penalties per difference between the indexes is provided in Table 2.

Please include Table 2 here

3.2. An organizations history of reforms

Based on information from the BSAD, it was possible to construct for each organization an indicator for its history of reforms. This history could be reconstructed starting from the founding date of each organization until the survey year of the COBRA data (2013). In order to increase the robustness of our analyses, three different coding schemes will be tested.

*The first coding scheme* captures an organizations history of reforms as follows:

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\(^4\) Again using a polychoric correlation matrix to take the categorical nature of the items into account.
Year of reform event refers to the date when the event took place and 2013 refers to the survey year of the COBRA data. Organizational history is taken into account until that year. The impact of each reform event dependents on the date when it occurred. The further away in time, the lower its impact factor. It is important to note that we included a squared term in order to account for the fact that the effect of reform is expected to decrease in a nonlinear way. Each reform the organization encountered is as such given an impact factor, these impact factors have been aggregated per organization. This in turn led, for each organization, to a value for its history of reforms.

The second coding scheme, is coded based on the above formula but it also accounts for the history of other organizations. This is achieved by relating the organizations history of reforms to the average history which is calculated across all organizations. It is captured by the following formula:

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coding\ two = \frac{\text{organizational history of reforms (coding one)}}{\text{mean (organizational history of reforms (coding one))}}
\]  

Finally, the third coding scheme includes the strength of an event, further increasing the detail of the indicator. It is completely similar to coding two, yet a small change is made to the calculation of organizational history of reforms (coding one). More precisely, the numerator in formula (1) is replaced by a subjective measure of the strength of the event. This subjective measure corresponds to the three levels of reforms distinguished earlier. More accurately: in case of a major reform the numerator has been changed to 3, by 2 if the event is expected to
have a mild effect on the organization and the numerator stays the same if the effect of the event is expected to be minor.

In short, the three different coding schemes offer varying levels of detail on an organization’s history. Coding one takes, for each organization, the number of reform events into account as well as a time effect of each different reform event (the further away, the smaller the effect). Coding two accounts for the number of reform events an organization experienced, a time effect for each reform event and the history of other public organizations. Finally, coding three offers the most detailed representation of an organization’s history of reforms. It captures the number of reform events an organization experienced, for each different reform event the time effect and the strength are included and it relates an organization’s history to that of other public organizations. These three different coding schemes are tested separately in the regressions in order to examine the robustness of our findings. A significant negative impact for one of these indicators would imply that too many reforms have negative effects, thereby confirming the existence of reform fatigue.

3.3. Control variables

Furthermore, we control for some other factors which are based on previous studies, believed to influence organizational culture (e.g. Verhoest et al. 2010, Laegreid et al. 2011, Wynen et al. 2013). Our dataset allows controlling for the following factors:

1) A dummy Type is included in order to examine the effects of agency type. Type is coded 0 if the organization is a department, and 1 if the organization is one of the various types of arms-length and independent agencies in the Flemish system. According to literature (Bouckaert and van Dooren 2003; Bach and Jann 2010) organizations closer to government
are less in direct contact with citizens and are more politicized, which is typically seen as hampering an innovation-oriented culture.

2) Task related factors are also taken into account by the inclusion of a dummy (Services). The dummy equals 1 if the agency’s primary task includes general public services or business and industrial services. It equals 0 for primary tasks related to regulation, exercising public authority and policy formulation. Agencies having service delivery as primary task have been found to have a greater focus on customers since they interact most with citizens and private organizations as customers (Borins 1998; Vigoda-Gadot 2009; Laegreid et al. 2011). This in turn is expected to have a positive effect on an innovation-oriented culture.

3) Size (Size (FTE)) measured in FTE is included as a continuous variable. Following Hull & Hage (1982), Borins (2001) and Damanpour (1989, 1991) size can have an effect on organizational culture.

4) Age (Age) measured as 2013- founding date is included as a continuous variable. The development of a distinct culture and tradition within an organization takes some time (Laegreid et al. 2011). As such age can be linked to organizational culture (Hauknes 2005; Krause 2003).

Because the distributions of Size and Age are highly skewed, we use the logarithms, that is; ln(Size) and ln(Age) in our models.

Please include Table 3 here

Table 3 shows summary statistics for the main variables, while in Table 4 the correlation matrix is presented. Not surprisingly there appears to be a strong correlation between task and type of public sector organization. Consequently, we also test for multicollinearity using the variance inflation factor. The mean VIF equals 1.29 whereby, as expected, the highest VIFs
exist for Task (1.50) and Type (1.40). These values indicate that no collinearity exists between the variables.

Please include Table 4 here

4. Analysis and results

Standard micro econometric techniques are employed for the multivariate analysis. More precisely, standard Ordinary Least Squares (OLS) is utilized. Admittedly, Tobit models are the preferred estimations, as they account for the fact that our dependent is bounded between 0 and 1. However, these estimations rely on the restrictive assumption of normality and are sensitive to small sample bias (Long 1997). OLS does not take into account that our dependent is limited to 1 but does not rely on the normality assumption and is less sensitive to small sample bias. We therefore opted to only present the OLS results. However, the Tobit results led to similar results (same sign and significance levels) and are available upon request from the authors.

The OLS results are presented in Table 5. In the first three columns, the effect of the three different coding schemes of organizational history is examined on the original index of an innovation-oriented culture. While in the last column the most detailed coding scheme, taking the number of reforms, the strength and time effect of a reform event, and history of other organizations into account, is tested on the ‘corrected’ index on an innovation-oriented culture (Robustness Check). All models have been tested for heteroscedasticity, revealing no significant methodological issues.

Please include Table 5

When examining the different models on the original index of an innovation-oriented culture, we notice that history is negative and significant in each model. All three coding
schemes help in explaining the degree to which our 45 organization have an innovation-oriented culture. It does however appear that the size of the effect of history differs substantially between the different coding schemes (difference between [1] & [2] equals $\chi^2(1)=29.98^{***}$; difference between [1] & [3] equals $\chi^2(1)=28.56^{***}$ and the difference between [2] & [3] matches $\chi^2(1)=4.87^{**}$). The first and less detailed coding scheme leads to the highest coefficient. When making the measure more precise, by comparing an organization’s history to the average history and by taking the strength of reform events into account, the effect of an organizational history on innovation-oriented culture decreases substantially. In short, the more refined the history measure, the smaller its effect on culture. Yet, no matter how one codes organizational history, its effect on an innovation-oriented culture remains negative and significant. Consequently, organizations with a more turbulent history of reforms are less likely to develop an innovation-oriented culture. This finding does seem to support the existence of reform fatigue; more reforms will not lead to more innovation and a higher efficiency, on the contrary it will cause the exact opposite. A possible explanation could be that too many reforms in too short time lead to more centralized structures within the organization, which in turn hampers the innovation-oriented culture within these organizations.

None of the other explanatory variables (Task, Age, Size and Type) have a significant effect on innovation-oriented culture. For age this is in line with the results reported by Lægrid, Roness & Verhoest (2011). However, they do report a significant effect of service-delivery oriented task on the degree of innovation-oriented culture.

Yet as discussed, the original index of an innovation-oriented culture is likely to be biased. What organizations say they do, does not necessarily reflect in their behaviour. Hence we have constructed a more robust measure whereby we compare the original index with an index on the use of innovative management techniques. The regression results of the most detailed measure of organizational history on this ‘corrected’ index of an innovation-oriented culture is
presented in the last column of Table 5. Results however stay the same; too many reforms lead to a lower degree of an innovation-oriented culture. While older organizations are more likely to develop an innovation-oriented culture. In short, it does appear that our initial results on the original index of an innovation-oriented culture are robust.

5. Conclusions & Discussion

In this paper we have proposed that reform histories may adversely affect the degree of innovation-oriented culture in public organizations. We have argued that the reform fatigue caused by the successive reforms imposed on public sector organizations may result in organizations reflexively centralizing to cope with the threatening situation (Staw, Sandelands & Dutton, 1981). In turn, such a centralized and rigid structure was argued to be unconducive to the innovative culture of the organization, as uniformity, control and coordination are emphasized above autonomy and discretionary action (Damanpour, 1991; Tushman & O’Reilly III, 1996). The results presented in the previous section provide support for these arguments. Utilizing data on the reforms imposed on Flemish public organizations as well as self-report surveys on innovative culture and usage of innovative management techniques, three regression models were developed. These models indicate that reform histories significantly impact the degree to which organizations possess an innovation-oriented culture. Organizations with larger amounts of reforms in their past were shown to possess a relatively lower score on our items of innovative culture (corrected by scores for usage of innovative management techniques).

These results corroborate the arguments made by the burgeoning literature on the side-effects of extensive and repeated reform programs following doctrines such as NPM and post-NPM (Pollitt, 2007; De Vries, 2013; McMurray, 2010). It seems that stronger reform histories are indeed capable of generating a state of reform fatigue, in which the successive reforms result in potentially unintended consequences for public organizations. Furthermore, the results
presented here also seem to provide indirect support for older theories on the threat-rigidity effect (Staw, Sandelands & Dutton, 1981) and the crisis-centralization thesis (Dutton, 1986). While centralization and rigidity were not directly tested with our data, earlier work positing these variables as potentially being caused by threats such as reform fatigue and potentially resulting in less innovative organizational cultures make them likely candidates for the causal mechanism underlying the relationships found in the course of our study. Although this paper is thus only a first exploration of the effects that successive reforms may have on organizational culture in the public sector, our results nevertheless hold some important implications. In particular, the paper suggests that unintended side-effects and an organization’s history should be important considerations for policy-makers and politicians to take into account when deciding upon the implementation of a reform.

However, the research was also limited by several factors, which warrant some caution when interpreting our results. While we possessed a representative sample of organizations in the Flemish public sector, the N of the sample was unfortunately relatively low. Furthermore, the cross-sectional data on our dependent variables imply that some uncertainty still exists on the causal direction of the relationships found. It is not entirely ruled out that organizations that perform poorly on innovation are reformed more often, or that a dual causation exists whereby both a low degree innovation-oriented culture and a high amount of reforms explain one another. Finally, while the research indirectly supports the presence of a centralizing reflex in heavily reformed organizations, no data on that factor was available for our analyses.

Further research is thus needed to confirm and complement the analyses presented here. Research that also incorporates longitudinal data is particularly necessary. In addition to data on the variables of innovation-oriented culture and reform fatigue, such a longitudinal study could utilize data on the degree of centralization, control, coordination, information-processing and openness. This longitudinal methodology would first allow for an identification of the
causal direction of the relationship found in our paper. Second, this set-up would allow a better
test of our proposed intermediate link in the causal chain between reform histories and culture –
the threat-rigidity effect. As government reforms are frequently being imposed on public
organizations, such research into the detrimental, unintended and unexpected effects that these
reforms can cause is more necessary than ever.

6. References

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### 7. Tables & Figures

**Table 1 Descriptive information on the 45 sampled organizations**

<table>
<thead>
<tr>
<th>Department</th>
<th>N</th>
<th>Average age (in years)</th>
<th>Average size (in FTE’s)</th>
<th>Task (by percentage of organizations having service delivery as their primary task)</th>
</tr>
</thead>
<tbody>
<tr>
<td>External autonomous agency with public legal personality</td>
<td>8</td>
<td>6.875</td>
<td>205.210</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>23.417</td>
<td>662.455</td>
<td>33</td>
</tr>
<tr>
<td>Internal autonomous agency with legal personality</td>
<td>19</td>
<td>24.000</td>
<td>515.3918</td>
<td>50</td>
</tr>
<tr>
<td>Internal autonomous agency without legal personality</td>
<td>6</td>
<td>8.895</td>
<td>328.678</td>
<td>63,158</td>
</tr>
</tbody>
</table>
Table 2 Construction robustness check innovation-oriented culture

<table>
<thead>
<tr>
<th>Difference between the index on an innovation-oriented culture and the index on the use of innovative management techniques equals:</th>
<th>Penalty (the initial index of an innovation-oriented culture is reduced by:)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>0.9</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 3 Descriptive statistics (N=45)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>History (coding one)</td>
<td>For each organization an impact of history is calculated. This is done as follows: each event is given an impact factor based on the following formula: (1/(2013-date event))^2. Per organization the sum of these impact factors is taken, leading for each organization to History (coding one).</td>
<td>0.13</td>
<td>0.36</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>History (coding two)</td>
<td>This coding is similar to coding one, expect that over organizations the average is calculated of History (coding one). History (coding one) is divided by this average. In other words this coding takes, for each organization, the history of other organizations into account.</td>
<td>1.13</td>
<td>2.98</td>
<td>0</td>
<td>16.24</td>
</tr>
<tr>
<td>History (coding three)</td>
<td>This coding is similar to coding two, expect that in the formula described in coding one, the strength of an event is taken into account: (Strength event/(2013-date event))^2. All else is equal to coding two of history. This coding thus takes the strength of events into account as well as the history of other organizations.</td>
<td>1.15</td>
<td>3.19</td>
<td>0</td>
<td>18.17</td>
</tr>
<tr>
<td>Innovation-oriented culture (original)</td>
<td>Index based on the following items: innovation, risk taking, willingness to experiment and creativity</td>
<td>.67</td>
<td>.13</td>
<td>.42</td>
<td>.92</td>
</tr>
<tr>
<td>Innovation-oriented culture (robustness check)</td>
<td>The original index which is corrected for the use of the following innovative management techniques: use of quality standards for production and/or services; use of quality management systems such as; ISO, CAF, EFQM,…; use of customer/user surveys; use of service points for users; use of customer/user panels.</td>
<td>.61</td>
<td>.14</td>
<td>.38</td>
<td>.89</td>
</tr>
<tr>
<td>Age (log)</td>
<td>2013- birthdate (log)</td>
<td>2.47</td>
<td>.70</td>
<td>.69</td>
<td>3.50</td>
</tr>
<tr>
<td>Type</td>
<td>Type (0= Department/1=otherwise)</td>
<td>.82</td>
<td>.38</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Size (log)</td>
<td>Size (number of FTE) (log)</td>
<td>5.45</td>
<td>1.10</td>
<td>2.90</td>
<td>8.28</td>
</tr>
<tr>
<td>Task</td>
<td>Service delivery</td>
<td>.51</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
### Table 4 Correlation matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>History (coding three)</td>
<td>1</td>
<td>-0.317**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation-oriented culture (original index)</td>
<td>-0.0938</td>
<td>0.168</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.0847</td>
<td>0.00621</td>
<td>0.365**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>0.0168</td>
<td>-0.0480</td>
<td>0.244</td>
<td>0.0835</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-0.206</td>
<td>0.0309</td>
<td>0.253**</td>
<td>0.475***</td>
<td>0.299**</td>
<td>1</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01
### Table 5 Regression (OLS) results for the impact of history on an innovation-oriented culture

<table>
<thead>
<tr>
<th>Variables</th>
<th>Original index</th>
<th>Original index</th>
<th>Original index</th>
<th>Robustness check</th>
</tr>
</thead>
<tbody>
<tr>
<td>History (coding one) [1]</td>
<td>-0.130**</td>
<td></td>
<td></td>
<td>-0.0139**</td>
</tr>
<tr>
<td></td>
<td>(0.0567)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History (coding two) [2]</td>
<td></td>
<td>-0.0160**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.00698)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History (coding three) [3]</td>
<td></td>
<td></td>
<td>-0.0131*</td>
<td>-0.0139**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.00649)</td>
<td>(0.00671)</td>
</tr>
<tr>
<td>Age (log)</td>
<td>0.0334</td>
<td>0.0334*</td>
<td>0.0365*</td>
<td>0.0410</td>
</tr>
<tr>
<td></td>
<td>(0.0315)</td>
<td>(0.0315)</td>
<td>(0.0318)</td>
<td>(0.0329)</td>
</tr>
<tr>
<td>Type</td>
<td>-0.0158</td>
<td>-0.0158</td>
<td>-0.0249</td>
<td>-0.00494</td>
</tr>
<tr>
<td></td>
<td>(0.0619)</td>
<td>(0.0619)</td>
<td>(0.06025)</td>
<td>(0.0646)</td>
</tr>
<tr>
<td>Size (log)</td>
<td>-0.0097</td>
<td>-0.0097</td>
<td>-0.00926</td>
<td>0.0138</td>
</tr>
<tr>
<td></td>
<td>(0.0194)</td>
<td>(0.0194)</td>
<td>(0.0197)</td>
<td>(0.0203)</td>
</tr>
<tr>
<td>Task</td>
<td>-0.0157</td>
<td>-0.0157</td>
<td>-0.00650</td>
<td>-0.0105</td>
</tr>
<tr>
<td></td>
<td>(0.0486)</td>
<td>(0.0486)</td>
<td>(0.0485)</td>
<td>(0.04502)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.682***</td>
<td>0.682***</td>
<td>0.671***</td>
<td>0.463***</td>
</tr>
<tr>
<td></td>
<td>(0.117)</td>
<td>(0.117)</td>
<td>(0.118)</td>
<td>(0.122)</td>
</tr>
</tbody>
</table>

| Observations                     | 45              | 45              | 45              | 45               |
| R-squared                        | 0.156           | 0.156           | 0.132           | 0.159            |
| Log-Likelihood Full Model        | 30.481          | 30.481          | 29.863          | 28.395           |
| Breush Pagan test for heteroskedasticity | $\chi^2(1)=1.52$ | $\chi^2(1)=1.52$ | $\chi^2(1)=1.60$ | $\chi^2(1)=0.52$ |
| Skewness and kurtosis test for normality dep. var. | $\chi^2(2)=2.71$ | $\chi^2(2)=2.71$ | $\chi^2(2)=3.69$ | $\chi^2(2)=3.69$ |
| $\chi^2$ test on the difference between [1] & [2] | $\chi^2(1)=29.98***$ | $\chi^2(1)=29.98***$ | $\chi^2(1)=28.56***$ | $\chi^2(1)=28.56***$ |
| $\chi^2$ test on the difference between [1] & [3] | $\chi^2(1)=4.87**$ | $\chi^2(1)=4.87**$ | $\chi^2(1)=4.87**$ | $\chi^2(1)=4.87**$ |
| $\chi^2$ test on the difference between [2] & [3] | $\chi^2(1)=4.87**$ | $\chi^2(1)=4.87**$ | $\chi^2(1)=4.87**$ | $\chi^2(1)=4.87**$ |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Figure 1 Frequency of reform histories by amount of imposed restructuring events for the 45 sampled organizations
Figure 2 Schematic representation of the reform history of the Flemish Service for Employment Mediation (VDAB)

- **1989**
  - National service for the provision of employment (RVA)
  - Founding by transfer from federal level

- **2009**
  - Flemish subsidy agency for work and social economy (VSWSE)
  - Department of work and social economy (DWSE)
  - Change of legal form (2)
  - Secession to other units (3)
  - Absorption of section (3)

- **2006**
  - Flemish subsidy agency for work and social economy (VSWSE)
  - National service for the provision of employment (RVA)
  - Founding by transfer from federal level

- **2013**
  - Flemish fund for the social integration of persons with a handicap (VFSIPH)
  - Deposition fund (Herplaatsingsfonds)

- **2013: COBRA data measurement**
Appendix - overview of BSAD event codes

**Founding events**

101 – pure founding (organization has no predecessors)
102 – founding by secession (except from bodies from other government levels)
104 – founding by splitting (except from bodies from other government levels)
106 – founding by merger (except from bodies from other government levels)
107 – founding by transfer from national/federal level (regionalization), including immediate merger or splitting of the organization
108 – founding by transfer from lower administrative level (from local/provincial to regional/federal or from regional to federal)
111 – founding by complex reorganization (except from bodies from other government levels)
112 – entered; new relevant entity (not existing in dataset before)
114 – founding by complex splitting
116 – founding by complex merger

**Maintenance events**

202 – maintenance by secession (to bodies of the same governmental level or to private sector/non-profit sector)
203 – maintenance by absorption (from bodies of the same governmental level or from private sector/non-profit sector)
204 – maintenance with secession of tasks to another governmental level
205 – maintenance by absorption of tasks from another governmental level
207 – maintenance by only change of name
208 – maintenance by dropping of tasks altogether
211 – maintenance by reorganization
221 – new superior organization at the same level (horizontal movement)
222 – new form of affiliation/legal form (including moving in or out private or non-profit sector) (with or without change of name)
223 – new superior organization and new form of affiliation/legal form
224 – maintenance by the adoption of new tasks (not existing before in any other (public) organization)
291 – no change to unit, but change of superior (diagonal movement at the same governmental level)

**Ending events**

303 – ending by absorption
304 – ending by splitting
306 – ending by merger
307 – ending by transfer to regional level (regionalization)
308 – ending by transfer to provincial and local administrative levels
309 – ending by transfer to higher administrative level (from regional to federal or from lower levels to regional/federal)
310 – pure disbandings/termination
311 – ending by complex reorganization
312 – discharged; no longer relevant entity
314 – ending by complex merger
316 – ending by complex splitting