

# Assessing the readiness of public administration's organisational culture for business process management: Results from a pilot study in Germany

Ingo Kregel ([kregel.ingo@fh-swf.de](mailto:kregel.ingo@fh-swf.de))  
South Westphalia University of Applied Sciences, Hagen, Germany

## Abstract

This paper presents a pilot study to examine the organisational culture of German local government institutions regarding their support for business process management (BPM). For this purpose, two measurement instruments are combined to provide different cultural perspectives: the BPM culture assessment of Schmiedel *et al.* (2014) and the Competing Values Framework (CVF). Findings show a surprisingly balanced culture with a tendency to hierarchical characteristics and a high importance of informal structures. Lessons learned and shortcomings of the chosen approach are discussed which result in recommendations how to refine the questionnaire and ideas for future research.

**Keywords:** Organisational Culture, Public Administration, Business Process Management

## Introduction

The trend of digitisation affects every industry, their products, services and processes (Frey and Osborne, 2017). Unfortunately, public administration is known for the late adoption of new technologies and methods compared to the private sector (Ho, 2002; Kamal, 2006; Thatcher *et al.*, 2016). The implementation of E-Government as a main influence on business processes has been longsome and less successful than planned (Gil-Garcia *et al.*, 2007). The challenges of e-Government include extensive process change and organisation transformation (Dunleavy *et al.*, 2006). Here, some of the typical organisational barriers are the lack of coordination and cooperation between departments, resistance to change by high-level management and cultural issues (Ebrahim and Irani, 2005; Lam, 2005; Carter and Weerakkody, 2008). As digital services become more common in everyday life, expectations and demands from citizens on their government are rising (Gilbert *et al.*, 2004; Bélanger and Carter, 2008). Therefore, public administration's cultural ability for business process management (BPM) is addressed, as it is the key for adapting public organisations to changing requirements and circumstances (Jones *et al.*, 2005; Holt *et al.*, 2016).

The aim of this work is to explore the organisational culture of public administration institutions regarding their ability to support business process management. For this purpose, the over the years intensively tested and applied competing values framework (CVF) as well as the comparatively new assessment of BPM culture will both be applied. Focus of this article is a pilot study executed in a German municipality to test a

questionnaire and its results and to prepare a consequent full study for local government institutions in Germany. The research questions therefore are:

RQ1: How can the BPM culture of a German pilot municipality be summarised?

RQ2: How can both instruments be meaningfully combined to assess a public administrations' readiness for business process management?

The article first analyses the research background for organisational culture in operations and business process management and introduces the two concepts of the Competing Values Framework and BPM culture. The method section explains the construction of the pilot study's questionnaire. The pilot results are presented, before their meaning and consequences are discussed. Finally, a summary is complemented by a short outlook.

## Research Background

### *The importance of (BPM) Culture for Operations Management*

Public administration offers services for citizens and organisations (Roth and Menor, 2003; Chase and Apte, 2007; Radnor *et al.*, 2016) and is therefore a part of the field of service operations management (Machuca *et al.*, 2007). Typical research topics include process optimisation or quality management philosophies like lean management, six sigma, or total quality management. In public administration and other service industries, many of those initiatives fail or do not achieve the hoped and planned results (Radnor and Osborne, 2013). The organisation's culture is one of the common identified factors of those setbacks (Heckl *et al.*, 2010; Baird *et al.*, 2011; Radnor and O'Mahoney, 2013) and increasingly in focus of OM researchers (Marshall *et al.*, 2016). The huge influence of human factors on the organisation, its processes and performance therefore also includes the field of behavioural operations management (Bendoly *et al.*, 2006; Gino and Pisano, 2008).

This study focuses on the analysis of support for business process management (BPM) by the organisation's culture. Hammer (2015) defines Business Process Management as "a comprehensive system for managing and transforming organizational operations". He names two main antecedents for BPM: statistical process control with its following quality movement on the one side, and business process reengineering on the other side. Therefore, the fields of BPM and operations management research have a large interface (Armistead and Machin, 1997) and are both background for this study.

Research about the influence of organisational culture on the success of BPM initiatives intensified during the last years (Leidner and Kayworth, 2006; Zu *et al.*, 2010). Its transfer to the public sector though still is very scarce. Several researchers discuss organisational culture in regard to organisational performance and how to change transform a culture towards a more effective one (Hooijberg and Petrock, 1993; Cameron and Quinn, 2011). The CVF as a very known instrument for this general analysis of an organisational culture. In this study, it is combined with a relatively knew instrument which was developed specially to measure the characteristics of BPM culture. Before going into more detail regarding the two culture instruments, the constructs and definitions of the article's main constructs shall be clarified. Table 1 summarises a general organisational culture definition as well as the focused term of BPM culture and the main approach of the competing values construct.

*Table 1 – Constructs and Definitions*

| Name | Definition | References |
|------|------------|------------|
|------|------------|------------|

|                             |   |   |
|-----------------------------|---|---|
| Organisational Culture      | <p>“Taken-for-granted, shared, tacit ways of perceiving, thinking, and reacting, [...] one of the most powerful and stable forces operating in organizations”.</p> <p>“It is (1) holistic, (2) historically determined, (3) related to anthropological concepts, (4) socially constructed, (5) soft, and (6) difficult to change”.</p>  | Schein (1996, p. 231)<br>Hofstede <i>et al.</i> (1990, p. 286)            |
| Business Process Management | “An integrated system for managing business performance by managing end-to-end business processes.”   | Hammer (2015, pp. 4–5)  |
| BPM Culture                 | “A culture supportive of achieving efficient and effective business processes”. Four key values define this concept: customer orientation, excellence, reliability, and teamwork.   | Schmiedel <i>et al.</i> (2013, p. 308)                                    |
| Competing Values            | <p>“Sets of competing values are recognized dilemmas in the organizational literature”.</p> <p>“One dimension differentiates effectiveness criteria that emphasize flexibility, discretion, and dynamism from criteria that emphasize stability, order, and control. [...] The second dimension differentiates effectiveness criteria that emphasize an internal orientation, integration, and unity from criteria that emphasize an external orientation, differentiation, and rivalry.”</p> | Quinn and Rohrbaugh (1983, p. 370)<br>Cameron and Quinn (2011, pp. 38–39) |

#### *Using the Competing Values Framework for a culture outline*

The concept of organisational culture has been researched for decades and resulted in several different models, values and measurements. For the purpose of this study, two different instruments are being used to measure different aspects. To apply the competing values framework (CVF), the “Organisational Culture Assessment Instrument” (OCAI) is used. It categorises organisational culture into a matrix with the axes *structure* and *focus* (Quinn and Rohrbaugh, 1983). Organisational culture can therefore be categorised by the competing values of internal focus and integration, or external focus and differentiation on the y-axis. On the x-axis, flexibility and discretion as well as stability and control are distinguished. This 2x2 matrix results in four competing cultural aspects: clan, adhocracy, hierarchy and market culture. The *clan culture* is people-oriented with internal focus. The effectiveness of the organisation concentrates on the potential of the employees, of hiring and developing the personnel. Typical behaviours are teamwork, employee involvement and open communication. In contrast, the *adhocracy culture* is oriented more externally and focuses on change and mutual vision. Creativity, adaptability and agility are very important. The lower half of the CVF includes the two cultures highlighting stability and control. *Market culture* is marked by clear objectives and achievement-based rewards. Typical behaviours include gathering competitor information, goal setting, competitiveness and aggressiveness. The fourth quadrant, representing *hierarchy culture*, is all about stability. People’s behaviour is marked by conformity and predictability as their roles and procedures are defined by rules and regulations (Quinn and Kimberly, 1984; Hartnell *et al.*, 2011).

Each organisation or organisational unit shows a mixture of all four quadrants. Public sector organisations have been shown to inhabit a bureaucratic or hierarchical culture

(Parker and Bradley, 2000). Figure 1 shows CVF application results from Cameron and Quinn (2011), contrasting an average culture mix of all analysed organisations with the average culture mix of public administration institutions. These results can give a first impression about possible quadrant distribution but have their limitations. The authors neither state the countries nor the year of these observations and the number of only 43 participating organisations further limits the explanatory power for this sector.

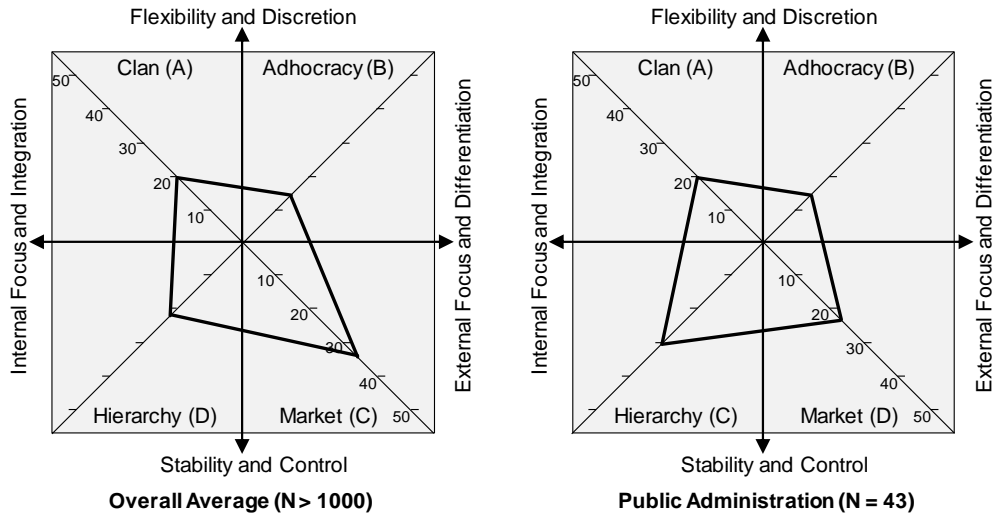


Figure 1 – CVF results through all industries compared to public administration by Cameron and Quinn (2011)

The CVF was developed in the 1980’s. Since then it has been applied and researched in detail during the following the decades. To that time, BPM was not yet a common concept, but the authors already mention the link between CVF culture analysis and total quality management. Elements of TQM can be found in all four quadrants of the competing values framework. Cameron and Quinn (2011) e.g. state, that *market* culture is important for measuring customer preferences and improving productivity. The *hierarchy* culture is beneficial for process control, quality tools and error detection. *Adhocracy* can be helpful for anticipating needs, continuous improvement impulses and finding creative new solutions. Finally, *clan* culture elements like empowerment, employee involvement, teambuilding and open communication can significantly magnify the success of quality strategies like TQM (Cameron and Quinn, 2011, pp. 56–58).

#### Detailing the culture picture towards BPM

In contrast to the long history of CVF, the concept of BPM culture has only been defined in 2013 (Schmiedel *et al.*, 2013), followed by the development of an assessment instrument one year later. The approach is much more focused on process aspects and less generalised than the CVF. BPM culture is defined by its four CERT values customer orientation, excellence, reliability, and teamwork. These values result from a global Delphi including researchers and professionals (Schmiedel *et al.*, 2013). Each value’s definition and domains are summarised in Table 2.

Table 2 – Definition and domain categories of the CERT values by Schmiedel *et al.* (2014, pp. 44–46)

| BPM Value | Definition | Domains |
|-----------|------------|---------|
|-----------|------------|---------|

|                      |   |  |
|----------------------|---|--|
| Customer orientation | The proactive and responsive attitude toward the needs of process output recipients                   | External perspective, internal perspective |
| Excellence           | The orientation toward continuous improvement and innovation to achieve superior process performance. | Continuous improvement, innovation         |
| Responsibility       | The commitment to process objectives and the accountability for process decisions.                    | Accountability, commitment                 |
| Teamwork             | The positive attitude toward cross-functional collaboration.  | Formal structures, informal structures     |

## Methodology

To measure organisational culture, surveys have been the most typical research method. As both selected culture instruments are questionnaires, this method was chosen for the new studies as well. Within survey research, exploration and confirmation can be distinguished as two main research modes (Malhotra and Grover, 1998; Forza, 2002). Flynn *et al.* (1990) emphasise the importance of exploratory research in operations management to lay the foundation for later confirmatory (explanatory) research. In this article, exploratory survey research is used both to analyse the process-oriented organisational culture of public administration and to validate two different culture measurement instruments.

By following the recommendations of Forza (2002, p. 171) the questionnaire was tested by colleagues, industry experts and target respondents. After discussing it with colleagues, a personal interview with two experienced employees of the organisation and personnel division of the pilot municipality lead to changes in items, scales and question formulation. The pilot study of this article was designed to validate the survey with the help of target respondents and to provide insights into possible results.

The questionnaire consists of three main parts. First, background questions about the participants and their department are stated to later identify factors influencing the BPM culture. The second section of the questionnaire includes the 40 BPM culture questions from Schmiedel *et al.* (2014) followed by the OCAI questions in the third section. In total, 66 questions are used in the questionnaire. The BPM Culture questions already existed in German language and could be retrieved directly from the original authors. The OCAI though, lacked a proven translation and included several flaws which were already identified by several researchers (Quinn and Spreitzer, 1991; Kalliath *et al.*, 2016). For example, the original OCAI stated questions consisting of multiple sentences and leading to ambiguous answers when participants would prefer to answer each sentence differently. The German “D-OCAI” from Strack (2012) was used for this study’s questionnaire. He split the OCAI answers and introduced a Likert scale instead of the original way of dividing 100 points into four answer fields.

Instead of asking questions about the whole municipality, we narrowed it down to the department (“Abteilung”). In the pilot study institution, the typical department size was stated to vary between 5 and 50 persons. The approach to focus on these organisational units instead of the whole organisation follows the work of Hickson *et al.* (1971) who underscore the importance of intraorganisational power through a system of interdependent subunits. Also, in a municipality with 2,600 employees and numerous divisions and departments, it would be very hard for survey participants to provide information about the whole organisation. Evaluating their own department and daily work in business processes is much easier for the participants.

## Pilot Study Results

The web questionnaire was sent to 91 employees of the pilot municipality. After two weeks, a reminder was sent, and the survey prolonged for another week. The total results of 43 data sets show a response rate of 47,3% in this pilot study. For a large study it is important to have a sample representing the whole population of the analysed aspects. For this pilot though, only access to a limited group of employees could be granted by the municipality. The questionnaire was sent to all employees of the organisational and personnel division, who constitute 75% of the responses. Additionally, the questionnaire was also sent to all employees who had participated in Lean Six Sigma Yellow or Green Belt trainings. These eleven respondents represent another nine divisions and stand for the diversity which will be aimed for in a full study.

The respondents were asked about their role in the business processes in part A of the survey. With an average of 3.5 on a scale from 1 (“operational”) to 7 (“leading”) the whole range from executing tasks to managing whole departments was included in the respondents’ answers. The middle half of the participants (quartiles 2&3) already worked for 20-31 years in public administration institutions in general, for 13-30 years in the current institution (pilot municipality), and for 2-14 years in their current department.

The following tables provides insights into typical questions of the BPM culture assessment and lists the three items with highest and lowest agreement from the participants.

*Table 3 –Item examples from the BPM culture assessment*

| <b>Items with highest agreement</b>   | <b>Items with lowest agreement</b>  |
|---|---|
| Internal Customer, question no. 3:<br>+1.5 (5.5 on a scale from 1 to 7)<br><i>Employees of our department have a good understanding of who their internal customers are.</i>                  | Accountability, question no. 2:<br>-2.4 (1.6 on a scale from 1 to 7)<br><i>Managers of our department are rewarded based on the performance of the overall business processes for which they are responsible.</i> |
| Informal Structures, question no. 4:<br>+1.3 (5.3 on a scale from 1 to 7)<br><i>Employees of our organization informally exchange information about current topics in business processes.</i> | Innovation, question no. 2:<br>-1.8 (2.2 on a scale from 1 to 7)<br><i>Our department rewards employees who present pioneering ideas for enhancing the performance of business processes.</i>                     |
| External Customer, question no. 5:<br>+1.3 (5.3 on a scale from 1 to 7)<br><i>Our department understands the processes of our customers that lead to an interaction with our department.</i>  | Continuous Improvement, question no. 5:<br>-1.2 (2.8 on a scale from 1 to 7)<br><i>Our organization regularly uses performance indicators to find ways to improve business processes.</i>                         |

Each of the eight BPM culture categories consists of five questions which are answered on a seven-elements Likert scale ranging from totally disagree (1) to totally agree (7). As shown in Figure 2, all eight categories are evaluated roughly similar. The visualisation of a spider web is used following Schmiedel *et al.* (2014) to summarize the average values of each category in one chart. A Likert value of 4 corresponds to 50% on the scale of the spider web, 7 would be 100%. The categories with the lowest average values are *formal structures* (3.91 = 48.5%) and *continuous improvement* (3.92 = 48.6%). On the other end, *informal structures* (4.79 = 63,1%) and *external customer* (4.73 = 62,2%) achieved the highest agreement from the survey participants. When separating the answers from

different divisions, larger differences could be found. The organisation and personnel division rates all categories 0.5 Likert points higher on average than all remaining participants (4.45 instead of 3.95).

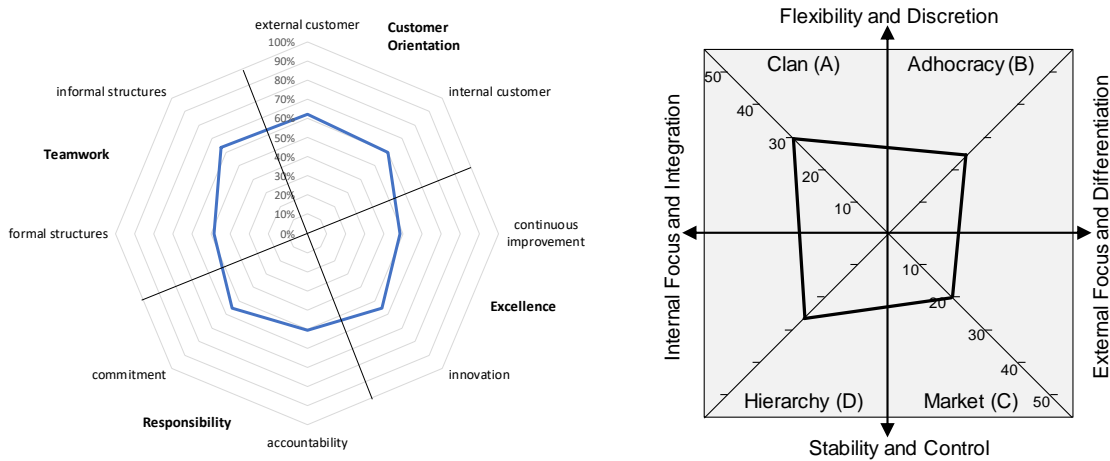


Figure 2 – Pilot study results for BPM Culture and CVF

Compared to the literature results shown in Figure 1, the pilot study resulted in a very different quadrant distribution (see Figure 2). The OCAI-D uses a 5 elements Likert scale and finally resulted in an average value for each quadrant. To make it comparable to the original approach of Quinn and Rohrbaugh (1983), the results were transformed to represent 100 points (%) in total. The clan culture statements with 29.7% provided the highest participants' agreement, followed by hierarchy (26.8%) and adhocracy culture (23.4%). The market culture showed only an average Likert value of 2.43, which resulted in 20.2% of the CVF points. Similar to the BPM culture part of the questionnaire, also the OCAI is influenced by different divisions. Without the large share of one division, the remaining divisions' results e.g. show 2.6 percentage points less for clan culture and 4.4 points more for hierarchy culture.

To find similarities or interdependencies, Pearson correlation coefficients have been calculated between all eight BPM culture categories and the four CVF quadrants. To do that, first 15 entries including “no answer” items had to be deleted. For the remaining data sets, 26 out of 32 correlation coefficients remained between 0.4 and 0.7 and can be considered moderate. The highest correlation could be found between *formal structures* and *adhocracy culture* (0.698) and between *external customer* and *adhocracy culture* (0.690). This similarity will be taken up in the discussion section.

Although both instruments have already been used before, the scales' reliability was tested as the instruments were transferred to the public administrations' context and the second instrument was considerably changed. The reliability of the scales was tested using Cronbach's Alpha. For the BPM culture instrument, the values are very good, ranging from  $\alpha=.680$  (accountability) to  $\alpha=.895$  (informal structures). The scales' reliability of CVF are less high but still indicate a good to moderate reliability with values ranging from  $\alpha=.505$  (management of employees) to  $\alpha=.759$  (organisational glue). Especially for the first scale, the deletion or reformulation of critical items is considered for future studies. Since the instrument was originally developed in the context of the private sector, an adaptation of all items to the public sector context is considered as well to further enhance the scales' reliability.

## Discussion

Compared to Figure 1, the CVF result of the pilot study shows surprising differences. All four quadrants seem to be relatively equally distributed. The stated large influence of the participants' division underscores the importance of a large variety of participants. This result is also the same for the BPM culture assessment. The comparison and correlation of both instruments though, has to be critically discussed. It could still be possible to achieve a more diverse answer set for the CVF and use this to compare the effects of e.g. a strong *hierarchical* CVF culture with its resulting BPM values. But this approach also inherits the risk of non-significant results. The pilot study shows, that the BPM culture assessment provides much more detailed results than the Competing Values Framework and the added value of the CVF turned out to be relatively low. A key question for future studies is, if the CVF should be removed from the questionnaire. Instead, a new perspective on the public BPM culture assessment could be added, like employee satisfaction, customer satisfaction, or digital process maturity.

Changes could also be made in the questionnaire's first part. After revisiting the comments made by the survey participants one of the ideas to discuss will be, if the question "For how many years do you work in your current department?" should be changed to "current role" instead of department. Also, some a few comments stated the fact, that single questions have not been answered because of the participants' fear to be lose their anonymity.

Another idea for the full study could be not only to ask about the current organisational culture, but also about the desired future state. This aspect was already discussed by the original authors of both instruments but also the number of questions and needed time from the participants has to be taken into account.

The pilot study has its own limitations. The pilot municipality represents the 40<sup>th</sup> largest German city with 190,000 inhabitants and about 2,600 employees. A promising aspect for a full study will be the comparison of culture results between different organisation sizes, as this was identified as a significant influence on BPM and e-government adoption (Moon and Norris, 2005; van Looy and van den Bergh, 2017). By analysing only one municipality, this pilot study e.g. cannot answer if larger municipalities have a more mature BPM culture than smaller ones or if there are regional differences within Germany. As this study proved the influence of the participants' division, the way of reaching out to the participants should be discussed for further studies, too. To send survey invitations by e-mail to a large recipient list is easy to handle, but one can hardly control, who is really reached and eventually answers. Personal interviews or a systematic cooperation with single municipalities could be an alternative.

## Conclusion and Outlook

This article proposes a new approach to measure organisational culture with focus on BPM support. For this purpose, two different culture measurement instruments are presented and connected to the literature background of cultural influence on successful business process management. The exploratory approach of survey research provides insights into the BPM-focused organisational culture of a first German municipality and discusses many learnings which could improve a future full study. A summary of the organisational culture could be achieved (RQ1) but the meaningfulness of the combination of both instruments has been questioned. Future studies could pick up on this point and refine the questionnaire. Studies then could focus e.g. on local governments within a whole country or also compare different types of public administration institutions like state and federal institutions.



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