# Exploratory data analysis on the relation between Business Process Orientation and Organizational Change

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## Abstract

The purpose of this article is to give preliminary insight in the relation between 'Business Process Orientation' and 'Organizational Change'. Exploratory data analysis, combined with qualitative research for clarification of the results, is used to investigate this relation. A broad positive correlation is visible; however, some additional interpretation seems to be necessary. A proposed arbitrary classification of organizations, based on the ratio between both variables, elucidates the results of the additional qualitative research. Through this classification the need is argued for carefully monitored change efforts that improve the Business Process Orientation of an organization.

## Povzetek

Namen prispevka je podati nekaj ugotovitev v zvezi z odnosom med procesno usmerjenostjo in sprememb v organizaciji. Za preučevanje tega odnosa je bila uporabljena analiza podatkov pridobljenih v empirični raziskavi, kombinirana s kvalitativnim pristopom. Pokazala se je pozitivna korelacija, vendar je potrebna dodatna interpretacija. Predlagana arbitrarna klasifikacija organizacij temelji na razmerju med obema spremenljivkama in pojasnjuje rezultate z dodatnim kvalitativnim raziskovanjem. Rezultati klasifikacije kažejo na potrebo po skrbnem spremljanju postopkov uvajanja sprememb, ki povečujejo procesno usmerjenost posamezne organizacije.

## 1 Introduction

**The mutual impact of 'Business Process Orientation' (BPO) and 'Organizational Change' has been the topic of many prescriptive theories. However, seldom the true relation is examined or investigated. On the other hand, both concepts are rather high level and hard to define in a uniform way, and therefore hard to quantify. This paper tries to contribute to the understanding of how both concepts relate and how they should be managed in contemporary organizations.**

A business process oriented organization is defined by McCormack and Johnson (2001) as "an organization that, in all its thinking, emphasizes processes as opposed to hierarchies with special emphasis on outcomes and customer satisfaction". In their study this concept is measured in a survey based on three dimensions, being (1) 'Process Jobs', (2) 'Process Management and Measurement' and (3) 'Process View'. The study confirms a positive relation between BPO and organizational performance in their study, which shows the added value of BPO in contemporary organizations. Further validation and enrichment of this relation is elaborated by various authors and in various settings (Lockamy III and McCormack, 2004; Gemmel et al., 2006; Skrinjar et al, 2006; Valadares et al, 2007; Willaert et al, 2007; Willems et al., 2008). For this article the BPO construct developed in Willaert et al. (2007) is used to investigate the relation with Organizational Change. The content of the construct is explained in section 2 of this paper.

Organizational Change can be defined as the necessary adaptations to be made in an organization due to macroeconomic forces in order to reduce costs, improve the quality of products and services, locate new opportunities for growth, and increase productivity (Kotter 1996). The recurrent need for change has enlarged the interest for Business Process Management (BPM) during the past two decades (Harmon, 2007). Business Process Management, which is in fact an umbrella term for a broad set of improvement methodologies and techniques, becomes therefore more and more suitable to implement the necessary adaptations to change an organization towards a more competitive (profit sector) or socially acceptable state (not-for-profit sector). On the other hand, too much change

can lead to frustration and resistance to the implementation of planned future change (Podlesnik and Chase, 2006; Daley and Lovrich, 2007). It seems that a careful selected and well monitored approach should be argued.

In the next section the holistic BPO Model is explained, giving an overview of the relevant aspects to manage in order to become more business process oriented. In section 3, the methodology and data for this exploratory analysis are explained. Finally, the relation and interpretation of both concepts, BPO and Organizational Change, are discussed.

## 2 Holistic BPO model

The Holistic BPO model (figure 1) shows the relevant aspects to be managed in a process oriented organization. First these aspects are described and then explained how they relate to each other. In the second part, each of the eight dimensions is discussed in detail.

### 2.1 Building Blocks of the model

#### 2.1.1 Business Processes: in between Customer and Supplier

Basically an organization performs a process (or a set of processes) in order to deliver value to a customer. This value creation is the result of the fulfillment of the customer's need by means of an appropriate solution, which is the output of different business processes. Therefore 'Customer Orientation' of employees and processes is a basic aspect of Business Process Orientation. In order to deliver this customer oriented solution, different resources are combined through the processes. So also suppliers, whether they are goods or services suppliers, are crucial for the final output of processes ('Supplier Perspective'). This view on suppliers is quite often a dimension neglected in most BPO-related literature. Though, involving suppliers in an organization's processes becomes even more important, especially in today's economy, because organizations turn more and more into a networked structure of flows of goods, services and information.

#### 2.1.2 Continuous Improvement

In this chain between the supply of resources and the delivery of value creating solutions, an organization manages a set of process-aware dimensions. An organization that has a clear common view on its core processes ('Process View'), will subsequently embed this view in its more formal and long-term organizational structure. When an appropriate 'Organizational Structure' is deployed to facilitate optimally the value creating business processes, the real 'Process Performance' becomes unambiguously visible. The created ability to define actions based on process performance measurements, is not only a justification of the applied 'Process View', it also creates the belief in the benefits of BPM practices among the involved stakeholders. This translation into 'Culture, Values & Beliefs' is on its turn an enabler to enhance and continuously improve the organization according to the deployed 'Process View'.

#### 2.1.3 Catalyst Dimensions

The mechanism enabling for continuous process improvement is supported by two important catalyst dimensions. First, recruitment, development and remuneration of employees ('People Management') should support a process-aware way of working. With the proper large-scale motivation and adequate stimuli for individuals the BPO of an organization can be enhanced substantially. Secondly, a well considered approach on 'Information Technology' enables an organization to streamline and automate its processes, which is an efficient way of measuring performance. Furthermore it facilitates information exchange and collaboration between the different parts composing the processes.

### 2.2 Eight BPO dimensions

#### 2.2.1 Customer Orientation (CO)

The customer orientation dimension investigates the organization's ability to understand and assess customer requirements, and maintain customer relationships. Tonchia and Tramontano (2004) describe the

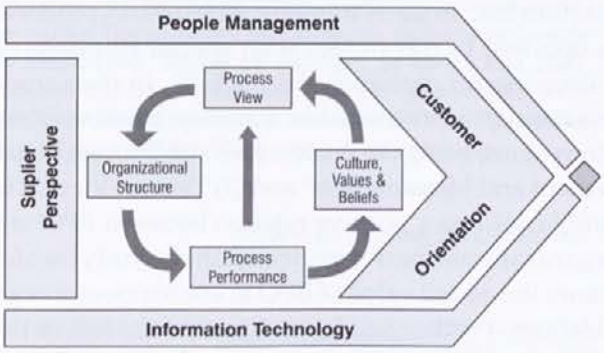


Figure 1: **Visual representation of the Holistic BPO Model**

'visibility of the final customer' as the greatest achievement of process management. To their view anyone active in a process must be aware of the final aim of the specific process: customer satisfaction (Tonchia and Tramontano, 2004). Knowing the customer is the starting point, because becoming process oriented requires an organization to adapt its (internal) processes to the different customers and their requirements (Davenport, 1993; Harmon, 2004). Moreover, customer needs are of a dynamic nature, so therefore customer oriented organizations need flexible processes, allowing adaptation to fast changing customer expectations (Tenner and DeToro, 2000). Understanding the customers' expectations allows an organization to search proactively for improvements in processes in order to stay ahead of competition (profit sector) or to comply to the demands of society in general (not-for-profit sector). Additionally, customer satisfaction has to be measured in a correct way on a regular basis. All such efforts can deliver crucial input for process improvements (Harrington, 1991; Davenport, 1993).

#### 2.2.2 Process View (PV)

This dimension refers to everyone's understanding and clear view on the organization's processes (McCormack and Johnson, 2001). It is critical that processes are well identified, defined and mapped in order to select and improve the right processes to improve customer value (Galbraith, 1995). Modeling and visualization of processes can provide new insights in the complexity of processes, which is often a first step in studying BPM for the implementation of modified or new processes (DeToro and McCabe, 1997).

#### 2.2.3 Organizational Structure (OS)

Organizations have to adapt their structure to a process oriented view. It is an essential issue how an organization manages its resources to assure that its processes meet the expectations. An organization that relies entirely on a traditional departmental organization chart (e.g. functional) does not necessarily support also a process-centric view. Cross-functional integration efforts need to be formalized into explicit functions (Hernaus, 2008). Typically multidisciplinary teams are assigned to integrate functional structures (Byrne, 1993; McCormack et al, 2003). Roles such as 'process owner', 'process steward', 'process coach', etc. (Burlton, 2001; Chang, 2006; Jeston and Nelis, 2006) can be created to take up responsibility for the horizontal overview of a process. These roles are held accountable and responsible for the outcome of the process, what has direct impact on the experience of the customer. In addition a 'centre of excellence in BPM' (Burlton, 2001) is often set up, containing the specific knowledge, skills and behavioral conditions required to set up and manage business process improvement initiatives. The result of these new functions is that organizations that are process focused apply some kind of matrix management model, combining horizontal with vertical responsibilities, functions and roles. How the process and the departmental managers relate to one another varies from one company to another, but it has to be well defined and documented in order to function properly. In some companies specific individuals occupy multiple managerial roles. Thus, one individual might be both the manager of a functional department and the manager of an end-to-end process (Davenport, 1993; Galbraith, 1995).

#### 2.2.4 Process Performance (PP)

Realizing business process improvements requires that the processes are continuously measured and analyzed, i.e. defining and implementing performance measures and Key Performance Indicators (KPIs) that allow executives to monitor processes (McCormack and Johnson, 2001). Often it is noted that organizations focus too much on "departmental" and "functional" objectives with their related KPIs. The latter usually only measure financial performance or sales volumes, which are typically departmental measures (Tenner and DeToro, 2000). These are indeed useful measures but they bear little information regarding processes. A horizontal process oriented view on the organization therefore requires KPIs that measure cross-departmental process inputs, outputs and outcomes and the relations in between (Kueng and Krahn, 1999).

#### 2.2.5 Culture, Values & Beliefs (CVB)

The lack of a change supportive culture is often blamed when process improvement actions fail (Davenport, 1993). Therefore process orientation is a crucial part of the organizational culture. Aspects of process orientation, like customer orientation should be reflected in the beliefs, values, and principles which the organization has publicly committed to. In this dimension, the mindset for process management and processes in general is assessed. This relates to teamwork, innovative culture, awareness of mission and values of

your company (Davenport, 1993). An important aspect of process orientation with cultural implications is inspiring leadership and executive support. It is the top management's responsibility to direct the organization towards process orientation. In addition stimulating interdepartmental and proactive behavior is key to introducing process orientation (Harrington, 1991; Tenner and DeToro, 2000).

#### 2.2.6 People Management (PM)

Balzarova et al. (2004) identified 'Training and Learning by doing' and 'Managing resistance to change' as key success factors of implementing process-based management. In a process oriented organization, people need to be trained and informed on how to improve processes and to think in terms of processes (Harrison-Broninski, 2005). More importantly, these people also need to be evaluated and rewarded on the basis of competences developed for analyzing, understanding and improving processes. The ability and willingness to be team players and contributors is also assumed to be very important. Even when recruiting and assessing new employees, the capability of process awareness becomes more and more an important qualifier (Van den Bergh et al., 2008).

#### 2.2.7 Information Technology (IT)

IT is both an enabler and support for processes as they run in the organization. This dimension states that IT systems need to be in place to enable efficient execution of business processes and to give the right support for process improvement initiatives (e.g. modeling and simulation modules in BPM suites). IT systems should be flexible to facilitate process improvements. A process oriented IT system supports information exchange across departments (Davenport, 1993; Hung, 2006). The integration of applications is therefore very important since the diversity of applications could hamper the integration efforts between departments and/or functions.

#### 2.2.8 Supplier Perspective (SP)

Processes clearly exceed the organizational borders in today's economy. As technology evolves, boundaries fade and suppliers become partners. Sharing information and knowledge with suppliers is a characteristic of process orientation (Tonchia and Tramontano, 2004). Lee et al. (2005) argue that process models should encompass these interactions within the value chain. Information sharing with suppliers is also considered important for effective process improvement management. Streamlining a process includes good supplier management as they deliver crucial resources or other inputs for processes (Harrington, 1991).

## 3 Methodology

Seen the exploratory context of the research, a deliberate choice was made to apply a Mixed-Method approach (Greene et al., 1989; Tashakkori and Teddlie, 1998; Teddlie and Tashakkori, 2003). First, based on available quantitative data from a series of organization specific assessments, the overall relationship between 'Business Process Orientation' and 'Organizational Change' is visualized. Next, the results are verified and interpreted based on additional semi-structured interviews with representatives of some of the organizations. All organizations were involved in different focus panels discussing their results compared to each other. This gave insight in the different causes for their varying results.

From June 2006 till May 2008, 64 organizations were assessed based on the holistic BPO model. Organizations from different sectors, such as public sector, health care, banking, manufacturing, distribution, consulting, insurance and utilities participated in the study. No selection criteria for the organizations were set upfront. However, as all organizations participated voluntary, a positive attitude towards BPM research and BPO benchmarking can be assumed.

In each organization, depending on the company size, a selection of 10 to 100 people, chosen by a key contact person (top or senior level), was surveyed online concerning the 8 BPO dimensions (68 questions in total, 7-point Likert-scale for each question). The key persons were informed upfront about the content and purpose of the assessment. They were actively encouraged to select a group of people representing different departments, core processes and hierarchical levels. By carefully selecting such a varied group of people a more objective view is created on the whole organization, which is of course crucial for BPM research seen its holistic nature. In total 1022 valid surveys were collected. Only surveys fully completed and with a proper completion time (minimum 5 minutes) were included.

The individual answers were aggregated on an organizational level resulting in 8 dimension scores for each organization. The average of the 8 dimension

scores gives a high-level, but summarizing indication of the overall Business Process Orientation of each organization (General BPO score).

An additional question probed among all respondents for their change experience due to implementing BPM practices in their organization (also 7-point Likert-scale). Considering the main purpose of this research, being an exploratory analysis, the concept 'Organizational Change' is currently only estimated based on this one particular question. The results for this question were aggregated on the organizational level, approximating the 'Perceived Organizational Change' in each organization. In this way both concepts, BPO and 'Organizational Change', can be compared on the same level. As the first part of the applied Mixed-Method approach, in this case the quantitative part, it should be a sufficient basis for the second and qualitative part, containing clarification and interpretation of the quantitative results. The results of the qualitative part are explained in section 4.2 of this paper.

## 4 Results

### 4.1 General positive relation: achieving BPO requires change

In figure 2 each organization is plotted in a two dimensional view, with the two axes: 'General BPO score' and 'Perceived Organizational Change'. A broad cloud is visible which is slightly oriented from the left bottom corner to the right top corner. This suggests a positive correlation.

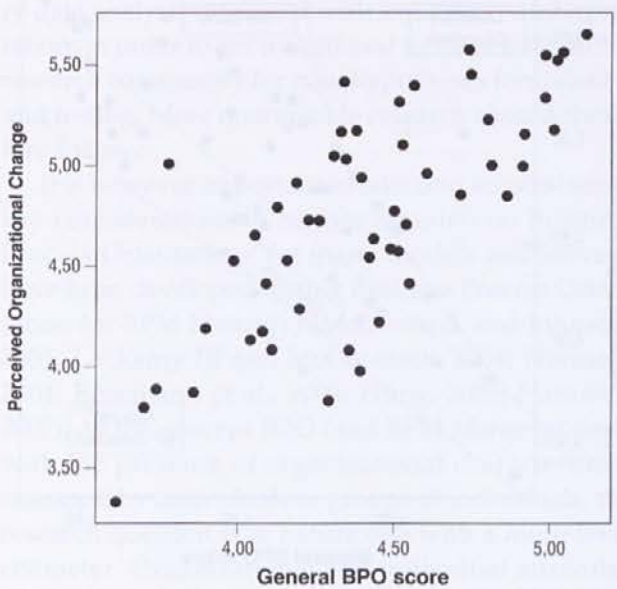


Figure 2: **Scatter-plot 'General BPO score' vs. 'Perceived Organizational Change'**

In general it can be concluded tentatively that achieving a higher 'general BPO score' is associated with higher 'perceived organizational change'. However, seen the broadness of the cloud, some interfering variables should be investigated in the future. To get insight in these interfering variables, additional qualitative research was carried out by conducting interviews and focus panels, and also by reviewing internal documentation of the participating organizations.

In the next part an arbitrary grouping clarifies the first findings of the qualitative research. The classification tries to segregate cases, despite the number of case in each category, in that way that both a clear theoretical description and a series of prescriptive suggestions can be made for each category. The preliminary theoretical descriptions, given below, are the subject of further validation and a basis for future hypotheses formulation and quantitative testing. On the other hand, the classifications can inform the assessed organizations of their current situation and can inspire them for future improvement actions.

### 4.2 Qualitative Classification

On the scatter plot (figure 3) 4 classes are indicated. The positive association between the general BPO score and the perceived organizational change score has been taken as a base for the classification. Next, each category is explained in more detail further on.

#### 4.2.1 Organizations on track

In this class those organizations are grouped for which the Organizational Change, perceived by the employees, is in balance with the BPO achievements of the organization. These are the organizations where perceived change, as a result of internal improvement actions, 'merits' in the overall BPO score in a proportional and straightforward way. The change, experienced by the employees, can be considered as actually 'translated' in a higher BPO score for the organization. In these cases the change efforts were well coordinated following a consistent approach. Such holistic, business process-aware approaches are described by (among others) Hammer (1996), Burlton (2001), Smith and Fingar (2002), Jeston and Nelis (2006) and Harmon (2007).

#### 4.2.2 Natural BP oriented organizations

Few organizations have a relatively high BPO score compared to a lower change impact experienced by the employees (cases in the right bottom corner). The cause for this 'exceptional' reverse relation might be found in the fact that change is an inherent part of their business. Change is therefore not experienced as exceptional by the employees. From the additional interviews and focus panels it became obvious that all cases in this category are characterized by a larger proportion of employees working in a project environment (e.g. consultants, software developers, etc.). As they became used to a changing environment because of regularly changing and dynamic projects, organizational change becomes a relative unnoticed phenomenon. Seen the exceptionality of these cases, few literature is available. Future research should probe for the exceptional settings characterizing these cases.

#### 4.2.3 Organizations in the 'risk zone'

These organizations can be described by a high change impact for the employees, while results on the BPO score are not fully accomplished. This means that employees do experience and also perceive change, nevertheless the BPO score is not growing at the same rate. This might indicate that employees in the short term have experienced a significant impact on their daily job, while results have not (yet) been validated through Business Process Orientation measures. 'Organizational Change' seems to be more variable on the short term, compared to BPO which indicates more structural and long term achievements. Therefore some cases in this category showed relative high perceived Organizational Change scores because of recently announced and implemented changes. However changes are made, the merits concerning BPO scores were not visible yet. Efforts to keep the momentum in realizing benefits from the applied methodologies and change actions are therefore crucial. This is also argued in similar research on manufacturing improvement methodologies by Hanson and Voss (1995).

For other cases it was reported that changes for the employees do not always result in optimal integration and in better BPO performance. Bad coordination between initiatives, less effective projects and programs, 'over-restructuring', insufficient insights in real root-causes, inadequate follow up by top-management, etc. are common reasons. A similar listing is given by Kotter (1996) summarized as 8 common change errors:

1. Allowing too much complacency
2. Failing to create a sufficiently powerful guiding coalition
3. Underestimating the power of vision
4. Undercommunicating the vision by a factor of 10 (100 or even 1000)
5. Permitting obstacles to block the new vision
6. Failing to create short-term wins
7. Declaring victory too soon
8. Neglecting to anchor changes firmly in the corporate culture

#### 4.2.4 Organizations being 'Constant Changers'

These organizations are characterized by a high perceived change impact while BPO scores are low. Many change initiatives are launched with very few resulting impact on the Business Process Orientation of the organization. Such organizations are typified by working constantly on many high impact projects and programs. Nevertheless, the common long-term vision lacks, which results in high resistance to change. This high resistance makes it even more difficult to achieve BPO improvements on the long term, as change resistance becomes a self-fulfilling prophecy. This effect is referred to as the 'Change Pygmalion Effect' (Ford et al., 2008). The single extreme case in

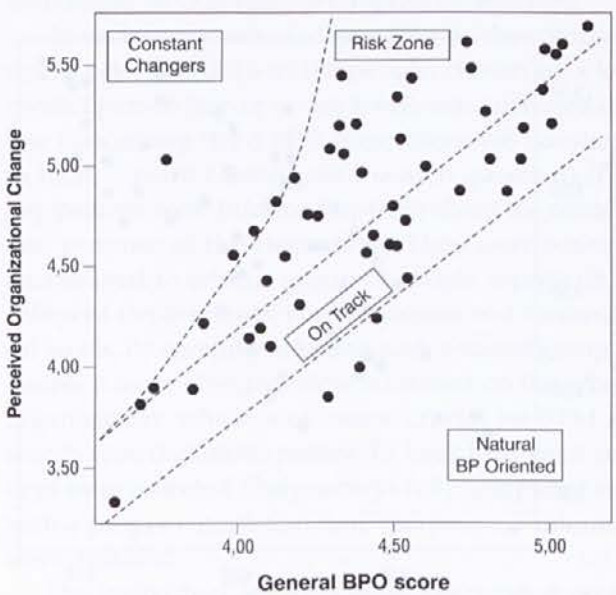


Figure 3: **Classification of organizations based on BPO – Organizational Change relation**

this category is strongly characterized by a series of large change programs, due to altering top-management, without capitalizing on previous achievements.

## 5 Conclusions and further considerations

Concerning the relation between Business Process Orientation and Organizational Change a broad positive relation is visible. This means that the higher the BPO score of a company the more employees experience and thus perceive change in their daily job. It requires more than a minimum of change efforts in an organization in order to become gradually more process oriented. Without change, BPO improvement is hardly possible.

On the other hand, Organizational Change needs to be monitored carefully. Too much uncoordinated or a too frequently applied change initiatives could lead to change frustration among employees. In these cases the investments and previous achievements are not exploited fully to grow the Business Process Orientation efficiently and effectively.

Furthermore, the proposed classification given in figure 3 can be used as a benchmark tool for each of the organizations currently in the study, or for organizations involved in future assessments. By visualizing their position in this graph, the comparison is made with other organizations and specific action points can be taken depending on the class they are in.

This paper had the aim to report on an exploratory data analysis combined with a qualitative interpretation, in order to get insight and to inspire the BPM-research community for new hypotheses formulation and testing. More quantifiable research should therefore follow.

It is however important to take into account some key considerations in further research on Business Process Orientation. Yet many models and surveys have been developed testing Business Process Orientation (or BPM Maturity) (McCormack and Johnson, 2001; Lockamy III and McCormack, 2004; Harmon, 2004; Rosemann et al., 2006; Hung, 2006; Hammer, 2007). As the concept BPO (and BPM Maturity) deals with the presence of organizational characteristics, managed by individuals or groups of individuals, the research question is in nature one with a multi-level character. Organizational and individual attributes influence each other mutually, which should be taken into account when surveying an individual on organizational characteristics. (Klein and Kozlowski, 2000; Hox, 2002). Particular for the BPM research domain, dealing with the integration and management of different sub-parts in an organization involving many individuals, multi-level research models and data sets, seem inevitable in order to professionalize the current BPM research domain.

Furthermore, in order to have a basis for quantitative BPO research, proper validation of constructs should be elaborated. Considering the prescriptive character of BPO (and BPM Maturity), validation methods dealing with formative constructs are preferred (Jarvis et al., 2003; Diamantopoulos and Siguaw, 2006; Petter, 2007). As validation for formative constructs is depending on the relations within the proposed model, research questions and data gathering should therefore be considered carefully.

Mentioning both the multi-level and formative aspects of BPO survey research, the authors indicate the area's of attention for their future research. Along with that, they hope that these concepts get gradually more attention in the overall research community for the academic enhancement of BPM research.

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