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INFLUENCES ON FUTURE DEVELOPMENTS OF BUSINESS PROCESS MANAGEMENT

Thesis Book

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1. INTRODUCTION

Processes are a major success factor for traditional management forms and can be described as highly structured connections of organizational activities.

This research aims in identifying influencing factors of Business Process Management; the effect and impact of these influencing factors on the processes within organizations; the possible interdependence of the influencing factors under analysis on each other; and the extent to which potential influences will force businesses to rethink their Business Process Management activities (Palkovits-Rauter, 2018).

The following topics have been selected as they have interesting connections with each other and are all focussing on a process view found in some theoretical works by different authors:

- *Strategy* - An organization's strategy is directly linked to Business Process Management as processes should meet strategic goals in an operative manner.
- *Organizational Evolution* - The defined organizational structure determines the implementation of Business Process Management; the less hierarchy, the less processes.
- *Generational Workforce* - Different generations in the workplace need aligned conduits of communication related to process information.
- *Leadership & Management* - Agility in both leadership styles and management determines the structure of Business Process Management within an organization.
- *Innovation & Digitization* - Information technology and innovation are both boosting organizations, but still processes have to be defined to sustain in the market.
- *Supply Chain Management & Circular Economy* - Both are very process-oriented as new opportunities and sustainability can be derived from processes.

As one of the hypotheses of this research work is concerned with the level of influence of influential factors on the future development of Business Process Management, these topics are examined and treated in context with processes, Business Process Management and related management concepts.

2. RESEARCH QUESTIONS AND METHODOLOGY

The main question this thesis is dealing with is as to which extent the discipline of Business Process Management is exposed and thus open for changes by factors such as strategy, the generational workforce, developments in organization theory, new findings on leadership and management, exponential changes in innovation and digitization or new theories on Supply Chain Management and Circular Economy.

For a deeper analysis of these topics a comprehensive literature analysis is provided in chapter three of this thesis. The points of connection and potential interdependencies of the individual topics are analysed and depicted.

In order to gain direct insights into the topic of process management and current organizational challenges as well as to investigate previously established hypotheses based on the literature analysis, a survey was carried out in the form of an online questionnaire.

Four hypotheses have been formulated and are as follows:

H1 = the levels of influence on Business Process Management of influential factors are the same across knowledge-intensive business services in Europe.

Knowledge-intensive business services (KIBS) are defined as “*firms performing, mainly for other firms, services encompassing a high intellectual added-value.*” (Muller & Zenker, 2001) Organizations operating as a knowledge-intensive business service provider usually offer knowledge intensive services, problem-solving consulting and client-related interaction services. Thus, the definition of KIBS does not imply that one particular influential factor has more impacts on future developments on Business Process Management than others.

H2 = the size of the business does not influence the level of influence of the influential factors on Business Process Management

99,2% of organizations within European industries are small and medium sized enterprises (European Union, 2017). Literature does not exclude the implementation of Business Process Management in small and medium sized organizations and other factors such as strategy or leadership & management do apply for all types and sizes of organizations.

H3 = the age provide by the participant is significant for the level of influence of the influential factors on Business Process Management

Members of the Baby Boomer generation are still holding influential positions with authority within organizations and thus are strongly related to influential factors such as strategy or leadership and management (Anantatmula & Shrivastav, 2012). Innovation and digitization are more connected to Generation Y or also called Digital Natives or the Google Generation (Meister & Willyerd, 2010), therefore the implication of different viewpoints on influencing factors is immanent.

H4 = the primary influencing factors on Business Process Management are the six provided (strategy, organizational evolution, generational workforce, leadership & management, innovation & digitization and Supply Chain Management & circular economy)

Chapter 3 provides a comprehensive literature review that already shows strong relations to Business Process Management. A quick check on all published papers in the Business Process Management Journal of 2016 and 2017 (Emerald Insight, 2017) showed that the main topics under research were Internet of Things, Data Analysis, Innovation, Supply Chain Management and Strategic Performance Management.

The results of this survey are analysed in detail using statistical methods and presented in chapter 5. In this case, special attention is paid to the validation or refutation of the hypotheses.

3. LITERATURE ANALYSIS

The origins of Business Process Management with the division of labour approach, the Scientific Management and production lines for mass production in mind and the General System Theory as basic implication provide an historical overview of about 100 years. The discipline of Business Process Management became a management approach due to the theory of Business Process Redesign published by Hammer & Champy (1993). The term automation and thus process automation is part of the 3rd Industrial revolution that has started at about the same time.

Technologies like Internet of Things, Artificial Intelligence and Cloud Computing stress out the need for Business Process Management as for example the orchestration and choreography of so called end-to-end situational business processes that are spanned over several value webs is possible with cloud based services (Fingar & Stikeleather, 2012).

The connection between strategy and Business Process Management is described by Porter (1996) by reaching the perfect fit of activities to gain advantage. No fit among activities means no distinctive strategy. Process-centric organizations manage their fitting activities with business processes.

Organizational theory and design do have an influence on how business processes are implemented within an organization. Typically, the traditional organization is seen as hierarchical with silo departments where the processes are executed within those silos. Thanks to organizational evolution from functional hierarchies over divisional hierarchies, strategic business units and matrix organizations, newer forms such as networks, team-based or cellular organizations evolve where processes are executed without hierarchies in mind, but in team-based structures.

Bearing the generational workforce in mind, Business Process Management as a means of communication lacks conducted research to deal with. Generations prefer explicit communication patterns where a standardized business process notation is only one out of many. The question on how process information is best transmitted to the recipient needs further research, also in relation to different leadership styles.

The term leadership evolved over the past century from control and centralization of power to authentic, spiritual, servant and adaptive leadership. The distinction between leadership, that is defined as providing direction and motivating people (Northouse, 2016) and the term management can be found in the four management functions of planning, organizing, leading and controlling (Fayol, 1949). Management has to decide on how and if Business Process Management is implemented within an organization related to its organizational form. Simple structure organizations do not need Business Process Management while divisional forms profit from process management as core experts are responsible for organizational procedures (Palkovits-Rauter, 2017).

Innovation at the first glance seems to avoid rigid process definition as being innovative usually means being creative. The customer-centred innovation map describes a process-oriented innovation approach by mapping jobs instead of processes. This helps to innovate better jobs

to serve the customer (Bettencourt & Ulwick, 2008). Emerging technologies and digitization – the use of gathered data – is a fast-growing industry in relation to Business Process Management. People analytics enabling real-time analytics at the needed point of action in the business process related to Human Resource Management is only one example (Schwartz et al., 2017).

Supply Chain Management and Business Process Management go hand in hand as the processes over a supply network can only be orchestrated when the same terminology is used. Developments towards circular processes with closed loops and accompanied new business models are a new trend of holistic and sustainable implementation of Business Process Management.

Concluding the literature review about Business Process Management and six influencing factors the statement is that all of these factors are interrelated and do depend on each other. The higher the level of digitization, the greater the possibility for innovation of circular economy strategies. The better the leaders the higher the motivation of employees. Many more examples could be listed here. In order to find out what exactly the shaping forces are and to which extent they will influence organizational decisions on Business Process Management incentives a quantitative research is described in the upcoming chapters.

4. EMPIRICAL STUDIES / OWN RESEARCH

The questionnaire was structured in three parts with one filter question at the beginning. The first part contained four questions on demographics such as the size of the company the participant is working in and the region where the business is mainly operating, the roles within the organization and the age of the respondent according to the generations identified in this thesis. The second part introduced the participant to the six influencing factors or also called shaping forces: Strategy, Organizational Forms, Workforce (generational perspective), Leadership & Management, Innovation & Digitization and Supply Chain Management & Circular Economy. The last and main part of the questionnaire asked the level of agreement or disagreement on selected statements for each of the six influencing factors on Business Process Management.

This thesis mainly focused on six factors that have potential influence on the future development of Business Process Management. Figure 1 shows that based on 259 answers 9,7% of the respondents see Supply Chain Management & Circular Economy as being influential, 10% state the Generational Workforce as important factor and 15,4% of the answers state that the Organizational Evolution has potential to influence BPM. Strategy with 22% and Innovation & Digitization with 25,1% are the most influential factors that will have an impact on future developments on Business Process Management.

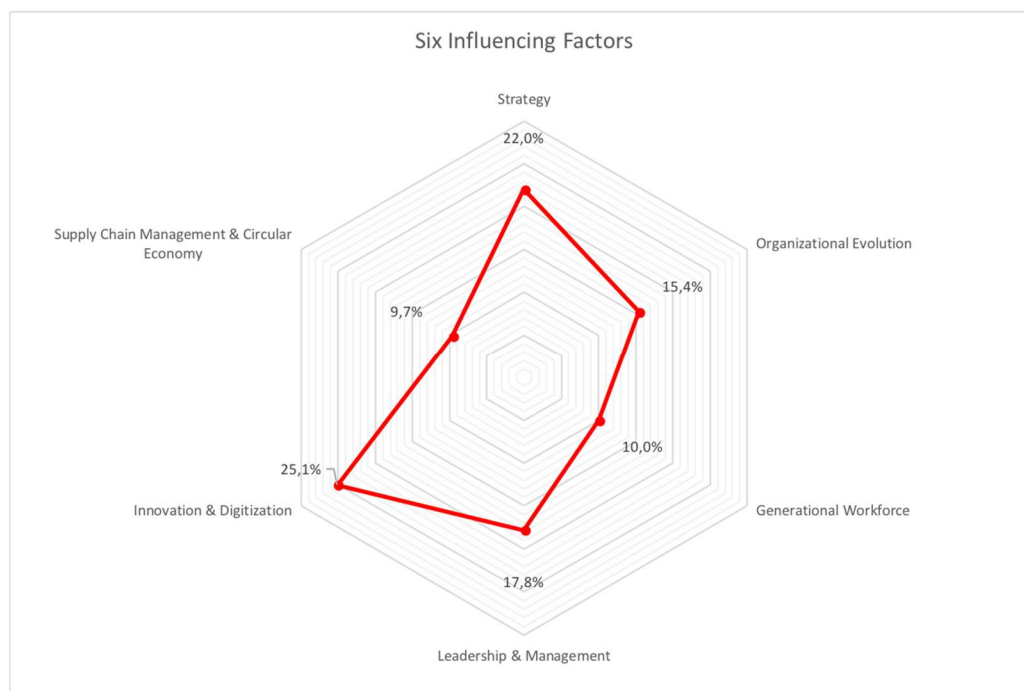


Figure 1 Influencing Factors

Taking also other listed influencing factors into account, the graphical representation looks like depicted in Figure 2.

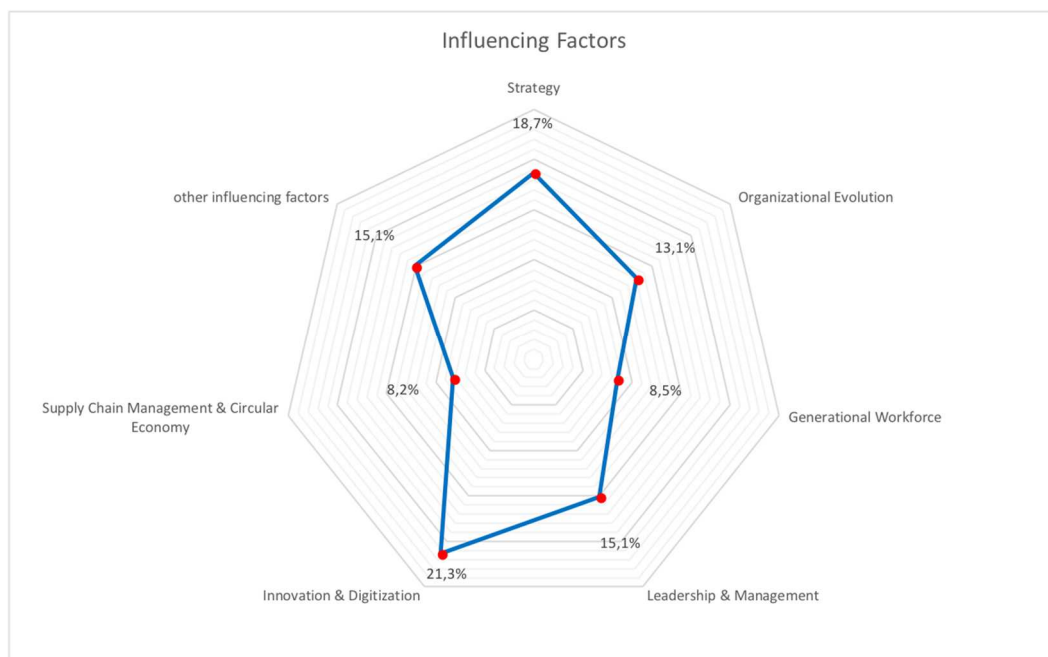


Figure 2 Influencing Factors plus others

5. RESULTS

Chapter 2 of this thesis describes the research question as well as the hypotheses of the quantitative analysis. The hypotheses are listed below:

H1 = the levels of influence on Business Process Management of influential factors are the same across knowledge-intensive business services in Europe

H2 = the size of the business does not influence the level of influence on Business Process Management of the influential factors

H3 = the age provide by the participant is significant for the level of influence of the influential factors on Business Process Management

H4 = the primary influencing factors on Business Process Management are the six provided (strategy, organizational evolution, generational workforce, leadership & management, innovation & digitization and Supply Chain Management & circular economy)

The following sections will now verify or falsify the given hypotheses.

5.1 KIBS and Influencing Factors

Knowledge Intensive Business Services emerged back in the late 1980s and early 1990s in the United States and Europe and are labelled as enablers of the innovation process in the new economy. *“Knowledge intensive business services (KIBS) can be described as firms performing, mainly for other firms, services encompassing a high intellectual value-added”* (Muller & Zenker, 2001). KIBS can be separated in two categories, one representing traditional professional services heavily using new technologies and new technology-based KIBS trading with software or computer-related activities. Three main features of KIBS are the knowledge-intensity of provided services for clients, the function of (problem-solving) consulting and the services provided that are strongly interactive and often client-related (Muller & Zenker, 2001).

Knowledge-intensive service firms are seen to be heavily engaged in innovation activities and thus are drivers for service innovation for new products and technologies, new processes as well as new organizational types or marketing procedures. Innovation in KIBS compared to technologically oriented processes in the manufacturing sector has the following shaping factors: no innovation without the human factor, production and consumption are not separated processes, innovative services are intangible and are strongly characterized by interaction between consultant and customer (Schricke et al., 2012).

Knowledge-intensive business services added 74,08% to the GDP within the European Union in 2016 (World Bank. (n.d.) Europäische Union, 2018).

19,8% of the survey respondents are working in knowledge-intensive services (post and telecommunications, computer and related activities and research and development), followed by other knowledge-intensive services (education, health and social work, recreational, cultural and sporting activities) with 17,1%. These two categories summarize to KIS (knowledge-

intensive services). 15,5% of the participants are working in knowledge-intensive business services such as computer and related activities, research and development and legal, technical and advertising.

For 17 of respondents who indicated to work in a knowledge-intensive business service, the most influential factor on Business Process Management is “Innovation & Digitization”. Knowledge-intensive business services highly contribute to the innovation process. This fact is thus also reflected in the survey results. “Strategy” is the second important influencing factor (19,4%) followed by “Supply Chain Management & Circular Economy” with 11,9%, see Figure 3.

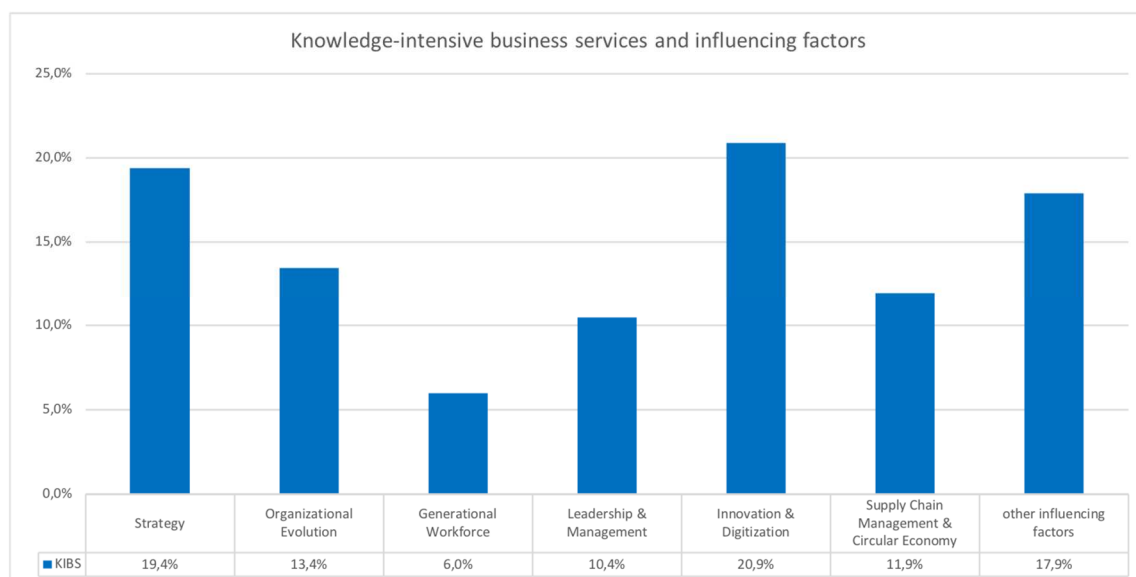


Figure 3 KIBS and influencing factors

Other factors that potentially have an influence on Business Process Management are listed by respondents working in knowledge-intensive business services as follows:

- “*Awareness of potential of BPM skill set*” – this additional factor could be seen as part of Organizational Evolution in combination with Generational Workforce and Leadership & Management
- “*Cost reduction*” – this factor is a strategical decision when starting a Business Process Management initiative
- “*Devolving decision-making authority*” – this factor is part of the influencing factor for Organizational Evolution as decision making is changing with evolving organizational forms such as networks
- “*Industry 4.0*” – the author of this thesis counts this additional factor to Innovation & Digitization
- “*Infrastructure of company*” – this factor provides a new insight of influencing factors
- “*Resources*” – this factor is redundant with the factor “*Infrastructure of company*”

- “*Service and quality orientation resp. customer orientation*” – this additional factor is an important issue of an organization`s strategy and thus is part of the influencing factor Strategy
- “*Courage*” – without context it is not quite clear what the participant of the survey meant with this factor, but as there is room for assumptions, courage could be seen in the context of being brave to face the challenges of the market and force an organizational evolution
- “*Internet of Things*” - the author of this thesis counts this additional factor to Innovation & Digitization
- “*Measuring outcomes instead of process compliance*” – Business Process Management implicitly measures outcomes and not only process compliance
- “*Artificial Intelligence*” - the author of this thesis counts this additional factor to Innovation & Digitization
- “*Collaboration through communication and outcome deliveries*” – this factor can be found within the factor Organizational Evolution as well as Generational Workforce with evolving communication needs and Leadership & Management as guidance of collaboration and working processes

Hypothesis 1 (H1 = the levels of influence on Business Process Management of influential factors are the same across knowledge-intensive business services in Europe) is refuted as the influencing factor “Innovation & Digitization” has a higher level of influence on future developments of Business Process Management according to the respondents of the questionnaire.

5.2 Size of Business and Influences on Business Process Management

Small and medium sized enterprises (SMEs) are the core elements within European industries. 99,2% of all organizations within EU-28 in the non-financial sector are run as SMEs, employing more than 93 million people who generate 57% of value added. In comparison to SMEs in the United States, employment and value added grew less rapidly in the EU-28. Japanese SMEs performed even worse in the same time period in 2014 and 2015. (European Union, 2017).

The Annual Report on European SMEs 2016/2017 (2017) states that only 10% of the total number of enterprises are newly created ones in the EU-28 from 2010 to 2014. But even more surprising is the very low percentage rate of 7,9% of start-up organizations within the ICT sector (information communication and technology) of newly created enterprises in the EU-28. 69,9% of these new enterprises have zero employees.

The results from the survey state that 48,1% of the participants are working in organizations with less than 500 employees. This is far less than the percentage rate of SMEs in Europe. The rest of the participants (51,9%) are working in larger organizations. This fact reflects findings that small organizations do not invest in costly Business Process Management initiatives.

Business Process Management frameworks are typically tailored to medium sized and large organizations. Due to the lack of application benefits and case studies, the sector of SMEs is

not fully aware of the strategic importance of managing processes (Dallas & Wynn, 2014). Findings within the survey have shown that professions related to Business Process Management such as Process Practitioner, Lean / Six Sigma Practitioner, Business / Process Architect, BPM Instructor or BPM Consultant are rare among the participants. Three respondents stated to have the role of a Business / Process Architect, five Process Practitioners participated in the survey and only one BPM Instructor responded to the survey, see Figure 4.

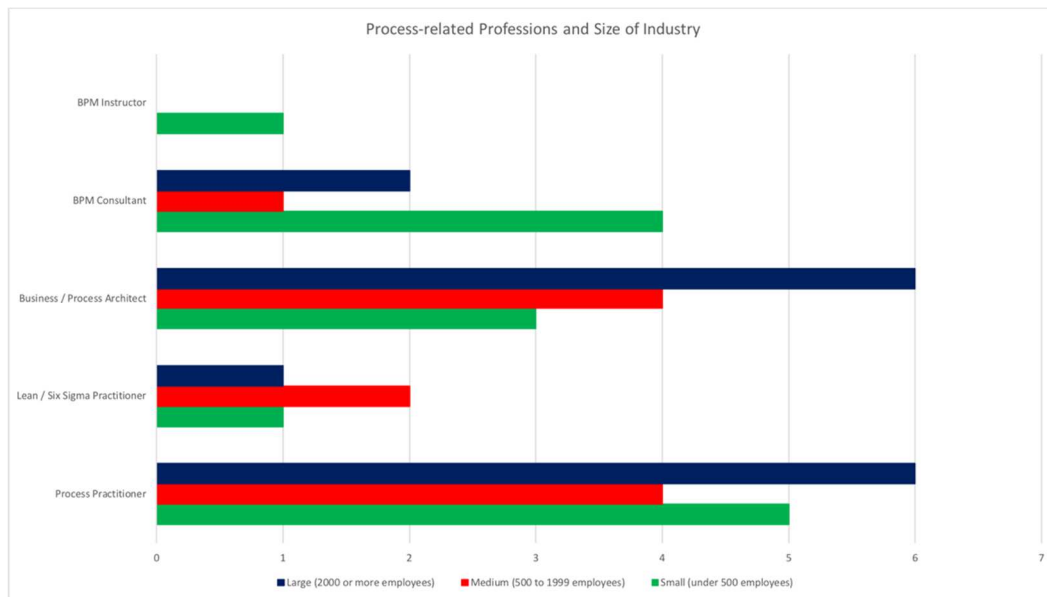


Figure 4 Size of Industry and process-related Professions

Hypothesis 2 (H2 = the size of the business does not influence the level of influence on Business Process Management of the influential factors) is partly validated as the level of influence is nearly the same for the following factors:

- “Leadership & Management” (between 13,7% for large businesses and 16,4% for medium-sized businesses)
- “Generational Workforce” (between 6,9% for large businesses and 9,8% for medium-sized businesses)
- “Supply Chain Management & Circular Economy” (between 7% for small businesses and 9,8% for medium-sized businesses)

The levels of influences are diverging for three other influencing factors as well as within the open question for other listed influencing factors:

- “Strategy” (between 16,2% for small businesses and 23% for medium-sized businesses)
- “Organizational Evolution” (between 7,8% for large businesses and 16,9% for small businesses)
- “Innovation & Digitization” (between 18% for medium-sized businesses and 23,2% for small businesses)

- Other influencing factors (between 9,8% for medium-sized businesses and 22,5% for large businesses)

5.3 Generations and Influencing Factors

The age distribution among inhabitants of the European Union in 2016 shows that 65,11% were aged between 15 and 64 years (World Bank (n.d.) European Union, 2018). In this survey the range of age was defined by the generations but it can be stated that about 84,8% of the participants are within this age range (summing up the results for Generation X and Y).

More important in this context is the view on the influencing factors and the different generations. As already mentioned, Innovation & Digitization is a highly ranked factor for Generation X and Y. For Baby Boomers, ranging from 54 to 72 years, other influencing factors were of higher importance. These additionally stated factors are listed below:

- *“Awareness of potential of BPM skill set”* – this additional factor could be seen as part of Organizational Evolution in combination with Generational Workforce and Leadership & Management; knowledge improvement and trainings of skilled employees as an asset and influences the implementation and the success of Business Process Management
- *“complexity of business”* – this factor counts to the factor Strategy; in the author’s opinion the higher the business complexity the higher the need for Business Process Management
- *“devolving decision-making authority”* - this factor is part of the influencing factor for Organizational Evolution as decision making is changing with evolving organizational forms such as networks
- *“Infrastructure of company”* - this factor provides a new insight of influencing factors
- *“Management commitment incl. funding and staffing”* – this factor can be counted to the influencing factor of Leadership & Management
- *“Multiple revenue streams from a common Fixed Asset”* – multiple business models deriving from fixed assets could be part of the influencing factor Strategy
- *“Readiness to think and work in defined processes”* – this additional factor perfectly fits the influencing factor of Generational Workforce as different generations need different processes
- *“Trust of management in capability of BPM and respective staff together with the willingness to abandon some levels of power”* – with this statement two influencing factors can be addressed: Organizational Evolution and Leadership & Management
- *“Accepting the factor that IT is (just) a tool and won’t solve business problems without aligned processes”* – this statement is on the contrary to the influencing factor of Innovation & Digitization
- *“Education of staff”* - this additional factor could be seen as part of Organizational Evolution in combination with Generational Workforce and Leadership & Management; knowledge improvement and trainings of skilled employees as an asset and influences the implementation and the success of Business Process Management

- *“Measuring outcomes instead of process compliance”* – Business Process Management implicitly measures outcomes and not only process compliance
- *“Omni channel (event of sale, retail, web) sales and distribution”* – this additional factor is part of the influencing factor of Strategy
- *“Real focus on customer requirements”* - this additional factor is part of the influencing factor of Strategy
- *“Self-dependence of staff”* – this statement is a mixture of the influencing factors of Generational Workforce and Leadership & Management
- *“Collaboration through communication and outcome deliveries”* - this factor can be found within the factor Organizational Evolution as well as Generational Workforce with evolving communication needs and Leadership & Management as guidance of collaboration and working processes
- *“Individual sensitivities can be road blocks for successfully running BPM”* – this statement is part of Leadership & Management
- *“Type and number of interfaces”* – there are human as well as IT interfaces, so the author would assign this statement to Leadership & Management as well as Innovation & Digitization
- *“Willingness to share knowledge”* – this additional factor fits to the influencing factor of Leadership & Management

These results provide the important information that information technology, innovation or digitization are less important factors for representatives of the Baby Boomer generation. This influencing factor “Innovation & Digitization” only ranges at a level of 13,6%. In comparison to Generation Y, where the influencing factor “Innovation & Digitization” ranges at 23,3% and other provided factors are for example Artificial Intelligence, Internet of Things, Industry 4.0 or automation of Business Process Management tasks.

Hypothesis 3 (H3 = the age provide by the participant is significant for the level of influence of the influential factors on Business Process Management) is verified.

5.4 Other Influential Factors

Based on expert workshops and a deep literature review, six shaping forces that potentially have an influence on future developments of Business Process Management, were offered as given in the online survey for this thesis.

To give room for other opinions and to share world-wide experience of Process Practitioners, the survey respondents were asked to state other influencing factors related to Business Process Management.

When examining these 44 influential topics, as already stated earlier, 14 of these answers are directly related to the six influential factors provided by the author. To give an example, the term “technology” can be related to the factor “Innovation & Digitization”.

- Core processes influence strategic goals and vice versa.
- A competitive strategy is the perfect fit of business process activities to succeed on the market.
- Organizations with focus on the value chain and the surrounding system are able to sustain competition.
- Agile in the customer context means adjusting everything in the organization – strategy, principles, values, processes, systems, data structures - to generate continuous new value.
- Processes in circular economies have to be derived from sequential supply chains to be able to understand possible improvements.
- The better all participants within the supply chain know the processes the more successful the supply chain.
- Supply Chain Management is defined by a very structured and detailed business processes framework.

In contrary to these variables, the following statements are negatively related:

- Employees who follow rigid process descriptions become unmotivated and reluctant.
- The generational workforce within an organization has different communication needs on process information.

This negative correlation means that these two variables are seen to be false statements in the context of the component “Strategy”.

Thus, the component “Strategy” comprises interrelations between the influencing factors “Strategy”, “Organizational Evolution”, “Supply Chain & Circular Economy” and “Generational Workforce”.

The second component is called “Agile” which sums up the following statements on agility:

- Managing an agile organization means having an agile mindset and implementing agile methodologies.
- Business processes in agile organizations do exist but are designed differently (eg continuous improvement process).
- Supply chain networks are a sustainable alternative to sequential supply chains.
- Agile in the customer context means adjusting everything in the organization – strategy, principles, values, processes, systems, data structures - to generate continuous new value.
- Processes in circular economies have to be derived from sequential supply chains to be able to understand possible improvements.
- A standardized process model notation is an adequate means of visualization for the younger workforce (Millennials) to communicate processes.
- A perfect mix and match of leadership styles helps managing a diverse workforce.
- Flat organizational structures with adequate leaders are the key for the generation gap.

The component “Agile” consists of elements of the influencing factors “Leadership & Management”, “Supply Chain & Circular Economy” and “Generational Workforce”.

The third component “Innovation” comprises the following statements:

- Process innovations as transformative ideas can be explored in any function of an organization, not only in product development.
- Circular economy has the potential to become the de-facto standard for economies.
- The better all participants within the supply chain know the processes the more successful the supply chain.
- The generational workforce within an organization has different communication needs on process information.
- Supply Chain Management is defined by a very structured and detailed business processes framework.
- Innovations due to technology evolution will generate new working opportunities.

Two variables are negatively related:

- A standardized process model notation is an adequate means of visualization for the younger workforce (Millennials) to communicate processes.
- Every employee can become a good leader by obtaining leadership skills.

The component “Innovation” consists of elements from the influencing factors “Innovation & Digitization”, “Supply Chain & Circular Economy”, “Generational Workforce” and “Leadership & Management”.

Component number four was labelled “People” and comprises the following variables:

- Digital natives (Millennials and Generation Z) are forcing the development of technology and digitization within organizations.
- Innovations due to technology evolution will generate new working opportunities.
- A well-defined and communicated strategy as well as skilled, enthusiastic people are not able to compensate unstructured or badly automated business processes.
- Having a digital strategy is essential for staying competitive.
- The provision of appropriate team networking conditions is essential for innovation processes.
- A perfect mix and match of leadership styles helps managing a diverse workforce.

Negatively related within the component “People” is the statement that the generation gap can be closed by the workforce itself. Thus, this component comprises statements of the influencing factors “Generational Workforce”, “Innovation & Digitization”, “Organizational Evolution”, “Strategy” and “Leadership & Management”.

Component five is labelled “Organizations” and comprises the following positively related variables:

- The provision of appropriate team networking conditions is essential for innovation processes.

- Platform businesses such as Apple's iPhone and App Store do not optimize business processes but use other metrics to measure success.
- Team-based organizational forms have to reinvent organizational processes, with processes like playbooks with defined start and end but loose activities.
- Dedicated innovation teams should be freed from structured organizational processes.
- Every employee can become a good leader by obtaining leadership skills.
- Innovation networks need process structures to work properly.
- Organizations of the future are built without structural hierarchies and with networks of empowered teams.

This component thus consists of statements related to the influencing factors “Innovation & Digitization”, “Organizational Evolution”, “Strategy” and “Leadership & Management”.

The last component “Structure” comprises the following related variables:

- Supply chain networks are a sustainable alternative to sequential supply chains.
- A well-defined and communicated strategy as well as skilled, enthusiastic people are not able to compensate unstructured or badly automated business processes.
- Platform businesses such as Apple's iPhone and App Store do not optimize business processes but use other metrics to measure success.
- The digital age influences strategies in many ways (networked customers, data generated in all processes or rapid experimentation in innovation).
- Organizations of the future are built without structural hierarchies and with networks of empowered teams.
- Flat organizational structures with adequate leaders are the key for the generation gap.

Two negatively correlating statement are the ones on the perfect mix and match of leadership styles helping to manage a diverse workforce and on innovation networks that need process structures to work properly.

The sixth component is thus the one combining statements of all six influencing factors that have a potential influence on future developments of Business Process Management.

5.6 Overall Result on Quantitative Research

Figure 6 describes the main output of the quantitative research underlying this thesis. This lollipop graphic represents different findings that are illustrated by bubbles, arrows, and connectors and summarizes also the prose interpretation of the factor analysis.

The first main finding is the size of the circles indicating the level of influence on future developments of Business Process Management. The biggest circle represents the factor “Innovation & Digitization” with an influence level of 25,1%. This level is also represented by the thickness of the connector from BPM to “Innovation & Digitization” and the digits itself. The factor “Supply Chain Management & Circular Economy” has the lowest level of influence with 9,7%.

The second and not fewer interesting findings are the interdependencies between the six shaping forces. As result from the factor analysis, positive and negative correlations among the 30 statements provided in the questionnaire were identified. One controversial statement relating the influencing factor “Strategy” with “Organizational Evolution” was that employees who follow rigid process descriptions become unmotivated and reluctant.

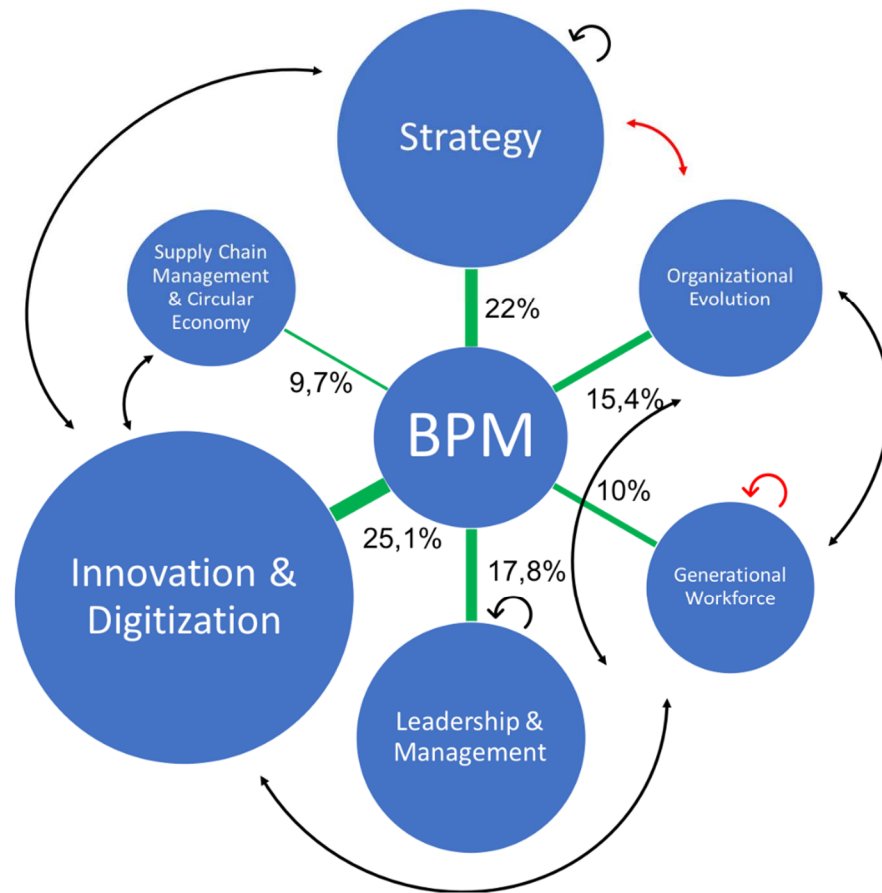


Figure 6 Overall view on influencing factors on BPM

5.7 Summary

The results and outputs described in chapter 5 Empirical Studies refute hypothesis 1 (H1 = the levels of influence on Business Process Management of influential factors are the same across knowledge-intensive business services in Europe), partly verify hypothesis 2 (H2 = the size of the business does not influence the level of influence on Business Process Management of the influential factors) and verify hypothesis 3 (H3 = the generation the participant can be counted to is significant for the level of influence on Business Process Management of the influential factors) and 4 (H4 = no other influential factor has a higher level of influence on Business Process Management than the given influential factors).

The prose interpretation strongly stresses out that the provided influencing factors are dependent on each other and therefore not only influence future developments of Business Process Management but also each other.

6. NEW SCIENTIFIC STATEMENTS (THESES)

In the beginning of the 20th century, theories of Smith, Ford, Taylor and Fayol formed and revolutionized organizational behaviours in the way how production was structured, and resources were used. Business Process Management evolved out of the 3rd Industrial Revolution where efficiency goals, cost cutting initiatives and process automation through the use of technology changed entrepreneurship.

Benefits of Business Process Management to different stakeholders - such as improved processes with a positive impact on customer satisfaction or a precise definition of the appropriate set of tools for process actors - are made clear to process practitioners and the top management in order to justify investment costs for implementing Business Process Management on an organization-wide level.

A process-centric organization defines its process architecture with three types of processes (management, core and support processes) along their organizational structure, typically hierarchically managed. Top management and staff organizations are responsible for management processes, production or service divisions are managing core processes and departments like Human Resources or Information Technology are responsible for support processes.

The question introduced in the first chapter of this theses on the impact influencing factors do have on processes within organizations and whether management has to rethink process activities due to such influences will be answered in the following paragraphs.

Respondents of the online questionnaire stated that the level of influence of the factor “Strategy” is 22% and thus will have an influence on future developments on Business Process Management, but how will these changes look like? Let us remember the definition of Strategic Management provided by Gluck et al. (1982):

“Strategic Management should refer to some special kind of management process or system, one that links strategic planning and decision making with the day-to-day business of operational management.”

This ‘management process or system’ changes with evolutions within other influencing factors. Platform businesses have different approaches towards gaining competitive advantage than classical pipeline businesses. Agile and network organizations do not separate strategic planning and decision making from day-to-day business. Technology allows customers to become members of the management process or system and thus the decision-making process within organizations. Innovation is most powerful when separated from traditional management processes and day-to-day business of operational management. Strategy cannot be analysed stand-alone. Almost all discussed influencing factors interact with strategy and Strategic Management.

When an organization decides to implement Business Process Management it is not enough to study standard literature on the management approach itself anymore.

The way how business processes are managed with respect to the organizational structure is different. Hierarchical pyramids define their processes along management levels and staff functions like human resources, information technology, purchasing, finance, controlling, marketing and many more. Self-organizing teams in team-based or networking organizations perform most of the functions by the teams themselves. Usually few staff members remain but only have an advisory role. The coordination in such networking organizations is done within the team or in ad-hoc meetings when the need arises. Hierarchical structures coordinate via rigid meeting structures with a knowledge cascade from top management downwards. Even project-oriented organizations have huge amounts of strict processes to conduct day-to-day business via projects. Teams work with organic prioritization and self-staffed projects.

As processes are designed along hierarchical organizational structures, decision making is also usually high up in the pyramid and overrules all inferior hierarchical decisions. These process structures also imply a process-oriented information flow, where information is only extracted where needed in the process. New organizational structures implement the so-called advice process, which is fully decentralized. Due to networked structures and usually a vast usage of technology, information is available anywhere at any time to everyone.

With new evolving organizational forms management has to change and become agile. Agile in this context means operating with common mind-sets as a network of high-performance teams within the whole organization. This also changes leadership in a way that leaders are not created or inherited, but act as servants to help develop specialized skills of employees.

Innovation & Digitization as most influential factor for future developments with a level of 25,7% is influencing not only Business Process Management but all other influencing factors. The use of technology allows changing business models from pipeline to platform businesses, information flows without barriers within supply chain networks, shared business processes with the help of cloud computing, permanent connectivity of employees and customers and gaining competitive advantage through the use of Artificial Intelligence or Robotic Process Automation.

The three levels of the Business process pyramid representing the corporate level with strategic decisions such as vision, goals, the overall process architecture or the performance measurement techniques, the business level with the definition of how Business Process Management is implemented and the functional level with the representation of the organizational structure and the available resources for the execution of the processes.

Decisions on new organizational forms, the use of information technology, the knowledge about generational workforce and changes in leadership and management are changing this business process pyramid. There are no level separations as there is no defined overall strategy and no rigid process architecture defined over organizational structures. The processes themselves are existing but are more fluid and agile and even scalable according to the current situation the organization is facing.

The following paragraphs provide a structured guideline according to the main findings of this thesis. The implementation strategy of Business Process Management including the definition of goals is dependent on six influencing factors: Strategy, Organizational Evolution,

Generational Workforce, Leadership & Management, Innovation & Digitization and Supply Chain Management & Circular Economy.

6.1 Decisions on Implementation of Business Process Management

As already stated, a lot of factors are changing organizational environments and organizations themselves. Many reasons are provided why a company should focus on its processes. Only an organization that knows how to manage its processes will remain in the market.

The first decision an organization will have to make is on how Business Process Management is implemented. The goals of this initiative are helping to decide which focus is the most appropriate one, see Figure 7.

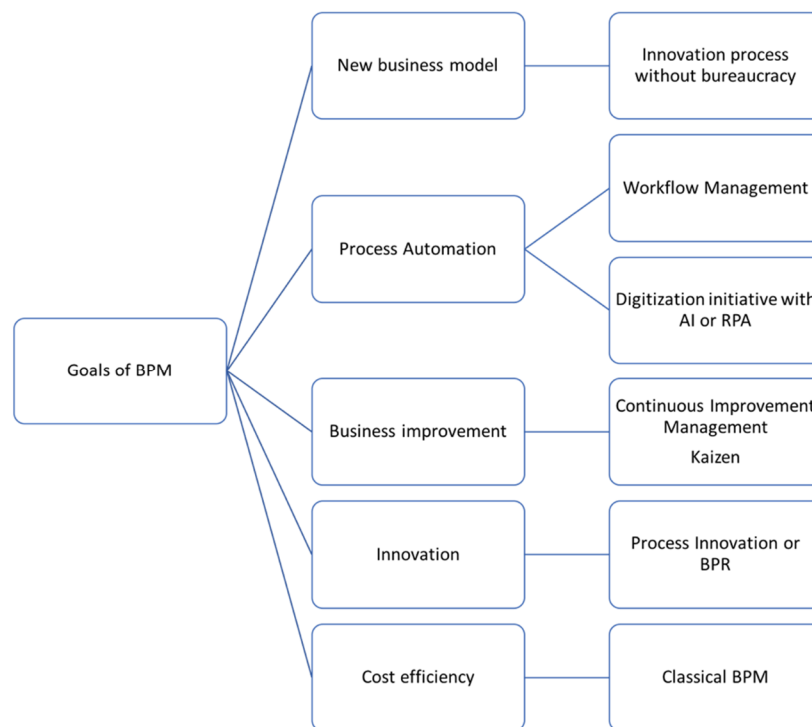


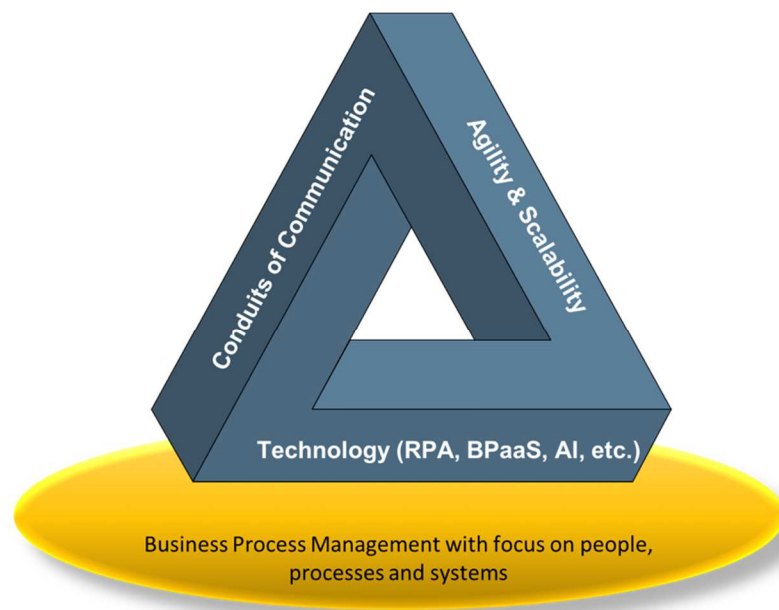
Figure 7 Decision on Goals of Business Process Management, own illustration

According to Armistead (1996) Business Process Management should focus on people, processes and systems. This forms the basis and the foundation of the structure of the proposed Business Process Management approach of this thesis, graphically depicted in Figure 8.

One of the three interconnected pillars is the used technology for Business Process Management. The more advanced an organization is in technology use, the more advanced its BPM efforts will be. Simple process automation is no longer applicable as Artificial Intelligence, Robotic Process Automation, cloud-based Business Processes as a Service (BPaaS) or machine learning algorithms can boost one's business.

The conduits of communication are important in respect to how business processes are communicated to which audience. Not only generational differences are important, but also the degree of information, the level of detail, the kind of resources involved in the process and the technology how the information is submitted have to be determined.

Agility and scalability refer to the degree of process definition and the level of detail. Not every business process is worth documenting and defining as it is rapidly changing or not value adding. It is recommended to design business processes in iterations with the help of sprints to dynamically evolve usable output.



*Figure 8 Pillars of Business Process Management,
own illustration*

The main outcome of this thesis is that the six shaping forces introduced to the respondents of the survey are the ones with the highest impact on future developments of Business Process Management. Based on this result organizations have to focus on these six concepts in combination with Business Process Management and follow the structured guideline, provided in Table 1.

Table 1 Structured Guideline for six shaping forces, own illustration

Strategy	Question	YES/NO	Answer
	Are my strategic goals still valid?	YES	Align processes to these strategic goals.
		NO	Take existing process metrics as input for new goals.
	Did I consider all necessary strategies for my organization?	YES	Align all strategies (digital, marketing, financial, etc.).
		NO	Start to work on necessary strategies.
	Are my processes fitting to strategic goals?	YES	Competitive advantage is given.
		NO	Reconsider both, strategy and processes.
	Is my strategy customer-centric?	YES	Align processes to optimally satisfy customers.
		NO	Examine customers, create customer journey and align strategy.
	Will my strategy hold against disruptive forces?	YES	Be aware of disruption anyway!
		NO	Examine possible disruptors and align strategy.
Organizational Form	Question	YES/NO	Answer
	Are my processes aligned with the organizational structure?	YES	Measure process efficiency with KPIs.
		NO	Rethink and redesign processes and structure.
	Is my organizational structure most suitable for my business?	YES	Optimize for further advantage.
		NO	Change organizational structure in an orderly manner.
	Should dedicated teams be employed?	YES	Free them from bureaucracy.
		NO	Integrate teams into organizational structure.
	Is my organization a learning organization?	YES	Optimize knowledge sharing.
		NO	Emphasize on changes to ensure learning organization.
	Do my processes bridge interfaces between teams?	YES	Optimize for avoiding any gaps.
		NO	Redesign processes and structure, think of technology.
Generational Workforce	Question	YES/NO	Answer
	Does my organization employ different age groups?	YES	Know your generational workforce.
		NO	Think of appropriate conduits of communication.
	Is process information communication adjusted?	YES	Handle all conduits in the same way.
		NO	Rethink communication methods and adjust.
	Are generational differences known?	YES	Take care of these differences and close the gap.
		NO	Ask employees and find out.
	Is the management flexible to handle generational gap?	YES	Make them leaders.
		NO	Employ leaders instead of managers.
	Is a mentoring system employed?	YES	Share knowledge about the results.
		NO	Develop bidirectional mentoring system.
Leadership / Management	Question	YES/NO	Answer
	Is my management thinking agile?	YES	Align processes and make them nimble.
		NO	Align processes to organization to avoid gaps.
	Do I employ leaders?	YES	Explore and profit from their skills.
		NO	Employ leaders, get rid of managers.
	Do leaders encourage innovation?	YES	Free them from rigid processes.
		NO	Employ dedicated teams who manage themselves.
	Is only top management making decisions?	YES	Change decision-making process.
		NO	Communicate decision-making process.
	Are my processes aligned with my leaders' mindset?	YES	Communicate these processes.
		NO	Align processes to leaders' mindsets.
Innovation / Digitization	Question	YES/NO	Answer
	Does my organization practice innovation?	YES	Free the teams from structured organizational processes.
		NO	Encourage employees to innovate.
	Is the right technology employed for innovation?	YES	Use available technology.
		NO	Make right decisions on technology.
	Is my organizational structure allowing innovation?	YES	Free the teams from structured organizational processes.
		NO	Rethink organizational structure.
	Do I take advantage of collected data?	YES	Use data for predictions.
		NO	Learn how to take advantage of collected data.
	Do I consider new business models due to innovations?	YES	Develop new business models and employ them.
		NO	Learn how to develop new business models.
SCM / Circular Economy	Question	YES/NO	Answer
	Do I manage the supply chain with technology?	YES	Know your partners within the supply chain.
		NO	Take advantage of integrated processes and systems.
	Is my supply chain a network?	YES	Interact with this network.
		NO	Learn how to move to a networked supply chain.
	Do I consider new processes out of the existing supply chain?	YES	Develop closed loops.
		NO	Learn how circular economy works.
	Is sustainability important to me?	YES	Redesign your processes within the supply chain.
		NO	Start to think sustainable.
	Are my supply chain processes agile?	YES	Share knowledge within supply chain partners.
		NO	Employ lean practices and become agile.