

BUSINESS PROCESS AS A SERVICE - A FLEXIBLE APPROACH FOR IT SERVICE MANAGEMENT AND BUSINESS PROCESS OUTSOURCING

Daniel Paschek

Politehnica University of Timisoara, Romania
paschi88@gmx.net

Adelin Trusculescu

Politehnica University of Timisoara, Romania
adelin.trusculescu@upt.ro

Adrian Mateescu

Politehnica University of Timisoara, Romania
adrian.mateescu@ymail.com

Anca Draghici

Politehnica University of Timisoara, Romania
anca.draghici@upt.ro

Abstract:

The optimization of information technology (IT) customer through service provider is still a challenge. As provider, you have to have a look on budget, cost, scope, application and many more important factors to adapt and enhance the customer IT environment. Through to the IT development to the age of digitalization and Cloud Computing a rethinking of outsourcing approaches take place. Particularly in the field of process management new valuation to satisfy customer needs can be found in practice. For this reason, the purpose of this study is to examine the advantages and the usability of Business Process as a Service in the field of Business Process Outsourcing and IT Service Management and the trend of SMAC (social, mobile, analytics, cloud). The research methodology used for this investigation consists of the IT-Service Management basics in outsourcing deals combined with the advantages and disadvantages of Business Process as a Service. To identify and assess the usability a field study with Business Process Outsourcing customers take place. The aim of the research is to evaluate whether these methods can positively contribute to every process outsourcing deal. The main finding of this research is an Analysis Application to use Business Process as a Service for Business Process Outsourcing deals. This allows companies to use the Application to identify whether the Business Process as a Service outsourcing will have advantages for this Outsourcing project.

Keywords: business process as a service; business process management; business process outsourcing; IT-Service management; SMAC

1. INTRODUCTION

The fast development of smart devices and the strong increase of business services with further rising complexity are key challenges for the company's and their users as mentioned by (Kurzlechner, 2011). In the age of digitalization, economies of scale and globalisation the demand of flexibility, agility with a high amount of quality in producing service solutions are very high (Kurzlechner, 2011). Today's expectations of customers are far-ranging from fast accessibility via a variety of media, short processing times, high transparency, flexibility and a plus of convenience (KPMG, 2017). To meet these customer requirements a corporation should have the skill to (CIO Bund, 2006):

- Identify and satisfy customer needs;
- To adjust to market changes;
- To develop standardized services and to manage processes with a constant quality output.

To use these skills in combination to meet the customer demands companies use Service Management. ITIL describes Service Management as "a set of specialized organisational capabilities for providing value to customers in the form of services" (Beims, 2014). To develop the requested customer output a company must use appropriate processes (Beims, 2014). There is great deal of complexity in the process landscape of companies with the big challenge to optimize these in time of digitalization in an agile and flexible way (Fahr, 2016).

To remain competitive and be part of the digitalization a company should work on the improvement of the automation, virtualisation, agility, company culture and company structure and whole new business processes (Kroker, 2016).

The aim of this paper is to investigate one special form of Cloud Process Management - the Business Process Management as a Service (BPaaS) and to gain an assessment to use for every outsourcing project assistance a computer based questionnaire. This will support the provider to decide whether the processes can be implemented and optimized via Cloud Computing.

2. SCIENTIFIC BASIS OF THE RESEARCH

2.1. Definition of Digitalization and SMAC

The definition of Digitalization changed over the years. In the early 20th century analogous data like books were digitalized and computer took over first human calculation tasks. In this context, one definition of digitalization is: "Digitalization refers to the practice of taking processes, content or objects that used to be primarily (or entirely) physical or analogue and transforming them to be primarily (or entirely) digital. The effect of digitizing processes, aside from potential efficiency gains, is to make processes more tailorable and malleable" (Fichman, 2014). It is important to understand that digitalization speeds up more and more like with the development of full automation of production flows like the "Industry 4.0" (Hossfeld, 2016). The progress of digitalization will have effects on customer behaviour and structure (Westermann, 2014). To be a successful organization in times of digitalization flexibility and transformability are key attitudes (Bauer, 2015).

Social Mobile Analytics Cloud (SMAC) is a trend and concept of four technologies driving business innovations (De, 2016). Social means wikis, blogs, chats and work spaces with crossing functional, hierarchical and organizational boundaries (Ackx, 2014). Mobile devices allow to work and communicate anywhere and anytime if you have connection. Analytics provide the company's results of Big Data to understand and optimize work and cloud comparable with mobile to save or submit structured and unstructured data in a mobile way and get the opportunity to access these information's at any time (Ackx, 2014). In a nutshell SMAC creates an ecosystem that allows business to improve its operation and service and get much closer to the customer. None of the four technologies can be an afterthought because it's the synergy created by social, mobile, analytics and cloud working together that creates a competitive advantage. (Rouse, 2014).

2.2. Definition of Business Process Management

The aim of Business Process Management (BPM) is to improve the corporate performance by optimizing and managing business process of the company (Schmelzer, 2013). A concrete definition for BPM from the European Association of Business Process Management (EABPM) is a systematic approach, to capture, shape, execute, document, measure, monitor and steering automatic and non-automatic processes to reach coordinated and sustainable company targets. From this perspective, BPM includes

the IT supported assignment, improvement, innovation and sustainment of End-to-End-processes (EABPM, 2009).

Summarized Business Process Management can be formulated as corporate business process optimization and management over the integrated network and single systems like ERP, CRM or SCM. Furthermore, a BPM System has the assignment to coordinates the execution of a business process step by step. By monitoring, evaluating and identifying where business processes crash or do trouble, the BPM System shows where the process had issues and the business get the opportunity to optimize their processes. (Schmelzer, 2013)

2.3. Business Process as a Service – a Cloud Based Process Management

Companies are looking at a more service-oriented approach to services. Business Process as a Service (BPaaS) is a relatively new concept and type of horizontal or vertical business process that's delivered based on the cloud services model (Schlatter, 2014). These cloud services combine software and workflow elements based on Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) (Coyne, 2017). This is illustrated in Picture 1.

Picture 1: BPaaS on top of the Cloud Layer

BPaaS	<ul style="list-style-type: none"> ▪ Encapsulate and Offer all or part of a Business Model ▪ Add IP Value directly without the costs of development ▪ Add & Mature industry practices into SaaS Layer
SaaS	<ul style="list-style-type: none"> ▪ Use of software online through cloud computing ▪ Flexibility to access the application and save data
PaaS	<ul style="list-style-type: none"> ▪ Provides a programming model and developer tools to create and run cloud-based applications.
IaaS	<ul style="list-style-type: none"> ▪ Provides basic IT resources such as computing power, storage

Source: <http://www.qbos.com/img/thestack-BPaaS.png>

Business process as a Service is an approach to make a company's workflow more effective, efficient and adjustable to new developments and frame conditions. This kind of workflow enables businesses to be more flexible and to decrease their spending (Coyne, 2017). A BPaaS is being one or more business processes, which are uploaded to a cloud service that performs and monitors them like a BPM System. In the scientific field there is a differentiation between Business Process Management as a Service (BPMaaS) and Business Process as a Service. Thus, BPMaaS have a very strong adaptability because of the integration of the Process design whereby changes can be made easily (Schlatter, 2014). The differences between these are shown in the following. (Schlatter, 2014)

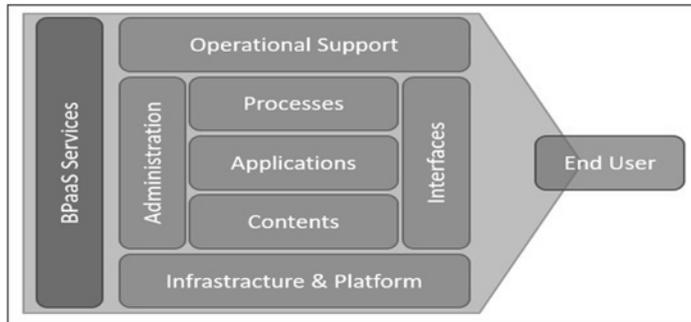
- **BPMaaS:**
 - Enables the service provider to design, implement, operate, and manage business processes through cloud services
 - Control over the life cycle of the business process remains with the company
- **BPaaS:**
 - Business processes are defined by the service provider and be made available to the company via the cloud.
 - The business process is under the control of the service provider and is offered as a service and a configuration is usually possible.

In the following BPaaS will be in the focus of this paper. In addition to the definition of BPaaS the following advantages of Process Management in the cloud can be found (FPT Tech, 2016):

- Decreased costs from not buying and maintaining own servers to manage and coordinate business processes with a Consistent security
- Increased mobility, by accessing the solution from any point;
- opportunity to grow and expand much faster; Easy to scale as the business expands;
- Scalability by allowing companies to add new processes without much infrastructural cost;
- Pay-as-you-go pricing model as most of services running on cloud.

In addition, a BPaaS is a standardized service for use by many different organizations. Because these services are much more optimized to deliver a service consistently, they can leverage automation, standardization, and repeatability in the way the services are used and delivered (Hurwitz, 2017). To show how an integrated BPaaS Architecture can look like, Picture 2 illustrates the composition. In a nutshell BPaaS is Business Processing Outsourcing run as a Cloud Service (Gartner, 2017).

Picture 2: BPaaS Architecture



Source: own presentation based on (Pedro Robledo, 2014).

2.4. Business Process Outsourcing

Business process outsourcing (BPO) is the outsourcing of business processes to external service providers for optimization and cost cutting. The goal of outsourcing is the respite of non-business-critical processes and the associated concentration on the core tasks of a company. A difference is made between the outsourcing of primary processes (production / service creation, research and development, marketing and sales) and secondary processes (accounting, human resources, and customer support) (Schmelzer, 2013). Picture 3 shows a theoretical comparison of the benefits and drawbacks of BPO.

Picture 3: possible Advantages and disadvantages of BPO

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Access to special knowledge ▪ Focus on the core business ▪ Capacity adjustment ▪ Increased efficiency ▪ External innovation impulses ▪ Transfer of operating risks to the BPO service provider 	<ul style="list-style-type: none"> ▪ Problems in the field of process adaptation between companies and BPO service providers ▪ Selection of processes to be outsourced ▪ Lack of flexibility ▪ Conflicts in the maintenance of business secrets ▪ Coordination needs with BPO service provider ▪ Lack of quality

Source: own presentation based on (Söbbing, 2015).

2.5. IT - Service Management

IT Service Management is a general term that describes a strategic approach for designing, delivering, managing and improving the way IT is used within an organization. The target of IT Service Management is to ensure that the right processes, people and technology are in place so that the organization can meet its business goals (Simons, 2013). Therefore, different frameworks (presented in the literature) like ITIL, Six Sigma, COBIT or TOGAF can be applied.

2.6. Evaluation of the scientific status

The theory shows the far-reaching changes through the digitalization in the field of Service Management and Outsourcing. The given opportunities by using Cloud Computing create new business models for the IT sector like usage-to-cash and nearly unlimited economies of scale will further push the SMAC trend and digitalization. This development will have more and more impacts on IT provider and the way they work like the business model. BPaaS is one business model to enable customers to outsource their processes in a digital way.

3. THE RESEARCH METHODOLOGY

For the proposed evaluation and analysis of BPaaS parameters, first an independent survey was executed to identify the customer needs in cases of digitalization. Based on the facts it became clear to set the scope on the process optimization as well as the process outsourcing and service management in the field of digital business transformation. August Wilhelm Scheer, Managing Director of the Scheer Group, underlines the survey results by the statement: “Everything that can be digitized will be digitized. Each process, product and business model becomes digital, so the revolution lies in the processes” (Hoffmann, 2015). With the focus on BPaaS a field study take place to evaluate the premise and to develop the framework parameters for the application of BPaaS. To assess the collected requirements and parameters a BPaaS Tool solution was developed.

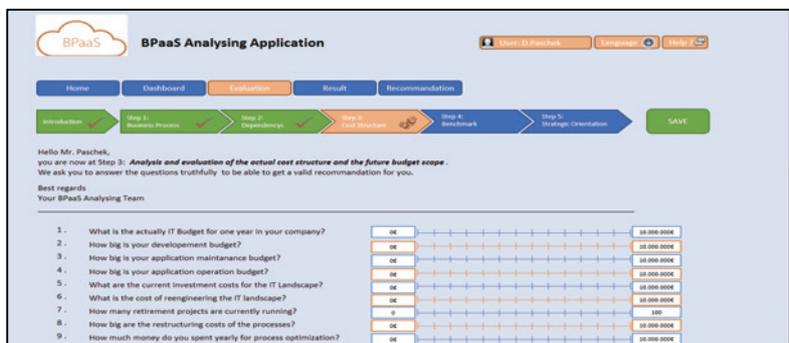
3.1. BPaaS – Application for Business Process Outsourcing

The digitalization offers big opportunities for a fast optimization and harmonisation of business processes quicker than ever before (Bearingpoint, 2016). To provide customers these opportunity’s and enable the focus on the economic feasibility the BPaaS Investigation Application for BPO was developed. The process of analysing the customer based on the results of the realized survey with more than 125 BPaaS Customers. The application process is set up logically into 5 steps which are attuned to one another.

1. Analysis and evaluation of the focused Business Processes and their contribution to value creation;
2. Analysis and evaluation of the functional and operational dependencies to the processes;
3. Analysis and evaluation of the actual cost structure;
4. Analysis and evaluation of the process benchmarking;
5. Analysis and evaluation of the future company targets and strategic orientation.

The customer user will be guided through the application and get further information’s and descriptions to every step, as it is shown in Picture 4.

Picture 4: Mock-up BPaaS Analysis Application



Source: own presentation.

Each step consists of approximately 20-30 questions. The answers are predetermined and based on the survey analysis. In addition, a free text field can be chosen if the desired answer is missing. After the customer answered all questions at the BPaaS Analysing Application the evaluation process runs out with the linking to the result level. The customer get the opportunity to have a look at all answers and questions and to skip to any step and answer to adapt his choice. After the confirmation, the classification for the customer, based on the answers, will be shown, like displayed in Picture 5.

Picture 5: Mock-up BPaaS Analysing Application – result overview



Source: own presentation.

At the recommendation site, the customer will see the references and opportunities by using BPaaS with detailed strategic descriptions. In times of digitalization the frame conditions could change frequently therefore the customer should repeat the evaluation on any effective change. At the Dashboard, he will see all his evaluations, status and some important analysis based on his evaluation.

With this application, the customer could react flexible to analyse if one process or all processes can be outsourced to a BPaaS Solution.

3.2. Detailed study description

For the evaluation and development of the BPaaS Analysing Application two surveys were carried out. Previously, the basic parameters of the customer, requirements, trends and further information's were collected as base data for the application. For this study the anonymous survey method was used. It was ensured that the subjects present their experiences, expectations and prospects of BPO projects. Target persons were mainly Chief Information Officers (CIO), Chief Technology Officers (CTO), Chief Execution Officers (CEO) and Senior Vice President managers with experiences in the field of IT Outsourcing, BPM and BPO. The base value of 112 valid replies from a total of 51 different companies related to six different industries support the conclusions of the first survey (conducted in German and English languages).

The second survey took place after the development of the BPaaS Analysing Application in order to examine whether the recommendations and customer assessments are correct and useful to the customer. Therefore, customer get the invitation to use the BPaaS Analysing Application for free and to answer a short survey before, how the company of the subject would interact strategically and operationally in the field of BPO. Afterwards a comparison of both take place together with the company deputy to identify whether the application is going wrong ore provide advisable recommendations.

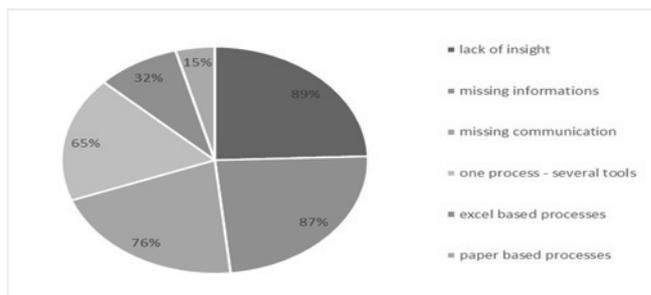
The survey and software application testing was done with the support of 27 companies in a range of 9 small, 9 medium-sized and 9 large companies in the classification of headcounts. Companies under 250 employees are classified as small ones; between 251 and 1000 as medium-sized and over 1000 as large companies. Finally, a document with cumulative results was created to show to the customers the differences between the self-assessment and the BPaaS Analysing Application.

3.3. Research results and debates

In the following, the results of the survey are presented and the resulting priorities for the developed model are shown. 400 managers from different companies were questioned. 112 answered the first survey to analyse the base data for the application. The survey shows, that 72% of the participants evaluate their process development skills as very good and only 28% as less good. However, 68% estimate their process transformations skills as less good than 23% as good. This shows that even though process development skills are more than sufficient, there is problem with their implementation. Compared to the Scheer Report of 2014, nearly the same values were elevated (Hoffmann, 2014). This outcome pointed at the complexity of BPM and shows the demand of process support like BPaaS and

the necessity to provide customers a helpful application in times of fast moving frameworks and conditions. The background of the lack of very good transformation skills is shown in Picture 6.

Picture 6: Reason for a lack of BPM



Source: own presentation.

Furthermore, 89% of the respondents have no insight of their own processes and 87% don't have information about process adaptations or process base data. Already at this point the demand for support of the customers in cases of process optimization and BPM can be observed. Very interesting are the answers of the 32% and 15% who responded, that they work with paper or Excel based processes. At the further investigation of these surveys it turns out that these were small companies with less than 3 locations and 50 employees. Furthermore, the buzzword agility has a significant value for the survey respondents. 79% want a possibility to adapt processes by nearly real-time to react to changes of the business environment and internal factors.

Thereby the time to market should be reduced, the quality increased and the collaboration with suppliers and partners should be more easy. Equally the SMAC trend is very important to the customers. Process performance data should be shared via mobile device to interact with the supplier or provide the customer further information about the parcel (e.g. hence generally interfaces should be provided by the BPaaS provider and the platform mentioned 61% of the respondents).

Based on the shown facts of the first survey, further relevant research results of the second and of the compared survey to the application are listed in the following.

- 95% of the respondents evaluate the BPaaS application as helpful to rethink in general the actual processes of the company by the questions in the application;
- 100% of the customer indicates that they want only one service provider and application for implementation and maintenance support of processes within a platform with general APIs;
- Derived from the one service provider and platform request, all respondents have the demand for five following key functionalities:
 - Process design, implementation, analyzing and monitoring component;
 - Connectivity to all systems, data with simple interfaces and one central data lake;
 - Workflow management and business rules and target management;
 - SMAC integration with a business intelligence module;
 - Mobile device usability to interact in real time and adapt processes;
- 85% of the customers evaluate the BPaaS analyzing application as independent, helpful and useful for the recommendation to use BPaaS solutions;
- Nearly the half of the respondents, 45% mentioned that the 5 questionnaire steps with maximum 150 questions are too comprehensive and thus 9 customers out of the 45% interrupted the questionnaire session.

3.4. Pre-Conclusion

Already in the year 2016 at an IT-Trends analyses of Capgemini there have been recognized the increasing flexibility and agility of core processes as a very important trend to be competitive in the market (Capgemini, 2016). For this reason, the BPaaS Analysing Application will help customers to identify if they are able to outsource their processes to a service provider without a lack of competences and to get more flexibility. According to the presented research results, 22 companies out of 27 evaluate the BPaaS Analysing Application as a very helpful software tool. Compared to a manual analysing process the customer gets the opportunity for a 24/7 analysis and recommendation if there are any essential base data modifications. Furthermore, the application provides a framework of questions and

touch points to potential customers to think about their future strategic company goals. By using this application customers will get well-grounded recommendations how to work with BPM and BPaaS for their company based on a wide range of customer experience.

4. CONCLUSION

BPaaS will help a company to be agile and flexible but process management has to be still done by the customer. A process-driven and holistic process view is not only necessary a reaction to increasing market competition and complexity, it also exposes optimization potentials that are not directly visible or apparent because of an extensive analysis via the integrated BPaaS platform module. Companies are looking for more service-oriented approaches in times of digitalization and similar products. The time to market and additional services are sales arguments to customers. To meet these named customer requirements a company has to be familiar and to go with the trends in times of digitalization.

REFERENCE LIST

1. Ackx, S., (2014). *Emerging Technologies, Disrupt or be Disrupted*, ISSE 2014 Securing Electronic Business Processes p. 176-180.
2. Bauer, W., & Hämmerle, M., & Schlund, S. & Vocke C. (2015). *Transforming to a hyper-connected society and economy – towards an “Industry 4.0”*, Science direct, Procedia Manufacturing 3, p. 417-424, Elsevier.
3. Beims, M. & Ziegenbein, M., (2014). *IT-Service-Management in der Praxis mit ITIL®: Der Einsatz von ITIL® Edition 2011, ISO/IEC 20000:2011, COBIT® 5 und PRINCE2®*, Carl Hanser Verlag GmbH & Co. KG.
4. CIO Bund (2006). *ITIL und Standards für IT-Prozesse*, Retrived from http://www.cio.bund.de/SharedDocs/Publikationen/DE/Architekturen-und-Standards/studie_itil_und_standards_fuer_itprozesse_download.pdf?__blob=publicationFile
5. Coyne, L. et al. (2017). *IBM Private Public, and Hybrid Cloud Storage Solutions*, IBM Redbooks.
6. Debashis, D. (2016). *Mobile Cloud Computing: Architectures, Algorithms and Applications*, CRC Press.
7. Dr. Dumsclaff, U., Heimann, T. & Prädel, J.M. (2016). Capgemini Deutschland Holding GmbH 2016 – *IT Trends Studie*, Retrived from https://www.de.capgemini.com/resource-file-access/resource/pdf/capgemini-it-trends-studie-2016_0.pdf, https://www.de.capgemini.com/resource-file-access/resource/pdf/capgemini-it-trends-studie-2016_0.pdf
8. European Association of Business Process Management – EABPM (2009). *Business Process Management*. Common Body of Knowledge, Gießen.
9. Fahr, P. (2016). *Business Optimization*, BearingPoint process Advisory.
10. Fichman, R., DosSantos, B. & Zheng Z. (2014). *Digital Innovation as a Fundamental and Powerful Concept in the Information Systems Curriculum*. MIS Quarterly Vol.38 No.2, pp. 239-353.
11. FPT Tech (2016). *How Business Process as a Service (BPaaS) works*, Retrived from <https://tech.fpt.com.vn/language/en/how-business-process-as-a-service-bpaas-works/>
12. Gartner Inc, (2017). *Business Process as a Service (BPaaS)*, Retrived from <http://www.gartner.com/it-glossary/business-process-as-a-service-bpaas/>
13. Hoffmann, A. (2015). Scheer Management GmbH, *Scheer Report*, Retrived from <http://www.me-netzwerk.de/wp-content/uploads/2015/05/Industrie-4.0-mit-Scheer-BPaaS--ME-Forum-Berlin.pdf>
14. Hossfeld, S. (2016). *Influencing Factors of Digitalization on Decision Making*, Proceeding of IAC-MEBM in Vienna.
15. Hurwitz, J., Kaufman M., Halper, F. & Kirsch, D., (2017). *WHAT IS BUSINESS PROCESS AS A SERVICE (BPAAS) IN CLOUD COMPUTING*, Retrived from <http://www.dummies.com/programming/cloud-computing/hybrid-cloud/what-is-business-process-as-a-service-bpaas-in-cloud-computing/>
16. KPMG (2017). *Digitales Prozessmanagement*. Retrived from <https://home.kpmg.com/de/de/home/services/branchen-und-maerkte/financial-services/kreditinstitute/digitales-prozessmanagement.html>
17. Kroker, M., (2016). *Fehlender Veränderungswille und niedrige Experimentierlust bremsen die Digitalisierung*, Retrived from

- <https://www.linkedin.com/pulse/fehlender-ver%C3%A4nderungswille-und-niedrige-bremsen-die-michael-kroker>
18. Kurzlechner, W., (2011). *Wie Cloud-Computing Prozesse verändert*, Retrived from <http://www.cio.de/a/wie-cloud-computing-prozesse-veraendert,2274799>
 19. Robledo, P. (2014). *BPaaS Architecture*, Retrieved from <http://proceedit.blogspot.de/2014/10/bpaas-from-proceedit-combine-not-less.html>)
 20. Rouse, M., (2014). *SMAC*, Retrived from <http://searchcio.techtarget.com/definition/SMAC-social-mobile-analytics-and-cloud>
 21. Rücker, B. & Scholz, M. (2016). *BPM in der Praxis*, entwickler.press.
 22. Schlatter, U., Kykalová, D., Schladitz, o., Minonne, C. & Keller, T. (2014). *BPM-Lösungen aus der Cloud: Potenziale, Anforderungen und Erfolgsfaktoren*. Hochschulverlag AG.
 23. Schmelzer, J.H. & Sesselmann, W. (2013). *Geschäftsprozessmanagement in der Praxis*. 8th Edition, Carl Hanser Verlag (p. 5-7).
 24. Simons, C. (2013.) *IT SERVICE MANAGEMENT MIT ITIL® V3 – Pocket Guide*.
 25. Söbbing, T., (2015). *Handbuch IT-Outsourcing: Recht, Strategien, Prozesse, IT, Steuern und Cloud*, (p. 359 ff) CF Müller Verlag 4. Auflage.
 26. Westermann, G., Bonnet, D. & Mc Afee, A., (2014). *Leading Digital*, Boston: Harvard Business School Publishing.