Performance Journey Mapping: A Tool-supported Framework for Service Performance Assessment in SMEs

Elisabeth Pergler   *elisabeth.pergler@campus02.at*
CAMPUS 02 University of Applied Sciences
Graz, Austria

Angelika Höber   *angelika.hoeber@campus02.at*
CAMPUS 02 University of Applied Sciences
Graz, Austria

Doris Weitlaner   *doris.weitlaner@campus02.at*
CAMPUS 02 University of Applied Sciences
Graz, Austria

Hans-Peter Grahsl   *hans-peter.grahsl@campus02.at*
CAMPUS 02 University of Applied Sciences
Graz, Austria

Christoph Ehrenhöfer   *christoph.ehrenhoefer@campus02.at*
CAMPUS 02 University of Applied Sciences
Graz, Austria

Abstract

This paper introduces performance journey mapping as a service performance assessment framework for small and medium sized enterprises (SMEs) as well as its corresponding tools – the performance journey map (PJM) and the performance index. The PJM is a visual tool whereas the performance index represents a key performance indicator (KPI) pool. The framework is developed by connecting the specific characteristics of SMEs to contributions from goal-setting theory and involves adapted components from service management research, e.g. the service strategy scorecard, ITIL, etc. Service design methods are adapted and applied for the visual components. The paper provides an outlook on the evaluation design for the framework based on method triangulation in a case study setting.

Keywords: Performance Measurement, Service Performance Assessment, Service Performance Management Systems.

1. Introduction

The ever increasing importance of services for the economy necessitates a thorough understanding of service performance and valid instruments for its measurement. Over the course of the past decades the contribution of services to the GDP increased and in 2013 services accounted for 63.6 % of the global GDP [3]. In accordance with the current service research literature services are considered in the light of a service-dominant logic [25,26]. Due to both their heterogeneity and the fact that value is created and captured in the course of their consumption, it is a challenge to measure service performance. Traditional controlling tools, e.g. the balanced score card (BSC), often neglect the specific characteristics of services as they are designed for a goods-dominant logic. Several approaches to address this issue exist, e.g. SERVQUAL, ITIL, etc., which suggest measurement systems tailored for services or more specifically IT-services. These require either the implementation of highly sophisticated tools and/or techniques or they are tailored to a specific industry. Moreover they

lack acceptance-triggering characteristics such as ease of use, usefulness, and the like. Those properties would foster their adoption by individuals in organizations [27], which is especially challenging for small and medium-sized enterprises (SMEs) where decisions are usually depending on the opinions and perceptions of a small number of individuals. Moreover prior research indicated that SMEs usually do not implement high-level controlling and management instruments that enable utilization of the renowned performance measurement systems (PMSs) [8].

Taking these factors into account it can be concluded that there is a lack of acceptable service PMSs or instruments suitable for the particular needs of SMEs. The main objective of the presented research project is, thus, the creation of a performance assessment framework that can be adapted to different industries as well as different enterprise environments. The identified research gap is addressed by a theory-driven approach to fulfill the requirements of acceptability. Thus, the framework will be supported by tools that are both easy to implement and enabling co-creation of the individual performance measurement goals within the SMEs. Referring to the goal-setting theory [18] the co-creation aspect will also allow for higher acceptance of the PMS as well as the corresponding benchmark goals and improve performance in addition to its measurement. Design and evaluation of the performance assessment framework are conducted in alignment with the design science principles provided by Hevner et al. [11].

In the remainder of this paper alternative approaches to PMS as well as managerial instruments of performance management are discussed first. The subsequent section is dedicated to the research methodology that was applied as well as design methods and theoretical foundations that influenced this project. Section 4 outlines the framework and the supporting tools, which are discussed in the context of relevant theories in the subsequent section. The paper concludes with some general remarks on findings and an outlook on future research and development.

2. Literature Review and State of Practice

Measuring and enabling high levels of service performance has been targeted by academic publications and tools as well as commercial applications and tools. Predominating approaches of performance measurement and management are outlined and discussed with regard to their applicability in SMEs below.

One of the most popular instruments to measure the abstract and elusive service quality construct is the SERVQUAL scale. Although it was intended to develop a measurement tool broadly applicable in the service industries [21] research has shown that the five underlying quality dimensions are varying across them [5]. Moreover both the reasonableness and purposefulness of the perception-minus-expectation measurements were questioned which led to the development of alternative, performance-based measures such as SERVPERF [4]. The factor instability problem, however, remained unresolved [5] – see e.g. [16] for further theoretical and empirical issues raised during the last 20 years. To apply the instrument in a generic way literature suggests to either develop adapted industry-specific versions or to perform reliability and validity analyses after data collection. This implies that statistical capabilities need to be anchored within SMEs in any case as both the original and a new scale need to be carefully validated.

The IT Infrastructure Library (ITIL) is a reference model capturing best practices regarding service management and designed in such a way that it can be adapted to the specific business environments' and organizational strategies' needs [23]. However, the focus of existing literature on the implementation of ITIL is on large firms whereas SMEs are largely neglected. The framework exhibits a complex and resource-demanding structure of defining processes, roles, etc. Tradeoffs in terms of adaptations and downscaling need to be made in the context of SMEs. Empirical studies demonstrating ITIL's impact on enterprises are scarce, especially in the field of quantitative evaluation. First steps into this direction have been made by McNaughton et al. [19] who developed a multi-layer evaluation framework in

order to objectively and subjectively assess the benefits resulting from the implementation of ITIL. The practical application's results are still pending, though.

The BSC [13] is a management tool that is based on cause-effect relationships. Its principles have been transferred to the context of service management in the form of a service strategy scorecard [14]. The service strategy scorecard adopted the basic dimensions from the BSC: finance, customers & partners, business processes, and learning (adapted from "potential" in the original outline). A causal analysis of the four dimensions was conducted among SMEs with regard to software-as-a-service adoption. The results indicate support of the underlying assumptions with regard to causal relationships between the dimensions [17].

3. Methodology

The development of the performance assessment framework and the supporting tools is based on design science principles as provided by Hevner et al. [11] to ensure a scientific process and outcome of the present research project. Hevner and Zhang [12] transfer the principles to human-computer interaction and outline an iterative approach consisting of three cycles:

- The relevance cycle will provide requirements of practical relevance for the evaluation of the designed artifact. In the present case the main evaluation criterion is the ability of the developed framework and its corresponding tools to support SMEs in their performance measurement activities. The relevance criterion is fulfilled if the framework is accepted and used by individuals within the organization and supports their specified individual performance measurement needs. In a first iteration from Mai to June 2013, twelve semi-structured interviews with SMEs across two different industry sectors (automation technologies and mechanical engineering as well as information and communication technologies) were conducted. The primary goal was to gain first insights with regard to currently employed methodologies and techniques for performance measurement/assessment of services. Immediate anecdotal evidence was obtained that (i) there seems to be very little consensus about what aspects and factors constitute the performance of service at all and (ii) there is a lack of systematic approaches to conduct such service performance analysis, especially among SMEs.
- The rigor cycle ensures contribution to the knowledge base and the innovative character of the research project. In the course of the present research an extensive analysis of performance measurement methods, systems, and instruments was conducted. In addition, the performance assessment framework and its tools were created and analyzed in the light of the goal-setting theory. The latter is an approach for enhancing motivation in work settings. It is based on 35 years of empirical research revealing that goals need to be specific and difficult in order to lead to better motivation and performance. According to the theory best results can be achieved with goals being moderately difficult, neither too easy nor too hard to accomplish [18]. The evaluation design that is briefly outlined in the final section of this paper is based on previously validated evaluation criteria and methods taken from the technology acceptance model [6], goal-setting theory [18], and PMS quality criteria [20].
- The internal design cycle connects the methods used to build and evaluate from the rigor cycle and the requirements from the relevance cycle in a rapid iteration between artifact building activities and feedback mechanisms. A co-creation approach is applied utilizing method triangulation to build and evaluate the artifact iteratively. Early prototypes of the performance assessment framework are tested in SMEs and evaluated with the users, i.e. employees of the SME to obtain instant feedback. This measure ensures that future users of the artifact are involved from the very beginning of the creation process. The visual component of the performance assessment framework is created according to renowned mapping methods from service design. Customer journey maps [22] are a commonly used tool for the visualization and design of customer experiences. Its basic concepts - activities, touch points, and lines

of interaction - are transferred into a company perspective and enhanced by company-specific additives.

4. Assessment Framework

According to Bourne [2] there is a strong consensus in contemporary PMS design research that good performance measures are tightly connected to the business strategy. Moreover all measures should be derived from the corporate strategy. This can hardly be realized for SMEs as many of them do not have an explicit strategy. They have little to no resources at their disposal for data collection and basically tend to emphasize productive activities [8]. Focusing on the SMEs' experience (and business) realm and their actual needs a bottom-up-approach which helps designing performance measures that are tightly connected to their daily business and supports SMEs to improve rather than to monitor their performance was developed.

Instead of deriving performance goals from the company's strategy the starting point is the firm's core service, thus, taking its service process as a basis and the internal stakeholders as reference points. The aim is to create a PMS with full coverage of the service process. For this purpose a three-step-process is employed as outlined in Figure 1: Step 1 is an analysis of the current state identifying the performance measures already in use. Step 2 proceeds from the status quo to the desired state. Gaps in the performance measurement are identified and covered. Step 3 completes the PMS design by adding target values for the new measures. The three steps are conducted in form of one or two workshops (depending on the availability of an existing service blueprint) within the SME involving the relevant stakeholders of the service delivery process in question.
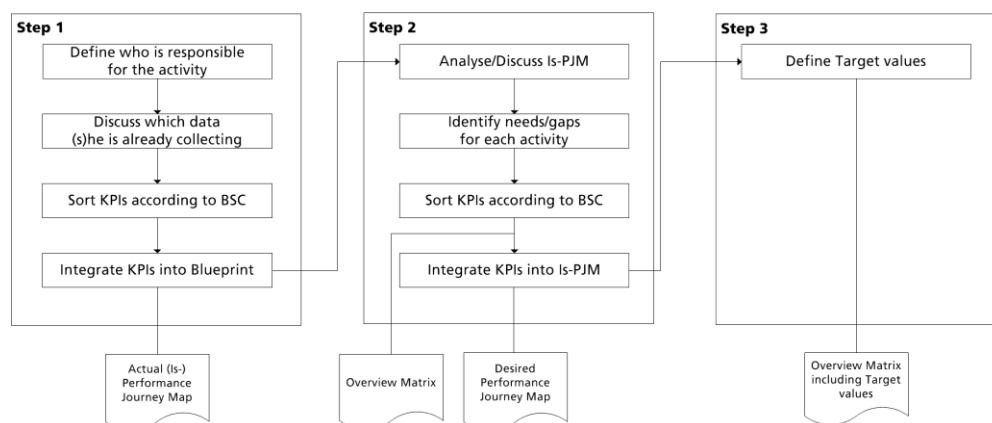

Fig. 1. Outline of the three-step performance journey mapping process.

At the beginning of Step 1 performance measures already in use are collected. Afterwards a service blueprint is utilized to outline the selected core service. A service blueprint [24] is a visual representation of the service process consisting of different layers showing customer touch points, activities, and processes from both customer and company perspective. The activities and processes on company side are in the center of the further proceedings. In a first iteration one after another is focused on and examined: *Which stakeholder is involved? Which measures are already used by them?* The identified measures are listed in an overview table and assigned to the dimensions of the original BSC (financial perspective (*finance*), internal business perspective (*process*), customer perspective (*market*), and innovation and learning perspective (*potential*) [13]). Subsequently the content of the resulting overview table is merged with the service blueprint in a new graphical representation which is depicting the performance measure coverage of the service process and giving insights in the balance or imbalance of current measures among the BSC dimensions at the same time. The resulting representation is the *performance journey map (PJM)*. Measurement gaps appear in the PJM in form of activities without any performance measurement at the moment or activities with imbalanced measurement according to the BSC dimensions.

Step 2 is initiated by a thorough collection of needs and requirements with regard to future performance measurement, followed by the second iteration along the service process. This iteration focusses on the question "W*hat (else) could or should be measured there*?" for each activity within the process. Especially measurement gaps that were identified in the course of the first iteration are addressed. The results are discussed while using the *performance index* as a pool of customized measures. The new measures are listed in an overview table, assigned to the dimensions of the BSC, and integrated in the former PJM. The resulting PJM provides a holistic overview of all (current and future) performance measurement activities connected to the service.

As new measures have been integrated in the PJM Step 3 addresses data collection methods and the assessment of these measures. Once this challenge is resolved the target values can be defined and added to the overview list. The target values are defined by the respective stakeholders of the activity as they are the ones who will be measured against these goals. The final PJM is disposing an overview of the PMS and the overview list is dedicated to its operationalization.

The process is suggested to be applied in regular iterations, e.g. annually, to enable evolving performance measurement. This is necessary to ensure appropriateness for the current needs of an SME as well as effective benchmarking with competitors. At the same time the adaptive nature of the PMS will cause a lack of historic comparability within the SME but this is a negligible loss compared to the advantages of competitive performance benchmarking [7].

4.1. Performance Journey Map

The PJM is a supporting tool of the framework in form of a visualization of all performance measures for a service. It is related to the concept of the customer journey map [22] and enables a successive performance measure-oriented analysis and measurement development of the single activities along the service process. The customer journey map represents the perspective of the customer and their experiences of the service, whereas the PJM is the exact complement representing the internal perspective of the SME. Its main advantage lies within the integration of three critical perspectives in the context of performance measurement of services: the service process, the dimensions of the BSC, and the service stakeholders within the company, i.e. employees, managers, departments, business units, etc., who are involved in the service delivery process. Each of these perspectives is contributing to the PMS: Including the service process (represented by a service blueprint) allows for a thorough overview of measures along the process and hence promotes a high coverage. The integration of the BSC dimensions facilitates an overview of the distribution of measures. It reveals dominant dimensions and encourages the creation of a more balanced distribution. Finally the inclusion of stakeholders is increasing the prospects of success for the PMS implementation. Each employee decides if he or she accepts a measure and the corresponding benchmarking target with regard to its usefulness and ease of use according to TAM [27]. The non-acceptance of measures and consequently a lack of acceptance of the PMS will harm its implementation. This negative effect is intensified in the case of SMEs due to their small number of employees. In addition, the early consideration of stakeholders fosters that the right person is claimed responsible for the measure, a powerful premise for the person's motivation and, thus, for his or her performance according to goal-setting theory [18].

The PJM includes a modified version of the service blueprint where all activities/processes on company side are aligned in a horizontal order without overlapping. A vertical extension of the service blueprint integrates the dimensions of the BSC. In the resulting matrix the single measures are placed according to their allocation along the service blueprint and their attributed BSC dimension. The measures are represented by a stickman figure and an identification number referring to the overview table of measures. The stickman represents the responsible stakeholder and the number provides a unique reference to the measure. Two different colors for the stickman figures enable a distinction between measures that have already been in use (white) and those which have been added (grey). The PJM in

Figure 2 is the result of an exemplary application of the performance assessment framework on the simplified process of organizing a workshop in a conference context.
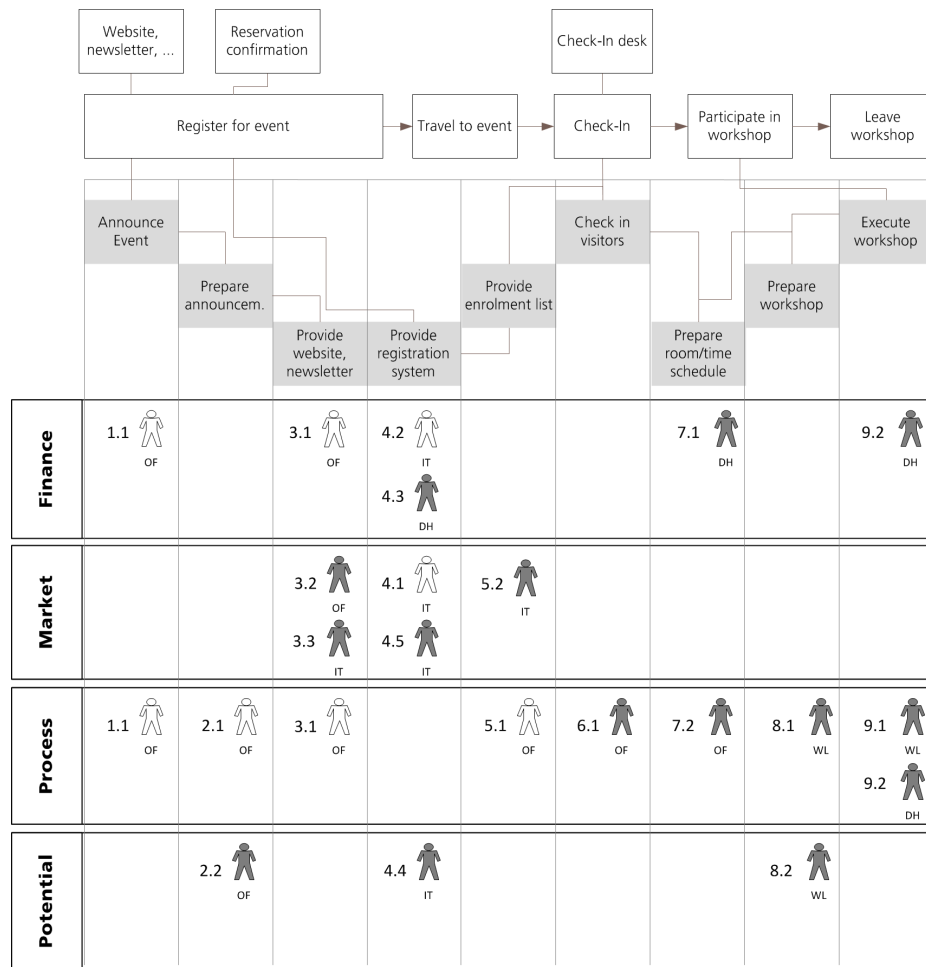

Fig. 2. Exemplary PJM based on a conference's workshop participation/organization process.

The PJM is the basic tool fostering the process from the current to the future state of performance measurement in the proposed framework. In the first iteration it depicts the current state and already gives an overview of coverage and balance providing insights in potential dominances and gaps. Later it is used for modelling the performance measurement's future state which aims to resolve the dominances and cover the gaps.

4.2. Performance Index

Varying definitions of the term key figure exist according to current literature. Generally speaking, key performance indicators (KPIs) aid companies to represent complex business information in a comprehensible manner for quality decision-making. Before being able to select a number of helpful KPIs it is necessary for a firm to have a common understanding and a clear idea of what they want to achieve by means of business performance measurement [2]. During the conception and design of the PJM a large number of KPIs was identified based on a literature review, including amongst others [19], [9], and [15]. This pool was too large to be supportive in the collaborative process of working out a PJM together with companies. Thus, the KPI pool had to be significantly reduced by means of a filtering process based on expert knowledge on SME particularities in the first place. The filtering process finally led to a KPI pool composed of a manageable number of key figures that can be concretely addressed when implementing a performance journey mapping process within SMEs.

The outlined bottom-up approach allows for tailored performance measures and benchmarking targets while using a common terminology as suggested in the performance measurement manifesto by Eccles [7]. The performance index provides this mutual basis as it includes commonly used metrics and measures. The pool of KPIs is intended to grow over time. At the same time the application of a joint performance index will enable measurement choices of single SMEs with regard to benchmarking against competitors.

5. Discussion and Outlook

If the implementation of PMS is performed in a three-phase-process, as proposed by Bourne et al. [2], this paper is focused on the design phase. However, research in the field of evaluation or assessment of PMS design is scarce. Bitici et al. [1] provide an audit method which is based on integrity and deployment between the various business areas as core criteria. These principles might be applicable in large companies but can hardly be put into practice in SMEs, as many of them may not even have more than one business area. Prior research (e.g. [10]) indicated that PMS design can only excel if its measures are derived from the company's strategy or the company's objectives respectively. Considering the PJM this requirement cannot be fulfilled as the starting point for the creation of the PJM is not the business strategy but the service process. Neely et al. [20] differentiate between the PMS design process and its output. In addition to criteria related to the design process they gathered a set of key characteristics which should be featured by the measures as process output. These characteristics can be used to evaluate the measures of any PMS no matter which design process had been engaged. The suggested framework and its corresponding tools – the PJM and the performance index – are therefore going to be evaluated with regard to the level of fulfillment of these quality criteria.

In order to obtain meaningful preliminary results it is planned to apply method triangulation (participatory observation, survey, and functional analysis) in the context of a case study design. For the case study a workshop is planned within an SME that is specialized in secure software services. An actual service delivery process will be utilized for the prototypical implementation of the performance assessment framework. The workshop will be conducted with about five to ten employees of the company who will provide the project team with immediate feedback on the acceptability (i.e. TAM) of the framework and tools as well as motivational aspects of the measurement goals that were set (i.e. goal-setting theory) in the course of the workshop. In addition, the workshop will be observed to ensure that acceptance and motivation related information is captured from more than one source for the re-design of the framework and its tools. The resulting PMS for the particular service is then analyzed with regard to Neely et al.'s criteria. The results from this case study will feed into the next iteration of the design cycle. Moreover interesting insights regarding the opportunities of utilizing goal-setting theory and the technology acceptance model to co-create performance measurement systems in SMEs are expected.

References

1. Bititci, U.S., Carrie, A.S., McDevitt, L.: Integrated Performance Measurement Systems: A Development Guide. Int. J. Oper. Prod. Man. 17 (5), 522-534 (1997)
2. Bourne, M., Mills, J., Wilcox, M., Neely, A., Platts, K.: Designing, Implementing and Updating Performance Measurement Systems. Int. J. Oper. Prod. Man. 20 (5), 754-771 (2000)
3. CIA World Factbook (2014), https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html. Accessed March 27, 2014
4. Cronin, J.J., Taylor, S.A.: Measuring Service Quality: A Reexamination and Extension. J. Marketing 56 (3), 55-68 (1992)

5. Cronin, J.J., Taylor, S.A.: SERVPERF Versus SERVQUAL: Reconciling Performance-based and Perceptions-Minus-Expectations Measurement of Service Quality. J. Marketing 58 (1), 125-131 (1994)

6. Davis, F.D.: Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quart. 13 (3), 319-340 (1989)

7. Eccles, R.G.: The Performance Measurement Manifesto. Harvard Bus. Rev. 69 (1), 131-137 (1991)

8. Garengo, P., Biazzo, S., Bititci, U.S.: Performance Measurement Systems in SMEs: A Review for a Research Agenda. Int. J. Manag. Rev. 7 (1), 25-47 (2005)

9. Gladen, W.: Performance Measurement (in German). Gabler, Wiesbaden (2011)

10. Globerson, S.: Issues in Developing a Performance Criteria System for an Organization. Int. J. Prod. Res. 23 (4), 639-646 (1985)

11. Hevner, A., March, S.T., Park, J., Ram, S.: Design Science in Information Systems Research. MIS Quart. 28 (1), 75-105 (2004)

12. Hevner, A., Zhang, P.: Introduction to the AIS THCI Special Issue on Design Research in Human-Computer Interaction. AIS Transactions on Human-Computer Interaction 3 (2), 56-61 (2011)

13. Kaplan, R.S., Norton, D.P.: The Balanced Scorecard: Measures that Drive Performance. Harvard Bus. Rev. 70 (1), 71-79 (1992)

14. Kreuzer, E., Schäfer, A., Aschbacher, H.: The Concept of Service Strategy Scorecard - An Integrated Approach for Lean Service Engineering and Service Improvement: Theoretical Framework and Implications for Service Science. In: Proceedings of the 2011 Naples Forum on Service - Service Dominant Logic, Network & Systems Theory and Service Science. Naples (2011)

15. Kütz, M.: Kennzahlen in der IT (in German). dpunkt Verlag, Heidelberg (2009)

16. Ladhari, R.: A Review of Twenty Years of SERVQUAL Research. International Journal of Quality and Service Science 1 (2), 172-198 (2009)

17. Lee, S., Park, S.B., Lim, G.G.: Using Balanced Scorecards for the Evaluation of "Software-as-a-Service". Inform. Manage. 50 (7), 553-561 (2013)

18. Locke, E.A., Latham, G.P.: Building a Practically Useful Theory of Goal Setting and Task Motivation: A 35Year Odyssey. Am. Psychol. 57 (9), 705-717 (2002)

19. McNaughton, B., Ray, P., Lewis, L.: Designing an Evaluation Framework for IT Service Management. Inform. Manage. 47 (4), 219-225 (2010)

20. Neely, A., Mills, J., Platts, K., Richards, H., Gregory, M., Bourne, M., Kennerley, M.: Performance Measurement System Design: Developing and Testing a Process-based Approach. Int. J. Oper. Prod. Man. 20 (10), 1119-1145 (2000)

21. Parasuraman, A., Zeithaml, V.A., Berry, L.L.: SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. J. Retailing 64 (1), 12-40 (1988)

22. Rawson, A., Duncan, E., Jones, C.: The Truth About Customer Experience. Harvard Bus. Rev. 91 (9), 90-98 (2013)

23. Rudd, C., Office of Government Commerce: ITIL V3 Planning to Implement Service Management. The Stationary Office, Norwich (2010)

24. Shostack, G.L.: Designing Services that Deliver. Harvard Bus. Rev. 62 (1), 133-139 (1984)

25. Vargo, S.L., Lusch, R.F.: Evolving to a New Dominant Logic for Marketing. J. Marketing 68 (1), 1-17 (2004)

26. Vargo, S.L., Lusch, R.F.: Service-dominant Logic: Continuing the Evolution. J. Acad. Market. Sci. 36 (1), 1-10 (2008)

27. Wallace, L.G., Sheetz, S.D.: The Adoption of Software Measures: A Technology Acceptance Model (TAM) Perspective. Inform. Manage. 51 (2), 249-259 (2014)