

Digital Transformation and its radical changes for external management accounting: a consideration of small and medium-sized enterprises

Die digitale Transformation wird für kleine und mittlere Unternehmen das externe Controlling radikal verändern

Serap Demiröz*, Thomas Heupel†

*PhD Student at University of Applied Sciences for Economics and Management FOM Essen/UCAM Essen, Germany serap.demiroez@fom-net.de

†Vice rector for research, Professor for management, especially management accounting, FOM Essen Essen, Germany, thomas.heupel@fom.de

Abstract — Small and medium-sized enterprises (SMEs) are decisive for Germany's growth. They provide a large number of jobs, secure a company's long-term existence and place great value on Germany's competitiveness by investments. Despite such strengths, they lack in management accounting. Analyses reveal that 79% of company insolvencies can be traced back to a lack in management accounting. Such situations require the strengthening of external management accounting in SMEs. In the light of digital transformation, SMEs will hence have the chance to expedite external management accounting in contrast to internal management accounting. Thus, SMEs will reach new business models and advantages in competition. The aim of this paper is to answer the question if Digital Transformation can advance external management accounting for SMEs. A SWOT analysis will serve as methodology to answer this question. Firstly, by means of SWOT analyses, strengths and weaknesses of SMEs regarding external management accounting will be outlined and chances and risks of the Digital Transformation will be revealed for the next three to five years. Subsequently, management implications caused by Digital Transformation will be elucidated. Finally, strategies for SME management will be established.

Zusammenfassung — Kleine und mittlere Unternehmen (KMUs) sind entscheidend für Wachstum und Wohlstand in Deutschland. Sie schaffen Arbeitsplätze und prägen durch Investitionen die Wettbewerbsfähigkeit Deutschlands. Trotz dieser Stärken weisen KMUs dennoch Schwächen auf, zu denen ein fehlendes Controlling gehört. Analysen zufolge stellt ein fehlendes Controlling mit einem Anteil von 79% aller Fälle eine der häufigsten Insolvenzursachen dar. Dieser Zustand erfordert, dass das Controlling in KMUs gestärkt werden muss. Vor dem Hintergrund der digitalen Transformation haben KMUs nun die Möglichkeit ein externes Controlling, im Vergleich zu einem internen Controlling, zu forcieren. Dadurch gelangen sie zu neuen Geschäftsmodellen, optimierten Prozessen sowie höherer Tragweite im Wettbewerb. Diese Arbeit versucht die Frage zu beantworten, ob die digitale Transformation für KMUs das externe Controlling vorantreiben kann. Zur Beantwortung dieser Frage wird als Methode eine SWOT Analyse angewandt werden. Zu Beginn werden mit Hilfe der SWOT Analyse Stärken und Schwächen der KMUs bezüglich eines externen Controllings aufgezeigt und anschließend Chancen und Risiken, die die digitale Transformation für ein externes Controlling mit sich bringt, für die nächsten drei bis fünf Jahre dargelegt werden. Zudem werden Managementimplikationen durch den Einsatz der digitalen Transformation aufgezeigt sowie Strategien für das Management abgeleitet werden.

I. SCOPE AND AIM

Small and medium-sized enterprises (SMEs) play an important role in the Germany economy. This can be determined by data analyses of the IFM Bonn (Institute for German Mittelstand Research) from 2015 that reveal the following: Classification of 99.6 per cent of all German enterprises as SMEs; generation of 35.0 per cent of the turnover of all German enterprises; employment of 16.85 million employees, which is 58.5 per cent of all employees who are subject to social insurance contributions, and occupation of 81.8 per cent of apprentices [1]. Although the economic situation is significantly co-determined by SMEs, studies show that there is a lack in management accounting [2]. Management accounting has slightly developed in SMEs. One reason might be that during the past two decades SMEs have

had their focus rather on core business such as the production of goods and less on the analysis of data and figures. Another reason might be the comparison of benefits and costs of the implementation of management accounting. Such considerations caused weaknesses in management. The current situation is alarming and data analyses of the German Credit Insurance Hermes reveal that 79 per cent of company crises can be traced back to a lack in management accounting [2].

Thus, in small and medium-sized enterprises, management accounting has to be supported. Such an approach can be forced by dint of external management accounting that is – compared to internal management accounting – by far at a reduced rate.

In the light of Digital Transformation, in small and medium-sized enterprises external management accounting can hence be launched and enhanced.

However, the question arises as to how small and medium-sized enterprises can reach a valuable external management accounting. There is only one solution: Small and medium-sized enterprises have to be conditioned for Digital Transformation. Digital Transformation will enable SMEs amongst others to analyze unprecedented data and to minimize managerial issues.

The aim of this paper is to answer the central question if Digital Transformation can advance for SMEs an external management accounting. By means of this question, we will argue where we see the advantages of Digital Transformation for SMEs in view of an external management accounting.

Initially, we will outline characteristics of SMEs and afterwards explicate the terminology *external management accounting*, which will provide the basis to understand the importance of SMEs in terms of external management accounting. Secondly, with the aid of a SWOT analyses, today's strengths and weaknesses of SMEs in view of an external management accounting will be highlighted. Subsequently, chances and risks for SMEs caused by Digital Transformation in view of external management accounting will be revealed for the next three to five years. Finally, management implications caused by Digital Transformation in SMEs from the perspective of external management accounting will be formulated and dos and don'ts for SMEs will be deduced.

II. CHARACTERISTICS OF SMALL AND MEDIUM-SIZED ENTERPRISES

SMEs are oftentimes compared to large enterprises in order to make a distinction. As a result, SMEs are in general characterized by qualitative and quantitative features. Characteristics such as turnover, number of employees, total assets and output can be ascribed to the quantitative features of SMEs [4]. The distinction concerns primarily the number of employees and turnover. Besides, German mid-sized enterprises can be narrowed down to 10 to 499 employees and to less than 50 million euros [4; 5]. Comparatively, small-sized enterprises can be characterized by employees up to a number of 9 employees and a turnover up to one million euros [5]. On the other hand, qualitative characteristics can be distinguished, amongst others, by the close link of enterprise and entrepreneur, however, likewise by a lack of leadership abilities, little planning and insufficient information systems [6]. Long-term enterprise success and securing the enterprise's existence can also be ascribed to the qualitative characteristics. Innovative power, close customer orientation and flexibility round out SME's qualitative characteristics [7].

III. DEFINITION OF EXTERNAL MANAGEMENT ACCOUNTING

In terms of external management accounting, it can be ascertained that it implies the performance of management accounting issues by dint of a person who is located outside an enterprise. Moreover, an external management accountant can be characterized by an independent employer-employee relationship [8]. In most instances, external management accounting consultants are mandated to implement management accounting instruments such as operating figures or control systems that contribute to the development of an enterprise. Thus, know-how concerning corporate planning, capital budgeting, implementation of internal control systems and interpersonal skills play a significant role for external management accountants/consultants [3]. In any case, it should be noted that the function of external management accounting is to raise efficiency and, in conjunction with this, external management accounting can be advantageous in cases where

new systems have to be implemented and budgets have to be prepared [9].

IV. METHODOLOGY

A SWOT analysis will be applied, which reveals strengths, weaknesses, opportunities and threats of Digital Transformation. The reason behind this is to deduce perceptions obtained by this analysis for SMEs in view of an external management accounting. The SWOT analyses is the planned research design. At this stage of the dissertation project an evaluation of conducted studies will, however, serve as own contribution, respectively as intermediate result. Such a SWOT analysis is extensive, however, this paper allows to present a little cutout and hence some researches of the four analyses fields will be presented subsequently. Digital Transformation entails the following strengths: First, the increase of internal data volume, which enables to structure processes more transparent and to investigate them in view of weak points [10]. Moreover, Digital Transformation will facilitate automatic real-time analyses, which offer enterprises the opportunity to investigate processes in view of efficiency or issues and to remedy shortcomings in short-term [11]. Besides, forecast errors will be reduced, which provides a basis for improved decision-making on the part of leadership and enterprise management [12]. Among other things, items within the enterprise round out the strengths of Digital Transformation. Thus, the enterprise will have the possibility to interchange data and it will be able to re-organize in real-time [13]. Thus, it will be possible to reduce idle times and to increase flexibility. In view of the weaknesses it can be ascertained that there is an existence of inconsistent standards [14]. Such existing standards are merely isolated applications [11]. Suchlike given conditions can restrict projects related to Digital Transformation. Moreover, Digital Transformation will be accompanied by huge data traffic [15]. However, suchlike huge data can result in reservoirs of unused data which in turn can complicate the day-to-day management. Though, Digital Transformation entails chances such as cloud computing and hence enterprises will be able to use the latest infrastructure [16]. In this regard enterprises will have the opportunity to pass investment and maintenance costs on to the cloud maintainer and to work with the latest hardware and software. Besides, by dint of 3-D-Printing enterprises will have the chance to utilize completely new production processes and hence will be able to produce more environmentally friendly and to keep pace with changing trends [17]. However, Digital Transformation bears risks such as standard risks [18]. That is connected with the fact that many enterprises utilize technologies from various time periods and on this account it will hardly be possible to ensure a machine-to-machine communication, whereas suchlike automated communication could contribute to react fast to environmental changes.

Finally, in the context of suchlike researches, the question arises in how far small and medium-sized enterprises can apply them to an external management accounting.

V. INTERMEDIATE RESULTS

We believe that after presenting the whole SWOT analysis, we will be able to deduce five dos and five don'ts for SMEs regarding external management accounting due to management implications caused by Digital Transformation. Such dos and don'ts should contribute to reconsidering business models and rationalization processes. Subsequently, an outline of three study results with small and medium-sized enterprises will be revealed as initial validity of above-mentioned claims and in addition a brief evaluation will be conducted as own

contribution. The results of the first study are related to a conducted survey from October to December 2014 with 36 medium-sized enterprises. The results reveal significant improvements within internal and external reporting and forecasting [19]. Moreover, there is an increase in speed and quality; manual intervention as well as error rates are minimized and processes can now be investigated in view of weak points or issues [19]. Besides, the preparation time of monthly and quarterly reports could be reduced and finalized reports are available within two days, whereas data collection is already completed after only one day [19]. On the basis of automated and improved data, which besides contributes to reduce forecast errors, management accountants assume a function as consultant and advise leadership and management which in turn provides a basis for well decision-making on the part of the management [19]. In view of risks most of the management accountants of small and medium-sized enterprises ascribe less importance to automated data transfer from previous systems and hence do not consider an upgrade of systems as necessary [19]. The results of the second study are related to a conducted survey from February to May 2017 with 87 management accounting managers and specialists. The study was about the question at which evolution stage enterprises are in view of Digital Transformation. The results of this study show amongst others that only few enterprises use extended Data (Big Data) as basis for decision-making, however, 9% of the enterprises which make use of it, realize a value-added contribution [20]. Moreover, in view of weaknesses the study reveals that half of the interviewed enterprises account their system landscape as being below 40% which seems at present less to meet the requirements of Digital Transformation [20]. Chances in view of cloud computing can be realized by dint of the third study where 317 enterprises have been interviewed in December 2016. The results of this study show that more than 60% of the interviewed enterprises are at the initial stage of cloud computing or started cloud computing as pilot project and thus expedite cloud computing [21]. The results of the conducted studies show that claims made by dint of the SWOT analyses are proved to be true and that small and medium-sized enterprises have to look at Digital Transformation in its entirety when they consider to be successful in Digital Transformation. However, most of the enterprises have not quite decided yet to implement Digital Transformation, although it is not a choice which has to be made. Digital Transformation should be considered as obligatory and there is no way around it. In terms of external management accounting Digital Transformation will have a great impact on this field of functions as the conducted studies show that there are several impediments within internal management accounting. There are for instance insufficient automated processes which require manual input which is extensive, late data reporting within associated enterprises or errors in budgeting. Suchlike barriers will lead to foster an external management accounting which will moreover by dint of Digital Transformation be fast, valuable and efficient. One reason for this claim is that external management accountants are just adapting advanced competences regarding Digital Transformation and that they already have all attributes to implement successfully new business models such as Digital Transformation.

REFERENCES

- [1] IfM (Institut für Mittelstandsforschung, Bonn) (2015). *Volkswirtschaftliche Bedeutung der KMU*. Retrieved 2017, September 3, from <http://www.ifm-bonn.org/statistiken-/mittelstand-im-ueberblick-/#accordion=0&tab=0>.
- [2] Euler Hermes: Wirtschaft Konkret Nr. 414. *Ursachen von Insolvenzen*, 2006, p. 20.
- [3] Pössl, W., *Controlling und externe Beratung*, Vahlen: München, 1991, pp. 53-54.
- [4] Mäder, O. B. & Hirsch, B.: *Controlling – Strategischer Erfolgsfaktor für die Internationalisierung*, in: Keuper, F., Schunck, Hendrik A. (Hrsg.), *Internationalisierung deutscher Unternehmen*. Strategien, Instrumente und Konzepte für den Mittelstand. 2. Auflage, Wiesbaden: Gabler, 2011, pp. 175-176.
- [5] Schauf, M., *Unternehmensführung im Mittelstand*. Rollenwandel kleiner und mittlerer Unternehmen in der Globalisierung. 2. Auflage, München, Mering: Hampp, 2009, pp. 4-5.
- [6] Schneider, A., *Erfolg durch E-Learning in kleinen und mittleren Unternehmen*. Voraussetzungen für das selbstgesteuerte Lernen, Hamburg: Diplomica, 2014, p. 8.
- [7] Broich, D. J.: *Mitarbeiterbindung in KMU*. Analyse von Instrumenten und Maßnahmen, Hamburg: Igel, 2015, p. 18.
- [8] Horak, C., *Controlling in Non-Profit Organisationen*. Erfolgsfaktoren und Instrumente. 2. Auflage, Wiesbaden: Gabler, 1995, p. 128.
- [9] Becker, J./Winkelmann, A., *Handelscontrolling*. Optimale Informationsversorgung mit Kennzahlen. 3. Auflage, Berlin, Heidelberg: Springer, 2014, p. 439.
- [10] Baumöl, U. /Berlitz, P.- D., *Big Data als Entscheidungsunterstützung: Herausforderungen und Potenziale*. Controlling und Big Data. In: Gleich, R./Grönke, K., Kirchmann, M., Leyk, J. (Hrsg.), *Controlling und Big Data*, Anforderungen, Auswirkungen, Lösungen, Freiburg, München: Haufe, 2014, pp. 159-176.
- [11] Bachmann, R./Kemper, G./Gerzer, T., *Big Data - Fluch oder Segen?* Unternehmen im Spiegel gesellschaftlichen Wandels, Heidelberg: mitp, 2014, p. 40 & 187.
- [12] Heuberger-Götsch, O., *Der Wert von Daten aus juristischer Sicht am Beispiel des Profiling*. In: Fasel, D./Meier, A. (Hrsg.), *Big Data*. Grundlagen, Systeme und Nutzungspotentiale, Wiesbaden: Springer Vieweg, 2016, pp. 83 & 86.
- [13] Kleinemeier, M., *Von der Automatisierungspyramide zu Unternehmenssteuerungsnetzwerken*. In: Bauernhansl, T./Ten Hompel, M./Vogel-Heuser, B. (Hrsg.), *Industrie 4.0 in Produktion, Automatisierung und Logistik*, Wiesbaden: Springer Vieweg 2014, pp. 571-580.
- [14] Damm, W. /Achatz, R. /Beetz, K. /Broy, M. /Daembkes, H. /Grimm, K. /Liggesmeyer, P., *Nationale Roadmap Embedded Systems*. In: M. Broy (Hrsg.), *Cyberphysical Systems. Innovation durch Software-intensive eingebettete Systeme*. „acatech diskutiert“, Heidelberg: Springer 2010, pp. 67-136.
- [15] Fasel, D. /Meier, A., *Was versteht man unter Big Data und NoSQL?*, In: Fasel, D. /Meier, A. (Hrsg.), *Big Data*, Wiesbaden: Springer Vieweg 2016, pp. 3-16.
- [16] Brinkmann, F.-M. /Fetai, I. /Schuldt, H., *SLA - basierte Konfiguration eines modularen Datenbanksystems für die Cloud*. In: Fasel, D. /Meier, A. (Hrsg.), *Big Data*, Wiesbaden: Springer-Vieweg, 2016, pp. 179-195.
- [17] Cole, T., *DIGITALE TRANSFORMATION*, München: Vahlen, 2015, p. 149.
- [18] Brühl, V., *Wirtschaft des 21. Jahrhunderts*, Wiesbaden: Springer Gabler 2015, pp. 106 & 107.
- [19] PWC (PriceWaterhouseCoopers International) (2015). *Digital Controlling*, Digitale Transformation im Controlling, Retrieved 2017, October 30, from <https://www.pwc.de/de/digitale-transformation/assets/pwc-studie-digitale-transformation-im-controlling.pdf>.
- [20] Camelot (Management Consultants) (2017). *Digitalisierung als Treiber der Controlling Transformation*, Sind Sie bereit für einen Paradigmenwechsel? Retrieved 2017, October 30, from <https://www.camelot-mc.com/de/study/digitalisierung-als-treiber-der-controlling-transformation/>.
- [21] IDC, *Cloud Computing in Deutschland 2017*, Cloud-Transition als Erfolgsfaktor der digitalen Transformation, Retrieved 2017, October 30, from <http://idc.de/de/research/multi-client-projekte/cloud-computing-in-deutschland-2017/cloud-computing-in-deutschland-2017-projektresultate>.