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CONTROLLING AS DRIVING FORCE AT TODAY'S DYNAMIC CHANGING COMPANIES

Abstract:

The task of controlling is to support the management with reports, forecasts and analyses in order to be able to take economically rational decisions. In today's fast changing economic and information technological environment the management has to react rapidly. This means new challenges for controlling. Due to digitalization, even more real time data is available, can be stored and shared fast. This lead to a change of controlling processes. The focus of reports changed from analysing past figures to current and future trends. Controlling become the strategic early warning system of the companies. This changes the role of controllers, as it is transforming into business partners of management, and also new roles, like Data Scientist will turn up and new skills are needed. Controlling support management to take more adequate decisions, what secure the long-term survival of the company, so in an indirect way the transformation of controlling is a driving force of the companies at today's dynamically changing environment.

Keywords:

controlling, driving force, changing environment, digitalization

JEL Classification: M49, O11, O20

Introduction

Today's companies face with many challenges. Market conditions, customers behaviour, communication channels, delivery methods and the whole business model of companies are changing. The development of information technology fully transformed product manufacturing and provision of services. If it is implemented in the right way, can increase the efficiency of the company.

Controlling is a decision support activity, reporting and control tool as well. It seek the optimal resource allocation of the company. As basis philosophy of controlling is to lead the company to successful operation and only such business will be efficient, where the management proactively selects the path to follow. If it does not work, than firms just react to events. Controlling can help management to take right decision in today's volatile environment. Our paper introduces this recent challenges and controlling in the new digital landscape as driving force of companies.

The past: From data administration to business partnering

Internationaler Controller Verein and the International Group of Controlling define controlling as a decision support management activity what helps decision maker with planning-, calculation- and control-subsystems. (Internationaler Controller Verein – International Group of Controlling, 2012.)

Controlling developed from the state's treasury function at the English and French royal manor houses in the middle ages. The real development of controlling as a management tool began during the time of industrial revolution, when the first controlling organizations (Controller's Institute of America, Financial Executives International) were established. (Körmendi - Tóth, 2003.)

Controlling already changed a lot in the past decades. Before controlling was analytical and operational. The reports focused on the past and analyses were only quantitative. With such controlling approach, management decisions could be just reactive. At that time controllers prepared reports from past figures based on legal requirements. They were very precise without estimations or accruals. The target group of reports were external shareholders like banks, investors or authorities. The reporting period was yearly.

Lately due to the automation of administration processes, controllers have more time and they can concentrate their resources to more deeper qualitative analyses and business partnering of the management This also means that the controller is not only involved in decision-making but controlling professionals are also responsible for fulfilment of the set objectives. (Szóka-Tóthné, 2017.)

Today's the recipients of reports are not just external shareholders, than much more own management (Kenyeres-Vágyi-Varga 2016). Today's controllers are agile and creative and focus on processes and measures. They operate the data management system of the company and support other departments and management in decision taking. The reporting period is more frequently, mostly monthly. Because of short deadlines it contains estimations and guess. (Sieler, Waßmer, 2017)

In the last years many companies implemented IFRS and this give new tasks for controllers. In IFRS estimates need to be made. Typically companies primarily use domestic and secondary IFRS accounting. The IFRS result is not based on the IFRS accounting of base data, but on IFRS corrections. This estimations and corrections can be just calculated in close cooperation between accounting and controlling. During IFRS transition also the structure and content of controlling reports shall be checked, what is also a task of controlling. (Szóka-Tóthné, 2017.)

Controlling is constantly changing, but the most important feature is always the support of management in decision making process. Controllers hast to be flexible and adopt to new challenges of the age. (Böcskei, 2013.)

New challenges and changing companies

Today's development of digital technologies have the ability to shape the economy and industry. In order to sustain their business, digital transformation is required also from firms. Internet of Thing (IoT)¹ connect companies much tighter with customers and suppliers than before. IoT enables more efficient, more flexible and more individualised production. The performance of the companies are much dependent from there digital maturity and business model innovation. Mobile digital technology influence customers behaviour and shape market competition. Supply and value chain innovations become important factors and lead to much higher vertical and horizontal integration. Also storage systems developing fast, as the automatic warehouses operate by warehouse logistics software via the ERP system which continuously communicates with all elements of the supply chain. Companies getting more modular, interoperable, decentralised, standardized and real-time. Many incumbent firms fail to sustain their market position, as due to disruptive innovation new entries provide faster, more simple, convenient and cheaper services. Also co-innovation between firms and industries getting more and more popular in today's dynamically changing environment. (Leonardus, Firdaus, 2018)

The relation of technology innovation and business model innovation is very complex and multifaceted and much more than necessary complements for the competitive advantage of the firms. Appropriate business model innovation improve the ability of the companies to respond effectively to rapid changes in the business environment. (Pietrewicz, 2019, Varga-Cseh, 2019).

A smart factory was created by Siemens in Amberg, where the products already control the production itself. By using a product code, they can tell to the machines, what production action they need at the moment. The machines can coordinate with each other which product should be produced with urgency. (Siemens, 2014). As high innovation in robotics technology, in case of failure 'KUKA Robotics LBR iiwa robot' notifies the properly trained mechanic. The system determines the time of maintenance and pre-order the necessary components or prints it using 3D technique (KUKA AG, 2015.). In such modern factories other type of knowledge is needed. Manpower of smart factories should be professionally trained in IT and they should understand and use smart devices.

Companies shall always ask when evaluating new business model what are the benefits they can generate for customers through smart products, what intelligent services they can offer, and how does revenue change if implementing new business model. The controller must know what conditions are needed in order to achieve the goal and about the cost of these. Also the

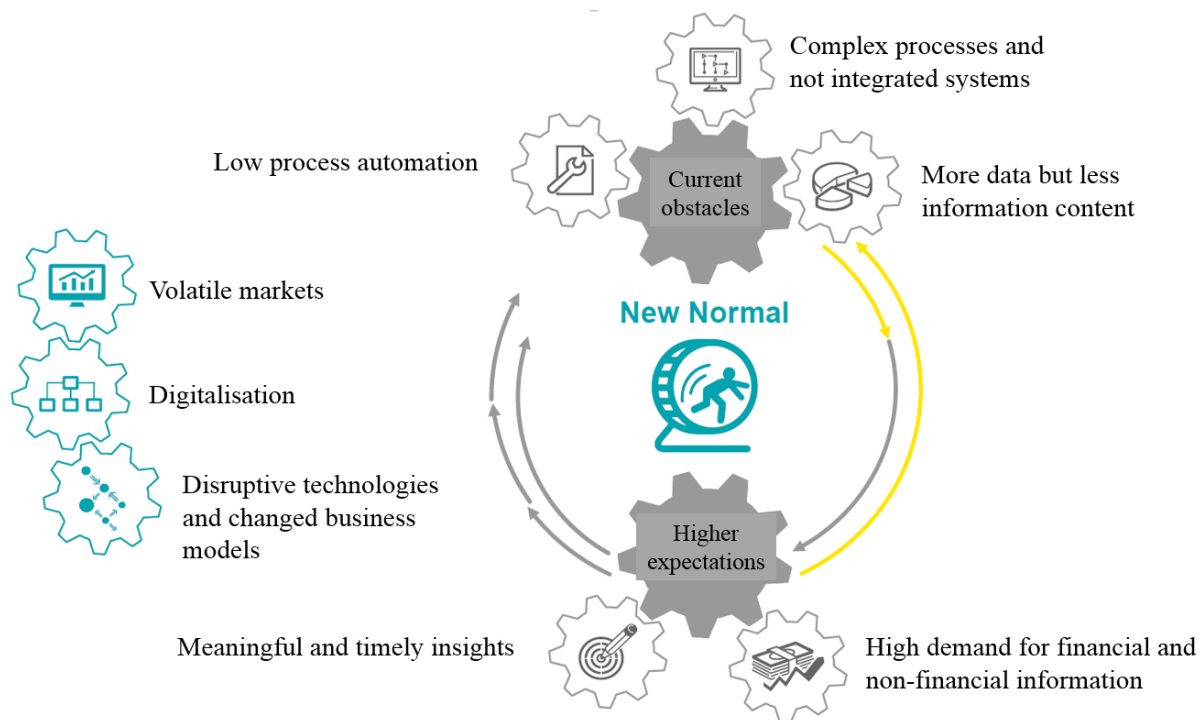
¹ The interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data.

intangible benefit of investments shall be taken into consideration, when deciding about new business models. Time to time it has to be verified how well the company has developed by examination of the effectiveness of intelligent products and services. (Rusch, Treusch, David, Seiter, 2016.)

Companies hast to adapt, to changes and to succeed in responding to environmental change in order to keep their competitiveness. Today's turbulent environmental change is definitive a risk, what needs to be managed. Companies decide about strategy, prepare plans and tracking deviations of facts from plans. They always comes across differences and should not miss the implementation of modern business models. (Zéman, Szabó, Bárczi, 2013)

The first figure summarize today's challenges and obstacles of the companies.

Figure 1: New challenges of companies



Source: Oliva B., 2019

Innovations in information and communication technology

IT Systems has to be continuously developed. Today's corporate information technology is very complex because of continuous fast evolution of used technology and development of business. This complex change process should be followed by IT, by accounting and by controlling. (Ferke, 2014.)

The initial basis for intelligent networking is embedded systems which is the linking of autonomous, powerful minicomputers with different objects (e.g. machines or devices). Via

internet these embedded systems are linked with each other and merging the physical world with the virtual one into cyber-physical systems. So in a smart factory machines and people can communicate with one other and exchange data.

Also data processing went through a big revolution. Today's via robust networks big volume of data can be rapidly and secure transferred. Storage and sharing of data is also became much easier via cloud computing.

Due to information technological development, companies generate much more data, than before. Big data has to be processed, stored, transmitted in a user friendly and secure way. Before introducing big data, companies has to clarify where the data come from, how good is the data quality, for what kind of analyses will the data be use and how confident is management in the result.

In the future Artificial Intelligence (AI) and machine learning will be used in everyday life. Companies can use AI fore routine tasks or tasks that require data-based basic thinking, for example surveying the needs of customers, chat robots, or run depreciation and FX evaluation in ERP Systems or send out automatically reports.

In the next years the implementation of SAP S/4HANA will be a big challenge of many companies. The advantage of SAP S/4HANA is the in-memory database, what allows firms to perform transactions and analyse business data in real-time. S/4HANA is intend to be easier to use to solve complex problems and handle larger volume of data. The system is available in on-premises, cloud and hybrid deployment models, but SAP is strongly pushing its customers to cloud solution. The aim of the new SAP solution is to process large volume of operational and transactional business data in real time. The whole database concept is redesigned in SAP S/4HANA. According SAP the changes make it simpler to understand and use and more agile for developers. This new version of SAP system don't require batch processing, so user can get insight on data from anywhere in real time for planning, simulation and prediction. SAP S/4HANA cloud include machine learning through a tool called SAP Clea. (Rouse, 2018)

In the new SAP S/4HANA is one universal journal (ACDOCA), so finance and controlling will grow together. It will make easy to compare FI and CO PA. The embedded data warehouse of S/4HANA will serve as single source of truth. All controlling reports can be liked with that data base. Controllers don't need to search and solve data differences between systems. Also real time consolidation of data and integrated planning is possible with the embedded BPC.

Controlling in new digital landscape

The role and tools of controlling is constantly changing, as it faces more and more challenges. The trends of recent years define further new tasks. Controlling is a management tool, what can help to management to adapt the dynamic changes of the environment. Digitalisation revolutionise not just production, but also administration area like finance. This gives good chances to Chief Financial Officers (CFO) to increase efficiency and compliance in financial area, such as in controlling.

Companies has to use operate their assets and resources responsibly and transparently. Controllability and accountability are key aspects, what is provided by the internal control system. (Kovács-Szóka, 2016.)

Digitalisation in controlling mean new technological developments, like the possibility to include new controlling-relevant information in decision making process, make use of new potential of automation, or the development of new reporting and planning process with the help of artificial intelligence. The usage of portable mobility technology (smartphones, tablets) is increasing. This opens new possibilities for controllers to share reports with management.

Digitalisation also mean a total transformation of controlling regarding its new role at the companies. This connote a complete reorientation of controlling in order to successfully control the company in today's fast changing info technological environment and evaluate their new business model. Controlling methods have to be adopt to new environment

Product controlling shall be decentralised and more focused on the added value to customer. The client or customer group-specific price-selling functions and multi-variable functions can be integrated into the planning and control models. It is also important to compile the classic cost-controlling information using the customer and competitor information. Dynamic pricing changes the target cost-calculation, increasing the individualization modifies this process. In addition, time variability should be considered, as shown by the distribution coefficients. (Oehler, Schmidt, Seufert, 2016.)

Bariska, Pásztor, Koloszá (2019) highlight the great using possibilities of efficiency based costing method. It is a powerful tool in searching for the true processing costs as it combine important technical details of production process with accounting data. With this method can be monetary value of used production potential and losses due idle times also back tracked. (Bariska, Pásztor, Koloszá, 2019)

In the future high process and product variable of flexible production, will further complicate cost control. On capacity utilisation at fixed cost based one-dimensional decision-making procedure transform to multidimensional decision-making procedure. This mean, that starting point and variables are unclear and difficult to quantify, so it is hard to take an obvious decision. This lead to that same products and processes sometimes have a different cost. (Reischauer, Schober, 2015.)

As mentioned before, operations, sensors and mobile devices generate large amount of data, what contains potential information for decision making. This kind of data is generally unprocessed. It is the task of data experts or data stewards to help users mining and extract the needed KPIs and build up complex data models from big data. They transmit data in a more comprehensive and user friendly way. IT solutions need to be provided to managers and controllers that can reduce the complexity of information and are able to put them in an appropriate context and help to make quick decisions.

Big data serves the needed information to digital forecast. It is based on data, algorithms and presentations. Large amount of external and internal data is needed, than it has to be cleaned and proceed based on appropriate algorithms. Such digital forecasts are mostly more extensive and detailed than conventionally forecasts. Automated forecasts improves the quality of planed figures, increases actuality and lead to more accurate result. In this way, an objective and transparent forecast is made instead numbers that reflect the top management expectations. Ideally user interfaces are designed to the forecasts, so it can be used on different devices and smartphones in real time. Simulations and scenarios can be personalized and saved for each

user in the system. Predictive forecast leads to a paradigm change in corporate governance, as it become from analytically-reactive into proactive-forward looking. (Hartje, Lips, Mayer, 2017.)

Digitalisation also revolutionise reporting. Due to real-time data the management-cycles can be shortened and centralized. If required, top management can drill down directly from the cockpit to the transaction data. The usage of direct and ad hoc navigation reporting is increased on board meetings. The report and the decision are approaching each other. During the reporting Visual Reporting (OLAP, BI, Dashboard and PowerPivot) and Visual Analysis (Interactive, Visual Analytics Reports) can be used. This programs operate with real-time response, so decision maker don't have to wait till controller update reports. Distribution of reports get cloud based instead sent out via emails. (Szóka, 2018)

Visualisation of most important KPI's is the dashboard. It should be short, just fit to one page. International Business Communication Standards (IBCS) shall be followed when developing a new dash board, to help users faster and easier recognize trends and deviations of numbers. (Kovács, 2017)

We summarize in below table the main changes and challenges to controlling.

Table 1. Today's main changes and challenges of controlling

Main processes of controlling	Changes/ challenges/ influence due to Industrie 4.0
Strategic Planning	<ul style="list-style-type: none"> ▪ Quantification of benefits of digitization and networking in terms of optimization potentials ▪ Identification of new digitization-related business areas
Operative Planning and Budgeting	<ul style="list-style-type: none"> ▪ New KPIs ▪ Flexible budgeting
Forecasting	<ul style="list-style-type: none"> ▪ Continuously up-to-date production and market data ▪ Forecasts in real-time
Cost Accounting	<ul style="list-style-type: none"> ▪ Improved transparency of production costs ▪ Improved basis for calculating production overheads through comprehensive transparency of information
Management Reporting	<ul style="list-style-type: none"> ▪ Use of mobile devices ▪ Forward-looking reports ▪ "What-If" analyses
Project and Investment Controlling	<ul style="list-style-type: none"> ▪ Monitoring of production procedures in real-time ▪ Investment decisions based on scenario-based simulation models
Risk Management	<ul style="list-style-type: none"> ▪ Consideration of new risks arising from comprehensive digitization

Source: *Dream Factory (ICV), 2015., p. 31.*

Conclusion

Recent environmental changes and information technological development is a great opportunity, but also a great job at the same time. New business models have been developed, what can increase profitability and efficiency, but also mean a risk for the companies. Firms has to build up complex infrastructures, reorganise business processes, implement new software and take care to data protection. Some companies already begun this development, others just evaluating the new possibilities. In our paper we represented the recent turbulent changes, what faces lately the companies. The development give a great opportunity to controllers to further develop process performance management. New business models require a more deep involvement of controllers into business processes. Controlling models and methods, as well as the role of controller (change agent) has to adopt to recent challenges. Also professional requirement for controllers are changing, as much higher IT knowledge is needed. Controllers should be able to understand and use new IT tools, software and visual reporting. Such a new controlling approach can help management to take right decisions, properly evaluate new business models and secure the long term profitability of the companies.

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