Organizations Operating in Real Time (Real–Time Enterprise) and the Role of IT as a Tool Supporting Their Management Systems

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INTRODUCTION

An RTE is an enterprise processing information in real time – an organization focused on quick response to the needs of the market and client, fast decision making, transparency and immediate information sharing among internal groups (Borg 2011, Šibalija, 2018).

Competition within this time-frame has become crucial for many businesses and quick response is the key element of success in face of critical events minimizing costs and maintaining perfect quality of activities (Cundius & Alt, 2017). Specifically, there is the necessity to apply tools enabling access to critical information in proper time and place (Karnouskos & Colombo, 2011), which allows for quicker decision making (Olofson & Morris, 2013).

The functioning of RTE without support from IT technologies seems impossible. Yet, a number of organisational changes need to be conducted within the enterprise which will be 'solidified' by IT. The aim is, among others, to focus on the activities which produce a bigger value (Hongren et al., 2015) and allow for optimation of business processes (based, among others, on Lean), defining goals and preparing analysis of the time courses (Kyte 2004; Brand, 2012), as well as modification of some specialists' qualifications (Vasarhelyi, 2010).

On the basic level IT solutions for RTE should enable:

1. Monitoring of the enterprises and its surroundings in real time,
2. Access to information in real time,
3. Acceleration of business processes.

The main objective of this chapter is to shed some light in the determinants of IT systems for RTE. First, the basic RTE areas will be analyzed. Second, the IT requirements for these areas will be presented, including sets of proposed determinants. Finally, conclusions and future research will be proposed.

BACKGROUND

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The constant changes in the market and the increase in competition make it necessary to dynamically adapt the way of running a business (Wirtz et al., 2007). Enterprises must develop business flexibility by adapting new business models (Sikri, 2015) and implementing effective innovations (Grauer et al., 2010; Zhou et al., 2018). Technological progress changes the way enterprises conduct business (Vasarhelyi & Alles, 2008), requiring the use of tools that provide access to critical information at the right time and the right place, supporting rapid decision-making (Azvine at al., 2005). The reduction of time delays becomes the goal and way to implement the real-time system (Kejariwal & Orsini, 2018).

Therefore, the competitive advantage of real time enterprises (RTE) results from responding faster than the others the changing business conditions and opportunities.

Real time economy already exists (Vasarhelyi, 2010) and regards numerous industries, from fashion (Luskham, 2011), through finance (Kekwaletswe & Lesole, 2016), to software production (Martínez-Fernández, 2018). Processing information in real time – i.e. RTE – is also the core of Smart Factory in the Industry 4.0 concept (Herrmann, 2018).

The aim of these activities is to identify new business possibilities, avoid failures and minimize delays of the main business processes (Polites, 2006), improve flexibility, speed and quality of decisions, client relationships, increase the return on investments, as well as to increase productivity of the staff at each level of the organization (Smith, 2009). For the functioning of RTE is related to the use of proper techniques of human resources management (Yuan, 2016).

Specifically, there is the necessity to apply tools enabling access to critical information in proper time and place (Karnouskos & Colombo, 2011), which allows for quicker decision making (Thorpe & Kerr, 2011).

RTE acts quickly due to the integration of internal and external data, information analysis and communication among business partners (Kuglin & Thielmann, 2005). This may be compared to a gigantic spreadsheet where new information is sent via computer systems used by the enterprise and its suppliers. (Ramaswamy, 2015). In the ideal RTE model (Snabe et al., 2009):

- information circulates within the enterprise and beyond, with no barriers;
- business processes are continuously being monitored and improved;
- gathered and processed information on business processes provides an incentive for quick response to changes in the enterprise and beyond;
- key business processes are flexibly automated, usually in compliance with in-built principles.

ORGANIZATIONS OPERATING IN REAL TIME AND EXPECTATIONS FOR IT

As already mentioned the functioning of RTE without support from IT technologies seems impossible. When considering the use of IT tools in the implementation of RTE, its basic areas should be analyzed: monitoring of the enterprises and its surroundings in real time, access to information in real time and acceleration of business processes.

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