

The Concept of Time-Based Competition in the Context of Management Theory

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Speed as a competitive factor is gaining more and more importance for companies involved in global market competition. The company tends to compete for rapid response to consumer demand and new products and technologies introduced to the market. This type of competition in terms of reaction time is described as time-based competition (TBC).

Regardless of a number of practitioners and scholars admitting in their works that time management will enable the company to achieve competitive advantage, there is still a lack of empirical research for proving this statement. In addition, today the concept of TBC requires a holistic attitude to time-based management that would integrate a great deal of different concepts, methods and tools of management theory, and would adjust production control systems, cost accounting systems and, at the same time, performance measurement systems with regard to time perspective. The problem is that there is no sufficient research on determining the importance of the time factor in the context of management theory or on systematizing various management concepts for establishing what influence they have on the contemporary perception of TBC. Hence, the main objective of this article is to systematize and analyze data provided by scientific literature sources in relation to the concept of TBC and its development in the context of management theory. In the present article the theoretical research involved the systematic and comparative analysis of scientific literature.

The first segment of the article includes the definition of TBC, the analysis of advantages and implementation challenges provided by this concept.

The second segment of the article involves the theoretical research on the significance of the time factor in the development of management theory and emphasizes the effect and/or contribution of the basic management concepts on/to the formation of the TBC concept and the emerging need for it in the immediate future.

Companies engaged in TBC seek to reduce the amount of time devoted during each stage of the general cycle by eliminating non-value adding activities, shortening time and/or efficiently coordinating value adding activities. When response time to consumer needs is shorter than the one demonstrated by rivals, the company can achieve competitive supremacy that is greater and, on a frequent basis, tends to be dominant and is expressed in speed, which contributes to short delivery time, lower costs, higher quality, flexibility and credible delivery.

The research demonstrated that although the term TBC is relatively new, the very concept of time-based management

has been applied numerous times. The significance of time management dates back to the early 20th century, while dealing with works of classical management theory from a tactical perspective, and later on other concepts of management theory were applied to its development and expansion, for example, the contribution of the Management School to creating quantitative methods for time management; the systematic attitude that was used to prove the significance of time-based information in production and operations management and to stress the importance of process management within the organization both externally and internally, including quick response to changes, the elimination of “bottleneck”, resource use and management, and the synchronization of all existing links within the whole organization, and that served as foundation for the emergence of the TBC concept; and the dynamic attitude that expanded the concept of TBC by placing emphasis on the importance of time management as a constant process in the changing organization.

Keywords: *time, speed, time-based competition, time-based management, management theory.*

Introduction

Competition, technological advance and changing consumer needs lead to the constant development of competitive paradigms. In the course of such events time-based competition as a competitive paradigm came into existence in approximately 1990. George Stalk Jr. (1988) was the first to use the term *time-based competition* (TBC) in his article *Time: the Next Source of Competitive Advantage* published in the *Harvard Business Review* magazine. In it Stalk provided explanation how companies are able to achieve competitive advantage by engaging in TBC for the satisfaction of consumer needs as the crucial factor in strategic management.

In scientific literature costs, quality, innovation and time are regarded as the most significant factors of strategic management. Theories of both cost accounting and global quality management thoroughly cover aspects pertaining to costs and quality (Chen, 2009). Over the recent decade innovations have also captured the attention of many theoreticians and practitioners (Banyte et al, 2008; Korsakiene, 2009). Nowadays it is probably difficult to find those questioning the impact of time on company's management; however, it is necessary to concede that the time factor is still rarely used for reaching management decisions. Meanwhile, the accelerating pace of globalization and fierce

competition are increasingly emphasizing the importance of time-based management. Only those businesses that properly assess the significance of time management and quickly respond to changing consumer needs will manage to survive this competition (Peters, 1990). As a result, the need emerged for creating and/or adapting new management methods and tools (Davidaviciene, 2008) and for efficiently integrating production control (Jurkstiene et al, 2008) and cost accounting systems (Fry et al, 1998; Kaplan and Anderson, 2004; Horngren et al, 2006; Strumickas and Valanciene, 2009), including the selection of performance measurement system in terms of TBC (Sapkauskiene and Leitonienė, 2007, 2009; Valanciene and Gimzauskiene, 2009) in practice.

Tendencies to focus on time as the influential factor in strategic management were largely observed in the last decade of the 20th century and in the early 21st century (Azzone et al, 1991; Blackburn, 1990; Bower and Hout, 1988; Daugherty and Pittman, 1995; Hise, 1995; Kumar and Motwani, 1995; McKenna, 1997; Peters, 1990; Rohr and Correa, 1998; Ruch, 1990; Stalk, 1988; Stalk and Hout, 1990; Stalk and Istvan, 1989; Sim and Curatola, 1999; Tersine and Hummingbird, 1995; Tammela et al, 2008; Morgan, 2004; Barker, 2001; Alis et al, 2006). In their works scholars readily admitted that time management will allow the company to achieve competitive supremacy, however, the analysis of literature sources referred to an obvious disbalance between conceptual study and empirical research that prove this statement (Kumar and Motwani, 1995). Even though a rise in empirical works is evident during the early 21st century (Tammela et al, 2008; Morgan, 2004; Barker, 2001; Alis et al, 2006), the main **problem** is that there is absence of research on determining the importance of the time factor in the context of management theory (except for Gehani, 1995) or on systematizing various management concepts for establishing what influence they have on the contemporary perception of time-based competition.

The main **objective** of this article is to systematize and analyze data provided by scientific literature sources in relation to the concept of time-based competition and its development in the context of management theory.

The **object** of the research is time-based competition. The method of the research involved the systematic and comparative analysis of scientific literature.

The Concept of Time-Based Competition

Competition expressed in response time is known as time-based competition. The central idea of TBC revolves around reduction in time devoted during each stage of the general cycle, which means shortening the time of the following activities: planning, designing, product creation, innovation introduction, production, supply, marketing and distribution by considering consumer needs and expectations (Abdinnour-Helm, 2000, Klimov and Merkurjev, 2008; Banyte, 2009). The company can achieve this by eliminating non-value adding activities, reducing the time of value adding activities and efficiently coordinating them (Boguslauskas and Kvedaraviciene, 2009). In this way the company can gain competitive advantage in terms of time, i.e. speed that contributes to short delivery time, lower

costs, flexibility and credible delivery. There are two important reasons why time is so influential to the company's financial success. First, by showing quick response, the company finds favor with consumers, which leads to higher sales and market share. Second, companies that gain acceleration by sensitively reacting to changes are able to enjoy radical achievements of productivity and quality, when an increase in permeability causes a reduction in production time and costs.

In conventional operations management asserting that the company succeeding in the implementation of TBC reduces costs and increases quality sounds like a contradiction. According to the established convictions, "doing things in a rush means bringing about defective production", thus, when speed is the main goal, TBC should only increase costs and/or reduce quality. However, there is a great deal of research exposing contrary results. For instance, Schmenner (1988), Lieberman et al (1990) discovered that efforts exerted in shortening the permeability time, in fact, contribute to productivity increase and cost reduction. In addition, research carried out by a number of scholars revealed that after implementing processes related to quicker response, companies achieve the best or at least substantial quality improvement.

In order to observe TBC advantage, it is necessary to analyze activities pursued by producers who treat speed as an obstacle. Traditional cost-based competition with slower response time can enter into rivalry only with time-based competitive proposals by using additional inventory and creating an illusion of faster response. This increases costs and reduces profitability of slower companies and also explains why TBC is related to higher growth rates and profitability in industry. After carrying out empirical research, Li and Lee (1994), Blackburn et al (1991, 1992), Tammela et al (2008) provided evidence that the company ensuring faster delivery is able to reduce costs and occupy larger market share. When chief executive officers are conscious of the reverse relationship between money and time, they seek to invest in the latest information systems and to improve the logistic system. Figure 1 shows the basic advantages provided by TBC. While analyzing time as a strategic factor, it is necessary to mention that some authors express apprehension over the fact that companies seeking to implement TBC can have negative effect on its employees (Alis et al, 2006). Sim and Curatola (1999) studied 83 US companies involved in the electronics industry and established that the companies oriented towards TBC increase employees' satisfaction with their work in addition to a decrease in production and warranty costs and a significant increase in occupied market share. According to Meyer (1993), in the presence of TBC, companies, which speed up cycle time, do not aim at fixed working hours by shortening the time of each performed operation, since otherwise they would face mistakes, cost increase and quality reduction. The only possible way for increasing product quality and reducing costs is to introduce radical changes to the process itself. According to Stalk (1990), it is a paradox that namely larger buffer stock and longer preparatory time do not encourage employees to attain better work accuracy. Furthermore, reduced cycle time results in better motivation and work satisfaction, although work speed tends to rise. This can be

explained by the fact that when production is flexible, employees are able to make independent decisions on accomplishing tasks (Alis et al, 2006, Donkin, 2001, Tsutsui, 1998, Whipp et al, 2002). By speeding up work, employees are encouraged to place greater focus on the task accomplishment, which creates the atmosphere of changeability and this, in turn, motivates to engage in the learning process. The main goal involves creating a more dynamic environment that would contribute to efficiency and work satisfaction increase.

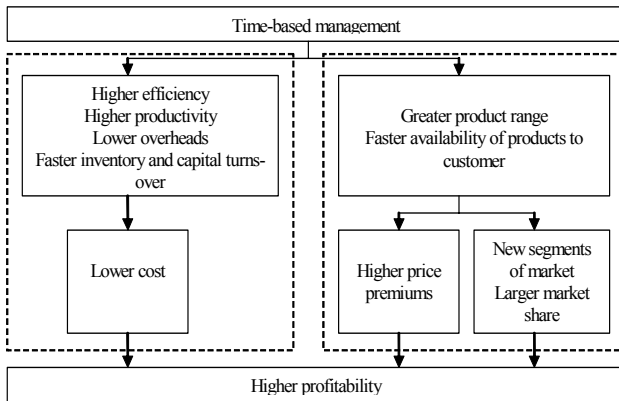


Figure 1. Basic advantages provided by time-based competition

In this way, TBC implementation challenges require a holistic attitude to time-based management that integrates a great deal of various concepts, methods and tools of management theory. It is essential to direct all company's decision making towards time management: to form and implement a time-based strategy; to create a time-focused learning organization; to direct its culture towards time reduction; to apply time-based management accounting and time-focused performance measurement system with time-related measures; to establish time-focused benchmarking; to introduce an appropriate motivation system for employees; and to observe time-related performance and practices of current and potential competitors.

The Significance of Time Management in the Development of Management Theory

The term *time-based competition* (Stalk, 1988) is relatively new, however, the very concept of *time management* has been applied numerous times. Both in war and in business response time appears to be one of the most crucial criteria. For example, the Duke of Wellington was quick to realize that time is the most important factor during the military operations, which allowed defeating Napoleon's army and changing European history. In the 14th century Dutch shipbuilders proposed a system for fast production, which can be regarded as a predecessor of the current JIT production system.

While analyzing classical works of management theories, it can be noticed that the significance of time management in companies can be traced back to the early 20th century (see Table 1). It was the time when the United States of America dealt with the absence of qualified labor force, which caused the need for labor productivity increase. Renowned industrialist Henry Ford decided to make the car available to the general public, which required

increasing output and reducing their prices. In seeking to increase the effectiveness of his factory and to materialize the latest production ideas provided by Frederick W. Taylor, he automated production where it was possible, and divided tasks into the smallest elements by shortening the time of performed operations and integrating them into the continuous conveyor. By referring to *scientific management*, Taylor in 1911 urged managers to scientifically determine the fastest and the most proper methods for the task accomplishment and to select, train and motivate their employees. During his time studies in relation to production lines, workers, who were engaged in various activities in the steel industry, were measured with the chronometer in terms of their motions. Workers expressed their discontentment regarding this kind of "optimization" by appealing to the US Congress and requesting to investigate this "mechanism" of accurate timing. Later on separate aspects of scientific management were developed and improved by Taylor's followers, such as Gantt and Gilbreth. When Taylor separated himself from the group, Gantt renounced the differentiated wage system as having little motivational effect and introduced a completely different idea, i.e. to provide both managers and workers with premiums after accomplishing their tasks during the day. Gantt laid foundation for production scheduling. By applying Gantt's charts, Du Pont - the US giant in the area of chemistry - created the Critical Path Method and the US Navy developed the Program Evaluation and Review Technique. In 1917 Gilbreth made their contribution to the movement of scientific management through the analysis of workers' motions recorded by using a motion picture camera. Both scientists aimed at finding the most economical motions for each task in order to ensure its better accomplishment and to protect workers from becoming exhausted. These logically complemented Taylor's time studies, as time and motion are two sides of the efficiency improvement coin. The two fields eventually became time and motion study. Thus, in the scientific management theory time was treated as the most significant factor, which attracted widespread criticism as saving time meant providing managers the opportunity to exploit workers by forcing them to work at faster paces. However, it is necessary to indicate that scientific management, which brought time-based efficiency into existence, eliminated the problem of limited labor resources in the USA during that particular period. Meanwhile, French scientist Fayol, who is regarded as the founder of *the Classical School of Management*, emphasized such things as division of labor, discipline, centralization and coordinated order in the arrangement of human and physical resources. Taylor expressed great interest in organizational functions, whereas Fayol was focused on the organization as a whole. In order to enhance the efficiency of activities within the organization, German sociologist Weber proposed bureaucratic management and activity standardization. However, the classical attitude failed to ensure sufficient production effectiveness and consistency in the work place, since an individual is treated as an element whose function is to perform work without the possibility to creative activities. There is still no association between processes and environment that surround the organization.

Management theory development in the context of time management

Year	Sources	Conceptions	Tools, methods
1910	F. W. Taylor (U.S.) F. & L. Gilbreth (U.S.) H. Ford, H.L. Gantt (U.S.) F. W. Harris (U.S.) H. Fayol (France) M. Weber (Germany)	Scientific Management Theory The Psychology of Management Moving Assembly Line Economic Order Quantity Theory of Business Administration Bureaucracy Theory	Designed in the best and fastest methods of performing tasks Motion study The graphic schedule for the planning and controlling of work EOQ applied to inventory control Management functions and principles Standardization activities
1930	E. Mayo, (U.S.) & L. H. C. Tippet (UK) W. Shewhart, H. Dodge & H. G. Romig (U.S.)	Employee Motivation Survey Statistical Quality Control	Modeling analysis of work activities Examples of testing and use of statistical tables for quality control.
1940	A. H. Maslow, F. Herzberg, D. McGregor Operations research team (UK), R. McNamara, G. B. Dantzig, P. Drucker (U.S.)	The Behaviorist School; School of Management Science; Multidisciplinary team approach combining the systemic issues	Hierarchical pyramid of human needs; human factors group theory; theory X and theory Y. Simplex method of linear programming; operational and prospective activities.
1950–1960	USA and Western European scholars J. W. Forrester, E. Bowman, E. Buffa	Systematic approach. Dynamic relations approach to industry	Simulation; waiting line theory; mathematical programming; PERT & CPM; products life cycle; push technology.
1970	P. Lawrence, J. Lorsch, R. Moeller, et al. Computer manufacturers, particularly IBM; MRP main innovators J. Orlicky & O. Wight McDonald's restaurant	Situational Approach The spread of computerization in business Service Quality and Performance	Different management approaches and methods use in different situations. Planning workshops, inventory control, forecasting, project management, MRP. Mass production in services sector
1980	R. Beckhard, K. French, H. Mintzberg et al; Harvard Business School (U.S.) Tai-ichi Ohno of Toyota Motors (Japan), W. E. Deming, J. M. Juran, Crosby, P. (U.S.) and engineering disciplines (U.S., Germany, Japan), G. J. Stalk, T. M. Hout E. M. Goldratt (Israel) H. T. Johnson, R. S. Kaplan (U.S.)	Organizational development and strategic management theory Manufacturing strategy paradigm Time-based competition, JIT, TQC and Production Automation Synchronized production Formalization of processes	Organization design, innovation management. Manufacturing as a competitive weapon. KANBAN, Poka-yokes, CIM, FMS, CAD/CAM, robots, etc. Analysis of bottleneck, OPT, theory of constraints Activity cost management
1990	National Institute of Standards and Technology, American Society for Quality Control (U.S.), International Organization for Standardization (Europe) M. Hammer, J. Champy and major consulting firms (U.S.); The U.S. government, Nescape Corporation, Microsoft Corporation, SAP (Germany), Oracle (U.S.)	Total Quality management Business Process Reengineering Electronics company Supply Chain Management	Baldrige Quality Award, ISO 9000, Quality function development, value management and continuous improvement paradigm Radical change paradigm Internet, World Wide Web SAP/R3, client / service software
2000	Amazon, e-bay, American Online, Yahoo R. S. Kaplan (U.S.)	E – commerce Operations and Management Accounting Integration	Internet, World Wide Web Time ABC management

As a result of this, during the second decade of the 20th century management scholars began to study human behavior in order to find an effective way to control them in the organization. This gave rise to the formation of *the Behaviorist School*. After carrying out research at Western Electric Company Inc. in the USA, Mayo and his colleagues Roethlisberger and Dickson from Harvard established that individuals are motivated to show excellence in their work for the satisfaction of economic, as well as social needs, which brought changes to the management theory. However, representatives of this school (Maslow, Herzberg, McGregor et al), who studied human behavior within the organization through scientific methods, did not analyze the time factor directly.

The School of Management Science had a great influence on the development of time-based management. At the beginning of the Second World War there was a

number of teams involved in military operations research in Great Britain in seeking to solve complex problems. The

British achieved huge progress in the areas of technology and tactics with the help of mathematicians, physicists and other scientists. Americans were the first to use computers, when they engaged in the war. With the latest industrial technologies being introduced and transportation and communication systems becoming increasingly complex, there was rapid spread of mathematical methods used for solving management problems. The School of Management Science gained quick popularity due to the emergence of computers, their widespread use in industry and the method of management science applied to the Ford Motor Company by McNamara during the fifties and sixties. Thus, it is necessary to emphasize that management science brought a completely new attitude to the time factor. It became popular to make future predictions based on the past and present time, by using complex

mathematical methods and computer-processed data. Today a number of companies also apply quantitative methods for reaching time-based management decisions.

In his early works Drucker - one of the famous representatives of post-war professional management - stressed the importance of process management within the organization both externally and internally, including quick response to changes, the elimination of "bottleneck" (Goldratt and Cox, 1984), resource use and management, and the synchronization of all existing links within the whole organization. Also, works by both Bowman and Buffa expressed a *systematic attitude* to operations management. Forrester demonstrated the significance of time-based information in the management of production operations. He referred to a *dynamic* time-based model revealing a significant waste of time between factories in the value chain, i.e. in warehouses, at the logisticians' and again in warehouses. Since this model was based on the push technology, it enjoyed great success. Due to the business computerization Material Requirements Planning became the most popular concept in 1970 (Luscombe, 1993). In terms of operations management, with management systems undergoing transformation, the pull system (Kimura et al, 1981) used in just-in-time production had the greatest impact on time-based production and stock management in the eighties (it is also known as the *kanban* system, which gained widespread popularity owing to Toyota Motors. According to the JIT philosophy or *kanban* system, products are manufactured by considering the need but not the stock, which enables to escape remaining stocks of unfinished production. Deming, Juran and Crosby - experts at global quality management - contributed to the popularity of this philosophy and such companies as Ford and General Motors began to use this system at the early stage of its existence (Dervitsiotis, 2001, Oakland, 1995). The use of JIT production system is regarded as the beginnings of TBC. Thus, in such concepts as computer-integrated manufacturing, quality function deployment, the Taguchi methods, just-in-time, and the total quality management philosophy time as a limited resource and its management gain exceptional importance. These methods are aimed at improving efficiency of production processes and product quality, reducing time and product costs and increasing product innovations. A number of researches exposed that these methods can also improve time-based achievements (Jayaram and Ahire, 1998; Jayaram and Vickery, 1998; Sim and Curatola, 1999). In this respect the emergence of Time-Driven Activity Based Costing becomes especially significant. It helps to determine the used amount of costs according to the evaluated operative time for each activity, which is calculated by the price of the standard unit of time (Kaplan and Anderson, 2004).

As technological processes are undergoing improvement and product characteristics are rapidly changing, organizations have become very dynamic. Management researchers realized that improvements to organization's management are brought through a constant process rather than a single or periodic action. Changes in this process must occur together with changes in the organization's subsystems and it must conform to their development level. Thus, only later in his life Mintzberg

provided the synthesis of initial concepts demonstrating how to adjust the organization's mechanism consisting of five basic constituent parts so that the organization would be able to undergo transition from regular bureaucracy to adhocracy. There was a striking contrast between the classical attitude and this concept that enabled to handle the planning process more dynamically.

Hammer and Champy proposed to decentralize and adjust the power involved in the decision-making process in order to reduce response time in various levels of management. Hammer (1995), which is considered to be the pioneer of the reengineering movement, encouraged to radically rethink and change the whole business process in seeking to bring significant improvements to the time-based performance measurement (Ganapathy and Goh, 1997). The problem is that their proposals seem to be far from realistic, as they do not elaborate on how this essential reconstruction within the organization can be achieved without creating irreparable chaos within the organization (Gehami, 1995).

Thus, during the last decade of the 20th century time is escalated in the same way as quality in the eighties (Sim and Curatola, 1999). It is not enough for companies entering into competition in the global market to fulfill orders by focusing only on high quality, it becomes also important to deliver them on time, which points to the fact that consumer expectations are directed towards time as a differentiator between products and services. The main objective is the optimization of all essential activities by maximizing response time to changes in consumer needs. Companies of different industrial branches such as Toyota, Wal-Mart and Dell Computer, engage in TBC to enhance their leading position in their industrial branches.

The nineties saw the rapid spread of electronic commerce, which brought changes to the nature of TBC. It is necessary to note that instead of decreasing it was in constant growth. Currently, time is more important, since the speed required by business and consumer expectations increased even more. There will be felt a greater need for the process improvement of time-based business in the area of economics. Hise (1995) and Kasarda (1998) emphasized that speed and mobility would become influential factors in the upcoming years. Only those companies are bound to enjoy success that will use advanced information technologies (Karagianis and Feridun, 2009; Gudas, 2009) and the fast transportation of constituent parts and components at the global level, will minimize their stocks and will provide fast and flexible response to unique consumer needs in all over the world.

Conclusions

Competition expressed in response time is known as *time-based competition*. Companies engaged in time-based competition seek to reduce the amount of time devoted during each stage of the general cycle by eliminating non-value adding activities, shortening time and/or efficiently coordinating value-adding activities. When response time to consumer needs is shorter than the one demonstrated by rivals, the company can achieve competitive advantage that is greater and, on a frequent basis, tends to be dominant and is expressed in speed, which contributes to

short delivery time, lower costs, higher quality, flexibility and credible delivery.

In order to achieve this objective in practice, it is necessary necessary to have a systematic attitude to time-based management that integrates a great deal of various concepts, methods and tools of management theory, since when the company is involved in time-based competition, its strategy, organization, culture, management accounting, performance measurement systems, motivation systems for employees and other areas of activities need to be directed towards time management.

The research demonstrated that although the term time-based competition is relatively new, the very concept of *time management* has been applied numerous times. The significance of time management dates back to the early 20th century, while dealing with works of classical management theory from a tactical perspective, and later on other concepts of management theory were applied to its development and expansion not only from a tactical perspective, but from a strategic one as well, for example, the contribution of the Management School to creating quantitative methods for time management; the systematic attitude that was used to prove the significance of time-

based information in production and operations management and to stress the importance of process management within the organization both externally and internally, including quick response to changes, the elimination of “bottleneck”, resource use and management, and the synchronization of all existing links within the whole organization, and that served as foundation for the emergence of the TBC concept; and the dynamic attitude that expanded the concept of TBC by placing emphasis on the importance of time management as a constant process in the changing organization. Thus, today the concept of TBC requires the systematic and dynamic attitude to time-based management, since when the company is involved in TBC, its strategy, organization, culture, management accounting, performance measurement systems, motivation systems for employees and other areas of activities need to be directed towards time management. Furthermore, the accelerating pace of globalization, the rapid spread of electronic commerce and the evident progress of information technology bring changes to the nature of TBC, however, time gains greater importance, as speed, which is required by business and consumer expectations, continues to increase even more.

References

- Adminnour-Helm, S. (2000). Time-based competition through better customer service. *Production and Inventory Management Journal* 41(1), 24-8.
- Alis, D., Karsten, L., Leopold, J. (2006). From gods to goddesses: Horai management as an approach to coordinating working hours. *Time & Society* 15(1), 81-104.
- Azzone, G., Masella, C., Bertele, U. (1991). Design of performance measures for time-based companies. *International Journal of Operations & Production Management* 11(3), 77-85.
- Banyte, J. (2009). Conceptions and methods of marketing within dynamic business environment. *Inzinerine Ekonomika-Engineering Economics*(1), 7-8.
- Banyte, J., & Salickaite, R. (2008). Successful diffusion and adoption of innovation as a means to increase competitiveness of enterprises. *Inzinerine Ekonomika-Engineering Economics*(1), 48-56.
- Barker, B. (2001). Manufacturing best practice and human intellectual energy. *Integrated Manufacturing Systems* 12(1), 7-14.
- Blackburn, J. (1990). The time factor. *National Productivity Review* 9(4), 395-408.
- Blackburn, J. D., Linsley, W., Elrod, T. (1991). Time-based competition in the book distribution industry. *Journal of Operations Management* 10(3), 344-362.
- Boguslauskas, V., Kvedaraviciene, G. (2009). Difficulties in identifying Company's Core Competencies and Core processes. *Inzinerine Ekonomika-Engineering Economics* (2), 75-81.
- Bower, J. L., Hout, T. M. (1988). Fast-cycle capability for competitive power. *Harvard Business Review*, November-December.
- Chen, C. C. (2009). Price competition and clean production in the presence of environmental concerns. *Transformations in Business & Economics*, 8(2), 100-115.
- Daugherty, P. J., Pittman, P. H. (1999). Utilization of time-based strategies: creating distribution flexibility/responsiveness. *International Journal of Operations & Production Management*, 15(2), 54-60.
- Davidaviciene, V. (2008). Change Management Decisions in the Informative Age. *Journal of Business Economics and Management*, 9(3), 299-307.
- Dervitsiotis, K. N. (2001). Looking at the whole picture in performance improvement programmers. *Total Quality Management*, 12(6), 687-700.
- Donkin, R. (2001). *Blood Sweat and Tears: The Evaluation of Work*. New York.
- Drucker, P. (1995). *The information executives truly need*. *Harvard Business Review*, 73.
- Fry, T. D., Steele, D. C., Saladin B. A. (1998). The use of management accounting systems in manufacturing. *International Journal of Product Research*, 36(2), 503-525.

- Ganapathy, B. K. & Goh, Ch. (1997). A Hierarchical System of Performance Measure for Concurrent Engineering. *Concurrent Engineering: Research and Applications*, 5(2), 137-143.
- Gehani, R. R. (1995). Time-based management of technology: A taxonomic integration of tactical and strategic. *International Journal of Operations & Production Management*, 15(2), 19-35.
- Goldratt, E. M., & Cox, J. (1984). *The Goal*. NY.
- Gudas, S. (2009). Enterprise Knowledge Modeling: Domains and Aspects. *Technological and Economic Development of Economy*, 15(2), 281-293.
- Hammer, M., Champy, J. (1993). *Reengineering the corporation*. New York: Random House.
- Hammer, M., Stanton, S. A. (1995). *The reengineering Revolution Handbook*. London.
- Hise, R. T. (1995). The implications of time-based competition on international logistics strategies. *Business Horizons*, 38(5), Sept – Oct, 39-45.
- Horngren, C. T., Datar, S. M., Foster G. (2006). *Cost accounting: a managerial emphasis*. New Jersey.
- Jayram, J., & Ahire, S. (1998). Impact of operations management practices on quality and time based performance. *International Journal of Quality & Reliability Management* 15, 192-204.
- Jayram, J., & Vickery, S. (1998). Supply-based strategies, human resource initiatives, procurement lead time, and firm performance. *International Journal of Purchasing and Material Management*, Winter, 12-23.
- Jurkstiene, A., Darskuviene, V., & Duda, A. (2008). Management control systems and stakeholders' interest in Lithuanian multinational companies: Cases from the telecommunications industry. *Journals of Business Economics and Management*, 9 (2), 97-106.
- Kaplan, R. S., Anderson, S. R. (2004). Time-based activity-based costing. *Harvard Review*, 131-138.
- Karagiannis, S., & Feridun, M. (2009). Growth effects of information and communication technologies: empirical evidence from the enlarged EU. *Transformation in Business & Economics*, 8(2), 86-99.
- Kasadra, J. D. (1998). Time-based competition and industrial location in the fast century. *Real Estate Issue*, Winter, 24-9.
- Kimura, O., Terada, H. (1981). Design and analysis of Pull System, a method of multi-stage production control. *International Journal of Product Research*, 19(3), 241-253.
- Klimov, R., & Merkurjev, Y. (2008). Simulation model of supply chain reliability evaluation. *Technological and Economic Development of Economy*, 14 (3), 300-311.
- Korsakiene, R. (2009). The innovative approach to relationships with customer. *Journal of Business Economics and Management*, 10 (1), 53-60.
- Kumar, A. Motwani, J. (1995). A methodology for assessing time-based competitive advantage of manufacturing firms. *International Journal of Operations & Production Management*, 15(2).
- Li, L., Lee, Y. S. (1994). *Pricing and delivery-time performance in a competitive environment*. *Management Science*, 40 (5), 633-646.
- Lieberman, M. B., Lau, L. J., Williams, M. D. (1990). Firms level productivity and management influence. *Management Science*, 36(10), 1193-1215.
- Luscombe, M. (1993). *Integrating the Business: MRPII, a Practical Guide for Managers*. London.
- McKenna, R. (1997). *Real time*. Cambridge.
- Meyer, Ch. (1993). *Fast Cycle Time: How to Align Purpose, Strategy, and Structure for Speed*. The Free Press: New York.
- Morgan C. (2004). Structure, speed and salience: performance measurement in the supply chain. *Business Process Management Journal*, 10(5), 522-536.
- Oakland, J. S. (1995). *Total Quality Management*. London.
- Peters, T. (1990). Time obsessed competition. *Management Review*, 79 (9), September, 16-20.
- Rohr, S. S., Correa, H. L. (1998). Time-based competitiveness in Brazil: whys and hows. *International Journal of Operations & Production Management* 18(3), 233-245.
- Ruch, W. (1990). A point of view: putting time on your side. *National Productivity Review* 9(4), Autumn, 391-394.
- Schmenner, R. W. (1988). The merit of makings things fast. *Sloan Management Review*, Fall, 11-17.
- Sim, K. L., Curatola, A. P. (1999). Time-based competition. *International Journal of Quality & Reliability Management*, 16(7), 659-674.
- Stalk, G. J. (1988). Time: the next source of competitive advantage. *Harvard Business Review*, 66, July-August, 44-51.
- Stalk, G. J., Hout, T. M. (1990). *How time based management measures performance*. *Plenning Rewiew*, 26-29.
- Stalk, G. J., Istvan, R. (1989). New competitive age. *Executive Excellence*, 6(10), 5-6.
- Strumickas, M., & Valanciene, L. (2009). Research of Management Accounting Changes in Lithuanian Business Organizations. *Inzinerine Ekonomika-Engineering Economics*(3), 26-32.

- Sapkauskienė, A., Leitoniene, S. (2007). Changes of costing in the context of time based management. *Economics and management* 12, 129-136.
- Sapkauskienė, A., Leitoniene, S. (2009). Veiklos vertinimas laiku grįsto valdymo požiūriu. *Economics and management* 14, 116-122.
- Tammela, I., Canen, A. G., Helo, P. (2008). Time-based competition and multiculturalism: A comparative approach to the Brazilian, Danish and Finnish furniture industries. *Management Decision*, 46(3), 349-364.
- Tersine, R.J., Hummingbird, E. A. (1995). Lead-time reduction: the search for competitive advantage. *International Journal of Operations & Production Management*, 15(2).
- Tsutsui, T. (1998). Manufacturing ideology: *Scientific Management in Twentieth Century Japan*. New York.
- Valanciene, L., & Gimzauskienė, E. (2009). Dimension of performance measurement system in changes research. *Inžinerine Ekonomika-Engineering Economics*(4), 41-48.
- Whipp, R., Adam, B., Sabelis, I. (2002). *Making Time: Time and Management in Modern Organizations*. Oxford.

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Laiku grįstos konkurencijos koncepcija vadybos teorijos kontekste

Santrauka

Konkurencija, technologinė pažanga ir besikeičiantys vartotojų poreikiai skatina nuolatos plėtoti konkurencines paradigmas. Šiame vyksme laiku grįsta konkurencija kaip konkurencijos paradigma susiformavo apie 1990 metus. Laiku grįstos konkurencijos (TBC) terminą pirmą kartą paminėjo Stalk (1988) savo straipsnyje *Time: the next source of competitive advantage*, kuris buvo išspausdintas žurnale *Harvard Business Review*. Stalk jame paaiškino, kaip įmonės gali pasiekti konkurencinį pranašumą, kaip svarbiausią strateginio valdymo veiksnį, naudodamas laiku grįstą konkurenciją vartotojų poreikiams patenkinti.

Mokslinėje literatūroje kaštai, kokybė, inovacijos ir laikas pripažinti svarbiausiais strateginio valdymo veiksniais. Tiek kaštų apskaitos, tiek visuotinės kokybės vadybos teorijose yra gana plačiai išnagrinėti kaštų ir kokybės aspektai. Pastarąjį dešimtmetį daug dėmesio teoretikai ir praktikai skyrė ir inovacijoms. Šiandien (nors turbūt jau niekas neabejoja) ir laikas daro didelę įtaką įmonės valdymui. Tačiau tenka pripažinti, kad laiko veiksnys vis dar retai naudojamas valdymo sprendimams priimti. Spartūs globalizacijos tempai ir įnirtinga konkurencinė kova vis labiau išryškina būtent *Time based Management* svarbą. Tik tos įmonės sugebės išlikti konkurencinėje kovoje, kurios sugebės tinkamai įvertinti laiko valdymo svarbą ir greitai reaguoti į besikeičiančius vartotojų poreikius. Dėl to tapo reikalinga kurti naujus vadybos metodus ir pritaikyti naujas ir (ar) esamas priemones; efektyviai integruoti gamybos kontrolės sistemą ir kaštų apskaitos sistemą, kartu ir parinkti veiklos vertinimo matų sistemą laiku grįstos konkurencijos požiūriu. Didžiausias dėmesys laikui kaip strateginiam valdymo veiksniumi buvo skiriamas paskutinį XX a. dešimtmetį ir XXI pradžioje (Azzone ir kt., 1991; Blackburn, 1990; Bower ir Hout, 1988; Daugherty ir Pittman, 1995; Goldsbrough ir Deane, 1988; Hise, 1995; Kumar ir Motwani, 1995; McKenna, 1997; Peters, 1990; Rohr ir Correa, 1998; Ruch, 1990; Stalk, 1988; Stalk ir Hout, 1993; Stalk ir Istvan, 1989; Sim ir Curatola, 1999; Tersine ir Hummingbird, 1995; Tammela ir kt, 2008; Morgan, 2004; Barker, 2001; Alis ir kt., 2006). Mokslininkai savo darbuose pripažino, kad laiko valdymas įmonei padės pasiekti konkurencinį pranašumą, tačiau egzistuoja akivaizdus disbalansas tarp konceptualių mokslinių darbų ir empirinių tyrimų, pagrindžiančių šį teiginį. Ir nors XXI a. pradžioje empirinių darbų padaugėjo, tačiau beveik nėra tyrimų, kuriuose būtų analizuojama laiko veiksnio svarba vadybos teorijos raidos kontekste ar būtų susisteminta skirtingų vadybos koncepcijų įtaka šiuolaikiniam laiku grįstos konkurencijos supratimui.

Šio straipsnio tikslas – susisteminti ir iširti mokslinių literatūros šaltinių informaciją apie laiku grįstos konkurencijos koncepciją ir jos formavimosi raidą vadybos teorijos kontekste. Tyrimo objektas – laiku grįsta konkurencija. Tyrimo metodas – atliekant teorinį laiku grįstos konkurencijos pozicionavimo vadybos teorijos kontekste tyrimą, taikyta sisteminė ir lyginamoji mokslinė literatūros analizė.

Pirmoje straipsnio dalyje yra apibūdinama laiku grįstos konkurencijos samprata, analizuojami šios koncepcijos privalumai ją įgyvendinti praktikoje. Antroje straipsnio dalyje atliktas teorinis laiko veiksnio svarbos vadybos teorijos raidoje tyrimas, išskiriant pagrindinių vadybos koncepcijų įtaką ir (ar) indėlį į laiku grįstos konkurencijos koncepcijos formavimąsi ir jos poreikį ateityje.

Laiku grįstos konkurencijos įmonės siekia sutrumpinti laiką kiekviename bendro ciklo etape t. y. sutrumpinti laiką tokių įmonės veiklų: planavimo, projektavimo, produkto kūrimo, inovacijų diegimo, gamybos, tiekimo, marketingo ir paskirstymo, atsižvelgiant į perkėjų poreikius ir lūkesčius. Įmonė gali tai pasiekti pašalinama vertės nesuteikiančias veiklas, sutrumpindama vertę pridedančių veiklų laiką ir geriau koordinuodama vertę suteikiančias veiklas. Trumpesnis nei konkurentų reagavimo laikas į vartotojų poreikius leidžia įmonei pasiekti didesnį, o dažniausiai ir dominuojantį konkurencinį pranašumą, išreikštą greičiu, kuris parodytų trumpą pristatymo laiką, žemesnius kaštus, aukštesnę kokybę, lankstumą ir pristatymo patikimumą. Šiam tikslui įgyvendinti reikalingas įmonės sisteminis požiūris į laiku grįstą valdymą, kuris integruoja daug skirtingų vadybos teorijos koncepcijų, metodų ir priemonių, nes TBC įmonės strategija, organizacija, jos kultūra, valdymo apskaita bei pasiekimų įvertinimo sistema, darbuotojų motyvavimo sistema ir kitos veiklos sritys turi būti sutelktos į laiko valdymą.

Vadybos teorijos raidos tyrimas parodė, kad terminas *laiku grįsta konkurencija* yra gana naujas, tačiau pati laiko valdymo sąvoka nėra nauja. Laiko valdymo svarba išryškėjo XX a. pradžioje *klasikiniuose vadybos teorijos* darbuose. Pvz., remiantis mokslinio valdymo teorija, gamybos procese svarbiausias laikas. Ši mintis taip pat buvo traktuojama ir klasikinėje organizacijos teorijoje. Bihevioristinės mokyklos atstovai, moksliniai metodais tyrė žmonių elgseną organizacijoje, laiko veiksnio tiesiogiai neanalizavo. *Vadybos mokslo mokyklos* indėlis – buvo sukurti kiekybiniai metodai, kurie ir šiandien yra naudojami laiku grįsto valdymo strateginiams ir taktiniams sprendimams pagrįsti. Remiantis *sisteminiu požiūriu*, buvo svarbi laiku grįsta informacija gamybinių operacijų valdymo procese, buvo svarbus procesų valdymas organizacijoje tiek iš išorės, tiek iš vidaus, akcentuota greita reakcija į pokyčius, „silpnų vietų“ pašalinimas, išteklių panaudojimo valdymas ir visos organizacijos grandžių sinchronizavimas. Taip pat šis požiūris buvo laiku grįstos konkurencijos sampratos atsiradimo pagrindas. Operacijų valdymo požiūriu, transformuojantis valdymo sistemoms, devintajame dešimtmetyje didžiausią postūmį laiku grįstos gamybos ir atsargų valdymo procese padarė JIT sistema, gamyboje naudojama traukimo sistema arba *kanban* sistema, kurią išpopuliarino „Toyota Motors“. Remiantis JIT ar *kanban* sistema, gaminiai gaminami netam, kad būtų kaupiamos atsargos, o tik prireikus. Taip išvengiama nebaigtos gamybos atsargų likučių susidarymo. Vakaruose JIT išpopuliarino TQM ekspertai Deming, Juran, Crosby, o šią sistemą, jai ti pradant gyvuoti, pradėjo naudoti „Ford“ ir „General Motors“ kompanijos. Šios koncepcijos pripažįsta laiko kaip riboto ištekliaus ir jo valdymo svarbą ir siekia pagerinti gamybos proceso efektyvumą sutrumpinant laiką, sumažinant kaštus, pagerinant kokybę ir inovacijas. Remiantis *dinamišku požiūriu*, buvo praplėsta laiku grįstos konkurencijos koncepcija: akcentuojama laiko valdymo kaip nuolatinio proceso besikeičiančioje organizacijoje svarba. Šiuo atveju nemažą indėlį suteikė reinžineringo sistema. Hammer, kuris laikomas reinžineringo judėjimo pradininku, paskatino iš naujo esmiškai svarstyti ir pakeisti verslo procesą, siekiant gerokai pagerinti laiku grįstus veiklos matavimus. Be to, šiuo laikotarpiu svarbus tampa ir laiku grįstos ABC kaštų valdymo sistemos atsiradimas. Taigi laikas XX a. dešimtajame dešimtmetyje taip pat eskaluojamas kaip ir devintajame dešimtmetyje kokybė. Įmonėms konkuruojant globalioje rinkoje, nebepakanka užsakymų įvykdyti kokybiškai. Taip pat svarbu, kad jie būtų pristatyti laiku. Taigi vartotojų lūkesčiai susieti su laiku kaip produktų ir paslaugų diferenciatoriumi. Tikslas – gerinti esmines veiklas, siekiant trumpinti reagavimo laiką į vartotojų poreikius pasikeitimus.

Taigi, atlikus teorinį laiku grįstos konkurencijos koncepcijos tyrimą vadybos teorijos kontekste, galima pateikti išvadas.

Laiko valdymo svarba klasikiniuose vadybos teorijos darbuose traktuojama labiau taktiniu požiūriu, vėliau yra plėtojama ir papildoma kitų vadybos teorijos koncepcijų ne tik taktiniu, bet ir strateginiu požiūriais. Pvz., vadybos mokslo mokyklos indėlis – kiekybinių metodų sukūrimas laikui valdyti; sisteminis požiūris, kuriuo remiantis svarbi laiku grįsta informacija gamybinių operacijų valdymo procese, ir procesų valdymas organizacijoje tiek iš išorės, tiek iš vidaus, greita reakcija į pokyčius, „silpnų vietų“ pašalinimas, išteklių panaudojimo valdymas ir visos organizacijos grandžių sinchronizavimas, taip pat šis požiūris buvo laiku grįstos konkurencijos sampratos atsiradimo pagrindas; remiantis dinamišku požiūriu, buvo praplėsta laiku grįstos konkurencijos koncepcija: akcentuojama laiko valdymo kaip nuolatinio proceso besikeičiančioje organizacijoje svarba. Šiandien laiku grįstos konkurencijos koncepcijai reikalingas sisteminis ir dinamiškas požiūris į laiku grįstą valdymą, nes TBC įmonės strategija, organizacija, jos kultūra valdymo apskaita ir veiklos vertinimo sistema, darbuotojų motyvavimo sistema ir kitos veiklos sritys turi būti sutelktos į laiko valdymą. Be to, vis spartėjanti globalizacija, elektroninio verslo paplitimas ir informacinių technologijų pažanga keičia laiku grįstos konkurencijos prigimtį. Tačiau laikas tampa dar svarbesnis, nes greitis, reikalingas verslui ir vartotojų lūkesčiams, dar labiau spartėja.

Raktažodžiai: laikas, greitis, laiku grįsta konkurencija, laiku grįsta vadyba, vadybos teorija.

The article has been reviewed.

Received in December, 2009; accepted in April, 2010.