

OPERATIONS STRATEGIES

ROLAND SCHMUCK¹

University of Pécs (Hungary)

ABSTRACT

Strategic management and operations management are widely used concepts. The role of operations management in planning and implementation the strategy is shown in this article. After a deep literature review the author presents those ideas which are crucial for the long-term planning of a modern company. Next to the change of the external environment the time factor is also considered as an important issue. The goal of companies within the framework of these conditions is to gain competitive advantage. The author shows ideas how to achieve this. KEY WORDS: *strategy, operations, management.*

JEL CODES: L100, M110, O320

Introduction

The purpose of this paper is to search for the answer what kind of operational strategies successful companies may follow.

The object of the research is to clarify which operational strategies can be useful in today's complex environment and what strategies successful companies may use. It is a current topic nowadays. During the 20th century there were several shifts in the focus of operational management (Barakonyi, 2000) which outlines the main problem why this article was borned. The paper aims to discuss the current trends in the topic.

The objectives of the current research are to distinguish current working operations management methods from outdated solutions and to give ideas of what a successful company should use or not use from the common solutions of operations management.

The tasks done in this paper are the following. The author first overviews what strategy and operations strategy is, than discusses the mainstream opinions of the topic. Finally, as a conclusion, answers the question what moderns companies should consider when planning their operations strategy.

The research methods are based on deep literature review of those articles and books that are considered relevant on the topic by mainstream economists. The articles and books were systematically chosen to cover the most important issues of current operations management including the following: strategic management, aggregate planning, inventory management, just-in-time, TQM, competing through manufacturing, service management and supply chain management.

1. Strategies

In the 21st century the environment changes faster than ever. New technologies evolves day-by-day, which grow extremely fast or disappear. The organizations are uncertain in this world. Multinational compa-

¹ Roland Schmuck – University of Pécs, Faculty of Economics, Strategic Studies Department, assistant professor. Scientific interests: management and economics.
E-mail: schmuck@ktk.pte.hu
Tel.: +36 72 501 599 / 23265.

nies collapse and disappear in short time. In this globalized world new competitors may appear at any time. The role of strategy is more important than ever before.

Strategy is to plan and reach the long-term goals of the organization. Nokia is going toward mobile information techniques from mobile phones, Disney from cartoons to the entertainment industry (Johnson et al., 2011). For both companies to reach their goals they need their own strategies. By another concept, strategy is a behaviour of a series of decisions (Mintzberg, 2007). Strategy is to define the long-term goals, adapt the appropriate methods to do this and ensure the necessary resources (Chandler, 1963). J. Vörös (2010) claims that strategy is to use core competencies in order to create sustainable competitive advantage.



Figure 1. The hierarchy of corporate objectives and management levels in an ordinary view

Source: Bartek-Lesi et al., 2007: 45.

Today's successful companies use integrated strategies, which means various functional strategies are consistent; strategic planning for each department are parallel of each other (Vörös, 2010).

In order for companies to remain in the leading positions, they have to quickly respond to market changes, gain access to the newest and best technologies, be efficient and continuously improve their key competencies (Porter, 1996). The company meets five forces² in the market; all of them affect its competitiveness (Porter, 2008).

Competitive strategy is based on differentiation, which may happen with unique operations or distinctive offers giving individual values. Gaining strategic position can rely on three areas. Variety-based positioning is based on the choice of product or service varieties. It can be used when a company produces particular products or services using distinctive sets of activities. The needs-based positioning is about targeting a customer segment and to serve them fully. It can be used if a customer group has the same needs or customers have different needs in different situations. The goal of the access-based positioning is to serve customers who are accessible in the same way (Porter, 1996)

The generic strategies defined by M. E. Porter (1980) determine the possible strategic alternatives based on competitive advantage. Porter distinguishes cost leadership and differentiation strategies, both types of strategies can be focused on market segmentation. A company following the cost leadership strategy tries to operate at low costs and use the advantages of economies of scale. The differentiation strategy means that the company tries to outperform its competitors by better product features and quality, so it can use higher profit margins. The segmentation strategy focuses on a specific group of customers and attempts to better meet their needs (Porter, 1980).

² The five forces are the following: bargaining power of customers, bargaining power of suppliers, threat of substitute products, threat of new entrants, competitive rivalry within an industry (Porter, 2008).

2. Operations strategies

The operations strategy is all actions aimed at creating a production system that serves the implementation of business strategy (Vörös, 2010: 40). The connection of operations strategy and business strategy can be illustrated by the case of the first laptops. The laptop product development, the necessary research and the development of the manufacturing process were carried out in parallel by Toshiba (Vörös, 2010). Operations strategy is a series of decisions. At the strategic level the operations managers are interested in developing new skills and better use of the existing capabilities to better serve the needs of the customers (Krajewsky et al., 2010).

Companies react the changes in the environment differently; the related operation strategy can be determined by the production task and the available competencies. Miller and Roth (1994) distinguish three different operations strategies:

- Caretakers, who do not care about the development of their competencies, they rather focus on price.
- Marketers, who are mainly focused on the customer requirements and satisfying them.
- Innovators, whose competitive advantage comes from the fact that they can quickly develop new products and launch them fast (Miller, Roth, 1994).

M. Hammer (2004) claims that it is not enough to focus on the innovative products. Important area of the innovation is the functional innovation, improving internal operations resulting in competitive advantage. Toyota gained competitive advantage in this way (Hammer, 2004).

The modern conception of the operations management is to interpret a company as an open system which is highly dependent on its environment. Organizations have to be open enough to allow their strategies to be affected by customer requirements (Dawar-Frost, 1999). In the 1990s inter-company relations became the focus of the operations management next to the company operation. World Class Manufacturing (Flynn et al., 1999), lean thinking and agile manufacturing systems each focused on coordinating external and internal processes and operations networks management. A number of strategies emerged, such as outsourcing or the effective management of production networks. These have to be in accordance with the internal operations management systems such as the just-in-time or TQM (Brown et al., 2001).

L. J. Krajewski et al. (2010) distinguish three operations and inventory strategies. Make-to-order strategy can be used in case of unique, small series products. The assemble-to-order strategy is useful to quickly assemble products from the same raw materials or components. Products do not have to be the same, for example a sawmill makes different, sometimes even unique furniture from the same raw materials. This strategy can be the base of mass customization as well. When using the make-to-stock strategy the manufacturer produces into inventory, from which the product may be sold at any time. This strategy can be used for such standardized products as soft drinks or garden equipment (Krajewski et al., 2010).

In the 1980s the role of time as a factor of competitive advantage increased which appeared in many form of economic activity. Cycles, development, lead, waiting periods and other capabilities that can be expressed in time bring competitive advantages to companies. However, time became a trap as well: companies using the even faster, market dictated development pattern did not get in better positions compared to their competitors (Stalk, Weber, 1993).

Next to time, companies have to focus on developing capabilities as well nowadays. Using its capabilities Wal-Mart defeated the previously market-leader Kmart in the United States of America (Stalk et al., 1992). Developing core competencies can cause such a competitive advantage that is hard to replicate (Ellis and Williams, 1995). In the rapidly changing markets it is not enough to make and follow strategic plans. New approaches came to light which connect the company performance to its resources. This is called the resource-based approach (Collis, Montgomery, 1995).

The operation strategy itself does not cause competitive advantage, because some companies can use them better, some worse. Operational efficiency is when a company realizes higher performance with the same activity (Porter, 1996). With operational innovation the company can operate more efficient with lower

costs, which may lead to higher market share (Hammer, 2004). Japanese companies like Toyota owed their operational efficiency that they could have high-quality products at lower prices in the 1980s. If a company improves its operational efficiency, it moves to the upper limit of marginal productivity which is the maximal possible value produced at a given cost level. Improving efficiency is needed to be competitive but not enough; the ever-faster imitation by the competitors causes that they continuously become closer and closer to the market position of the company (Porter, 1996). By extending the efficiency to cross-company processes the company can reach the level of super-efficiency. Hewlett-Packard integrated its whole monitor production supply chain into a computer system which caused lower costs and faster lead times (Hammer, 2001). With this method they could solve the problems caused by the lack of information and unknown partner operations which were the most important issues in the production network (Narayanan et al., 2004).

3. Implementation of operations strategies

There are two groups of products, functional and innovative products (Fisher, 1997). Operation network have physical and market intermediary role. The market of functional products is well estimable, the demand is predictable, production can be well-scheduled. The goal in case of these products is usually to decrease costs. In contrast, the demand of innovative products is hardly predictable so emphasis is put on the market mediator role of the production network. The network should be built accordingly. Sport Obermeyer launches a new, fashionable skiwear on the market, demands estimations can show 200 % error in some cases. In contrast, functional products manufacturer Campbell Soup Company has much more reliable forecasts (Fisher, 1997).

Any products can be customized within certain limits, even products made in mass production. Mass customization is an efficient distinction of a customer allowed by the production network as much as possible (Chase, 2006). Based on R. S. Kaplan and M. Haenlein (2006) this is such a value-creating strategy that is based on the connection of the company and the customer. More value is created through the manufacturing and assembling processes at the same price level than a usual product (Kaplan, Haenlein, 2006). Several companies tried to take advantage of this method in the 1990s including major car manufacturers (Nissan, Toyota, etc.) without success. Costs and inventory increased, customers were confused by the huge range of options. Nissan offered 87 different steering wheels for its cars, but customers wanted only a fraction of these (Pine, 1993). Despite the failure the method is still used in many industries.

R. Wise and P. Baumgartner (1999) claims that a broader horizon should be applied, so the company should not only take care of production and sales, but it has to move into the direction of downstream. In many industries customers spend much more money during the use of the products than the original price of them. For example, the average American family spends only 20 % of the total price of the car to buy it; the remaining is spent during the usage. Strategy based on this can be implemented in various ways: integrating value-added services into the product, offering full service, offering integrated services which focus on customer requirements. A good example for integration value-added services is the iTunes online software in Apple products from where users can add new functions to their device. Volkswagen Group offers financial services to its customers in Hungary through Porsche Bank, which is a way to offer an integrated service. The fourth method is the distribution control, which can be considered as a shift in the value chain. Coca-Cola used this method in the 1990s when it started directing its bottling plants, which resulted in a significant profit improvement (Wise, Baumgartner, 1999).

During services the most contribution is provided by those workers who are directly in connection with the customers. For service-sector companies their market share and profit are not the most important things; but their investment in human capital. This new philosophy requires new management principles and techniques which should use new measurement methods, for example employee satisfaction, loyalty or productivity. If the indicators are appropriate, customer loyalty and satisfaction will be good as well. By management expression, instead of hard factors, soft factors become emphasized (Heskett et al., 1994). Globalization has a huge effect not only on traditional manufacturing but providing services as well. Standardized services are

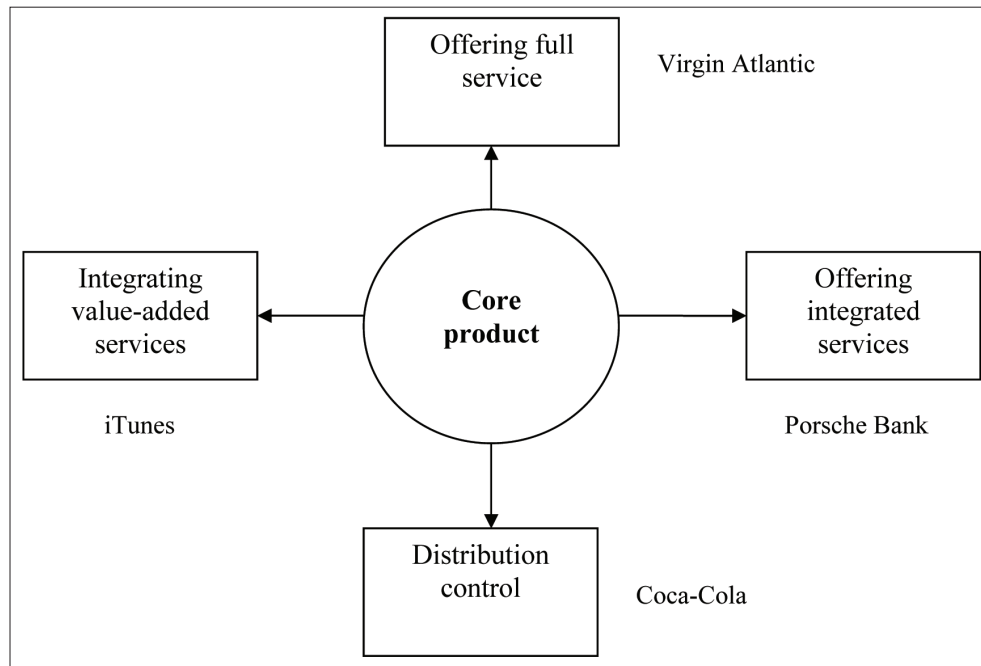


Figure 2. Methods of going downstream with some examples

Source: own edition

increasingly outsourced to countries with cheaper labour force. There is a growing demand for end-to-end services. Companies should focus on selling service chains rather than individual services. Virgin Atlantic airline company acts like this, it offers limousine service to passengers with business class tickets.

For successful strategy implementation we should know the relationship of strategy and the instruments used (Kaplan, Norton, 2008). There is a very wide range of instruments. R. H. Hayes and S. C. Wheelwright (1984) defined six instruments³; B. B. Flynn et al. (1999) added quality management and just-in-time to even more increase the efficiency. Furthermore, operations network management became a major competitive factor in the 2000s (Vörös, 2010).

After the Second World War big US companies did not really deal with quality issues as long as the Japanese companies entered the US market with their high quality products. While a product is considered high quality in a manufacturer's view if it meets the designed parameters, customers rather think the product needs to perform well the functions given to it (Vörös, 2010). D. A. Garvin (1987) defined eight dimensions which must comply with a quality product. The eight dimensions are the following: performance, features, reliability, conformance, durability, serviceability, aesthetics, perceived quality (Garvin, 1987). TQM is a method to improve the operations and the quality. Implementing TQM may improve the efficiency of companies, reduce their costs and increase their incomes. Companies using TQM grow faster (Hendricks, Singha, 1997). With the emergence of new technologies the competition increases. Due to the high customer requirements companies should have competitive advantage based on their strategies. Quality inflates with time, so continuous quality improvement activities must be carried out in order to retain the competitive advantage independent from the pricing policy (Vörös, 2002).

S. Sakakibara et al. (1997) claim that competitive advantage e.g. level of flexibility, delivery time, quality and cost performance are based on the manufacturing performance which consists of inventory turnover, on-time delivery, lead time and cycle time. Manufacturing performance is based on infrastructure practices and

³ (1) competencies and capabilities of the workforce, (2) professional competence of the management, (3) competitive advantage based on quality, (4) participation of the workers, (5) redesigning the manufacturing process, (6) incremental improvements

just-in-time practices. The first consists of quality management, work force management, manufacturing strategy, organizational characteristics and product design. The later consists of set-up time reduction, schedule flexibility, maintenance, equipment layout, kanban and just-in-time supplier relationship. The introduction of just-in-time is often considered difficult and problematic, but R. Walleigh (1986) clearly demonstrates that the issues can be eliminated. The introduction process is time and energy consuming; however the real value lies in the fact that it is not only a production system, but an operating philosophy (Walleigh, 1986).

The accelerated competition makes even subsistence a hard thing, but companies may gain competitive advantage with simple changes, e.g. better planning, marketing or changing the financial background. Unfortunately beside these factors companies often neglect production facilities where most of the employees work. Production needs to be converted into the strength of the company; all production function should work well-oiled. In the four-level system of S. Wheelwright and R. Hayes (1985) there are long-term development programs to increase the competitiveness, so the company can move up in the four-level model. The majority of companies move from one level to another by external pressure, because they feel comfortable and safe to maintain the lower levels where there is not so much need for high knowledge and managerial skills as on the more advanced levels. In the fourth and most advanced stage there is continuous process improvement, and high care that the product development and the process design are in accordance with each other (Wheelwright, Hayes, 1985).

The ever-increasing product variety and shortening product life cycles increase the uncertainty of the estimations. In the accurate response method the costs of lack of products are calculated, the products are divided into estimable and not estimable demanded categories. It is recommended to manufacture products in the first category earlier and later with more available information those products where it is hard to estimate the exact demand. Sport Obermayer skiwear manufacturing company could reduce cost from inaccurate forecast by half with this method.

Conclusions

During the 20th century there were several shifts in the most important success factors. It can be seen that all factors are still important, but the basic of competitive advantage changes from time to time.

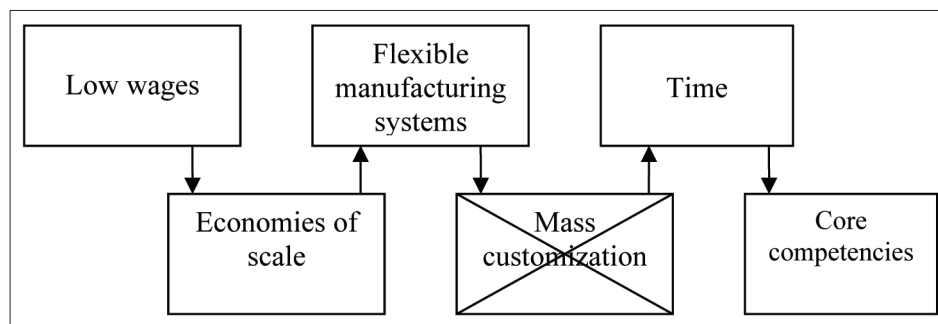


Figure 3. Changes in the operational management focus since the beginning of the 1900s

Source: own edition

The author claims that all of the above competitiveness factors are still important nowadays except one. The mass customization theory did not fulfil the expectations so it is not used widely nowadays. Companies are in a tough competition nowadays. Operations are becoming more and more complex and time also became an issue. In today's world a successful company should take into account during strategic planning the continuing strengthening of the global competition, the constantly changing environment, shortening life-cycles and the growth of risks. The author suggests as an answer to these questions is to build core com-

petencies which are hard to copy for the competitors. One other possible solution of this is to join strategic alliances and to increase the size of the company with acquisitions or internal growth. As time factor is very important, successful companies should rather make acquisitions to save time. Acquisitions are cheaper as well in the long-term.

Successful companies should not only be efficient with the complex use of operations management methods, but they should always continuously improve the effectiveness as well, including the use of new technologies and methods. This is the only way to maintain competitive advantage because competitors are doing the same way. If the company can not increase its efficiency, it will lag behind from the competitors and eventually may even disappear from the market. Its products, services and operations should be improved, have to be innovative in these fields and also in the internal operation ways. Furthermore it needs to be cost effective as well. The author's opinion is that there is no best solution, a complex view is needed. The following table shows some real world solutions to the operational issues.

Table 1. Case study examples mentioned in this paper with related success factors

Company	Success factor
Apple	Offering value-added services
Coca-Cola	Distribution control
Disney	Long-term planning of strategy
Hewlett-Packard	Supply chain integration with IT solutions
Sport Obermeyer	Accurate response method
Toshiba	Connecting operations strategy with business strategy
Toyota	Operational efficiency (just-in-time)
Virgin Atlantic	Offering full service
Volkswagen	Offering integrated services
Wal-Mart	Developing capabilities

Source: own edition

Environment should be taken into consideration as well. The age when a company could be successful only by efficient working methods without considering external factors is over. Good relations with the partners is utmost important. The company has to be able to manage its operation network well; the entire system must operate smoothly and quickly.

To succeed an appropriate corporate culture should be developed, as well as hard to copy core competencies, which can bring competitive advantage to the company. These competencies should be utilized and maintained; furthermore they should be available to all departments of the company.

Lately, but not lastly companies should be able to assess and meet the potential needs of customers and make them loyal. The really successful companies can even influence consumers' needs and find and serve latent needs. In order to achieve higher profits, all needs should be covered with products or services including the needs during the whole lifetime of the product.

References

- Bartek-Lesi, M., Bartók, I., Crazkó, E., Gáspár, J., Könczöl, E., Pecze, K. (2007). *Vállalati stratégia*. Alinea Kiadó. Budapest.
- Barakonyi, K. (2000). *Stratégiai menedzsment*. Budapest: Nemzeti Tankönyvkiadó.
- Brown, S., Blackmon, K., Cousins, P., Maylor, H. (2001). *Operations Management: Policy, Practice and Performance Improvement*. Oxford: Butterworth-Heinemann.
- Chandler, A. D. (1963). *Strategy and Structure: Chapters in the History of American Enterprise*. MIT Press.
- Chase, R., Jacobs, F. R., Aquilano, N. J. (2006). *Operations Management for Competitive Advantage*. 11th Edition. New York: McGraw-Hill/Irwin.

- Collis, D. J., Montgomery, C. A. (1995). Competing on Resources Strategy in the 1990s. *Harvard Business Review*, July-August, p. 118–128.
- Dawar, N., Frost, T. (1999). *Competing with Giants, Survival Strategies for Local Companies in Emerging Markets*. Harvard Business Review, March-April, p. 119–129.
- Ellis, J., Williams, D. (1995). *International Business Strategy*. London: Pitman Publishing.
- Fisher, M. L., Hammond, J. H., Obermeyer, W. R., Raman, A. (1994). *Making Supply Meet Demand in an Uncertain World*. Harvard Business Review, May-June, p. 83–93.
- Fisher, M. L. (1997). What is the Right Supply Chain for Your Product? *Harvard Business Review*, March-April, p. 105–116.
- Flynn, B. B., Schroeder, R. G., Flynn E. J. (1999). World Class Manufacturing: an Investigation of Hayes and Wheelwright's Foundation. *Journal of Operations Management*, Vol. 17, p. 249–269.
- Garvin, D. A. (1987). Competing on the Eight Dimensions of Quality. *Harvard Business Review*, November-December, p. 101–109.
- Hammer, M. (2001). The Superefficient Company. *Harvard Business Review*, September, p. 82–91.
- Hammer, M. (2004). Deep Change: How Operational Innovation Can Transform Your Company. *Harvard Business Review*, April, p. 85–93.
- Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser, W. E., Jr., Schlesinger, L. A. (1994). Putting the Service Profit Chain to Work. *Harvard Business Review*, March-April, p. 164–174.
- Hayes, R. H., Wheelwright, S. C. (1984). *Restoring Our Competitive Edge: Competing Through Manufacturing*. Wiley, New York.
- Hendricks, K. B., Singhal, V. D. (1997). Does Implementing an Effective TQM Program Actually Improve Operating Performance? *Management Science*, September, p. 1258–1275.
- Johnson, G., Whittington, R., Scholes, K. (2011). *Exploring Strategy, Text & Cases*. 9th Edition. England: Pearson Education Limited.
- Kaplan, A. M., Haenlein, M. (2006). Toward a Parsimonious Definition of Traditional and Electronic Mass Customization. *Journal of Product Innovation Management*, Vol. 23 (2).
- Kaplan, R. S., Norton, D. P. (2008). Mastering the Management System. *Harvard Business Review*, January, p. 63–78.
- Karmarkar, U. (2004). Will You Survive the Service Revolution? *Harvard Business Review*, June, p. 101–107.
- Krajewski, L. J., Ritzman, L. P., Malhotra, M. K. (2010). *Operations Management: Processes and Supply Chains*. Ninth Edition. Pearson Education, New Jersey.
- Miller, J. G., Roth, A. V. (1994). A Taxonomy of Manufacturing Strategies. *Management Science*, Vol. 40, No. 3, March, p. 285–304.
- Mintzberg, H. (2007). *Tracking Strategy: Toward a General Theory*. Oxford University Press.
- Narayanan, V. G., Raman, A. (2004). Aligning Incentives in Supply Chains. *Harvard Business Review*, November, p. 94–102.
- Pine, B. Joseph II., Victor, B., Boynton, A. C. (1993). Making Mass Customization Work. *Harvard Business Review*, September-October, p. 108–119.
- Porter, M. E. (1980). *Competitive Strategy. Techniques for Analyzing Industries and Competitors*. New York: The Free Press.
- Porter, M. E. (1996). What is Strategy? *Harvard Business Review*, November-December, p. 61–78.
- Porter, M. E. (2008). The Five Competitive Forces That Shape Strategy. *Harvard Business Review*, January, p. 79–94.
- Sakakibara, S., Flynn, B. B., Schroeder, R. G., Morris, W. T. (1997). The Impact of Just-In-Time Manufacturing and Its Infrastructure on Manufacturing Performance. *Management Science*, September, p. 1246–1258.
- Stalk, G., Evans, P., Shulman, L. E. (1992). Competing on Capabilities: The New Rules of Corporate Strategy. *Harvard Business Review*, March-April, p. 57–68.
- Stalk, G., Weber, A. (1993). Japan's Dark Side of Time. *Harvard Business Review*, July-August, p. 93–102.
- Vörös, J. (1999). On the Risk Based Aggregate Planning for Seasonal Products. *International Journal of Production Economics*, Vol. 59, p. 195–201.
- Vörös, J. (2002). Product Balancing under Conditions of Quality Inflation, Cost Pressures and Growth Strategies. *European Journal of Operational Research*, Vol. 141, p. 153–166.
- Vörös, J. (2010). *Termelés- és szolgáltatásmenedzsment*. Budapest: Akadémiai Kiadó.
- Walleigh, R. C. (1986). What's Your Excuse for not Using JIT? *Harvard Business Review*, March-April, p. 3–8.
- Wheelwright, S. C., Hayes, R. H. (1985). Competing Through Manufacturing. *Harvard Business Review*, January-February, p. 99–108.
- Wise, R., Baumgartner, P. (1999). Go Downstream: The New Profit Imperative in Manufacturing. *Harvard Business Review*, September-October, p. 133–141.

OPERACIJŲ STRATEGIJOS

ROLAND SCHMUCK
Pécs universitetas (Vengrija)

Santrauka

Strateginis valdymas ir *operacijų valdymas* yra plačiai vartojamos sąvokos. Straipsnyje atskleistas operacijų valdymo vaidmuo kuriant ir įgyvendinant strategiją. Atlikęs literatūros apžvalgą, autorius aptaria ilgalaikį šiuolaikinės bendrovės veiklos planavimą. Be šorinės aplinkos pokyčių, kaip svarbus veiksnys skiriamas laikas. Dabartinėmis sąlygomis veikiančių organizacijų tikslas – įgyti konkurencinį pranašumą, todėl straipsnio autorius aptaria, kaip tai galima būtų pasiekti.

PAGRINDINIAI ŽODŽIAI: *strategija, operacijos, valdymas.*

JEL KLASIFIKACIJA: L100, M110, O320