

INFORMATION TECHNOLOGY IN THE STRATEGY OF A RETAIL COMPANY

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SUMMARY

Technical and technological development is one of the most important external strategy factors of a retail company. It has been realized that information technology is a critical factor of success. However, this is an area that undergoes rapid changes. The creation of large business systems has only been made possible thanks to new technologies. In that sense one must also observe the efficient connecting of retailers with other participants in the supply chain. Furthermore, these factors condition new considerations about the formation of retail operating units and the creation of business concepts and models.

JEL classification: L81

Key words: corporate strategy, information technology, retail company, retail operating unit, business *models*

1. INTRODUCTION

This paper brings an attempt to evaluate the role and importance of new technologies (especially information technologies) in the formation of retail operating units. The point is that only technical and technological developments offer the possibility of rationalization in the investment of the working process factors, in the investment of marketing instruments and in the development of the trade functions which increase the market transparency (Segetlija, 2006, p. 400 and 401). This completes the considerations about the patterns in the development of retail operating units.

2. DEVELOPMENT OF TECHNOLOGY AS AN EXTERNAL STRATEGY FACTOR

When the corporate strategy of a retail company is being developed, this includes the analysis of numerous internal and external factors (Müller-Hagedorn, 1984, p. 36-39). These variables can be controlled or uncontrolled (Kotler, 1984, p. 72 ff.). The firm controls marketing mix factors which it develops and through which it adjusts itself to the respective marketing environment. These are internal limiting factors of the offer of goods and services as well as other structural factors: capacities (space, financial resources, personnel), sale system, relations with manufacturers, position in the distribution channel, licenses, franchises, exclusive sales rights, etc.).

Uncontrolled variables include external factors to which the retail company needs to adjust (consumers, technology, economic conditions of doing business, season factors, legal and other regulations). A special role among these factors belongs to the competition and other business entities, for example banks, professional associations, some organizations' headquarters, public institutions, co-operative partners.

The analysis of internal and external factors certainly includes the analysis of internal input-output relations (investments of the business process factors and achieved results) (Müller-Hagedorn, 1984, p. 38). This is where the specific strengths and weakness of a company are hiding. In identifying external factors special attention is paid to the analysis of opportunities and risks or threats (Bart/Hartmann/the Schröder, 2002, p. 130).

Nowadays, anyway, the assumptions of the SWOT-analysis (Strengths, Weaknesses, Opportunities, Threats) combine the analysis of the environment with the appropriate analysis of the company's strengths and weaknesses and reexamine the appropriateness of the development of the environment and the strategic orientation of the company (Müller-Hagedorn, 2005, p. 55).

Present day retail companies show vulnerability in relation to their competitors which have been equipped for the use of new technology, since there have been some significant changes in technology on the retail market (Lewy/Waitz, 2007, p. 149).

So, for example, if a retailer starts from the assumption that in the future information processing will be more and more important (development of the environment) and if he has trained personnel (resources) at his disposal, this can be consid-

ered as good in the sense of the SWOT analysis. In that case, human resources can function in harmony with the environment and as the result of all that, there are chances for success (Müller-Hagedorn, 2005, p. 56).

Therefore, technology as the external factor, needs to be connected with the sales method as the internal factor. In this context, market analysis by means of Abell's scheme¹ (which in the comprehension of marketing strategies results from the understanding that is not enough to simply list the products (objects) on one side and markets on the other side) suggests that the business fields should be further divided into: target groups; kinds of existing needs, i.e. functions; and technologies that will enable the execution of function, in other words the satisfying of the needs of selected market segments.

There are different technologies in the retail trade, such as: (a) technology of information about the offer and presentation, e.g. traditional catalogs, electronic media; (b) consulting technologies: in person, through adequate shop formats, through media; (c) technologies of delivery, self-service, supplies (the Müller Hagedorn, 2005, p. 45).

In recent times there have been many technical and technological innovations which find their implementation in trade. It should be noticed that become outdated very quickly; however, this does not mean that they should not be studied in the interest of making the right choice of strategy. Hereafter we are going to mention some of these innovations, both on the level of operating units – shops, and on the level of the whole trading company (mostly according to Lerchenmüller, 2003, p. 504-517).

Technologies that are of special importance for the trade are identification technologies (bar code, RFID – Radio Frequency Identification technology, etc.).

3. NEW TECHNICAL AND TECHNOLOGICAL POSSIBILITIES ON THE OPERATING UNIT (SHOP) LEVEL

The use of magnetic cards enables the company to observe the presence of every employee on his work post according to the sections (functions) in the company. This can further be connected with the total time spent at work during the years of service in a particular company, and these data are certainly of use in the planning

¹ Abell, D. F. (1980): *Defining the Business. The Starting Point of Strategic Planning*, Englewood Cliffs, N.J., according to. Müller-Hagedorn, 2005, p. 44

and rewarding the personnel. Of course, personal computers also allow for the conducting of interactive educational programs for employees, whereby the company can improve the qualification level of its employees.

However, the new RFID technology can also be used for the purpose of automatic registration of the presence of individuals (v.: Kull/Kamieth, 2004, p. 18).

In the area of market research aimed at obtaining various data about the consumers it is also possible to use type-cards (also known as voucher analysis), as well as the so-called shopping carts with electronic appliances emitting selected data. These are data about the frequency of buyers in particular periods of time, about daily frequencies, about frequencies in single shop areas, etc.

In analyzing the movement patterns of buyers, the so-called PSA – Personal Shopping Assistant method can be used. Shopping carts are equipped with wireless appliances – touch sensitive screens. Various marketing POS-functions are activated with the buyer's card. This makes it possible to draw conclusions about the efficacy of the placement of goods and to introduce different procedures of sales promotion and improvement.

Furthermore, there is also the analysis based on the cashier's voucher. This allows the company to examine obligatory purchase, the effects of changes in the placement of goods, successfulness of special actions and the distribution of purchase over time during the day or week.

The above technical and technological achievements can, of course, be used not only for marketing research, but also for other marketing functions. They make it possible to organize different marketing actions and use different approaches to regular customers, thanks to the data about them (just as, in the past, regular customers were favored through personal addressing in small local "corner shops"). It is also possible to use shopping carts equipped with transmitter and receiver sets and thus connected with carriers of goods, which makes it easier to organize advertising or sales promotion actions.

Today, many shops use video recordings as means of sales promotion. In addition to that, consumers are offered information on touch screens. In this context it is possible to combine several interactive media (multimedia systems). There are also the multimedia terminals "kiosk systems" which are used not only as information systems, but as selling systems as well.

Furthermore, the trade marketing of a shop can also use the so-called desktop publishing in producing wall system pictures with inscriptions, posters, leaflets and the like.

Shop logistics can use the so-called intelligent storage systems with a high level of automation in the processes of dispatching and receiving goods. Such systems connect material processes in the warehouse with the supplies management system. It is equally possible to use integrated packaging systems reducing the multiplicity in packaging and standardization at a much higher rate than before. Thanks to that, semiautomatic logistic systems can be introduced.

Self-scanning in the retail trade can revolutionize the cashier's concluding of purchases because the buyer himself scans the articles he has bought and pays through cashless transactions. Scanners can be fixed or mobile. There are, however, also the so-called pocket scanners by means of which the buyer scans the purchased goods at home.

Anyway, it has been suggested already a decade ago that the shops selling and communicating on a fixed location (stationary shop) as "shops of the future" will be transformed into "intelligent shops" (De Care, 2001.).

4. NEW TECHNICAL AND TECHNOLOGICAL POSSIBILITIES OF BUSINESS MODELS AND CONCEPTS

Development of management information systems (MIS) based on the development of modern information technologies is very important for a company. Such systems encompass all regionally or nationally separated shops of a trading company and integrate their databases. In that sense the "data warehouse" means the combination of supplies management systems and MIS. Here the databank stores the data for the marketing relating to goods and the data for the organization relating to the logistics. Simultaneously "data warehouse" can be used as the early warning system for incoming weak spots. Its complex structure requires a high-level managerial know-how for its successful implementation. The process of creating complex networks with large amounts of data and with providing prognostics for the future is also called "data mining".

New information and communication technologies have numerous and far-reaching effects on marketing activities and on efficient supplies management systems. Written and telephone exchange of information is being increasingly replaced

with electronic information exchange. This data exchange is called ISDN – Integrated Services Digital Network, as a standardized European communication system for digital flow of information, and, more generally, it is called VANS (Value Added Network Services), i.e. it is a communication network with additional services for individuals or institutions which demand it.

Here we must mention EDI (Electronic Given Interchange) which starts from the electronic exchange of documents, such as for example orders and accounts between different economic partners. In the meantime, technologies for transformation of e-mail forms into EDI data sets are being developed.

Connecting of computers and telecommunication equipment into networks generally provides a free of charge form of improvement of the relations with buyers and of support for the realization of the planned turnover (for example in connection with telephone marketing or with a sales conversation with coworkers of the outer services for wholesale trade interviewing buyers). As a result of the efforts to cut telephone costs there was a considerable growth in the number of Call Centers which have the purpose of direct marketing and maintaining contacts with buyers.

New information technologies used in the realization of turnover are, for example, text on the TV screen and teleshopping, i.e. electronic purchasing from one's home.

An even more recent sales method with probably considerable development potential is the Internet or electronic trade. Here the assortment (variety) or its parts are offered through virtual shops or market places, which buyers can search, from which they can order goods, and to some extent can also pay for them. In the Germany, examples of electronic trade are: Quelle and Otto, Metro, Obi, Karstadt, Kaufhof and Bauhaus.

Internet trade will most certainly continuingly gain on importance and therefore it is a serious option and sometimes even a coercive alternative in marketing strategy for every trading company. It is equally certain, however, that the Internet will not completely suppress classic selling ways in the foreseeable future and that, more or less, markets will be determined by multichannel strategies.

As a complementary strategy to the shop with permanent location, electronic trade represents multichannel distribution, and as such it is considered to be the factor of successfulness in the future (E – Commerce, 2005, p. 1).

In payment operations, the POS Banking (Point of Sale Banking – banking transaction, i.e. the consumer's paying from the cash desk – from the shop terminal) is being developed, within which there are several options. Its development goes in the direction of creating Chip cards – multifunctional cards for payments for goods and services, for cash withdrawal, for telephoning etc. This development may even result in the creation of a card that would allow for European or even global networking of payment operations. The card is multifunctional, which means that it is used not only for the function of payment, but for other functions as well, since it is the medium carrying data about the purchasing transactions and about its owner.

Since the usage of contemporary information technologies also enables the connecting of the retail company with different market partners, such as manufacturers, wholesalers, and consumers, it is possible to create a special supplies management system that would comprise different technologies. Especially important in this context are innovations in scanning technology, automatic advertisements on wall systems, electronic data exchange, etc.

The concept of ECR (Efficient Consumer Response) means processes including not only the logistics and marketing, but also organization and finances. They surpass the boundaries of a single economic level and are formed through the cooperation between industrial, wholesale and/or retail companies.²

Supply chain management (SCM) means the reexamination of merchandise processes from the manufacturer to the final consumer and it also includes projects for their optimizing. According to Barth³ the sub processes of logistic optimizing, which are used to cross particular economic levels include: Continuous Replenishment, Computer Aided Ordering, Cross Docking, Roll Cage Sequencing.

Continuous replenishment means that the manufacturer or the wholesaler supplies the retail unit with goods in a manner resembling that in the *Just in Time* concept, i.e. with quantities that will sell immediately.

² ECR is, in fact, a method for efficient forming of a value chain focusing on the benefits for the consumers (Corsten/Pötzl, 2004, p. 7).

³ Barth, H.: Controlling – ein Instrument zur Gewinnsteuerung: eine praxisorientierte Einleitung für Klein- und Mittelbetriebe, 3. Ed., Stuttgart, 1996, p.362f, according to: Lerchenmüller, 2003, p. 514.

Computer aided ordering relates to automatic disposing in the supplies management system; however, here the man is certainly the unavoidable regulatory factor.

Transitional warehousing or *cross docking* is computer supported direct logistic joining of consignments in the trade and their delivery directly to outside buyers or through the firm's own branch offices, so that storage and commissioning processes are avoided to a large extent.

Sequencing of transportation containers or *roll cage sequencing* means optimal loading of transportation units (palettes, transportation containers), whereby the advantages in supply costs of the carrier of goods should achieve more than simply compensate for the possible lack of efficiency in transportation. In overall logistic processes the advantages of rationalization ought to be realized through the use of modular standard units – from containers to special trays – as selling units directed towards the retail trade.

All this is connected with multi-part transportation chains and with so-called multimode transport. Systems which connect transport require bar-code marking and transportation packagings, so that, when mobile data acquisition is used, it is possible to automatically read out the contents of the these transportation and packaging units without the need to unpack these goods.

Here the CPFR (Collaborative Planning, Forecasting and Replanishment) concept must be mentioned. It represents the further development of the ECR-idea. It actually means the cooperation and upholding of the basic ECR principles. Cooperation is based on mutual trust of business entities and it enables them to cross the borders of particular economic levels, i.e. it concerns the cooperation between the manufacturer, wholesale businesses and retail trade, and it also concerns the supply chain organization, as well as the coordinated management of logistics, finances, and marketing and communication processes. CPFR is supported by most advanced software, it uses the Internet, includes B2B market places, and more productively and faster forms the entire supply chain including co-suppliers from the manufacturer.

It is believed that in near future bar-codes will be replaced with RFID – technology. RFID- systems consist of the so-called tag (label, mark, pendant) and the device for reading and „writing“ and connecting with company's network or its IT – system. In the tiny tag, which is located in or on the object to be identified there is an integrated chip and antenna. Tags have the function of reading and „writing“

and technically they represent the smallest „client“ in the “client – server information system. By means of these passive or active tags – transponders⁴ using radiofrequency waves goods are identified without touching them. Undoubtedly, the RFID procedure has numerous advantages in respect to the procedure with bar-codes:

RFID is frequently mentioned in connection with the EPC – standard (Electronic Product Code i.e. the standard of the product’s electronic code for unambiguous identification of objects based on RFID). Among the advantages of RFID and EPC one should, first of all, mention the reduction of situations without necessary supplies in the warehouse and on shelves, improved management of warehouse supplies (including automatic stocktakings) as well as highly successful searching and finding of goods (Kreimer/Acar/Vogell, 2006, p. 44).

Transponder is a programmable data carrying medium. Its central part is the mikrochip in which various information are stored. Data are emitted into the surroundings through a coil functioning as antenna if the transponder is located within the reach of the reading and “writing” device – the interrogator. Transponders are introduced in different forms (Kreimer/Acar/Vogell, 2006, p. 44).

In the exchange of data and energy, the passive tag uses the emitted energy of radio waves and sends stored data in response. These data are further electronically processed and can be made accessible to authorised persons through online connections. Thus the tag can communicate with reading and writing devices belonging to different users of transponder technology. However the formation of RFID – systems requires specific standards (Kreimer/Acar/Vogell, 2006, p. 44).

Readers can be manual (portable) or in the form of RFID-gates (doors) (Dujak, 2006, p. 99).

RFID technology is probably most important for the supply chain management (Kreimer/Acar/Vogell, 2006, p. 45 ff). The other important use of RFID technology in the field of trade would be the one related to the consumer, to the payment for goods, gathering information about the needs, etc. So far, there are three development phases that can be distinguished in the introduction of RFID-technology (Dujak, 2006, p. 102):

- (a) pallet and/or container tagging;

⁴ *Transponder*, from *transmitter* and *responder*, a device that sends data in response to the transmission of the reader.

- (b) tagging of boxes and other smaller packages on palettes - case tagging;
- (c) tagging of single products (expected to be in use in 5 – 20 years) – item tagging.

Special technological innovations that must be taken into consideration in the future development of retail trade include transportation systems that will preserve human environment, multimode transportation systems, returning – distribution systems etc.

5. INSTEAD OF THE CONCLUSION

Technology is beyond doubt the most important factor of the future development of retail trade and only through the development of technology it will be possible to develop trade (or generally market) functions as well. But, at the same time, technological and ecological possibility are the main limiting factors of future development.

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