GLOBAL BUSINESS MODELS BASED ON E-LOGISTICS AND ITS FINANCIAL MEASUREMENT

GLOBALNI POSLOVNI MODELI ZASNOVANI NA E-LOGISTICI I NJIHOVO VREDNOVANJE

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Abstract: *E-logistics is the base structure of the global model of e-business. First of all, it supports positioning of businesses in the global work division. E-logistic and the business model based on e-logistics, support customer value creation through establishing streamlining business processes, which create value. This paper exploits not only global business model of e-logistic but also analysis tools for determination its financial perspective. We believed, at the time, that the business model e-logistic becoming increasingly important for companies' success. But companies primary have to determine financial perspective and financial measures which will provide foundation for measuring and successful managing of the model e-logistics.*
Key words: *E-logistic. E-business, Financial Perspective, Business Model.*

Sadržaj: *E-logistika je bazna strukutra globalnih modela elektronskog poslovanja. Ona prvenstveno omogućava da se biznis uspješno pozicionira u globalnoj podjeli rada. E-logisika i poslovni model koji ona podržava polazi od ostvarivanja vrijednosti za kupca kroz uspostavljanje poslovnih procesa koji kreiraju vrijednost. U ovom radu se istražuje ne samo golbalni poslovni model e-logistike nego i sredstva koja će omogućiti da se utvrdi finansijska perspektiva tog modela. Vjerujemo da je buznis model e-logistike postao veoma važan za uspjeh kompanija. Ali kompanije prvo moraju da definišu finansijsku perspektivu i finansijske mjere koje će obezbijedi temelj za mjeranje i uspješno upravljanje tim modelom.*
Ključne riječi: *e-logistika, e-biznis, finansijska perspektiva, biznis model.*

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1. Intraduction

The objective of this study is to place e-logistics in the context global business model e-logistics. The analysis tools will be introduced which will help to determine the main elements for evaluating financial perspective of business model e-logistics. The logistician plays a major role in conventional enterprises. That role is even more essential in e-business, particularly in B2C and B2B. What is e-logistics?

In my view, e-logistics must reproduce the main features of old-fashioned logistics. Logistics is a complex business. Some firms have deluded themselves that they could get round the logistical problem by simplifying it to the higestt degree, i.e., by setting up a central warehouse, delivering goods to the customer in 48 hours for a single fee, and selecting a single logistics provider. On paper, that looks easy, but in reality it doesn't work. As e-business (e-commerce) grows, we see an evolution in the logistical services offered by companies founded just two or three years ago. Many businesses, however, still don't give customers the freedom to choose their logistical service. Tomorrow, customers will be able to choose their delivery method (fast/slow; home delivery or delivery to a local pick-up point).

E-logistics is about procurement, storage, movement of products and information in a timely manner, highest service and lowest cost. It's about effective SCM (Supply Chain Management).

2. Why is the model of SCM important?

A new knowledge-based economic order characterized by on-going innovation and rapidly changing market conditions seems to be emerging.. Meny directors and managers no longer see their world as static or slowly evolving. Increasingly, they see it as part of a global entity that is uncertain, turbolent, complex, and fast-changing. Ther is now a clear need to develop organizational capabilities and proceses that will respond effectively to changes in external environment. This respons must be far-reaching: it must include adapting to the both: changing customer needs and changes in the political, physical, economic, social, technological, and trade fields. What is the critical change in relations between organizational structure, management, and internal processes and its curent market environment [7]?

Customers and suppliers are global;

International sourcing and sales means trading cross all boundaries, cultures, languages and industries;

A Global revolution is changing business. There's constant pressure to reduce "time to market";

Cost vie with increased demand by customers for customized products and services;

Logistic cost impact significantly a company business total cost and it's bottomlines;

It's the touchpoint of the product between suppliers and customers - generating revenue plus make or break a customer experience.

In the new environment, the role of e-logistics has become more and more important. E-logistics must offer customers more services. The customer must be able to choose his or her logistical service on several criteria: speed (fast/slow); type of service (scheduled appointment); place of delivery (home/local pick-up point, as has long been the case in the mail-order business). The logistician needs to master a complex range of skills: storage and order preparation, transportation, and information management.

In the warehouse, order preparation comprises several steps: picking the merchandise, assembling the items, and crossdocking (gathering several packages from several warehouses or suppliers on a single platform). All these tasks require specialized competencies that not everyone possesses. Sales administration (invoicing, follow-ups) also demands much care.

There is no such creature as an "all-purpose" carrier, delivering all types of packages, within all types of delivery times, to anywhere on the planet. Vendors must therefore use several logisticians, each performing one kind of task. Home delivery is a business all to itself. The Messager company, which handles 160,000 parcels a day, has a production tool designed for B2B more than for consumer deliveries. If Messager does not deliver to individual customers, it is not because it doesn't want to, but because its facilities do not allow it. The drivers, for example, work solo. To deliver a couch, you need two people.

With on-line ordering, you can gather much information at the order-taking phase. The e-merchant must encourage its customer to give all the details that will enable the driver to make a successful delivery: exact address, is there an elevator, is there an access code to the building, and so on. Once the order is confirmed, the logistician must be capable of managing all the information at each step of the delivery process, both at the warehouse and when the goods are on the way: he or she must be able to warn the recipient and the e-merchant's after-sales department of any anomaly in the process. When the order is delivered, the logistician must supply proof of delivery, i.e., that the customer has received the goods and is satisfied. Lastly, information management can serve to compile statistics in order to improve the overall service provided by the logistician, the merchant and even (in a manner of speaking) by the recipient.

3. Providing and dissemination of information

The information must flow between the sender, the recipient, and the logistics provider without distortion. Senders and recipients refer to orders; warehouses refer to shipping slips; carriers refer to shipment numbers. Even if each player has its own trackability procedures designed into its own information system, it's hard to link all the systems together. In sum, e-logistics must therefore offer more services – which means more players involved – while ensuring information flow and information-sharing. The e-merchant can deal with several logistics providers (warehouse, carrier), it can rely on points of sale or collection points, and it can rely on its own suppliers (by arranging for direct supplier-to-customer deliveries, bypassing warehouses). In its back-office, the e-merchant needs the following information, if only to answer questions from customers when they call:

- *order-taking:* The order is placed by the e-shopper. That's not the hard part. Afterward, the merchant must make sure the item ordered is in stock, because, if it is not, that will affect the delivery time.
- *payment:* The payment must be validated (it is often made in two installments).
- *information circulation:* These instructions must be given to the providers (the order-preparer and the carrier), and the information on preparation- or transportation-related events must be fed back to the merchant. In the United States, Wal-Mart has improved its customer service and left the competition behind by introducing this logistical "black box" in its information system. The need for information-sharing finds its ultimate expression in B2C. Traceability is important, but so is the capability to act in real time, to anticipate events, and to control the situation.

4. Electronic business models and the challenges?

The networked business model targets business-to-business (B2B) manufacturing networks and their interactions with logistics and financial service providers. It aims to develop a platform which can seamlessly integrate and transfer data among all the various partners in order to enhance the competitiveness and to make the business processes as efficient as possible. Of course these aims are reflected in creating the new business model framework. This results in specific challenges which have to be taken into account and covered by the model:

Mass customization means new and innovative business model.

Logistics and SCM become increasingly intertwined and inter-dependent.

Demanding customers required fulfillment infrastructure and services to be flexible, to sell and deliver "*anything from anywhere to anyone*".

Global logistics become ever more complex in cross border trade where speed of communication is cru-

cial and centralized strategic plan blend with decentralized operations fully integrated.

Cost Pressures – constant focus and drive on competitive edge and expectation.

Better Knowledge and skillsets to provide solutions to complex operations.

Tradition, legacy process, system versus non-traditional advance system.

World economics dynamism and unpredictability cause cautious investment plan, creating widespread nervousness.

After Sept 11th, security got tighter, insurance cost increased, process changed. Turnaround time is longer.

China WTO accession create a significant impact on Global traders and economies.

Current Global economy slow down create severe crisis in various company financial ability to survive.
IT and advent of internet/web-base, e-commerce, e-logistics will greatly influence and transform the SCM industry and business.

Awareness of the logistic industry prospect force fierce competition among countries to be regional Hubs e.g. Malaysia vs Singapore, Hong Kong vs Taiwan vs Shanghai, etc.

5. Global business model based on E-infra-structure

I see e-logistics as a nutshell of the global business model based on supply chain in networked enterprises. There are several definitions for the supply chain. Christopher has defined that the supply chain is the network of organizations that are involved in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer [4, 1998]. The supply chain encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer. A supply chain is a system through which organizations deliver their products to the customers and it is a dynamic environment. The supply chains have become more complex in many industries, and the distance between the manufacturer and the end user has increased. More and more material is also moving between companies along the supply chain. Nowadays, it has become vitally important to act fast and to be more responsive. Short order cycle times are a prerequisite for competing successfully in the 17 markets. Under such conditions, it has become important to get to know more about what the suppliers are capable of and what the customers want. To accomplish this, many companies try to improve visibility along the supply chain by using more advanced information technology. Visibility and transparency in the supply chain are very important aspects and so every player in the chain gets the same information at the same time. The supply chain participants are interested in important information for example: forecasts, product and production information, visions, market position information, and availability of material.

Traditionally, the supply chain is a clear chain including the sequential players, the material flow and the information flows between them. The traditional supply chain model is a simple model for demonstrating the idea of a supply chain, but in today's business this is not enough. The model of a strategic enterprise network gave a clear presentation of networked enterprises and it can be modified to show how the supply chains are located in the enterprise network. Another point of view is to think that the core company is the centre of the network of suppliers and customers. Modifying the idea of supply chains in the strategic enterprise network, the core company can be showed as the centre of a network of organizations. Christopher has presented the model of the supply chain itself is a network [4, 1998]. It has been suggested that a supply chain could be defined as: "A network of connected and interdependent organizations mutually and cooperatively working together to control, manage and improve the flow of materials and information from suppliers to end users." [4, 1998]. In that way the one supply chain consists of the core company, partner company, partner's partner and delivery company.

6. Financial perspective of the new business models

The global business model e-logistics provide possibilities to deliver products with better quality, shorter lead time, and lower costs. This change has precipitated a radical shift in the thinking about creating value. Companies must increasingly organize their operations around real-time information about shifting customer needs and availability of their productive capacity. They require not only up-to-date and immediate information about the location and disposition of all productive assets, but also information linking the location of the asset with available transportation opportunities. Under such conditions, logistics is becoming primary enabler of real-time response to customer needs [1, 1996]. It is becoming tools which create space for significant cost reduction. Overall financial perspective drill benefits from improving a lot of areas, such as:

- Work duplication,
- Increase in accuracy &consistency,
- Effective inventory management,
- Inventory track & trace,
- Better operational visibility,
- Timely order fulfillment,
- Faster document turnaround,
- Global access,
- Customize report generator,
- Automated billings,
- Enhancement in customer relationship,
- Save manhours,
- Reduce errors,
- Minimize inventory cost,
- Global inventory,

- Visibility, control,
- Management transparency,
- Better customer service,
- Increase productivity,
- Increase connectivity,
- Individualize requests,
- Better financial control, and
- Improve customer satisfaction.

Customers get benefits due to lowering of search cost, while manufactures get benefits of the economy of productions, because they can attract more business from the customers by providing their products and services at a lower cost. Besides, by capturing customers specific needs, the Internet and World Wide Web can open further opportunities for the customization of products and services. The advantage of e-logistics derived from a company's ability to explore quickly not only its internal resources, but also the collective resources of the entire extended network of suppliers, vendors, buyers, an customers. The emergence of e-logistics presents challenges as well as opportunities. Information must now traverse both the organizational boundaries and great distances that separate and span the entire enterprise. At the some time, the expanded information flows provided an unprecedented opportunity to build new logistic systems and knowledge-based tools. The power of e-logistics lies in its capacity for bringing together previously unlinked information access the entire production supply chain and, in turn, for building more effective tools to manage complex flows of information and materials [7, 2000].

7. Measurement of the e-business logistics chain

What is certain is that e-business, either supplying there own logistics services, or contracting out their logistics to a third party, and the logistics providers themselves, will all be measuring a lot more in the future. Over the past two years the author has identified some 123 performance indicators in use. Not all these indicators were considered key or vital. However, it is clear that the performance of an e-business logistics chain revolves around a lot more than the "in full, on time" measures. Table 1, lists the most commonly used, and least commonly used indicators. The changes in what e-business considers to be important KPIs in the next three to five years will be interesting as more integrated e-logistics evolves in support of e-business.

What are the useful e-logistics performance indicators? When analyzed the e-tailer and logistic performance measures can be segmented into five general business areas or operational divisions: a) information technology, b) financial, c) business/operations, d) risk and quality, and e) strategy and service.

Table 1 lists the most frequently used and the least frequently used performance measures. These are not necessarily the best performance measures, nor do the least used measures reflect unimportant aspects of the e-business network performance. For example, consistency of customer advice and the ability to correct wrong orders would be intuitively very important aspects of an ordering front end, but this importance is certainly not reflected in the frequency of use of these indicators.

Table 1. Most and least frequent performance measures in e-logistics

Most Common performance measures (1)	
Cost /profit/revenue per delivery run	Financial
Order processing cost	Financial
Percentage returns to successful deliveries	Business/Ops
Household vs business volume split	Business/Ops
Quarterly (monthly) volume growth	Business/Ops
% operational time for AH delivery	Business/Ops
Carrier delivery service performance	Risk
Level of order security	Risk
Loss and damage as % total deliveries	Risk
Number of web provider failures	Information Technology
Dispatch info availability	Information Technology
Survey determination of reorder intention	Information Technology
Number of internal site/platform system failures	Strategy and service
Returns strategy policy updates	Strategy and service
Customer reorder frequency	Strategy and service
% customer purchase hits to site visits	Risk
Least frequent performance measures (1)	Financial
Carrier debt to equity ratio	Financial
Holding cost per item	Business/Ops
% indirect operational costs	Business/Ops
Delivery of consistent customer advice	Information Technology
Uniform carrier identification	Information Technology
Delivery window adherence	Strategy and service
Ability to lodge a reject order	Strategy and service
Ability to correct a wrong order	
External Customer Response site assessment	
Staff friendliness	

Notes: (1) These KPIs are not sorted by highest frequency order:

Source: Supply Chain Review, Feb 2001.

8. Financial performance measures of the new e-business models

Every business model should be viewed by financial perspective because of the ultimate objective for profit-maximizing. Financial performance measures indicate whether business model, including its implementation and extension, are contributing to the planned improvement. Financial objectives, typically related to profitability – measured, for example by operating income and return on investment. Basically, financial strategies are simple, companies can make more money by (1) selling more, and (2) spending less. Everything else is in the function of it. Any program, and e-business model based in e-logistics, create more value for the company only if it leads to selling more or spending less. Thus, in the case of our research model, its financial performance must be evaluate through two basic approaches – revenue growth and productivity.

Companies can generate profitable revenue growth by deepening relationships with existing customers. This enable them to sell more of their product and services, or additional products and services. Companies can generate profitable revenue by selling entirely new products. Companies can also expand revenues by selling to customers in entirely new segments.

Productivity improvements, reduces costs by lowering direct and indirect expanses. Such cost reduction enable a company to produce the some quantity of outputs while spending less on people, materials, energy, an suppliers. Second, companies, by utilizing their financial and physical assets more efficiently, reduced the working and fixed capital needed to support a given level of business. In the presented model there are a lot of items identified in the section 6 which contribute to productivity improvement. For example, by reducing unscheduled downtime on equipment, companies can produce more without increasing their investment in plant and equipment.

Regarding e-logistics more emphasis should be given to low coordination cost and connectivity cost, reactivity to unpredicted changes, transparency of selective information while covering information from unauthorized partners at the same time. Also, all areas which we listed in the section 6 should be measured with a specific value propositions.

It is necessary to apply both approach: revenue growth and productivity to business model based in e-logistics. The financial component of the strategy must have long term growth. Excellence in the all areas which are listed in the section 6 has a direct connection to the productivity in the financial perspective, and an indirect link to the financial perspective's revenue growth. Reduction in the cost of operation and distribution processes should lead directly to improvements in the company's overall cost structure Production planning and improved supply chain and distribution channels, enable companies to improve their inventory turnover working capital ratio.

The indirect link from improved operations to financial performance occurs as companies improve their price, quality, and delivery performance to customers. Such improvement should result in increased revenues from satisfied customers and opportunity to capture customers from competitors in price-sensitive and value-preferring market segments. Our suggestion is to set direct and indirect financial objectives (see abele 2).

Table 2. Financial objectives and measures

Objective	Measures
Become industry cost leader	Cost per unit, benchmarked against competitor, Percent of annual reduction in cost per unit of output, Present of cost budget variance, General, selling, and administrative expanses per unit of output per location,
Maximize use of existing assets	Sales/asset ratio, Inventory turnover ratio, Free cash flow, Investment efficiency (NPV of new projects to total investment), Product and development pipeline to capacity available, Percent of invoices paid on time.
Increase account share with existing customers	Percent of growth in existing customers' businesses
Increase revenue from new customers	Dollar revenue from acquiring new customers

9. Conclusion

Logistics is no longer just about the physical flow of goods, it's also about the flow of information, cash and work process. Information in particular, is key to streamlining the supply chain, so technology is becoming more important to everyone.

Is it possible addressing key topics of the third millennium. The important companies in the world are aware that globalization implies a wider range of products and variants, and consequently the risk of margin reduction. Of course, the most sustainable means for margin recovery is product innovation (technological innovation, marketing innovation, brand innovation, etc.). But, globalization also leads to shorter life times of innovation advantages. Furthermore, for many industrial sectors that are quite mature innovation is anyway limited and the competition is mostly based on prices. After years of business process reengineering projects, delocalization projects, etc., the area addressed by e-logistic is one of the areas where companies have still significant room for cost improvements. Although transport costs are still rather low, logistic processes and the related information processing represent a considerable and growing cost factor. Per-

formance indicators of a supply chain should be extended beyond the traditional ones like availability of goods, low inventory, physical transportation cost and software and hardware investment. More emphasis should be given to low coordination cost and connectivity cost, reactivity to unpredicted changes, transparency of selective information while covering information from unauthorized partners at the same time. The global business model and it's supporting platform conduct a significant step forward to optimize the synchronization of money flow and delivery.

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