



THE PROJECT OF PURCHASING PLATFORM WITH ENHANCED FUNCTIONALITY – CASE STUDY

Marta Jakowczyk* and Łukasz Hadaś**

* Sustainable Consumption Institute, School of Mechanical, Aerospace and Civil
Engineering, University of Manchester, United Kingdom
Email: marta.jakowczyk@postgrad.manchester.ac.uk

** Faculty of Engineering Management, Poznan University of Technology, Poznan,
Strzelecka 11, 60-965, Poland, E-mail: lukasz.hadas@put.poznan.pl

Abstract The paper aim is to present the process of creating an electronic platform that not only will be responsible for supporting the operational work of the Purchasing Department but also to build the company's image through a marketing platform with purchases marketing. The complex requirements analysis was performed, which takes into account priorities of the different needs of users. In the initial assumptions one platform was created but as a result two versions, basic and enhanced, were created which helped show two differentiated solutions according to the features and level of sophistication of information technology.

Paper type: Research paper

Published online: 09 July 2014

Vol. 4, No. 3, pp. 231-243

ISSN 2083-4942 (Print)

ISSN 2083-4950 (Online)

© 2014 Poznan University of Technology. All rights reserved.

Keywords: *electronic platform, purchases marketing, e-procurement*

1. INTRODUCTION

The intensification of the transformation process of corporate purchases in recent years has had a significant effect on methods of communication with suppliers (Kardasz, 2008, p. 15). The approach to the role of purchases has been changed. It began to trace elements to create competitive advantage (The new face of purchasing, 2005). It was noted that the effective organization of the purchasing area results in high-quality finished products, reducing a large part of the total costs of enterprise, as well as building a company's image at the supply stage.

The effectiveness of marketing orientation has been repeatedly confirmed. As a result, its principles are increasingly being used also by managers managing other areas of the company such as sales and customer service. For some time now successfully marketing has been used by the Purchasing Department (Wąskowski, 2004). Looking comprehensively at the problem of the marketing in the company shows that it is present in each of the three main phases of the manufacturing process:

- at input - during contacts with suppliers when purchasing,
- within the company - in areas such as personnel management,
- administration, production (internal marketing),
- at output - in sales processes (building market, promotion, customer service).

It is worth noting that the marketing undertaken in the field of supply and marketing in the field of sales complement each other. They have many features in common, but they are assessed from various points of view. The aim of sales marketing is the most profitable sales and the aim of purchases marketing is the best purchasing. The idea of purchases marketing is meeting the needs of the suppliers market and its penetration to gain a competitive advantage at the stage of supply (Sheth et al., 2009).

Facing new trends in purchases marketing in the enterprises market come the latest innovations in the field of information technology. The globalization of the supply chain and the rapid development of information technology contribute to the expansion of contacts with suppliers through electronic communications (Grzybowska, 2011). Tools available on the market in recent years by this evolution significantly broaden the scope of their application. This trend can be seen quite clearly. Software solutions initially supported only the operational activities in the area of purchasing, such as procurement and invoicing (Roberts & Mackay, 1998). Currently electronic offers and negotiations are gaining popularity and the first offers for the establishment and management of contracts with customers using IT tools are created.

The actual transaction comes as a result of interaction between buyers and suppliers in the electronic market (the market in a global virtual network) (Carter, 2007). Electronic procurement (named e-procurement) is a popular model of the electronic market being the basis for electronic submission of offers and supplying companies in purchasing items (Presuti, 2012). The model of the electronic market tends to be associated with the performance of electronic purchase auctions, which support the purchasing process with particular emphasis on the negotiation phase. In contrast to the

sales auction, where buyers make better and better offers for the purchased item, in purchase auction the buyers submit their request and the suppliers "race" with the submission of more and more competitive offers for the item purchase. Thus, these are commonly called *reverse auctions* in the (Sobczak, 2009b). The sharing of a purchasing platform by an operator and the other participants is becoming increasingly popular (Kim & Shunk, 2003). The operator called *Third Party Marketplace* is an intermediary company based on the principles of network services (outsourcing). The third party is then treated as an additional online channel of contact with business partners in a company that cares about the availability of global offers.

Today's e-procurement platforms focus on supporting the operational activities associated with execution of transactions, but do not take into account immeasurable conditions such as building long-term beneficial relationships with suppliers based on partnership and enhancing corporate image. Extending the functionality of the platform by the aspects of marketing is the subject of this paper. The aim of the research is therefore an elaboration of the concept of an electronic platform for suppliers. This task includes determining the business needs of the purchasing organization in the production company, the definition of functional and non-functional requirements for the new solution and then the design of the interface platform, defining its functions, contents and preparation of the text information displayed on the platform. The article emphasizes the discussion of requirements analysis and the prioritization of users' needs.

The research methods used in the project are semi-structured interviews, documentation analysis and active observation. Moreover, in the scope of study the work schedule of the project was determined, the advantages and disadvantages of solutions were identified, as well as directions for future development of the platform.

2. CONCEPTION OF ELECTRONIC PLATFORM FOR SUPPLIERS

Work on the concept of the platform has been commissioned by the Alfa company within the tobacco industry as part of the scholarship program for students of logistics. A timetable for a new project is shown in Figure 1.

At the first meeting it was discussed that the time to develop the concept of an electronic platform is no longer than six months. Implementation of the project is primarily dependent on the subcontractor company that leads the current website of Alfa enterprise. Thus, it is assumed that the software of the electronic platform will belong to company's website. There is no clear deadline for implementation of the solution. Company depends more on refining the idea than the short time given to the project's implementation.

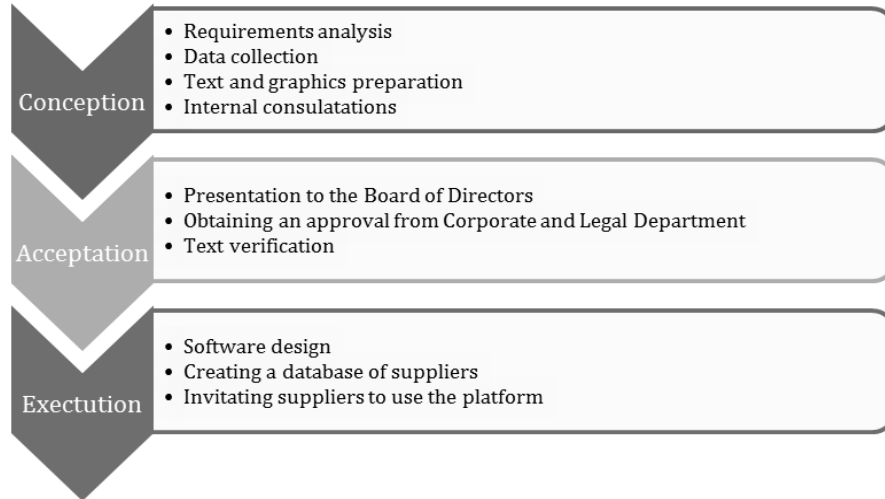


Fig. 1 The schedule of work, own elaboration

2.1. Requirements analysis

The analysis of the requirements should be specially considered and treated with particular care. In the implementation of an IT project ill-defined requirements can be very dangerous and can bring prejudicial effects on the success of the project. The aim of the analysis is to determine the scope of work, estimate time-consumption, cost and execution time. The reconciliation process of requirements with the customer consists of four elements, which are presented in Figure 2.

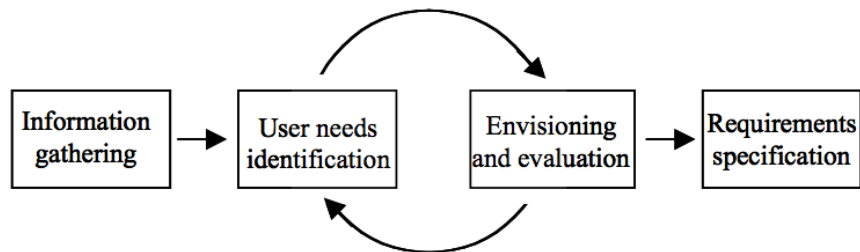


Fig. 2 General process for user requirements analysis (Maguire & Bevan, 2002)

A properly performed requirements analysis reduces the risk of project failure.

2.2. Data collection

The first step in the analysis of the requirements is to collect basic information about the project stakeholder, which makes sure that the needs of all stakeholders are taken into account.

Table 1 Characteristics of project stakeholders, own elaboration

Stakeholder	Description	Aspirations/Interests	Foreseen strategies in realization of the interest
Board of Directors	People whose main task is to manage affairs of the company and its representation.	The increase in profits, improvement of corporate image, the prospects for the company development.	Employment of project manager; exercise proper control over the company; taking appropriate strategic and operational decisions regarding the operation of the company; adequate representation of the company, identifying the company's growth strategy.
Clients and users	People to whom the system is dedicated and delivered in its service area.	Receipt of electronic platform; reasonable cost of purchasing the system, its implementation and training of selected employees.	Placing an order for a platform, expressing their needs and expectations regarding the scope and quality of the solutions.
Project Manager	The person manages the project, distributes and coordinates the tasks, is responsible for the execution of the project.	Customer satisfaction; participation in a complex project; gaining a favourable opinion/evaluation and professional experience; salary increases; receiving a bonus for completing the project on time.	Appropriate management of the project (eliminating the risks and threats, ensuring the proper flow of information), completing the project on time, within budget, not diminishing the quality of the product, contact with the customer (negotiations, information on the progress of the project).
Sub-contractors	People responsible for the execution of the project.	Customer satisfaction, participation in a complex project and obtaining a favourable opinion/evaluation	Proper execution of the tasks, project completion on time. Consultation with the Project Manager, informing him about the progress of work and the existing problems. Also, contact with the customer.

According to R. E. Freeman (1984) a project stakeholder is "any group or individual who can affect the fulfillment of the organization's objectives or which situation is affected by the organization carrying out its objectives." In the case of the firm, Alpha groups of stakeholders can be distinguished, whose impact

on the design of an electronic platform for suppliers is indirect. They are workers in other parts of the enterprise than the Purchasing Department, the information provided on the platform will affect the principles of their work, such as workers in the magazine. More important to the success of the enterprise are stakeholders directly related to the project, such as suppliers, which will target platform and the staff of the Purchasing Department Alfa, who will use the platform in their daily work. This is a special case of a project in which stakeholders directly related to the project come from the internal area (buyers) and external one (suppliers).

It is important to keep in mind that conflicts between stakeholders can result in project delays. That means both identification and deep analysis of stakeholders are needed. Table 1 presents the main characteristics of stakeholders, their aspirations and foreseen strategies in realization of their interest.

Stakeholder analysis has been conducted from the perspective of company Alfa, not the IT solution provider. The project has two project managers. First one is overriding manager who takes responsibility for platform implementation to the Board of Directors. This is the Purchasing Manager. Second manager has an executive role, to which the first one delegated most of his duties in connection with the design of an electronic platform, it is a student – scholarship holder.

2.3. Identification of users' needs

After determining the project stakeholders, the needs of users should be identified. In this project two groups of users of an electronic platform are distinguished, such as employees of firm Alpha and the company's suppliers.

In order to identify the needs of workers, the following methods of gathering requirements were used:

Semi-structured interview

Interviews with all employees of the Purchasing Department were conducted within two weeks. The majority of these were individual interviews with the Manager of the Purchasing Department, Deputy Manager of the Purchasing Department and two linear employees. Group interviews were also conducted with two Purchasing Specialists who deal with the same purchasing area. All individuals were asked a series of open-ended questions that allowed them to answer in their own words and give a sense of commitment to the project and control of the interview. Therefore the intention was to make an interview in a form of a discussion about expectations of the proposed IT solution, launch "brainstorming" with buyers in a common quest to prevent problems occurring in their daily work. Questions were related to a particular area of activity of the individual buyers and the quality of their contact with the suppliers of the company. They were also asked to identify the major causes of difficulties in communication with the supplier and repetitive tasks in their work, which could be minimized through the use of electronic platform.

Documentation analysis

After the interviews, a review of business records has been done in order to determine the rules and directions of the process of enterprise information. This method was used because of the need to identify existing business rules to be included on the electronic platform and which will have to be modified as a result of its implementation. After reviewing the existing documents describing the procurement processes within the company the most important issues were selected from the perspective of the supplier. The collected data was cleaned and transformed into a more understandable formulation for line employees and suppliers of the company.

Active observation

The observation work was carried out within one business day with three buyers in order to analyse in details the selection and supplier evaluation processes. The active observation aimed also to identify procedures to establish cooperation with the new supplier and informal practices not contained in business records that influenced the course of work. An example of this is a buyer making a phone call to inform or remind a supplier to read mail and send the signed documents. The observation was associated with a discussion with employees and a discussion of current operations. When drawing conclusions from interviews and observations, the authors have identified the following problems that currently exist in the Purchasing Department:

- a non-transparent flow of information,
- decision problems on making purchases,
- financial liquidity problems,
- unsuitable choice of suppliers,
- increasing the share of material costs in the total cost of production,
- additional costs due to the lack of availability of components.

The analysis of the documentation showed that there are a number of procedures for the purchasing process, both those that apply to buyers and to suppliers. These documents are stored in different files, there are many versions and it is difficult to determine which document is the most current. It is assumed that the arrangement of the existing documentation and submitting it to buyers and suppliers in a more friendly way will encourage them to becoming acquainted with necessary documentation, will increase the understanding of the involved processes and consequently will positively affect efficiency of both parties.

Expectations of suppliers for the appearance and functionality of the platform are not clearly defined as to familiarize them with the company's idea on the creation of a dedicated IT solution has been deemed unnecessary by the Purchasing Manager. However, buyers in contact with their suppliers frequently discussed problems in their collaboration during, for example, the annual evaluation of the cooperation. Most suppliers indicated problems related to unclear information and the company's requirements and surplus, in their opinion, procedures. This opinion was held by six of the nine respondents. Remaining problems were related to the company's long-term supply source selection procedure, the loss of invoices and payments not being made within the deadline.

2.4. Vision and evaluation

After identifying the needs of users, another series of interviews was conducted with the Purchasing Department staff to verify the data collected and the conclusions reached regarding the requirements of the electronic platform. A prototype of the platform was created, which outlined its mode of action, content, main features and benefits. The presentation of the prototype launched another employee discussion about solutions.

During the talks the appropriate direction in purchasing was determined for the appropriate economic effect. It was discussed that reduction of prices is not the most important thing for the company, because in this way, instead of achieving savings in the company, price reduction could lead to an increase in logistics costs and a reduction in the quality of purchased items. In order not to overpay for buying goods and services basic needs were defined: to reduce prices, favorable logistics terms and secure high quality goods or services. Immeasurable conditions were also identified: the mutual relationship and commitment.

Purchasing Department employees were asked which of these needs should be met by an electronic platform in the first place. The replies showed that the electronic platform is not expected to be highly functional for fear of difficulties in its implementation. All staff agreed that in the beginning the platform would serve as a base for the suppliers' information, clearly setting out the rules for partners' co-operation. Its further development towards more functional solutions is desirable in the management of contracts and information technology support in the process of selection and evaluation of suppliers.

2.5. Requirements specification

Current circulation of documents between buyers and suppliers has many shortcomings. These include frequent delays, reduced frequency of transmitted data, a large amount of time and work necessary for the preparation and dispatch of documents in paper form or via e-mail, which reduced the effectiveness of the whole supply chain. The result of the analysis is to bring together the following requirements:

- functional requirements,
- non-functional requirements,
- the requirement for integration with other systems and applications.

Functional requirements can be classified according to whether they are related to handling the platform or the effects of purchase. Non-functional requirements include user interface and graphical interface. The user interface is responsible for interacting with the platform user, defines how to access to the platform and the ability to change the language of the displayed information. The graphical interface of the platform, also known as the graphics environment, defines the way information is presented by computer. The requirements of integration with other sys-

tems and applications determines the manner of cooperation between the platform and other software used in the company.

Table 2 General requirements specification depending on platform development, own elaboration

Type of requirements	Stages of development of the electronic platform	
	The first version	The second version
FUNCTIONAL concerning the handling platform	<ul style="list-style-type: none"> • base of information for suppliers of the purchasing processes (guidelines on cooperation, document templates) • the ability to update and add new documents 	<ul style="list-style-type: none"> • multiple users work on the document • contracts template management • documents transferring by specified path • create reports summarizing purchasing projects
FUNCTIONAL concerning the effects of purchase	<ul style="list-style-type: none"> • arrangement of purchasing procedures • improving the company's image by providing procedures in an interesting and encouraging to read • reduction of the merchants time spent on repetitive actions 	<ul style="list-style-type: none"> • reduction of workload associated with the handling of purchasing processes • full control over the course of the process of selecting suppliers • fast and efficient access to key information of the purchasing process
NON-FUNCTIONAL concerning user interface	<ul style="list-style-type: none"> • simple solutions • common user name and password for all suppliers 	<ul style="list-style-type: none"> • individual login and password for different suppliers and buyers • ability to change the platform language into English
NON-FUNCTIONAL concerning graphical user interface	<ul style="list-style-type: none"> • unified graphics and composition, referring to an existing company's Web site 	<ul style="list-style-type: none"> • maintaining the way of graphic presentation of the first version of the platform • split into modules platforms: Selecting Suppliers, Agreements Management, Starting of cooperation, Assessment of cooperation
INTEGRATION with other systems	no requirements	integration of additional platform modules with the company's system ERP - supplier base and transaction history
INTEGRATION with other applications	integration of platform with the company's web site	integration of platform with the company's web site, scanning application and e-mail

Table 2 shows the general specification of the requirements for the electronic platform. Due to the requirements, prioritization requirements were specified separately for the first version of the platform and the second, which will be implemented if the company achieve the expected benefits from the implementation of the basic version and then decide to expand the platform with additional modules.

With the introduction of the basic version of the electronic platform buyers will be able to save time sending documents to their suppliers for their general information, such as regulations relating to cooperation and responding to their questions and concerns about the process of selecting and evaluating suppliers. In addition, the purchasing manager expressed a desire to improve the image of the company with the help of a platform and focus on the unmeasured terms of the transaction, such as building long-term beneficial relationships with business contractors while promoting responsible and ethical actions in business. Further development of the platform, in turn, will provide solutions which will improve buyers' daily work, making their collaboration with suppliers easier and providing summary reports about the effectiveness of their work.

2.6. The benefits of the platform

The basic functionality of the platform is primarily to facilitate cooperation between buyers and suppliers. Purchasing Department staff will not have to send the documents to the supplier by e-mail, because they will be placed on the platform.

Advantages for suppliers:

- Full information about the qualification and assessment of suppliers varied by graphics,
- Paying much attention to supplier (other companies apply more advanced solutions such as commerce platforms; however, they do not apply at the same time purchases marketing – such platforms are more functional, but less friendly to the supplier),
- Availability of the latest version of the documents in one place (as opposed to a situation where the supplier is looking for existing procedures in e-mails),
- Fast and secure access to general information for the supplier,
- A shortening of the processing of cases and documents,
- Integration platform with the website of the company (the unified artwork and composition).

A platform for suppliers proposed by the authors is a collection of general information which suppliers of firm Alfa are required to read. Application of online marketing techniques aims to present procedures and processes in an interesting way and encourages suppliers to familiarize themselves with this information, as a result increasing the effectiveness of the company's cooperation with its partners and improving its brand image.

3. CONCLUSION

The article presents the process of creating an electronic platform concept. This platform's extended functionality supports the operational activities of the Purchasing Department in the chosen company to build the company's image through the platform. The decision to leave the proposal to create a platform comprehensively responding to the needs of users was made after the analysis of user requirements. This analysis was made in several steps. In the beginning stakeholders of the project were specified. It was found that the company's management most wants to build the company's image through the platform and the efficiency of the merchants. The Purchasing Department staff, as users of the platform, attach special attention to the simplicity of solutions in order to achieve its rapid implementation, and treat the same platform as the basis of information that they might share with suppliers. They also require from suppliers to familiarize themselves with the posted rules of cooperation.

The identification of user needs followed and involved conducting two series of semi-structured interviews, analysis of business documentation and observation of one working day of buyers connected with a discussion about the performance of their tasks. It was noted that the current flow of documents between buyers and suppliers has many shortcomings, such as frequent delays, reduced frequency of transmitted data, a large amount of time and work necessary for the preparation and dispatch of documents in paper form or via e-mail, which reduced the effectiveness of the whole supply chain.

The analysis takes into account the priorities of the requirements of the different needs of users. It has been discussed that the reduction of prices is not the most important thing for the company, because in this way, instead of producing savings for the company, it could increase logistics costs and reduce the quality of the purchased items. Interviews with staff revealed that the electronic platform is not expected to be highly functional for fear of difficulties in its implementation. All staff agreed that in the beginning the platform would serve as a foundation for the provider's information, clearly setting out the rules for co-operation with partners of the company. Its further development towards a more functional solution is desirable in the management of contracts and information technology support in the process of selection and evaluation of suppliers.

The specification of requirements was created, which takes into account both the functional requirements concerning the service of the platform and the effects of purchase and non-functional requirements related to the graphical user interface. It was established also the degree of platform integration with other systems and applications used in the firm Alfa. Requirements specification was created with the division on the platform versions that depend on the stage of its development. The first version uses the purchases marketing focusing on the presentation of information common to all suppliers in a clear and inviting way to look at, while

the second version is more functional and supports the complex process of selection and evaluation of suppliers and contract management.

With the introduction of the basic electronic platform for suppliers the buyers will be able to save time on sending suppliers documents. Overall messages can be communicated, such as regulations relating to cooperation and responding to questions and concerns about the process of selecting and evaluating suppliers. Moreover, the platform will positively affect the perception of the whole company by its suppliers, since it is a solution specially dedicated to them. The first version of the platform, therefore, focuses on immeasurable conditions of the transaction implementation, for example the building of long-term beneficial relationships with business partners and promoting responsible and ethical actions in business. Further development of the platform, in turn, will provide solutions improving work of buyers, enabling them to work with suppliers and providing summary reports on the effectiveness of their work.

The simplicity of the solution is an advantage of the platform. It simultaneously meets all the requirements of users in relation to the basic version of the platform. Platform interface is based on the web page, which further simplifies the implementation of the solution and maintenance. Its development is possible in the future, adding other language versions of the platform and adapting it to the needs of individual suppliers and buyers. The main threat for the success of the electronic platform is the lack of interest on the part of suppliers, resulting in non-compliance due to ignorance of its principles.

It should also be remembered that the application of newer and newer information solutions, especially in the conduct of procurement processes, may result in minimizing direct contacts with suppliers in the longer term, which is not a desirable situation. When deciding on the development of electronic tools that communicate with contractors, the company Alfa has in mind reducing direct contact and therefore is very cautious about the idea of platform development and the implementation of solutions that are more advanced in terms of information technology.

REFERENCES

- Bevan N. & Maguire M., (2002), *User requirements analysis. A review of supporting methods*, Kluwer Academic Publishers.
- Carter C., (2007), *The Impact of Electronic Reverse Auction on Supplier Performance: The Mediating Role of Relationship Variables*, *Journal of Supply Chain Management*.
- Freeman R.E., (1984), *Strategic management: A stakeholders approach*, Pitman, Boston.
- Grzybowska K., (2011), *Strategie zakupowe*, Wydawnictwo Politechniki Poznańskiej, Poznań.
- Kardasz H., (2008), *Rola zakupów i jej wpływ na praktyki biznesowe (1)*, *Gospodarka Materiałowa i Logistyka*, No. 7, pp. 2-10.
- Kim J. & Shunk D. L., (2004), *Matching indirect procurement process with different B2B e-procurement systems*, *Computers in Industry* 53, pp. 153–164.

- Presuti W. D., (2003), Supply management and e-procurement: creating value added in the supply chain, *Industrial Marketing Management* 32, pp. 219–226.
- Roberts B. & Mackay M., (1998), IT supporting supplier relationships: The role of electronic commerce, *European Journal of Purchasing & Supply Management* 4, pp. 175-184.
- Sheth J. N., Sharma A. & Iyer G. R., (2009), Why integrating purchasing with marketing is both inevitable and beneficial, *Industrial Marketing Management* 38, pp. 865–871.
- Sobczak P., (2009), Elektroniczne aukcje zakupowe, *Gospodark Materiałowa i Logistyka*, No. 2, pp. 10-21.
- The new face of purchasing, (2005), An Economist Intelligence Unit white paper.
- Waśkowski Z., (2004), Zastosowanie marketingu zakupów w przedsiębiorstwie, Wydawnictwo Akademii Ekonomicznej, Poznań

BIOGRAPHICAL NOTES

Lukasz Hadaś is a lecturer of the Faculty of Engineering Management of Poznan University of Technology. Specializes in logistics and procurement and production organization and shop floor control of production processes. Author of about 80 scientific publications in this thematic area (in national and foreign journals). Their relationships with business practice as a consultant building projects reorganization of production systems in the creation of dedicated solutions including hybrid MRP / TOC, MRP / JIT.

Marta Jakowczyk has been a PhD student at the School of Mechanical, Aerospace and Civil Engineering and a member of Centre for Doctoral Training at the University of Manchester, United Kingdom since 2012. She examines obstacles to manufacturers' participation in reverse logistics activities and marketing issues of remanufactured products. Prior to coming to Manchester she graduated with a First Class Honours MSc degree in Logistics from Poznan University of Technology. A concept of e-procurement solution described in this paper was a focus of her Master's dissertation.

