Bartosz Wachnik
Politechnika Warszawska
e-mail: bartek@wachnik.eu

IT RE-IMPLEMENTATION PROJECT.
A MULTIPLE CASE STUDY ANALYSIS

INFORMATYCZNE PROJEKTY
REIMPLEMENTACYJNE.
ANALIZA STUDIÓW PRZYPADKÓW

Summary: A high number of IT implementation projects still end in failure or only partial success. Some IT projects, however, are terminated already during project completion due to unsatisfactory progress of work or other organisational problems affecting the project. Particularly noteworthy are re-implementation projects, where an MIS is implemented again. The aim of this article is to present a characteristic of a re-implementation-type IT project consisting in an MIS-class system implementation. The author presents the results of his research conducted with the multiple case study method. The conclusions may be interesting both for practitioners and theoreticians of business informatics specialising in IT project completion.

Keywords: MIS, re-implementation, IT, project.

Streszczenie: Obecnie nadal wysoki odsetek projektów informtycznych kończy się porażką całkowitą lub częściową. Jednak niektóre projekty są przerywane już w trakcie ich realizacji, głównie z powodu braku satysfakcjonujących postępów w pracach. Według autora na szczególną uwagę zasługują projekty reimplementacyjne. Celem niniejszego artykułu jest przedstawienie charakterystyki projektów reimplementacyjnych wśród informatycznych przedsięwzięć wdrożeniowych polegających na implementacji systemów wspierających zarządzanie, tj.: ERP, DMS, CRM. Autor przedstawia rezultaty badań wykorzystujących metodę studiów przypadków dotyczących projektów reimplementacyjnych. Konkluzje mogą być interesujące zarówno dla praktyków gospodarczych, jak również dla teoretyków informatyki ekonomicznej.

Słowa kluczowe: MIS, reimplementacja, IT, projekt.

1. Introduction

According to J. Lee [Lee, Miranda, Kim 2004], IT outsourcing means managing a company's IT infrastructure through administration mechanisms performed in cooperation with external organisations. Both in Poland and internationally, a particularly interesting area of IT outsourcing is the purchase of implementation services as part of the completion of IT projects consisting in Management Information System implementations. The author's research has shown that IT outsourcing linked directly to the implementation of management information systems, i.e. ERP, BI, CRM and DMS was used in 78% of Polish enterprises, while the remaining 22% completed these types of projects themselves. Particularly interesting are IT projects and their completion based on outsourcing as seen from the perspective of their success rate. According to the results of research on IT projects[1] completed in Poland, conducted by the author between 2010 and 2014, presented in Table 1, the average success rate is 61%, which means that on average 39% of IT projects end in complete or partial failure. It is noteworthy that the average rate of complete failure was only 19%. In-depth research conducted by the author showed that the average success rate for projects completed in enterprises with foreign capital equalled 62%, while in domestic capital enterprises – 38%. Therefore, there are more successfully completed projects in foreign-capital companies. It is also interesting that a higher percentage of implementation projects ending in complete failure could be noted in foreign companies (64%) than in Polish companies (36%). The reverse situation occurs in projects ending in partial failure – a higher percentage is noted in Polish-capital companies (71%) than in foreign-capital companies (29%).

Table 1. Success rate distribution in IT project completion (in %)

IT projects	2010	2011	2012	2013	2014
Successful projects (completed on budget, on time, all the required functionalities implemented)	56%	59%	63%	64%	64%
Projects ending in failure (terminated and never completed)	21%	19%	22%	17%	16%
Problematic projects (completed late, exceeding the budget, not all the required functionalities implemented)	23%	22%	15%	19%	20%

Source: own study.

---

[1] The study covered 450 IT projects completed between 2010 and 2014 in 425 companies located in the Mazowsze, Wielkopolska and Małopolska regions, as well as Lower and Upper Silesia, which in this period completed MIS implementations. The companies participating in the study met the following criteria: number of employees – from 80 to 1000, own IT department, minimal income – 40 mln PLN. An average project budget covering only the services equalled 478 000 PLN. The analysed projects included ERP, CRM, BI and DMS implementations.

The author's research shows that on average, 39% of IT projects ended in complete or partial failure. We need to assume that there is a group of project clients who would nevertheless like to complete and benefit from their MIS investments. In this article, the author would like to present a characteristic of an IT implementation project of re-implementation, and indicate important factors affecting its success.

2. Re-implementation project characteristic

According to P. Lech, an MIS project is the sum of actions, resources and connections between them, aimed at solving an economic problem using the tools of IT technology [Lech 2007]. Analysing management support software systems, we can distinguish between two types of MIS projects [Czarnacka-Chrobot 2009]:

1. IT implementation project.

In this case, the client implements an IT system based on ready-made management application software.

2. IT construction project.

In this case the client builds a MIS from scratch.

Considering the need to analyse MIS projects, the author of this article would like to focus on IT implementation projects. Following criteria such as client's project needs, goals completed as part of the project and the method of project completion, the author has identified[2] five types of IT implementation projects consisting in the implementation of ERP, CRM, DMS and BI-class systems, completed based on the outsourcing strategy:

1. Implementation of a vertical solution – add-on.
2. Standard IT system implementation.
3. IT system upgrade.
4. Roll-out type implementation.
5. Re-implementation of an IT system.

In this article, the author would like to present the characteristic of IT implementation projects consisting in a re-implementation of ERP, CRM and DMS-class systems, and indicate important success factors in this type of project. In a re-implementation project the main project need is to launch an MIS system as soon as possible despite the earlier termination of the project, in order to achieve direct or indirect economic benefits from the investment. The main goal is the completion

---

[2] The study was conducted between 2011 and 2012 in companies based in the region of Mazowsze, which implemented ERP, BI, CRM and DMS system implementation projects in this period. The companies classified for the study met the following criteria: between 80 and 100 employees, own IT department, minimum income – 40mln PLN. The companies included enterprises with Polish and foreign capital, with a wide autonomy in their IT strategy. The study combined two research methods in the following manner: method 1 – conducting questionnaires among 290 enterprises which completed 380 IT projects between 2011 and 2012; method 2 – after completing the questionnaires, the author conducted analytical workshops with selected respondents.

of an IT project which will facilitate the functioning of business processes in the company.

The completion of an IT re-implementation project is characterised by the client's strong determination to minimise the total ensuing costs due to the extremely negative experience linked to the earlier high expenditure in a project that was terminated. In order to better understand the completion of a re-implementation-type IT project we need to consider the following sequence:

1. Preparatory stage aimed at identifying client's system requirements. At this stage, the client selects an IT system and a supplier on the basis of the collected information.

2. Original project stage. At this stage, the client and the supplier complete an IT implementation project. In a moment of gridlock, one of the sides terminates the project.

3. Auditing stage. At this stage, the client tries to identify the reasons of project termination and to obtain recommendations for a re-implementation.

4. Re-implementation project stage. At this stage, the new supplier completes an IT implementation project according to the audit recommendations.

5. System usage stage. At this stage, the client uses the implemented system, and the services provided by the supplier are based on the SLA agreement.
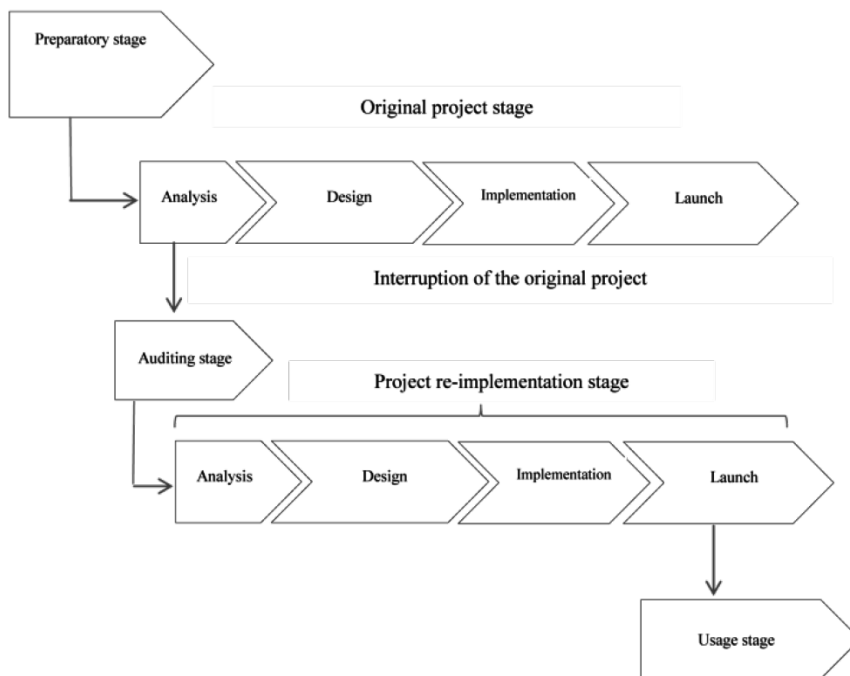
Figure 1. Sequence of stages and projects

Source: own study.

We need to stress that the original project may be terminated at any stage, which depends on the escalation of problems arising in the cooperation between the supplier and the client. Figure 1 presents the sequence of the individual stages.

3. Research methodology

The author decided to use the case study as a research method. It is a universal description of the studied phenomenon, applying to any scientific discipline. In the case of management science, the case study is a detailed description, usually of a real-life economic phenomenon, e.g. organisation of management process, its elements and organisation elements, in order to formulate conclusions concerning the reasons and results of its course. On the basis of the collected information, the case study method allows to carry out an in-depth analysis of the studied problem, and to present its characteristic and interactions with other elements of the organisation or its environment [Kostera (ed.) 2011]. The author sets two main research goals [Yin 1984]. The first goal, aimed at theory creation, is to explain the real-life phenomenon of MIS reimplementation in economic entities. This goal facilitates developing the theory and explaining the studied phenomenon to a limited extent. It should be noted that access to data and knowledge describing the phenomenon of re-implementation is very limited due to the small number of this type of IT projects and the unwillingness on the part of the decision-makers to freely share the information concerning these types of phenomena. The second goal is of a practical and training character. It is aimed at understanding the course of the decision-making process in the organisation during the completion of an IT project. As part of the multiple case study analysis, the author poses the following research question: What important organisational conditions occur in IT re-implementation projects completed through outsourcing?

The research subjects were three IT re-implementation projects completed through outsourcing in companies from the food, service and production industry. Each company started an MIS implementation and then terminated it during the completion. The company management decided to reinitiate the project, however with a different supplier, with whom they discussed and adapted a suitable implementation method. The case study analyses the success factors in re-implementation projects completed through outsourcing. The study was completed by the author through direct interviews [Maxwell 2005]. It was partly based on a structured interview script [Nikodemska-Wołowik 2008] prepared on the basis of literature analysis and pilot analytical workshops with the company owners. Importantly, using this method of data collection allowed to obtain complete answers to the questions and had a positive impact on their quality.

4. Research results and their interpretation

Analysing the case studies, the author can conclude that there is a crucial moment during the completion of the original project when, both from the supplier's and client's point of view, it is more viable to terminate the implementation than to continue. This results from the fact that, as the project work progresses, the accumulated implementation expenditure continues to increase, while the value of planned future profits remains the same and does not increase.

From the client's perspective, we can discern the following groups of costs that they will have to face if the original project implementation is terminated, including the costs the client will have to bear should they wish to complete an audit and a re-implementation project:

- transaction costs[3] linked to the completion of a preparatory stage and the completion of the original project;
- costs linked to the software licence agreement and implementation services purchase as part of the original project;
- costs of lost profits linked to the use of an IT system;
- client's internal costs linked to engaging employees in the completion of the project;
- costs linked to completing an audit of the completed part of the project;
- transactions costs linked to the completion of an audit and system re-implementation;
- costs linked to the re-implementation agreement servicing;
- costs linked to re-motivating the client's employees in the project group assigned to work with the new supplier;
- costs linked to the loss of credibility of the project participants on the client's side, so decision-makers responsible for the selection of an IT system, supplier, project managers and key users.

Respondents participating in the study have pointed out that considering the criteria of the above mentioned project costs, the most optimal time to terminate a project is at the end of the functional analysis during the completion of the original project. This is a moment when the client can identify rational evidence for the unsatisfactory level of project organisation and the quality of supplier's services, which in their opinion do not increase the probability of completing the project successfully. Analogically, the supplier is able to define the risks linked to the completion of the original project. In the case of increasing project problems and the

---

[3] According to J.A. Robins [1987], transaction costs linked to an economic exchange change in-dependently from the market prices of the exchanged goods and services. They include costs of search and information, as well as the cost of monitoring and guaranteeing the proper performance of the agreement. These costs are opposed to the production costs, which constitute the basis of analysis in neoclassical economic theories, also that of resources allocation.

lack of rational evidence to solve them, both sides terminate their collaboration on the basis of clauses in the implementation services and licence agreement. This is a time when the party that feels they had sustained serious business losses often tries to collect evidence in order to prepare for a lawsuit. In the analysed cases, the client terminated the completion of the original project in two out of the three cases. In the first case, it took place already at the stage of the functional analysis, the chief reason being the low quality of services provided by the supplier, manifested mostly through an unsatisfactory transfer of knowledge concerning an ERP-class system. In the second case, the original project was terminated after the completion of the functional analysis. During the handover of the functional analysis documents, the client identified that the system functionalities were wrongly adjusted to their business and technological requirements as a result of which part of the functional requirements could not be implemented or the way it was designed during the functional analysis was not acceptable. In this case, the client stated that the supplier could not design and recommend solutions in IT systems that would facilitate business processes. In the third case, the project was terminated after the completion of the functional analysis. The main reason was wrongly estimating the implementation budget at the preparatory stage that did not provide for an important part of configurations linked to the client's functional requirements, which had not been presented to the supplier by the client at the preparatory stage when the supplier was collecting information necessary to estimate the workload. In this situation, the functional analysis indentified the need to configure systems exceeding the agreement at the preparatory stage, while the clauses of the original agreement did not define precisely the scope. Hence, the supplier was concerned that they would be forced to complete work that had not been priced and included in the implementation agreement. Thus, the project may not have been viable for the supplier. At all the three stages, the client decided to carry out audits, which were completed by carefully chosen companies specialising in the implementation of the specific systems purchased by the clients. The audits were aimed at:

1. Identifying the problems in the IT implementation project which led to the termination of the projects, and their causes.

2. Designing recommendations for the completion of a re-implementation project.

3. Optionally, designing documentation required in a lawsuit against the original supplier.

None of the companies decided to file a lawsuit, quoting a lack of sufficient and clear documentation proving the other party's wrongdoing. After completing the audit, the clients decided to choose a different supplier of implementation services, in all three cases with a different company than the one responsible for the audit. During in-depth analytical workshops, all the clients stated that very few companies implementing MIS specialise in re-implementation projects and develop certain business practice, based on their experience, and exceeding that of other companies.

There are no data bases concerning the characteristics of IT re-implementation projects. The knowledge concerning re-implementation projects is unique, as reflected by the higher rates for consultants who completed this type of project. The period between project termination and the beginning of a re-implementation in respective projects spanned 6, 9 and 12 months, in which period an audit was carried out and a new supplier was chosen to provide re-implementation services. The re-implementation of ERP, DMS and BI systems was completed based on the Agile Methodology. The respondents who chose the Agile Methodology supported their choice with the following arguments:

1. The division of the project's functional scope into sub-projects, so-called sprints. The client obtained information from the audit that they were not able to define all the functional requirements for the system *a priori*. The client stated that completing each sprint will allow them to better prepare for the next sprint. Additionally, the client assumed that their organisation may not be able to absorb knowledge about the big functional scope of the implemented system in a short period of time, hence the functional scope should be divided into subprojects.

2. During the audit the client concluded that the organisation that they manage was not prepared for highly dynamic changes within the project concerning the functional scope, project organisation and multiple tasks being managed by the employees simultaneously. The company management decided that, following this diagnosis, it is much better to complete the project according to the Agile Methodology.

3. The client's intention was to minimise the risk linked to a wrongly chosen supplier of implementation services, hence they did not sign an agreement to complete a project including a whole big functionality, i.e. combined sprints, and consequently an agreement covering a big budget. The client decided to divide the functionalities into subprojects, i.e. sprints, that would be accounted for on the basis of smaller budgets. The respondents indicated that they wanted to minimise [Kataja, Tuunanen 2006] information asymmetry between the client and the supplier who would complete the project of re-implementation [Wachnik 2015].

Table 2 presents and prioritises success factors in an IT implementation project of an ERP, DMS or BI system re-implementation.

It is noteworthy that all the researched companies were aware of their imperfections in the completion of the original project. The respondents indicated *ex post* that an important factor contributing to the success of a re-implementation project was completing a high quality audit aimed at identifying and analysing the causes of terminating the original project, even if the causes were linked to the client's internal organisational problems. On the basis of the analyses, the respondents could better understand the causes of failure and be better prepared for a re-implementation through re-defining project assumptions, e.g. by changing the project completion method from Waterfall to Agile, which took place in all the studied enterprises. Another important success factor was mobilising the members of the project group, who after the failure were not willing to start a re-implementation

project in a short time. All the respondents indicated that the biggest difficulty they faced was rebuilding the trust in the project group, both towards the implemented system and the supplier.

Table 2. Research results

Structured answers for respective companies			
	Company A	Company B	Company C
1	2	3	4
Company profile	Food industry	Service industry	Production company
Implemented system	ERP	DMS	CRM
Number of employees	100-120	200-240	150-190
Study timescale	3 years after the re-implementation	4 years after the re-implementation	2 years after the re-implementation
Main phases of the original project	Analysis, design, implementation, launch.	Analysis, design, implementation, launch.	Analysis, design, implementation, launch.
Initiator of the project termination	Client	Client	Supplier
Phases where the project was terminated	Analysis	Analysis	Analysis
Identified causes of project termination from the client perspective	Low level of services provided by the supplier.	Mistakes in adjusting system functionalities to the business and technological requirements of the client, resulting in a part of functional requirements not being implemented or being designed in an unsatisfactory manner during the functional analysis.	Mistakes in designing the implementation budget at the preparatory stage, not including an important part of project tasks resulting from the client's functional requirements which had not been voiced by the client at the first stage when the supplier was collecting information necessary to evaluate the workload.
Period between project termination and the beginning of the re-implementation	6 months	9 months	1 year
Main phases of re-implementation	Audit, analysis, design, implementation, launch.	Audit, analysis, design, implementation, launch.	Audit, analysis, design, implementation, launch.
Re-implementation method	Agile	Agile	Agile

Table 2, cont.

1	2	3	4
Success factors in the re-implementation project	1. New mobilisation of the client project group. 2. Rebuilding the atmosphere of trust for the system and the new supplier in client's project group. 3. Reduction of information asymmetry between the supplier and the client. 4. Following audit recommendations during the re-implementation. 5. Choosing an experienced supplier.	1. Identifying and analysing the causes of the project. Termination, even if the causes stemmed from internal organisational problems on the client's side. 2. Redefining important project assumptions, i.e. budget, project timescale, project group and project goals. 3. Rebuilding the atmosphere of trust for the system and the new supplier in the client's project group. 4 Knowledge transfer from the supplier to the client.	1. Identifying and analysing the causes of the project. Termination, even if the causes stemmed from internal organisational problems on the client's side. 2. Completing an implementation audit. 3. Redefining important project assumptions, i.e. budget, project timescale, project group and project goals. 4. Following audit recommendations during the re-implementation. 5. Reduction of information asymmetry between the supplier and the client.

Source: own study.

The respondents indicated that completing a re-implementation constituted one of the biggest managerial challenges in their career, requiring their active involvement in many spheres, i.e. project organisation, project group management, a very detailed understanding of the IT system functionalities and minimising information asymmetry between the supplier and the client in the area of re-implementation.

5. Conclusions

The research problem posed in the article was the question: What important organisational conditions occur in IT re-implementation projects completed through outsourcing? The conducted research allowed the author to form the following answers. First, in all three cases the original project was terminated during or after the completion of the functional analysis. This decision was justified by the supplier

and the client by the fact that while the project phases were progressing after the functional analysis, the accumulated expenditure linked to the implementation kept increasing while the value of results remained constant or even decreased. Second, all the studied enterprises quoted the completion of a high quality audit as an important success factor in a re-implementation project, where the causes of terminating the original project would be identified and the procedures, technologies and re-implementation methods would be recommended. All the respondents from the client's side indicated that they found it extremely difficult to gain knowledge about the completion of this type of audits and re-implementation projects. Third, all the studied companies indicated Agile Methodology, recommended during the audits, as the right method of completing re-implementation projects. Fourth, in each of the three companies in question the clients identified different causes of terminating the project. The common denominator was information asymmetry between the client and the supplier during the implementation of the original project, which manifested itself through the client's selection of a supplier with low competences and a significant difference between the system functionality offered by the supplier during the analysis and the client's expectations [Mohd 2005]. Fifth, the identified success factors in re-implementation type IT projects, grouped into three factors in the studied companies, are:

1. Carefully identifying and analysing the causes of the original project's termination and recommending technologies, procedures and methods for the re-implementation during the audit.

2. Re-defining important project assumptions on the basis of the completed audit, including the budget, project schedule, project group and project goals, thus allowing the client to minimise the potential information asymmetry between the supplier and the client during the re-implementation.

3. Re-mobilising the client's project group before starting a re-implementation project.

4. Re-building the atmosphere of trust in the client's project group towards the implemented system and the second supplier.

The author hopes that the results presented in the article will indicate certain organisational conditions of re-implementation projects and will help popularise knowledge concerning the completion of such projects.

Literature

Czarnacka-Chrobot B., 2009, *Functional Modelling of Management Support Software Development Projects* (in Polish), Warsaw School of Economics, Warszawa.

Kataja A., Tuunanen T., 2006, *Information Systems Development Methods and Reducing Information Asymmetry: a Way to Decrease Project Escalation in Outsourcing?*, Proceedings of the 14th European Conference on Information Systems, Paper 126.

Kostera W. (ed.), 2011, *Organisations in Practice. Case Studies for Students of Management* (in Polish), Poltex, Warszawa.

Lech P., 2007, *Methods of Economic Evaluation in MIS Investment* (in Polish), University of Gdańsk Press, Gdańsk.

Lee J.N., Miranda S.M., Kim Y.M., 2004, *IT outsourcing strategies: Universalistic, contingency, and configurational explanations of success*, Information Systems Research, no. 2, pp. 110-131.

Maxwell J.A., 2005, *Qualitative Research Design: An Interactive Approach*, ed. 2, Sage Publications, Thousand Oaks, CA.

Mohd E., 2005, *Accounting for software development costs and information asymmetry*, The Accounting Review, American Accounting Association, vol. 80, no. 4, pp. 1211-1231.

Nikodemska-Wołowik A.M., 2008, *Key to Understanding the Buyer – Qualitative Marketing Research* (in Polish), Verde, Warszawa.

Robins J.A., 1987, *Organizational economics. Notes on the use of transaction cost theory*, Administration Science Quarterly, no. 1/32.

Wachnik B., 2015, *Reducing information asymmetry in IT projects*, Informatyka Ekonomiczna, Wrocław University of Economics Publishing, Wrocław, pp. 178-212.

Yin R., 1984, *Case Study Research: Design and Methods*, Sage Publications, Thousand Oaks, CA.