Playing Catch Up: How Different is Large Scale Enterprise Systems Implementation in Transition Countries and Organizations?

Piotr Soja,  
Cracow University of Economics, Krakow, Poland  
eisoja@cyf-kr.edu.pl

Marinos Themistocleous  
University of Piraeus, Greece  
mthemist@unipi.gr, marinos@dei.uc.pt

Paulo Rupino Cunha  
University of Coimbra, Portugal  
rupino@dei.uc.pt

Abstract

We investigated the differences in ES implementation in a transition economy when compared to praxis in developed economies. For that purpose, we conducted interviews with practitioners with several years of experience that played various roles in those types of projects in a transition economy, and then contrasted the findings with those of the mainstream literature, mainly based on data from developed economies. We identify similarities and variation in lifecycle phases, activities, and the actors involved in the process. This helps to better understand this phenomenon in a moment when several transition economies are making strides to bring their IT systems to speed in the European Union and other parts of the world.

Keywords: ES, Lifecycle, Key players

1. Introduction

Investment in Information and Communications Technologies (ICT) is a significant factor for corporate, local, and national growth [1]. The recent financial crisis in Greece [2–4] highlights this issue and demonstrates that the absence of an integrated ICT infrastructure in the Greek public administration resulted in many problems such as lack of transparency and control and led to poor productivity and depreciation. The crisis forced the Greek government to take austere measures and make radical changes in an attempt to improve its financials. In February 2010, the Greek government announced a drastic 11.5 billion euro reduction in spending which resulted in massive public reaction[5].

Interestingly, according to the secretary of public reform, it is estimated that, at national level, the adoption of only three Information Systems (IS) - a procurement system, an e-prescribing application, and a system that monitors the fuel prices – would result in 8 billion euro savings per year. This alone represents 70% of the needed cuts!

According to Rogers [6], Greece can thus be characterised as a lager in ICT adoption for public administration, when compared to more developed economies. Consequently, the country must now bridge that chasm in a much narrower time frame than usual. The speed and scale of change may lead the country to follow different implementation practices and lifecycles than those used by more developed countries. This, in turn, may lead to different risks, barriers and success factors. On a smaller scale, similar situations exist in many organisations in transition economies, as they are trying to catch up with international competition and society pressures.

For these reasons it is important to investigate and ascertain whether there are differences during the adoption and implementation lifecycles for large scale IT systems when countries or organisations must catch up at an accelerated pace. According to Roztocki and Weistroffer [1] there are many differences between developed and transition economies in terms of ICT issues such as: (a) ICT diffusion, (b) strategy, (c) planning and design, (d) implementation, (e) services, (f) management, (g) security, (h) economics, (i) users and organisations and (j) sourcing. The normative literature remains limited on this topic and many implementation issues have yet to be assessed, providing scope for timely and novel research.

In this paper we look at a specific kind of large scale IT system – the Enterprise System (ES) – in our effort to study issues related to lifecycles and identify similarities and differences among adopters from transition and developed economies.

The remainder of this paper is organised as follows: in Section 2 we examine the literature on ES lifecycles, which is mainly based on data from developed economies. This will be our baseline for comparison. In Section 2 we also propose our research questions where in Section 3 we report the research methodology for this inquiry. The empirical data we collected is presented in Section 4, followed by its
discussion in Section 5. The paper closes with conclusions.

2. Background theory and research questions

Enterprise Systems are large internally integrated software solutions that have been considered as one of the main constructs for an IT infrastructure [7]. ES are complex application software packages that contain mechanisms supporting the management of the whole enterprise and integrate all areas of its functioning [10]. They evolved from Material Requirements Planning (MRP) and Manufacturing Resource Planning (MRP II) systems. However, they further evolved to include support for front-office and inter-organizational activities including supply chain management, customer resource management, and sales force automation. Implementing an ES system is not an easy task as they are associated with large scale changes. This is often associated with increased risk, resistance to change, and in many cases has led organisations to failure [8, 9] and bankruptcy. The customer company usually defines the selection criteria that are related to its needs. Sample criteria include prestige (e.g. brand name), functionality (i.e. how the ES complies with the company’s criteria), references (i.e. other companies from the same industry adopted the product). Overall, the company’s duty at this stage is to decide what they need and what they want to achieve.

The most common problem in ES implementations is the conflict with the business strategy [10]. When implementing an ES system, organisations have to align their businesses processes and adapt them based on the ES system logic. There are also many cases in which organisations either prefer to adopt a best of breed practice by selecting those ES modules from various ES vendors that fit them best or to customise an ES package based on their business processes [11-13]. Following any of the aforementioned practices (e.g. fit the organisation into the system, best of breed or customisation) is a hard and high risk task. Such a task is associated with organisational decisions at operational, managerial and strategic level. These decisions affect the adoption and implementation lifecycle and it is important to study them as there is a high failure rate [14].

For the purpose of this research we reviewed the normative literature and we focused on well established articles that deal with ES implementation lifecycles, the activities associated with these lifecycles and the actors that are involved. Since the scope of our study is to identify possible differences during ES implementations in transition countries and organisations, we paid attention to Somers and Nelson [15] work. Somers and Nelson [15] investigated one hundred eleven organisations in USA and Canada such as Black and Decker, Boeing, Bell Canada, Compaq, Dell Computers, Hewlett-Packard Co, IBM, Microsoft Corp., Procter and Gamble Co. CBS Corp. etc. In addition, Cooper’s and Zmud [16] article was also taken into consideration for various reasons, one of which is the proposed ES lifecycle stages and its examination of those stages in fifty two companies from the United States of Americas.

The normative literature indicates that many articles examine issues related to ES and report ES implementation lifecycles stages [15-19]. According to Cooper and in activities [16], the main stages of the lifecycle include: initiation, adoption, adaptation, acceptance, routinization and infusion. Soh and Markus [17] approach this area from a different perspective and suggest that a lifecycle includes stages such as: (a) IT expenditure, (b) IT assets and (c) organisational impacts like IT impacts and organisational performance. Kumar et al. (2003), study these stages and imply that IT expenditure refers to adoption, IT assets to implementation and organisational impacts to post-implementation stages of an ES implementation lifecycle. Later on Markus and Tanis [17] took into consideration Soh and Markus [18] work and propose a new lifecycle that consists of: (a) project chartering, (b) project configuration, (c) shake-down, (d) onwards and upwards stages. The study published by Somers and Nelson [15] is based on the work of Cooper and Zmud [16] and Markus and Tanis [17]. Initially Somers and Nelson [15] adopt the lifecycle proposed by Cooper and Zmud [16] to study the ES adoption. Then, they use the framework proposed by Markus and Tanis [17] to analyse typical activities and key players of ES implementations.

Our work is based on the Somers and Nelson [15] approach and seeks to study issues related to ES lifecycles and identify similarities and differences among ES adopters from transition and developed economies. In doing so, the research focuses on identifying: (a) lifecycle phases, (b) key activities and (c) key players. In an attempt to investigate these issues the following research questions are proposed:
Research Question 1: What are the main ES lifecycle phases used by organizations from transition economies?

Research Question 2: What are the key players involved in an ES project?

Research Question 2a: In which phases of the lifecycle do these key players participate?

Research Question 3: What are the key activities taking place during an ES project?

Research Question 3a: What is the relation between the key activities and the lifecycle phases?

The empirical data of this research are presented in section 4 and are compared and analysed in section 5. Somers’ and Nelson [15] findings are used in our research as key measurements and thus, are summarized below:

1. Lifecycle phases: Initiation, Adoption, Adaptation, Acceptance, Routinization and Infusion.

2. Key Activities: User training and education, Management of expectations, Careful selection of the appropriate package, Project management, Customization, Data analysis and conversion, business process reengineering, Defining the architecture, Establishing resources, Change management, Establishing clear goals and objectives, Education on new business processes, Interdepartmental communication, Interdepartmental cooperation.


3. Methodology

Due to the exploratory nature of our inquiry we used structured interviews to elicit empirical data from the field, covering a diverse sample of industries, project sizes, Enterprise System brands, and roles played in the projects. Detailed information is provided in Table 1.

The interview script addressed several issues identified as relevant in a previous literature review – such as lifecycle phases, key activities, key players, motivations, barriers, and critical success factors – although specific terminology was not used to avoid influencing the respondent. Clarifications regarding the various concepts used by the respondents were sought during the conversation, so that later these descriptions could be examined and matched to the more standard designations used in the other sections of this paper.

Table 1 - Detail of respondents' diverse backgrounds

<table>
<thead>
<tr>
<th>Position in current company</th>
<th># of conducted ES projects</th>
<th>ES name(s)</th>
<th>Work experience in years: overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Director</td>
<td>2 large and 15 small projects</td>
<td>Hurt, Digitland Enterprise</td>
<td>18 (10)</td>
</tr>
<tr>
<td>Managing Consultant</td>
<td>30</td>
<td>Max for Windows, e by Epicor, Genesis, Back Office</td>
<td>14 (14)</td>
</tr>
<tr>
<td>Senior Consultant</td>
<td>20</td>
<td>Max for Windows, IFS Applications</td>
<td>15 (15)</td>
</tr>
<tr>
<td>Specialist</td>
<td>1</td>
<td>Digitland Enterprise</td>
<td>8 (1)</td>
</tr>
</tbody>
</table>

The personal interviews were conducted by one of the authors over a period of one year. Each session lasted from 1 to 3.5 hours, was audio taped, and later transcribed into digital data for analysis. For the interviews a structured interview agenda was employed in order to support and lead the discussion.

4. Empirical data

In the following paragraphs the empirical data collected from the aforementioned interviewees are presented and analysed.

ES Adoption phases

The respondents reported various stages of the ES lifecycle, which have various names, scope and granularity. In order to ease their presentation, the phases were mapped onto the framework defined by Cooper and Zmud [16], who proposed the six-stage model of IT implementation consisting of initiation, adoption, adaptation, acceptance, routinization, and infusion. Table 2 contains the actual phases declared by the respondents mapped onto the six-stage framework. The following section describes in detail the understanding of each stage.

- **Initiation** is the phase where a company has justifies the need for adopting an ES system, choose the actual enterprise system, and define business needs and goals. According to the respondents this stage is perceived as a general pre-implementation phase which is in accordance with the practices followed by organizations in developed economies. Among others, in this
companies are looking around for appropriate system solutions. In doing so they may ‘spy’ on the competition in order to reveal why rival companies achieve greater success. They may also check the solutions adopted by friendly companies from different industries. The company has to justify the decision about ES adoption and it has to answer to questions such as: why is it important to adopt an ES? do we need a new system and why? The customer company usually defines the selection criteria which are related to their needs. Sample criteria include prestige (for instance brand name, e.g. SAP), functionality (i.e. how the ES complies with the company’s criteria), references (i.e. other companies from the same industry adopted the product). Overall, the company’s duty at this stage is to decide what they need and what they want to achieve.

Table 2 Phases declared by the interviewees mapped onto Cooper & Zmud’s (1990) framework

<table>
<thead>
<tr>
<th>Six-stage framework [17]</th>
<th>Phases declared by the interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation</td>
<td>choice; planning; system need; system choice; pre-implementation</td>
</tr>
<tr>
<td>Adoption</td>
<td>analysis; designing; project definition/activation; solution design; pre-implementation</td>
</tr>
<tr>
<td>Adaptation</td>
<td>implementation; tests; getting ready to start</td>
</tr>
<tr>
<td>Acceptance</td>
<td>implementation; start</td>
</tr>
<tr>
<td>Routinization</td>
<td>authorship overseeing; stabilization; service; post-implementation</td>
</tr>
<tr>
<td>Infusion</td>
<td>independence; post-implementation</td>
</tr>
<tr>
<td>Decline</td>
<td></td>
</tr>
</tbody>
</table>

- **Adoption** stage covers phases devoted to the creation of the model/design and the definition of the project. Interviewees reported that companies perform an analysis to create the design of the solution, which is sometimes called “the model”. The design/model defines the assumptions about the project. Also during this phase the project is activated. At this stage it is important to escape from underestimation and bad time management. It is important to define a plan and follow it carefully. The vital issue is the selection of the project participants in order to ensure that the project is of high priority for the company. Overall, the issue at this stage is how the company will look like when the system will be implemented. The relationship between the client and the provider generally begins at this stage and both companies start getting know each other.

- **Adaptation** stage, is about translating the solution design into reality. It is often called a main implementation stage. During this stage the company is getting ready to the new system’s start. The firm prepares, customizes and installs the system. Also, the company has to prepare data and user manuals which map ES system screens with business processes. The installed ES system has to undergo various tests to verify its reliability.

- **Acceptance** stage involves first and foremost activities related to the system going live. Interviewees considered this stage as part of the implementation phase. During this stage the new system roll out is being performed in the whole company. The final system design/prototype is ready, all organizational procedures are ready, the number of user is growing. The new system is being operated on a daily basis in the whole company, it is the only system used in the company or at least the leading one.

- **Routinization** stage covers phases taking place just after system start and can be treated as part of the post-implementation period. These phases bear various names such as authorship overseeing, incubator, stabilization, and service. During this period the company is using the new system under the supervision of the system/implementation services provider. This stage is a kind of combination of maintenance and Service Level Agreement (SLA). This phase is very important today. In the past, companies did not include SLA in a contract but now they have to have this phase in their lifecycle. For instance, it is possible to change a process or scope etc or there is a need for Business Process Reengineering (BPR) or a new small project. So with this phase all these possible cases are covered by participants (provider, client etc).

- **Infusion** stage is the post-implementation period when the company experiences the full potential of the system operation. During this phase the company becomes independent of the system/implementation services provider. This stage was figuratively named by one respondent as “the golden age”. However, it should be noted that only one respondent indicated clearly the presence of this stage and another generally pointed out the presence of post-implementation stage. Two remaining experts did not include this phase in ES lifecycle description.

- **Decline** – interestingly, one respondent clearly separated the stage of the system decline, which
seems not to fall in the Cooper and Zmud’s framework. During this stage the ES system ends its operation within the company. The system and its provider fall behind the customer’s (and sometimes market’s) needs. The client company starts looking for the new system/provider.

Activities

The respondent declared various activities taking place during ES adoption projects. Usually, these activities occurred chronologically along the project phases. However, sometimes these activities appeared in several phases. The following section describes the activities declared by the respondents. Also, Table 3 illustrates how activities occur over the enterprise system lifecycle. In doing so, it divides the occurrence into low, medium and high.

- **Needs definition:** As stated by the interviewees, the client company has to describe what it wants to achieve, which is often later included in the contract. The contract is a very hard issue nowadays. In the past we had to force the client to define its goals. Nowadays it is different.

- **Market analysis:** The company performs the analysis of ES market. This include the analysis of competition or friendly companies operating similar processes as regards their ES systems employed. It may include systems presentations and so called reference visits e.g. how many other companies installed the particular investigated ES system. The potential client visits other companies that have installed the same system and collect their comments and views about this system.

- **System choice:** The company creates a short list of tenders and performs careful analysis of selected systems and providers. During the system/provider presentations it is advised to have a problem solving attitude, i.e. a potential client describes his most important problems and the provider is preparing the simulations of a solution to the problem. This approach is very beneficial in case of further cooperation. As far as actual decision is concerned, the companies use different criteria like needs analysis, references or prestige.

- **Negotiations:** Both sites (client and provider) are agreeing on the project scope, deadlines, conditions, warranty and speed of operation (i.e. what, when, and for how much). The contracts generally rely on functional requirements and the provider tries to define what a client will receive with a given money. It is interesting to note that during this activity the client’s past bad experience with ES adoptions is of great importance. The client tends to concentrate on this during new contract negotiations. Another vital issue is connected with terminology used in contracts which is not yet mature. An example is the word “material” in SAP where material includes everything including a finished good. But in reality material means something else (e.g. the resources we use to produce a product or a component of a product).

- **Contract signing:** It is the last activity and the outcome of negotiations. The contract is on the system and its implementation, it has attachments. These may include that design/model (which is created beforehand in one approach) and a service contract (SLA). Overall, service becomes a regular product.

- **Analysis:** The analysis is being performed at client’s premises by the system provider and the client together. The purpose of the analysis is to create the project design. This activity is linked with trainings. During the analysis, the client learns the system which is beneficial during implementation phase when trainings are much easier. Also, the suggested solution is to have a short preliminary analysis and then a training.

- **Solution design:** This activity is the end of the analysis. The final solution design is completed and signed by both parties, it may include the list of changes in the system and the company’s organization. It is a kind of an agreed upon compromise. The solution design contains description of the way how to realize business requirements. It may also include the technical project, i.e. the information on what is installed, where and how to maintain it. The suggested approach is to use cycles in terms of design. Start from an abstract solution and then break it down into more detail solution. The perfect approach is based on 2 cycles. Discipline is crucial in this process.

- **Schedule definition:** The project schedule is created which defines the project and includes activities, milestones and resource allocations. The project management starts. This activity includes teams completion, i.e. choosing right people to be involved in the project. This is a crucial task and the advised strategy is to involve more senior people (i.e. having power but not having much time) in the beginning of the project and then employ the junior or the employees with lower seniority (who have time but no decision power).

- **Trainings:** As stated by one respondent, “the trainings’ goal is to make sure that the people will not
be surprised during the system start”. This activity may occur during several phases and may involve various people, i.e. project team or system users. It has to be hands on training and should be conducted using clients’ data. It is advised to assess trainees and to assure their attendance. The trainees should run the whole process and attend the whole training program. In general, all the people who will use the system should be trained, if there are many people trainings are organized in groups/parallel in order to decrease costs and better use the training facilities. The people may have postulates during the trainings which may result in further system design’s remodeling.

- **Data preparation**: The purpose of this activity is to create an opening balance of the system, both system and data should be prepared for the system rollout. Database dictionaries have to be prepared, a client has to perform the stocktaking in order to have correct data in the new system. Data preparation is sometimes on critical path and it can ruin the whole project. The client often does not know what he has to do. He does not realize how much data he has to put in. This is time consuming and the crucial thing here is to measure partial progress. Data migration is part of data preparation. In the best case the client should do it by itself. This activity may also include the preparation of the user manuals and work procedures. This should be prepared by the client employees since it is much cheaper and by doing this the client will understand how the system works.

- **Customization**: This activity encompasses the detailed designing of the system. Apart from the regular system configuration, it is often needed to change the system, i.e. perform its customization. During this activity the editing of the documents and reports should take place. In the best case the reports are prepared by the client; however, different solutions may happen (e.g. both parties work together to prepare the reports).

- **Ensuring infrastructure**: This activity involves the provision of all the equipment necessary for trainings and implementation. Appropriate servers, network connections, computers etc. have to be provided. Also, a training room(s) should be organized and other facilities (e.g. project portal).

- **Installation**: This activity involves the system installation in the client’s premises. This may also be connected with some system customization.

- **Testing**: This activity is connected with the verification of the system solution. The tests may be partial or complete, i.e. verifying the whole solution and all processes. Partial testing is necessary when changes to the system are introduced. As for the complete verification of the system, it can be a parallel work; however, it is not advised since the emphasis is on the large number of the same transactions. Instead, the pilot approach is better, where a larger group of data is tested throughout the processes based on an end-to-end scenario. This is time consuming but it has a better effect. This activity is sometimes skipped by the clients sometimes but it is beneficial to perform this. Thanks to the tests it is still the possibility to withdraw. The test approves the readiness to start the system, if failed the project has to be moved.

- **Final preparation**: This activity checks that everything functions according to plan in terms of efficiency and correctness. Many people may work on the same time on the system. A document declaring the readiness to start the system is signed. The starting plan is created. Company runs some core processes that can not be stopped and this is the worse case for roll-out planning. Therefore, it is crucial to plan very carefully and take into consideration all these cases – it is extremely important to focus on time management.

- **Start**: The new systems starts, appropriate people should work on the system. During the system start it is advised that each department should be supported by one consultant. In this case an employee feels that s/he is not alone. There are various approaches to the system run which generally fall into two categories: big-bang and parallel. Some experts suggest using the big-bang approach advocating that the client company has to trust the new system and the comparison is useless and waste of the time.

- **Assistance**: This activity is carried out by consultants who support the client during the roll out of the system. During this activity the consultants should not perform customer employees work. Consultants instruct the employees how to use the system in a proper way. This period’s length depends on company’s size, people’s knowledge, efficiency etc.

- **Support**: This activity encompasses post-implementation support which is connected with errors correction (maintenance), help, answers to questions etc. This is regulated by a service contract agreement. In general, this is the period when the company operates the new system without the presence of the provider’s consultants in the company’s premises.

- **Tuning**: This activity occurs after implementation and encompasses the reconfiguration of the system/design connected with the change of business
model (e.g. the client starts new activity). Sometimes
the whole project cycle occurs including contract,
costs, schedule, and implementation.

• **Closing**: The implementation project is being closed;
a protocol on satisfying criteria defined in the
contract is signed. Often, it can be connected with the
closing of a fiscal month in accounting. Also, the
project closing is often associated with the
measurement of predefined goals.

• **Unrealistic ideas**: Handling of the client’s ideas
which are inconsistent with the provider’s strategy.
This is the situation when the client wants something
but the provider wants to go into other direction.

The symbols ○, ● and ○○ used in Table 3 represent
values in a low, medium, high scale similar to the one
proposed by Miles, and Huberman, [20]. The data in the
Table 3 suggest that Adaptation phase, encompasses the
greatest number of activities, and it appears to be the
most important stage within ES lifecycle. Other very
important phases include the first two initial stages:
Initiation and Adoption. Consequently, Acceptance and
Routinization seem to be of a lesser importance. Finally,
the last stage in Cooper and Zmud’s framework (Infusion)
and newly extracted Decline phase appear as completely
not important.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Initiation</th>
<th>Adoption</th>
<th>Adaptation</th>
<th>Acceptance</th>
<th>Routinization</th>
<th>Infusion</th>
<th>Decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs definition</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Market analysis</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>System choice</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Negotiations</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Contract signing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Analysis</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Solution design</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Schedule definition</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Trainings</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Data preparation</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Customization</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Ensuring infrastructure</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

As far as activities are concerned, trainings, analysis,
and contract signing appear the most important activities
occurring over the largest number of stage. Next,
designing the solution and ensuring the infrastructure
seem to be important activities. Based on the empirical
data it appears that the number of the activities used in the
transition economy we examined are much more than the
activities used by organisations in developed countries as
described by Somers and Nelson [15].

**Players**

The respondents declared a number of players including
actors from adopting organization, representatives of the
provider and external parties. The following section
describes the main players in ES adoption and then maps
their role unto the ES lifecycle phases (Table 4).

- **Sponsor**: project sponsor is the person who cares the
  most about project success, s/he should be at the top
  management level. S/he is the crucial person who
  oversees the project, motivates, sets directions, and
  takes care of business. In general, the more decisive
  the better since his/her decisions are not undermined.

- **Supervisors**: include top management
  representatives and invited people (e.g. managers).
  This is a deciding body from the adopter side and is
  often called the steering committee. The involvement
  of the higher-ups is vital since the implementation
  often requires company’s remodeling.

- **Project manager (adopter)**: is a leading manager of
  the project, in smaller projects s/he might be an
  implementation consultant. There is no clear advice
  who should be the project manager, suggested
  positions include a member of top management,
  financial director, or someone from the IT
department.

- **Department managers**: managers of all affected
departments since they offer the clear presentation of
needs and risks. Sales director involvement is strongly encouraged since the company has to operate and sell goods during the implementation.

- **Implementation team**: a team of people who take care of project duties including testing and data preparation. They are specialists from various domains, sometimes they are called key users.
- **IT staff**: people from IT department involved in the project. They may be like technicians (hardware-network) and system specialists. In small companies it is only one person. It may be the chief of IT department, who is especially useful during the system choice.
- **Users**: prospective users of the system.
- **Provider’s supervisor**: this is the counterpart of the project sponsor from the provider’s side. S/he is responsible for quality assurance. Depending on the project size s/he might be the provider’s president, director of sales (or other) department, or account manager. From an organizational hierarchy s/he is above the project manager.
- **Provider’s project manager**: person needed to contact the adopter side at the official level, in the case of a small project it may be a leading consultant, in the case of a larger project there might be a lot of paperwork involved. S/he is involved in the analysis phase. The point is to have project managers from both sides involved and cooperating with each other since none of them knows well two sides/perspectives – one knows the system and the other knows company’s processes.
- **Provider’s solution manager**: s/he is able to make decisions on the changes in the system and is responsible for the ‘content-related issues’.
- **Consultants**: responsible for the adoption. There is a distinction between leading and regular consultants in a large project.
- **Provider’s developers**: system developers from the provider side.
- **Provider’s IT staff**: various IT people from the provider side, including hardware-network people, DBA, etc.
- **Provider’s seller**: person who is responsible for selling the system to the client.
- **Auditors**: external party involved in some phases of the project.

In terms of key players’ involvement, it appears that the three first stages are very important with Adaptation as the most crucial phase. Also, similarly to the results connected with activities, Acceptance and Routinization stages seem to be quite important, and the last two phases: Infusion and Decline are completely not important.

**Table 4 Key players importance across ES adoption phases**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Initiation</th>
<th>Adoption</th>
<th>Adaptation</th>
<th>Acceptance</th>
<th>Routinization</th>
<th>Infusion</th>
<th>Decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsor</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Supervisors</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Project manager – adopter</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Department managers</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Implementation team</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>IT staff</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Users</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provider’s supervisor</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provider’s project manager</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provider’s solution manager</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Consultants</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provider’s developers</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provider’s IT staff</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Provider’s seller</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Auditors</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

5. Analysis and discussion

Upon analyzing the respondent opinions regarding ES lifecycle stages, we observe first and foremost the lack of common emphasis on post-implementation phase. The results reveal practically the lack of the Infusion phases in the proposed ES lifecycles. In particular, only one respondent clearly indicated this phase and another pointed to this phase talking about post-implementation stage. This is an important finding compared to the practices and the lifecycles followed by organizations operating in developed economies.

The respondents tend to treat an ES implementation as a project which generally finishes after Routinization stage and do not undergo Infusion phase. Instead, respondents’ answers suggest the presence of the Decline
phase, where the growing incompatibility between the company’s needs and the system performance takes place and ultimately leads to the decision on the new system solution implementation.

This issue is connected with the system migration. To this end, the respondents suggest that the system migration in the case of the same provider is often a simple upgrade of the system. Consequently, often it is much better to have a new provider as BPR is more successful when there is an external impulse for the company.

As far as activities are concerned, the respondents interestingly illustrate the changing role of the needs definition. Namely, in the past, adopting companies were not aware of this activity and the providers often had to press their clients to define their needs. Nowadays the situation is completely different and adopting companies are rather pushing their ideas during contract negotiations.

Another interesting issue connected with ES lifecycle activities is connected with analysis, which is the activity preceding the design of the solution. Namely, it is suggested that it is beneficial for both sides (i.e. adopter and provider) to treat the analysis as a separate project. Within this solution, there is a separate contract on the analysis and this contract is not binding as regards the whole project. In this case, activities connected with the analysis can be partly performed before the actual choice of the system.

Comparing the respondent activities with the results of Somers and Nelson [15] we may observe that our respondents noticed more activities which are often different from those of Somers and Nelson. In particular, the activities identified in the paper of Somers and Nelson focus more on the management of the ES project and they see the project from a project management point of view. In particular, 9 out of the 14 activities proposed by Somers and Nelson are strongly related to project management issues (e.g. expectation management, change management, project management, interdepartmental communication and interdepartmental collaboration, dedicating resources, training etc). On the other hand, the majority of the activities reported by our participants focus more on activities related to the development lifecycle rather than the management of the project.

Upon analyzing key players in ES implementation perceived by the respondents, we may notice that there is a wide variety of actors taking part in ES adoption who mainly represent two of the most important parties involved in the project, i.e. adopter and provider. Apart from that, some players representing third parties may be involved in the project, such as external auditors. It is worth noting that the results illustrate the great variety of players from the system provider’s side. In consequence, we can have a greater insight into the issues usually called in the literature in the general way as provider’s support or partnership [15].

In accordance with the normative literature, this study’s results reveal the great importance of the provider’s consultants over the project lifecycle. However, the findings reveal the more important role of the project manager from the provider’s side. This position, together with the adopter’s project manager, is the most important actor over the ES lifecycle. Moreover, the respondents emphasize the vital importance of a good cooperation and rapport between these two roles for the project successfulness, which sheds more light on the issue of cooperation with the system provider. The findings also suggest other players that might be involved in the project from the provider’s side. They are: provider’s supervisor, solution manager, developers, IT staff, and seller.

6. Conclusions

This paper attempts to investigate a little known phenomenon; the similarities and differences of ES: (a) lifecycles, (b) activities and (c) key players among organisations from the transition and developed economies. Despite, many research papers have been published on the Enterprise Systems’ lifecycles, activities and key players in developed countries there is limited work carried out on these parameters in transition economies.

In order to address this issue, we interviewed ES experts from a transition economy and we compared their answers with the research published by Somers and Nelson [15] and Cooper and Zmud [16] who contacted similar research in more than one hundred sixty two organisations from North America. The findings demonstrate that there are differences among organisations from transition and developed economies. Differences exist in terms of lifecycle phases, activities and actors involved:

**Lifecycle phases:** The empirical data depict that organisations in transition economies do not follow exactly the same phases as in developed countries. Interviewees reported phases that either cover whole stages of the Cooper and Zmud framework or part of them. In addition, they do not acknowledge the importance of post-implementation phase (infusion) as they pay little attention to it. Nevertheless, responders reported an additional post-implementation phase called ‘decline’. Again this phase has low importance.

**Activities:** Empirical data reveal that 22 activities exist in ES implementations in transition economies.
compared to 14 activities at the developed countries. Another difference is that the latter activities focus more on issues related to the project management where the former on the development activities of ES.

Key Players: Again here, there are differences in the number of the actors involved. An important issue came out of this research is that significant players exist from ES adopters and providers. Our study demonstrates that the most important key players come from the providers side.

Despite that our empirical data are really interesting, we can not generalise them. We report these findings to allow others to compare their experiences with those reported in this paper and help them when investigating these issues. We suggest that further research is required to better understand the similarities and differences of ES lifecycles, activities and key players among transition and developed economies.

7. References


