# Functional Consultants' Role in Enterprise Systems Implementations

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**Abstract**: Although Enterprise Systems (ES) implementations (and formerly Enterprise Resource Planning systems) literature is extremely wide, most of it takes the perspective of the implementing organization and its employees: project managers, key-users and users. The fact that one of the possible ways of conducting such a complicated, time and money consuming project is to use functional consultants is largely omitted and therefore the role of these consultants in the ES implementation projects is not yet well discovered. This paper explores the role of functional consultants by analysing the detailed lists of activities, performed by them in five projects, led by five different consulting enterprises. The analysis of project documentation, followed by coding resulted in a consistent task list in each of the project phases as well as its assignment to one of the project participants: consultants or implementing company. Generalization of this list allowed for the formulation of the conclusions on the consultants' role in the analysed projects.

**Keywords**: enterprise systems, ERP, implementation, project, consultants

## 1. Introduction

Enterprise Systems (ES) were formerly identified with Enterprise Resource Planning (ERP) applications (Davenport, 1998; Sedera and Gable, 2010). Rosemann (1999) defines an ERP system as 'a customizable, standard application software which includes integrated business solutions for the core processes (e.g., production planning and control, warehouse management) and the main administrative functions (e.g., accounting, human resource management) of an enterprise.' These systems have evolved into application suites, including ERP, CRM, Business Intelligence, Workflow, Content Management and other functionalities, which are required to support information and workflow in organizations. Generalizing the above definition, one can state that an Enterprise System is a standard, customizable application suite that includes integrated business solutions for the major business processes of an enterprise, with the ERP system remaining the central component of this suite. Enterprise Systems are the backbone of most global manufacturing and service enterprises (Muscatello and Chen, 2008) and they continue to draw attention of the researchers. Though ES is a popular piece of business software, its implementation failure rate is constantly high (Aloini et al., 2007; Wu et al., 2007; Poba-Nzao et al., 2008). This fact has yielded much research on Enterprise Systems' implementation summarized in ERP literature reviews like the one by Esteves and Bohorquez, 2007. Majority of this research, however, takes only the perspective of the organisation that adopts the new Enterprise System, while the classic project setup involves three stakeholders: the adopting organisation, the system vendor and the consultants that perform the implementation (Haines and Goodhue 2003, Koch and Mitlöhner 2010, Lech 2011, Simon et al. 2010, Vilpola 2008, Wang and Chen 2006). The purpose of this paper is to explore the role of the consultants by analysing the activities they perform in Enterprise Systems implementations.

## 2. The role of consultants in an Enterprise System implementation project – literature review

Enterprise Systems are a complicated component of business software, which affects most of a company's busines processess and takes from half a year to several years to implement. To succesfully complete such an implementation a specialised knowledge of the system (product knowledge) is needed. Combined with the company-specific knowledge (Chan and Rosemann 2001) and other knowledge types, it allows to obtain the final outcome of the implementation project, which is the system configured and customized according to the requirements of a specific organization (Esteves et al. 2003). As the knowledge about the system is highly specialized and extensive, it should be provided by dedicated experts (Haines and Godhue 2003). These experts may originate from inside the organisation if a specialised ES unit is available there or may be hired for the project from a consulting enterprise, not necessarily being the system vendor at the same time. A look at the web pages of the Tier 1 Enteprise Systems vendors SAP, Oracle and Microsoft reveals that all of these vendors maintain a partner network of independent consultancies, offering expertise in implementing the Enterprise Systems that they sell. The role of these partners, as perceived by vendors, is depicted in Table 1:

**Table 1:** Role of consulting partners according to corresponding ES vendors

| SAP | Oracle | Microsoft |
|---|---|---|
| Source page: http://www.sap.com/our-partners/index.epx | Source page: http://www.oracle.com/us/solutions/midsize/partners/index.html | Source page: http://dynamics.pinpoint.microsoft.com/en-US/home |
| "SAP partners play a critical role in helping organizations of all sizes identify, purchase and implement the ideal solution to address their unique business needs. [...] SAP partners deliver the exceptional value, purchasing choice, consultation and implementation services [...]" | "Together, Oracle and our network of more than 19,000 partners provide customers around the world with industry-leading solutions and services that address the needs of fast-growing companies and government entities with limited budgets." | "The Microsoft Dynamics Marketplace helps you discover innovative applications and professional services from Microsoft partners worldwide." |

As it can be concluded from Table 1, for the systems mentioned there, the solution/service provider and the system provider tend to be the two independent entities. Therefore for Tier 1 Enterprise Systems, the typical project landscape consists of three parties (Haines and Godhue 2003; Ko et al. 2005): the adopting organisation (implementer, client), the system vendor and the consulting enterprise (consultant) that helps the adopting organisation successfully implement the system. There may be variations from this model, such as when the consulting services are delivered either by the internal IT department of the adopting organisation or by the vendor itself. In an independent setting however, the system vendor provides the 'vanilla' system, and the implementation project is run by the adopting organisation and the consulting enterprise. Haines and Godhue (2003) describe the interrelations between the three parties in the following way:

'Each of these three parties contributes in different ways to the project. The implementer has the detailed knowledge of its own particular business processes, organizational context, and competitive situation, which is essential for successful implementation. The vendors provide the implementer with hardware and software and offer training programs in connection with their products. The consultants are brought into ERP implementation projects to provide additional skills, knowledge, or simply manpower that is not available at the implementer or the vendor, or is too expensive if procured from the vendor.'

Surprisingly, the involvement of consultants in an Enterprise System implementation project is emphasised only by a small number of authors (Chan and Rosemann 2001, Chang et al. 2013; Haines and Goodhue 2003; Ko et al. 2005; Lech 2011) and omitted by others.

Haines and Godhue (2003) state that the large portion of a project's cost is attributed to the consulting fees due to the fact that the implementing organization does not have the internal knowledge and skills to implement the system successfully. They mention three main roles the consultant may play in a project: the role of a project manager, role of a mentor/trainer and the role of a technical implementation assistant. The consultants' role as a knowledge source is also stressed by Chan and Rosemann (2001). Chang et al. (2013) highlight the importance of consultants in the implementation due to breadth and complexity of the system and the one-time nature of the project that limits the desire to invest in a permanent workforce with necessary knowledge. They state that 'consultants provide technical and business expertise, reduce the learning burden of clients, configure appropriate ERP systems, and train users to fully exploit the technology.' Their research concentrates on the control mechanisms imposed on consultants due to possible agency problems. The outcome controls were identified as the main control mechanism used by the client organization due to the fact that the client organization lacks knowledge on the implementation process to be able to apply behaviour controls, while both outcome and behaviour controls were applied by the consulting enterprises to control their consultants. Ko et al. (2005) state that enterprises typically use external consultants for ES implementations and in their research they concentrate on the factors affecting knowledge transfer from consultants to clients during the implementation project, while Lech (2011) studies the knowledge transfer procedures basing on ten case studies. The work split between the consultants and clients as well as activities performed by the consultants, throughout the ES implementation phases are briefly described there also. These activities include running analytical workshops, preparing the system design document, configuring the system, providing modification (customization) specifications to programmers,

testing the system (together with the adopting organisation team members) and occasionally training the end-users.

Concluding the literature review, consultants are considered to be the necessary actor in the Enterprise System implementation project due to the fact that implementing organizations usually lack knowledge about the system to be implemented and have limited incentive to gain this knowledge internally due to non-repetitive character of the project. The main role of the consultants is to supply the client with the necessary system knowledge and perform the tasks, necessary to configure and customize the system according to the business needs of the customer but they may also play the role of a project manager or mentor/trainer. The Enterprise System implementation project is the constant interaction between the client's employees and consultants, which involves, but is not limited to knowledge transfers in both directions. None of the papers cited above has considered the analysis of a consultant's role in the project as the primary research focus and therefore the aim of this paper is to fill this gap.

A role can be defined as: 'a set of activities that are carried out by an individual or group with some organisationally relevant responsibility' (Huckvale and Ould 1995). Therefore the main attribute that describes a role is a set of activities performed by a person or a group that holds that role. The observation of work, performed by this person or a group leads to understanding of that person's or group's role in the organization (Barley and Kunda 2001). Barley and Kunda (2001) also distinguish between non-relational and relational aspects of role: relational elements of work require interpersonal interaction, while non-relational ones do not. As it was already stated before, the Enterprise System implementation project is a complicated undertaking which requires tight cooperation between the parties involved. Therefore the study of the consultants' role cannot be separated from its interactions with the client. The following sections present the results of the empirical study of the activities, performed during the ES implementation projects.

## 3. Research results

### 3.1 Methodology

The research question posed in this paper was the following:

**What activities are performed by the functional consultants (and their Project Manager) during the Enterprise System implementation?**

Five ES implementation projects were included in the study. In one of the cases the consultants originated from the system vendor organization and in the other four, the implementation was done by the consulting enterprises independent from the vendor. Every of the five projects was done by a different consulting company. The source of evidence was project documentation, determining the task split between the client and the consultants: appendixes to the contracts and Project Charters, depending on the project. The activities' descriptions were extracted from the documents and the coding procedure was used to form one consistent list of activities. In four projects the documentation provided lists of activities on a similar level of detail (and for the remaining one – only a general level activities were indicated). If an activity existed in more than one project, usually only slight alignment in naming was needed. The activities were grouped by project phase and general level activity. Although there are many models of the Enterprise system lifecycle available in the literature (for the overview see e.g. Soja and Paliwoda-Pękosz 2013), all the enterprises being subject to the study used the phases definition according to the SAP ASAP methodology.

This way a full list of project activities with the assignment to the responsible party was created.

### 3.2 Project activities analysis

The results of the study are presented in Table 1 and 2. The activity was included in the list if it was detected in at least one project. Activities were divided into sub-activities whenever possible. The frequency was assigned to lowest possible activity level (the general activity for one project in which there was no detailed information and to sub-activities for the remaining four projects). As it was stated above, the ES implementation project is a highly interactive process which requires tight cooperation between the client and the consultants on all stages. This fact was reflected in the documentation of all the five projects: for each activity a leading and

supporting stakeholders were mentioned. The below tables show only the actors identified as leading for each activity.

**Table 1:** Project activities divided into phases and responsibility split

| Project activity | | Responsibility (frequency) | | | |
|---|---|---|---|---|---|
| General activity | Sub-activity | Consultant | Client | Consultant and client | No information |
| Phase 1: Project preparation: | | | | | |
| Preparation of the project plan | - | 2 | - | 2 | 1 |
| Definition of project organizational structure and team formulation | | | | 1 | |
| | Definition of project roles | 3 | 1 | - | - |
| | Implementation teams onboarding | - | 3 | 1 | - |
| | Key-users/process owners identification and onboarding | - | 3 | 1 | - |
| | Decision-making grant to the key users | - | 3 | - | 1 |
| Preparation of project procedures | | 1 | 1 | - | - |
| | Risk management procedures preparation | 3 | - | - | - |
| | Communication procedures preparation | 3 | - | - | - |
| | Change management procedures preparation | 3 | - | - | - |
| | Quality management procedures preparation | 2 | - | - | 1 |
| | Problem escalation/open items management procedure preparation | 3 | - | - | - |
| | Status reporting procedure preparation | 2 | - | - | 1 |
| Preparation of project charter document | - | 2 | - | 1 | 2 |
| Key users initial training | - | 4 | - | - | 1 |
| Preparation of project infrastructure (rooms, computers, etc) | - | - | 4 | - | 1 |
| System hardware preparation | - | 1 | - | - | 4 |
| Kick-off meeting | - | 1 | 1 | - | 3 |
| Phase 2: Business Blueprint | | | | | |
| Installation and preparation of development and test systems | - | 2 | 1 | 1 | 1 |
| Preparation of system administration procedures | - | 1 | - | - | 4 |
| Definition of a company structure | | | | | |
| | Company structure definition | - | 3 | - | 2 |
| | Company structure reflection in the system | 3 | - | - | 2 |
| Definition of business | | | | | |

| Project activity | | Responsibility (frequency) | | | |
|---|---|---|---|---|---|
| General activity | Sub-activity | Consultant | Client | Consultant and client | No information |
| processes | | | | | |
| | Business processes definition | - | 3 | - | 2 |
| | Business processes reflection in the system | 3 | - | - | 2 |
| Master data definition | | | | | |
| | Master data definition | - | 2 | - | 3 |
| | Master data reflection in the system | 2 | - | - | 3 |
| Interfaces specification | - | 1 | 1 | - | 3 |
| Data migration specification | - | 1 | - | - | 4 |
| Reports, forms (printouts) and extensions specification | - | 1 | - | - | 4 |
| Authorization concept | | | | | |
| | Definition of roles in the organization | - | 1 | - | 4 |
| | Design of authorization profiles in the system | 1 | - | - | 4 |
| End-users training plan | - | 1 | - | - | 4 |
| Preparation of the Business Blueprint document, containing the above design items | - | 4 | 1 | - | - |
| Business blueprint approval | - | - | 4 | 1 | |
| Phase 3: Realization | | | | | |
| System configuration | - | 5 | - | - | - |
| Preparation of the test environment | - | 4 | - | 1 | - |
| System unit (modular) tests | | | | | |
| | Test scenario template preparation | 5 | - | - | - |
| | Test scenarios preparation | 1 | 4 | - | - |
| | Test execution | 1 | 4 | - | - |
| | Test supervision | 4 | 1 | - | - |
| Development of extensions, forms, reports and interfaces | - | 3 | - | - | 2 |
| Master data conversion preparation | - | 1 | 2 | - | 3 |
| Master data migration tools preparation | - | 3 | - | - | 2 |
| Integration tests | | | | | |
| | Test scenarios preparation | 1 | 3 | - | 1 |
| | Test execution | 0 | 4 | - | 1 |
| | Test supervision | 4 | - | - | 1 |
| Authorizations definition in the system | - | 2 | 2 | - | 1 |
| System | | | | | |

| Project activity | | Responsibility (frequency) | | | |
|---|---|---|---|---|---|
| General activity | Sub-activity | Consultant | Client | Consultant and client | No information |
| documentation | | | | | |
| | Configuration documentation | 3 | - | - | 2 |
| | Customization documentation (for extensions, reports, interfaces, forms) | 4 | - | - | 1 |
| | End-user manuals | 4 | 1 | - | - |
| | System administration procedures | 2 | 1 | - | 2 |
| Phase 4: Go-live preparation | | | | | |
| End-users training | | 1 | 4 | - | - |
| Productive system preparation | | 3 | 1 | - | 1 |
| Preparation of the productive start plan | | 3 | 1 | - | 1 |
| Master data migration to productive system | | | | | |
| | Master data preparation | - | 4 | - | 1 |
| | Master data input to productive system with the use of interface | 4 | - | - | 1 |
| | Manual master data input | - | 4 | - | 1 |
| Preparation of the after go-live support plan | - | 2 | - | - | 3 |
| Phase 5: Go-live and support | | | | | |
| Productive use of system | - | - | 5 | - | - |
| Support of daily activities | - | 3 | - | - | 2 |
| Problem reporting | - | - | 3 | - | 2 |
| Problem solving | - | 3 | - | - | 2 |

**Table 2:** Cross-phase project activities and responsibility split

| Project task/activity | | Responsibility (frequency) | | | |
|---|---|---|---|---|---|
| General activity | Sub-activity | Consultant | Client | Consultant and client | No information |
| Project management activities | | - | - | 1 | - |
| | Project status meetings | - | - | 3 | 1 |
| | Risk analysis and mitigation | - | - | 3 | 1 |
| | Steering committee meetings | - | - | 3 | 1 |
| Change management (scope and organizational changes) | - | - | - | 4 | 1 |

The results will be discussed by project phase:

**Project preparation**

Project preparation is a phase which results in the final confirmation of project scope, budget and schedule (which are usually defined in the pre-implementation phase) as well as definition of the project plan (split into phases together with the definition of products and milestones, and detailed schedule), project organisation (project sponsorship, project management, implementation teams, roles definition and assignment), and procedures (communication, risk management, change management, problem solving and escalation). The project methodology is also agreed during that phase. The product of this phase is Project Charter document, which includes all of the above mentioned items.

Two of the client companies left the preparation of the project plan to the consultants, while two others participated in the formulation of the plan (in one project there was no information regarding project plan preparation). As the consultants have experience from previous, similar projects and possess knowledge on the implementation methodology, they play the leading role in the preparation of the project plan, although the input from the client organization, regarding specific circumstances, that may alter standard approach is also necessary.

The definition of project organizational structure and team formulation was done together by the clients and consultants. The detailed information on the task split for this activity is available from four projects. Definition of project roles was done by the consultants in three out of four cases. As the knowledge on what has to be done to successfully implement the system is possessed by the consultants it is justified to assign this task to them. The client had to identify the team members for each role, taking into consideration the necessary knowledge and decision-making power.

Preparation of the project procedures was done mostly by the consultants, who also performed the key user trainings. Clients were responsible for the preparation of the technical infrastructure for the project.

Summing up, during the project preparation phase the consultants were responsible for the supply of the project methodology and knowledge from previous projects, which was codified in the form of project plan, organizational structure, and procedures. They were also responsible for the initial knowledge transfer regarding the system in the form of key-users training.

**Business Blueprint**

During the Business Blueprint phase the detailed analysis of business processes and requirements is made by the consultants, who later design the way these requirements will be reflected in the system. The main outcome is the Business Blueprint document, including the definition of system configuration, as well as RICEF (reports, interfaces, conversions, extensions and forms).

The main activities in this phase are related to the company-specific knowledge transfer from the clients to consultants, who 'translate' this knowledge into the system design. The clients were responsible for the company structure, business processes and master data definition. Later the consultants designed how the company structure, business processes and master data will be reflected in the system. Interfaces specification, as well as reports, forms, and extensions specification was done by the consultants (there is data regarding that step only in the documentation of one project, although it definitely had to be done also in other four). Interfaces specification was done either by the consultants or the client. In one project the consultants also prepared the system administration procedures and training plan in that phase. Other activities included installation of the system (done either by the consultants or the client), and authorization concept, which consisted of the definition of roles in the organization done by the client and design of the authorization profiles which reflect these roles in the system, done by the consultants. Preparation of the final document was left to the consultants in four projects and to the client in the remaining one.

The main role of the consultants in this phase is therefore absorption of company-specific knowledge from the key-users and preparation of the system design (Business Blueprint).

**Realization**

The result of the realization phase is the configured system, together with RICEF, ready for testing.

System configuration was done by the consultants in all five projects. Preparation of the test environment was done by the consultants in four, and together with the client in one project. The test scenarios was done by the consultants and the tests were executed by the clients in four project, under the supervision of consultants. One company left the testing to the consultants. Consultants also developed all extensions and prepared master data migration tools. Master data conversion was done by the clients in two projects and by the consultants in one. The consultants were also responsible for the system documentation. The authorizations were done either by the consultants or by the clients. This phase involved non-relational

activities, performed by the consultants, namely system configuration, RICEF development and system documentation. The only relational task was tests, done by the clients and supervised by the consultants.

**Go-live preparation**

Go live preparation should result in the system ready for productive start and users trained and ready to work with the new system. End user training was done by the consultants only in one project. The other four projects applied the train-the-trainer approach. This means that the key-users acquired the necessary knowledge by participating in the project and they were responsible for the preparation of the training materials and execution of the trainings for the end-users. Preparation of the system for the productive start as well as development of the productive start plan (including the detailed sequence of activities, required to start the work in the new system) was done by the consultants in three and by the client in one project. Regarding master data transfer to the productive system, clients were responsible for preparation of the data and consultants for data upload to the system. In two cases the consultants also prepared the plan for post go-live activities.

Therefore the main role of the consultant in this phase was preparation of productive start plan, master data migration, and productive system preparation for go-live.

**Go-live and support**

In the last phase of the implementation project the system is launched. All the users start working with the system and the role of the consultants, was to support the daily activities of the users, as they may still lack knowledge regarding the new system, as well as solve problems reported by the users.

**Cross-phase activities**

In addition to the above, some activities were performed repeatedly in each phase. These included project management activities and change management, and were performed jointly by the consultants and the clients.

## 4. Conclusions

The purpose of this paper was to explore the role of the consultants by analysing the activities they perform in Enterprise Systems implementations. The list of major activities was prepared by combining and merging data from five ES implementation projects. Then the task split between the consultants and adopting organization was analysed and presented.

The role of the consultants in the project preparation phase was to supply of the project methodology and knowledge from previous projects, which was codified in the form of project plan, organizational structure, and procedures, as well as deliver the initial knowledge about the system to the key users. Then they had to absorb the company specific knowledge to be able to combine it with the system knowledge and deliver the project design in the Business Blueprint phase. Realization phase involved system configuration, RICEF development and system documentation as well as test preparation and supervision. In most projects the knowledge about the system was gradually delivered to the key-users during the project, so that they were able to test the system and train the end-users by themselves, but in one project the testing and training was done solely by the consultants. Then the consultants prepared the system for the productive start, migrated the master data provided by the clients and supervised the daily work of the users, resolving the emerging issues at the same time. Throuthought the whole project the project management activities were jointly performed by the clients and the customers. Comparing to the roles, identified by Haines and Godhue (2003), this research confirms that the main role of the consultants was to be the technical implementation assistant, project manager and trainer. The role of a mentor was not identified in this study. The contribution of this paper is the definition of detailed activities, that form the above mentioned roles.

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