

# Models of information and knowledge transfer in IT outsourcing projects

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**Abstract** — The aim of the authors' research/article will attempt to define the knowledge management role of customer-supplier relationship with particular emphasis on IT knowledge outsourcing. The next aim it will be the verification of the following search hypotheses:

- In the classical outsourcing contract, there is none critical knowledge transfer (this is not the aim of an outsourcing project);
- Outsourcing should be supplemented with key knowledge transfer in both directions—from the client to the vendor and from the vendor to the client;
- Outsourcing based on key knowledge transfer is an essential / important instrument of creation and business development of virtual organization based on knowledge.

The result of the research will be models of IT knowledge outsourcing for IT outsourcing. It will be shown the potential areas of application IT outsourcing, IT knowledge outsourcing and the benefits of such projects in the context of knowledge management.

## I. INTRODUCTION

In IT projects, the bilateral transfer of hot and confidential knowledge is extremely important, which as a rule occurs in the delayed time (1<sup>st</sup> model in fig. 1), which considerably reduces the effectiveness of outsourcing cooperation.

In the case of data and information transfer the situation appears better (real-time 2<sup>nd</sup> model – fig. 2).

The remedy to the above formulated research problem (1<sup>st</sup> model, fig. 1) is the authors' suggestions provided in the 3<sup>rd</sup> model (fig. 3) and in the perfect models: A (fig. 4) and B (fig. 5).

The aim of this paper is to analyse and model the reduction of the deployment distance between 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> models.

The models presented herein are simplified models, wherein for the purposes of better reflection of certain ideas only one supplier (outsourcing provider) and one customer (outsourcing recipient) were presented. The OP (outsourcing provider) and the OR (outsourcing recipient) occurring in the model can in practice denote a network of suppliers or recipients.

## II. OUTSOURCING OF IT SERVICES AS AN INSTRUMENT IN ACHIEVING COMPETITIVE ADVANTAGE

The development of IT outsourcing (and IT offshoring) results above all from the following (own work based on [1]):

- the accelerated and intensifying process of global economy globalisation,
- the common use of information & communication technologies (ICT),
- the opening and very good preparation of economies of many developing countries (e.g. China, India) for globalisation processes (which is manifested in the changes in the global work supply in the IT services sector – the huge potential of highly educated specialists),
- the reduction of barriers in undertaking economic activity,
- the abolition of restrictions in foreign trade and investments – greater internationalisation of production and services.

Outsourcing is currently regarded as one of the most effective tools for increasing the organisation activity effectiveness. It is becoming a component of the strategy consisting in streamlining organisational structures in order to concentrate resources and funds on the primary activity, which decides on the organisation's competitive advantage.

Outsourcing/offshoring of IT services may considerably contribute to the improvement of the organisation's competitiveness.

The following can be counted as factors of achieving competitive advantage in such a cooperation model:

- locating the individual stages of IT processes and services in best world locations – commissioning the provision thereof to companies that ensure the best quality (quality improvement) at the lowest price (cost reduction),
- locating service centres at places which allow organisations to coordinate actions in the region or on the global scale,
- permitting the focus on the key activity,

- releasing resources for the purposes of other projects,
- access to a new technology,
- accelerating the accomplishment of the assumed results and adapting to the changing needs,
- increased innovativeness.

IT services outsourcing customers are increasingly more interested in receiving ready services, so they prefer a supplier that has access to knowledge employees (who thanks to their knowledge and experience are able to provide services at a high level) to access to such employees who physically deal with computer hardware.

The properly planned and managed outsourcing cooperation should create value for shareholders, employees, suppliers and customers, which will be proved by:

- retaining key employees in the organisation,
- not deterioration, and best an increase in the quality of services and/or products,
- improved planning, increased efficiency, optimised IT services lead time,
- increased customer service level and improved customer satisfaction,
- satisfaction of all parties affected by outsourcing,
- permanent long-term cost savings (if this was a signification ground for outsourcing) [6, page 358].

### III. CONSIDERATIONS OF KNOWLEDGE TRANSFER IN OUTSOURCING RELATIONS

B. Mikula claims that knowledge transfer is one of the fundamental knowledge-related processes, and without the performance thereof it would not be possible to gather knowledge by the human, to combine it with the possessed collections and subject it to further creation, write it down or apply it in practice. Knowledge transfer constitutes the basis of the performance of the organisation learning process [2, page 62].

*Transfer* is regarded as any communication action within which a given individual discloses what it knows to other individuals. *Sharing* knowledge can be defined, in turn, as a bilateral interpersonal process within which individuals mutually perform knowledge transfer. Knowledge sharing is often treated in the literature as a knowledge transfer subprocess. Further categories occurring in the literature in the context of knowledge management in practice are knowledge *flow* and *migration*. Knowledge *flow* refers to each form of knowledge in transit (knowledge transfer, knowledge sharing, and to knowledge conversion, integration and application). *Migration* is considered a special form of knowledge transfer – this term is referred to the movement of knowledge between different world areas, which means across borders between cultures, countries and organisations [2, page 117]. This type of knowledge transfer will be the dominant one in outsourcing and offshoring undertakings.

The following can be counted as factors affecting the knowledge transfer processes in the outsourcing provider – outsourcing recipient relations:

- strategies of cooperating organisations;
- features of the commissioned services (committed technologies, tools, quantity and qualifications of the personnel involved in an outsourcing project) – the more standard (less complicated) the services, the easier the knowledge transfer;
- physical distance between the entities cooperating on the outsourcing basis;
- fear of the loss of the competitive position or the monopoly position in the given activity scope;
- differences in the time zones;
- cultural, language, etc. differences.

The above mentioned and other (less significant) considerations most often contribute to the slow-down of knowledge sharing processes in the customer – service provider relations. In many cases quiet (hot) knowledge transfer, requiring direct contact of knowledge “suppliers” and “recipients”, is particularly impeded or even impossible.

Knowledge transfer in an organisation can be performed in multiple ways. Factors deciding on the knowledge transfer method are above all [2, page 65]: knowledge transfer aim, type of transferred knowledge (customised public or quiet, codified or entrenched, generally available or protected), knowledge source, knowledge transfer addressees, conditions, and available tools.

The issue which seems to be crucial for the effectiveness of knowledge sharing processes in the relations of the organisation with external entities (and in the implementation of the models of information and knowledge transfer proposed in the further part hereof) is the inclination of knowledge “suppliers” to share it, as well as the ability and motivation of knowledge “recipients” to absorb it.

### IV. MODELS OF INFORMATION AND KNOWLEDGE TRANSFER IN THE IT SERVICES OUTSOURCING PROCESS

Little attention in outsourcing processes is drawn to the real-time corporate knowledge transfer, restricting mainly to the “delayed” data and information flow (fig. 1).

The assumption of parallel information and knowledge flow should be adopted while negotiating and signing an outsourcing contract (fig. 2), which enables building a learning organisation, both for the outsourcing provider (OP), and the outsourcing recipient (OR). Then, during the outsourcing cooperation, a new organisational form is created, based on joint formation of corporate knowledge based on key knowledge of the outsourcing provider [KK(OP)] and of the outsourcing recipient [KK(OR)].

Fig. 3 presents a very promising anticipatory model of hot knowledge transfer, where the initiating party is OR, which allows OP to precisely determine the outsourcing services package. In addition, the time necessary for the approvals prior to the start-up of real outsourcing processes is reduced here.

4<sup>th</sup> A model (perfect one) is “the higher level” in the outsourcing cooperation process (fig. 4). The cooperating parties (OR and OP) concentrate here on:

- key knowledge transfer,
- outsourcing of certain core processes.

Such type of model occurs in high-technology sectors, during the implementation of long-term joint projects.

Fig. 5 reflects the target model (B) of perfect outsourcing cooperation consisting in combining two enterprises (OP and OR) into a new organisational entity (e.g. a joint-venture company, a strategic alliance, etc.) oriented on implementing large projects in e.g. automotive, pharmaceutical, IT, biotechnology, nanotechnology, etc. sectors.

5<sup>th</sup> B model is necessary in the case where the current possibilities and potentials of the classical dual outsourcing cooperation have been depleted.

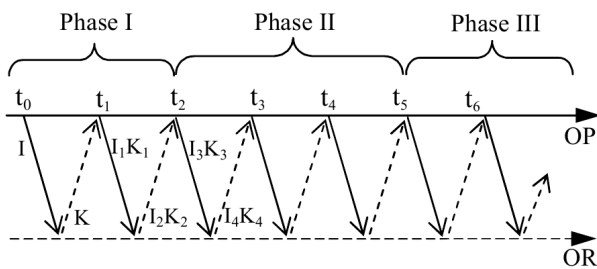


Fig. 1. 1. Model – Delayed time model. Source: own work.

K- hot knowledge of OR

KK(OP) – key knowledge of OP

KK(OR) – key knowledge of OR

- outsourcing provider’s knowledge/information flow
- - - outsourcing recipient’s knowledge/information flow

$t_0$  – time at moment 0

$t_1$  – time at moment 1

$t_n$  – time at moment n

t – time

K – knowledge

I – information

Phase I - IT outsourcing designing phase

Phase II - IT outsourcing implementation/organisation phase

Phase III - IT outsourcing implementation/deployment phase

Another model (fig. 2) assumes parallel information flows of the supplier and knowledge flows of the outsourcing services customer.

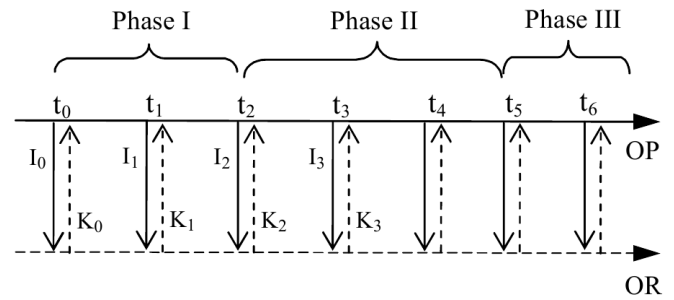


Fig. 2. 2<sup>nd</sup> Model – Real-time model: parallel information and knowledge flows. Source: own work.

In the reality, parallel information and knowledge flows do not exist. They can be conventionally called parallel in the situation when the so-called “information lags” are minimised, which occur in each information exchange system.

While discussing the 2<sup>nd</sup> model, it is worth drawing attention to the organisation learning process (learning loop). Such a state is reached by a range of meetings/interactions between the customer and the outsourcing provider where the customer is satisfied with the adopted arrangements.

Considering various models of information and knowledge transfer in the customer-supplier relations, the following questions may be asked: What is supposed to be the aim of outsourcing? Should outsourcing facilitate gaining new knowledge, discovering hidden knowledge (or objectively hidden) or only accomplishing specific operational goals, such as IT cost minimisation?

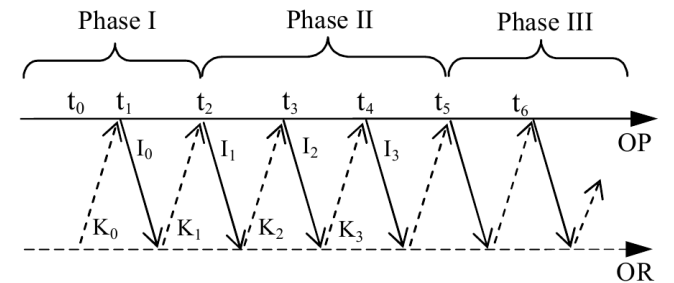


Fig. 3. 3<sup>rd</sup> model – Anticipatory model. Source: own work.

K- hot knowledge of OR outsourcing recipient

In 3<sup>rd</sup> model, OR is the active party – the outsourcing recipient providing the hot knowledge that is transferred to the supplier, which in turn processes it and in reply communicates information and knowledge to the customer.

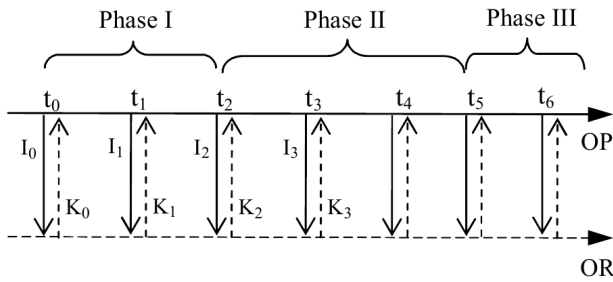


Fig. 4. 4<sup>th</sup> model – Perfect model A  
Source: own work.

4<sup>th</sup> model assumes that the parallel flow of outsourcing provider’s and outsourcing recipient’s knowledge occurs in real time.

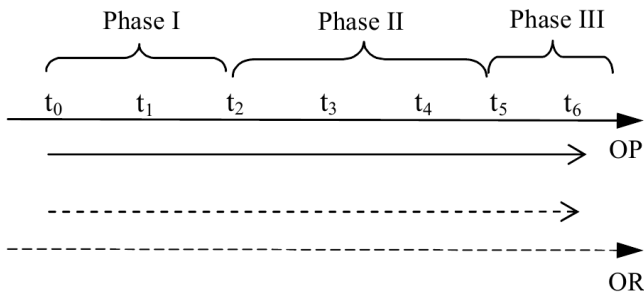


Fig. 5. 5<sup>th</sup> model – Perfect model B.  
Source: own work.

In this model (5<sup>th</sup> model) the two knowledge-based organisational entities (outsourcing provider and outsourcing recipient) are integrated. Information and knowledge chains of both companies merge.

In order to expand the models presented earlier, an attempt to assess the impact of third parties on the functioning of outsourcing configurations could be made, but this will not be the object of this paper.

The motive of creating and applying knowledge transfer models in outsourcing projects should be above all the need of comprehensive insight into the informational relations/correlations occurring in the cooperation with external service providers. Such models can be helpful in determining the principles of communication with outsourcing partners and of coordination of the performed tasks and in selecting proper information and knowledge transfer methods between the outsourcing provider and outsourcing recipient.

Due to the fact that the phenomenon of knowledge sharing is increasingly more common – because organisations act in increasingly more expanded networks of correlations, the need to cope with the positive and negative aspects of this phenomenon is very strong and requires attention already at the preliminary stage of the preparation for outsourcing.

V. RECONFIGURATION OF ADDED VALUE IN OUTSOURCING SERVICES

While preparing outsourcing decisions, the following analyses prevail:

- financial,
- economic,
- marketing,
- technical,
- technological.

Generally, analysis of the loss or growth of the following are omitted, in turn:

- added value (fig. 6) of the outsourcing provider and the outsourcing recipient,
- intellectual capital,
- corporate knowledge.

The analyses of the first type (classical) are oriented on short- and medium-term optimisation, while the analyses of the added value, knowledge and intellectual capital transfer have the long-term dimension, which is reflected in fig. 6.

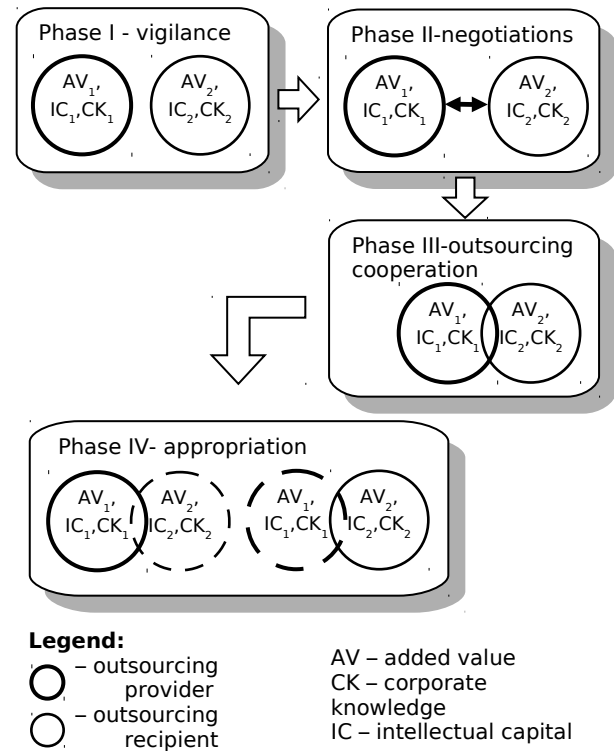


Fig. 6. Phases of added value, intellectual capital and knowledge reconfiguration, in outsourcing processes. Source: own work.

Implementation of knowledge transfer and knowledge development processes, both inside the organization and in relation to other companies, requires considerable effort on the part of organization management and other actors of knowledge transfer processes. On the one hand, it is essential to secure proper information flow to the outsourcing partner and precise definition of the range of

knowledge passed on to the service provider to satisfy the requirements of the client. On the other hand, it is of utmost importance to protect knowledge and information vital for maintaining the organization's competitive advantage and secure the inflow of information and knowledge from the service provider in order to be able to continue operation in a given area after termination of the contract or after contractor change [4].

Organisational learning about the benefits and setbacks of IT outsourcing may considerably affect subsequent decisions in the field of outsourcing. Each enterprise considering IT outsourcing should therefore conduct a detailed analysis of all "pros" and "cons" so that the decision to transfer such a significant field does not result in losing key competences. Possible cooperation should be planned such and such conditions should be created for the knowledge transfer processes (also conditions for the informal contacts of the personnel of the cooperating companies) that the organisation could maximally benefit from the potential lying in outsourcing during the term of the contract [5, page 282].

## VI. SUMMARY

Very rapid changes are occurring in the IT services sector. Initially, simple services related to customer service were separated and transferred to "better" (cheaper) locations. Currently very advanced and risky forms of information services outsourcing are being observed, namely transfers of research and development centres, architectural, medical, engineering, etc. services.

The development of IT services outsourcing and offshoring:

- contributes to the increased information and knowledge exchange between the concerned parties (also in the global dimension),
- leads to deepened integration between companies in the world and to increased global correlations,
- enables access to advanced technologies for developing countries (rich countries lost the monopoly for high-tech products and know-how).

At the same time outsourcing and offshoring constitute a challenge for managing the organisation (and its intellectual capital) and its development.

In extreme cases, with an improper approach to managing cooperation and to the information and knowledge transfer issues, the use of outsourcing may result in:

- the reduction of jobs and loss of valuable employees,
- limiting the local competences,
- becoming dependent on the new entity,
- increasing technical and organisational competences of the supplier (most often coming from a poorer country), becoming independent from the customer up to competing with the existing ordering parties.

Although the goals of the organisation related to outsourcing (including IT services outsourcing and offshoring) still focus on cost reduction to the greatest extent, it seems that the change of orientation on qualitative benefits and on the opportunities provided by cooperation with external partners in the context of developing organisational knowledge is inevitable.

The models of information and knowledge transfer proposed herein (2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> model) show the direction in which, as claimed by the authors, organisations that "learn", cooperate on the outsourcing basis in the field of IT, strive for improving the effectiveness and minimising the risk, should go. They assume joint creation of corporate knowledge based on the key knowledge of the outsourcing provider and the outsourcing recipient, which in practice can occur in the case of high commitment and experience of parties, optimum communication and proper motivation of the outsourcing provider and the outsourcing recipient.

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