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ORIGINALNI NAUČNI RAD / ORIGINAL SCIENTIFIC PAPER

COORDINATION AND HARMONIZATION OF CLIENT AND CONSULTANT GOALS IN THE DEVELOPMENT OF INFORMATION SYSTEMS PROJECTS

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Abstract: *The success of the project is the main goal in the management of projects of development and implementation of information systems. However, in the projects carried out by the joint team of the client and the consulting organization, the consultant's goals are also set, namely the acquisition of the consultant's knowledge and the growth of the consulting organization's business. In this research, we examined the impact of inter-organizational coordination on the achievement of client and consultant goals. For this purpose, a model of coordination and harmonization of the goals of the client and the consultant in the development and implementation of the information systems project was created. Based on the model, hypotheses were set and tested based on the views of the designers. The hypotheses confirmed the significant influence of coordination on the alignment of client and consultant goals. The scientific contribution of the work relates to new theoretical knowledge in the field of information systems management theory, coordination theory, agency theory and contracting theory. The practical benefits of the research refer to the benefits that managers of client and consulting organizations have in solving the problems and challenges of the development and implementation of an information systems project when it is carried out by a joint team of designers. The originality of the work refers to the modeling of the coordination relationship in order to achieve the goals of the client and the consultant.*

Keywords: *project success, contractual relationship, project uncertainty, new knowledge, business growth.*

JEL classification: *M15, M54.*

INTRODUCTION

Client organizations are increasingly hiring consulting organizations to participate in the development and implementation of information systems projects. Information systems development projects in which the client and consulting organization

participate differ from internal projects in which the project team is only from the client organization and external projects in which only designers from the consulting organization participate. Managing the relationship between the client and the consultant in a joint team is very complex, because the goals and interests of the client and the consultant are different.

The research problem is insufficiently realized goals of the client and the consultant in the implementation of the joint project of development and implementation of information systems. In order to solve the mentioned problem, close cooperation between the client and the consultant is needed during the development and implementation of the entire project. The cause of the problem is the poor inter-organizational coordination of the joint team of the client and consultant on the development and implementation of information systems. Coordination is defined as the effort to manage resources, client-consultant relationships, and interdependent tasks (Ljevo & Isak, 2018).

The subject of research is multidisciplinary and relates to the following areas: (1) management and development of information systems, (2) business process management, which includes coordination theory and agency theory, and (3) business law, where the theory of contracting between a client and a consultant is analysed.

The goals of the research are directed towards science and towards practice. Scientific objectives are related to describing the process of coordination of a joint team in the development and design of information systems to achieve the goals of the client and the consultant. Project uncertainty related to technical uncertainty and demand uncertainty will be described with the aim of reducing risks in the development and implementation of information systems. It will describe the method of measuring the success of the project (quality, costs, and time), it will describe the measurement of the consultant's knowledge acquisition (transfer of technology and the transfer of knowledge and skills) and it will describe the measurement of the growth of the consultant's business (financial growth, strategic growth, structural growth, and organizational growth).

The aim of the paper is to create a coordination model for the purpose of harmonizing the goals of the client and the consultant in the development of the information systems project, based on which new scientific facts and knowledge about the process of coordination of the joint project team, solving agency problems and establishing a good contractual relationship between the client and the consultant would be obtained.

Practical goals will refer to the benefits that will be enjoyed by the managers of the client and consulting organizations, the owners of those organizations, as well as the project employees in the joint project team.

Based on the proposed model, eleven auxiliary hypotheses were set.

THEORETICAL ASPECTS OF RESEARCH

Client-consultant relationship

The wishes and demands of customers for products and services are constantly changing under the influence of technical and technological developments. Competing companies continuously develop new products to satisfy and delight customers. For this reason, companies must have new knowledge, skills, and experiences in order to withstand the competitive struggle (El Dine & Taher, 2020). Since companies usually

do not have enough knowledge and skills, they often use external services provided by consulting firms (Nguyen & Fagerstrøm, 2021). The cooperation between consultants and clients seeks to create value for both parties. Value is determined by client satisfaction. For good cooperation, it is necessary to know the characteristics of the consultant and the client (Faghihi, Peimankar, Nazarpour, & Shafaat, 2022).

The characteristics of consultants are as follows: consulting knowledge, consulting skills and consultant behaviour. Consulting knowledge is a combination of technical skills, business understanding, insight into the sector and knowledge of the environment. Consulting skills refer to knowledge of tools and techniques that are key in providing consulting services. Professional behaviour of consultants are attitudes that act as factors for achieving defined goals and consulting competence of consultants.

The client's characteristics are as follows: a sense of partnership, commitment, and support of the management in the realization of goals, trust of the client, acceptance of changes and the like.

The client-consultant relationship has three phases (Figure 1), namely: 1) establishing the client-consultant relationship; 2) relationship management and 3) relationship transformation.

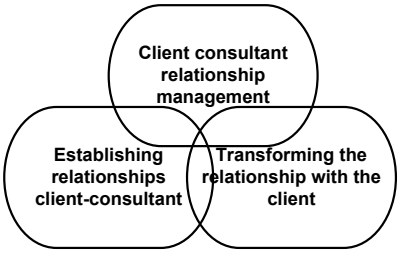


Figure 1. Phases of the client-consultant relationship

Source: Authors

Each phase has its own elements (Figure 2). The phase of establishing the client-consultant relationship deals with activities of consulting understanding of the client's organization and gaining the trust of key people in the client's organization (Ma, 2023). In addition, the development of the client-consultant relationship should be designed, and the terms of the arrangement agreed upon, as well as the negotiation and communication of mutual expectations for the consulting relationship. The client-consultant relationship management phase defines project management and the achievement of synergistic effects, the establishment of joint work between the client and the consultant and provides understanding and related to the clear expectations of the client and the consultant and determines the process of knowledge transfer and the development of skills at the client. The phase of transformation of the client-consultant relationship means that the initial dependence of the client on the consultant ends and gives way to cooperation by forming a joint team for implementation, ensuring support for project implementation and ensuring professional implementation of the project.

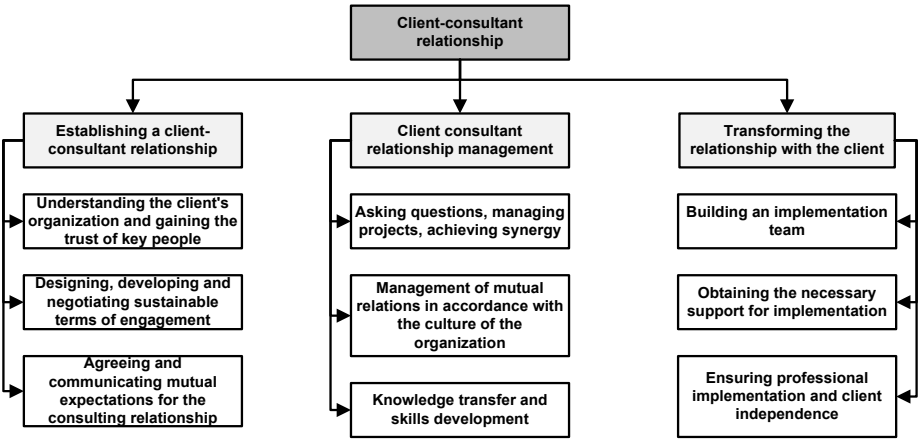


Figure 2. Elements of client-consultant relationship phases

Source: Authors

Contractual client-consultant relationship

The client-consultant relationship is a contractual relationship based on which professional and business success is built both for the client's organization and for the consultants (Vogel, Lind, & Holm, 2019).

Almost any contractual relationship, in which one party (the consultant) promises performance to the other (the client), is potentially subject to an agency problem. The cause of the problem is that the consultant usually has better information than the client about the relevant facts. The client cannot easily be convinced that the consultant's performance is exactly what was promised. Consequently, the consultant has an incentive to act opportunistically, skimping on the quality of his performance, or even diverting to himself some of what belongs to the client. For this reason, the client must establish a consultant monitoring system, which causes additional costs (Ahmadisheykhsarmast & Sonmez, 2020).

Contracts serve as an important platform to ensure that the future planned transaction and all potential contingencies, liabilities and risks are properly specified. The contractual relationship can be formal and define the client's expectations, and it can be informal and should understand the unwritten psychological expectations of the client (Vacca, Di Sorbo, Visaggio, & Canfora, 2021).

There are two types of contracts that are most often used in the relationship between a client and a consultant (Sayeed, Marco-Gisbert, & Caira, 2020), namely: 1) contracts with a fixed price for a specified job and 2) contracts that compensate for the time spent working and materials.

Research results (Sayeed, Marco-Gisbert, & Caira, 2020) show that in software projects, about 70% use contracts with a fixed price for specified work and about 30% use contracts that compensate for the time spent working and materials. By analysing the contractual relationships used, the authors (Sayeed, Marco-Gisbert, & Caira, 2020) came to the conclusion that projects using fixed-price contracts for specified work are more likely to become problematic compared to projects using time-compensating

contracts labour and materials (Di Angelo & Salzer, 2019). The risks associated with contracts with a fixed price for specified work are related to: 1) focus on low price increases the risk of opportunistic behaviour of the consultant, 2) less focus on the competence of the consultant resulting in the risk of project failure and 3) less involvement of the consultant in management with the project results in an extension of the project completion deadline and a lower level of project quality. The main reason for using fixed price contracts for specified work is to avoid financial risks related to time and material cost overruns.

The selection of contracts that compensate for the time spent working and materials is not sufficient in itself for the success of information systems projects but requires adequate inter-organizational coordination between the client and the consultant.

Inter-organizational coordination

Coordination is defined as an effort to manage resources, relationships, time, and interdependencies of tasks among project participants (Kudaravalli, Faraj, & Johnson, 2017). Coordinating shared resources includes resource allocation processes to regulate the use of limited resources by multiple actors in a team (Todorović, Todorović, & Tomaš). Coordinating relationships is particularly important when the performance of one actor's activity is used as an input for another actor's activity. Coordination over time involves managing divergent work schedules, process cycles related to different actors. Task and subtask coordination involves breaking down large-scale processes into smaller tasks and their constituent subtasks, ensuring their alignment, and allocating the necessary resources to them to help organizations achieve their goals.

Client organizations are increasingly hiring consulting firms to participate in the implementation of information systems projects. Coordination in the joint team of the client and the consultant in the development of information systems is an emerging phenomenon that includes the use of strategies and patterns of behaviour aimed at integrating and harmonizing the actions, knowledge and goals of team members, with the aim of achieving common goals (Zaitsev, Gal, & Tan, 2020).

When the team achieves a high level of coordination, the work of all its members contributes to the results of the project, but when the coordination is poor, the losses that occur in the process negatively affect the outcomes of the project (Al-Saqqa, Sawalha, & AbdelNabi, 2020).

In the theory of coordination, the most common problems stand out (Stray & Moe, 2020): How can general goals be divided into actions? How can actions be assigned to groups or individual actors? How can resources be allocated between different activities? How can information be shared among different actors to help achieve common goals?

The mechanisms of coordination are (Carstens & Richardson, 2019): the contract on the management of the joint project, the establishment of standards, written policies, rules, job descriptions and standard procedures that enable an integrated pattern of behaviour.

We especially emphasize the importance of project management contracts that describe in detail how, when and to whom resources should be distributed in order to facilitate project coordination (Zou, Lo, Kochhar, Le, & Xia, 2019).

Uncertainty of the project

Project uncertainty has a negative impact on project management and success. Uncertainty can be a requirement uncertainty or a technical uncertainty (Liberatore & Luo, 2009).

Requirement uncertainty refers to ambiguities regarding the specification of program activities. i.e. requirements that the system should perform, as well as under what conditions those activities should be performed. The specification is the initial phase of the software process where the requirements for the future information system are analysed. The specification is dealt with by designers in the information system and future users. The elements of the specification of program activities on the development of information systems must include: 1) user requirements, 2) system requirements and 3) software support. In order to reduce the uncertainty of requests, business knowledge is necessary.

Technical uncertainty can lead to greater complexity and ambiguity in project development and implementation. Consultants must possess technical knowledge and skills, and project management skills to interest clients in joining the team. Consultants should impart knowledge and skills to the client and earn their respect and trust. We can say that the technical competence of the consultant is an in-depth expertise with which the client is not familiar. Technical knowledge as a competence enables the consultant to deliver the agreed results for the client. Consultants differ like any other professional group in the quality of their technical competence, and the onus is on the client to analyse the consultants in terms of their technical competence. Possession of technical competence of consultants does not guarantee successful client-consultant interaction. Instead, it is necessary for consultants to share and transfer knowledge and skills to their client. If the consultant does not transfer his knowledge and skills to the client, the client will not consider the project successful.

Alignment of client and consultant goals

The success of development and implementation of an information systems development project with the help of consultants requires that the client and consultants work together and achieve their goals individually and jointly. For this reason, the client and consulting organization should implement coordinated activities that favourably affect their goals (Lauer, 2021).

The client's goals are related to the success of the information system project, obtaining relevant information about the project and the activities of the consultants, controlling the consultant's actions, the performance of the project and agreeing on the optimal reward for the consulting organization. The success of an information systems project is measured by (Zaleski & Michalski, 2021): client satisfaction, i.e. the acceptance of the project by the client, 2) the perceived quality of the project, i.e. that the project affects the improvement of user performance, 3) the successful implementation of the project, i.e. that the project was completed within the plan and budget and fulfil the specified requirements.

Objectives of the consultant are a skills and knowledge-related issue. Having knowledge and skills is an important source of a consultant's competitive advantage. Consulting firms require their managers and employees to continuously improve their knowledge and skills individually, but also through joint work with the client on the

development and implementation of information systems (Durmic, 2020). An important managerial problem relates to the balance between coordination mechanisms and knowledge flows. Coordination mechanisms are: decision-making decentralization, personal coordination and electronic communication. Successful projects offer consultants experience and knowledge that they can easily transfer to another project and increase the chances of project success. Even if the projects are not successful or marginally successful, the consultants will get new information about what went wrong and what should be avoided in future projects. In order to survive consulting organizations must constantly contract new projects in an extremely competitive market. Therefore, the goal of the consulting organization is a higher level of development. In addition, the consultant's goals may relate to the optimal level of rewards, autonomy in assessing necessary and necessary actions, achieving the best possible results with standard efforts and informational advantage over the client.

METHODS

The research used a combined research methodology. Quantitative data were obtained on the basis of a survey questionnaire of the joint project team of the client and consultant, and qualitative data were obtained by talking to managers and designers of information systems.

Only respondents who were willing to voluntarily participate in the research took part in the research. The research examined the views of 30 designers who worked on the development of information systems projects. Individual and average assessments of respondents represent the opinion of those persons, and not the position of the organization in which they are employed. After the research was conducted, an interview was conducted with randomly selected respondents (managers and designers). We asked them to give comments on certain characteristic items.

The study was designed to evaluate the influence of independent variables on the dependent variable, that is, the influence of inter-organizational coordination (client and consultant) on the achievement of the client's and consultant's goals. To test the proposed model, we created a questionnaire based on which we collected data on the following constructs: contractual relationship, coordination, demand uncertainty, technical uncertainty, client goals and consultant goals. The items measured in the constructs were developed based on literature review and practical experience. The items were measured based on the views of the project team members, and a five-point Likert scale was used (Table 1).

Table 1. Five-point Likert scale of perception

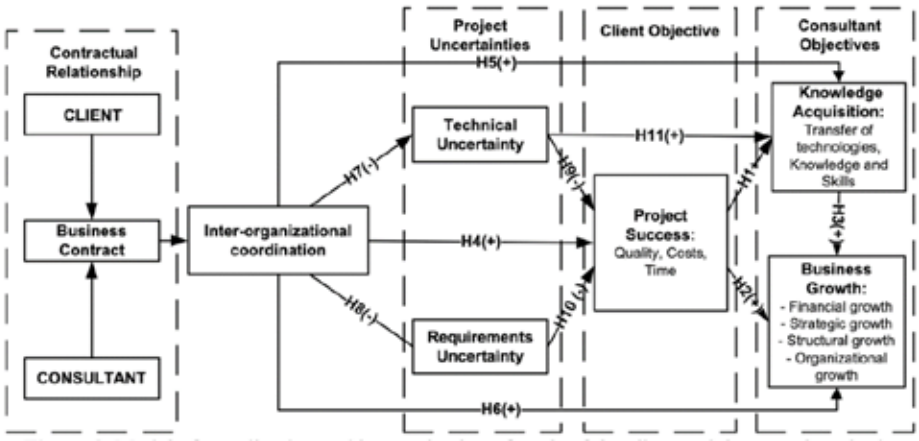
Agreement				
1	**2**	**3**	**4**	**5**
I don't agree at all	I do not agree	I'm undecided	I agree	I completely agree
Frequency				
Never	Rarely	Periodically	Often	Very often
Importance				

It doesn't matter	Little important	Moderately important	Important	Very important
Probability				
Almost never true	Usually not true	Sometimes true	Usually true	Almost always true

Source: Authors

The percentage of perception ranges from 0 to 100 %. Zero % is when the perception is negative (1), and 100 % when the perception is maximally positive (5). For research purposes, a model of coordination and harmonization of client and consultant goals in the development of an information systems project was defined (Luo & Liberatore, 2009) (Figure 3).

Figure 3. Model of coordination and harmonization of goals of the client and the consultant in the development of the information systems project



Source : Authors

For the project of inter-organizational coordination and harmonization of client and consultant goals in the development and implementation of information systems projects:

H1: A higher level of project performance will lead to new knowledge for consultants;

H2: Higher levels of project performance will lead to business growth of the consulting organization;

H3: A higher level of knowledge of consultants will lead to business growth of the consulting organization;

H4: A higher level of coordination between the client and the consultant will lead to higher levels of project success;

H5: A higher level of coordination between the client and the consultant will lead to new knowledge for the consultants;

H6: A higher level of coordination between clients and consultants will lead to the business growth of the consulting organization;

H7: A higher level of coordination between the client and the consultant will lead to lower levels of technical uncertainty;

H8: A higher level of client-consultant coordination will lead to lower levels of demand uncertainty;

H9: A higher level of technical uncertainty will lead to lower levels of project success;

H10: A higher level of uncertainty of requirements will lead to lower levels of project success;

H11: A higher level of technical project uncertainty will lead to new knowledge for consultants.

RESEARCH RESULTS

Results of certain hypotheses

H1: A higher level of project performance will lead to new knowledge for consultants

In order for consulting firms to survive and develop, it is necessary for them to have continuous engagement. Successfully implemented projects bring them new knowledge and a competitive advantage. Knowledge acquisition means the amount of new knowledge that consultants can acquire in all phases of project implementation. Consultants from successful projects can gain knowledge about project management that enables them to better manage and cooperate in future projects. Even unsuccessful and marginally successful projects can serve consultants to avoid risks and problems that may appear in similar projects. Figure 4 shows the impact of the success of the project on the consultant's knowledge acquisition.

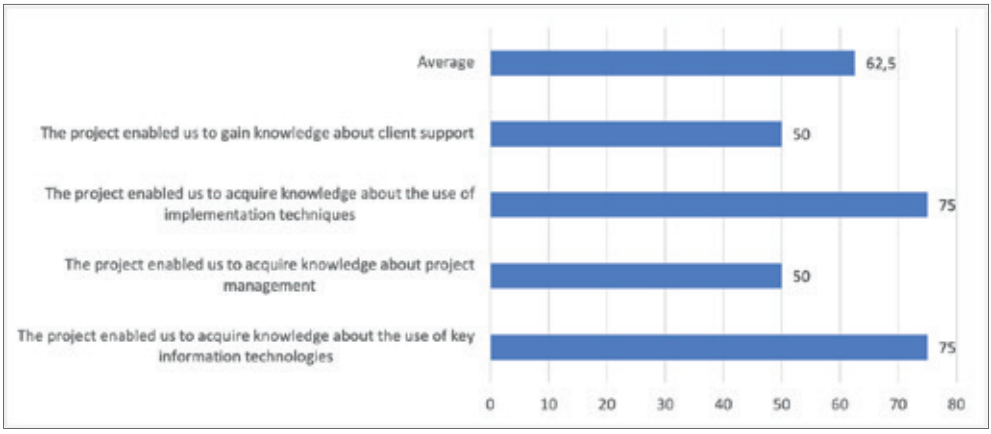


Figure 4. Questions related to the impact of project success on the consultant's knowledge acquisition

Source: Authors

Designers agree (75%) on two issues that the success of the project has a significant impact on the acquisition of knowledge of consultants, namely: (1) the project enabled us to acquire knowledge about the use of key information technologies and (2) the project enabled us to acquire knowledge about the use of techniques implementation.

The designers had a neutral attitude (50%) on two questions about the impact of the project's success on the acquisition of knowledge of consultants, namely: (1) the project enabled us to acquire knowledge about project management and (2) the project enabled us to acquire knowledge about client support.

The average level of agreement is 62.5% about the impact of project success on the consultant's knowledge acquisition.

H2: Higher levels of project performance will lead to business growth of the consulting organization.

Successfully implemented projects are the basis for the growth of the consulting organization's business. The consulting organization relies on the reputation and recommendations it has achieved through the realization of projects to acquire new clients and expand its business. Satisfied clients are the best recommendation for getting new business. Figure 5 shows the issues related to the impact of inter-organizational coordination on the success of the project.

Figure 5. Questions related to the impact of project performance on the business growth of the consulting organization

Source: Authors

Designers agree (75%) on three issues that the impact of the project's performance on the business growth of the consulting organization is significant, namely: (1) the project was useful in obtaining new projects, (2) the project was useful in achieving a competitive advantage and (3) the project was useful for improving the way of management.

The designers had a neutral attitude (50%) when it came to whether the project was useful for improving communications and control.

The average level of agreement is significant (68.75%) about the impact of the success of the project on the business growth of the consulting organization.

H3: A higher level of knowledge of consultants will lead to business growth of the consulting organization.

The consultant's knowledge is of utmost importance for establishing relationships with clients, attracting new clients, and expanding the service. Knowledge of project management best practices enables consultants to provide quality service and increase client satisfaction. Figure 6 presents the questions related to the impact of the consultant's new knowledge on the growth of the consultant's business.

Designers agree (75%) on two questions that the impact of project performance on the business growth of the consulting organization is significant, namely: (1) acquired knowledge helped us achieve financial growth of business (income, profit, own funds) and (2) acquired knowledge helped us achieve organizational growth (change in company structure, organizational culture, leadership style). Designers had a neutral attitude (50%) regarding two questions: (1) acquired knowledge helped us achieve strategic growth, i.e. competitive advantage, (2) acquired knowledge helped us achieve structural growth (responsibility, communication, control). The average level of agreement is significant (62.5%) about the influence of the consultant's new knowledge on the growth of the consultant's business.

Figure 6. Questions related to the impact of the consultant's new knowledge on the growth of the consultant's business

Source: Authors

H4: A higher level of coordination between the client and the consultant will lead to higher levels of project success.

Team cohesion is the degree to which a team is united to achieve common goals and objectives. Joint teams working on the development of information systems usually consist of several developers of client and consulting organizations who work on different parts of the project at the same time, so the contribution of each member becomes important for the completion of the project. Interconnections and coordination between team members are essential for the success of the project. Figure 7 presents questions related to the impact of inter-organizational coordination on the success of the project. Designers agree (75%) on all questions that the influence of inter-organizational coordination on project success is significant.

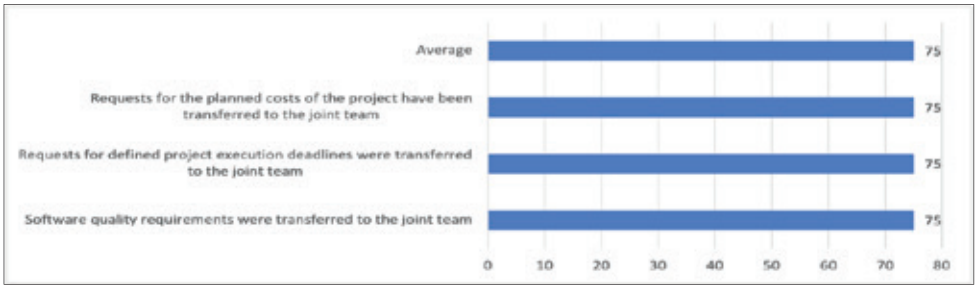


Figure 7. Issues related to the impact of inter-organizational coordination on project success

Source: Authors

H5: A higher level of coordination between the client and the consultant will lead to new knowledge for the consultants.

Knowledge sharing is the recognition of existing and available knowledge, with the aim of transferring and applying knowledge to solve specific tasks better, faster, and cheaper. Sharing knowledge, skills, ideas, and information among team members can significantly affect quality solutions in the process of project development and implementation. In the case of a joint team on the development of information systems, each member of the team participates in decision-making and is obliged to share available information and knowledge with his colleagues in order to achieve the success of the project. Figure 8 shows the questions related to the influence of inter-organizational coordination on the acquisition of consultant knowledge. Designers agree (75%) on all questions that the influence of inter-organizational coordination on the acquisition of consultant knowledge is significant.

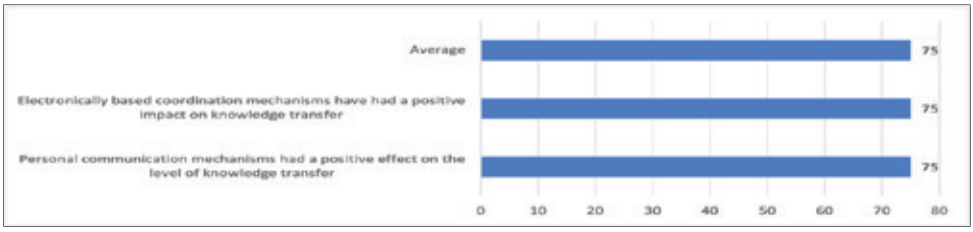


Figure 8. Questions related to the influence of inter-organizational coordination on the acquisition of knowledge by consultants

Source: Authors

H6: A higher level of coordination between the client and the consultant will lead to the business growth of the consulting organization.

Growth can be defined as an integral and continuous process, which is characteristic of all systems that have the ability to evolve over time, and thus move to higher levels of organization and more efficient states. Figure 9 shows questions related to the impact of inter-organizational coordination on the growth of the consultant's business.

Designers agree (75%) on two questions that the influence of inter-organizational coordination on the growth of business at consultants is significant, namely: (1) inter-organizational coordination helped us achieve financial growth of business (revenues, profits, own funds) and (2) inter-organizational coordination helped us achieve organizational growth (change in company structure, organizational culture, leadership style).

Designers had a neutral attitude (50%) regarding two questions about the impact of inter-organizational coordination on the growth of business at consultants, namely: (1) inter-organizational coordination helped us achieve strategic growth, i.e. competitive advantage and (2) inter-organizational coordination helped us achieve structural growth (responsibility, communication, control).

The average level of agreement is 62.5% on the impact of inter-organizational coordination on the growth of the consultant's business.

Figure 9. Questions related to the impact of inter-organizational coordination on the growth of the consultant's business

Source: Authors

H7: A higher level of client-consultant coordination will lead to lower levels of technical uncertainty.

Technical uncertainty refers to the knowledge and skills of the joint team in the development and implementation of information systems projects. It is believed that a higher level of inter-organizational coordination reduces the technical uncertainty of the project, and therefore the overall uncertainty of the project. Figure 10 shows questions related to the impact of inter-organizational coordination on the level of technical uncertainty.

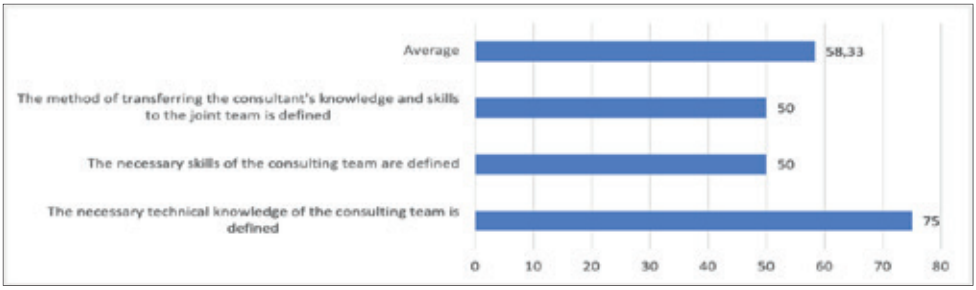


Figure 10. Questions related to the influence of inter-organizational coordination on the level of technical uncertainty

Source: Authors

Designers agree (75%) that inter-organizational coordination has a significant impact on the level of technical uncertainty in cases where the required technical knowledge of the consulting team is clearly defined.

Designers had a neutral attitude (50%) regarding two questions about the impact of inter-organizational coordination on the level of technical uncertainty, namely: (1) the necessary skills of the consulting team were defined and (2) the method of transferring the knowledge and skills of the consultant to the joint team was defined.

The average level of agreement is 58.33% on the impact of inter-organizational coordination on the level of technical uncertainty.

H8: A higher level of client-consultant coordination will lead to lower levels of requirement uncertainty.

Requirements uncertainty refers to uncertainties about the application specifications desired by clients. A higher level of inter-organizational coordination is expected to reduce the level of requirement uncertainty, as it will leverage the client's and consultant's business knowledge to better define application requirements. Figure 11 shows questions related to the impact of inter-organizational coordination on the level of uncertainty of requirements.

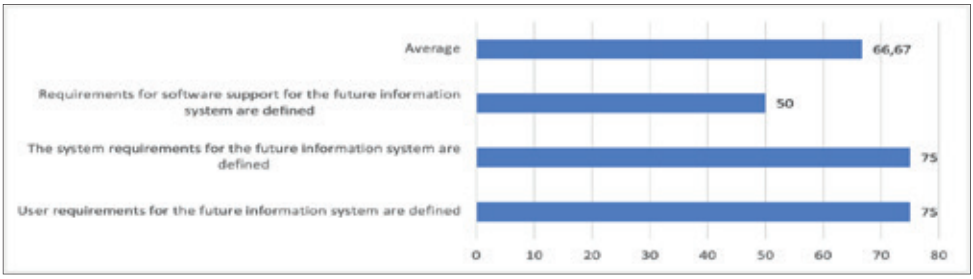


Figure 11. Questions related to the influence of inter-organizational coordination on the level of uncertainty of requirements

Source: Authors

Designers agree (75%) on two issues that inter-organizational coordination has a significant impact on the level of uncertainty of requirements: (1) user requirements for the future information system are defined and (2) system requirements for the future information system are defined.

Designers had a neutral attitude (50%) in the question about the influence of inter-organizational coordination on the level of uncertainty of requirements in the question related to the defined requirements for software support for the future information system.

The average level of agreement is 66.67% on the influence of inter-organizational coordination on the level of uncertainty of requests.

H9: A higher level of technical uncertainty will lead to lower levels of project success.

Technical uncertainty related to the level of knowledge and skills of designers leads to increased risks and deviations in project time and costs. Inexperience can

increase errors and inconsistencies and lead to a lower quality of the designed information system. In Figure 12, there are questions related to the influence of the technical uncertainty of the project on the level of success of the project.

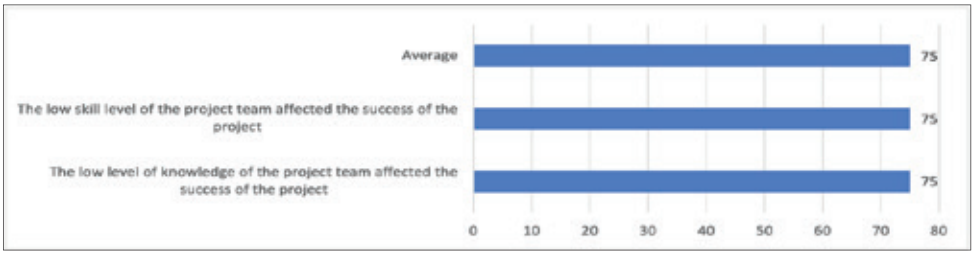


Figure 12. Questions related to the influence of the project's technical uncertainty on the level of project success

Source: Authors

Designers agree (75%) on both questions that the technical uncertainty of the project has a significant impact on the level of project success, namely: (1) the low level of knowledge of the project team affected the success of the project and (2) the low level of skills of the project team affected the success project.

The average level of agreement is 75% on the impact of the technical uncertainty of the project on the level of success of the project.

H10: A higher level of uncertainty of requirements will lead to lower levels of project success.

Uncertainty of requirements can be the main causes of project delays, cost overruns, lower project quality levels and customer dissatisfaction. In Figure 13, there are questions related to the impact of project uncertainty on the level of project success.

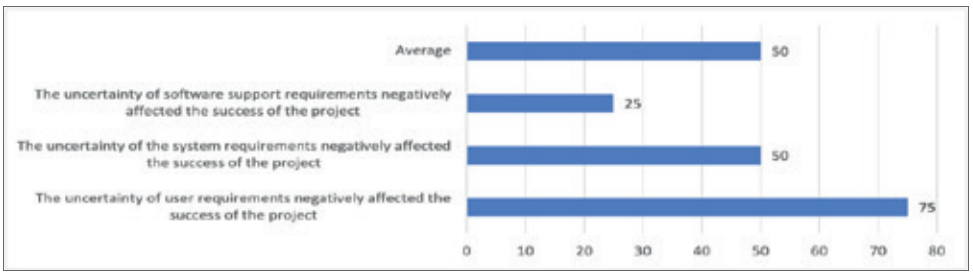


Figure 13. Questions related to the impact of project uncertainty on the level of project success

Source: Authors

Designers agree (75%) on the question that the uncertainty of user requirements for the future information system had a negative impact on the success of the project. Designers had a neutral attitude (50%) regarding the impact of the uncertainty of system requirements on the success of the project.The designers did not agree with the view (25%) that the uncertainty of the software support request affected the success of the project.The average level of agreement is 50% on the impact of project uncertainty on the level of project success.

H11: A higher level of technical project uncertainty will lead to new knowledge for consultants.

New and more complex projects require greater technical knowledge and skills of consultants. Increasing technical uncertainty increases the risks of project development and implementation. Consultants must continuously improve their knowledge and adopt new technologies. In addition, consultants must acquire knowledge about solving problems and overcoming challenges. Figure 14 shows questions related to the impact of technical uncertainty on the consultant's knowledge acquisition.

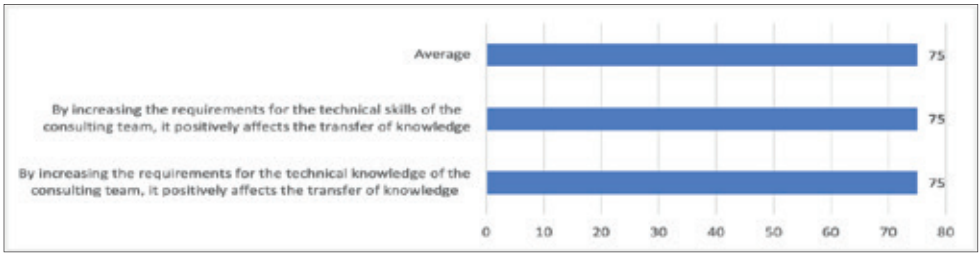


Figure 14. Questions related to the impact of technical uncertainty on the consultant's knowledge acquisition

Source: Authors

Designers agree (75%) on both questions: (1) increasing the demand for technical knowledge of the consulting team positively affects knowledge transfer and (2) increasing the demand for technical skills of the consulting team positively affects knowledge transfer.

The average level of agreement is 75% on the influence of technical uncertainty on the acquisition of consultant knowledge.

Summary results

Figure 15 presents summary results on the impact of inter-organizational coordination on project uncertainty, client goals, and consultant goals. Inter-organizational coordination is best defined by the contract between the client and the consultant. The contract is the basis for properly specifying and regulating the relationship between the client and the consultant related to future planned transactions, all potential contingencies, obligations, responsibilities and risks.

Interorganizational coordination has a significant impact on project uncertainty 62.5%, i.e. the impact of inter-organizational coordination on technical uncertainty 58.33% and demand uncertainty 66.67%. Inter-organizational coordination has a significant impact (75%) on project success. The impact of inter-organizational coordination on the consultant's goals is 66.67%, i.e. the impact on knowledge acquisition is 75% and the impact on business growth is 58.33%.

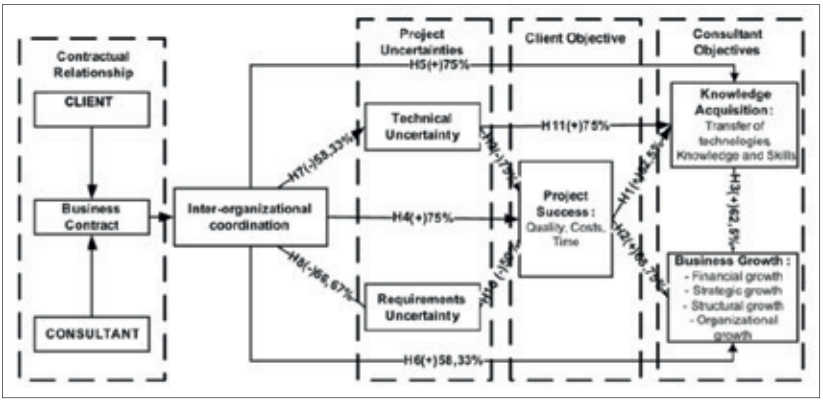


Figure 15. Results of the model of coordination and harmonization of the goals of the client and the consultant in the development of the information systems project

Source: Authors

DISCUSSION

In the paper, we defined the model and examined the impact of coordination on project uncertainty, client goals, and consultant goals. All 11 hypotheses were confirmed, and we showed that coordination has a significant impact on project uncertainty, client goals, and consultant goals. First, we determined the impact of coordination on the client's goals, and then the impact of coordination on the consultant's goals. We divided the consultant's goals into two groups: (1) acquiring knowledge and (2) business development. Since the research is also focused on the consultant, we determined that the development of their relationship is crucial for the success of the project. The role of coordination is to: (1) establish the client-consultant relationship, (2) manage the client-consultant relationship, and (3) transform the client-consultant relationship. Research has shown that a successfully completed project allows consultants to acquire new knowledge and skills that will help them achieve a competitive advantage, improve their image, get new projects and improve the success of the organization. The research contributed to the understanding of the importance and role of the contractual relationship between the client and the consultant for building a professional relationship and business success for both the client's organization and the consultant's organization. This research contributes to the understanding of coordination theory and agency theory. We found that coordination is a key factor in reducing agency problems and agency costs.The results of the research provide useful information for practice, and especially for managers of client and consulting organizations and their joint teams on the development of information systems. The managers of the client organization should understand that through the implementation of the project, the consultants must also meet their goals. Managers of the consulting organization must transfer technology, knowledge, and skills to the client organization.

This research also has its limitations. In our work, we focused more on the acquisition of knowledge and the growth of the consulting organization, and less on the acquisition of knowledge and the growth of the client organization. We examined the relationship between the goals of the client and the consultant more from the perspective of the consultant. In the research, we did not fully examine all the factors that

influence the relationship between the client and the consultant, which are defined by the agency theory.

CONCLUSION

Improving project performance is an important goal in managing information systems development projects. In projects of development and implementation of information systems where designers of client and consulting organizations are engaged, successfully implemented projects must meet the goals of the client and the consultant.

For this reason, in this paper we created a model for researching the impact of inter-organizational coordination on project uncertainty, client and consultant goals. We used data from a survey and interviews with designers of client and consulting organizations who worked on the development of information systems.

We found that coordination has a significant impact on project uncertainty, client and consultant goals.The designers noted that by harmonizing the goals of the client and the consultant, agency problems in their relationships are solved, business risks are reduced and business results are achieved.

In addition to non-formal relations, the designers emphasized the importance of formal contractual relations between the client and the consulting organization. Contracts determine who and what is allowed to do with what is owned, what will be the relationship with the people who are employed and many other mutual rights and obligations. This research contributes to information systems theory and development, coordination theory, agency theory, and contracting theory. In addition, the research provided useful information to managers related to managing the development of information systems, improving coordination, reducing agency costs and defining contractual relationships between the client and the consultant.

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