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REASONED DECISIONS IN CONSTRUCTION CONTRACTS EVALUATION

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Abstract. Preparation of an agreement has a great influence on economic success of both parties and on their behaviour in order to increase their profits and to protect themselves against a possible loss. It is important to use technological innovations in construction contracting. Even when the contractor is selected and the price and work terms are negotiated, it is possible to choose several variants of agreements. The aim of this article is to develop a hierarchical model of criteria of a construction contract agreement based on their functions. Construction contract agreements can be concluded, evaluated and compared on the basis of this model. The model forms the basis of decision support system for analysis of construction contracts. Decision support system created on the basis of the presented model can be very useful and helpful in construction contract agreement and can be widely implemented in different construction sectors.

Keywords: decision support systems, construction contracts, multiple criteria evaluation.

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1. Introduction

Economic, political, legal, social, technical and technological environment makes advanced countries of the world transform their traditional business to electronic in some degree, assign part of human activities to computer-based decision support systems in decision-making and use opportunities provided by internet more effectively. In order to faster solve legal problems, electronic legal decision support systems have been created in the world. Practical implementation of such systems facilitates navigation in the legal system, frees from additional reading of legal acts and enables an analysis of variants of decisions and selection of the most favourable ones. Construction is known as a conservative branch of industry in implementation of new technologies. It is common that the construction industry is the last

to accept changes brought about by new technologies compared to other industrial branches. Management of construction works includes adjustment of agreements between the client and the contractor. Preparation of an agreement has a great influence on economic success of both parties and on their behaviour to increase their profits and to protect themselves against a possible loss.

One of the most important features which derive construction from other processes is a complexity with a number of stages, which must be appropriately adjusted and managed. The entity that commissions construction must make different multi-aim decisions at various construction stages.

Contractor's selection is one of the most important processes and causes a lot of problems during construction. Therefore, selection of a contractor is a very important stage in implementing of an investment project. Patrick Sik-Wah Fong, Kit-Yung Choi (2000) have analysed methods of contractors' selection and noted that some methods are non-exhaustive and tend to be biased: there is a lack of opportunities to evaluate abilities of a contractor and meet time, price, quality and security requirements at the same time. These authors have analysed possibilities to apply the Analytic Hierarchy Process (AHP) Method in contractor's selection according to various criteria. Straub and van Mossel (2007) has analysed contractor selection for performance-based maintenance partnership. Banaitis and Banaitienė (2006) has analysed evaluation of contractors' qualification.

Architects are not less important in the construction process. Cheung *et al.* (2002) claim that price cannot be the only criterion influencing selection of an architect. Authors have compiled a questionnaire and made an expert research, which helped determine criteria that influence architect's selection and the significance of the criteria. An architect was selected using AHP method. The system for selection of architects was created on the basis of the model formed during the research.

Multicriteria methods may be used not only for selecting contractors or architects. Zavadskas *et al.* (2004) have analysed possibilities to apply *Electre III* method in evaluating the effectiveness of investment to commercial objects. The authors note that while evaluating effectiveness of investment to commercial objects, total effect of various criteria must also be evaluated: amount of construction works in commercial objects, trends, legal issues and available construction solutions. Antuchevičienė (2003), Zavadskas and Antuchevičienė (2007) has introduced a system of criteria specially designed for reconstruction of rural buildings. Šaparauskas (2003) reviewed guides, manuals, recommendations, databases, software and internet tools for multicriteria building evaluation from the sustainable development perspective. The author offered an evaluation system based on the performed analysis. Software based on MCDM-23 (multi-criteria decision-making) method was used for evaluation, and projects of individual houses *Kedras* and *Vasaris* were compared to check the principles. Vilutienė, Zavadskas (2003) have presented a system of criteria, which helps make decisions related to maintenance of residential houses. Possibilities to use various methods of the game theory while making decisions in the construction sector were analysed by Zavadskas *et al.* (2002), Antuchevičienė *et al.* (2006), Trinkūnas *et al.* (2002, 2003) have analysed systems of e-trading for construction materials and goods and have offered the model of an internet decision support system for trading in construction materials. The model is based on determination

of criteria which define construction materials and goods, on importance of the criteria and on application of multicriteria evaluation methods.

The construction industry is among the most important branches in each country's economy. The fact is witnessed by the attempts of various authors to increase effectiveness of construction solutions. Most of the above-mentioned authors solve issues related to construction investment process.

Various other aspects of evaluation of efficiency of construction and housing development was analysed by Ambrasas and Stankevičius (2007), Banaitis and Banaitienė (2007), Bardauskienė (2007), Jonaitis and Naimavičienė (2003, 2004), Kaklauskas *et al.* (2007), Mickaitytė *et al.* (2008), Pikutis and Šeduikytė (2006), Šaparauskas and Turskis (2006), Turskis *et al.* (2006), Viteikienė (2006), Viteikienė and Zavadskas (2007), Zagorskas and Turskis (2006), Zavadskas and Antuchevičienė (2006), Zavadskas *et al.* (2004, 2007, 2008).

Mitkus and Trinkūnienė (2006, 2007), Ginevičius and Čirba (2003), Keršulienė (2007), analysed problems of evaluation of efficiency of construction contracts. The complete model of evaluation of construction contracts, taking into account legal side of the contracts has not been created yet, however. Zavadskas and Vilutienė (2006) has analysed a multiple criteria evaluation of Multi-family apartment block's maintenance.

The aim of the article is to present a model of multicriteria system which will form the basis of construction contracts legal evaluation decision support system.

The research objectives are to study the possibilities of current legal decision support systems, to prepare the structural model of construction contracts evaluation criteria and to test the possibilities of such model practical implementation.

The methods are based on works of Lithuanian and foreign scientists in the sphere of management of construction processes, decision support theory, modelling the decision support systems, application of computer technologies and on legal methodology related to preparation of agreements. Development of the theoretical model of the decision support system for evaluation of construction contracts is related to legal regulation of a construction contracts and application of principles of decision support systems intended for construction and law.

Research results included the presented model of criteria system which can form the basis of construction contracts legal evaluation decision support system. This system can be used for concluding acceptable and well-thought construction contraction agreements on the basis of effective methodologies for their evaluation and comparison.

2. Current legal decision support systems

To solve various legal issues a lot of decision support systems are already created in the world. It is possible to derive two different rules used in the systems (Meldman 1977): general norms defined in claims and special norms taken from precedent cases. Disputable situations are immediately compared to precedents and the system determines a precedent that is closest to the violation of the civil law.

TAXADVISOR (Michaelsen, Michie 1983) used *EMYCIN* system in order to assist lawyers in land tax administration. The audit company *Ernst and Young* has created 3 legal expert systems: *VATIA*, *Latent Damage Adviser,* and *THUMPER*.

The main attention in *VATIA* (Value Added Tax intelligent Assistant) (Susskind, Tindall 1988) system is paid to VAT calculation. With the help of *VATIA* system auditors could analyse VAT payments of a client.

Latent Damage Adviser (Capper, Susskind 1988) was created on the basis of 1986 Latent Damage Act (Australia). With the help of this system experts of latent damage could solve some difficulties with less effort; however, it was too complex for non-experts, because they were not knowledgeable in abundant interrelated rules, which are characteristic to this sphere of law. The law is barely commented, complex and difficult to understand.

THUMPER (Swaffield 1991) system was meant for employees of *Ernst and Young,* who specialize in general taxation issues. With the help of this system information about applied taxes could be retrieved and activities could be planned considering the taxes. Three abstract legal models were implemented in *THUMPER* system:

- The farthest level: consumer problems;
- Middle level: expert explanations and legislation;
- The level which represents legislation and legal cases.

One of the first *Rand* Corporation expert systems is *LDS*, which helps lawyers to solve inheritance disputes. *LDS* system consists of laws, court cases and law principles; lawyers use this information operatively when preparing claims in inheritance cases.

SAL (Waterman *et al.* 1986) is another system created by the *Rand* Corporation; it is also used to solve inheritance issues. Knowledge about losses, liability of the defendant, liability of the complainant, the main property distribution characteristics such as type of parties and legal mastery of the opponent were used in *SAL* system. These two systems are important because they represent first steps of IT in property distribution solutions.

WIRE IQ (Wire Intelligent Quantum) (Douglas, Toulson 1999) is an internet decision support system, which enables lawyers, insurers and reinsurers perform quantitative analysis for claims in property distribution and personal damages rapidly. In 1999, Douglas and Toulson analysed value determination structure in torts, property distribution and personal damage. A rule-based system must be the basis in this process. Claims are detailed (claim type, complainant, age, gender, salary, etc.) and included in the system. Rules used in the system help to determine the value of litigious property or tort. *WIRE IQ* database consists of thousands of records including disputes on property distribution and claims on damage remuneration. The system analyses variants, performs comparative analysis, selects precedents and forecasts.

A number of legal decision support systems in the It and law laboratory created Donal Berman; the systems are described in Table 1 (Zelenzikow 2004).

In order to conclude acceptable and well-thought construction contraction agreements (hereinafter CCA), effective methodologies for their evaluation and comparison must be created. Analysis of both technical, organizational and economic aspects of construction and legal aspects of CCAs is necessary in order to prepare such methodologies. In order to prepare a proper CCA, it is necessary to analyse agreement provisions thoroughly considering the descriptive indicators.

Table 1. Legal decision support systems created by Donal Berman in the IT and law laboratory

System	Application	Used argumentation technique	Status
IKBALS I	Remuneration of damage to employees	Argumentation based on rules and facts.	Unused since 1992 due to changes in the legal system.
CAAS	Credit law	Argumentation based on rules.	Was used until 1995 for internal purposes in Melbourne Bank.
IKBALS III	Credit law	Argumentation based on rules and facts. Factors describing certain facts were studied using rules.	Used only for research.
Spulit Up	Issues related to family law and property distribution	Argumentation based on rules and neural networks. Separate argumentation section created.	The first version was used by legal intermediaries for private purposes. The second version was used in internet, which enabled to expand functions.
Family_Negotiator	Dealing with family law issues	Argumentation based on rules and facts.	Exceptional use for clarification of family law principles.
Embrace	Refugee law	Argumentation based on rules and facts.	Political changes influenced by the new government (Australia) determined use of this system only for educational purposes.
GetAid	Legal assistance	Networks for sequential argumentation are used. Available in internet.	The system is commercially successful. It is used in legal consultations.
RightCopy	Informs software authors about their copyrights	Networks for sequential argumentation are used.	The system is not commercial.
Sentencing Informatikon System	Consults lawyers about possible verdicts in criminal cases	Networks for sequential argumentation are used.	The system is being developed.
Kamily_Winner	Compilation of marriage contracts	Argumentation based on rules and facts, the uncertainty theory applied.	The system is being developed.

3. Modelling the construction contracts agreements provisions

The system of CCA provisions may be also modelled considering functions of provisions. All CCA provisions have certain functions. For example, contract provisions regulating guarantees, surety and forfeit have liability guarantee function. All provisions regulating this function may be joined to a separate subsystem. Other contract provisions may be joined to subsystems analogically. The model of the system of CCA provisions formed on the basis of this principle is shown in Fig. 1.

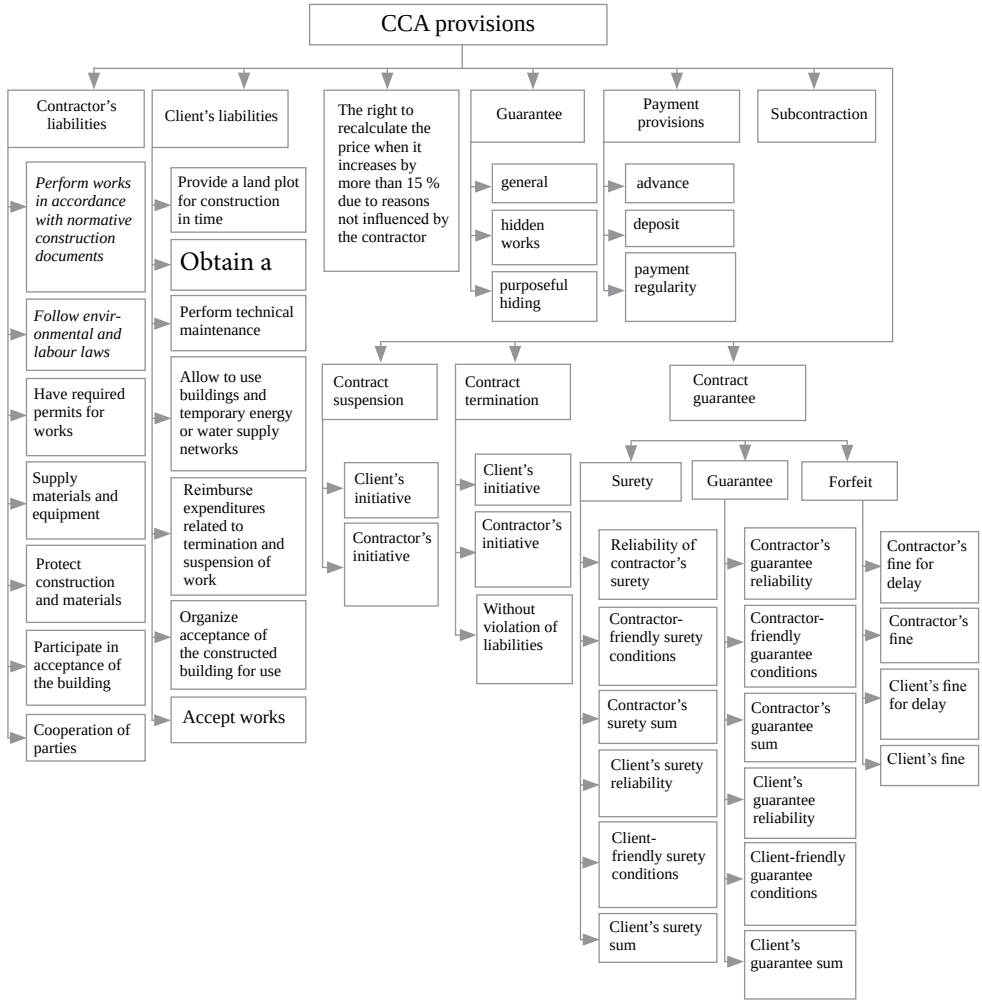

Fig. 1. The model of CCA provisions based on functions

After analysis of few possible models this model was selected as the most suitable for creation of the multicriteria evaluation technique for CCAs. Such conclusion can be made due to the following reasons:

- experts can evaluate more easily the importance of contract provisions when the provisions are grouped according to their functions;
- legal power of all CCA provisions is equal despite the group they are attributed to according to any of analysed classifications; however, the latter classification shows real operation and functions of a CCA best.

During assessment or interpretation of evaluation results, different construction contract provisions may be treated differently. This, in its turn, may cause some misunderstanding, erroneous results or erroneous interpretation of the results. Therefore, it is very important to elaborate each construction contract provision.

4. Evaluation of criteria significance and construction contracts analysis

In order to determine criteria significance in calculations more objectively, an opinion of a group of experts should be evaluated. For this purpose an expert group of 26 persons was formed during pilot calculations. The expert group consisted of lawyers, civil engineers and other specialists.

The experts were surveyed by questionnaires. The questionnaire was prepared on the basis of the method of paired evaluation of indicator significance. The generalised calculations of survey results showed that the compatibility of expert opinions meets the requirements; therefore, it is possible to claim that criteria significances derived during the expert survey are reliable and can be used for typical evaluation of contracts. However, these criteria significances would change with changing economic situation and upon evaluation of specific requirements of a construction project; anyway, they serve as a basis for initial calculations.

During the pilot calculations, 3 contracts were evaluated using the criteria significances derived from the survey of the expert group. It was determined that the first contract meets the requirements in the best way, and the remaining contracts need to be improved. Therefore, a conclusion is drawn that calculations using the selected methodology provide yet another advantage, i.e. an opportunity to form an expert group for determining the criteria significance.

Expert Choice software was used for the analysis of construction contracting provided as an example; the software was selected having evaluated possibilities of its adjustment to solution of a specific task. *Expert Choice* software enables digital determination of significance of criteria. In this case a nine-point evaluation scale is used; the scale shows how many times one criterion is more important than another. Three construction contraction agreements on construction of an administrative building have been selected for evaluation.

Criteria are evaluated on the basis of the developed model of construction contracting provisions based on their functions. A uniform ranking system was selected for evaluating all criteria. Evaluation is performed by the specified ranking rules.

Having summarised the results of evaluation of all three agreements according to each evaluation criteria, it is possible to review the priorities of alternatives determined after the evaluation. According to the results obtained in this case, the first contract has the highest priority, the second has medium priority and the third has the lowest one.

The model of construction contracting provisions based on their functions (Fig. 2) has been used during evaluation. No problems related to formation of the evaluation criteria hierarchy have been encountered during the evaluation; therefore, it can be claimed that the developed model of construction contracting provisions, based on their functions meets the requirements applicable to a hierarchy and may be used for evaluating the construction contracts.

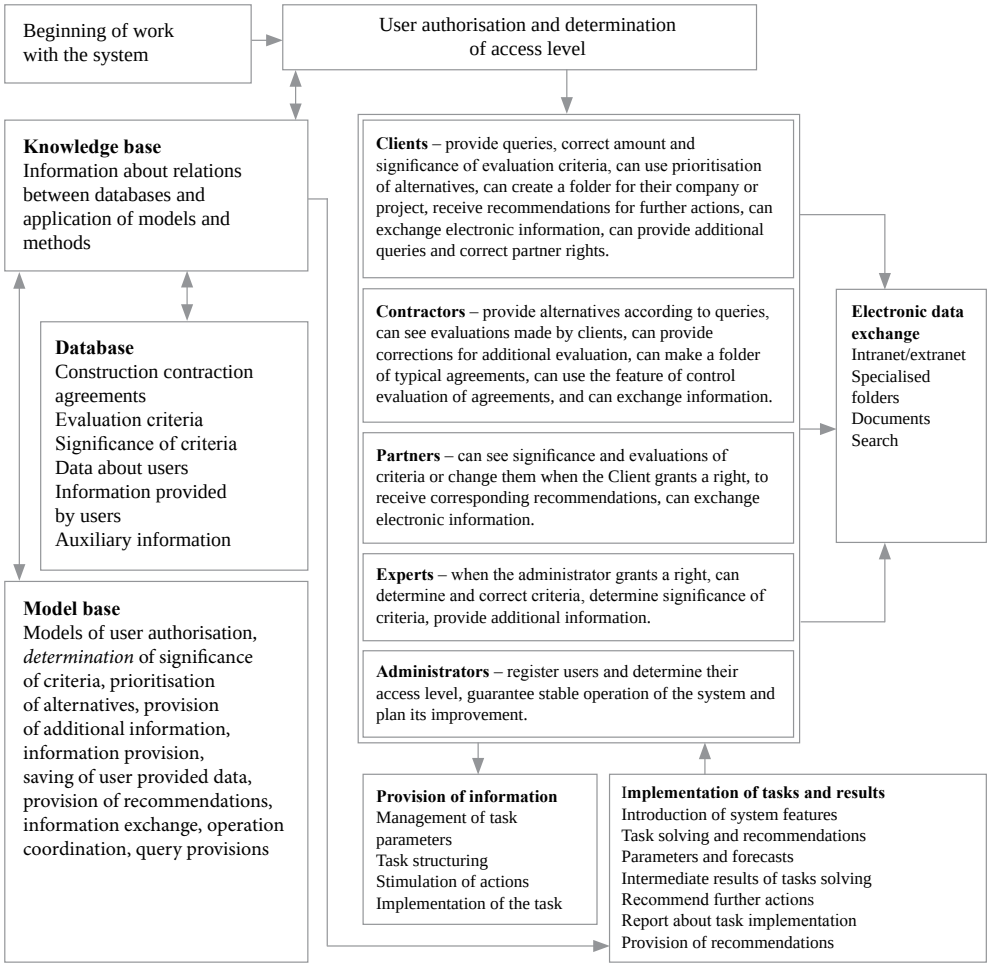

Fig. 2. The model of the web-based decision support system for construction contracting preparation

Analysis of the sensitivity of evaluation helps determine the factors which made the greatest influence on the evaluation results and whether the provided evaluation of criteria significance is correct, to review results of the evaluation of alternatives conformity with the selected criteria again and to determine opportunities for improving agreements.

On the basis of the results of sensitivity analysis, it is possible to claim that evaluation of criteria significance meets evaluator's expectations on distribution of evaluation results. After the evaluation, evaluating alternatives according to some criteria was slightly modified. The following possibilities of agreement improvement can be specified:

1) payment provisions should be improved in the second contract;
2) payment provisions should be improved in the third contract; agreement guarantee and termination provisions should be reviewed.

Assuming that agreements are final and not subject to editing, the first variant must be selected on the basis of the evaluation results. However, if an agreement is subject to change, the evaluation needs to be repeated after the amendments. Evaluation results may be used not only to determine weak points in agreements, but also to determine their advantages and thus to try improving agreement provisions.

5. Hierarchical model implementation in decision support systems

One of the main aims of future decision support systems is the use of IT to increase productivity of people working in the sphere of information processing in „the age of information" and to solve various problems of different complexity and structure. Otherwise, people will simply fail to evaluate the available information properly and to make proper choice with the increasing flood of information. This opinion is based on statistical data, which shows that the amount of information in a company increases twice annually. An employee can analyse only about 5 % of the received information effectively in such situation and assistance becomes vital (George, Marakas 2003). Such situation shapes a number of tasks for a decision support system.

One of the most important opportunities to develop decision support systems is the increase of their integration. First, a system must be developed inside the organisation, and such a system with a simple user interface would provide access to and exchange of information among company's employers. A clear link between the decision support system and various data must be provided and it must facilitate the installation of various means for resource allocation. In this case, accessibility of the system can be achieved by standard graphic user interface. Such standardisation is the main reason why *Microsoft Windows* and related products have become widely distributed so fast. The main problem of decision support systems is an interface with additional means that is difficult to implement. From the perspective of a user of a decision support system, the main criteria, when a system for work is being selected are the simplicity of its user interface.

Therefore, the ideas related to information presentation must be improved both by the developers and users. A proper evaluation of the form (charts, plans, diagrams), in which the information will be presented in the future, is important. There is a chance that new

forms of information presentation may be available in the future, like dynamic charts or multi-dimensional reports.

Use of expert systems and other available AI forms in decision support systems determines the main direction. Knowledge bases determine the shape of a database or a model base, models of conclusion presentation determine the knowledge base management system, and there are attempts to develop a user interface in all EU languages. One of the issues that are important as well is a closer integration of decision support systems and software applications used in a company, thus increasing the level of usefulness of decision support and effectiveness of the work of a decision-maker as well.

The consolidating function of a decision support system is an important component of future decision support systems. It is especially relevant in the sphere of communication. Currently, it is possible to connect clients using local networks, external networks and other methods and it is the path for further development. Further opportunities are standardisation of communication protocols, communication channels and data presentation allowing to exchange large amounts of data, graphic databases, digital images and videos. A possibility to connect to other networks is important to organisations, because it creates an opportunity for emergence of new and more global sources of information. The main problem here is security.

Another opportunity to improve decision support systems is improvement of accessibility to documents and their management both inside and outside of an organisation. New search and structuring technologies such as underlining of an idea, hypertext and multimedia are developed fast both for scientific research and commercial purposes. One of the most successful examples thereof is groupware, such as Lotus Notes, which emerged recently and is growing fast. The world becomes a uniform connected whole, which is a basis for further development of decision support systems.

Proper presentation of knowledge creates conditions for a system to better reflect expert opinion. These possibilities enable knowledge acquisition; and it is essential in systems which are used in vital areas, where especially valuable decisions are made. A possibility to reach documents available in different locations and provided by different sources using fast search algorithms increases competitiveness of companies as well. With an increasing importance of communication, a decision support system must operate in internet and allows companies to keep up with the newest technologies and innovations in decision-making and to operate successfully in the expanding cyberspace.

Cyberspace technologies allow single persons to be involved and participate actively in electronic environment. Such computer graphics is based on development of increasingly complex hardware and software able to create a more real environment. The cyberspace environment includes both a theatrical image shown on a big screen and computer displays or helmets with built-in stereo displays ands special headphones. The perceived experience is multi-sensory: visible, audible and touchable, and is more acceptable. Technology helps a viewer to understand relationships between different elements and provides ways to learn to react to the available data effectively and efficiently.

A common principle dominating in Europe is that contracts are valid despite their execution; however, laws sometimes provide for formal requirements, for example, contracts must

be made in written. First, this legal requirement attempts to reduce the number of disputes, because contracts allow explicit determination of rights and liabilities of parties. Second, it is an attempt to guarantee movement of goods and services, because they make clear who must perform what actions, under what conditions and what limitations are applicable. Third, such formalities allow parties to know their rights and liabilities explicitly months and years after conclusion of a contract, because it is possible to store the contents of the document. However, laws providing for formalities may have other aims as well: they may attempt at a psychological effect. In this case it is attempted to make a person think about the risk and dangers before signing a contract at least a little. A relevant example of such contract are loan contracts; they are considered dangerous, because consumers are often allured by advertisements, etc. and thus fail to realise the accepted financial liabilities fully and fail to evaluate their economic potential. For this reason, the EU Directive No. 87/102/EEC On Consumer Loans determines that a consumer loan must be executed in written.

E-commerce understands that e-contracts lack expressiveness and that the button "I agree/accept" contract provisions do not have the same psychological effect as written documents. Therefore, the European Union doubled the steps of contract conclusion (offer and acceptance) and established a four-stage process (offer, acceptance, acknowledgement that the acceptance is received and acknowledgement that the acceptance is received), which was reduced to 3 stages in the later edition of the EU Directive No. 2000/31/EC; so now the recipient must give its consent by technological means in order to express his consent to conclude a contract, and the contract is considered as concluded from the moment the service recipient receives an electronic acknowledgement of the provider, which received the consent of the recipient (acceptance). Member states commit supplement their laws by a provision that different steps of the process of e-contract conclusion shall be provided explicitly and defined in such a way that parties shall be familiarised with their contents and procedure and that any steps shall be made only upon express consent of the parties. In such case, these requirements on explicitness shall serve for equalisation of the conventional and electronic consent and shall not provide for a reinforced consent required by the nature of some contracts (e.g. consumer loan).

Considering a possibility to conclude electronic construction contracts, e-signature can be used, which has an effect similar to signing a written document. The author thinks that e-signatures are as authentic as handwritten signatures. EU Directive No. 1999/93/EC on E-signature specifies that member states shall grant secure e-signatures based on qualified certificates and created by secure e-signature development means. Such e-signatures meet legal requirements on relationship between a signature and data stored or kept in electronic form, the same as handwritten signatures meet these requirements in respect of data stored or kept on paper. Classic civil law considers a contract as a result of expression of two wills. If the will is not present or is faulty, the main element of a contract is missing. Nobody can be bound by a contract against his/her will. Should the modern law know only these features of contract making, it would become a serious barrier to validate contracts concluded by e-agents, which may be controlled by a third party (e.g. e-shop).

However, both general law and civil law are rather rapidly developing legal systems, thus issues related to liability outcomes of contractual will expression, errors and consent provided by a more obvious agent are evaluated broadly by underlining the reliability of the other party

and not the identification of an independent will expression. Sometimes negligent actions of a party are used as a basis, for example, a party was negligent in selection of contract phrases and was not attentive enough to remove the circumstances because of which somebody was considered its representative. Sometimes it is made objective by an opinion that parties accept responsibility for the selected means of contract conclusion.

The general validity of contracts concluded by e-agents is a fictitious problem initiated by suspicions caused by outdated civil and commercial law, often resultant from non-lawyers and stereotypic understanding of the will of contract parties. There is a considerably strong basis to claim that nobody can be exempt from an obligation to fulfil a contract only because an e-agent was an intermediary in its conclusion. The problem is related to settlement of errors made by e-agents. Another problem is related to a question whether it is allowed to exempt a party from liabilities under a contract, if it proves that the error occurred due to technical problems of an e-agent.

On the basis of the aforementioned provisions, a model of the Web-based Decision Support System for Construction Contract Preparation was developed. This model can help implement the functional model of the system of construction contract provisions developed by the authors and other principal elements.

6. Conclusions

Various authors offer different multicriteria decision-making methods for problem solving at various stages of a construction investment process: selection of a contractor and architects, evaluation of priority for building reconstruction, evaluation of buildings from the perspective of sustainable development, making of decisions related to building maintenance, selection of construction materials etc.

Problem solving in many analysed systems is made by determining criteria which influence the solution and by applying special multicriteria decision-making methods. Criteria and their amount usually depend on the nature of the problem being solved. This also influences the selection of mathematical methods.

Currently there are many systems alleviating contract making and legal issue solving in the world. Although these systems are created by various authors, in different time and for different tasks, it is possible to distinguish one common feature: information and the sequence of problem solutions are detailed on the basis of certain principles. In order to reveal peculiarities of construction contract making, it is expedient to make a scheme showing construction contract provisions and their relationships in detail.

The model of the construction contract provisions' system based on functions of provisions helps determine significance of contract provisions. Thus this model enables to create an internet-based legal construction contract decision support system.

During pilot calculations 3 construction contracts have been selected for evaluation: two of them similar and one with a different formulation of provisions. The model of construction contracting provisions based on their functions was created by the authors. This model has been used during evaluation. No problems related to formation of the evaluation criteria hierarchy have been encountered during the evaluation; therefore, it can be claimed that

the developed model of construction contracting provisions based on their functions meets the requirements applicable to a hierarchy and may be used for evaluation of construction contracting. The used software is perfectly adjusted to evaluation of AHP method; however, it has one significant drawback: it is intended for use in one company and has limited possibilities for web-based use. These limitations manifest themselves when one wants to participate in the decision-making process via internet, because then he/she needs to have special software. Besides, this software is intended for solving various problems and is not specialised for construction contract preparation; therefore, a user not only has to administer the software himself, but also to develop the hierarchy of indicators, to determine their significance and to do other work. This software has only limited possibilities for exchange of electronic data as well.

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RACIONALŪS SPRENDIMAI VERTINANT STATYBOS RANGOS SUTARTIS

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Santrauka

Tinkamas statybos rangos sutarčių parengimas turi didelę įtaką abiejų šalių sutarties įvykdymo ekonominei sėkmei. Netgi tais atvejais, kai statybos rangovas yra jau parinktas, sutarta dėl statybos kainos ir kitų esminių sutarties sąlygų, galimi daugiau negu vienas statybos rangos sutarčių variantai. Siekiant parinkti racionalų sutarties variantą reikia sudaryti statybos rangos sutarties modelį ir paruošti sutarties vertinimo sprendimo paramos sistemą.

Autoriai siūlo statybos rangos sutartis vertinti naudojant hierarchinį statybos rangos sutarties modelį. Straipsnyje aprašyta autorių siūloma internetinė statybos rangos sutarčių vertinimo sistema, pagrįsta pasiūlytu statybos rangos sutarties modeliu.

Reikšminiai žodžiai: sprendimų paramos sistemos, statybos rangos sutartys, daugiatikslis vertinimas.

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