Modelling Knowledge Synergy Evaluation

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ABSTRACT

Although nowadays knowledge is considered one of the main resources in organisations to create competitive advantage, there is a lack of research dedicated to the subject of knowledge and in particular knowledge synergy. After examining the content, types and properties of knowledge, the article provides definitions of knowledge potential and knowledge synergy that lead to the identification of its links and the constructive development of systematic research of knowledge synergy. The analysis of a knowledge synergy structure and the refinement of its components, i.e. employee's knowledge, relations among employees and types of knowledge synergy relations, serve as a basis for a fundamental diagram of knowledge synergy evaluation and a calculation formula for knowledge synergy, as well as for suggestions on the evaluation of knowledge synergy components.

INTRODUCTION

A modern society and its development processes represent a complex and multidimensional field of scientific cognition which requires ongoing scientific research oriented to new challenges and the need for reaching a new understanding of and dealing with ever-increasing issues of social and economic life, culture, scientific and technological progress, environmental protection, security and many other problems (Melnikas et al., 2014). In a complex, multifunctional and dynamic world as it is now, the importance of knowledge and communication processes in organisational activities is evident. Evaluation of organisational performance is not only difficult to express in material values, but also difficult to measure with increasingly predominating resources, such as knowledge, competence, experience, information and data (Morkvėnas, 2010). Although quite a lot of scientific articles, as well as more popular publications, analyze various aspects of knowledge management, but the problem of knowledge assessment is yet to be solved (Bivainis, Morkvėnas,

2012). Organisations encounter a vital problem: knowledge is personal and subjective, while organisational activities require effective dissemination (Bradburn, Coakes, 2005). Knowledge management within an organisation promotes innovation, while application of the knowledge available – ongoing improvement (King et al., 2008). It must be noted that for organisations controlling complex processes it is not just knowledge of individual employees that is important, but rather the co-ordinated and harmonious collective work, into which knowledge of all employees is included. Knowledge dissemination means the transition from individual knowledge to collective, while the sharing of knowledge among employees of the organisation gives rise to synergy processes that promote the creation (formation) of new knowledge. Synergy is considered to be a crucial factor for successful business development (Eikenberry, 2007), and knowledge is a key intangible resource that creates competitive advantage (Acedo et al., 2006; Conner, Prahalad, 1996).

Making knowledge synergy a basis for organisational progress and welfare requires the ability to evaluate. Decisions adopted in consideration of the evaluation results can help the organisation in gaining a competitive advantage, both through planning and developing business strategies and through effective process management. Unfortunately, no knowledge synergy evaluation methods have been developed yet, while the growing importance of knowledge and emerging synergy processes encourage the search for possible solutions and comprehensive research of this issue. The purpose of this research is to present a knowledge synergy evaluation model based on the analysis of the content and components of knowledge synergy. In pursuit of this goal, the following objectives were established: refining the definition of knowledge synergy; analysing and making a critical judgement of the methodical evaluation base of knowledge synergy and its components; and providing suggestions for the evaluation of knowledge synergy components. Knowledge, knowledge potential, knowledge synergy and components thereof were examined by critical analysis, abstraction and synthesis, while simultaneously applying mathematical modelling and systematic approach to the evaluation of knowledge synergy components.

1. DATA TRANSITION INTO KNOWLEDGE POTENTIAL

Data is usually defined as properties, characteristics or facts concerning certain objects in real life (figures, texts, images, sounds), recorded in any data storage medium or sent through certain transmission channels. The Oxford Electronic Dictionary (Oxford electronic...) gives several definitions of data: facts and statistics collected together for reference or analysis, data is the formalised image of information suitable for communication, understanding and processing by others. Meaningful, related data becomes information when in use, i.e. when the processed data becomes useful for a certain subject.

Information is scientific, social, political, technical data communicated among people verbally, in writing or via media (press, radio, television, cinema, computer networks) (Tarptautinių žodžių...). It is data with meaning, i.e. an objectively existing global phenomenon. We receive information when simply talking to our friends, watching television or reading, and we share information with others when expressing our thoughts, discussing events, writing letters or messaging. Even a glance through the window gives us certain information. Information is the *content of the object perceived by an individual*.

The transformation of information society into knowledge society brings changes to consumers' needs, structural units of organisations and resource priorities. Not only information, but also knowledge and its effective management become an important resource. The essence of knowledge lies in data and information – data processing results in information, while information processing creates knowledge (Figure 1). Thus, the term 'knowledge' is closely related to both data and information.

The term 'knowledge' has a broad definition, embracing various fields (philosophy, mathematics, management, mechanics, architecture, etc.), and knowledge has different applications (in everyday life, studies, professional activities) (Bivainis, Morkvėnas, 2008).

Figure 1. Knowledge formation process (developed by the authors)
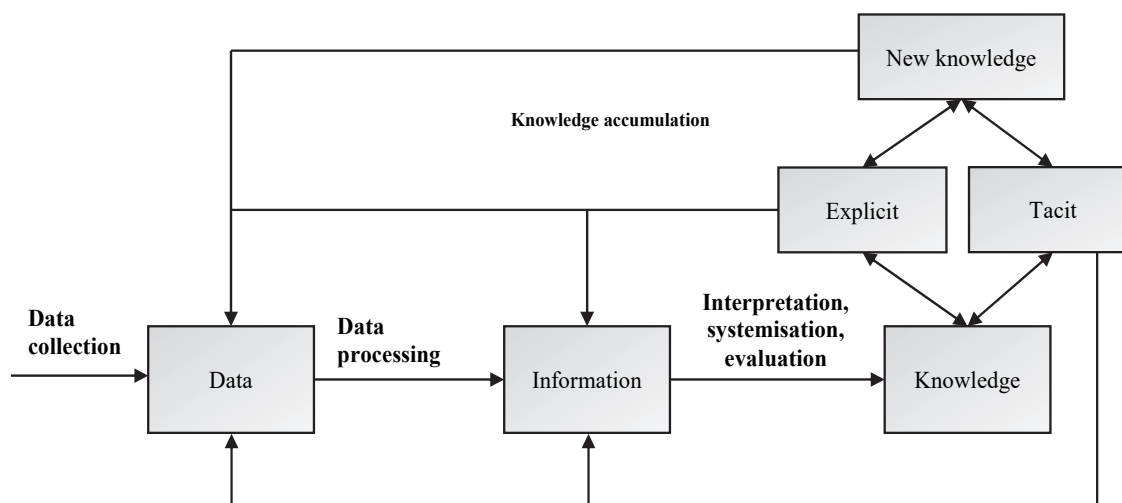
In scientific literature (Nonaka, Takeuchi, 1995; Osterloh, Frey, 2000; Smith, 2001; Becerra, Lunnan, Huemer, 2008; Reychav, Weisberg, 2009; Easterby-Smith, Lyles, 2011; Huang, Davison, Gu, 2011; Vveinhardt, 2012; Kothari et al, 2012; Hau et al, 2013), two types of knowledge are most commonly used:

− *explicit*, i.e. documented knowledge (speciality, cultural, everyday life, etc.). Information technology is one of the determining factors in its management.
− *tacit*, i.e. undocumented knowledge (skills, experience, talent, etc. of the staff). This kind of knowledge is based on people's ability to understand, evaluate and process the information received from their surroundings and other people.

**Table 1.** Knowledge properties (drawn by the authors based on Morkvėnas, 2010)

Properties of explicit knowledge	*Properties of tacit knowledge*
Formally expressed	Subliminal
Knowledge-holder is aware of it	Knowledge-holder may be unaware of it
Documented	Undocumented, can be noticeable but intangible
Easy to copy	Difficult to copy
Transferrable through direct and indirect communication, i.e. can be reviewed or heard	Transferred through direct communication
Stored in depositories (databases)	Kept internally
Easy dissemination	Difficult dissemination
Based on practice, systematised	Based on reflexes, creativity

Explicit knowledge is easy to manage, describe, characterise and communicate, therefore its dissemination is simple. With tacit knowledge, the usual modes of management are complicated. Creation and dissemination of this type of knowledge requires creativity, innovation, perception and a collective approach (Spender, Eden, 1998). Tacit knowledge is difficult to describe and copy (Table 1).

Every individual has unique knowledge, i.e. the experiences and values of every individual are unique to each individual. This in turn forms different types of knowledge which can be applied within the organisation for certain purposes. When analysing the knowledge held by the staff of an organisation, terms such as competence, qualification and educational background are usually used. Unfortunately, these terms cannot express the full content of knowledge, which is why Bivainis and Morkvėnas (2008) suggest a broader term. The term 'knowledge potential' includes both explicit (e.g. educational background, culture) and tacit knowledge (e.g. skills, competences, experiences) that can be used in analysing synergy processes. Morkvėnas (2010) describes the structure of knowledge potential, distinguishing blocks of explicit knowledge and tacit knowledge as well as synergy formation as the result of the combination of these two types of knowledge.

Based on the analysis of the types and properties of knowledge, knowledge potential can be described as the *sum of synergy created by explicit knowledge and tacit knowledge and the interaction of these two types of knowledge* (Figure 2).

Figure 2. Structure of knowledge potential (drawn by the authors)
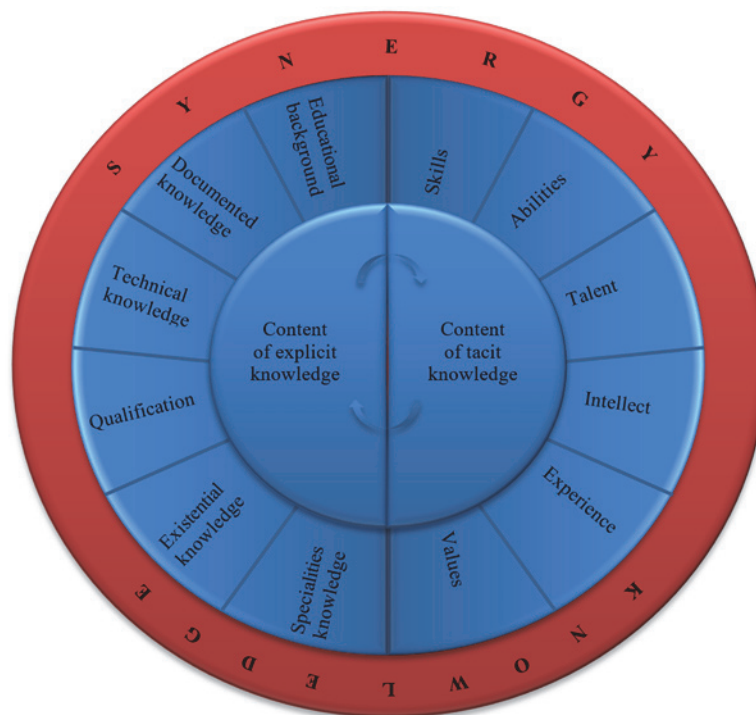
When exchanging knowledge, it can be communicated to several persons at the same time. The key property of knowledge lies in a huge potential for the formation of synergy resulting from the combination of knowledge – which is greater than the sum total of its parts (French et al., 2005). The designed beauty of synergy is that it serves only to add, never subtract (Rententbach, 2009).
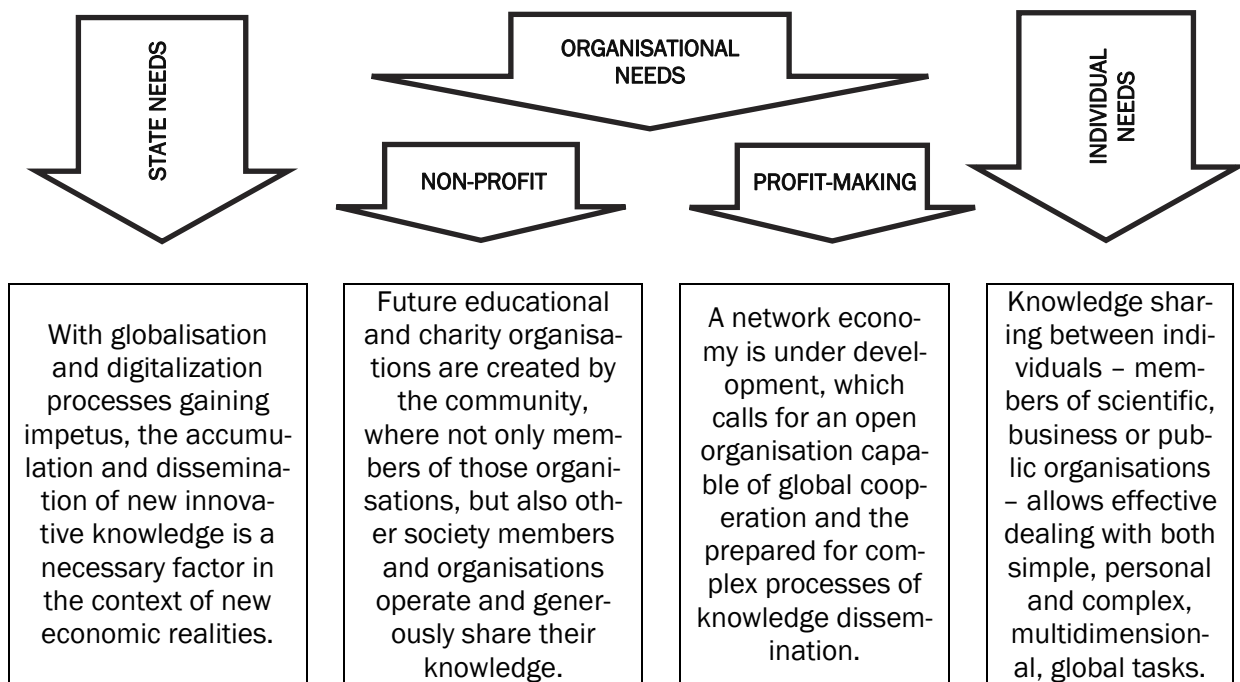
According to Lawford (2003), synergy occurs when individuals working as a team join their efforts for teamwork. Synergy is the sum of separate components, interaction, teamwork (Staniulienė, 2012). Having analysed the terms of knowledge potential and synergy, it can be stated that knowledge synergy (KS) *is the result of interactions of explicit knowledge and tacit knowledge influencing personal and organisational activities and creating new knowledge.*

The special dynamics of knowledge in the 21st century determines the need for orientation towards the management of employee's core and exclusive competences, shared knowledge and new knowledge creation. Synergy arising in many fields of organisational activities enables organisations to make full use of their accumulated knowledge, while the ability to form and manage knowledge synergy allows the creation of new knowledge at the lowest costs.

2. PREREQUISITES FOR AND STRUCTURE OF KNOWLEDGE SYNERGY FORMATION

Modern organisations are operating in an environment of rapid network economy infrastructure development. Within this context, every organisation should have a new form, i.e. without internal barriers, open to global cooperation and knowledge dissemination. In addition, growing cooperation between science and business based on a new paradigm of thinking provides a drive towards synergy developments in society, creates prerequisites for the processes of knowledge sharing and knowledge synergy formation (Figure 3).

Figure 3. Need for synergy (drawn by the authors)

| STATE NEEDS	NON-PROFIT	PROFIT-MAKING	INDIVIDUAL NEEDS
With globalisation and digitalization processes gaining impetus, the accumulation and dissemination of new innovative knowledge is a necessary factor in the context of new economic realities.	Future educational and charity organisations are created by the community, where not only members of those organisations, but also other society members and organisations operate and generously share their knowledge.	A network economy is under development, which calls for an open organisation capable of global cooperation and the prepared for complex processes of knowledge dissemination.	Knowledge sharing between individuals – members of scientific, business or public organisations – allows effective dealing with both simple, personal and complex, multidimensional, global tasks.

Drucker (1980) and Strassmann (1998) were among the first to talk about the importance of information and verbally-expressed knowledge as one of the most important and special resources that can bring huge benefits to the welfare of a country. Senge (2006) emphasises that only open and learning organisations will be capable of generating larger added value, gaining competitive advantage, overcoming any arising difficulties, improving management processes and managing

and creating an environment in a systematic purpose-oriented manner, which would be favourable for effective knowledge management processes to take place, pursuing the goals set by the organisation. In developing a network economy and knowledge society, organisations must be ready for complex processes of knowledge dissemination and management. According Ramírez, Morales, Rojas (2011) organizational learning facilitates efforts to improve organizational performance. Thus, knowledge creation processes are related with organizational learning playing the key role improving organizational performance. Neef et al. (1998) define knowledge management as the ability to collect and apply individual's knowledge to the development of new products and services and sharing effective activity methods. Polanyi (1962) highlights the encoding of tacit knowledge by turning it into explicit knowledge and the individual's creativity. Thus, it can be argued that the unique, particular knowledge of an individual shapes unique personal culture and allows creativity to manifest itself. Knowledge dissemination between individuals creates a synergy that generates unique knowledge, thus creating conditions for the particular culture of organisation's members to develop. Summarising the findings of the analysis of the content of knowledge and knowledge potential, two main components of knowledge synergy can be distinguished:

- − employee's knowledge,
- − relations among employees.

By sharing knowledge, employees create prerequisites for synergy formation, the key components of which are the employee's explicit and tacit knowledge and the relations among employees (Figure 4).

Figure 4. Components of knowledge synergy (drawn by the authors based Morkvėnas, 2010)
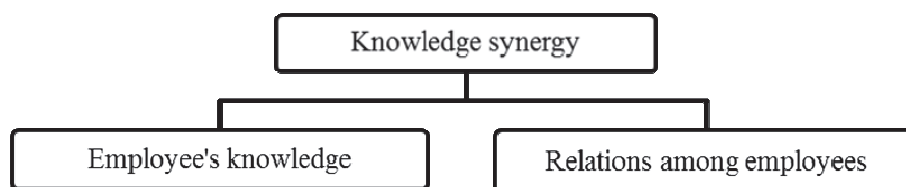
With employees sharing knowledge with other members within an organisation, knowledge is disseminated, thus creating a medium in which synergy processes form. The educational background, professional experience, positions, employee's salary, job complexity, motivation, employee's impact on the realisation of organisational goals, application of technology, responsibility, work culture, and independence are factors that create synergy flows.

Research on communication between employees (Graičiūnas, 1932; Urwick, 1943; Simon, 1947; Newman, Barabási, Duncan, 2006; Bianchi, 2010) has shown that the number of relations that can be effectively established by an employee is limited, because once many relations have been established, some relations simply become superfluous. Thus, with knowledge dissemination taking place between employees, the increase in the amount of shared knowledge is limited to the physiological capacities of an individual, which is determined by a number of factors.

3. SUGGESTIONS ON KNOWLEDGE SYNERGY EVALUATION

Synergy processes are broadly analysed by technical sciences (e.g. to describe characteristics of heat transfer, to validate the operation of lasers), while at the level of organisations research is still limited (Bivainis, Morkvėnas, 2008). A number of researchers (Wu, Choi, 2004; Khan, 2009, Ketchen, Hult, 2011; Fombelle, Jarvis, Ward, Ostrom, 2011; Cho, Shaw, Kwon, 2013) talk about

the benefits of synergy, but only a few dare to model or calculate it. Stener (1972) includes synergy into a factual productivity formula as one of the components (Table 2).

Smith, Farquhar (2000) and Smith (2001) created a formula to calculate the network power that can be applied to the calculation of knowledge dissemination processes inside a network. Belohlavek (2007) describes the essential characteristics of index components and their content, but fails to provide a deeper analysis of the evaluation of the components distinguished.

According to Eikenberry (2007), synergy brings benefits that change according to the exponential law. However, the application of the formula proposed by the said scholar is rather problematic, if there is a great difference between persons who are on good terms and bad terms within an organisation. According to Bivainis and Morkvėnas (2008), synergy depends on the degree of organisation of the system. In this case, the degree of organisation determines the ability of an organisation to make complex use of synergy promotion measures. Morkvėnas (2010) suggests using three components to calculate synergy: knowledge multiplier, rate of effective communication and average knowledge potential of employees per communication. A deeper analysis of the formulas of the components leads to uncertainties related to the logical sequence and intended purpose of the application of the formulas, which makes the calculations more complicated.

Table 2. Examples of synergy evaluation (drawn by the authors)

Author, year	Formula	Description
Steiner (1972)	N=G+S-T where N is factual productivity; G – productivity potential; S – synergy; T – disruptions.	Synergy is treated as a component of factual productivity.
Smith, Farquhar (2000) and Smith (2001)	G= ZS where G is power; Z – knowledge; S – dissemination.	Network power formula is more suitable to calculate knowledge dissemination processes inside the network.
Belohlavek (2007)	S = G·D·V where S is synergy; G – individual abilities; D – teamwork; V – value added of work.	Organisational synergy index is the product of three components.
Eikenberry (2007)	Is = E(f-b) where Is is person's synergy; E – person's energy; f – number of team members on good terms; b – number of team members on bad terms.	Formula based on exponential growth law is used to calculate a person's synergy.
Morkvėnas (2010)	Psl =m·re·pv where Psl is synergy of organisation's knowledge potential; m – knowledge multiplier; re – rate of effective communication; pv – average knowledge potential of employees per communication.	The product of three components is used for calculating organisational knowledge potential synergy.

No knowledge synergy may evolve between employees when knowledge sharing is absent, but synergy will evidently arise if knowledge is shared. The possible types of knowledge sharing are as follows:

− one employee is sharing knowledge with another;
− both employees are sharing knowledge;
− one employee is sharing knowledge with a group of employees;
− two and more employees are sharing knowledge with a group of employees (Table 3).

The types of synergy listed in Table 3 serve as a reference point for modelling knowledge synergy. Evaluating knowledge synergy requires including employee's knowledge and the rate/amount of communication between employees.

Table 3. Types of communication for knowledge synergy (drawn by the authors).

Types of synergy	Type of communication	Description	Examples	
			Without investing into potential increase in knowledge	*With investing into potential increase in knowledge*
Positive synergy	One-way communication	One employee is sharing knowledge with another	The organisational results improve in an accidental field of activity.	The organisation makes irregular investments into the training of staff. Results are better than before training, and improvement is observed in one field, but may deteriorate later.
	Two-way communication	Both employees are sharing knowledge	The organisational results improve in an accidental field of activity.	If needed, the organisation finances the training of staff. The results are better than before training, with improvement in an accidental field of activity and increase in the efficiency of the employees.
Positive complicated synergy	One-way group communication	One employee is sharing knowledge with a group of employees	The organisational results improve in one field of activity.	The organisation is investing into the training of staff working in a certain field. Results are better than before training, the field of activity into which investments are made improves along with the efficiency of employees.
	Two-way group communication	One employee is sharing knowledge with a group of employees	The organisational results improve in several fields of activity.	The organisation is regularly investing into the training of staff working in certain fields. Results are better than before training, several fields of activity improve, and employees are efficient.
	Two-way inter-group communication	Two or more employees are sharing knowledge with a group of employees	The organisational results improve in all fields of activity.	The organisation is regularly investing into the training of all employees. Results are better than before training, all fields of activity improve and employees are efficient.

Figure 5. Fundamental diagram of knowledge synergy evaluation (drawn by the authors
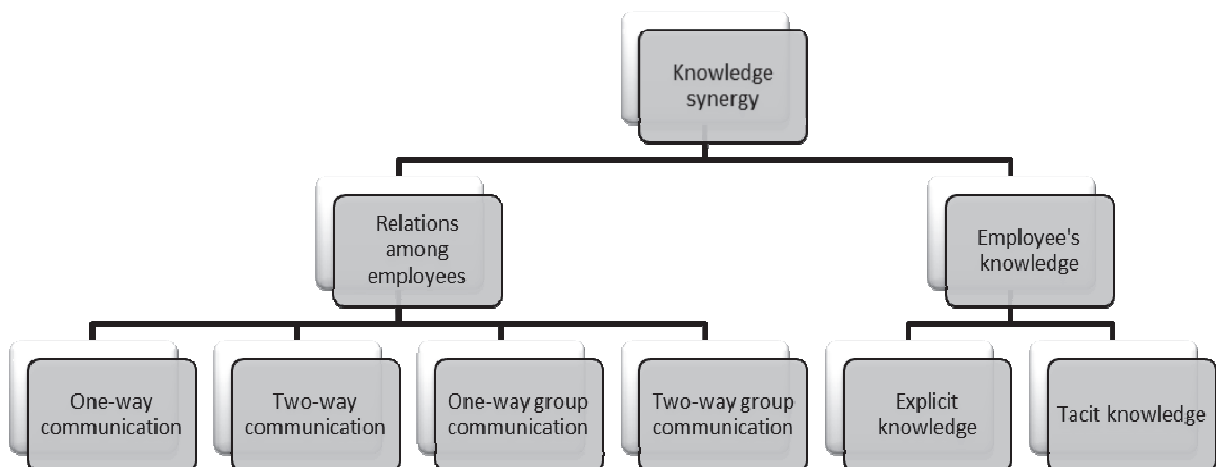
Incorporating these components into the knowledge synergy calculation allows for a rational evaluation of synergy in an organisation (Figure 5).

After identifying the components of knowledge synergy and analysing the methodical base of knowledge synergy evaluation, the following formula is proposed for the calculation of knowledge synergy:

$$S = R \cdot Z \quad (1)$$

where S is knowledge synergy; Z – employee's knowledge; R – relations among employees.

4. PROBLEMS WITH THE EVALUATION OF A COMPONENT OF KNOWLEDGE SYNERGY – EMPLOYEE'S KNOWLEDGE – AND POTENTIAL SOLUTIONS

In a modern dynamic society, one of the major sources of long-term competitive advantages in an organisation is the developed knowledge potential or the ability to create new knowledge necessary for activities on a continuous basis (Morkvėnas, 2010). According to Nonaka (1994), knowledge-creating employees represent the key stimulus of organisational activities. The source of a long-term competitive advantage and its profitability is the knowledge used in organisations (Desauza, 2003). Knowledge can be created and accumulated while studying, conducting scientific research, applying it in practice and attracting new employees. It therefore creates a possibility to apply knowledge in the development of products and include it into strategic planning, etc. Scholars argue that knowledge as an object of research is interesting to organisations as long as it is used for achieving their goals. In the latter case, there is a need to manage and especially to evaluate the knowledge of both the organisation and the employee.

Universally-recognised methods are not applied when evaluating knowledge of employees in: some research studies evaluate the knowledge of employees through competence analysis and others through expert evaluation. According to Moradmand, Datta, Oakley (2013), by developing knowledge evaluation models, Bloom's/Anderson's taxonomy can be used as a basis (the Lithuanian system of qualification evaluation is based on them). The characteristics of the activities, for which a person with a certain level of qualification is trained, are used for describing levels in this taxonomy – the complexity of activities, independence and variability.

A US consulting company Workitect Inc. (2008) has developed a competence-based model of competences, where core competences are divided into three large groups: competences needed for working with people (social competences); business competences; personal competences (self-control competences).

The shortcoming of the Workitect Inc. model is that it is oriented to a narrow content of evaluation. The term 'competence' does not embrace the entire knowledge potential held by an employee. The shortcomings of the quantitative methods used in modern science for evaluating knowledge are revealed in the Knowledge Evaluation publication by Innsbruck University scholar Fink (2005). According to this researcher, interview is the most common method used for knowledge evaluation. The research is based on the reflection theory, while the accuracy of knowledge evaluation is ensured by assessing the interviewer's influence on the evaluation. The method of interview is chosen to obtain information about the employee's knowledge. A similar model of knowledge evaluation is described by Park, Lee, Kwon (2010), which is intended for the construction sector. The model includes an expert rating (ER) which reflects the level of knowledge of specialists mastering a specific amount of information. According to the authors, the suggested model allows an accurate evaluation of knowledge and the promotion of knowledge acquisition, and if applied in practice, it can improve the company's performance. Unfortunately, the expert evaluation applied raises some doubts, since the evaluation depends on both professional qualities and personal qualities of the experts.

International company OD&M Consulting provides a Global Professional System (GPS). It is an international positions classification methodology for performing a professional job analysis in an organisation and creating a structure of job levels within an organisation. OD&M Consulting argues that GPS is an effective tool for the classification of jobs in organisations, enabling the definition of a link between a job and performance results and projecting possibilities for the professional development of staff and changes in remuneration (Figure 6).

Figure 6. Job classification model (by OD&M Consulting)
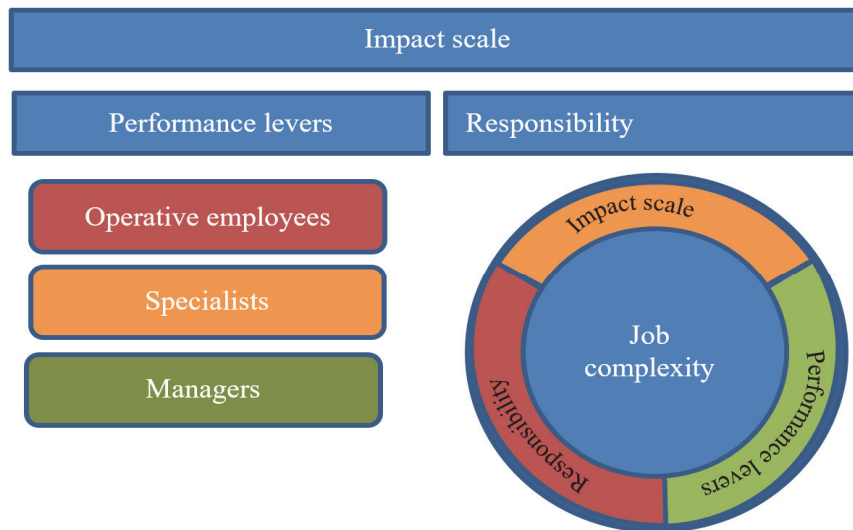
Referring to the insights obtained during a GPS methodology-based evaluation, career opportunities can be successfully analysed and managed, identifying elements to promote professional development. However, this method does not reflect the entire content of the employee's knowledge, referring to an evaluation of jobs only.

Scholars' works, like the examples discussed above, contain one major shortcoming – the analysed factors and evaluation systems are disconnected from the person. Models are usually designed to analyse levels of data, processes and knowledge, along with the skills needed at work. The organisation methods developed by Towers Watson already highlight the individual, career opportunities and personal development aspects.

Comprehensive research of organisational knowledge potential is described by Bivainis and Morkvėnas (2008), emphasising its tier nature which enables to attain more detailed results. When analysing the competences of an organisation and its employees, the authors suggest conducting a survey to evaluate knowledge potential, which would allow creating a more standardised model and would offer more opportunities to bring the models under development closer to reality. The researchers suggest calculating employee's knowledge potential by ten factors: educational background, professional experience, job level, decision-making scale and responsibility, independence at work, work culture, application of technology at work, job complexity, motivation to work, employee's impact on the achievement of organisational goals. The employee's knowledge potential is calculated by applying the method of Simple Additive Weighting (SAW). The researchers conducted an expert evaluation to determine the importance of a factor. Having analysed the models and methods suggested by various authors for employee's knowledge evaluation, the method developed by Bivainis and Morkvėnas (2008) proves to be the most suitable one. To avoid any subjectivity brought by the expert evaluation, the following corrections are suggested:

− dividing factors influencing employee's knowledge into two blocks – explicit knowledge and tacit knowledge,
− giving the same level of importance to the distinguished blocks of knowledge.

Giving the same level of importance is based on the fact that explicit knowledge and tacit knowledge are used by the same employee to different extents, which are determined by various circumstances, and therefore eventually their total value can be considered equal to one.

Table 4. Factors influencing employee's knowledge potential (drawn by the authors)

Factors of explicit knowledge	Factors of tacit knowledge
Professional experience	Decision-making scale
Educational background	Responsibility
Job level	Independence at work
Application of technology at work	Work culture
Employee's salary	Job complexity
Professional development	Motivation to work
	Employee's impact on the achievement of organisational goals

The formulas presented in Morkvėnas' (2010) dissertation are suggested for making calculations of the factors listed in Table 4.

5. POSSIBILITIES OF THE EVALUATION OF A COMPONENT OF KNOWLEDGE SYNERGY: RELATIONS AMONG EMPLOYEES

Knowledge sharing within an organisation can take place: between employees of the same division; between employees from different divisions of the organisation. The nature of knowledge sharing determines the formation of certain types of synergy. Having analysed various potential versions of knowledge sharing, the following four versions are distinguished (Figure 7): 1) one-way relations (only one employee is sharing knowledge); 2) two-way relations (both employees are sharing knowledge); 3)one-way group relations (some members of the group are sharing knowledge and some not); 4)two-way group relations (group members are sharing knowledge with each other).

Methods are developed for determining the rate/amount of effective relations among employees of the organisation based on theoretical norms and structural analysis of organisations. The first method is based on the norms of management theory, while all the calculations are conducted by making the following presumptions: (1) organisational activities will be organised on the basis of divisions, (2) the rational number of employees per division in terms of knowledge potential synergy is six (Morkvėnas 2010).

The essence of the method based on the organisational structure lies in a detailed analysis of the organisational management structure, which determines the existing relations between the division's employees and relations between employees working in different divisions.

Figure 7. Types of relations (drawn by the authors)
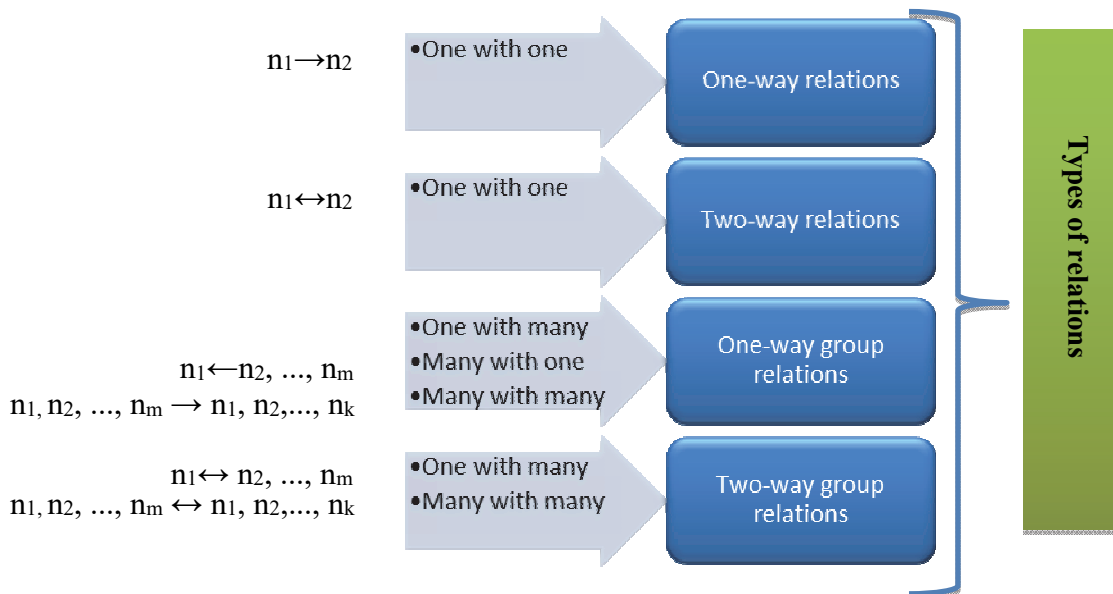
where n is the employee sharing knowledge; 1, 2, ..., m, ..., k – the number of employees.

Figure 8. Fundamental diagram of evaluation of the types of relations among employees (drawn by the authors).
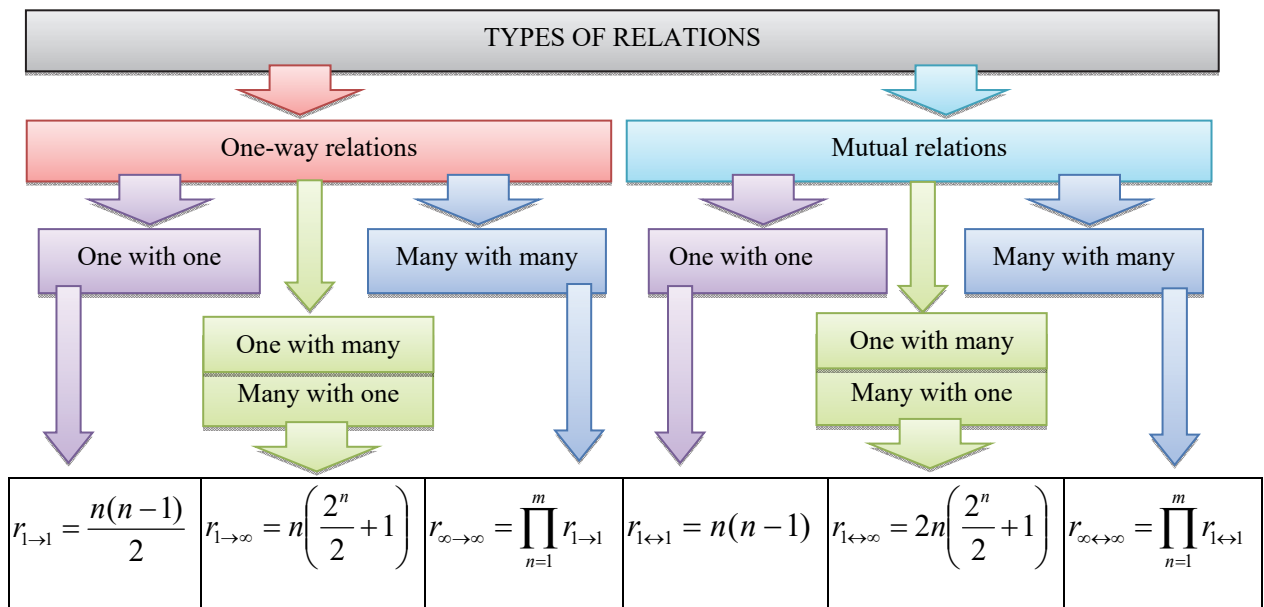
where r is relations,
n is a number of group members,
m is a number of groups.

Considering the types of relations and methods for calculating effective relations, the following fundamental diagram is suggested for calculating the synergy of different types of knowledge potential (Figure 8).

The advantage of the suggested diagram is the fact that the method used for calculating the relations of a person and a group is based on the analysis of the organisational structure, while the rate/amount of relations per individual employees is calculated by the method based on the norms of management theory. This distinction of relations and application of the methods based on structural analysis and management theory create prerequisites for a thorough evaluation of a component of knowledge synergy – relations among employees.

CONCLUSION

Following the analysis of the content and properties of knowledge, knowledge potential is defined as the whole of synergy created by explicit knowledge and tacit knowledge and the interaction of these two types of knowledge. Having analysed the components of knowledge potential, the definition of knowledge synergy is refined as the result of the interactions of explicit knowledge and tacit knowledge influencing personal or organisational activities and creating new knowledge. The suggested definitions of knowledge potential and knowledge synergy not only reveal links between knowledge potential and knowledge synergy, but also create prerequisites for identifying the components of knowledge synergy and conducting research on knowledge synergy evaluation.

The conducted analysis of the methical base of knowledge synergy evaluation allows asserting the insufficient completion of the research on knowledge synergy evaluation, while at the same time refining the key components of knowledge synergy evaluation, i.e. employee's knowledge and relations among employees. The fundamental diagram of knowledge synergy evaluation and the evaluation formula suggested on the basis of the above-mentioned components create prerequisites for a rational and objective evaluation of knowledge synergy.

The conducted analysis of the methical base of evaluation of knowledge synergy components allows making the following suggestions:

− employee's knowledge should be evaluated by grouping factors into two blocks – explicit knowledge and tacit knowledge, and giving the equal importance to the both blocks. This would prevent subjectivity when evaluating employee's knowledge, which is caused by expert evaluation, and would create conditions for a complex and objective evaluation of employee's knowledge;

− to make a rational evaluation of the relations between employees, it is necessary (a) to distinguish the types of relations and (b) apply a method for the calculation of effective relations, taking into account the type of relations between employees, i.e. apply the method based on the analysis of an organisational structure to calculate the relations of a person and a group, and apply the method based on the norms of management theory to calculate the relations of individual employees. The suggested fundamental diagram of evaluation of relations between employees creates prerequisites for the identification and evaluation of all potential relations between employees in an organisation.

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