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CLUSTER AS A FORM OF MULTI-CULTURAL ORGANIZATION

Summary. The article presents multiculturalism with regard to cluster organizations. In the first part, it discusses the notion of organization and indicates characteristics of multi-cultural organizations. The main part of the deliberations is dedicated to the discussion of types of clusters and the issues of multiculturalism in the Silicon Valley and in the Krakow LifeScience Cluster. Finally, it presents the role of open communication in sharing knowledge within a cluster.

Keywords: multiculturalism, multi-cultural organization, clusters

KLASTER JAKO FORMA ORGANIZACJI WIELOKULTUROWEJ

Streszczenie. Artykuł przedstawia temat wielokulturowości w odniesieniu do organizacji klastrowych. W pierwszej kolejności zostało omówione pojęcie organizacji i wskazane zostały cechy organizacji wielokulturowych. Główna część rozważań została poświęcona omówieniu typów klastrów i zagadnieniom wielokulturowości w Dolinie Krzemowej i Klastrze LifeScience Kraków. Na koniec została przedstawiona rola otwartej komunikacji w dzieleniu się wiedzą w obrębie klastra.

Słowa kluczowe: wielokulturowość, organizacja wielokulturowa, klastry

1. Organization as open system

Organizations are separated from their external environment and are composed of internally arranged systems of elements. Thanks to this internal arrangement, these systems may function as a whole. The manner of linking these elements determines organizational

structure. People create organizations for the purpose of execution of certain goals, tasks and functions. People in organizations are combined into groups and form a social subsystem of the organization. They use various devices and technology that form a technical subsystem of the organization. The organization is an open system that uses resources of the environment, such as: people, raw materials, information, energy, money, and delivers products for other people or other organizations. Changes occurring in the organization's environment create its opportunities or threats, therefore organizations must constantly adapt to new operating conditions.[1] Every organization encompasses four elements: people, tasks, technology and structure. The organizational system consists of goals, structure, social subsystem, material-technical subsystem. The relations between elements of the organizational system are presented in fig. 1.

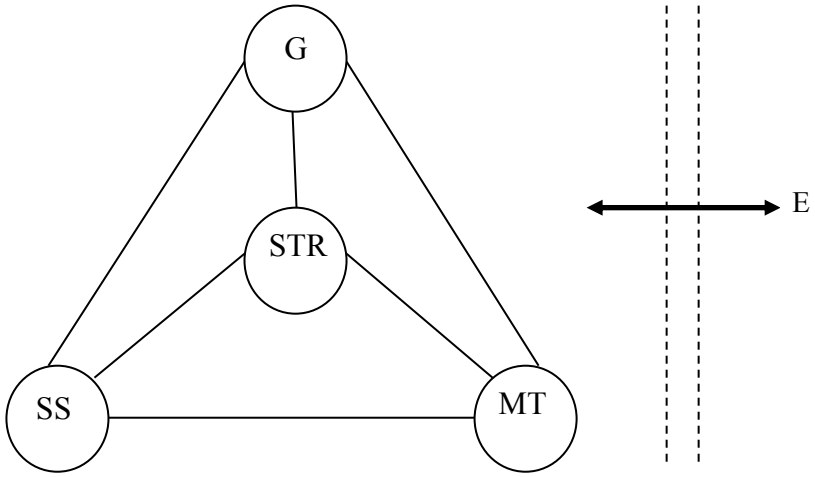

Fig. 1. Model of organization: G – golas, STR – structure, SP – social system (subsystem), MT – material-technical system (subsytem), E – environment
Rys. 1. Model organizacji: G – cele, STR – struktura, SP – system społeczny (subsystem), MT – system techniczno-materialny, E – środowisko
Source: Peszko A.: Podstawy zarządzania organizacjami. AGH, Kraków 2002, s. 39.

Globalization in the environment of the organization fosters diversity in the social system.

2. Multiculturalism and multi-cultural organizations

Multiculturalism in the organization appears when persons employed in it represent different national cultures, beliefs, customs and attitudes, creating specific possibilities and

[1] Peszko A.: Podstawy zarządzania organizacjami. AGH, Krakow 2002, p. 39.

restrictions for managers. The notion related to multiculturalism is diversity, meaning diversity between members of a given culture, such as sex, age or ethnicity.[2]

Culture is most often understood in accordance with the approach by G. Hofstede, as collective programming of the mind. Certainly, it does not mean that human behavior is entirely "programmed", but some part of behaviors proceed according to patterns typical of a given culture.[3]

There are several reasons fostering multiculturalism in organizations and their social structure changes in various directions, which is presented in fig. 2.

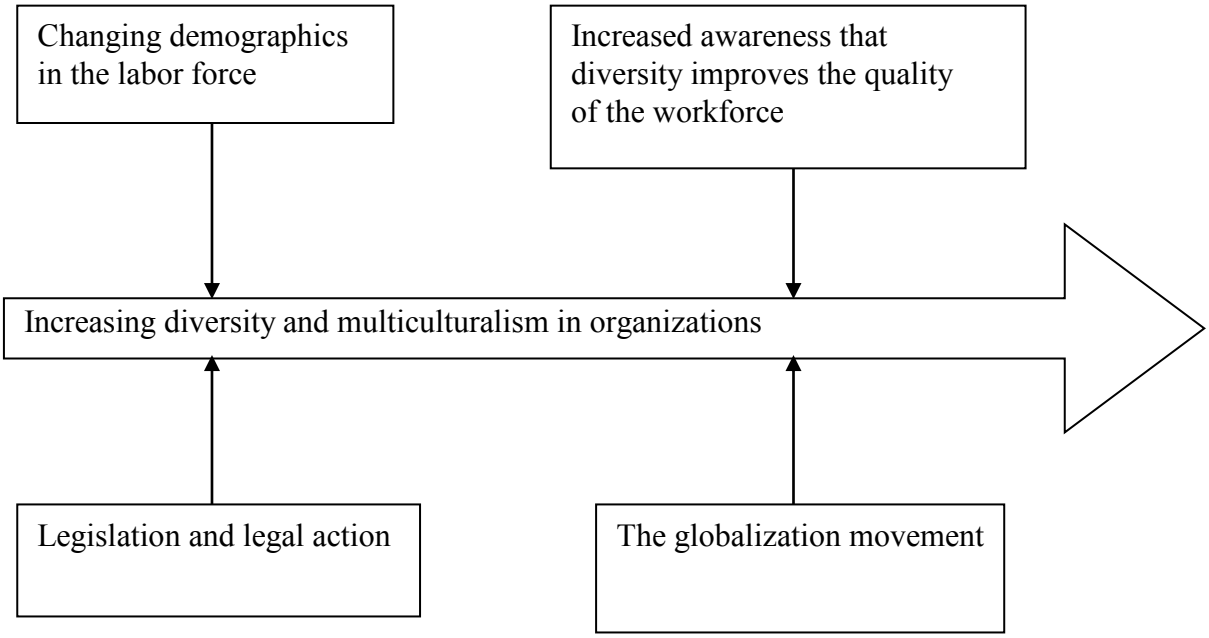

Fig. 2. Sources of multiculturalism in organizations
Rys. 2. Źródła wielokulturowości w organizacjach
Source: Griffin R.W.: Management. Cengage Learning, Mason 2012, s. 153.

One of the factors fostering multiculturalism and diversity in organizations is change in the structure of workforce. Another factor fostering diversity and multiculturalism in organizations is their search for talent whereby origin, sex or age are less important; knowledge and skills become the most important. Similarly, changes in law can be favorable for employing on the basis of professional qualifications, preventing discrimination. An example may be the American Civil Right Act of 1964. However, presently, the most important factor fostering multiculturalism is globalization. Organizations opening branches in other countries must learn new social norms and values. Similarly, managers, during their

[2] Griffin R.W.: Management. Cengage Learning, Mason 2012, p. 152.
[3] Hofstede G., Hofstede G.J., Minkov M.: Cultures and Organizations, Sofware of the Mind. McGrawHill Companies, 2010, p. 5.

professional career, work in branches of many countries and shape their approach to various cultures.[4]

Multi-cultural organizations have characteristics such as pluralism, full structural integration, full integration of informal networks, lack of prejudices and discrimination, lack of the gap in organizational identification based on a group cultural identity, low level of inter-group conflict. Pluralism means that each of the groups in the organization tries to understand the behavior of another group and, at the same time, may affect values of the whole organization. A full structural integration occurs when the employment structure in the company reflects the structure of population in a given area. Lack of prejudices and discrimination is basing appraisal of any employee only on the basis of his or her skills and commitment, and overcoming any prejudices towards other people. The gap in the organizational identification is based on a group cultural identity. For instance, it consists of the wrong assumption that work requiring high qualifications will not be performed by persons from countries that are economically poorly developed. In the multi-cultural organization such phenomenon is very rare. Low level of conflict between groups means a full tolerance, understanding, empathy and openness in communication. Values, motives and feelings are so known and understandable that conflicts relate only to problems involving work.[5]

3. Definitions and types of clusters

M. Porter determines cluster as "…a geographical cluster of inter-related companies, specialized suppliers, service-providing units, companies operating in related sectors and related institutions (for example universities, standardization units and industrial associations) in particular areas, competing among themselves, but also cooperating with themselves".[6] Additionally, the notion of cluster was used in economic sciences by Alfred Marshall as early as in 1920, meaning a company functioning in strong interdependencies with other organizations. At this point, attention should be paid to the basic feature of a classic cluster, namely integration of companies along the chain of values, from raw material to finished product. Another issue is the identification of a cluster. Some of them have their names and coordinating units in the form of foundation or association, on the other hand, some can be recognized only on the basis of an analysis of operation of entities in a given area. For instance, within the Wadowice county sawmills, suppliers of machines for cutting wood,

[4] Griffin R.W.: Management. op.cit., p. 153-154.
[5] Griffin R.W.: Podstawy zarządzania organizacjami. PWN, Warszawa 1998, p. 723.
[6] Porter M.: Porter o konkurencji. PWE, Warszawa 2001, p. 71.

manufacturers of furniture accessories, furniture plants, upholstery plants and, finally, furniture salons are located there, but there is no formal name or organization managing the cluster. Another example is the Krakow LifeScience Cluster. In this cluster, great importance can be attached to the possibility of operating high-technology companies and research units within a small geographical area. Companies and research units being from the areas of pharmacy, biotechnology, food technology, and computer science. In this case, the greatest importance is attached to the development of the so-called "critical mass", that is to have a large enough number of operating entities, employees of companies and scientists, and research infrastructure as necessary for the execution of projects related to advancing technologies.[7]

Analyzing classic definitions of clusters, a question can be asked: is a cluster an organization or only a form of cooperation among organizations? The answer depends on the cluster we are dealing with. The described example of relations between manufacturers of furniture is only a certain form of cooperation between companies or economic phenomenon occurring in a given area. It is worth noting that the relations between the supplier and the recipient are such as between the seller and the client, without any formal cooperation contract. In principle, the only attribute typical of the organization, held by this kind of cluster, is its structure. Companies providing semi-finished products in the chain of values are similar to clusters, hence the name.

Innovative clusters operate in a different manner. The need for the development of advanced technologies – created by universities or research institutes – in order to provide support for companies or the development of infrastructure, forces the creation of a coordinating unit and the determination of strategic plans, mission and vision of a cluster. It is also accompanied by the appointment of management and control bodies, preparation of financal plans, etc. Clusters of this kind have also a complex structure, according to the Danish (fig. 3) or Dutch scheme (fig. 4).

[7] www.lifescience.pl, 9.09.2012.

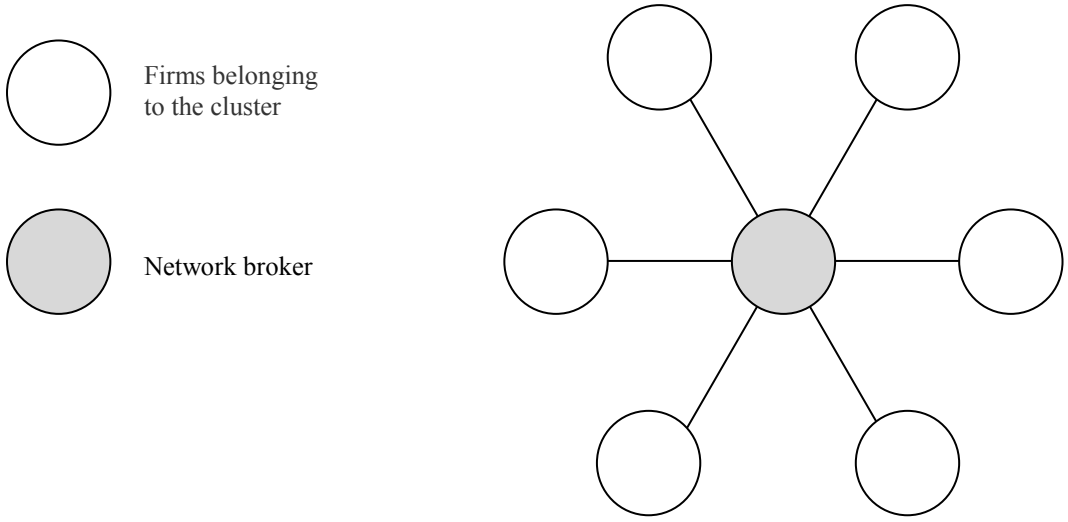

Fig. 3. Danish cluster diagram
Rys. 3. Schemat klastra duńskiego
Source: Gorynia M., Jankowska B.: Klastry a międzynarodowa konkurencyjność i internacjonalizacja przedsiębiorstwa. Difin, Warszawa 2008, s. 46.

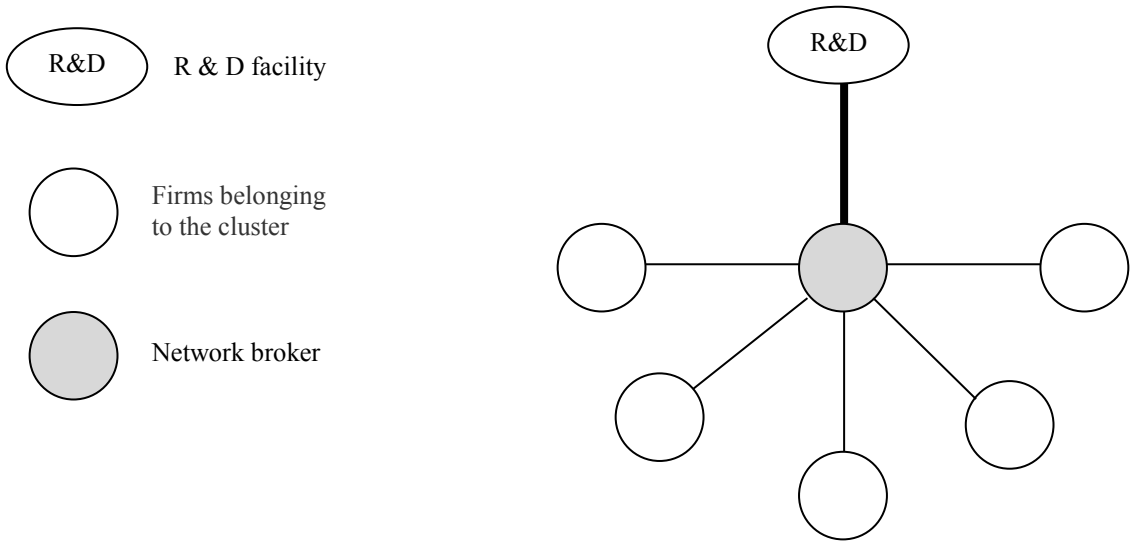

Fig. 4. Dutch cluster diagram
Rys. 4. Schemat klastra holenderskiego
Source: Gorynia M., Jankowska B.: Klastry a międzynarodowa konkurencyjność i internacjonalizacja przedsiębiorstwa. Difin, Warszawa 2008, s. 47.

The world's most well-known cluster is the innovative Silicon Valley, where, in an area of over 300 square miles, presently more than 6 000 high-tech companies are located, employing more than 1 million people. Most of these companies deal with the development of micro-electronics and computers. The beginnings of Silicon Valley date back to 1912 and are related

to inventing amplifiers, which enabled the development of communication technologies. In 1938, in Palo Alto, Hewlett-Packard began its operations. The company was established by students, William Hewlett and David Packard, with support in the form of a loan granted by the person responsible for the development of the city – Frederic Treman, a professor at Stanford University. In 1955, in Palo Alto a Semiconductor Laboratory was created. It attracted many engineers who, after some time, left to establish their own companies in the Valley. The development of companies in Silicon Valley was stimulated in the 1950s and 1960s by a huge demand for electronics from the military and spaceship sectors. Silicon Valley is a technological community, characterized by a very high staff mobility (average time of work in one company is 2-3 years, and sometimes employees come back to the same company). Mobility and common roots of many entrepreneurs have become the source of social and professional networks ensuring efficient flow of information and knowledge and their prompt diffusion. These networks create in the region a type of "super-organization", where units arrange a decentralized process of experiments and entrepreneurship. People move between companies and projects without the alienation that would be expected with such a degree of mobility, as their social and professional relations remain unchanged. The source of technological progress in Silicon Valley is the region itself and its networks, rather than single companies.[8]

The factor determining the arrival of people from various countries and cultures to Silicon Valley is the demand for talented employees. According to data from 1990, one third of its employees were born outside the United States. More than half of them originated from China and Taiwan, and approximately 20% from India. A characteristic feature of the culture of Silicon Valley is concentration on solving technical problems, rather than differences between cultures. Meetings are often held in the form of video conferences and without agenda. They are deprived of courtesy and humor and do not require getting to know participants. On the other hand, giving presentations requires resignation from metaphors that make it difficult to understand the speech, and, owing to the different pace of speaking, depending on the country of origin of the audience, it is recommended to precede the presentation with the provision of written materials. Such a situation gave rise to large demand for services of training companies dealing with building multi-cultural teams.[9]

[8] www.klastry.pl, 20.12.2008.
[9] Welch S.J.: Secrets of Silicon Valley. "Succesful Meetings", Vol. 49, No. 20, Nov. 2000, p. 43-48.

In Poland one of the first innovative clusters is the Krakow LifeScience Cluster. The following factors underlie success of the cluster:[10]

- innovation,
- entrepreneurship,
- research and development,
- competitiveness - competitive position of the region,
- access to target markets,
- environmental conditions,
- social and demographic conditions,
- support of authorities of the region and of the state.

The development of the abovementioned success factors required initiating a wide international cooperation and learning from foreign partners about the methods of operation of a cluster for the purpose of the development of the bio-region of Lesser Poland. In this respect, an important role was played by a visit of the delegation from the North Carolina Eastern Region (NCER) to Krakow[11]. The example of the LifeScience Cluster shows the way values and knowledge of people from other countries shape the manners of action and culture of an innovative cluster. With the passing of time, internationalization of activities became a key success factor. On the other hand, the cluster itself is a founder of two international organizations: EDCA (*European Diagnostic Cluster Association*) and GIN (*Global Innovation Network*).[12]

International cooperation of the cluster covers such countries as the United States, France, the UK, Spain, Germany, Romania, Greece, Latvia and many others. It consists of, e.g. study visits of the Innovation Team of the Cluster, aimed at exchanging experiences with regard to the transfer of technologies in the area of life sciences. Joint execution of development projects, such as SMEGoNet involves participation in meetings taking place in the form of a brainstorm, where each participant presents ideas to be particularized and assessed in the form of a discussion. The execution of such projects requires not only common problem solving, but also the determination of goals and to gain understanding for partners experiencing difficulties, relating e.g. to the economic crisis, which was felt to varying degrees in different countries.

It is worth noting that cooperation within a cluster requires the integration of a variety of environments. The above mentioned Krakow LifeScience Cluster includes groups of entities

[10] Murzyn K.: Klaster – koncepcja. Centrum Innowacji, Transferu Technologii i Rozwoju Uniwersytetu Jagiellońskiego, Kraków 2006.
[11] Murzyn K.: Sprawozdanie z działań Klastra w 2007 r. Biuro Klastra: Jagiellońskie Centrum Innowacji, Kraków 2008.
[12] http://lifescience.pl/, 16.09.2012.

with very different organizational cultures, such as health protection units, research-development centers, the business environment, educational institutions (Jagiellonian University, AGH University of Science and Technology, Krakow University of Technology), and administrative bodies.[13]

Companies belonging to the cluster are not only innovative organizations established by graduates or employees of Krakow universities, but also entities established by foreign investors from countries such as Japan and Italy. Universities such as the Jagiellonian University also attract students to Krakow from different countries, representing different cultures. All these elements create a multi-cultural environment in which the common factor integrating people is interest in specified field of science.

4. Role of open communication in the functioning of innovative clusters

An element allowing the integrating people from such varied environments is open communication. For several years already, the LifeScience Open Space conferences have been organized, where everyone has the opportunity to present innovative technological solutions or an offer of cooperation[14]. Another form of open communication covers meetings of club members, partners and sympathizers of the cluster concerning given issues from the area of life science. Similarly, a website linked to websites of the Cluster members and partners, as well as international organizations as GIN and EDCA enables satisfying information needs of the life science environment.

Open communication is necessary for generating knowledge within the cluster (fig. 5). According to S. Ibrahim, it may have a form of silent knowledge or open knowledge. Open knowledge is created through externalization of silent knowledge from a person working in company A and, as a result of knowledge transfer it makes it into codified form, (instructions, procedures, manuals) reaches a person working in company B or outside the cluster. On the contrary, silent knowledge of the cluster is created through socializing people from different companies and environments as a result of geographic proximity, space or informal meetings and the execution of common projects of the cluster.[15]

[13] Ibidem.
[14] Ibidem.
[15] Łukasik P., Potocki A.: Klaster – metoda współpracy między organizacjami oparta na wiedzy. Scientific Papers of the Krakow University of Economics, No. 871, Krakow 2011, p. 50.

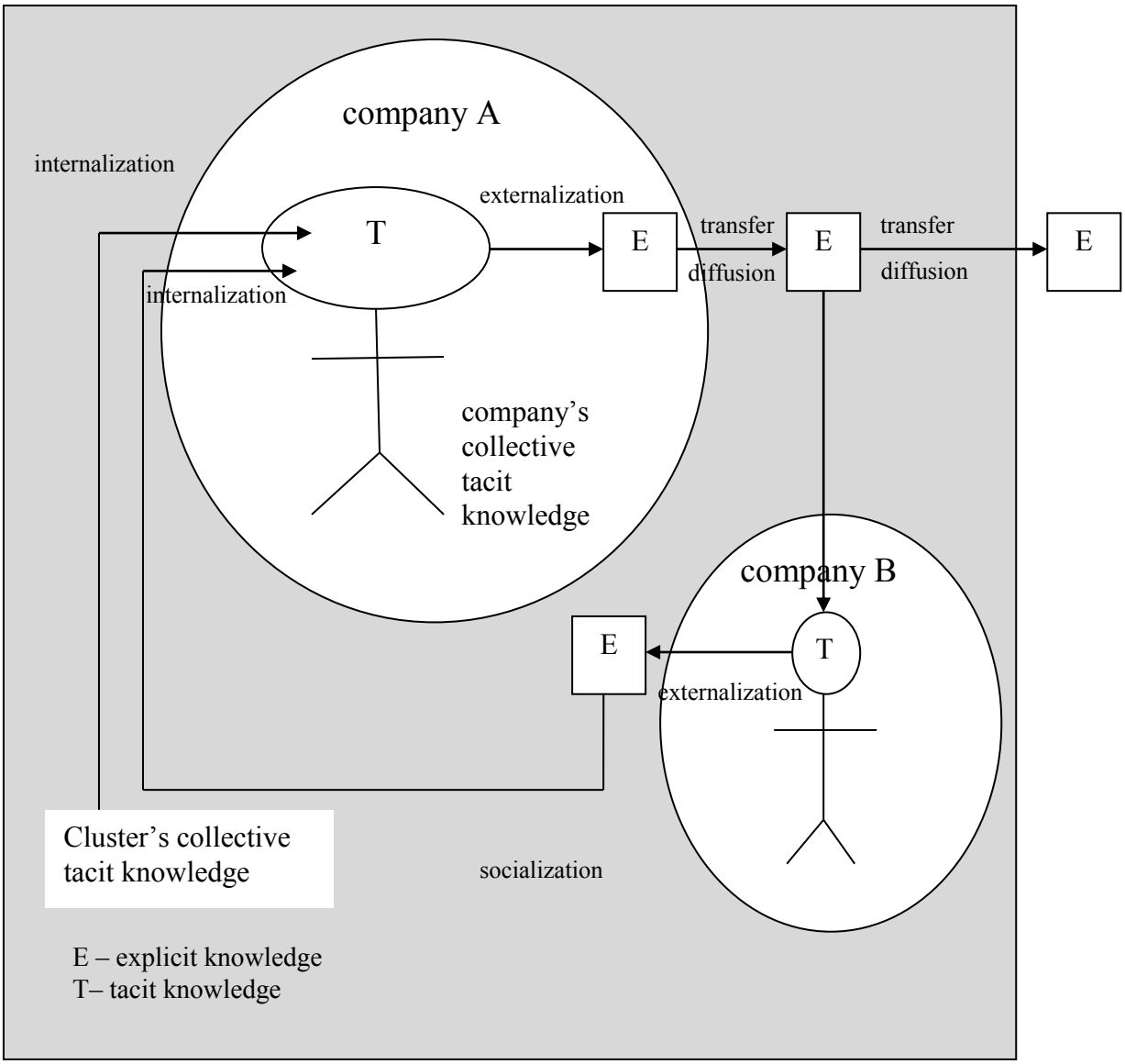

Fig. 5. Sharing knowledge within quiet and open cluster
Rys. 5. Przepływ wiedzy cichej i jawnej w obrębie klastra
Source: Ibrahim S.: Technological Clusters and Sources of Knowledge for Innovation. Maszynopis dysertacji. Stevens Institute of Technology, Hudson 2005, s. 49.

5. Conclusion

Clusters provide added possibilities, and to benefit from the possibilities provided by cooperation within innovative clusters requires achieving the agreement of people from various countries, environments and cultures. Therefore a factor determining the success of projects executed within innovative clusters is trust. For people working on the development of modern technologies, elements more important than the country of origin and way of

behaving are technical competences and sense of responsibility of the people belonging to project teams. Such beliefs are typical of people creating the community of the cluster, which fosters openness in communication and facilitates the adaptation of employees from different cultural groups. At the same time, innovative clusters are, by definition, organizations focused on cooperation, rather than rivalry. Although their activities are local, a key success factor is the creation of internal cooperation networks and the exchange of experiences, which is favorable for pluralism, an element typical of multi-cultural organizations.

Bibliography

1. Griffin R.W.: Management. Cengage Learning, Mason 2012.
2. Griffin R.W.: Podstawy zarządzania organizacjami. PWN, Warszawa 1998.
3. Hofstede G., Hofstede G.J., Minkov M.: Cultures and Organizations, Sofware of the Mind. McGrawHill Companies, 2010.
4. Łukasik P., Potocki A.: Klaster – metoda współpracy między organizacjami oparta na wiedzy. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, Nr 871, Kraków 2011.
5. Murzyn K.: Klaster – koncepcja. Centrum Innowacji, Transferu Technologii i Rozwoju Uniwersytetu Jagiellońskiego, Kraków 2006.
6. Murzyn K.: Sprawozdanie z działań Klastra w 2007 r. Biuro Klastra: Jagiellońskie Centrum Innowacji, Kraków 2008.
7. Peszko A.: Podstawy zarządzania organizacjami. AGH, Kraków 2002.
8. Porter M.: Porter o konkurencji. PWE, Warszawa 2001.
9. Welch S.J.: Secrets of Silicon Valley. "Succesful Meetings", Vol. 49, No. 20, Nov. 2000.
10. www.klastry.pl, 20.12.2008.