Trust in the Diffusion of Professional Knowledge

Anna Pietruszka-Ortyl[1], Małgorzata Ćwiek[2]

Abstract:

Purpose: The main objective of the study is to indicate the role of trust in the processes of knowledge diffusion of IT professionals. This includes the identification of individual types and components of trust impacting the knowledge exchange between intellectual workers, as seen from the perspective of knowledge agent groups involved in its circulation, and in sub-processes constituting the transfer of knowledge, as well as in generation of specialists.

Design/Methodology/Approach: The procedure for obtaining empirical data consisted of three stages: the direct semi-structured individual interview, focus group online interviews (FIGO), computer assisted telephone interview (CATI) and computer-assisted web interview (CAWI). The hypotheses were tested with a test of significance for Spearman's rank-order correlation coefficient and the Wilcoxon-Mann-Whitney test.

Findings: Trust is a factor in knowledge diffusion among intellectual workers and its importance depends on the groups of knowledge agents participating in it. Trust is most important in the exchange of knowledge among professionals, then in the circulation of knowledge between specialists and co-operators, and the least important – in the dispersion of knowledge between knowledge workers and the organization's personnel. Regardless of the group participating in the circulation of knowledge, the foundation of trust is competence-based trust, supported by benevolence-based trust.

Practical Implications: The presented considerations provide specific indications as to which components of trust to develop due to the sub process of knowledge diffusion, and knowledge agents involved in the circulation.

Originality/Value: This study's main contribution is filling the existing research gap regarding the impact of trust on the flow of intellectual workers' knowledge. The work has theoretical and practical contribution to research on the diffusion of professional knowledge. It organizes the theory and formulates practical guidelines for the formation of trust as a factor of knowledge dispersion.

Keywords: Knowledge diffusion, knowledge worker, IT sector.

JEL Codes: D23, D64, D83, D91.
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[1]*Cracow University of Economics, Department of Organizational Behavior, Poland, ORCID: 0000-0001-7344-782, e-mail: pietrusa@uek.krakow.pl;*
[2]*Cracow University of Economics, Department of Statistics, Poland, ORCID: 0000-0002-6375-098X, e-mail: cwiekm@uek.krakow.pl;*

1. Introduction

Nowadays, in a global perspective, the economy is on the way to the era of intelligence. During evolution, civilization is moving towards Society 5.0. Despite going from informational economy (Podluzhna, 2017), through network economy (Ustyuzhanina *et al.*, 2018), to the emerging programmable economy (Hegadekatti and Yatish, 2017), knowledge still has the attribute of domination, invariably as the most valuable resource (Mehralian *et al.*, 2018; Latif *et al.*, 2020). It is the engine of civilizational transformations (Gou *et al.*, 2019) and the basis of the prosperity of the nation, economy, organization, and worker (Khalique *et al.*, 2013).

Knowledge assets play an important role in the growth, survival, and better performance in knowledge-based economy (Yasir and Majid, 2017)*,* therefore economies and organizations largely depend on the value of the knowledge management systems. Hence, the efforts that are particularly focused on the flow of knowledge and the related iterative and interactive processes of its creation, storage, transfer, and application were made (Zhang, 2018). Consequently, the role of the knowledge diffusion process increased (Lee and Lim, 2015; Secundo *et al.*, 2019).

At the same time, a model of a human being permanently learning and sharing knowledge emerged (Cotsomitis, 2018), followed by spectacular social changes. The knowledge society was constituted and professionalized (Tammelin *et al.*, 2017). As a result of evolution from blue-, to white-, and gold-collar workers (Kelley, 1985), representatives of new professions appeared - the knowledge workers (Drucker, 1999). These employees constitute the unique capital of the organization, as they have the most valuable, highly contextual, personalized specialist knowledge and therefore, usually take a privileged position in enterprises. These workers are more demanding (Olsen, 2016) – they live an "informal way of life" and are not tied to any organization (Imafidon, 2009). Being "deep-smarts" (Sumbal *et al.*, 2020), most knowledge workers consider knowledge as power and may not be willing to share their knowledge entirely (Jayasingam *et al.*, 2016). They adopt attitudes that restrain the flow of knowledge, even deliberately concealing it (Arain *et al.*, 2019), considering their knowledge too valuable (Afshar Jalili and Ghaleh, 2020) for free diffusion. This is especially true with tacit knowledge (Holste and Fields, 2010).

Therefore, most of the management efforts are mainly aimed at stimulating voluntary and open diffusion of their knowledge to intensify the processes of converting the individual knowledge of professionals into organizational knowledge constituting critical firm-level intellectual capital (Ling, 2013). As a result, consciously designed organizational processes of knowledge circulation become the point of interest, which is a difficult challenge.

The character of the process of knowledge diffusion among intellectual workers requires practical analysis, especially since empirical studies are still rare (Sumbal *et al.*, 2020). There is also a research gap in exploring various aspects of knowledge

worker management (Razzag *et al.*, 2019), especially since getting knowledge workers to transfer their individual knowledge to the organizational knowledge is easier said than done (Jayasingam *et al.*, 2016). Therefore, it is justified to study the factors that determine the process of professional knowledge dispersion. One of the main determinants of knowledge exchange is trust (Usoro *et al.*, 2007; Gillani *et al.*, 2018).

The literature review gives a lot of theoretical and empirical evidence that trust affects knowledge diffusion, and that knowledge diffusion influences trust (Holste and Fields, 2010; Vanhala, 2019). Hence, the main aim of the study is to show the role of trust in knowledge diffusion among knowledge employees in the IT sector. The second purpose of the present study is to identify individual types and components of trust that impact the circulation of specific types of specialist knowledge, as part of the implementation of specific knowledge diffusion sub-processes.

This study's main contribution is filling the existing research gap identified in the literature regarding the conditions and character of the work of specialists, in particular the impact of trust on the flow of their knowledge. The work has theoretical and practical contribution to research on the diffusion of professional knowledge. It organizes the theory and formulates practical guidelines for the formation of trust as a factor of knowledge dispersion due to the sub-process that comprises knowledge transfer and knowledge agents involved in the circulation.

2. Literature Review

2.1 Professionals as Key Employees of an Organization Operating in the Knowledge-Based Economy

As far back as the 1950's, the burgeoning significance of the knowledge worker had been recognized (Imafidon, 2009). For the first time, the term for this specific group, i.e, professional employees were probably used by Drucker. He declared that the most valuable asset of the 21st century organization, will be its knowledge workers and their productivity (Drucker, 1999). They possess a high level of professional knowledge, education, or experience (Sveiby, 1997), and their job is to convert information into knowledge or to create knowledge-based products (Davenport, 2006; Razzaq *et al.*, 2019). The prerequisite for being included as the cognitive worker (Berardi, 2005) is formal education - they facilitate continuous learning (Scott, 2005). Their work may be unpredictable, multidisciplinary, non-repetitive, non-routine (Kelly, 1990; Scott, 2005), and is expert work involving design and technical expertise, idea generation and creative problem solving (Tammelin *et al.*, 2017).

As the core of a modern enterprise's personnel (Aydogmus, 2019; Kianto *et al.*, 2019; Toth *et al.*, 2020), professionals using, and operating on knowledge, occupy

various functions and positions in organizations. Therefore, there is an ongoing dispute of the knowledge worker term and concept. The term "knowledge worker" is a theoretical construct reflecting more the key position that certain individuals occupy in an organization than their actual place in its structure.

Professionals are often characterized by their unique features and specific employee attitudes (Lee and Lim, 2015; Olsen, 2016; Zhao *et al.*, 2020). They have extensive specialist and interpersonal skills, are self-governed, independent, and professionally mobile. Knowledge workers also have an innovative attitude, are oriented on building unique knowledge resources. They strive to build relationships and extensive professional contacts in order to exchange knowledge, but in hermetic circles of trust, functioning in two parallel worlds, virtual and real.

Because they are not a homogeneous group, knowledge workers are classified in several ways. These groups have different knowledge bases depending on the extent to which the knowledge is technical, abstract, codified, etc., (Olsen, 2016). Currently, it is emphasized that professionals form unique cohorts (Aydogmus, 2019), e.g., liquid-knowledge workers (Jha *et al.*, 2019) or digital nomads (Al-Hadi and Al-Aufi, 2019).

In conclusion, knowledge workers constitute a special category of human capital that must be uniquely managed (Imafidon, 2009). The behaviour and attitudes of a knowledge worker are very different from those of an average white-collar worker; therefore, it becomes pertinent to understand the behavioural outcomes of the knowledge worker (Jayasingam *et al.*, 2016). Triggering the productivity of professionals is the main and difficult challenge for managers (Drucker, 1999; Butler, 2016; Jabagi *et al.*, 2019). To the greatest extent, it depends on the high personal commitment of specialists (Toth *et al.*, 2020) in a knowledge-based work.

This, in turn, depends on the knowledge management processes implemented in organizations (Kianto *et al.*, 2019), the presence of an optimal knowledge environment (technical and social), which creates the desired comfort zone (Davenport, 2006; Butler, 2016; Olsen, 2016; Razzaq *et al.*, 2019) and a properly constructed psychological contract (Jha *et al.*, 2019). Recognizing knowledge workers' attitudes at an early stage will enable the organization to make better decisions and ensure end users, commitment throughout the whole development process (Al-Busaidi and Olfman, 2017), a high-quality employee motivation can contribute to an organization's long-term success by supporting employees' well-being and performance (Jabagi *et al.*, 2019).

Among the detailed tasks facing knowledge managers in specific companies are, the effective implementation of the process of professional knowledge diffusion and providing the professionals with optimal conditions for development, triggering attitudes of openness and voluntary cooperation with all stakeholders.

2.2 Determinants of the Diffusion of Specialist Knowledge

Knowledge diffusion is a process involving knowledge aimed at knowledge exchange and application in the organization (Liyanage *et al.*, 2009; Anand *et al.*, 2019). Its essence is the self-replication of knowledge (Zhang *et al.*, 2016). Knowledge diffusion aims to convey the right knowledge content, set in the right context (Gou *et al.*, 2019) while being influenced by many factors. The process depends on e.g., the learning and absorption abilities of the knowledge agent, the strength of the relationship between the sender and the recipient of knowledge, the level of social and technological infrastructure of the knowledge environment, the attitudes of management, the incentive system, and the culture based on cooperation and participation (Tsai, 2018; Zhang, 2018; Heo *et al.*, 2019).

Knowledge diffusion consists of 4 sub-processes, knowledge acquisition (obtaining it from a variety of sources, both internal and external), knowledge disclosure (targeted transfer), knowledge dissemination (making specific knowledge a publicly available resource) and knowledge sharing (mutual knowledge transfer in the communication process, also using machines) (Mikuła, 2017).

The process of knowledge diffusion among specialists includes both the absorption and desorption of knowledge (Kianto *et al.*, 2019). Its essence, therefore, is its mutual, interactive exchange (Heo *et al.*, 2019). A key factor in its effectiveness is focusing on the knowledge-sharing sub-process (Jayasingam *et al.*, 2016; Heo *et al.*, 2019; Zhao *et al.,* 2020) as the most important for this group of employees, seen as special purpose units.

Specialists usually have knowledge resources, the circulation of which is limited due to its specificity (stickiness, ambiguity), or the attitudes of the intellectual workers themselves. They often believe that knowledge sharing is unnatural (Arain *et al.*, 2019), or that knowledge is the source of individual notions of power in an organization (Butler, 2016). In their case, interpersonal relationships and personal contacts that create the context of trust and reciprocity are the most important (Ensign and Hébert, 2010; Anand *et al.*, 2019). They are looking for specific, hermetic groups of individuals like them, forming communities of practice (Butler, 2016) and communities of expertise (Razzaq *et al.*, 2019). The level of trust and distrust influences attitudes and behaviors, such as, entrepreneurial, and relational attitudes, controlling behavior and risk acceptance (Tsai, 2018). Individual motivation of professionals to actively participate in the process of knowledge transfer is shaped by reputation, and altruism.

Reciprocity, in turn, manifests itself in adopting the attitude that each member of the community should help others and, in response, may expect a rematch or a favour in return (Taylor and Murthy, 2009; Al-Busaidi nad Olfman, 2017). Together, these elements feature mutual commitment, mutual care, interdependence, reciprocity, and fairness (Tsai, 2018). It reflects a reciprocal relationship between organization and

knowledge workers (Jayasingam *et al.*, 2016) who tend to share their unique knowledge and incorporate this form of individual knowledge into organizational knowledge, adopting an attitude of openness in terms of professional knowledge diffusion beyond one's own communities.

2.3 The Role of Trust in the Exchange of Professional Knowledge

Trust is a key element in social exchange relationships (Widyastuti *et al.*, 2019), seen as an essential component of social capital (Tsai and Hsu, 2019), which holds together the group members collectively and enable community to work together to achieve common goals in various groups (Rahmad, 2018) and strongly affects the extent of interpersonal knowledge sharing (Nahapiet and Ghoshal, 1998; Mohammed and Kamalanabhan, 2019).

The construct of trust has received importance due to its high potential to provide performance benefits to both individuals and organizations (Brown *et al.*, 2015; Yasir and Maijd, 2017). In that, the trust within an organization plays a major role and is seen as critical in the knowledge-based network economy, especially as it is treated as a lubricant when managing uncertainty, complexity, and related risks (Lin, 2007; Vanhala, 2019). It facilitates entering relationships, exchanging knowledge (Luu, 2017), and enables the development of mechanisms beneficial for all sub-processes of knowledge transfer and creation. High level of trust also guarantees the reduction of opportunistic behavior of partners (Park and Lee, 2014).

Therefore, as a bridge between knowledge and ignorance, trust is closely related to the effective implementation of the concept of knowledge management (Vanhala, 2019). It is shaped through collaboration and information sharing (Thomas *et al.*, 2009) since contributes to the dynamic circulation of ideas and information among employees and the formation of teams ad hoc to use it as project team members share knowledge when they can trust one another and feel dependent (Park and Lee, 2014). Trust generates the development of common mental models motivating employees to digital learning by systematically questioning the adopted solutions and proposing new ones (Ali *et al.*, 2019), and therefore is the catalyst to collaborative innovation (Fawcett *et al.*, 2012; Han and Chen, 2018). As a result, trust is a prerequisite for building a knowledge- orientated culture in an organization (Gillani *et al.*, 2018) contributes to dispelling employees' fears related to the loss of power, prestige and usefulness in connection with the transfer of their knowledge (Jayasingam *et al.*, 2016) and determines the involvement of employees in working for the common good, impacting job performance, goal commitment and organizational citizenship behaviors (Dang and Chou, 2019). Therefore, trust presents members with an informal code of interaction built on mutual interests and a norm of reciprocity (Tsai and Hsu, 2019).

The theory of trust considers this concept in various ways. The most often cited definition, by Mayer *at al.* (1995), treats trust as "the willingness of a party to be

valuable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Dang and Chou, 2019). The proposed in the literature on the subject terms can be reduced to a common synthetic conclusion, i.e., trust can be treated as the belief of the parties involved that each player would behave in accordance with the best interest of all partners in the cooperation relationship.

Moreover, it is described by specific parameters (Han and Chen, 2018; Dang and Chou, 2019; Vanhala, 2019) other resources can be invested in it, in lieu of potential benefits, is comprehensive and transformable, characterized by low fluidity and high "grip" and voluntary – it must result from free choice and not coercion. Trust is conscious – each party is aware of the trust of the other, it can be temporary and is dynamic – it evolves along with the development of cooperation. It also can be used in relation to other resources, both as a substitute and a complementary component, requires constant maintenance, must be periodically renewed, and confirmed. Furthermore, trust does not have a predictable rate of investment and is based on communication - it is interpersonal, characterized by specific individuals and is anchored in the relations between entities. Also, multidimensionality is an indispensable feature of trust. It can take place between people as participants in the organization (interpersonal trust) and at the institutional level (impersonal trust) (Vanhala, 2019).

At an interpersonal level, trust can be affect-based or cognition-based (McAllister, 1995). Cognition-based trust is grounded in a rational thought process and expresses the belief that the partner is competent, and that the cooperation counterpart is credible (solid, dependable). This raises the expectation that the partner acts and will act in a responsible and reliable manner in the future (Lewicki *et al.*, 2006). Affect-based trust is the emotional component of trust. It is based on feelings, develops through interpersonal interactions, and takes a long time to manifest. It is shaped ex ante, as the result of previous experiences and observations (Zamani, 2019).

When analysing the issue of trust in knowledge management processes, one should focus on a new category of the process participant – the knowledge worker. Trust creates conditions for knowledge-based work. It could shape the attitudes of professionals in the workplace, and is necessary for their involvement, stimulating the productivity of professionals (Holste and Fields, 2010; Jayasingam *et al.*, 2016). In the context of knowledge workers, trust is of exceptional importance in the affective dimension. It determines the openness of the relations of specialists, allowing them to freely share ideas, talk about the difficulties, and build social commitment. Trust requires an informal network of connections. It is formed in exchange processes, but it is a fragile resource that can disappear as quickly as it appears. Frequent interactions of employees contribute to its formation, and then trust facilitates the processes of acquiring knowledge, technology, and information from other participants in the organization and its stakeholders. Ensing and Herbert

(2010) specify a specialist's predisposition as a trustworthy person in the process of knowledge sharing, i.e., the previous behavior of the person, and the quality of interactions.

Trust in the perspective of its building and shaping in the environment of knowledge workers is treated bipolarly, as trust-based benevolence, the basis of which is mutual care and mutual interest in co-creating knowledge between professionals and competence-based trust, founded on reliability, trustworthiness, and integrity of a colleague (Holste and Fields, 2010).

Benevolence-based trust means that an individual will not harm another individual when the opportunity arises. To build it, factors such as sensitivity and strong bonds are important (Mohammed and Kamalanabhan, 2019). Competence-based trust, on the other hand, describes a relationship in which an individual believes that others are carriers of significant knowledge in a given area (Dang and Chou, 2019). The elements that contribute to this type of trust are, a common language, a joint vision and discretion. In some situations, both types of trust can be completely independent of each other. Vanhala (2019) highlights one more component that builds trust, reliability of the other party, that refers to the set of principles that the trustor finds acceptable and means expectations that the other party will tell the truth and keep promises (Mayer *et al.*, 1995; Schoorman *et al.*, 2007). From the perspective of knowledge circulation, competence-based trust plays a leading role, but from the perspective of knowledge workers, both forms of trust play an equally important role.

3. Research Methodology

The IT sector, as closely related to information- and knowledge-based operation and dominated by services, is among the industries considered to be the driving force of the new economy (Tsai, 2018; Jha *et al.*, 2019; Kianto *et al.*, 2019). Basically, it is based on the specialist knowledge of highly qualified experts, i.e., professionals treated as knowledge workers. Being an emanation of the knowledge-based economy, the sector is like a focal point of all its processes. Therefore, the diffusion of professional knowledge is its basic challenge. Inspired by the finding that a knowledge-workers performance on the job is related to behaviors not the results, and therefore it should be analyzed and measured too (Razzaq *et al.*, 2019), an empirical research on trust as the driving force of specialist knowledge diffusion was undertaken.

Unfortunately, most of the conclusions regarding the foundation of trust of knowledge workers and the processes related to professional knowledge management are still just postulates, or narrow-scope research (Holste and Fields, 2010; Jayasingam *et al.*, 2016). Therefore, as part of the research on the prerequisites of the diffusion of professional knowledge in the IT sector, trust in the context of interpersonal dimension was analyzed. The point of reference was the perspective of

the intellectual worker as the knowledge agent. The main hypothesis adopted in the study is that trust influences the diffusion of professional knowledge (H1). Moreover, the following partial hypotheses were formulated:

H2: The importance of trust in the diffusion of professional knowledge depends on the target group, i.e., knowledge agents.
H3: The individual components of trust impact the execution of individual sub-processes of knowledge transfer to a varying extent.
H4: The age of knowledge agents determines the trust-building components that are important to them.

Triangulation was used to ensure the validity of the conducted empirical explorations - in this case, it meant the use of quantitative research to confirm the results of the qualitative research. This is because knowledge management scholars, combining both quantitative and qualitative methodologies, may conduct a longitudinal investigation in the knowledge-intensive context across different industrial sectors (Tsai, 2018). In the process of method selection, the focus was on fully leveraging the potential of qualitative methods to describe the specific character of the world of key employees of the IT sector in Poland and to formulate theoretical and directive generalizations for managers. By focusing on one specific group of respondents, quantitative research takes the knowledge workers' perspective as the starting point.

The procedure for obtaining empirical data consisted of three stages. In the first stage, the direct semi-structured individual interview was used, and the research tool was the interview scenario. As part of the next stage of empirical research, focus group online interviews (FGIO) were conducted, with one focus for each dimension of knowledge diffusion. Each group consisted of five people. The purpose of the first two stages was to identify individual elements of the context, tools, the environment, and routines for dispersing the intellectual workers' knowledge. They were the foundation for the survey questionnaire.

As part of the last stage, quantitative research was carried out to test the research hypotheses. The computer-assisted telephone interview (CATI) was used, supported by a computer-assisted web interview (CAWI), of which 397 research inquiries were directed to potential respondents. The study questionnaire, consisting of 33 questions, was developed based on a 7-point Likert scale. As a result of the CATI and CAWI-based research conducted from February to April 2020, 105 completely completed surveys were obtained. The respondents were professionals[3] (18 women – 17.14% and 87 men – 82.86%) with higher education (98 people – 93.3%), mainly with a degree in economics and administration (63 people – 60%), IT (31 people – 29.5%) and

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[3]*The group of respondents follows a division of key employees into knowledge workers (e.g. IT specialists) and management professionals (e.g. managers), often cited in the literature (Olsen, 2016).*

engineering (11 people – 10.5%), representing generation X (78 people – 74.3%), Y (24 people – 22.85%) and Z employees (3 people – 2.85%), with an established professional position (49 specialists, 25 managers, 20 directors, 11 board members) and an average seniority of 17 years, mostly employed under a permanent employment contract (81 people – 77.1 %) a managerial contract (12 people – 11.4%) a contract of commission (3 people – 2.85%), or self-employed (8 people – 7.6%).

To examine the relationship between the analyzed variables, a Spearman's rank-order correlation coefficient (r_s) was used[4]. It is a nonparametric equivalent of the Pearson's linear correlation coefficient, suitable for use on variables measured on the ordinal scale. This coefficient is calculated according to the formula *(*Aczel and Sounderpandian, 2018):

$$r_s = 1 - \frac{6 \sum_{i=1}^{n} d_i^2}{n(n^2 - 1)}, \tag{1}$$

where d_i $(i = 1, 2, \ldots, n)$ are rank differences x_i and y_i; $d_i = R(x_i) - R(y_i)$.

In turn, in order to compare the importance of individual components of trust for employees belonging to different generations, the Wilcoxon-Mann-Whitney test was used[5]. It is a non-parametric equivalent of the classic Student's t-test for independent samples. This test allows verifying the research hypothesis, i.e., that individual samples were taken from the same population, or more precisely, from populations with equal medians (with the significance level α <0.05). The Wilcoxon-Mann-Whitney test is based on ranking the values of the dependent variable (from the lowest to the highest) in the study groups, and then comparing the studied groups (Aczel and Sounderpandian, 2018).

The prerequisite for applying this test is the measurement of the analyzed variables on at least the ordinal scale. It is true that applying the Wilcoxon-Mann-Whitney test it does not require equality of the groups, but since only three representatives of the Z generation participated in the study, it was decided to include the representatives of the Y and Z generations into a single group. Rejection of the null hypothesis demonstrates that there are statistically significant differences between the X, Y and Z generations in terms of the studied variables.

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[4]*The interpretation of Spearman's rank-order correlation coefficient is analogous to the interpretation of the parametric Pearson correlation coefficient.*
[5]*It was decided to compare the preferences of generation X against that of other, younger generations (Y and Z) for several reasons. Firstly, the representatives of the X generation were the largest sample and currently, due to their competences, they are a key group of IT knowledge workers in Poland (Jakubowski and Masiukiewicz, 2018). Secondly, it is reported that Generation Y differs scientifically from earlier generational cohorts (Mahmoud et al., 2020). Thirdly, scholars found that Generation Z and Y share common characteristics (Wood, 2013; Mahmoud et al., 2020). Hence, it was decided to combine the include the Y and Z generations into a single research group.*

4. Research Results and Discussion

The conducted research shows that the vast majority (93.3%) of professionals rely their openness in the circulation of knowledge on the level of trust in exchange participants, which confirms the main hypothesis (H1). The respondents also declared that their involvement in the knowledge distribution process depends on the group of knowledge agents affected by this process (86.66% of responses), which allows a positive verification of H2. The obtained results warranted deeper analyzes. Full trust is particularly important in the process of professional knowledge diffusion (indicated by 95.24% of respondents) and in the exchange of knowledge with external partners (81.9%). However, only 41.9% of the respondents appreciated the main role of trust in the dispersion of knowledge with employees other than specialists (personnel).

To complement the research, an answer was sought to the question whether the generation to which specialists belong influences their opinions on the role of trust in the process's professional knowledge diffusion and on their different opinion as to the importance of trust determined by a group of knowledge agents. Using the Wilcoxon-Mann-Whitney test, broken down into two groups of respondents: generation X and generation Y, together with generation Z, it was found that in the case of agents belonging to generation X and younger, the role of trust in the knowledge diffusion processes does not differ significantly ($Z = 1.2666$, $p = 0.2053$). Thus, it was initially resolved that the generational affiliation of the professionals did not impact their views on the importance of trust in the dispersion of specialist knowledge.

To expand the scope of exploration, efforts were made to identify the key type of trust in managing the knowledge transfer of intellectual employees in the IT sector. Therefore, an attempt was made to identify the components of the competence-, benevolence- and reliability-based trust. Then, efforts were made to further explore the analysed issue, looking for deeper relationships between the components of trust and the groups of knowledge agents involved in each of the sub-processes constituting its diffusion. The results of these queries are presented in Table 1.

What is significant is the fact that the strength of the relationship between individual knowledge transfer sub-processes and trust components is the greatest in the group of professional knowledge agents (i.e., specialists). Intellectual workers are therefore more focused on expert groups and to a greater extent involved in the exchange of knowledge as part of relations with other professionals, as compared to the knowledge circulation among the employees of their organization other than specialists (personnel), and co-operators.

A common language is an essential element in each sub-process of knowledge transfer among knowledge workers. To the greatest extent, this regularity applies to knowledge sharing (0.6973) and knowledge acquisition (0.6929). It is in these partial

processes building knowledge diffusion that its greatest absorption and desorption takes place, hence the clarity of the message is of paramount importance. Common goals and vision are the components of trust that affect knowledge distribution only among specialists. Characteristically, there was no strong correlation for knowledge disclosure (0.4256), and the greatest correlation was observed for knowledge sharing (0.6319). Thus, there is less focus on both knowledge disclosure and on sharing it. These results confirm the conclusions abundantly documented in the subject literature, i.e., that this is a key sub-process of knowledge diffusion among professionals (Usoro, 2007; Holste and Fields, 2010; Butler, 2016). They reflect the professionals's deep high conviction as to the importance of this sub-action, which is based on the creation of new knowledge, as it is often founded on tacit knowledge.

Discretion is a component of trust that is important in knowledge diffusion in each configuration of knowledge agents. In the case of individual groups, however, it is meaningful in various sub-processes of knowledge transfer. Among specialist, it is important in acquiring (0.7186) and sharing knowledge (0.7108), among professionals and personnel: in disclosing (0.5851), and in dispersing knowledge in cooperation with business partners – in disclosing (0.6308) and disseminating knowledge (0.6305). It can be carefully concluded that in this case intellectual workers understand the main role of the sub-process of knowledge dissemination as shaping the image of the parent organization, building relationships, and orientation towards an external partner.

Keeping promises, responsibility, is a key component of reliability-based trust, determining the circulation of knowledge between professionals and the organization's personnel when disclosing and disseminating knowledge. This type of trust seems to dominate knowledge transfer between specialists and personnel to a greater degree than in the case of the dispersion of knowledge between professionals or intellectual workers and co-operators.

Moreover, it can also be presumed that the strong correlations between the components of trust for specific constellations of knowledge agents and the sub-processes of knowledge diffusion, in fact, indicate the frequency of these actions in given systems. Hence, in the group of intellectual workers, the most common is knowledge acquisition and sharing, and disclosing and dissemination – in knowledge exchange between professionals and personnel, and in relationships with co-operators.

In acquiring and sharing specialist knowledge, the following components of trust are important: common language, goals and vision, and discretion, i.e., competence-based trust. In disclosing knowledge, a common language and discretion, including elements of competence-based trust, constitute a prerequisite to building reliability-based trust. In knowledge dissemination, a common language and discretion are also important, in addition to competences that build the prestige of a group of specialists and guarantee the credibility of the knowledge worker as the carrier.

Table 1. *Spearman's rank correlation matrix for the variables of the knowledge diffusion subprocess and the components of trust in knowledge transfer in various groups of knowledge agents*

element of trust / knowledge diffusion sub-process	type of trust	Knowledge sharing — specialists and partners	Knowledge sharing — specialists and the staff	Knowledge sharing — between specialists	Knowledge dissemination — specialists and partners	Knowledge dissemination — specialists and the staff	Knowledge dissemination — between specialists	Knowledge disclosure — specialists and partners	Knowledge disclosure — specialists and the staff	Knowledge disclosure — between specialists	Knowledge acquisition — specialists and partners	Knowledge acquisition — specialists and the staff	Knowledge acquisition — between specialists
common language	competence based trust	-0.143	-0.063	0.067*	-0.226*	0.017	0.612*	-0.226*	-0.040	0.537*	-0.042	0.246*	0.692*
common goals and vision	competence based trust	-0.026*	-0.104	0.631*	0.002	-0.120	0.519*	-0.062	-0.146	0.425*	0.079	0.126	0.584*
discretion	competence based trust	0.491*	0.383*	0.710*	0.630*	0.485*	0.618*	0.630*	0.585*	0.536*	0.487*	0.487*	0.718*
competences	competence based trust	0.155	0.480*	0.522*	0.073	0.601*	0.532*	0.184	0.533*	0.373*	0.134	0.389*	0.431*
sensitivity – active listening	benevolence based trust	0.403*	0.049	0.298*	0.530*	0.269*	0.079	0.574*	0.269*	0.219*	0.371*	0.204*	0.240*
frequency of contacts	benevolence based trust	-0.462*	-0.405*	-0.358*	-0.503*	-0.413*	-0.530*	-0.577*	-0.484*	-0.362*	-0.410*	-.0294*	-0.394*
quality of the relationship	benevolence based trust	-0.342*	-0.226*	-0.164	-0.404*	-0.271*	-0.394*	-0.322*	-0.301*	-0.232*	-0.232*	-0.132	-0.231*
credibility of the partner	reliability based trust	-0.395*	-0.299*	0.378*	-0.444*	-0.337*	0.378*	-0.410*	-0.303*	0.253*	0.253*	-0.278*	0.465*
way of showing interest to others	reliability based trust	-0.234*	0.202*	0.483*	-0.224*	0.218*	0.432*	-0.179	0.160	0.447*	0.447*	0.153	0.502*
keeping promises, responsibility	reliability based trust	0.018	0.456*	0.473*	-0.012	0.557*	0.432*	0.132	0.503*	0.333*	0.333*	0.299*	0.453*

*p<0.05

Source: *Own study based on empirical research.*

In business partner cooperation networks, where knowledge dissemination and disclosing seem to dominate, the key role was assigned to discretion and sensitivity related to active listening. Therefore, the focus is on benevolence-based trust, which should take the leading role in cooperative relations over time. The coexistence of competence- and benevolence-based trust in business partner cooperation and especially developing benevolence-based trust during cooperation is necessary for fruitful collaboration (Lewicka and Zakrzewska-Bielawska, 2020). Therefore, through their indications, the respondents somewhat intuitively confirmed the reflections presented in the subject literature.

Ultimately, in the empirical research on trust discussed in this paper, conducted in early spring 2020, the preferences of respondents as to the importance of individual components constituting trust were explored. An attempt was made to compare the priorities of the representatives of generation X (1965-1979: group X) and generation Y (1980-1989) and generation Z (1990-) included in a single comparative group (group YZ) (Table 2).

Table 2. *Wilcoxon-Mann-Whitney test for two groups of generations: generation X, and generations Y and Z*

Components of trust	sum of ranks group X	sum of ranks group YZ	U	Z	p-value	Z corrected.	p-value	Size: generation	
								X	YZ
common language	3662.50	1902.5	581.50	-34533	0.0006	-3.6158	0.0003	78	27
common goals and vision	3822.50	1742.5	741.5	-2.2802	0.0226	-2.4682	0.0136	78	27
discretion	4164.00	1401.0	1023.0	0.2163	0.8288	0.2402	0.8102	78	27
sensitivity - active listening	4091.50	1473.5	1010.5	-0.3079	0.7581	-0.3291	0.7421	78	27
frequency of contacts	3678.00	1887.0	597.0	-3.3396	0.0008	-3.4639	0.0005	78	27
quality of the relationship between the parties	3751.00	1814.0	670.0	-2.8044	0.0050	-2.9170	0.0035	78	27
credibility of the partner	3821.00	1744.0	740.0	-2.2912	0.0220	-2.3823	0.0172	78	27
way of imparting knowledge, showing interest to others	4175.00	1390.0	1012.0	0.2969	0.7665	0.3162	0.7519	78	27
keeping promises, responsibility	4438.00	1127.0	749.0	2.2252	0.0261	2.4764	0.0133	78	27
competences	4444.50	1120.5	742.5	2.2729	0.0230	2.4645	0.0137	78	27

Source: *Own study based on the collected empirical data.*

Generation X was adopted as the reference group since it is dominant in the research and highly represented on the IT knowledge workers' market, especially among managers. This is the age when the professional status, experience and autonomy in the workplace predispose one to the position of an intellectual worker in the organization (Bogdanowicz and Bailey, 2002). The preferences of this generation as agents of knowledge involved in its dispersion were analyzed against those of the representatives of the younger generations. For the analysis to be complete, the preferences of representatives of various generations should be met and representatives of specific generations should strive for a consensus based on the knowledge of the preferences of the opposing parties involved in the knowledge exchange, in the intergenerational, hierarchical, and inter-organizational dimensions. Statistically significant differences in preferences regarding the importance of individual components of trust were identified for the following elements: common language, common vision and goals, competences (competence-based trust), the frequency of contacts, the quality of the relationship (benevolence-based trust), partner's credibility as well as keeping promises and responsibility (reliability-based trust).

Among the indicated statistically significant differences, the smallest was observed for the components constituting competence-based trust. It was observed that the common vision and goals of generations Y and Z have a higher average value of the variables than those of generation X, and the situation is reversed for the competence variable. Common language is a component of competence-based trust that is more important for the representatives of the Y and Z generations than for the professionals of the generation X. Such indications are part of the basic problems of intergenerational cooperation, where the dissonance in communication is clearly emphasized. The Y and Z generations lack in communication with the X generation, for which unanimity and loyalty are of utmost importance, and top-class competence – the measure of professionalism (Bogdanowicz and Bailey, 2002; Darby and Morrell, 2019; Mahmoud *et al.*, 2020).

The biggest differences emerged in the case of the components of the benevolence-based trust: the frequency of contacts and the quality of the relationship. These elements are more important for knowledge workers representing generations Y and Z than for professionals from the generation X. Younger representatives of intellectual workers strive to socialize, build close relationships, stay in contact. They are focused on working together and nurturing relationships, which facilitates developing joint mental models, using the same analogies and metaphors, which in turn supports the free diffusion of knowledge, especially tacit. For the representatives of the generation X, it means foregoing individualistic attitudes and shifting the emphasis from the concept of work-life balance to work-life blend.

In the case of the components of trust building reliability-based trust, credibility is a more important building block for younger generations and for older ones, responsibility. Lack thereof in younger colleagues is the attitude that is particularly

bothersome for generation X. To sum up, the representatives of generations Y and Z are more oriented towards the "soft" components of trust and therefore their starting point is benevolence-based trust. Older knowledge workers are representatives of "hard" attributes of trust. For them, the foundation is competence-based trust. For both groups of the compared generations, reliability-based trust is the context, the bond of the general construct of trust, while for the representatives of individual generations of intellectual workers, its other components are more important: for younger generations – credibility, and for the older ones – responsibility.

Therefore, the analyzed results can be treated as a guideline in shaping the conditions for professional knowledge diffusion. To consciously control knowledge circulation, representatives of individual generations should be made sensitive to the differences in the importance of components and types of trust and to its sensitive components. This especially applies to the generation X, which most often performs management functions, and the attitudes of the superiors have a huge impact on the knowledge flow within the organization. Trust undoubtedly creates the context of each interaction relationship. Acting towards its conscious building is recommended. However, one should remember about the negative side of a strong focus on shaping a culture of high trust. Too much trust may lull the self-preservation instincts related to the protection of strategically valuable knowledge resources and disturb the balance between trust, risk, and control. Then the desorption capability, in the form of disproportionately open, excessive knowledge transfer, may turn into anti-resources of the organization and act to its detriment.

5. Conclusions

The study attempts to identify the role of trust in the professional knowledge diffusion operating in the IT sector in Poland. Based on the conducted empirical research, attempts were made to identify the types and components of trust impacting the execution of individual sub-processes constituting the transfer of knowledge among intellectual workers. The inference was made in two areas: groups of knowledge agents participating in its circulation and the generation of employees as subjects of the knowledge dispersion process. As a result of the conducted analyzes, the research hypotheses were confirmed, i.e., that trust is a factor in knowledge diffusion of among intellectual workers and its importance depends on the groups of knowledge agents participating in the implementation of this process. It was established that full trust is the most important in the knowledge diffusion among professionals, then with co-operators and, lastly, with employees of the organization other than specialists (personnel). This hierarchy results from the engagement of the parties involved in the circulation of knowledge and its sub-processes most often implemented as part of knowledge diffusion.

The research has shown that knowledge circulation is smoother in specialist groups than in other constellations. This may suggest that knowledge workers treat this process as bilateral, i.e., when contacting within their groups they remain oriented on

feedback and thus mutual exchange of knowledge. Therefore, the sub-process of acquiring and sharing knowledge is dominant. However, in cooperation with personnel and co-operators, they perceive the process of knowledge distribution unilaterally, focusing on disclosing or disseminating knowledge, and consequently, in relations with personnel, trust is of the least importance.

Therefore, in order to stimulate internal circulation and reduce its disproportions within the organization, one should strive to create a climate of trust, which over time should evolve towards a culture based on trust (Jayasingam *et al.*, 2016) and then – a network culture of cooperation in business partner relations (Borges *et al.*, 2018). Please note that if intellectual workers do not change their attitudes and are not oriented towards the mutual knowledge diffusion, trust will be of little importance. The consideration whether the generation to which the professionals belonged influenced their views on the importance of trust in knowledge diffusion among intellectual workers was also resolved. This led to the conclusion that the analyzed group of IT knowledge workers in Poland included the study is specific: a unique cohort of professionals whose actions and attitudes result more from belonging to this hermetic, selected group of key specialists than to a generation of employees.

Regardless of the group participating in knowledge circulation, the foundation of trust is competence-based trust, supported by benevolence-based trust, although in the case of knowledge exchange with the personnel, the proportions between both types of trust are equal. Together, they form the context for the development of reliability trust that grows during relationship and occurs when the relationships and dependencies are based on reciprocity. Therefore, where knowledge is fully diffused, reliability-based trust is important. Thus, the very circulation of knowledge is initiated by competence-based trust, supported by benevolence-based trust, and complemented by reliability-based trust.

However, it is difficult to identify the direction of this relationship, i.e., whether trust is formed first and then diffusion develops, or vice versa. It is certain that the starting point is competence-based trust. The results of empirical research related to generational preferences have great practical value as to the importance of individual components of trust supporting the knowledge transfer. They are a guideline identifying areas of dissonance and actions to improve knowledge diffusion in the context of trust. For benevolence-based trust factors, the most intensive actions are required in terms of the frequency of contacts and the quality of the relationship, for competence-based trust factors – a common language, and for reliability-based trust – responsibility and credibility. The discussed results should be treated only as an illustration, as they have clear limitations due to the size of the research sample. As demonstrated in the analyzes, some of the results cannot be generalized to the entire population of IT knowledge workers in Poland, but only explored in the context of the verified group of respondents. Therefore, research should only be pilot considerations that confirm the multidimensionality of trust as a context for

knowledge dispersion across different groups of knowledge agents and can legitimize appropriate, multidimensional scientific explorations. The conducted analyzes do not clearly identify the directions of the verified relationships and do not introduce the context of comparative research due to the nationality of the surveyed professionals. While research by Borges *et al.* (2019) proves that in case of IT knowledge worker, nationality and place of employment do not matter. Therefore, they can be treated as utilitarian and universal guidelines for shaping trust as the determinant of knowledge diffusion among intellectual workers.

Nevertheless, the conducted study, supplemented by the empirical explorations made, have their theoretical and practical contribution to the area of professional knowledge diffusion. They set the guidelines for building trust as a factor of knowledge dispersion, due to the sub-processes constituting the knowledge transfer and the group of knowledge agents involved in its circulation. The performed preliminary explorations indicate further research challenges and set the directions for further investigation. First attempts will be made to define generational standards and desirable values that constitute the organizational culture supporting knowledge diffusion. The answer to the question of how ambient awareness of the knowledge workers affects the diffusion of their knowledge also requires empirical justification. Moreover, due to the fact that this study is part of the perspective of interpersonal trust, further exploration requires the adoption of the impersonal trust perspective.

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