

## REMOTE WORK IN SOCIETY 5.0 – EMPLOYEE’S PERSPECTIVE, MOTIVES AND FREQUENCY OF USE

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**Purpose:** The purpose of the article is to diagnose the motives of remote work among working students in the context of creating a 5.0 society. The study focuses on analyzing the motives that lead young employees to choose remote work, and on determining the frequency of use of this form of employment.

**Design/methodology/approach:** The research was a pilot study and included professionally active and working students of the Faculty of Management at the University of Technology in Bydgoszcz. The research method was an electronic survey. Among the data analysis methods used were structure analysis and cluster analysis.

**Findings:** The results of the research indicate that young employees mostly prefer stationary work, especially if the tasks assigned to them require social interaction. In assessing the importance of motives for working remotely, respondents disagreed. However, the motives of greatest importance in their opinion turned out to be time saving, easier reconciliation of work and family life and flexible working hours.

**Research limitations/implications:** The study was limited to a small group of WZ PBŚ students, so future research may include a wider group of employees from different organizations.

**Practical implications:** The article provides information on the employee's perspective on the motives for using remote work and its frequency.

**Social implications:** The article addresses issues of work-life balance implications, employee well-being, changing the way we interact socially and sustainability.

**Originality/value:** The study provides empirical evidence on how young workers perceive aspects of remote work, what motivates them to work remotely and with what frequency they use it in a post-pandemic environment.

**Keywords:** remote work, society 5.0, super-intelligent society.

**Category of the paper:** research paper.

## 1. Introduction

Today's society is undergoing dynamic transformations related to the development of technology, the knowledge economy and the evolution of work roles. In the context of this transformation, society 5.0 represents a new stage of development, characterized by the integration of digital technologies, the automation of work, and the pursuit of sustainable development (Fujiwara, 2017). The key values of this society are flexibility, adaptability and the use of modern communication and IT tools. One of the main manifestations of the digital transformation is remote work, which has become an integral part of many employees' working lives. Remote work undoubtedly has an impact on employee behavior and expectations. Therefore, it is important to examine the employee's perspective on remote work, understand the motives that drive this form of employment and determine how often employees use this form of work.

The purpose of this article is to diagnose the motives of remote work among working students in the context of creating a 5.0 society. The completed study focuses on analyzing the motives that drive young employees to choose remote work and determining the frequency of use of this form of employment.

## 2. Literature review

Created in 2016, by the Japanese government, the concept of society 5.0 focuses on creating a future where technology serves people. It is a people-centered society that solves social problems by integrating virtual space with physical space. The concept of society 5.0 has yet to receive a single, precise, universally accepted definition. It is a concept of society that will evolve in accordance with technological advances, social changes and values that will prevail in the future, and the development of society will include technological innovation, social transformation and the interconnectedness of people, technology and the environment (Czapran, 2023; Shiroishi et al., 2018). It is a society that represents the stage of intelligence reached by the development of the information society (Wu et al., 2023).

Society 5.0 does not happen on its own, but it should be gradually created by using modern technologies (Internet of things, artificial intelligence, robotization and distributed ledger technology) to solve social problems, promoting innovations involving the economy and society, and creating a new quality in economic and social relations (Du Wall, 2019; Mavrodieva, Show, 2020). This, in turn, creates new guiding principles of innovation. Innovation, as an important factor in economic and social development, has the effect of increasing knowledge creation, economic growth, increasing productivity, and thus multiplying

wealth (Romanowski, 2015). The creation of innovation and new knowledge should be the result of the participation of all participants in the ecosystem and sharing processes. The environment is therefore an active partner in innovation setting priorities for sustainable development (Carayannis, Morawska-Jancelewicz, 2022; Carayannis et al., 2020; Zhang et al., 2020). Society 5.0 should be built on three main pillars: a cyber-physical system that connects virtual space with physical space; the use of smart technologies and artificial intelligence to solve social problems; and environmental sustainability, which is important for the quality of life and future of the entire planet (Fujiwara, 2017). This is a super-intelligent society focusing its activities on the concept of sustainable society, which is based on providing the population with concrete and targeted solutions aimed at human well-being in a healthy and safe environment (Sułkowski et al., 2021).

Rapid technological advances and the creation of society 5.0 have forced changes in the management of organizations. Rapid adaptation to changes in the environment, emphasis on innovation and knowledge management have become integral elements of effective management. Cooperation and building the right relationships with the organization's stakeholders have become key, hard-to-mimic resources for organizations to achieve competitive advantage in the market. The development of relational capital built on the basis of relationships both inside the organization with employees and outside the organization is now an indicator of an organization's effectiveness and market success (Drewniak et al., 2020; Słupska et al., 2020). In addition, the emphasis on corporate social responsibility and sustainable development taking into account environmental protection and social factors in a 5.0 society makes it imperative that strategic decision-making in organizations take into account social benefits. Knowledge management, on the other hand, forces teamwork in organizations and creates an inclusive work environment that fosters creativity and innovation (Czapran, 2023). Knowledge should be used by employees to work more efficiently and effectively, thus maximizing the organization's chances of achieving a competitive advantage in the market (Paliszkiwicz et al., 2015). Knowledge management is intended to acquire, analyze and use knowledge to make faster, more accurate decisions and, as a result, to create faster responses to market needs (Edvardsson, Oskarsson, 2011). Of particular importance is the search for knowledge-based capabilities that will not be accompanied by the risk of rapid obsolescence. This is because knowledge contains creative processes that are difficult to copy. At the same time, it is important both to possess it and to use it appropriately and skillfully (Słupska et al., 2019). Knowledge in the modern business world has become a key resource of enterprises, demonstrating enormous competitive potential, and knowledge sharing is also a prerequisite for the development of new technologies and products (Krogh et al., 2001). The issue of knowledge diffusion is of great importance for eliminating the growing digital inequality, so stimulating the free flow of knowledge among employees becomes a priority. Openness and involvement of employees, devoid of opportunistic attitudes and limiting the flow of knowledge are prerequisites for creating a super-intelligent society (Pietruszka-Ortyl,

Ćwiek, 2021). In addition, the creation of society 5.0 has caused organizations to move away from performance management to betting on the development of employees and their capabilities. Employees have become a strategic resource for a company to develop and invest in (Canals, Heukamp, 2020). The use of modern technology is not insignificant here either. On the one hand, it represents a challenge and, on the other hand, a great opportunity to bring the organization to a higher level of competitiveness and undoubtedly affect the level of innovation of the organization. A super-intelligent society combines digital transformation with people's creativity for sustainable development by solving social problems and creating value (Pereira et al., 2020; Gladden, 2019).

The 5.0 society, characterized by intense collaboration between people and technology, is shaping new work paradigms in which remote work plays a key role. Remote work is an integral part of the creation of society 5.0. In this context, technological change and digital transformation are opening up new opportunities and challenges for workers around the world. Remote work is a form of remote work that has long been used in organizations, both in virtual organizations and in traditional organizations in the form of virtual teams (Słupska, 2023). Initially, it was most often referred to as telework and was seen as such in the literature and in various legal records. The concept of telework was introduced into the scientific literature by J. Nilles, in 1973, who introduced the terms teleworking, meaning the substitution of an existing form of work with information technology, and telecommuting, meaning the periodic performance of employee duties outside the traditional workplace. With telecommuting being a form of teleworking (Ślęzak, 2012). Telecommuting aims to make work more flexible and accessible, allowing employees to perform their duties from anywhere they have access to the appropriate telecommunications tools and an Internet connection.

The events of recent years, particularly the tremendous advances in technology, the processes of globalization and the pandemic COVID-19, have made remote work a more common term. Remote work is defined as work performed at any distance from where it is expected to be performed or where it would be performed under the traditional employment system, using available information and telecommunications technology (Zalega, 2009; Spreitzer et al., 2017; Shirmohammadi et al., 2022). Remote work, therefore, refers to a flexible work arrangement in which an employee performs his or her job duties, but the work is performed at a location other than the standard location, using remote tools. In remote work, communication takes place virtually using email, chat rooms, video conferencing, instant messaging and other online tools to contact co-workers and superiors. Technological advances and the pandemic COVID-19 have undoubtedly accelerated the development of remote work because organizations have been forced to implement it overnight, transform elements of their business processes and adapt to the new work organization. Remote work has increased the complexity of work, blurred spatial and temporal boundaries, and increased the use of modern technologies and information systems (Yogesh et al., 2020; Shirmohammadi et al., 2022; Modrzyński et al., 2023). This form of work, or hybrid work (partly remote, partly stationary)

is now used by many more workers than before the pandemic COVID-19 (Milasi et al., 2020; Asatiani, Noström, 2023, Yang, 2022).

In Poland, this has forced changes in legislation. Hence, after the amendments to the Labor Code, which came into force on April 7, 2023, three types of remote work were introduced (Dziennik Ustaw, 2023). The first is total remote work, which is a solution similar to the earlier telework. The second is partial telework, which is the equivalent of covid remote work and various forms of hybrid work that have emerged on the labor market. The third is occasional remote work, which is the equivalent of the so-called home office, i.e. work provided from home. The first two types of remote work require the implementation in the organization of rules and regulations consulted with employee representatives or an agreement reached with trade unions. Total or partial remote work is performed at a location designated by the employee and agreed with the employer. The employer in these cases is obliged to provide the employee with all the necessary materials and tools to perform remote work and to cover the costs associated with the performance of remote work. Occasional remote work, on the other hand, is an employee entitlement and no separate regulations are required in this case. The employer is not obliged in this case to provide materials and tools to the employee or reimburse the employee. Occasional remote work may be provided for up to 24 days in a calendar year (Ziółkowska, 2023). Remote work can therefore be one of the benefits for the employee, as well as help generate savings for the employer and reduce environmental degradation (Dolot, 2020).

Implementing remote work is possible thanks to modern technology. Technology plays a key role in remote work. Employees use computers, the Internet, communication software and remote work tools. These include project management software, virtual offices, video conferencing platforms, artificial intelligence, augmented reality, virtual reality and blockchain. However, technology is not a sufficient condition for remote work because work organization is an equally important element. The effective use of remote work also depends on the organization's culture, communication processes and coordination mechanisms for remote workers. Indeed, the nature of remote work requires building a digitally connected but physically distributed work environment (Wróbel, 2021; Asatiani, Noström, 2023).

As we move toward a 5.0 society, it is important to keep in mind that prevailing conditions make employees less physically and socially connected. Difficulties therefore arise in sharing knowledge and ideas, leading to difficulties in creating new value. This is also linked to sustainability. Under these conditions, remote work provides more flexibility for employees and organizations. Employees need more flexibility because of their work-life balance. Organizations, on the other hand, need more flexibility in how they use their human resources (Sokolic, 2022). Remote work gives employees flexibility in terms of working hours and the work organization itself (Reisinger, Fetterer, 2021). They can work remotely full time, or in a hybrid system (part of the time remotely and part of it stationary), and decide for themselves how they schedule their workday. Remote workers are not limited geographically.

They can work for companies located in different parts of the world, making global collaboration possible. However, working remotely requires employees to be highly disciplined, as they must manage their own time, maintain a high level of productivity and take responsibility for their job duties. In addition, remote workers are required to adhere to professional ethics and take care of data and information security. Working remotely from an employee's point of view has many advantages, such as flexibility, saving time and commuting costs, and greater work-life balance. However, it also comes with challenges, such as isolation, difficulty managing time, increased pressure, lack of face-to-face interactions with co-workers and lack of opportunity to build social connections, as well as a lack of boundaries between work and home, and thus a disrupted work-life balance. (Sokolic, 2022; Abujarour et al., 2021; Bouziri et al., 2020; Michaelides, 2021; Shirmohammadi et al., 2022).

Thus, the hybrid work model seems to be a more attractive solution for employees because it combines the advantages of stationary and remote work, while giving employees more flexibility, eliminating some of the commuting and offsetting the social and organizational disadvantages caused by remote work alone. Most likely, this model of work will become the most popular model of work organization in organizations in the near future (Sokolic, 2022; Haque, 2023).

In generating new knowledge, innovating and preparing people for the challenges and opportunities of society 5.0, the emphasis is on an interdisciplinary approach, developing creativity and critical thinking, and promoting lifelong learning and adaptation to rapidly changing conditions. Remote work therefore fits into this context by promoting flexibility and the use of modern technology to face challenges and create new opportunities.

### **3. Research methodology**

The research was conducted in June 2023. The research was a pilot and included professionally active and working students of the Faculty of Management at Bydgoszcz University of Technology. Many students of the Faculty of Management balance studying and working at the same time. In addition, students of the Faculty of Management, due to the nature of the courses they take, have a great deal of knowledge about remote work. The scope of the subject matter of the study concerned young employees' perceptions of aspects of remote work, ergonomics of remote work and building virtual relationships. This article presents only an excerpt from the completed research. The research method used was an electronic survey, and the research tool was an electronic survey questionnaire. The questions in the questionnaire were prepared based on literature studies. All students of the Faculty of Management, both undergraduate and postgraduate, regardless of their field of study, received a link to the questionnaire posted on Google Forms, with a request that it be filled out by those who are

professionally active and work in organizations using remote work. The questionnaire was secured so that it could be filled out only once. 63 students responded to the request; however, only 53 questionnaires were completed correctly.

Among those surveyed, 49% were women and 51% were men. The vast majority of respondents were aged 18-29, who accounted for 83% of those surveyed. Those aged 30-39 accounted for 13% of the respondents, and those aged 40 and over accounted for 4%. Undergraduate students accounted for 55% of the respondents (including part-time 21% and full-time 34%). Second-degree students accounted for 45% of respondents (including part-time 39% and full-time 6%). The vast majority of respondents work in the private sector (94%), and only 6% work in the public sector. In addition, 64% of the respondents were employed under employment contracts, 30% worked under civil law contracts, and 6% under contractual agreements. Most of the respondents, mainly due to their young age, have relatively short work experience (30% up to 1 year; 53% from 1 to 5 years; over 6 years 17%). The majority of respondents in the survey worked in a large city (62%). 11% of respondents worked in a medium-sized city, 25% of respondents worked in a small city, and 2% worked in a rural area.

Among the objectives of the research were to determine the frequency of use of remote work by young employees and to identify the motives of employees for using remote work. To achieve the set objectives, an analysis of the structure of the data collected during the research was carried out. The structure analysis used structure indicators expressed in percentages. A cluster analysis was also conducted to determine whether respondents' evaluations are consistent or not. We use cluster analysis when we want to distinguish clusters of similar objects, in cases where the objects are described by more than one characteristic. As a method of combining clusters from agglomerative clustering methods, it was decided to use Ward's method, which makes it possible to obtain very homogeneous groups. Thus, creating even less numerous clusters of objects or clusters of similar size, but natural clusters with minimal internal variation and reflecting the true structure is a justified action in the context of the issues under consideration. Euclidean distance was used as a measure of distance. The process of cluster analysis ends when all objects are in one cluster. Homogeneous, separate clusters are obtained by "cutting off" the branches of the dendrogram in places where they are relatively long. The decision on the number of separate clusters was made on the basis of the analysis of the length of the dendrogram branches, but also the analysis of the agglomeration curve. This is because the agglomeration curve becomes flatter when the additional information gain is small by joining more objects to an existing group (StatSoft Poland). The cluster analysis was completed by describing the obtained clusters on the basis of profiles characterizing the clusters. A comparison of average values was used to determine the profiles of the obtained clusters.

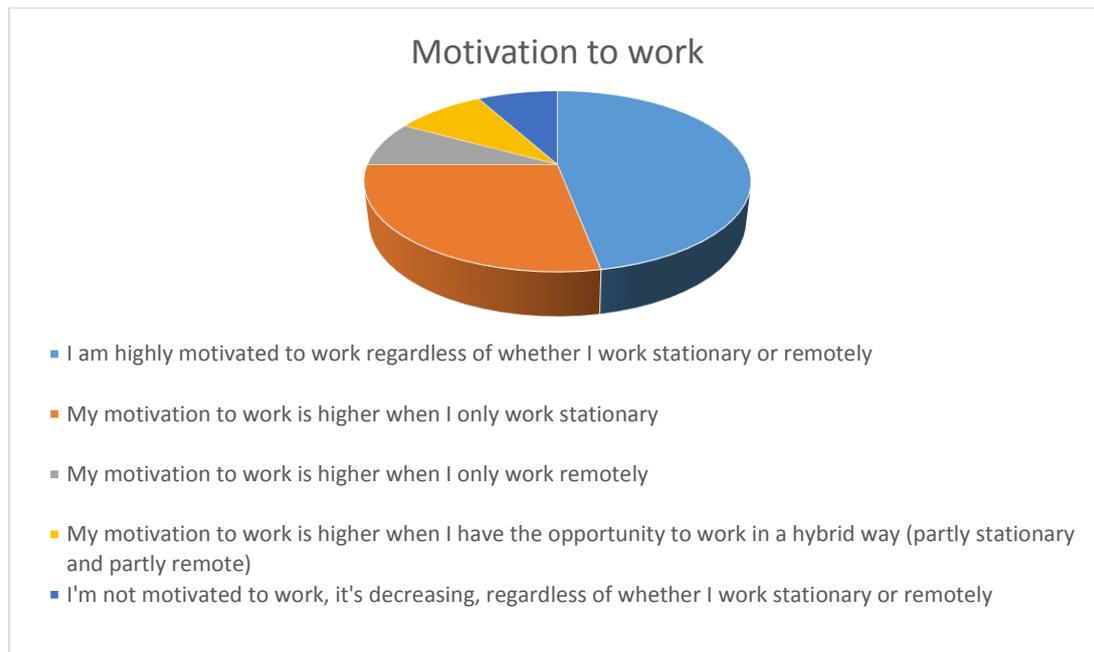
The data obtained within the framework of the research was analyzed, which made it possible to identify the leading aspects within the framework of the studied issues. Based on the results, relevant conclusions were drawn and the set objectives of the study were met.

#### 4. Empirical results and Discussion

Due to changes in legislation in Poland, respondents were first asked what type of remote work is used at their place of employment. Respondents indicated that the vast majority is occasional remote work (performed each time at the request of the employee submitted in writing or electronically, for a maximum of 24 days per calendar year) - 75% of respondents. In contrast, 17% of respondents indicated partial remote work, the so-called hybrid remote work (work performed partly at the workplace and partly in the form of remote work, e.g. 2-3 days a week). Only 8% of respondents indicated total remote work (work done exclusively remotely - 100% of the working time). They were further asked about the frequency of use of remote work. Of course, respondents who previously indicated that total remote work is used in their companies indicated that they work in this form all the time (8% of respondents). In contrast, it turned out that as many as 59% of respondents do not use the option of remote work practically at all. 11% of respondents use this form of work often (maximum number of days), 9% of respondents moderately often (several times a year) and 13% only occasionally (several times a year). This may indicate that the surveyed young workers mostly work in companies where remote work is an employee's privilege. However, as it turns out, the surveyed young people are mostly unlikely to take advantage of this privilege. Therefore, this does not confirm the considerations in the theoretical section that the most attractive form of work for employees will be hybrid work. However, it should be emphasized that the study was a pilot and was conducted on a small sample of participants (in addition, young and leading an active social life) hence it cannot be denied that this form of work will indeed, in the near future, gain in popularity. However, available research indicates that this will be the dominant trend when it comes to the form of work (see: Wigert, 2022; Saad, Jones, 2021).

An important element in the research conducted was the aspect of young workers' motivation according to the type of work. Thus, respondents were asked to assess their motivation for work. The results are presented in Figure 1.

47% of respondents indicated that they are highly motivated to work regardless of whether they work stationary or remotely. 28% of respondents indicated that their motivation to work is higher when they only work stationary. For 8% of respondents, their motivation to work is higher when they only work remotely. For 9% of those surveyed, their motivation to work is greater when they work hybrid (partly remotely and partly stationary). Interestingly, 8% of respondents indicated that they are lowly motivated to work regardless of whether they work stationary or remotely.



**Figure 1.** Motivation to work.

Source: own work.

In addition, a comparison was also made between the activities that respondents prefer to perform while working stationary and those they prefer to perform while working remotely. The results obtained in percentage terms are presented in Table 1.

**Table 1.**

*Respondents' preferences for stationary and remote activities*

<b>Activity</b>	<b>Stationary work at the place of employment</b>	<b>Remote work performed, for example, at home</b>
individual work in concentration	25%	75%
creative work, requiring ingenuity	66%	34%
team work	92%	8%
meetings with co-workers (internal)	85%	15%
meetings with clients/suppliers/contractors/business partners (external)	83%	17%
meetings with supervisor	87%	13%
analytical activities	36%	64%
routine activities that do not require further consideration	34%	66%
implementation of new activities/projects requiring additional knowledge/skills	72%	28%

Source: own work.

The results show that activities that require more concentration (one-on-one focused work, analytical activities) and routine activities respondents mostly prefer to perform while working remotely. On the other hand, all activities requiring interaction with another person (meetings, teamwork, or implementation of new activities) respondents strongly prefer to perform while working stationary. Teamwork requiring ingenuity respondents also prefer to perform while working stationary. P. Wróbel (2023) in his research also indicates that the implementation of tasks requiring interpersonal contacts during remote work is much more difficult.

Next, respondents were asked to rate the importance of their motives for working remotely. The research team wanted to know what drives young workers to choose remote work opportunities. Respondents were asked to rate the importance of each of the indicated motives, regardless of whether they use remote work opportunities on a daily basis or not, according to a three-point scale. The ratings thus represent the subjective opinions of the respondents. The results obtained in percentage terms are presented in Table 2.

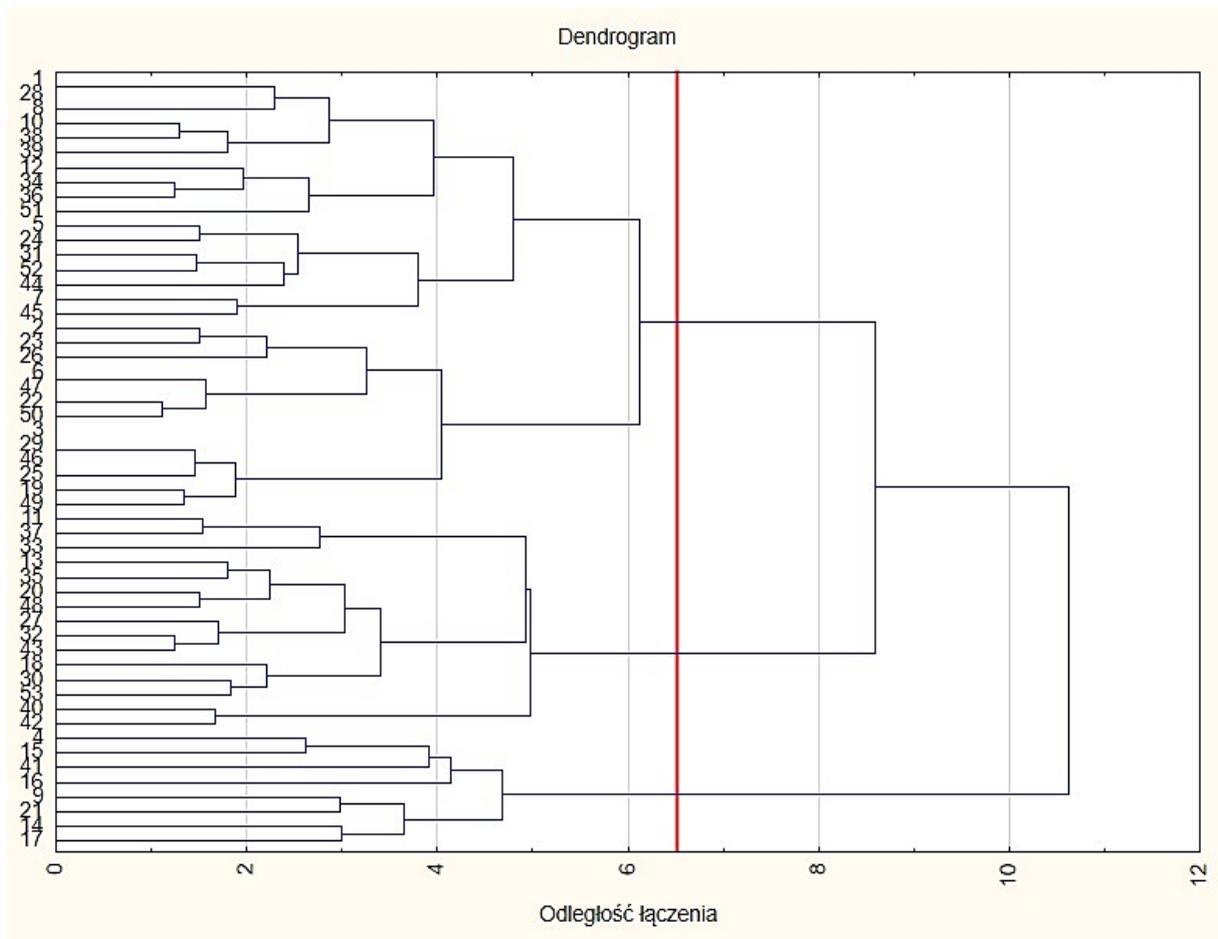
**Table 2.**  
*Evaluating the motives for remote work*

Motives	Low importance	Medium importance	High importance
easier reconciliation of work and family life	9%	19%	72%
time savings (through, for example, no commute to work)	2%	15%	83%
convenience and freedom of working from home (e.g., no need to put on makeup; ability to work in sweatpants; freedom to move around in private space)	6%	25%	70%
easier reconciliation of professional life with the pursuit of hobbies/life passions	8%	36%	57%
possibility to increase your earnings (e.g., by accepting additional assignments)	19%	26%	55%
reduction of costs (e.g. related to commuting)	4%	30%	66%
flexible working hours	6%	23%	72%
the desire to be isolated from co-workers	57%	23%	21%
increased concentration on the tasks at hand when others do not disturb us	21%	42%	38%
increased freedom of decision-making	30%	38%	32%
no need to follow the rules adopted in the team	43%	40%	17%

Source: own work.

The data presented shows that the motives of greatest importance in the assessment of respondents surveyed appeared to be time savings, easier reconciliation of work and family life and flexible working hours. In available studies, these aspects of remote work are also indicated as particularly valued by employees (see: PARP, 2021). In contrast, the motives of least importance in the opinion of respondents surveyed were the desire to be isolated from co-workers and the lack of need to comply with the rules adopted in the team. The results in this regard are not surprising since young people definitely do not want to isolate themselves and rather seek contact and interaction with other people, especially after a 2-year pandemic period where personal contacts were kept to a minimum. Previous research indicates that isolation adversely affects the functioning of employees and entire organizations (Yang et al., 2022; Dolot 2020).

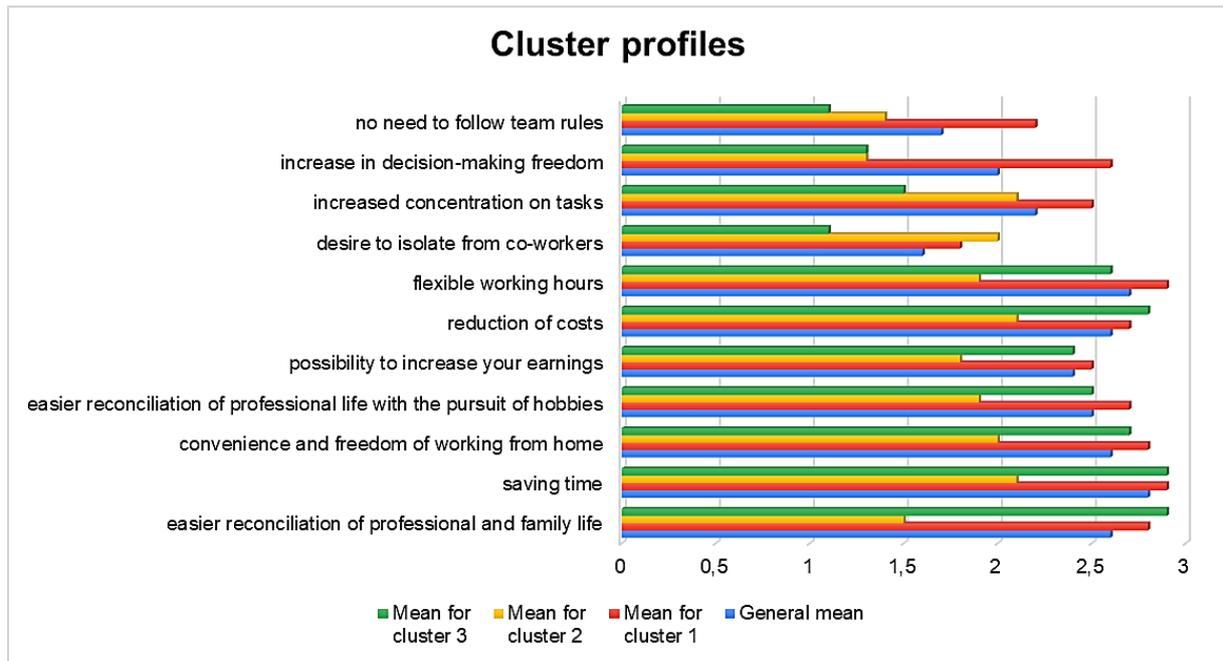
In order to deepen the analysis, an attempt was made to see how close together, or how far apart, the surveyed respondents are in terms of assessing the importance of remote work motives. For this purpose, cluster analysis was used. The most desirable solution would be the identification of a single cluster, which would mean the similarity of all respondents in terms of the studied aspects. A graphical representation of the cluster analysis performed is the dendrogram presented in Figure 2.



**Figure 2.** Dendrogram showing clusters according to respondents' opinions illustrating the hierarchy of clusters.

Source: own work.

Using the agglomeration curve, a point was obtained suggesting a "cutoff" of branches of the dendrogram (as shown by the red line added to the dendrogram). The methods used made it possible to isolate 3 clusters. This means, therefore, that the ideal desired state, i.e. one large cluster containing all researched objects, was not achieved. This suggests that the respondents did not agree in assessing the importance of the motives for working remotely. Thus, cluster one is formed by 30 respondents, cluster two by 8 respondents, and cluster three by 15 respondents. To further characterize the clusters, their profiles were determined using average values. The results obtained are presented in Figure 3.



**Figure 3.** Comparison of averages for total respondents and for individual clusters based on respondents' opinions

Source: own work.

The obtained cluster profiles indicate that respondents assigned to the first cluster rated the importance of remote work motives at a significantly higher level than the other respondents. In their opinion, the indicated motives are definitely of high importance. Respondents belonging to the second cluster rated the importance of the motives for working remotely significantly lower than the other respondents. The indications of respondents belonging to the third cluster, on the other hand, differ from the others and suggest that some of the motives, the importance of which was rated at a higher level by the other respondents, were of little importance to this group. The results obtained therefore show that the respondents were not unanimous in their assessment of the importance of the motives for working remotely. This is not a major surprise because everyone may be guided by a different motive when undertaking remote work. What is interesting, however, is the considerable divergence of opinions among respondents, the vast majority of whom represent the same generation and belong to the same age group.

## 5. Conclusions

The completed survey provided empirical evidence that remote work has remained in companies after the COVID pandemic<sup>19</sup>. This therefore implies the persistence of the practice of remote work in enterprises, which will undoubtedly support the creation of society 5.0. However, the survey shows that among young workers, it is more often a privilege for the

employee than the main form of fulfillment of professional duties. As it turned out, the surveyed young employees mostly prefer to work in a stationary form, especially if the tasks assigned to them require social interaction. When working remotely, they prefer to perform only routine or analytical activities. In addition, it should be noted that nearly half of the respondents indicated that they are highly motivated to work regardless of whether they work remotely or stationary, and nearly 30% of the respondents indicated that they are more motivated to work when they work stationary.

Regarding the assessment of the importance of the motives for working remotely, the surveyed young workers were not in complete agreement. The majority of respondents indicated a high importance of most of the indicated motives for working remotely. Others, on the other hand, showed a difference in their assessments of the importance of the indicated motives. Some of them rated all the indicated motives for working remotely much lower than the rest of the respondents - as motives of low importance. Others, in turn, indicated the importance of these motives quite differently than the rest of the respondents (those which the majority rated high they rated low, and those which the majority rated low they rated high). This divergence of respondents' opinions came as a surprise to the researchers, due to the fact that the respondents belonged to the same age group. Nevertheless, the motives of greatest importance in the opinion of the vast majority of respondents turned out to be time saving, easier reconciliation of work and family life and flexible working hours. The results obtained in this regard therefore confirm the theoretical considerations. On the other hand, the motives of least importance in the opinion of the surveyed respondents were the desire for isolation from co-workers and the lack of need to follow the rules adopted in the team. The empirical study carried out allowed the realization of the purpose, which was to diagnose the motives of remote work among working students in the context of the creation of society 5.0.

The results indicate that there is ample scope for further, in-depth research on much larger samples of employees, on aspects of remote work, especially in the context of creating a 5.0 society. Such research could make a significant contribution to understanding aspects of remote work, especially in the process of building a super-intelligent society.

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