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# Organizational Ethics, Position and Their Relationship to Gender, Before and During Pandemic

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**Paper Category:** Research paper

## ABSTRACT

This research investigates the levels of organizational ethics (OETH) among knowledge workers (KW), using their work information and communication technologies (ICT) with their executive position (supervisor/subordinate), in regional enterprises in Poland before and during the COVID19 pandemic. We analyzed levels of OETH and its three dimensions as organizational optimism (ETO), corporate social responsibility (CSR), top management action (TMA). We conducted our study twice, using an online survey among 137 KW before and 127 KW during a pandemic, combining random and snowball sampling to select data. We used multivariate statistical methods such as analysis of variance and causal moderation analysis to estimate the indirect effect of gender, the effect of the pandemic, as well as their interaction in the relation between position and OETH and its subscales.. Our findings show superiors manifested higher levels of OETH assessment than their subordinates, especially before the pandemic. Both groups displayed a pessimistic and low level of OETH, especially ETO, before the pandemic, and on the contrary, increased significantly to an average level during the pandemic. Gender and the pandemic affected the levels of OETH and occurred to be moderators of the considered relationship.

**Keywords:** Gender, Information and Communications Technology for Development (ICT4D), Information Systems, Knowledge Workers, Moderation, Organizational Ethics, Pandemic, Position, Transition Economy

## 1. INTRODUCTION

The COVID-19 pandemic has affected the social, political, and economic situation around the world. Lockdowns resulted in the limitation or suspension of the activities of many companies, changes in the way companies operate, changes in knowledge management models, including the possibility of labor migration. It also hampered millions of people (Qureshi, 2020), especially in emerging and transition economies, such as Poland (Roztocki, Strzelczyk and Weistroffer, 2020), where information and communication technologies (ICT) and knowledge workers (KW) are the driving force for development (Kowal and Roztocki, 2015; Qureshi, 2019).

KW are employees with high degrees of expertise, education, or experience who create, share, and apply knowledge resources in their job (Weichbroth & Brodnicki, 2017), where their nature is non-routine, creative, and intellectual (Drucker, 1999). Highly qualified and innovative KW, such as information technology (IT) professionals, contribute to an organization's efficiency and socioeconomic development with their work (Hisrich, 2015; Spector, 2021; Mesároš et al., 2021). There is growing consensus among researchers (Owoc & Marciniak, 2013; Marcinkowski & Gawin, 2021; Olszak, Zurada & Cetindamar, 2021) that the ICT, and in particular the Internet and mobile devices, are providing an effective framework for economic, political, and social development (Avgerou, Hayes, & La Rovere, 2016; Beardsley et al., 2010; Niebel, 2018).

Information and communication technologies for development (ICT4D) through the implementation, use/adoption, or diffusion support the quality of life through economic, social, and human conditions of a group of people, community, or region (Osei-Bryson, & Bailey, 2019; Qureshi, 2019). KW play an essential role in creating value for business organizations and ethical ones (Herzberg, 1965; Walter, Powell, & Snellman, 2004; Thant, Min, & Chang, 2021). We believe that KW' managers, through the use of ICT4D in the pandemic, have strived to reduce its adverse economic effects and maintain business continued by keeping jobs online and beginning to evaluate them better socially ethically (Kowal & Klebaniuk, 2021).

That is why this research investigates the knowledge management model related to the relationship between organizational position (superior, subordinate) and the assessment of organizational ethics (OETH). We asked two groups of KW to participate in an online survey in regional enterprises in Lower Silesia, in Poland, a transition economy, before and during the pandemic. We analyzed its

three dimensions as organizational ethics (ETO), corporate social responsibility (CSR), and the top management action scale (TMA). We considered two moderators (Yadav, Rangnekar, and Srivastava, 2019) of this relationship: gender and the pandemic. We were also curious whether, in the pandemic conditions, information and communication technologies can play a permanent, added role, enabling society to develop (Bailey & Osei-Bryson, 2018) and employees to be satisfied and ethically safe.

We assume that KW's managers, through the use of ICT4D in the pandemic, contributed not only to reduce its adverse economic effects. We also believe that employees saw the efforts of KW managers to save companies by keeping jobs online and began to evaluate them better socially and ethically (Kowal & Klebaniuk, 2021).

Transition economies are countries in the long process of transforming from centrally planned economies to market economies (Roztock, Soja, and Weistroffer, 2020). In Poland, which is a transition economy, the situation on the domestic labor market improved in the period of 2017-2019, but some Poles continued to consider economic emigration to more mature countries. The situation began to change during the pandemic. People started to return to Poland, mainly for social and ethical reasons - caring for their elderly parents.

The beginning of the pandemic slowed down emigration. Poles were afraid of difficulties at the borders and wanted to live the difficult time close to their family resigned from working abroad. Eurostat data shows that in the first three quarters of 2020, during the fight against the first wave of coronavirus, Poland lost less economically than its neighbors and the largest countries of the European Union (Lulle, Janta, and Emilsson, 2021). If this good streak continues in the coming months, the motivation to leave may be lower. However, highly qualified specialists often think about economic emigration.

Greater activation of KW's professional activity could be leveraged by practical remote work, a change in the organizational climate, and incredibly ethical support by managerial staff. Transition economies become knowledge economies characterized by production and services based on knowledge-intensive activities and social networking, contributing to an accelerated pace of economic, technical, and scientific advances and their rapid obsolescence (Brinkley, 2006; Broström, Buenstorf, and McKelvey, 2021). The central axes of the modern knowledge-based economy are information systems (IS) and human resources, significantly KW such as IT users, specialists, and professionals, working together and disseminating knowledge through

communication and social networking tools. Sharing and utilizing knowledge are essential in achieving business goals, which bring profits (Jennex, 2012).

In Poland, there were and still are people who have difficulty finding employment in the country. According to an estimate prepared by the Central Statistical Office (GUS, 2018), at the end of 2018, approximately 2455 thousand of people were temporarily living outside Poland, mainly in more mature economies in United Europe (UE). Emigration is facilitated by a knowledge of foreign languages acquired at school and access to the UE labor markets. The economic emigration of Poles has a significant impact on the economic life of the country. Unfortunately, most Polish knowledge workers and technology specialists who have gone abroad do not want to return to their home country.

Before the pandemic, the study on emigration prepared by the Emigration Museum in Gdynia, together with the PLUGin Polish Innovation Foundation, shows that Poles are curious about the world and like living abroad (Bednarz, 2019). The lack of perspectives is often associated with a low level of job satisfaction and a high degree of ethical pessimism, or with a low assessment of organizational citizenship behavior and, in particular, the frequently emerging highly critical attitude of superiors to subordinates (Kowal, Keplinger, and Makio, 2019). Therefore, managers must do the right thing to capture the knowledge of highly qualified KW before it is lost due to their departure (Jennex, 2014).

Strengthening organizational ethics may be a helpful factor because there is a positive and significant relationship between ethics and the knowledge management process (Land, Amjad, and Nolas, 2009; Akhavan, Ramezan, and Moghaddam, 2013). The literature has noted significant differentiation in ethical attitudes and behavior according to professional position, and gender of KW has been noted in the literature (Yadav, et al., 2019; Hengel, et al., 2019). Little is known about the moderation of relationship: position and ethical attitudes, especially in the context of gender and the pandemic, although "*the problem of sex in the work area*" has been indicated by several researchers (Igarria and Baroudi, 1995; Ahuja, 2002; Roztocki, Strzelczyk, and Weistroffer, 2020). Previous research on ethics and the moderation of its relationships have been concerned with organizational citizenship behavior and gender (Yadav, Rangnekar, and Srivastava, 2019). Our research interests and assumptions relate instead to how the organizational position of knowledge workers can differentiate the assessment of an organization's ethics and if this relationship might change because of gender, before and during the pandemic. We believe it

is a company's management that shapes both the company's organizational climate and organizational ethics. We assume that gender and the pandemic may be moderators of this relationship among KW, in regional companies in Poland. Various weak and sometimes unreliable relations between gender, position, organizational ethics, and organizational citizenship behavior (OCB) have been observed (Kowal, et al., 2019). We want to identify the moderators of these relationships, which is of great practical importance because it allows us to determine the conditions in which the relationship occurs and distinguish the conditions in which the relationship disappears, even if we do not understand why it is happening (Baron and Kenny, 1986; McClelland and Judd, 1993; Link, Kowal, and Qureshi, 2020). The above deliberations motivated us to formulate the following research questions (RQs):

- (RQ1) Is there a difference in perceived OETH assessment and its dimensions of superior and subordinate knowledge workers in Poland?
- (RQ2) Can gender affect the relationship between position and the assessment of OETH and its dimensions?
- (RQ3) Can the pandemic affect the relationship between position and the assessment of OETH and its dimensions?
- (RQ4) Do the interaction of gender and the pandemic affect the relationship between position, OETH assessment, and its dimensions?

Our study fills the gap in the research stream concerning the relationship between position (superior-subordinate) and OETH concerning gender and the pandemic as moderators.

The rest of the paper is structured as follows. We conducted our research twice using an online survey of 137 KW before and 127 KW during a pandemic, combining random and snowball sampling in selecting data. After a brief review of the literature, we formulated four main hypotheses; we verified these hypotheses through analyses based on the data collected in the online survey. After discussing the results of the current research, we summarize our conclusions.

## **2. BACKGROUND AND HYPOTHESES**

Organizational ethics (OETH) includes three dimensions: ethical optimism (ETO), corporate social responsibility (CSR), and top management action (TMA) (Koh and El'Fred, 2001; Kowal and Roztocki, 2015).

## **2.1. Ethical optimism**

Ethical optimism (ETO) manifests in the fact that an organization allows achieving professional success by ethical employees (Kowal, and Roztocki, 2015; Dust et al., 2018; Gabryelczyk, and Roztocki 2018). In addition, a new wave of environmental optimism has been observed in discussions about company development factors. These new environmental optimists are not simply using a strategic, merely psychological stimulant to maintain the struggle against environmental destruction (Bailey, 1995), as situation ethics holds that moral judgments must be made within the context of the entirety of a situation and that all normative features of a situation must be viewed as a whole (Rosenthal, Ternes, and Strecker, 2019).

In the context of the OETH issue, there is an exciting problem of ETO. If people have an ethical outlook on life, their realistic outlook is optimistic, and it is then possible to speak about the ETO (Tischner et al., 1994; Williams, 2021). ETO in the business environment is merely one of the psychological stimulants in maintaining the struggle against the distractors of the business environment (Bailey, 1995) when moral judgments must be made every day within the context of the entirety of a situation (Rosenthal et al., 2019).

## **2.2. Corporate social responsibility**

Corporate social responsibility (CSR) is when organizations are expected to engage in philanthropy, environmental protection, and fair trade (Koh and H. El'Fred, 2001; Kowal and Roztocki, 2015). CSR plays an essential role in developing a good relationship between a company and the government and achieving resource accumulation, contributing to financial success. The concept of CSR is rooted in a framework provided by Carroll (1979), called the Pyramid of CSR, which identifies four everyday organizational responsibilities: economic, legal, ethical, and philanthropic. The corporate management philosophy needs to be translated into mandatory CSR reports that better frame circular economy objectives by identifying and communicating actions to achieve sustainable development goals (Fortunati, Martiniello, and Morea, 2020; Desa, 2016). CSR practices may positively affect companies' internal and external development, reinforcing their reputation and improving confidence in them (Advantage, 2020; del Brio and Bolanos, 2020). Research has indicated that perceptions of the impact of CSR on the different dimensions of

corporate reputation are conditioned by the geographic location of a company (Matten and Moon, 2004; Yoon, Gurhan-Canli, and Schwarz, 2006).

### **2.3. Top management action**

Top management action (TMA) involves decisive top management actions to reduce unethical behavior and establish trust and confidence in a company (Koh and El'Fred, 2001; Kowal and Roztocki, 2015). TMA is a course of local action where it is reasonably possible for a manager to support and correct situations of employee conflict, poor performance, or unacceptable behaviors at the earliest possible opportunity (Dong, Neufeld, and Higgins, 2009). Popular approaches to organizational leadership note that productivity and innovation organizations could be significantly improved if top managers emphasize organizational values and culture (Niehoff, Enz, and Grover, 1990; Kim and Park, 2020). Ethical leaders support employees through psychological empowerment that supports their potential for success (Dust et al., 2018). Some researchers (Dasborough, Hannah, and Zhu, 2020) point to the links between various types of ethical behavior: compliance, humanistic behavior, and supra-obligatory behavior, with moral emotions. Different levels of organizational citizenship behavior (OCB) relating to ethics have been identified according to the gender and position of the surveyed knowledge workers and the company's size in Poland. However, the strength of the observed relationships, for example, between a professional position and OCB, is varied (Kowal et al., 2019). It is interesting whether OETH and its dimensions are changing in similar directions and whether we are dealing with moderation according to gender. That is why we formulated hypotheses concerning OETH and its dimensions.

### **2.4. Position**

We chose two types of positions in the organization: superior and subordinate (Kowal et al., 2019). A superior (supervisor/ boss/ superior) is a person of higher rank, status, or position in first-line management who monitors and regulates employees' performance of assigned or delegated tasks. The superior is an individual who is usually the immediate supervisor of several employees and has specific capacities and responsibilities to make decisions (Oxford Dictionary, 2021). The term itself is not a formal title, and it is sometimes used to refer to any higher-level employee in a company, including a supervisor, manager, or director. Supervisors are usually authorized to



recommend or effect hiring, disciplining, promoting, punishing, rewarding, and other associated activities regarding the employees in their departments.

A subordinate is an employee ranked below another in seniority or office hierarchy (Kowal et al., 2019, Oxford Dictionary, 2021). Such relationships contribute to the variation in OCB ratings (Williams and Anderson, 1991; Podsakoff et al., 2009; Kowal et al., 2019). There is a research gap on OETH and its dimensions concerning organizational position among IT professionals. Accordingly, there was a defined hypothesis H1 as follows:

**H1:** Organizational position (superior, subordinate) affects the organizational ethics assessment of knowledge workers in regional enterprises.

## 2.5. Gender

The concept of gender (psychological, socio-cultural gender) involves acquired characteristics, attitudes, roles, and social behaviors that are culturally associated with a man and a woman. In contrast, sex (biological sex) is associated with properties related to primary, secondary, and tertiary sexual characteristics (Bem, 1981, Kowal et al., 2019). Differences between men and women are not just a matter of gender membership (Drake, 1997; Galli, et al., 2019). Most studies suggest that differences in business between female and male knowledge workers are insignificant (Igbaria and Baroudi, 1995; Sumner and Niederman, 2004; Crump, Logan, and McIlroy, 2007).

However, women are less likely to view unethical pro-organizational behavior as ethical (Tian and Peterson, 2016).

However, most of the published studies are related to the OETH of KW in developed, mature economies (Roztock et al., 2020). By contrast, analyses of organizational ethics relating to position and gender as moderators of regional enterprises in transition economies at an individual level are rare (Kowal et al., 2019). According to the second question, we, therefore, formulated second hypothesis (H2) as follows:

**H2:** The gender of knowledge workers impacts the relationship between their position (supervisor, subordinate) and organizational ethics assessment.

## 2.6. The pandemic

The literature does not fully describe these phenomena. However, the COVID-19 pandemic can mean a disaster that has affected the world's health, social, economic situation, and even national security. It has damaged the lives of millions of people, especially in a transformation process such as in Poland (Roztocki, Strzelczyk, and Weistroffer, 2020). Thus, accordingly to the third research question, we formulated hypothesis (H3) as follows:

**H3:** The pandemic moderates the relationship between KW's position (supervisor, subordinate) and organizational ethics assessment.

Based on the premises mentioned earlier, we also assume that the interaction between gender and the pandemic can differentiate the OETH and its dimensions. Therefore, We formulated the fourth hypothesis (H4).

**H4:** The interaction between the gender of knowledge workers and the pandemic moderates or mediates the relationship between position (supervisor, subordinate) and organizational ethics assessment.

## 3. METHODOLOGY

We suppose that in transition economies such as Poland, OETH assessment as an element of economic growth could be affected by organizational (position), socio-cultural features (gender) but also crisis as a pandemic (Jasinska-Biliczak & Kowal, 2020; Roztocki et al., 2020). We formulated the above four hypotheses H1- H4 to test this issue in Poland. We conducted a structured online survey in Lower Silesia voivodship using an adapted OETH questionnaire (see Figure 1 and Appendix 1). Our research model is shown in Figure 1 based on analysis of variance ANOVA, structural equation modeling (SEM), and causal moderation/ mediation analysis (CMA) (Kowal et al., 2019; Zhang et al., 2021). The SEM method of structural equation analysis was used to determine the interrelationships between the predictor (position) and the potential moderator or mediator (gender, pandemic or their interaction). The CMA methods enabled to estimate the indirect effect of gender, the pandemic, or their interaction in the relation between position and OETH and its subscales. For this purpose, we used a statistical program JAMOVI 1.8.1, for which the MedMod module conducts moderation and mediation analyzes. The proposed research model can be seen in Figure 1.

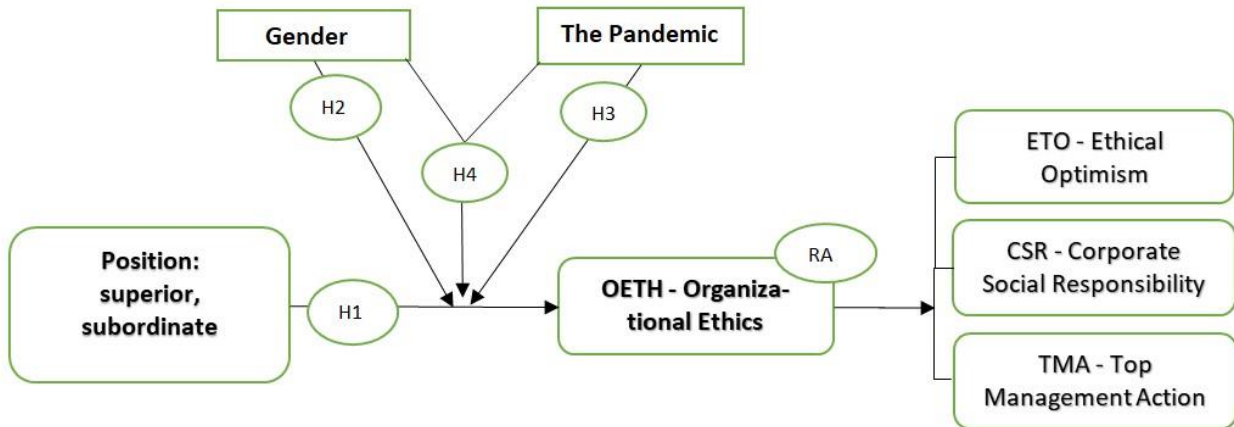


Figure 1: Research Framework. H1, H2, H3, H4 – research hypotheses, RA – research assumptions.

### 3.1. Research questionnaire

A version of the OETH Questionnaire was developed to measure the dependent variables related to organizational ethics based on Kowal & Roztocki (2015). Knowledge workers responded on a 5-point Likert scale: very low (1), low (2), neutral (3), high (4), very high (5). The independent variables as position, gender, and pandemic were binary coded. The data was transformed into frequencies and standardized for multivariate analysis. The questionnaire includes three main dimensions: ETO, CSR, and the TMA scale (see Appendix 1 for details).

The analyses conducted made it possible to verify the criteria of reliability and psychometric accuracy. All constructs have a variance extracted AVE greater than 0.7, measures of internal consistency as Cronbach's alpha ratios greater than 0.7, model-to-data errors RMSEA less than 0.1, and GFI ratios which indicate an acceptable level of adjustment greater than 0.9 (Kowal et al., 2019).

### 3.2. Participants and data collection

An online survey was conducted through the ProfiTest.pl and the College of Management "Edukacja" (WSZE) in Wrocław, Poland. We conducted the online survey among 137 KW before (December 2018 – January 2019) and among 127 KW during the pandemic (March 2021- April 2021) from regional small, medium, and large enterprises in Lower Silesia. We employed combined random and snowball sampling methods to construct the samples that represented in the

presence of all the desired values concerning the control variables (Sudman & Blair, 1999; Kowal et al., 2019).

Our sample of respondents comprised 186 female and 78 male KW. The average age for female KW was approximately 29 years, compared to 36 years for male KW. Males in regional firms were more often specialists employed as knowledge workers, managers, service activities suppliers, owners, directors, or management board members. Female employees were more likely to be specialists employed as knowledge workers, mainly in education. Female and male KW found employment proportionally in micro, small, medium, and large companies in the 20-26% range. Males worked more often in large companies (32% of men). Females more often found employment in the knowledge sector.

### **3. 3. Statistical Methods**

The statistical methods included descriptive analysis, inference methods (such as point estimation), interval estimation, verification of statistical hypotheses, correlation analysis, and multivariable methods like ANOVA, multiple regression, SEM and CMA analyses. Our analyses assume that the relationship between position and organizational ethics and its subscales can be moderated by gender and the pandemic. We only discussed statistically significant results.

## **4. RESULTS**

Statistical analysis was conducted to find potential differences in organizational ethics assessment according to position, gender, and the pandemic among KW, based on the survey data, as described below (see Table 1 - 3).

### **4.1. Moderation of the relationship between position and organizational ethics**

We assumed that the moderator is a factor that determines the existence and strength of the observable relationship between variables or no relationship (Link et al., 2020). A moderator is a condition of the occurrence of a given effect; it answers the questions *who?*, *when?* and *under what conditions?* (Srivastava, 2009).

A comparison of the averages of the dependent variable between groups distinguished by position, gender, and the pandemic was one of the inspirations for our analytical searches, in addition to a critical analysis of the literature related to these issues (Baron & Kenny, 1986; Chen, 2014; Yadav et al., 2019).

We were interested in demonstrating that gender (H2), the pandemic (H3) and their interaction (H4) are moderators of the correlation between position and dimensions of OETH (Tables 1-3). In our study, moderators are variables that affect the strength of the relationship between the predictor-independent variable (position) and the criterion-dependent variables (OETH, ETO, CSR, TMA). In global, OETH and its subscales are differentiated by predictor - position, moderators as gender, the pandemics, and their interactions (Tables 1-2-3).

#### **4.2. The effect of the position**

As shown from Table 1, the overall average is slightly higher than the middle point of the scale, which means a relatively average level. Subordinates evaluate all scales worse than superiors before and during the pandemic. For example, male KW manifested lower scores than female KW. As seen in Table 1, ETO is rated the worst of all scales. Neither superiors nor subordinates show a high level of ETO, and the results are relatively low, below the middle of the scale. The responses of superiors are characterized by a lower level of optimism than those of subordinates. In TMA, the situation is the opposite, and superiors assess the attitudes of top managers better than subordinates. Both superiors and subordinates demonstrate results above the mid-point of the scale, and thus quite positively. Thus, hypothesis H1 seems to be partially confirmed.

#### **4.3. The effect of the gender**

As can be seen from Table 1- 3, gender differentiates the OETH and its subscales. Females manifest higher ETO scores than males, but the average for both groups is lower than 3, so a low level of ETO, below the middle point on the scale, still dominates. Male knowledge workers give higher scores for TMA than females; however, both groups show average results above the scale's mid-point. Therefore, we can conclude that these results support hypothesis H2.

#### **4.4. The effect of the interaction of position and gender**

In general, in both analyzed periods, the female supervisors and subordinates assessed OETH,

ETO, and TMA subscales similarly, rather negatively, below the middle point of the scale. Female KW assessed CSR more positively. The volatility of their statements was moderate, ranging from 25% to 29%. In male KW subordinates, the evaluations were negative; averages in all dimensions of ethics did not exceed the value equal to 2. The male KW subordinates' scores were statistically significantly lower than those of their superiors. Although the latter also rated ethics below OETH, ETO, TMA slightly below the middle point of the scale. Only the superiors assessed CSR on an average positive level. The results of the subordinates were very varied; they even exceeded 95%. Supervisors were much more similar in ethics assessments. The variability ranged from 27% to 31%.

#### **4.5. The effect of the pandemic**

The assessment of OETH, ETO, CSR, and TMA was pessimistic before the pandemic, slightly exceeding the value of 2 on a scale from 1 to 5. The results were very varied, and the variability was slightly above 60% for all scales. By contrast, positive scores on all aspects of ethics arose during the lockdown, apart from ETO. Most of the scores were slightly above the middle of the scale. Ethical optimism continued to be rated better than before the pandemic but harmful. The results support hypothesis H3.

#### **4.6. The effect of the interaction of position and pandemic**

Before the pandemic, all OETH scores were low, indicating a negative assessment of all its aspects, both by superiors and subordinates. The latter showed slightly lower scores overall for OETH, especially for the ETO. The means for all groups were slightly above point 2 on the scale. The variability of the results was high, with the coefficient of variation above 60%. During the ongoing lockdown, about a year after the start of the pandemic, it turned out that subordinates began to assess organizational ethics much better. The OETH global score, the CSR, and TMA subscales were rated positively, above the midpoint on the scale. Only the ETO's rating remained negative, but it increased compared to the previous period. The results became homogeneous as well. The variability oscillating changed from 13%-19%. Statistically, the TMAs were rated the highest by their superiors, close to 4.00. Supervisors statistically rated the global OETH and the TMA subscale higher. Hypotheses H1 and H3 seem to be confirmed.

#### 4.7. The effect of the interaction of gender and the pandemic

On the scale of OETH assessment, the lowest ratings for ETO were given by male knowledge workers in micro and small companies, well below the mid-point of the scale. In the remaining groups, the evaluation results were approximately average. All mean scores for CSR in the subgroups were positive, slightly above the middle of the scale. The highest scores, almost 4, were obtained in the group of male knowledge workers in small enterprises and micro-enterprises. The lowest ratings, but also positive, were given by female-male knowledge workers in large companies.

#### 4.8. The effect of the interaction of position, gender, and the pandemic

The average for ETO (2.9) and was lower compared to the other scales. The average for superiors was statistically higher than for subordinates. The average among females was higher than in males. Thus, position, gender, the pandemic, and their interactions affect OETH and its dimensions. Gender, the pandemic, and their interaction are moderators of the relationship between the occupational position and OETH and its subscales. Thus, all our research hypotheses seem to be confirmed.

Predictor	Moderator		Means				Standard deviations			
			ETO	CSR	TMA	OETH	ETO	CSR	TMA	OETH
Position	Gender	pandemic								
Subordinate	Male	Before pandemic	2.48	3.03	2.84	2.84	1.32	1.74	1.40	1.42
			2.65	3.43	3.00	2.95	.66	.77	.676	.52
	Female	Before pandemic	2.73	3.02	2.66	2.76	.98	1.15	1.06	.96
			2.94	3.38	3.12	3.10	.45	.49	.52	.36
Superior	Male	Before pandemic	2.50	2.98	2.67	2.68	.78	.93	.88	.82
			2.84	3.15	3.56	2.96	.56	.58	.85	.80
	Female	Before pandemic	2.49	2.52	2.10	2.37	1.30	1.43	1.16	1.26
			2.96	3.46	3.75	3.35	.62	.66	.73	.63

**Table 1: Summary of descriptive statistics (means and standard deviations)**

Factors	ETO		CSR		TMA		OETH	
	F	p <	F	p <	F	p <	F	p <
position	10.19	.002	3.91	.049	18.77	.001	10.23	.002
gender	19.38	.001	7.95	.0005	7.79	.006	16.19	.001
pandemic	29.40	.001	37.06	.0001	82.65	.001	48.21	.001
position*gender	15.79	.001	10.82	.0001	16.55	.001	13.83	.001
position*pandemic	5.67	.018	6.65	.010	0.02	.90	4.91	.028
gender*pandemic	7.26	.004	3.92	.049	2.29	.10	4.107	.045
position*gender* pandemic	L11.27	.001	19.71	.001	18.96	.001	21.55	.001

Signs: *F* – the Fisher-Snedecor test statistics; *p* – observed probability for the test statistics; \* a symbol of interaction.

**Table 2: The results of analysis of variance (ANOVA) tests with OETH and its subscales as dependent variables.**

DV	Factor	Estimate $\beta_{ij}$	SE	<i>p</i> <	DV	Factor	Estimate $\beta_{ij}$	SE	<i>p</i> <
OETH	Predictor-position	.317	.140	.023	CSR	Predictor-position	.205	.163	.209
	Moderator-gender	1.028	.134	.001		Moderator-gender	.965	.157	.001
	position*gender	-1.234	.292	.001		position*gender	-1.333	.341	.001
	Predictor-position	.287	.143	.045		Predictor-position	.185	.164	.259
	Moderator-pandemic	.887	.126	.001		Moderator-pandemic	.915	.145	.001
	position*pandemic	-.222	.287	.439		position*pandemic	-.377	.328	.251
ETO	Predictor-position	.279	.134	.037	TMA	Predictor-position	.457	.154	.003
	Moderator-gender	1.064	.129	.001		Moderator-gender	.965	.148	.001
	position*gender	-1.270	.280	.001		position*gender	-1.284	.321	.001
	Predictor-position	.239	.144	.096		Predictor-position	.453	.148	.002
	Moderator-pandemic	.706	.127	.001		Moderator-pandemic	1.117	.131	.001
	position*pandemic	-.372	.288	.195		position*pandemic	.289	.297	.330

Signs: DV – dependent variable; SE – standard error; *p* – observed probability level for estimate testing;  $\beta_{ij}$  - regression coefficient estimate in the equation;

DV =  $\beta_{0ij} + \beta_{1ij} * \text{Predictor} + \beta_{2ij} * \text{Moderator} + \beta_{3ij} * \text{Moderator} * \text{Predictor}$   
 where:  $\beta_{0ij}$  is constant (See: Link, Kowal, and Qureshi, 2020).



**Table 3: The results of analysis of moderation models: dependent variables - OETH, ETO, CSR, TMA; predictor – position; moderators – gender, pandemic and their interaction**

Overall, the relationship between organizational ethics and position of KW in IS in transition economies, based on survey from Poland, seems to be moderated by gender and pandemic, as summarized in Table 4.

Hypothesis	Supported	Comments
H1	Yes	Organizational position (superior, subordinate) affects the organizational ethics assessment of knowledge workers in Poland's regional enterprises, a transition economy.
H2	Yes	The gender of knowledge workers impacts the relationship between their position (supervisor, subordinate) and organizational ethics assessment.
H3	Yes	The pandemic moderates the relationship between KW' position (supervisor, subordinate) and organizational ethics assessment.
H4	Yes	The interaction between the gender of knowledge workers and the pandemic moderates the relationship between position (supervisor, subordinate) and organizational ethics assessment
<b>Table 4. Overview of results</b>		

## 5. CONCLUSIONS

Our research suggested that ICT4D enables the survival and expansion of enterprises where KW work. KW management counteracts social exclusion and strengthens ethical attitudes and behaviors using ICT4D. These results correlate to conclusions of Osei-Bryson, & Bailey (2019), and Qureshi (2019). to ICT4D. Our findings related to the first research question show a difference in perceived OETH assessment and its dimensions of superior and subordinate knowledge workers in Poland.

In unfavorable conditions, such as protection due to COVID-19, in which it is impossible to get access to information, good work, high school, and service quality, ICT4D allows access to virtual services, and KW focused not only on vocational development but also on the possibility to build a social network, to support employees each other psychologically (Niebel, 2018; Avgerou, Hayes, & La Rovere, 2016; Beardsley et al., 2010).

Both superiors and subordinates appreciate professional and psychological support, which motivates developing more ethical attitudes and behaviors. Such attitudes were especially noticeable during the pandemic when employees appreciated the efforts of their superiors, who saved the company by taking advantage of the opportunities offered by ICT4D. Such activities certainly counteracted the social exclusion of knowledge workers who could fulfill their professional tasks online from home. Especially the use of ICT4D helped women professionally who in the studied region play traditional roles and have to work and look after children and the elderly with disabilities. Above mentioned activities of managers and subordinates translated into a better assessment of the organizational ethics during the pandemic than previously. This process occurred in all those organizations where managers have assumed the use of ICT4D.

However, superiors manifest a higher level of ETO than subordinates. On this basis, one can see supervisors as more educated, in contrast to lower staff. It also may be assessed by them in the category of local attachment and origin. Ethical leadership motivates KW to make an additional effort and a higher level of tasks and civic virtues in work performance (Piccolo et al., 2010). The OETH assessment is relatively positive, but ETO is below the midpoint of the scale. Similar conclusions were obtained in research by Kowal & Roztocki (2015) and Kowal et al. (2019). Regarding our other research questions, gender, and the pandemic, affect the relationship between position and the assessment of OETH and its dimensions. The KW's position has a direct effect on OETH and its three dimensions. Gender impacted OETH and its dimensions and turned out to be a moderator for them. The pandemic influenced all aspects of OETH and occurred to the moderator for OETH, ETO, CSR. Interaction of gender and the pandemic impacts OETH, ETO, and CSR but moderates the relationships between position and OETH and its subscales.

It seems that the pandemic stimulated pro-handed and pro-ethical attitudes in organizations employing ICT4D; as a result, the organizational climate improved, and subordinates better appreciated managers' attitudes. The latter, in turn, is likely to take measures to motivate employees to greater productivity in a more difficult life and organization situation, such as the pandemic.

Female knowledge workers evaluate OETH better than males, and the opposite is true in TMA. Following Gilligan (1993) and Galli et al. (2019), we supposed male KW would be more oriented toward abstract reasoning methods, while female KW should engage in more practical ways. In the Polish study, the concrete behavior of ETO may therefore be better perceived by women, by

contrast to Graham et al. (2020), who noted that women are less likely to view pro organizational behavior as ethical. This contrast may be due to socio-cultural and historical reasons.

The research presented here constitutes a significant contribution to the existing resources about the knowledge economy for several reasons. It may be the first study to analyze differences in OETH due to the professional position (supervisor-subordinate), taking into account such moderators as gender and the pandemic, and their interactions among knowledge workers employing ICT4D in regional enterprises in a transition economy. Secondly, the study shows that white-collar male superiors in transition economies - have less ETO than their peers but judge TMAs (and thus de facto themselves) better than others. This finding differs from most findings in developed, mature economies, where OETH correlated with business competencies (Ali & Anwar, 2021). Most of these studies suggest that gender does not play a significant role in business competencies and OETH among knowledge workers (Sumner & Niederman, 2004; Chen, 2014; Kowal et al., 2019). The current analysis findings can be used as a management tool by the staff of regional enterprises, local governments, and politicians to support females KW in their individual development in the labor market using ICT4D. New projects for KW, both women and men, may also benefit by enabling the development of ethical skills and competence, with particular emphasis on micro-enterprises and ICT4D (Jasinska-Biliczak & Kowal, 2020). The European Union projects are currently seeking new ways of solving the problems of discrimination as ICT4D.

Our research is limited because it was only conducted in the Lower Silesia region, mainly using quantitative methodology. Based on qualitative interview methodology, future research streams will investigate different opinions on organizational ethics among knowledge workers in transition economies, in relation to ICT4D. The development of new socioeconomic strategies, such as limiting gender differences, should support innovation by improving business and the ethical competencies of knowledge workers in small regional enterprises to create more economic benefits for companies.

**Appendix 1.** Items for Organizational Ethics Questionnaire (Adapted from: Vitell and Davis, 1990; Kowal and Roztock, 2015)

DIMENSION	VARIABLE CODE	ITEM
ETHICAL OPTIMISM	ETO1	Managers who are constantly developing professionally and using modern management systems are more ethical.
	ETO2	Successful managers are more ethical.
	ETO3r	In order to succeed in my company it is often necessary to compromise one's ethics.
	ETO4r	Successful managers in my company withhold information that is detrimental to their self-interest.
	ETO5r	Successful managers in my company make rivals look bad in the eyes of important people in my company.
	ETO6r	Successful managers in my company look for a "scapegoat" when they feel they may be associated with failure.
	ETO7	Successful managers in my company take credit for the ideas and accomplishments of others.
CORPORATE SOCIAL RESPONSIBILITY	CSR1	The socially responsible manager must occasionally place the interests of society over the interests of company.
	CSR2	The fact that corporations have great economic power in our society means that they have a social responsibility beyond the interests of their shareholders.
	CSR3	As long as corporations generate acceptable shareholder returns, managers have a social responsibility beyond the interests of shareholders.
TOP MANAGEMENT ACTION	TMA1	Top management in my company has let it be known in no uncertain terms that unethical behaviour will not be tolerated.
	TMA2r	Top managers in my company should have higher ethical standards than they do now. *
	TMA3	If a manager in my company is discovered to have engaged in unethical behaviour that results primarily in personal gain rather than corporate gain he will be promptly reprimanded.
All items are measured on a 5-point Likert scale: strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5) * reverse scale items.		

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