

## SOCIAL RESPONSIBILITY IN HUMAN RESOURCES MANAGEMENT IN PUBLIC INSTITUTIONS DURING COVID-19 PANDEMIC – A SMART CITY PERSPECTIVE

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**Purpose:** The outbreak of the Covid-19 pandemic has caused a revolution in human resource management in all organizations. Particularly important from a social point of view, changes have occurred in the organization of work and human resource management (HRM) in public institutions providing services to the public. On the one hand, it was necessary to secure the work of these entities so that the continuity of their work was maintained. On the other hand, the possibility of contamination of employees had to be limited. For this reason, Smart City solutions were started to regulate contacts between employees and between employees and customers. The aim of the article is an attempt to state whether the changes introduced in the HRM process in selected city offices in Poland were an expression of social responsibility, contributed to the improvement of the quality of work of officials and customer service of these offices.

**Design/methodology/approach:** The research allowing for this answer was carried out on the basis of the Customer Satisfaction Index (CSI) method, and the sample in the research were employees of selected city offices.

**Research limitations/implications:** It was found that the CSI method can be used equally effectively in the satisfaction of external and internal customers.

**Practical and social implications:** The conducted study allowed for the conclusion that the assessment of the quality of intelligent solutions related to the area of social responsibility undertaken as part of human resource management was assessed by the respondents at an average level.

**Originality/value:** The original element of the study on the basis of which the article was prepared was the use of the CSI method to survey employee satisfaction with work based on Smart City solutions.

**Keywords:** public institution, COVID-19 pandemic, Smart City, social responsibility, human resource management.

## 1. Introduction

Societies of highly developed countries over the last hundred years have begun to forget about the dangers associated with pandemic outbreaks, therefore the rapid and uncontrolled global spread of the SARS-CoV-2 coronavirus has become a shocking event, for which it seemed that in the "civilized world" There is no space. Within a few weeks, states and societies had to mobilize areas of knowledge, previously purely theoretical, as well as resources to fight the rapidly spreading threat. It quickly turned out that digital communication technology used in smart cities is particularly useful in fighting the pandemic. It made it possible to manage cities and their parts in such a way as to ensure pandemic safety of residents and to rationally impose restrictions on the movement of people and meeting social needs by them, also related to service in public institutions, e.g. city offices through e-administration (Ny Avotra, Chengang, Marcelline, Asad, Yngfei, 2021).

The use of ICT tools has contributed to increasing public safety. It allowed to verify the solutions used in smart cities for the current management of crisis situations caused by the pandemic. It also contributed to the creation of conditions for a better perception of the importance of cooperation between public authorities and economic entities in the internal relations of individual countries and in the international dimension, in order to create conditions for the use of artificial intelligence to enrich knowledge about health threats and prevent them (Alam, Jones, 2020, p. 46).

The COVID-19 pandemic also contributed to the verification of the concept of CSR (Corporate Social Responsibility – CSR), including redefining who organizations should consider as their key stakeholders. In public administration, as in many enterprises, the role played by frontline employees who have direct contact with the client should be emphasized particularly strongly. It was also necessary to rebuild the approach to social responsibility. Crane and Matten (2020, p. 280) state that the reconstruction should lead to it "From the individual to the social concept of risk". Following this, it is necessary to undertake research on the cooperation of economic entities and public authorities in order to counter the pandemic not through "voluntary, benevolent good deeds (although they also played a role), but by employing (and protecting) workers, producing socially useful products and protecting stakeholders" (Clean Clothes, 2020, p. 6). In the author's opinion, this approach to CSR reflects the goal that should be pursued by the managers of public institutions in the pandemic period and has become an incentive to undertake a study, the results of which will be presented later in the article.

## **2. New technologies and HRM in public institutions during the Covid-19 pandemic**

The outbreak and rapid spread of the coronavirus pandemic meant that modern communication technology began to be used on a large scale in Polish public institutions. Thanks to this, it was possible to limit contact between employees of these institutions and between employees and customers. Conditions have been created for controlling such contacts in order to minimize the number of people simultaneously staying in public facilities and to increase the number of official matters handled remotely. Changes were also introduced in the organization of working time and conditions, resulting from the adoption by the state of legal regulations regarding the provision of remote work (Ustawa..., art. 3).

The most noticeable changes in the functioning of public institutions were the emergence of remote customer service and electronic customer communication systems.

This means that the pandemic forced the introduction of solutions that seemed impossible to implement for many years. It quickly turned out that this is a much faster, more effective and cheaper form of dealing with matters in public institutions than the direct one that has been commonly used so far (Szyja, 2020, p. 271). After two years of using these solutions, many officials and city residents cannot imagine that the office could not use such IT tools as: e-inbox, e-PUAP or electronic office (Pełowska, 2021, pp. 306-307). The position of the researchers who had been paying attention to their usefulness for several years was fully confirmed (Papińska-Kacperek, Polańska, 2017, pp. 216-225).

In addition to IT solutions aimed at changing customer service, public institutions introduced devices to monitor the pandemic situation, human body temperature scanners or temperature scanning gates were installed, through which everyone entering the facility had to pass. Automatic hand disinfection stations operating on infrared and dispensing disinfectant directly onto the hands have become other commonly used devices. Video and teleservices have also been introduced in some offices. By calling or contacting electronically, the client could obtain real-time help from an employee or settle his case remotely.

However, it should be remembered that the modification of activities aimed at clients is only one of the functional areas of this type of institution. It will not be properly implemented if employees are not guaranteed appropriate working conditions and possible compensation for the difficulties and widely understood costs that they must incur in connection with the introduction of this type of innovation. It is also necessary to provide them with appropriate equipment and prepare them to work in the new conditions through training and the possibility of improving their competences, not only professional, but also digital. This problem may particularly affect those public administration offices where a large proportion of employees are in older age groups, because, as Czapiński notes (2015, p. 20), and also the GUS research (2020) indicates, the percentage increases with age. people who do not use the computer and

the Internet at all or to a limited extent. During the pandemic, working with these tools, in turn, became crucial.

Research conducted in Polish public administration offices shows that most of them were completely unprepared for the pandemic situation and the resulting need to change the organization and working conditions (Szczepański, Zamecki, 2020, pp. 1-27). During the pandemic, the managers of public institutions were faced with new tasks that they had to perform in a very short time, their role and manner of acting in relation to subordinates related to the performance of managerial functions changed in a way that would guarantee job satisfaction for employees and satisfaction with quality of customer service in the new terms of service provision. However, without detailed research on this issue, it is difficult to judge whether they have successfully dealt with this situation. Especially whether they were able to use the organizational potential by basing the management process on the recommendations resulting from the concept of social responsibility and the stakeholder theory, according to which the employee is an internal client of the organization of particular importance for it (Huang, 2020, p. 173.).

The issue of the use of intelligent solutions in the management of the city and its institutions during the pandemic has also become the subject of numerous research interests. This is reflected in the research undertaken, which checks the opinions of residents on the use of intelligent solutions during the COVID-19 pandemic. According to these studies, Poles commonly accept the use of technology to fight the SARS-CoV-2 virus and protect against it. The research also shows that they are ready to use selected IT solutions to control people and their health in order to eliminate from public places people who may pose an epidemic threat (Duszczyk, 2020; Wyrwa, Zaraś, Wolak, 2021, pp. 92-93). In the opinion of these authors, changes in the behavior of residents resulting from the pandemic situation should stimulate local authorities to introduce an integrated structure of the Internet of Things (IoT), which allows for an increase in the effectiveness of municipal services and companies, and thus improves the conditions and the quality of life of residents, and increases the effectiveness of the process of providing services by public institutions.

It seems that some cities have coped with this challenge, and some are still trying to operate on the basis of the old patterns. Therefore, later in the article, the results of the study will be presented, with the help of which the author checked how employees of selected city offices perceive the changes in the human resource management process and the organization of customer benefits introduced in connection with the pandemic.

### 3. Material and method

Research on corporate social responsibility and its use in the functioning of smart cities was carried out many years before Covid-19 and it can be concluded that CSR is one of the most popular management concepts today. However, the pandemic contributed to the questioning of a number of its existing assumptions, concepts and practices (Crane, Matten, 2020, pp. 280-281.) finding out how the managers of selected public institutions, in response to the Covid-19 pandemic, support their key stakeholders (Huang, 2020, p. 173; Mahmud, Ding, Hasan, 2021, p. 2), i.e. employees serving clients of city offices.

It was assumed that a manifestation of the implementation of CSR by the managers in the conditions of a pandemic is the concern to guarantee employment security and working conditions for employees, while at the same time implementing solutions in the area of e-administration and remote work.

The method by which the t-study was carried out was a marketing research method, slightly modified by the author, used in the study of service quality, called the Customer Satisfaction Index (CSI), classically understood as an external stakeholder (Woźniak, Zimoń, 2013, p. 220). The indicator is built on the basis of a weighted assessment, and its result consists of the assessment of individual elements and the weights assigned to them (Woźniak, 2017, p. 243). It is calculated based on the following formulas:

$$CSI = \sum_{i=1}^n w_i o_i \quad (1)$$

where:

$i$ , 1 ...  $n$  – elements of employee involvement,

$w_i$  – the weight of the employee involvement element,

$o_i$  – assessment of the employee involvement element.

$$CSI_{max} = \sum_{i=1}^n w_i o_{i_{max}} \quad (2)$$

$$CSI\% = \frac{WZP}{WZP_{max}} \times 100\% \quad (3)$$

Converting the numerical value of the indicator to a percentage makes it much easier to analyze the results of the study (Table 1), therefore it was decided to convert it.

**Table 1.**

*Evaluation criteria of JPA in percent used in the study*

CSI% value criteria	Rating
0-40	very bad – employee completely dissatisfied
41-60	bad – employee dissatisfied
61-75	average – there are problems with the level of employee satisfaction
76-90	good – no problems were found with the employee satisfaction level
91-100	very good – highly satisfied employee

Source: Woźniak, Zimon, 2016, p. 221.

The study was conducted in January 2021 in selected 6 offices of large cities (UM) – Gdynia, Częstochowa, Sosnowiec, Toruń, Gliwice and Rzeszów. Such a selection resulted, inter alia, from the fact that the author lives in one of these cities and that in those cities she could obtain consent to provide employees with the questionnaire electronically.

An original questionnaire was used for the study, and the analysis of the responses was based on the weighted assessment principle. The result of the study was determined by the assessment based on the analysis of opinions regarding the impact of selected factors of the HRM process on the assessment of the quality of their working conditions during a pandemic (COVID-19, 2020) and the importance of these factors for the satisfaction of the respondents (Woźniak, 2017, p. 242).

**Table 2.**

*Population and number of employees of the Medical University in the examined cities (data as of December 31, 2021)*

City	Population	Employment at UM	Number of inhabitants per 1 employee
Częstochowa	207 467	1017	204
Gdynia	246 348	1001	246
Gliwice	166 703	632	264
Rzeszow	198 476	1417	140
Sosnowiec	195 978	957	173
Toruń	180 832	432	419

Source: own studies based on BIP information.

Opinions were collected on health checks, ensuring spatial distance, performing work requiring direct contact with the client, providing personal protection measures and personal and remote communication at the workplace.

The respondents – customer service employees in the surveyed offices – assessed the level of satisfaction and the importance of individual elements included in a given area of the survey on a five-point Likert scale (Minta, Cempiel, 2017, pp. 177-178), where a rating scale was used for satisfaction: 1 – very dissatisfied; 2 – rather dissatisfied; 3 – indifferent; 4 – rather satisfied; 5 – very satisfied. However, to determine the significance (rank) of a given element for the respondent: 1 – it does not matter; 2 – little importance; 3 – indifferent; 4 – important; 5 – very important.

This scale made it possible to carry out a statistical analysis in accordance with the CSI procedure (Olbrych, 2009, p. 146) in order to determine the level of satisfaction and the significance of individual factors for the examined factors. The substantive questions were supplemented with records, which made it possible to characterize the respondents. The selection of respondents was random, and the sample was relatively small, which makes it impossible to state whether the survey results were representative. However, taking into account that in all surveyed offices the answers were similar, and the factors differentiating them were the same features: gender and age of the survey participants, it seems that representativeness was achieved.

#### 4. Characteristics of the respondents

The sample of 167 people were employees of city offices dealing with direct customer service (Table 3). As already mentioned, the study was conducted in city offices in six large cities: Gdynia (Gd) – 38 respondents, Częstochowa (Cz) – 37 respondents, Sosnowiec (S) – 22 participants, Toruń (T) – 24 employees, Gliwice (Gl) – 29 people and Rzeszów (Rz) – 17 participants in the sample. The employees of the Medical University in Gliwice were the most numerous group of the study participants, and the study participants in Rzeszów were the least numerous.

**Table 3.**  
*Demographic characteristics of the respondents*

Characteristic		City						Σ (%)
		Gd	Cz	S	T	Gl	Rz	
sex	women	36	35	19	22	26	16	153 (91.6)
	men	3	2	3	2	3	1	14 (8.4)
Σ		38	37	22	24	29	17	167 (100)
age	up to 25 years	2	-	-	-	1	-	3 (1.8)
	26-35 years	12	13	10	10	14	7	67 (40.1)
	36-45 years	19	18	9	11	10	6	72 (43.1)
	46-55 years	4	5	3	3	4	3	22 (13.2)
	56-65 years	1	1	-	-	-	1	3 (1.8)
Σ		38	37	22	24	29	17	167 (100)
education	lo	1	-	-	1	-	1	3 (1.8)
	lz/vol.	5	4	9	7	4	2	31 (18.6)
	I° studies	12	13	9	7	12	5	58 (34.7)
	2nd degree studies	12	12	4	9	13	9	75 (44.9)
Σ		38	37	22	24	29	17	167 (100)
work experience in	1-2 years	-	-	-	-	-	-	4 (2.4)
	3-5 years	5	6	3	4	5	2	25 (15)
	6-10 years	22	23	14	13	15	10	92 (55.1)
	11-15 years	10	7	5	6	9	3	40 (23.9)
	16-20 years	1	1	-	1	-	2	6 (3.6)
	> 20 years	-	-	-	-	-	-	-
Σ		38	37	22	24	29	17	167 (100)

Source: own study based on the survey.

In all cities, the study was dominated by women, despite the lack of information on the population. It can be assumed that the situation is similar among the total number of people employed in offices, and especially in positions related to customer service. It cannot be determined whether the age of the respondents is adequate to the age of all employees, but it seems that the distribution of answers regarding the level of education will be similar to that of the total number of employees working at the Medical University, as is the case with their seniority. This allows us to assume that the sample shows features that allow it to be considered representative.

Summing up the demographic analysis of the respondents, based on the data shown in Table 2, it was found that a statistical participant of the survey will most likely be a woman, usually between 36 and 45 or 26 to 35 years old and with higher education, who work in the office for 6 to 10 years.

## 5. Analysis of the test results

The analysis of the survey results was preceded by the introduction of data from individual surveys to the MSExcel spreadsheet, which facilitated the calculation and preparation of the survey report. The entire procedure was carried out in accordance with the guidelines resulting from the research methodology and described in the previous part of the article.

First, weighted averages were calculated for the assessment of individual issues that the respondents were asked about in order to determine their level of satisfaction with selected factors of the work environment (Table 4) and the importance of the examined issues for them (Table 5).

**Table 4.**

*Level of employee satisfaction with intelligent solutions in the area of HRM adopted during the pandemic*

No.	Factor	Satisfaction level ( $W_i$ )					$\bar{x}_w$
		1	2	3	4	5	
1.	automatic temperature monitoring	58	72	31	4	2	<b>1.92</b>
2.	electronic registration of movement in the facility	4	16	119	22	3	2.91
3.	automatic disinfectant dispensers	12	38	96	16	5	2.78
4.	automatic soap dispensers	11	17	106	12	13	3.04
5.	ordering personal protective equipment via the Internet	38	51	52	18	8	2.5
6.	organization of work in a remote form	18	32	94	19	4	2.75
7.	arranging customers for a specific time	5	24	58	61	19	3.39
8.	making customer appointments by phone	12	19	77	48	11	3.16
9.	arranging customers via the Internet	19	27	89	23	9	2.86
10.	limiting direct contact with customers	7	72	53	28	7	2.74
11.	e-PUAP customer service	28	53	63	19	4	2.51
12.	customer service via e-mailbox	35	81	28	17	6	2.27
13.	flexible working time	22	28	47	53	17	3.09
14.	var. employment tailored to the needs of the employee	7	12	16	95	37	<u>3.86</u>
15.	doing housework	11	19	12	86	31	3.61

Source: own study based on the survey.

When assessing the distribution of responses to individual problems that were asked in the survey and which were introduced in connection with the need to ensure the safety of working conditions, the least satisfactory solution for the respondents was the introduction of automatic temperature monitoring ( $\bar{x}_w = 1.92$ ), while the option was best assessed by managing the adjustment of working conditions to the needs of the employee ( $\bar{x}_w = 3.86$ ). This was likely due to the fact that women were dominant in the study, and because they likely had children who



had used remote learning during the pandemic and required care, this solution was so important to them. In the case of all factors, the weighted average email rating was 3.1, which means that the respondents' satisfaction with working conditions during the pandemic was average.

In the second step of the research procedure, the significance of solutions for HRM adopted during the pandemic, for which the implementation of intelligent solutions was used, was assessed (Table 5).

**Table 5.**

*Meaning of intelligent solutions in the area of HRM for employees during the pandemic*

No.	Factor	Rank (C <sub>i</sub> )					
		1	2	3	4	5	$\bar{x}_w$
1.	automatic temperature monitoring	0	7	153	6	1	3
2.	electronic registration of movement in the facility	1	32	122	9	3	2.89
3.	automatic disinfectant dispensers	13	27	119	6	2	2.74
4.	automatic soap dispensers	3	15	92	48	9	2.72
5.	ordering personal protective equipment via the Internet	5	21	90	44	7	3.16
6.	organization of work in a remote form	5	17	108	35	2	3.07
7.	arranging customers for a specific time	19	78	57	11	2	<b>2.4</b>
8.	making customer appointments by phone	17	71	63	13	3	2.49
9.	arranging customers via the Internet	10	18	85	39	15	3.19
10.	limiting direct contact with customers	5	17	120	22	3	3
11.	e-PUAP customer service	16	24	104	14	9	2.86
12.	customer service via e-mailbox	7	42	66	38	14	3.06
13.	flexible working time	3	9	32	94	29	3.82
14.	work employment tailored to the needs of the employee	3	9	17	97	41	<b>3.98</b>
15.	doing housework	5	11	15	97	39	3.92

Source: own study based on the survey.

When verifying the information on the importance of individual factors that were asked in the questionnaire, it was proved that for the respondents the most important thing was again the possibility of adjusting working conditions to the needs of the employee ( $\bar{x}_w = 3.98$ ), while the respondents considered appointing clients for a specific hour ( $\bar{x}_w = 2.4$ ).

The conducted analysis allowed for the calculation of the CSI index and determination of its percentage (Table 6). The overall value of the CSI was 3.115, which means that it was 62.3% expressed as a percentage.

Comparing this value with the data presented in Table 1, it was found that the overall level of satisfaction with the quality of the satisfaction with the implementation of the Human Resources Management process based on Smart solutions in the surveyed entities was at an average level.

Summarizing the results of the study, it should be noted that it concerned only a fragment of reality, therefore it seems advisable to analyze this issue in depth. It should also be noted that the pandemic situation is such a new phenomenon that scientific research on various aspects of the functioning of public institutions in the resulting conditions is only beginning to be carried out. Currently, single reports appear in the country in the world (Allam, Jones, 2020; Sooryaa Muruga Thambiran, 2020; Peplowska, 2021; Szczepański, Zamecki, 2020; and others), which, like the study presented above, are fragmentary and significantly limited scope.

**Table 6.**  
Calculation of the CSI max index and CSI%

Factor	CSI value				
	<i>n</i> = 167				
	$W_i$	$C_i$	$W_{iw}$	$W_{iw} * C_i$	$W_{iw} * C_i \text{ max}$
1.	1.92	3	0.044	0.132	0.22
2.	2.91	2.89	0.067	0.194	0.335
3.	2.78	2.74	0.064	0.175	0.32
4.	3.04	2.72	0.07	0.19	0.35
5.	2.5	3.16	0.058	0.183	0.29
6.	2.75	3.07	0.063	0.193	0.315
7.	3.39	2.4	0.078	0.187	0.39
8.	3.16	2.49	0.073	0.182	0.365
9.	2.86	3.19	0.066	0.21	0.33
10.	2.74	3	0.063	0.19	0.315
11.	2.51	2.86	0.058	0.166	0.29
12.	2.27	3.06	0.052	0.159	0.26
13.	3.09	3.82	0.071	0.271	0.355
14.	3.86	3.98	0.09	0.358	0.45
15.	3.61	3.92	0.083	0.325	0.415
$\Sigma$	43.39	-		3.115	5
CSI		-		CSI	CSI <sub>max</sub>
				3.115	62.3%

Source: own study based on the survey.

Another issue limiting the number of conducted and presented studies was the significant difficulties in communication between researchers and office workers, as in order to prevent the pandemic, the possibility of entering the buildings of these offices and reaching employees in order to invite them to study was significantly limited. In practice, only the electronic route remained, which is relatively ineffective. Finally, it is difficult to say what the situation with the spread of Covid-19 will look like in the coming periods and, therefore, what solutions will be introduced to protect employees against infection and provide them with optimal working conditions.

All these factors mean that, on the one hand, conducting research on this issue will be of great importance in management and quality sciences (Dolot, 2020) and many others (Fukowska, Koweszko, 2022, pp. 1-10), on the other hand, it is difficult to predict how big the possibilities of conducting them will be.

## 6. Summary

Issues related to the functioning of public institutions during a pandemic are currently only becoming the subject of research and scientific studies. However, it seems that conducting them in those areas that were implemented on a large scale in the pre-pandemic period is fully justified, as it allows to track the dynamics and effectiveness of the introduced changes.

Such areas of scientific exploration included and include issues related to the implementation of Smart City solutions and the implementation of CSR as factors of job satisfaction. This research is of particular importance in those entities which had to completely rebuild the way they functioned in a short time. This group includes, inter alia, public administration offices and their employees. Due to the importance of the problem and its impact on the possibility of modernizing public administration in the future, undertaking research in this area should be considered fully justified.

The study presented in the article was an attempt to join this trend of scientific analysis. As part of it, the author verified the possibility of using the CSI method to study the satisfaction with the work of officials and, indirectly, the quality of the human resource management process in municipal offices of selected cities. The results of this study, presented in the article, show that it is possible to use it in relation to internal clients. As a result of the study, it was found that the quality of the HRM process in the surveyed entities was rated as average.

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