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IT RELIABILITY AS A SOURCE OF SUSTAINABILITY FOR ORGANISATIONS OPERATING DURING THE COVID-19 PANDEMIC

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ABSTRACT

The article aims to show that reliable IT support was crucial for the survival and sustainability of organisations during the COVID-19 pandemic. The article considers the negative effect of the crisis caused by the COVID-19 pandemic on the organisational sustainability of an organisation (i.e., organisational performance through employee job performance). It explores the role of IT reliability in mitigating such a negative effect. To verify the hypotheses, the empirical studies were performed during the COVID-19 crisis with 1160 organisations operating in Poland, Italy and the USA. The data were analysed using multiple linear regression models with mediators and moderators. The results confirmed that due to the ability to limit the severity of a crisis-induced negative effect on employee job performance (influencing organisational performance), IT reliability could be considered a mitigator for the negative effect of the COVID-19 crisis on the sustainability of organisations. The results indicate that IT reliability should be fostered among organisations operating during the COVID-19 pandemic to maintain sustainability.

KEY WORDS

IT reliability, organisational performance, job performance, organisational sustainability, COVID-19

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INTRODUCTION

The COVID-19 pandemic, which started in 2019, caused unprecedented international restrictions and severe human, social, and economic disruptions worldwide due to social distancing or stay-at-home

protocols (Gossling et al., 2021; Tan Vo-Thanh et al., 2021). The pandemic impacted the world with sharp shocks to economies and societies worldwide (MacIntyre, 2020; Shigemura et al., 2020). Hamouche (2020) stated that “this situation can have a negative impact on business sustainability and individual employment”. Researchers almost instantly began

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looking for helpful ways for organisations to maintain sustainability and survive the crisis. The notion of IT support for organisations operating in such an extremely turbulent environment influenced by the COVID-19 pandemic received some attention in the literature (He et al., 2021; Tahar et al., 2021). One of the most heavily discussed topics is IT-related: the business alignment, which must be maintained to gain an advantage from IT support in such a situation (Tahar et al., 2021) as remote work and remote education became essential and were required by law in many countries in the attempt to help societies to slow down the COVID-19 spread (He et al., 2021; Loh & Fishbane, 2020; Young, 2020). Hence, IT support became essential in maintaining the sustainability of organisations aiming to survive and sometimes even thrive in the COVID-19 pandemic. Colbert and Kurucz (2007) proposed the colloquial definition of sustainability as “keep the business going”, which not only refers to the economic but also social and environmental perspectives (Wales, 2013). Clearly, achieving that objective without the support of IT during COVID-19 was almost impossible. To achieve sustainability, organisations were forced to speed up the development and implementation of new or changed IT to align it with the organisation’s changed needs (He et al., 2021; Sein, 2021). There is a rising number of empirical research papers connected to this topic, aiming to explain the implications of COVID-19 for the design, implementation, and use of IT for sustaining organisations’ operations (Sein, 2021; Budd et al., 2020). Moreover, He and Harris (2020) suggested that COVID-19 could also present an “opportunity for organisations to shift towards more authentic and genuine corporate social responsibility (CSR)”; however, such an opportunity cannot be properly exploited without IT support. Hence, its role is crucial not only for obtaining and maintaining but also for boosting the sustainability of contemporary organisations.

However, even more importantly, from the point of view of organisational sustainability, organisations were forced to focus their efforts on supporting the reliability of used IT, as without it, they would have been left without any possibility of performing tasks and surviving. A negative influence of the COVID-19 pandemic on job performance and organisational performance is apparent, and any measures allowing to mitigate it were considered key for such survival. Unfortunately, the literature coverage of the topic is still very limited, which constitutes a research gap. Filling such a research gap will not only contribute to

the development of the field of IT use in organisations operating under critical conditions but also provide some practical implications for organisations striving to maintain their sustainable development.

Therefore, the article aims to verify whether IT reliability (considered, among others, as a notion reflecting the IT-business alignment within the organisation) mitigated the negative effect of the COVID-19 pandemic on organisational performance (through employee job performance) and whether the strength of such mitigation increases with the deepening of the crisis. In pursuit of the aim, a literature review was undertaken to support the proposed hypotheses, and empirical research was performed with 1200 organisations from various countries influenced by the COVID-19 pandemic to verify those hypotheses.

1. LITERATURE REVIEW

The connection between organisational sustainability and organisational performance is not limited to economic results but also the effects on the environment, society and future generations (Rai et al., 2021). Therefore, organisations must manage various social and environmental issues to ensure the next generations’ future while securing the organisation’s survival, which is connected to its performance (Mani et al., 2016). As well described in the literature, social and environmental aspects are deeply rooted in the economic aspect of organisational sustainability (Manca, 2015). Some scholars disagree with this attitude towards organisational sustainability, considering it a complex issue that “requires a holistic perspective to balance the sustainability, i.e., the economic, environmental, social and time dimensions” (Lozano & Barreiro-Gen, 2021).

However, it seems particularly adequate for an organisation during the COVID-19 pandemic (Lozano & Garcia, 2020; Lozano & Barreiro-Gen, 2021). It is already well-established that COVID-19 caused immense negative social, human, and economic effects worldwide (Gossling et al., 2021; Hall et al., 2020; Tan Vo-Thanh et al., 2021). Barreiro-Gen and colleagues (2020) underlined that COVID-19 caused a shift in the sustainability priorities of organisations because it presented a significant threat to their survival. Such survival denoted in organisational performance is crucial for allowing an organisation to consider all other aspects of its sustainable operations (Gregurec et al., 2021). Moreover, in times

of such a crisis, the social responsibilities of organisations are primarily focused on the ability to create and maintain jobs, limit staff cuts and reduce the pace of economic slowdown. Hence, from the point of view of an organisation's sustainability, maintaining organisational performance was crucial. This point of view has been confirmed by various empirical research on organisational sustainability during COVID-19, usually measured using selected aspects of organisational performance elements found in the business scorecard approach (e.g., Park et al., 2021; Correia et al., 2021). The same approach is used in this article.

1.1. JOB PERFORMANCE AS A MAIN DETERMINANT OF ORGANISATIONAL PERFORMANCE

It is well established that employee job performance, as the most important resource, is one of the key factors determining the organisational performance of contemporary organisations (Forooqui, 2014; Sonnentag & Frese, 2002). Hence, job performance should be referred to as the implementation of assigned tasks by an individual (Darvishmotevali & Ali, 2020). This statement is confirmed by various empirical research, including Brewer and Selden (2000), who stated that organisational performance is mostly determined by the structure of task/work and task motivation shaping employee individual performance. Sonnentag and Frese (2002, p. 4) underlined that "organisations need highly performing individuals in order to meet their goals (...), and finally to achieve competitive advantage".

While analysing the usually given main reason for such a clear relationship between job performance and organisational performance, one argument arises especially often. Many authors state that high performance among employees easily translates into their ability to boost the organisation and create the possibility to fulfil the strategic aims and, based on that, achieve higher performance and organisational sustainability (Lado & Wilson, 1994; Dessler, 2011; June & Mahmood, 2011).

Moreover, various empirical research efforts confirm the influence of typical job-related attitudes, such as job satisfaction, work motivation, or organisational commitment, on the organisation's performance (Kim, 2004; Koys, 2001; Jaramillo et al., 2005). Job-related attitudes directly influence job performance (e.g., Iqbal et al., 2013; Ali et al., 2018; Moonti

et al., 2023), which also shows the mechanism of the relationship between job performance and organisational performance.

Such relationships became even more significant for organisations during the COVID-19 pandemic, which had direct negative effects on employees and their ability to perform everyday tasks. Tanveer et al. (2020) stated that during the COVID-19 pandemic, "the effectiveness and efficiency of the organisation depend on the joint efforts of all employees", and proper job performance should be considered the main determinant of the overall organisation's performance. Several researchers have already stated that during the crisis caused by the COVID-19 pandemic, organisations simply had to pay much more attention to employees as key resources (Mao et al., 2020; Tan Vo-Thanh et al., 2021). Such a need came directly from the resource conservation theory (Hobfoll, 1989), which underlines that employee stress can affect their job performance, and a crisis in an organisation, such as caused by COVID-19, is an immense stressor for employees due to the fear of changes in task fulfilment (to enable the continuity of operations) or downsizing (to diminish labour costs) (Baum et al., 2020; Tan Vo-Thanh et al., 2021). It connects with job insecurity and negatively affects employee job performance (Hamouche, 2020). Based on such arguments, several authors stated that the crisis caused by the COVID-19 pandemic leads to lower job performance (Hamouche, 2020; Tan Vo-Thanh et al., 2021; Gossling et al., 2021; Hall et al., 2020). Moreover, Darvishmotevali & Ali (2020) underlined that such a negative effect on employee job performance is caused by decreasing subjective wellbeing (in the case of job security and job conformity). Hence, it is not enough to establish that no downsizing would be performed to maintain a proper level of job performance. It is even more crucial to maintain work environment characteristics, which allow employees to perform their tasks (which became especially hard during the COVID-19 pandemic due to social distancing and stay-at-home regulations that forced employees to redesign their task implementation ways (Gossling et al., 2021)). Hence, it seems that such a crisis is negatively influencing organisational performance through employee job performance. Consequently, the following hypothesis was formulated:

H1. The crisis caused by the COVID-19 pandemic has a negative influence on organisational performance through employee job performance.

2. IT RELIABILITY AMONG ORGANISATIONS DURING COVID-19

The reliability of IT in an organisation is “a measurable property of IT solutions, useful for their control and management, identifying their quality level and pointing out potential problems (Zahedi, 1987) and directly linked to the efficiency of IT components, especially those critical to its proper operations. It is also considered as a measure of IT solutions stability over a variety of conditions” (Tworek, 2019). Tworek (2019) developed a model of IT reliability in an organisation comprising four components:

- System reliability, which is determined by the availability of the system connected with its security while maintaining proper performance.
- Usage reliability, which is an element of system reliability, determined by the efficiency of system use, its acceptance by the users and ease of use.
- Information reliability, which is determined by easy access to the needed information and its accuracy while maintaining relevance.
- Support service reliability, which is determined by responsiveness and availability of support services for the system.

The importance of IT reliability for contemporary organisations operating under normal conditions was determined by various empirical studies performed and presented in detail by Tworek (2019).

The verification was made among organisations operating in different countries (Poland, Switzerland, the USA and Italy), various industries (e.g., financial) and several points in time. However, the role of IT reliability in organisations operating under the crisis caused by the COVID-19 pandemic has not been sufficiently analysed yet.

Preliminary research on that subject was conducted by Tworek (2020), and based on the analysis of more than 100 organisations that operated in Italy during the first month of the COVID-19 pandemic, it was stated that its role was even more substantial than during normal operating conditions.

It remains in line with the statement by Bieńkowska et al. (2020), who established that all known management paradigms and models need verifications under such conditions to determine whether they can still be useful for organisations.

2.1. IT RELIABILITY AS A FACTOR MITIGATING NEGATIVE EFFECTS OF ORGANISATIONAL PERFORMANCE

The literature coverage of the role of IT support in sustaining organisations during the COVID-19 pandemic is still very limited. However, the available research point to a statement that IT reliability may be an important factor in mitigating the negative effects of the crisis caused by the COVID-19 pandemic on organisational performance. Such mitigation is two-fold: the mitigation of negative effects on (1) job performance and (2) organisational performance.

In this respect, however, organisational performance lacks sufficient literature coverage. Various models are presented in the literature regarding the influence of IT reliability on organisational performance during regular operating conditions. Such a relationship is often recognised in the literature as the IS Success Model (with the DeLone and McLean (2006) model as the best-known example). Most of them include three elements: IT resources, IT capabilities and IT business alignment (Jacks et al., 2011), and all of them have the potential to mitigate various negative effects which may occur in the organisation and negatively influence its performance. Hence, such a point of view may be adopted while analysing the role of IT reliability in mitigating the negative effects of the crisis caused by the COVID-19 pandemic on organisational performance.

The importance of IT support as a resource is undoubtful and clear. The importance of IT capabilities may be supported by some literature reports. The results of the study performed by Wanasida et al. (2021) underline the importance of IT (business analytics) capabilities (determined by reliable IT support) for organisational performance in organisations during the COVID-19 pandemic. They concluded that the higher the organisation's business analytics capabilities (supported by IT), the more agile the organisation (which was also confirmed by Ashrafi et al. (2019)) and, therefore, the better its performance (also confirmed by Darvishmotevali et al. (2020)). Moreover, the research also confirmed the role of information quality (another aspect connected to IT reliability, i.e., information reliability) as a mediator of such relationships, showing its influence on organisational performance. The importance of IT

business alignment comes directly from the need to redesign task implementation and realign the IT to the changed needs of the organisation. Batra (2020) states that the “COVID-19 pandemic serendipitously evoked an era of agility”, arguing that achieving such agility in an organisation is predetermined by reliable IT support.

Job performance is discussed in the literature much more often. It is crucial to underline that reliable IT support allowed employees to perform their everyday tasks and maintain a satisfactory level of job performance during the crisis caused by the COVID-19 pandemic (Wang et al., 2020). Authors usually name two IT support-determined factors: support for (1) redesigned tasks and (2) communication.

The need for task redesign came directly from the specificity of the COVID-19 pandemic, which necessitated social distancing and stay-at-home regulations, forcing employees to rethink their task implementation (Gossling et al., 2021). This would not have been possible without IT support. IT allowed organisations to redesign task implementation to continue operations during the COVID-19 pandemic (Wanasida et al., 2021). It was crucial from the point of view of maintaining performance and getting additional help from the government. The loans and guarantees for organisations prepared to mitigate the economic impact of the COVID-19 pandemic are usually subject to their ability for such a business redesign (Mallet & Dombey, 2020).

Moreover, von der Lippe and Lippenyi (2020) stated that reliable IT influences job performance mainly as an enabler for employees to work from home (the need for which plays an immense role in tasks implementation redesign), thus making it key for increasing their organisational commitment and job satisfaction because of the ability to boost motivation.

It is connected to the fact that employees are aware of the reduced possibility to control their work, which rather frequently results in staff feeling more

independent, responsible and committed, hence increasing their performance (Kumar et al., 2021).

The need for communication support is also directly related to social distancing and stay-at-home regulations (Gossling et al., 2021). Under such circumstances, communication is almost impossible without required IT support. However, the support does not end there. Hamouche (2020) stated that optimising communication and transparency are key activities which should be implemented by organisations striving to maintain sustainability through the crisis caused by the COVID-19 pandemic. It is needed not only to maintain the possibility to implement tasks and enforce teams (Roberts, 2020) but also to reduce uncertainty for employees and their level of stress and foster positive examples. IT support for working from home is crucial, and the more reliable it gets, the better the possibility of mitigating negative crisis effects.

There are also some other literature reports confirming that virtual work characteristics connected to IT support are the main factors influencing job performance through various mediators, like individual factors (Wang et al., 2020), job insecurity (Tan Vo-Thanh et al., 2021) and wellbeing (Darvishmotevali & Ali, 2020). However, the related literature coverage is scarce and not yet properly established.

Hence, all that reasoning found in the literature covering the issue of organisational performance (and job performance) during the crisis caused by COVID-19 allows for stating that reliable IT support may, in fact, mitigate the negative effects of a crisis on an organisation's operations. Hence, the following hypothesis was formulated:

H2. IT reliability mitigates the negative influence of the crisis caused by the COVID-19 pandemic on organisational performance through job performance.

Moreover, it seems logical to assume that the stronger the negative effects of the COVID-19 pandemic within an organisation (i.e., the deeper the

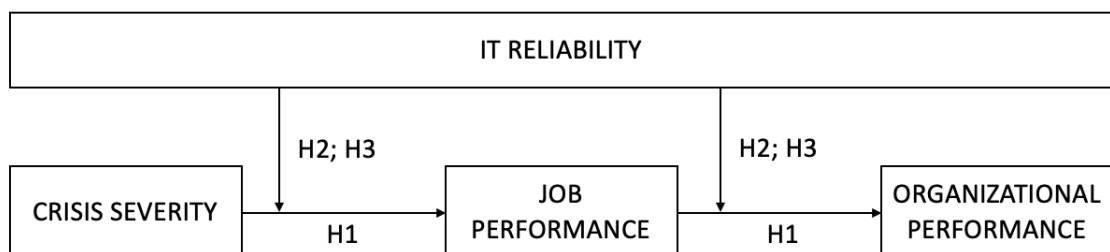


Fig. 1. Overview of research hypotheses

crisis within it), the more crucial the role of IT reliability in mitigating such negative effects. That is because for organisations experiencing minor issues in some operation areas, reliable IT support is key for maintaining high organisational performance in all of the areas, while other areas would perform similarly well without it. However, for organisations experiencing a heavy load of issues in all (or almost all) operation areas, reliable IT support may be the sole determinant of their survival and key resource enabling any organisational performance. Hence, the following hypothesis:

H3. The stronger the negative influence of COVID-19 on organisational performance, the stronger the mitigating influence of IT reliability.

Therefore, based on the reasoning presented above, a set of hypotheses was developed to determine the role of IT reliability in the process of mitigating the negative effects of the crisis caused by the COVID-19 pandemic. The overview of the hypotheses is given in Fig. 1.

3. RESEARCH METHODOLOGY AND RESULTS

To verify the formulated hypotheses concerning the role of IT reliability in mitigating the negative effects of the COVID-19 pandemic on an organisation, the empirical research was performed as a part of a grant funded by the National Science Centre in Poland (grant No. 2020/37/B/HS4/00130). The empirical research was based on a survey as a measurement tool. The main survey was preceded by the pilot survey conducted in the first quarter of 2020 (Tworek, 2020) with more than 100 organisations

(managers responding to the survey acting as competent judges) that operated in Italy at the beginning of the COVID-19 pandemic. According to the obtained results, the final version of the survey was redesigned and amended. The main research was conducted in March 2020, with 1160 organisations from Poland, Italy and the USA. The country of origin was a control variable in the study to verify whether assumed relationships were conditional on any environmental characteristics specific to one region (in the case of pandemic management, economic situation etc.). The sample was selected based on the purchased respondent panel of managers employed at organisations operating in Poland, Italy and the USA. The chosen countries were severely impacted by the COVID-19 pandemic during the survey. Since the empirical studies were aimed at analysing the organisational response to the crisis caused by the COVID-19 pandemic, it was a crucial aspect which needed to be considered.

It was the only aspect limiting the sample. Organisations were surveyed regardless of their size, industry or type of business using the CAWI method. The assumed size of the sample was 1000 organisations. Finally, 1160 responses were selected. Of 1160 organisations, which responded and were included in the sample, 896 organisations stated experiencing the crisis caused by the COVID-19 pandemic, and those were the organisations used for the empirical study (Table 1).

3.1. VARIABLES OVERVIEW

The empirical research was based on four variables measured with the use of a questionnaire and verified measurement scales.

Tab. 1. Sample characteristics — organisations that operated during the crisis

ORGANISATION'S COUNTRY OF ORIGIN	BEGINNING OF THE CRISIS	PREPARING A RECOVERY PLAN	IMPLEMENTING THE RECOVERY PLAN	TOTAL
Poland	75	124	121	320
USA	68	120	212	400
Italy	38	94	44	176
Total	181	338	377	896

Tab. 2. Overview of the variables

VARIABLE	NO. OF SCALES	CRONBACH'S A	FACTOR ANALYSIS	M	SD	VFI
Crisis severity	1			3.21	0.76	1.002
IT reliability	4	0.725	55.049	2.16	0,66	1.259
Job performance	4	0.753	57.759%	2.01	0.63	1.259
Organisational performance	10	0.886	49.426%	3.16	0.74	-

IT reliability was measured based on a 4-item scale concerning all IT solutions used in the organisation, in particular, their system reliability, usage reliability, information reliability and support services reliability. It was measured using a 5-point Likert scale (from “very poor” [5] to “very good” [1] with the middle point “fair”).

Job performance was measured based on four aspects: task proficiency, meticulousness in task implementation, work discipline and work improvement and readiness for innovation. It was measured using a 5-point Likert scale (from “very poor” [5] to “very good” [1] with the middle point “fair”).

Organisational performance was measured based on a 10-item scale with Balanced Scorecard dimensions (Kaplan & Norton, 1996), allowing to include multiple aspects of organisational performance: financial, customer-related, learning and growth and the internal process. It was measured using a 5-point Likert scale (from “I strongly disagree” [5] to “I strongly agree” [1] with a middle point “I have no opinion”).

Crisis severity was measured based on a single-choice question concerning the severity of the crisis caused by the COVID-19 pandemic (in the case of the number of organisations’ areas that were affected and the severity of this impact). Crisis occurrence was a variable used for identifying observations within the sample, which should be included in the study.

It was a single-statement and single-choice question concerning the stage of the crisis experienced by the organisation at the time of the survey (with an option “the organisation is not in crisis”).

First, it was established that the collected data were characterised by the normal distribution. Second, the scale analysis was performed to verify whether they could be used in the study and coherently and correctly assess the analysed phenomena. The descriptive statistics for those variables are presented in Table 2, together with the results of the reliability of scales analysis (Cronbach’s alpha values were above 0.8, which shows sufficient reliability and coherence of used measurement scales and allows to form conclusions based on such data). Moreover, the VFI coefficient was calculated for each variable (Table 2) and demonstrated the absence of a co-linearity issue between analysed variables, and linear regression models can be built to perform statistical reasoning.

3.2. RESEARCH RESULTS

Saks (2006) indicated three conditions required to establish a linear regression model with a mediator. First, the independent variables must be related to the mediator. Second, the dependent variables must be related to the mediator. Third, a significant relationship between the independent variables and dependent variables has to be reduced (partial mediation) or made no longer significant (full mediation) when controlling for the mediator. To verify whether the conditions are satisfied, the Pearson’s correlation (r) analysis was performed after the normality test confirmed the possibility of performing the analysis. The results are presented in Table 3.

The obtained results showed a statistically significant but weak correlation between all analysed variables, which allowed for starting a verification of the mediation occurrence within the assumed model. Since such a conclusion enables the next step, the linear regression model with a mediator was built using the Hayes’ PROCESS macro designed for IBM SPSS Statistics software (Model 4) for crisis severity as an independent variable, organisational performance as a dependent variable and job performance as a mediator. The obtained regression model was statistically significant, and its fit was sufficient for the statistical reasoning ($F(2.859)=28.269$ and corrected $R^2=0.248$). The results concerning the mediation effects are included in Table 4.

Hence, job performance was indicated to be a statistically significant mediator of the model ($p<0.001$, $\text{coeff.} = 0.284$, $\text{se} = 0.038$). The obtained model shows that job performance is indeed a mediator of the relationship between crisis severity and organisational performance, which allows accepting hypothesis H1.

However, since the value of R^2 is quite low and organisational performance is a variable with a very high degree of aggregation, the regression model with control variables was calculated to determine whether the elements proposed in the model remained a statistically significant predictor of organisational performance while considering other aspects of organisational operations. The results of regression analysis confirmed that IT reliability and job performance were statistically significant elements of the model, which includes control variables (V1–V6 concerning the organisational structure, culture, technology, human capital and goals) describing elements of the organisation distinguished by the Leavitt

Tab. 3. Correlation analysis between the analysed variables

		JOB PERFORMANCE	ORGANISATIONAL PERFORMANCE
Crisis severity	r	0.206	0.092
	Sig.	<0.001	<0.001
	N	890	864
Organisational performance	r	0.246	1
	Sig.	<0.001	
	N	865	864

Tab. 4. Linear regression analysis with a mediator — results

MEDIATOR	DIRECT EFFECT VALUE	INDIRECT EFFECT VALUE	BOOTLLCI	BOOTULCI	R2
Job performance	0.028	0.212	0.008	0.394	0.248

Tab. 5. Linear regression analysis with the moderator — results

MODEL DESCRIPTION	R ²	DELTA R ²	MODERATOR COEFF.	STANDARD ERROR	T STAT	P VALUE
Crisis severity, moderator: IT reliability, dependent v.: organisational performance	0.463	0.083	0.111	0.037	3.565	0.0027*
Crisis severity, moderator: IT reliability, dependent v.: job performance	0.268	0.005	0.037	0.052	0.705	0.480

*accepted level of significance 0.001

model. Hence, the statistical reasoning presented above may be used for further analysis and to form conclusions.

After establishing that the statistical reasoning can be implemented based on acquired data, to verify the hypotheses concerning the moderation effect of IT reliability, the linear regression model with the mediator (job performance) and the moderator (IT reliability) was built using Hayes' PROCESS macro designed for IBM SPSS Statistics software (Models 7 and 14). The results of the analysis are presented in Table 5.

The linear regression analysis with the mediator and the moderator allowed for various conclusions. First, the models allowed for statistical reasoning based on them since they were both statistically significant and sufficiently fitted: the relationship between crisis severity and job performance ($F(3.850)=77.465$, $p < 0.001$) and the relationship between job performance and organisational performance ($F(4.849)=16.533$, $p < 0.001$). However, IT reliability proved to be a statistically significant moderator only in the case of the first relationship. Therefore, based on the obtained results, hypothesis H2 should be accepted (as at least one of the relationships within the mediation model was moderated by IT reliability). Moreover, as the results showed a posi-

tive cause-effect relationship between the analysed variables within the linear regression model with the mediator and the moderator and at least one of the moderation hypotheses was accepted, there is also sufficient data to accept the hypotheses H3.

4. DISCUSSION

As stated before, organisational performance is at the centre of attention for organisations that strived for sustainability during COVID-19 (Lozano & Barreiro-Gen, 2021). Moreover, job performance related to individual employee performance seemed to be just as important in the process of obtaining and maintaining such sustainability. Hence, the obtained results allow verifying that IT reliability indeed mitigated the negative effect of the crisis caused by the COVID-19 pandemic on organisational performance (through job performance), determining the organisational sustainability (measured based on the Balanced Scorecard approach, connected to various aspects of organisational operations and including the sustainability point of view to some extent).

The obtained results demonstrate that IT reliability is a moderator of the mediation model between the crisis severity and the organisation's performance,

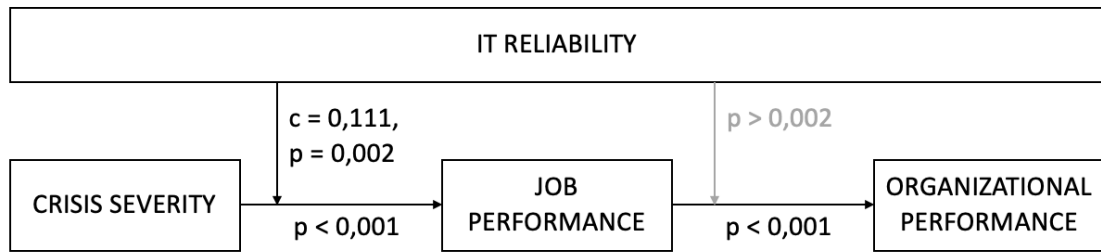


Fig. 2. Research results

mediated by job performance. Most importantly, the moderation effect occurs within the first part of the model for the relationship between the crisis severity and job performance (Fig. 2). Hence, the obtained results allowed to verify various statements found in the literature, in which authors hypothesised that reliable IT support would mitigate various negative effects of crisis caused by the COVID-19 pandemic on job performance (Wang et al., 2020; Gossling et al., 2021; Wanasida et al., 2021), enabling tasks redesign (mainly through the support for working from home (von der Lippe & Lippenyi, 2020)) and maintaining positive job-related attitudes (Tan Vo-Thanh et al., 2021). Also, or even above all else, they allow for a conclusion that during the crisis caused by the COVID-19 pandemic, employees and their job performance was crucial for obtaining and maintaining organisational performance (measured in a way which allows it to reflect on organisational sustainability) and should be treated as the most important resource of an organisation.

Moreover, the obtained results allow for a conclusion that the more severe the crisis within an organisation, the larger the mitigating strength of IT reliability. It should be noted that it is a very important conclusion showing that organisations should focus on boosting IT reliability at the beginning of the crisis because its role in ensuring organisational sustainability grows during the crisis development.

Moreover, it must be underlined that IT reliability was verified as an important factor in mitigating the negative effects in organisations operating in all analysed countries (Poland, Italy and the USA). It allows for a conclusion that its role does not depend on any specific environmental characteristic (the country of origin was used as a control variable). Based on these conclusions, considerations offered during the hypotheses development are true for con-

temporary organisations regardless of their economic circumstances.

CONCLUSIONS

The article concerns IT reliability's role played in shaping organisational sustainability during the crisis caused by the COVID-19 pandemic. The article mainly aimed to determine whether IT reliability mitigated the negative effect of the crisis on organisational performance (through employee job performance) in organisations during the COVID-19 pandemic. The aim was successfully reached, which allowed the addressing of an existing research gap concerning the lack of empirical studies in this regard. The obtained results allowed for forming general conclusions on the subject as the survey was conducted with organisations that declared experiencing the crisis caused by the COVID-19 pandemic and operating in various economic circumstances (in Poland, Italy and the USA). IT reliability was verified as an important factor in mitigating the negative effects in organisations operating in all surveyed countries, showing that its role does not depend on any specific environmental characteristics. Therefore, a substantial contribution to the theory concerning IT use in contemporary organisations (especially during a crisis caused by a Black Swan type of event) was made.

Moreover, the conducted empirical research has some practical implications, determining that contemporary organisations striving to survive the COVID-19 pandemic and maintain their sustainability should have focused on the reliability of IT used in their organisations, not only just their implementation. It is important to underline that a high level of IT reliability had the potential to mitigate the negative

effects of the crisis caused by the COVID-19 pandemic on job performance, which seems to be a key relationship for maintaining organisational sustainability.

The performed research has some limitations as the conclusions were established based on a limited number of organisations, which is not a representative sample (given the sampling method). However, the sample was big and sufficiently diversified (the study included three countries and more than 1000 organisations) to justify conclusions based on the given results. Moreover, the study showed the future directions of research, which should be connected with determining the mechanisms through which IT reliability mitigated the negative effect of the COVID-19 pandemic on job performance, indicating methods for boosting those mechanisms and obtaining more benefits from them.

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