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Telework Systematic Model Design for the Future of Work

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Abstract: The practice and popularity of telework has expanded significantly in the past few years, mostly due to the COVID-19 pandemic. As a critical factor contributing to business resilience, the new work model challenged companies to figure out innovative ways to address contemporary organizational and employee needs. To address this gap, this study approaches the telework concept from a broader perspective, integrating inputs, outputs and outcomes in an analytical framework. Drawing from data collected based on interviews and questionnaires addressed to professionals in the business service industry who experienced telework, frequency analysis, discourse analysis and chi-square test were used to synthesize the findings. Results show that resource availability and professional relationships represent the basic factors, while technology may be more than a facilitator. Moreover, knowledge exchange, work–life balance and professional isolation are critical factors emerging from the virtual environment that influence work goals achievement. This study contributes to research by proposing a Telework Systematic Model (TSM), which addresses the interaction of various organizational dynamics factors as a result of mixed working patterns. The discussions address the future of work by including the hybrid work model, platform innovation and new business opportunities to enhance organizational resilience for sustainable innovation and change through digital technology.

Keywords: telework; organizational change; resilience; input; output; outcome; telework systematic model

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1. Introduction

The COVID-19 pandemic has created many challenges in the business environment: uncertainties about employment, new configurations of workplaces, future or current changes in many careers, dramatic increase in the speed of digitalization of processes, distance leadership, changing communication behavior, missing informal contacts, and balancing work and family life while teleworking [1–3].

The features offered by new developments in digital technologies allow more employees to perform their duties outside an organization's premises. This facility is known as telework or remote work. In the academic world, the definition of the concept of telework implies multiple perspectives, however no consensus has been reached in this regard [4–6]. This innovative working model reflects the volatile, unconventional work environment [7], being also a flexible method that allows geographical dispersion of employees [8]. Telework became a mandatory form of activity during the pandemic [8], which helped workers to improve work–life balance while reducing real estate costs and the environmental impacts of mobility [7,9].

The European Framework Agreement on Telework [10], Article 2 states that "Telework is a form of organizing and/or performing work, using information technology, in the context of an employment contract/relationship, where work, which could also be performed at the employer's premises, is carried out away from those premises on a regular basis".

This work model challenged companies to figure out new ways to address contemporary organizational and employee needs. Furthermore, during the COVID-19 pandemic, organizational resilience has received significant attention from research and practice [11]. In order to maintain business competitiveness and stability during crisis periods, ref. [12] developed a framework to identify the linkages between resilience characteristics and service quality preservation. Research in this field has increased in the last decade and studies have mainly focused on the impact of telework on distinct organizational dimensions such as employee behavior [13,14], corporate culture [15,16] or job performance [17,18]. However, this research area is still in the early stages of development as prior studies have analyzed only a single telework dimension. Moreover, the recent research interest in telework does not reveal a consistency regarding a comprehensive perspective involving both telework practices and their impact. Authors either kept the center of attention on telework inputs related to resource availability [19], outputs associated with work flexibility and control [20,21] or outcomes linked to innovation and business opportunities [22,23]. Telework influences a more complex business dynamic that includes the workplace, workforce, workload and the work itself. Changes in the work paradigm caused by the pandemic crisis would be influenced by the availability of employees to switch to telework. This may differ on the basis of industry, but would equally affect organizations and individuals [24]. Therefore, considering companies are still in the experimental phase in terms of efficient digital collaboration, studies may need to examine the interaction between different organizational factors to provide them with a broader picture of the changes.

Previous research [12] indicates a gap in the literature that concerns the business professionals' perceptions on a set of factors to evaluate the telework model for the specific context of business service companies. Moreover, studying the impact of the resilience mechanisms' implementation on the performance of organizations in different economic sectors, ref. [25] identified a lack of research in the service sector.

The objective of this research is to propose a Telework Systematic Model, investigating the impact on interconnected organizational dimensions. The aim extends to analyze the telework from distinct sides—managers and employees—and thus provides companies useful practical guidance on resulting changes. In order to perform a contextual and multilevel perspective analysis, both quantitative and qualitative research methods were employed.

The overall structure of the study takes the form of six parts. The first part states the objective of the work and presents the relevant background knowledge. The second part gives a brief overview on the theories underlying telework challenges. The third part is concerned with the methodology, presenting the analytical framework, questionnaire, and interview data as well as the statistical tests used. The fourth part analyses the results of the questionnaire and interviews and presents the telework model. The fifth part includes a discussion of the implication of the findings to future research. Finally, the conclusion section gives a brief summary and critique of the findings.

2. Theories Underlying Telework Challenges: Expectancy—Boundary—Control—Social Exchange

The expectancy theory addresses the motivation of telework, being represented as the product of three variables: expectancy, instrumentality, and valence [26,27]. First, expectancy is related to employees' perception that they possess the essential skills required to achieve anticipated objectives. As a result, a telework policy type and scope may have a considerable impact on their opinions. Second, instrumentality is related to employees' perception that their efforts will generate the desired results. Additionally, the concept of procedural justice is linked to instrumentality, referring to the level on which employees perceive their engagement. Third, valence is related to the subjective projected value of the intended results. Accordingly, the motivation of employees to work in a virtual environment comes from their perception regarding the expected value of telework behavior.

The boundary theory may be employed to understand why in a telework environment there are distinct challenges which cannot be found in a traditional workplace [28,29]. Consequently, telework may change the boundaries between work and non-work because of the context shifts. Moreover, employee behavior may no longer correspond to predetermined work limits [30]. For example, physical, temporal, and psychological boundaries may be challenging aspects in relation to work tasks accomplishment. First, physical boundaries during telework pose significant challenges to employees as the workplace and home represent the same space. This may lead to overworking behaviors and thus create more stress to employees while the time-saving advantage of telework becomes non-existent. Moreover, working in a virtual environment implies the lack of face-to-face interaction, informal conversations and engaging in mentoring opportunities [31]. Second, telework also involves temporary boundaries that can have negative consequences for employees. The flexibility of the work schedule brings changes that may impact collaboration between coworkers. Third, psychological boundaries refer to the rules created to control behavioral and thinking patterns. For example, the time spent while travelling to the office may represent for some employees the needed time to transition from the roles they have in their personal lives to their professional roles as employees or managers. Thus, this transition may play an important role for employees who need to prepare themselves before engaging in the role in their professional lives.

Known as management control [32] or organizational control [33–35], the control theory mainly refers to the alignment process between organizational objectives and employees' activities [21]. This process has to be in place as once a company agrees on its strategic priorities, it must establish and implement control systems that ensure its objectives are accomplished. As defined in the literature, the control mechanisms can be formal or informal [21]. On one hand, formal control mechanisms are performed in line with agreed processes and regulations. They are usually differentiated into behavioral or process controls and results-oriented controls. On the other hand, informal control mechanisms are related to employees' abilities to engage in the organizational objectives as well as to their approach towards communication and information exchange. Control theory is consistent with the concept of telework. Challenges that arise at the employee activities monitoring level during teleworking can be addressed by allowing managers to control the results and obtain a similar level of control as when employees do not telework.

Social exchange theory connects telework practices with organizational benefits through a mutually rewarding exchange. The principle of reciprocity is the core premise of this theory, which states that when one party takes a gain from the other, the beneficiary tries to repay the favor [29]. A major challenge in telework relates to social exchange theory when ensuring the level of trust in virtual teams, which is more important than in traditional teams [7]. A strong leadership based on reciprocity principle implies significant change in the activity of employees (attitudes, autonomy, behaviors, personal freedom) and of companies (saving office space, increasing productivity, communication rules, less absenteeism) [7,8] with benefits for both (flexibility, feedback culture, cost savings, and bidirectional trust). For example, a study conducted by [36] emphasized the reciprocity between employee and employer in a telework environment. It indicated that when employees take advantage of the opportunities provided during teleworking, they attempt to put more effort in their task activities to reward the organization.

Previous studies [14,19,21,23] have analyzed particular telework dimensions without considering the whole dynamics that take place in the business due to the introduction of this new work model. To address this gap, key factors have been identified from the telework literature and categorized as inputs, outputs, and outcomes. Identifying a research gap, ref. [37] developed and categorized telework key factors in the three categories: inputs, outputs and outcomes. Inputs include enabling factors based on hard infrastructure and expected to be present in a work environment. Outputs refer to community networking, informal than formal interaction and knowledge sharing rated as important.

Outcomes consist of productivity and benefits of employees especially in relation to their work activities.

An analytical framework is now developed on inputs, outputs and outcomes of telework, grouping a list of factors identified in the previous research. This framework is investigated using a questionnaire instrument as a basis for interviews with managers and surveys sent to professionals in business service.

3. Methodology

3.1. Analytical Framework

Telework has facilitated business transition to the new world of work. The popular working trend developed more recently as a consequence of COVID-19 pandemic, which challenged companies to find new solutions that meet organizational and employee needs. Moreover, as digital technology plays a key role in achieving the successful implementation of a telework model, companies encounter challenges related to certain business operations.

Examining telework inputs and outputs will help explain the organizational impact and highlight the key elements that may lead to success of this working model. The current study differs from existing research by the systematic approach that takes also into account telework outcomes. Figure 1 illustrates the analytical framework for addressing these issues.

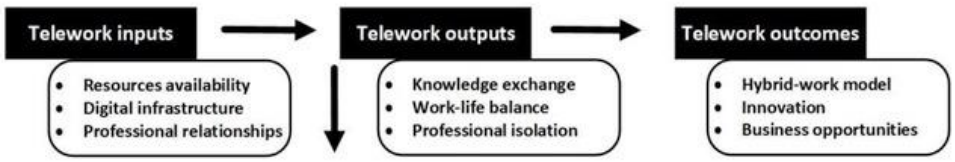

Figure 1. Analytical framework for telework conceptualization.

Inputs are the factors related to the working environment described through resources availability, digital infrastructure, and professional relationships. Outputs are the factors emerging from the telework environment in relation to the work-related activities, represented through knowledge exchange, work–life balance, and professional isolation. Outcomes are the future opportunities that may arise from this particular working model. They are related to working patterns within mixed environments such as the hybrid work model, innovation, and access to future business opportunities. Moreover, assessing the outcomes of telework against innovation and possible business opportunities may produce changes to the business model [37].

3.2. Questionnaire and Interview Respondents—Overview

This study used both qualitative and quantitative methods to analyze the telework concept. The qualitative method used five interviews with business managers who experienced telework and needed to adapt their management style to the virtual work environment. This method was utilized to benefit from interviewee experiences and gather comprehensive virtual workplace insights. This research method was employed with the aim of measuring managerial perceptions. First, the interview invitations and a consent form that informed the participants about data collection objectives and confidentiality aspects were sent by email. Second, the interviews were conducted using a video conferencing platform. The format was established in the virtual environment to cover a wider geographical area, without travel and social distancing restrictions. Third, the transcripts were produced and thematic analysis was employed in order to identify patterns of telework practice. The interview duration ranged from 18 min to 47 min. In addition to the organizational factors selected from the literature, business managers were challenged with two supplementary open questions regarding the impact of telework on the new world of work.

Table 1 presents the interview participants' industry background, organizational positions as well as the work and telework experience in the current organization. Managers worked in different industries: business services, technology, and telecommunications.

They held middle and upper management positions with working experience varying from 2 months—a business manager in a new role due to pandemic labor market shifts—to 12 years, while telework experience was 10 months or less.

Table 1. Interviews participants overview.

Interviewees	Code	Industry	Organizational Position	Work Experience	Telework Experience
Business Manager 1	BM1	Business services	Middle management	12 years	6 months
Business Manager 2	BM2	Business services	Middle management	8 years	10 months
Business Manager 3	BM3	Business services	Middle management	8 years	9 months
Business Manager 4	BM4	Technology	Upper management	3 years	9 months
Business Manager 5	BM5	Telecommunications	Middle management	2 months	2 months

The quantitative method used a survey sent to business professionals with telework experience, with the aim of measuring employees' perceptions. It consisted of four parts. First, the questionnaire examined sociodemographic factors in terms of gender, nationality, age group, organizational position, industry expertise as well as work and telework experience. Second, data on telework inputs (resources availability, digital infrastructure and professional relationships) were acquired. Third, elements of telework outputs (knowledge exchange, work–life balance and professional isolation) were assessed. The last section included elements of digital technologies use and telework practices in order to examine telework outcomes in terms of a hybrid work model, innovation and business opportunities.

The questionnaire was designed using prior studies' analysis of organizational factors of telework and pretested through the interviews with managers. The online form of this research instrument was employed to take advantage of its flexibility and functionality as well as to reach the target audience in a time-efficient manner. Participants were selected and channels for the survey distribution were established. Business managers who participated in the research's interview phase sent the questionnaire to their staff. Additionally, a professional networking platform was used to share the survey to virtual communities of teleworkers. Sharing the questionnaire to such particular groups created the opportunity to examine telework practices from a larger sample.

One of the threats of online surveys is represented by the impossibility to compute an accurate overall response rate due to it not being possible to count how many people received the email because some recipients may choose to forward the email to other people [38].

The response rate management was determined. As sampling and return rate are considered common concerns that occur when employing a questionnaire, supplementary measures were taken to overcome them. Thus, in order to determine the validity of research findings, personalized cover letters to the questionnaire as well as regular reminders were sent. Moreover, in order to accurately measure the response rate, direct messages were used to reach the target population. Out of the total of 300 questionnaires sent, a number of 242 responses were collected, resulting in a response rate of 80.67%. Other studies used questionnaires to investigate mediators for the relationship between telecommuting and job outcomes [23] or between the use of a specific telework implementation and output controls [21], with response rates of 14.96%, and of 34.3%, respectively. Moreover, other research [39] on work-related innovations, with the mediators stress resilience, satisfaction and involvement of employees, also carried out an online survey study based on a questionnaire, with 280 valid responses.

The business professionals participating in the study were predominantly part of the Millennial generation (75.2%), with organizational positions in middle management (48.3%) and entry level (34.7%). Most of them had work experience between two and five years in the current company and less than 11 months of telework experience. The accessibility of the online survey allowed reaching teleworkers from different regions. The majority were Eastern European (75%), followed by Asian (16.8%) and North American (8.2%).

Frequency analysis was used to synthesize the employees' perceptions on telework factors affecting their ability to achieve the tasks. Additionally, discourse analysis was applied to understand the managers' perspective.

3.3. Statistical Tests Used

To test the dependence between two variables we used the chi-square test, a non-parametric statistical test. The chi-squared test is "universally consistent and valid for sufficiently large n and sufficiently small Type I error level α (generally $n \geq 20$ and $\alpha \leq 0.05$ suffice)" [40] (p. 3).

The Chi-square test was introduced by Pearson in 1900 and in the last decades, Pearson's chi-square test has been widely used to test if there is an association between two variables [41,42]. Plackett ([43], p. 70) concludes "Pearson's 1900 paper on chi squared is one of the great monuments of twentieth century statistics".

Starting from a contingency table with r rows and c columns, the two hypotheses considered were H_0: the variables are independent and H_1: the variables are dependent. The null hypothesis H_0 is assumed to be true until evidence suggests otherwise [44]. The hypothesis H_0 will be rejected at the α level of significance if the computed value of χ^2 is greater than the statistical value of ${\chi_\alpha}^2$ with $(r-1)$ $(c-1)$ degrees of freedom, otherwise we accept it.

The variables were extracted from the lists of factors included in the questionnaire and then tests were performed using Python version 3.9—Python Software Foundation, www.python.org---together with the Pandas and Scipy libraries. Python is an interpreted high-level general-purpose programming language that has a focus on ease of use and readability. In recent years, due to the huge number of available libraries, Python has become a very popular language for data science and data analysis [45].

4. Results

4.1. Dependences between Telework Variables

Extracting from the primary data collected through the questionnaire, the variables included in this study are coded and classified in three categories: input, output, and outcome variables, as presented in Table 2.

Table 2. Variable codification.

Type	Code	Variables
INPUT	I01	Cloud storage platforms
	I02	Coworkers available when needed
	I03	Coworkers unavailable when needed
	I04	Dedicated telephone line
	I05	E-mail
	I06	Information available when needed
	I07	Information unavailable when needed
	I08	Interruptions from family-members/roommates
	I09	No interruptions from coworkers
	I10	Project management software
	I11	Scheduling software for remote teams
	I12	Video conferencing/group-calling application
	I13	Whiteboard collaborative software
OUTPUT	O01	Overestimation of needed time
	O02	Task less difficult than anticipated
	O03	Task more difficult than anticipated
	O04	Underestimation of needed time
OUTCOME	R01	Employee monitoring software/team time tracking application
	R02	Employee rewards tool
	R03	Good concentration

Table 2. *Cont.*

Type	Code	Variables
	R04	Good planning
	R05	Good system response time
	R06	Inefficient planning
	R07	Lack of concentration
	R08	Noise cancelling application
	R09	Note-taking application
	R10	Poor response system time
	R11	Problems with system hardware/software
	R12	Social media platforms
	R13	Team collaboration software
	R14	Unplanned tasks

The dependencies between each two variables are displayed in Tables 3–8 grouped by category. With bold are marked the values of the chi-square test which are greater than the critical value of 3.841. Based on that, dependency between variables is identified.

Table 3 presents the matrix of the chi-square test for input–input variables. There are some input variables—"Interruptions from family-members/roommates" and "No interruptions from coworkers"—that do not depend on any input variables. However, "Coworkers unavailable when needed", "Information available when needed" and "Scheduling software for remote teams" are dependent on five input variables.

Table 3. The matrix of chi-square test for input–input variables.

Variables *	I01	I02	I03	I04	I05	I06	I07	I08	I09	I10	I11	I12	I13
I01		0.545	0	1.664	1.23	3.548	0.001	1.092	0.524	**4.38**	0.086	2.97	0.095
I02			**29.886**	0.644	0.104	**65.154**	**6.246**	0.992	0	0	**5.167**	0.018	**11.233**
I03				**6.587**	0.197	**13.57**	**14.266**	1.895	0.508	0.901	**9.856**	0.001	1.998
I04					0.092	0.23	1.437	1.07	0	1.385	1.067	0	3.433
I05						0.641	0	1.73	0.216	0	0.005	**4.194**	0.999
I06							**12.478**	0.007	0.993	0	**15.838**	0.761	**5.379**
I07								0.011	0.036	0	**9.852**	0	0.107
I08									2.105	0.02	0.002	0	1.767
I09										0.407	1.391	0	1.705
I10											**8.533**	3.737	1.061
I11												1.451	2.355
I12													0.989
I13													

* The variables are presented in Table 2.

Table 4 shows the matrix of the chi-square test for input–output variables. There are only two pairs of dependent variables (I08, O04) and (I10, O04): "Underestimation of needed time" is dependent only on "Interruptions from family-members/roommates" and "Project management software".

Table 5 illustrates the matrix of the chi-square test for input–outcome variables. On one hand, there are some outcome variables—"Good concentration", "Good system response time" and "Inefficient planning"—that do not depend on any input variables. On the other hand, "Social media platforms" is dependent on seven input variables.

Table 6 presents the matrix of the chi-square test for output–output variables. There is only one pair of dependent variables (O02, O04): "Task less difficult than anticipated" and "Underestimation of needed time".

Table 4. The matrix of chi-square test for input–output variables.

Variables *	O01	O02	O03	O04
I01	0.25	0.055	0	0.361
I02	0	0.085	0.007	0.546
I03	0	0.002	0.006	0
I04	0.043	0	0.256	0.299
I05	0	0.002	0.226	0.027
I06	2.07	2.833	0.101	0.514
I07	1.705	0.06	0	1.49
I08	0.589	0.168	0.457	**4.429**
I09	1.328	0	0.367	0.085
I10	0.787	0	0.071	**6.459**
I11	1.898	0.006	1.696	0.293
I12	0	0.173	0	0.164
I13	1.551	0.32	0.254	3.726

* The variables are presented in Table 2.

Table 5. The matrix of chi-square test for input–outcome variables.

Variables *	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14
I01	0.809	**4.36**	0.389	0.761	0	0	0.506	0	1.799	0.258	1.386	0	1.848	0.036
I02	0.644	**7.986**	0.007	2.378	0.027	0.103	0.971	**6.619**	7.82	1.414	**8.289**	0.887	2.98	**8.377**
I03	**6.587**	**4.56**	0.32	**8.994**	0.304	0.129	0.148	**15.529**	**17.291**	0.004	1.984	**18.479**	1.579	**13.705**
I04	1.134	2.374	1.26	0.266	1.784	0.1	**7.167**	1.546	0.404	0.067	2.954	**6.941**	0.432	**4.917**
I05	0.092	1.421	0.092	1.599	0	0	0.226	0	0.601	0.012	0.407	0.336	0.147	1.664
I06	0.096	**6.255**	0	2.234	0.202	0.15	3.112	**10.825**	3.47	1.743	**5.931**	**17.088**	**6.26**	**17.898**
I07	**7.681**	0.595	0	2.786	0.271	0.21	2.236	9.13	2.424	1.363	0.081	**3.978**	0	2.786
I08	0.385	0.702	3.168	3.017	2.035	0.731	0.213	1.824	0.105	2.232	0.415	**4.882**	0	0.074
I09	1.2	3.531	0.003	0.206	1.001	1.098	0.062	0.423	2.076	0.359	**7.373**	0.242	1.827	0.007
I10	0.763	1.32	0.014	3.75	0.147	1.044	0	4.917	0.52	0.408	0.085	1.001	2.604	0.277
I11	0.025	**9.169**	0.187	**6.122**	0.709	1.007	**5.463**	**27.67**	**20.482**	1.272	0.105	**25.241**	**4.264**	**16.237**
I12	1.057	0.209	0.087	0.027	0.174	1.819	0	0.268	0	**7.831**	**4.533**	**6.203**	0.052	**4.833**
I13	0	0.083	0.002	0.344	0.057	0.159	0.002	1.778	2.355	0	1.887	2.185	**5.308**	0.29

* The variables are presented in Table 2.

Table 6. The matrix of chi-square test for output–output variables.

Variables *	O01	O02	O03	O04
O01		1.008	0.705	0.093
O02			0.846	**6.11**
O03				2.027
O04				

* The variables are presented in Table 2.

Table 7 illustrates the matrix of the chi-square test for output–outcome variables. There are three pairs of dependent variables (O01, R04), (O03, R09), and (O03, R10): "Overestimation of needed time" is dependent only on "Good planning" and "Underestimation of needed time" is dependent on "Note-taking application" and "Poor response system time".

Table 7. The matrix of chi-square test for output–outcome variables.

Variables *	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14
O01	0.905	0	1.049	**7.726**	0	2.409	1.462	0.073	0	1.47	0.012	0	0	3.048
O02	0.377	0.137	0.672	0.273	0.441	2.02	3.043	0.318	0.166	0	0.488	3.537	0	0.273
O03	0.256	0.75	0.098	2.37	0.829	0.117	0.305	0.189	**4.122**	**4.714**	0.394	1.274	0.633	0.618
O04	0.006	0.475	3.683	0	0	0.071	0.018	0.261	0.008	0.006	1.149	0	0.447	0.872

* The variables are presented in Table 2.

Table 8 presents the matrix of the chi-square test for outcome–outcome variables. Based on that, we may assume that there are some outcome variables—"Employee monitoring software/team time tracking application", "Good system response time" and "Team collaboration software"—that do not depend on any other outcome variables. However, "Employee rewards tool" and "Unplanned tasks" are dependent on six outcome variables.

Table 8. The matrix of chi-square test for outcome–outcome variables.

Variables *	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10	R11	R12	R13	R14
R01		2.032	0.512	0.094	0.276	0.7	0	0.002	0.404	0.432	0.488	0.01	0.263	0.961
R02			0.336	5.224	0.383	0.01	0	**11.551**	**19.792**	**5.554**	3.201	**16.204**	0.071	**9.529**
R03				**19.186**	0.366	1.366	**27.686**	1.303	1.565	**9.214**	3.392	0.153	0.153	**7.246**
R04					0.115	**18.055**	**6.785**	0.524	1.2	0.055	0.981	**6.766**	0.453	**12.24**
R05						0	0.829	0.508	0.709	1.717	2.565	0.252	0.002	1.819
R06							**6.039**	**7.695**	1.007	0.55	0	0.066	0.013	0.061
R07								0.442	1.551	0.119	**8.079**	0.126	0	1.205
R08									**40.122**	0.822	1.637	**19.565**	0	**15.692**
R09										**5.521**	2.806	**17.428**	0.303	**16.237**
R10											**5.063**	0.665	0.582	0.619
R11												0.959	0.461	0.165
R12													0.165	**42.479**
R13														1.182
R14														

* The variables are presented in Table 2.

4.2. Telework Analytical Framework: The Employees' and Managers' Perspectives

4.2.1. Telework Inputs

Figure 2 illustrates how employees rated input-related factors categorized as resources availability, digital infrastructure, and professional relationships. As expected, in a virtual workplace, items from digital infrastructure are the most highly rated, followed by input factors related to resources availability.

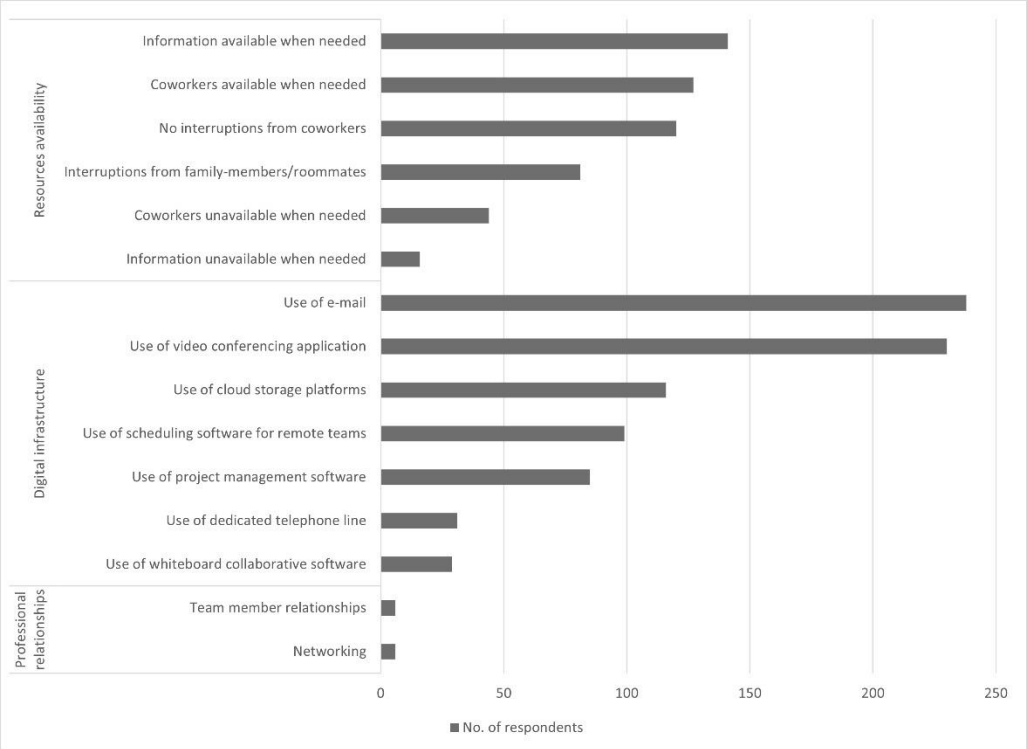

Figure 2. Telework inputs.

Resources Availability. Figure 2 shows that more than half of the respondents perceived availability of information and coworkers as primary telework enabling factors. Employees underscored no interruptions from coworkers as a key telework input, in contrast with working in a shared space area where employees could interact more easily. Similarly, other researchers [46] reported an enhanced ability of employees to focus on job responsibilities through reduced interruptions from coworkers. Irrespective of the coworking space (office, virtual), other findings [37] indicated social features including professional relationships as the most highly rated input. Telework inputs may also negatively impact both employee perceptions and manager beliefs. During telework, many individuals work in the same space where their family members live. Because of lockdown measures, the pandemic period has completely changed work context and employees' perceptions, as adults and children remain at home much longer than accustomed to.

Managers noticed an opportunity to gain more time to accomplish their responsibilities and reach their goals while teleworking. According to several managers interviewed, the lack of disruptions and interruptions aids efficient task planning and enhances concentration.

> "There were less interruptions, and it gave me time to do good planning". (BM3)

> "It's being able to concentrate a lot more, being able to have less disruptions, [. . .] being able to be in control of them". (BM4)

> "And there may be also no interruptions from coworkers, because when we were in the offices, it was very easy for others to ask questions—it didn't depend on the time or on what you were doing, [. . .] now you can use the 'do not disturb' option on the application and you can concentrate and focus on what you are working on in that moment". (BM2)

Digital Infrastructure. During telework, email and video conferencing or group calling applications are the most used instruments to interact, as almost all employees surveyed reported (Figure 1). The studies from the field also indicate that email is the most commonly used tool for written communication and video conferencing instruments replacing face-to-face communication [47].

All work activities faced the shift to a digital environment, since scheduling software and project management software are digital infrastructure components that employees usually work with. This might be evidence that the telework model is reshaping the world of work, increasing transparency and accessibility for the workforce.

Managers acknowledged more difficult communication when using digital tools than while being present in the office. Video calling applications and team collaborations software are the commonly used digital technology tools to engage managers with their coworkers when teleworking. Executives perceived digital technology as an effective setting to better manage business projects. For instance, project management software keeps track of working activities and cloud storage platforms ensure a smooth process of certain operational tasks.

> "[. . .] we have our internal project management software that we use, in which we keep progress; cloud storage platforms have been used a lot, because if we are creating remotely, we review it often and come back as post production". (BM3)

Although video conferencing applications are critical while teleworking, managers lacked informal conversations and noticed inefficiency in planning meetings because of a high demand to collaborate between different teams with different members within the company.

> "There are a lot of discussions that are happening outside the official meetings which are no longer heard because we are at home". (BM1)

> "[. . .] once you are sitting with a lot of people in the office, that gives you the scope of understanding the other people's perspective as well and giving my perspective back. At these times this is not happening . . . ". (BM3)

Professional Relationships. Most employees working remotely revealed a poor quality of professional relationships, choosing statements such as: "lack of relationships with coworkers", "poor interactions with my coworkers", "poor contact with people", "poor engagement with my peers", "poor connections", "no real contact with coworkers". Similarly, the authors of [14] stated that employee well-being may decrease due to lack of social contact. Sewell and Taskin [48] found that due to lack of face-to-face interactions, relationships between employees may deteriorate.

Managers perceived a negative impact of coworkers' unavailability when decisions need to be taken. One of the interviewees emphasized the benefits of physical presence in the workplace, particularly during executive meetings.

> "It's somehow beneficial to be in person [. . .] especially for executive decisions . . . where some of the decisions are taken in the meeting room but others are taken also outside the meeting room. So, not being able to socialize and engage with my fellows—this would be probably something that I would highlight as a downside". (BM4)

Likewise, the authors of [49] asserted that activities requiring close collaboration and decision-making might be difficult to transition in a digital workplace.

A virtual coworking space is a facilitative environment for communication that increases impact on work collaboration and achievement of shared goals. Working in international teams, all the interviewed managers grasped telework as an opportunity to bring people together and receive feedback more easily than could happen in the office.

> "I think this new context is helping a lot more . . . if the whole company works remotely, then all the interactions happen virtually, and I could be part of it a lot more than I could have been otherwise". (BM4)

> "I've noticed that my coworkers were giving feedback related to a specific matter quicker during remote work than when we worked from the office". (BM5)

4.2.2. Telework Outputs

The results summarized in Figure 3 suggest that telework outputs were primarily related to knowledge exchange and work–life balance, as reported by employees.

Knowledge Exchange. Overall, the results summarized in Figure 3 suggest underestimation of needed time and tasks more difficult than anticipated were the outputs most indicated by the employees as affecting the achievement of their goals during telework. Only less than 10% of the respondents thought that the tasks were less difficult or needed less time.

From the management perspective, the most important aspect of knowledge exchange was the underestimation of needed time, identified in the relationships with the company's stakeholders.

> "Underestimation of needed time was definitely a problem, because [. . .] the third-party stakeholders or internal stakeholders have considered that during the lockdown there are no working hours. [. . .] Then it's the extra-expectations that you have to work on, Saturdays or Sundays . . . because it's a teamwork, if somebody needs something from my team then I need to ensure that rest of my team members are going to be designing content for that person; they will also need to work on the delivery so we can get things in time". (BM3)

Work–Life Balance. Employees mentioned flexibility of the new work model and the time saved for their personal life: "the ability to work from any city", "saved time as I do not have to travel to my workplace", "no time spend going to work—saved almost 3 h per day", "flexibility and saving time on traveling which is used now for productive work", "flexibility in solving tasks", "less time spend commuting", "more time for personal life", "arranging personal and professional responsibilities better". They also noted an increased creativity and a more effective use of technology: "more creativity during work from home", "better use of technology", "more tools that I could use". A significant level of employees' concentration was also reported due to flexibility and self-control over the work tasks [50].

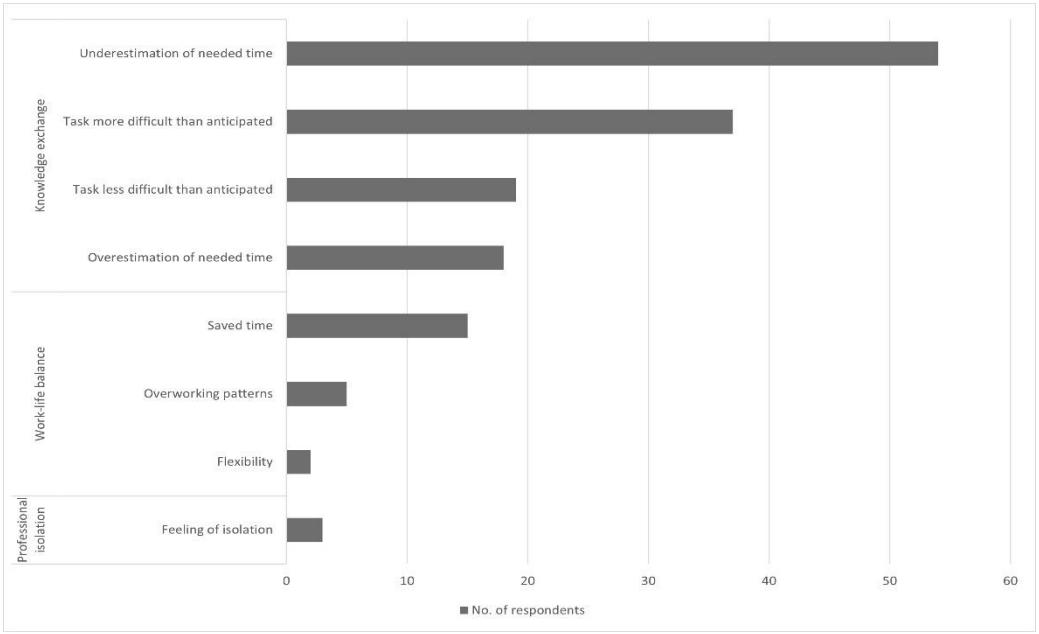

Figure 3. Telework outputs.

Managers perceived an improved work–life balance, as employees could use the saved time for other purposes. Access to technology that allows people to be at work in a matter of minutes added to the benefit of being able to disconnect from the work program faster.

> "[. . .] they are not spending time on going to the offices and coming back home. This may be one of the aspects important for the people. And I think the fact that they are allowed somehow to make their own program [. . .] because some of the people prefer to start earlier and to finish work also earlier and this is also a benefit". (BM2)

> "I work more but I disconnect quicker". (BM3)

Telework is perceived as a time-effective solution that helps managers perform their activities without wasting time in traffic to commute between home and office. As this was also seen as an advantage for employees, people are more comfortable with telework. Companies will need to accommodate employees' preference to work from a distance on a long-term basis, as it may be less likely for them to choose to return to old habits of spending time commuting, especially in the case of living in big cities.

> "If I am not travelling, staying at home, I am saving more than 1.5 h of the day easily only on travel [. . .] then a lot of other things which I can do, so definitely good planning happened". (BM3)

> "People in my industry won't go back to that especially in London, people have to commute for hours (for about three years I've done 1 h and a half to commute each way to my previous workplace) and I don't think people are willing to do that anymore, especially in this industry, so everyone being back in the office is not going to work". (BM4)

Other perspectives of the managers emphasized the importance of offering employees more flexibility to manage their work responsibilities and more time for their personal lives.

Professional Isolation. Although few, employees also mentioned the feeling of isolation and distinct challenges regarding work–life balance as negatively affecting their work productivity. Some employees also stated "no sense of time", "receiving more tasks during work from home", "more distractions", "nervousness and lack of work–life balance", "lack of teamwork". Findings from the literature confirm that social isolation and overworking trends within the digital workplace may have a negative impact on employees' work performance [17,51].

Business managers addressed the professional isolation output, highlighting the unfavorable aspects of working in a digital workplace. The lack of interaction restricted them to reach their goals or to build interpersonal relationships with their employees.

> "Another negative factor that I consider that is impacting our goals and our work is the missing human interaction". (BM2)

Physical presence was essential to monitor and check employees' work when people used to work from the office.

> "[. . .] I think that the building block of my management style is managing by walking around so I can interact with people, checking in on them [. . .] And I would not say that this is not possible remotely but certainly it comes with some challenges that would not have been otherwise in the office". (BM4)

However, telework brought advantages for the business itself, while the workforce experienced the feeling of being isolated. Some employees were challenged to set up an office space at home or share it with other family members.

> "[. . .] and another impact was [. . .] was the feeling of being isolated. People started feeling anxious sometimes of the pressure maybe from now and then, especially for people who are living in really small places [. . .] also it has been exceptionally challenging for employees with kids". (BM5)

4.2.3. Telework Outcomes

Figure 4 indicates high frequencies for the outcome-related factors identified by the survey respondents. Specifically, while teleworking, employees reported, to a large extent, outcomes related to hybrid work model, innovation, and business opportunities.

Hybrid Work Model. A number of aspects identified by respondents as preventing them from achieving their goals while teleworking may be seen as outcomes, suggesting future opportunities for the entities to design and develop a hybrid work model for the post pandemic period. An extensive study conducted by McKinsey and Company [52] with 5000 employees supports the idea that a new, more effective work model needs to be experimented. The lessons learned during the pandemic, in terms of policies, practices, working norms, or collaboration technologies may help companies to change and evolve. Unplanned tasks and problems with working systems were the primary reasons identified by more than half of the participants as limiting the accomplishment of their work tasks during telework. Another highly chosen factor was the poor response system time. In contrast, the lack of concentration and inefficient planning are less frequent in the employees' answers.

These findings denote a list of enabling factors that companies may use in their endeavor of changing the work environment. The in-depth analysis conducted via interviews supported the aspects identified by the employees. Furthermore, the managers complemented the list of the outcomes with inefficient planning and lack of concentration.

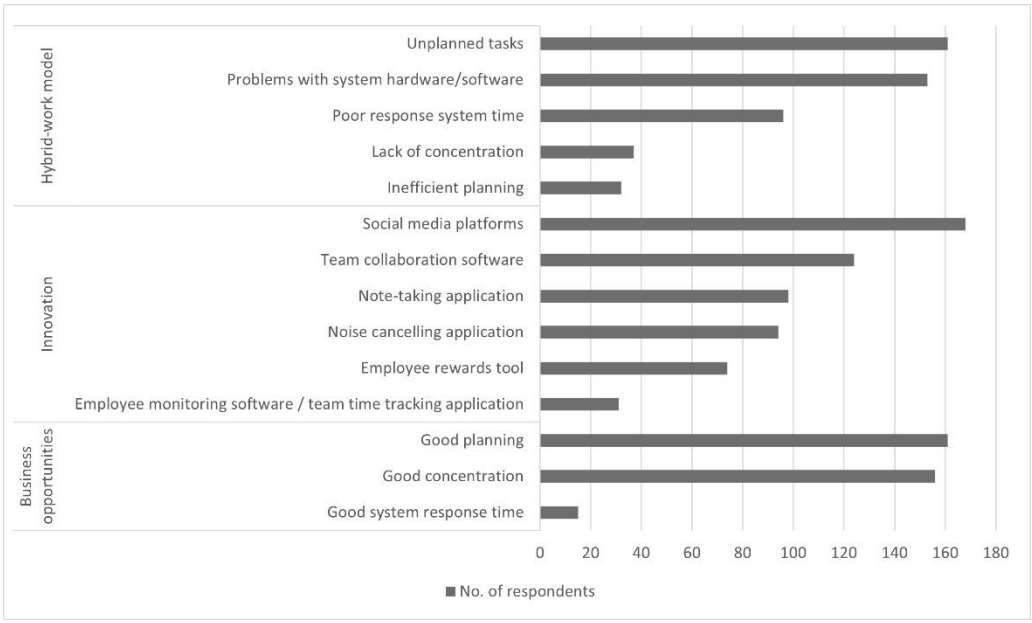

Figure 4. Telework outcomes.

The decrease of team productivity was one of the concerns while teleworking, generated by inefficient planning and unplanned tasks.

> "I think that we are not that efficient as we were when we were together in the office and maybe, probably it's getting a little bit difficult for us to estimate the time needed to resolve some tasks because of those unplanned tasks". (BM2)

Another concern mentioned by managers was the lack of organizing at the beginning of implementation of the new work model.

> "[. . .] will be unplanned tasks because the things which we planned were rough not happening in the beginning, in the first few months". (BM3)

The unplanned tasks were also challenging remote managers in terms of overworking patterns that need to be considered in the new, hybrid work environment. One of the business managers mentioned that during telework when the quarantine period was instated, both internal and external stakeholders had higher expectations and demanded delivering extra work.

A potentially interesting contribution generated by the hybrid work outcomes, identified by both employees and managers, may be the suggestion to put in practice specific competencies in order to overcome overworking behaviors and avoid employee burnout.

> "[. . .] they have really considered that during the lockdown there are no working hours, there is no start time, there is no end time, there is no weekend . . . Everyone was working. We worked 7 days per week for the first 3, 4, 5 months all together". (BM3)

Similar findings were reported by [46] who noted time management and unanticipated workload as challenges posed by the new work model.

Another two outcomes, frequently identified by employees, were brought into the discussion by the managers. These refer to problems with systems hardware/software and poor response time. The ideas raised by managers led towards the importance of including digital technologies in the hybrid work model to overcome the aspects identified as preventing the employees from achieving their goals while teleworking. For example, BM1 mentioned that due to the fast transition to the new work model, the company did not have adequate time for establishing a digital infrastructure.

> "[. . .] because the work from home was moved so quickly during the pandemic, we still have issues with system hardware and software". (BM1)

Other authors also emphasized the importance of offering technology-based business solutions to employees to ensure similar productivity as when they were working in the office [53]. This suggests that implementing efficient technology infrastructure and reliable technology-based solutions for telework are essential in the business innovation context.

A different approach managed to accommodate telework practices with the physical presence of coworkers by providing a work camp. A hybrid strategy to ensure workers productivity and achieve team collaboration is a great initiative from which employees may want to take advantage. This approach may ensure the sustainability of the new work model by introducing in the corporate campuses such opportunities to meet with coworkers just for a period of time, when employees can set working goals and make decisions.

> "Probably other tech companies are becoming more like camping around where you maybe go for a week. We do that, I do that in the Silicon Valley, [the company] has those type of offices, with flats and all the infrastructure that I need to feel like home when I am there and I think that's going to happen more [. . .] that offices will become more that boot camps where you go for a week, two weeks and kind of get down with something; then you go back home and work remotely". (BM4)

Innovation. Various aspects of employees' access to digital technology were identified as innovation-related outcomes. To a large extent, employees acknowledged the use of social media platforms and team collaboration software while teleworking. The evolution of new technologies facilitated the creation of distributed teams; therefore, an efficient telework model requires digital solutions to encourage teamwork. An important number of respondents also chose more specialized digital tools such as note-taking, noise canceling or employee rewards applications. Social media platforms are generally used to improve employee engagement and maintain a sense of belonging within a professional group [54]. Moreover, the authors of [55] stated that productivity is influenced to a great extent by social connectivity.

From the management point of view, another telework outcome that may contribute to the innovation process was the employee monitoring software, also used to track productivity and work accomplishment timeline.

> "We use OKR software [Objective and Key Results software] and thus we have key results on our productivity that we measure [. . .] It basically tracks how effective we are at writing software and the reason for that is not to monitor team members but to figure out if there is any tool that we are missing". (BM4)

In terms of employee motivation and engagement, managers used digital tools for rewards and recognition as well as social media platforms, which may be the new contribution to the innovative business environment, after the pandemic period ends.

> "[. . .] employee reward tool—yes, we use it as I mentioned earlier, we had that appreciation week, in which we used the employee reward tool". (BM3)

> "We are using [social media platforms] more for networking and somehow for keeping a good vibe in the team". (BM2)

Managers also raised the need for finding digital tools to include in the telework environment the benefits of working in an office. Specifically, the private conversations that aim at developing interpersonal relationships are missing in the digital workplace and it negatively influences social connectivity.

> "Yes, working in office is definitely making a difference . . . because you can express more when you are in front of your supervisors rather than telling them something on email or telling on the phone call or on the video call". (BM3)

> "It does affect us, the private conversations, the discussions that we have and also the discussions that we have during breaks". (BM1)

Business Opportunities. More than half of the participants perceived that they could plan their time better and concentrate better, providing a higher productivity by focusing on their task while teleworking. However, less than 20 respondents identified a good system response time as a benefit of telework. Time management improvement was also found to be a positive telework factor in the research of [17,56].

Supporting employees' opinions, managers identified similar business opportunities as deriving directly from telework activity. Thus, good planning of the work tasks was linked with better job autonomy and less time spent on certain activities. Specifically, it also helped improve the work productivity at managerial level. Managers were able to finish more tasks while teleworking, as compared with their activity working in the office.

> "I think good planning because you have bigger ownership over your work being alone, being independent. Being able to organize your work is a plus and also because you are not interrupted every time, you tend to spend less time on your tasks". (BM1)

Managers also identified good concentration as another incentive for increased productivity seen as a business opportunity.

> " . . . you can concentrate and focus on what you are working on at that moment". (BM2)

4.3. Telework Systematic Model

This study provided an important opportunity to advance the understanding of how a telework model works and what are the main pillars on which it is based. Taken together, the results suggested that there is a need to address telework inputs, outputs and outcomes as primary organizational dynamics factors that influence the work model success. Figure 5 presents the Telework Systematic Model which draws upon theories underlying telework challenges and on the findings of this study.

First, the expectancy theory mainly related to telework motivation lies upon the need of a policy to support the work model implying both technology and resources availability as telework inputs. In order to achieve a positive impact on the employees' commitment, companies need to provide efficient organizational tools which can increase employees' perceptions that their efforts will generate the desired results. Second, the boundary theory contributed to our understanding regarding outputs of knowledge exchange and organizational behavior developed due to telework practices. Thus, an effective development of such a model depends on organizational subcultures management that may imply established procedures to bring confidence in the workplace contributing to less physical, temporary or psychological boundaries. Third, based upon the control theory, telework outcomes are centered on the alignment between business objectives and employees' activities. Thus, in order to achieve work performance at both team and individual levels, teleworkers should use adequate productivity, communication, organizational control or work efficiency and planning tools. Finally, considering the social exchange theory which is founded on connecting telework practices with organizational benefits through a mutually

rewarding exchange, the impact of the telework model can be measured through this principle of reciprocity. A trust-based employee–manager relationship, initiatives for increasing work–life balance as well as the use of work collaboration technologies may guarantee a positive impact on the workforce such as improved job performance and positive attitudes towards work.

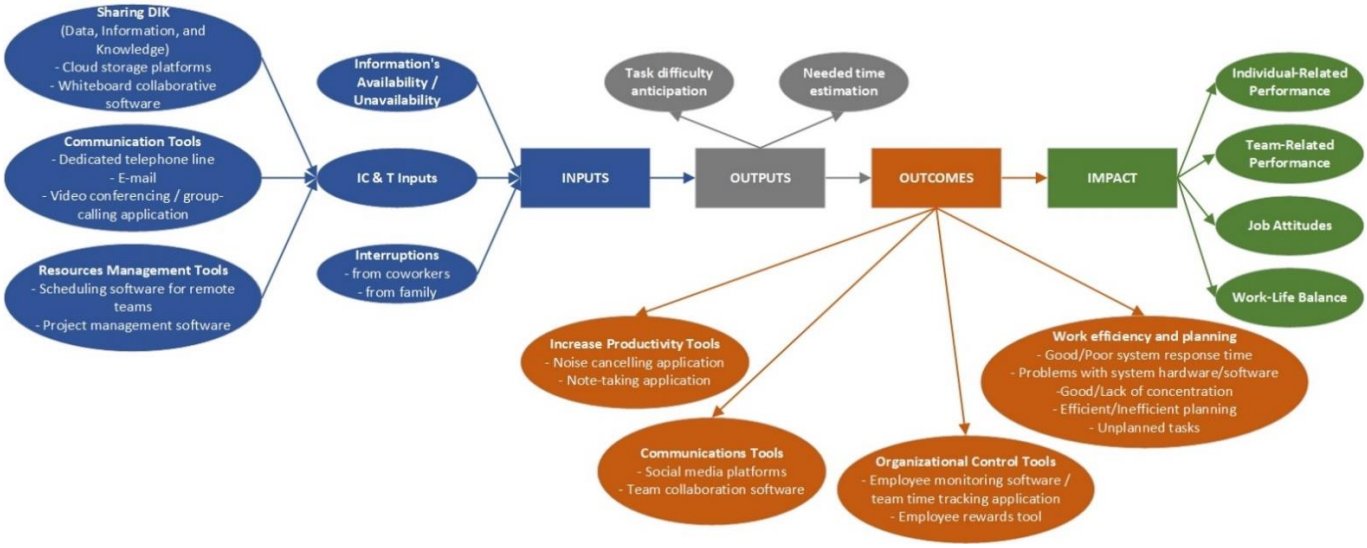

Figure 5. Telework Systematic Model (TSM).

5. Discussion and Future Research

5.1. Organizational Leadership Implications

Telework is one of the important factors that may change the future of work as well as the way in which organizations begin to rethink their business strategies. Moreover, telework has recently challenged team leaders mainly in terms of collaboration and work goals achievement while using digital technologies. Through the study results, certain future research opportunities have been identified that may assist companies to develop a successful telework model. Additionally, business managers disclosed some of the lessons learned from their distance management approaches, i.e., that it was an opportunity to move forward the debate of telework and develop a better understanding of this concept.

Telework inputs and the factors analyzed related to resources availability, digital infrastructure and professional relationships represent an important issue both for future research and organizational leadership practices. Moreover, managers debated the importance of experiencing telework before the pandemic started, as this may be an advantage of an early process of adapting to change. A greater focus on digital infrastructure development within the telework context could give rise to interesting findings that account more for how prepared companies are to support such a different work model on a large scale and on the long term while ensuring business efficiency. Teamwork dynamics need to be closely observed by leadership to ensure team cohesiveness through the use of digital technologies by promoting face-to-face communication with video conferencing, offering coaching sessions or scheduling regular team meetings. In terms of professional relationships, managers debated the importance of trust and two-way communication as essential factors that may ensure telework productivity and effectiveness. Similarly, Beno [57] stated that management responsibilities shifted in the context of virtual work and there is need for more feedback, support and trust-based relationships development. In further research, social interaction could be a means of better understanding of how networking may become an important criterion for assessing workforce behavior. Managers need to develop connections with their employees in the lack of physical presence to support high-performing virtual teams. Future studies may investigate the association of

communication approaches within distance management practices and work goals achievement. Thus, transformational leadership may have a positive impact on work productivity as employees may be encouraged to easily embrace the telework challenges by promoting a communication-oriented culture.

5.2. Human Resources Management Implications

Output factors examined revealed important aspects that should be considered in future telework research and considered by human resources managers. As employees experienced professional isolation during teleworking, the high productivity rates and increases in quality of work may need to be favorably balanced with protecting and supporting employees' well-being. Thus, there is abundant room for further progress in determining the importance of encompassing employee healthcare and wellbeing strategies into the work model. On one hand, in terms of research practice, questions that could be asked include how organizations may ensure their workforce builds resilience in changing times. On the other hand, in terms of business practice, human resource managers are being challenged to find actual solutions to adapt the organizational culture to the virtual environment in order to attract and retain talent as well as to nurture employee engagement. Based on the research findings, managers emphasized the work model flexibility as being an important factor that may influence professional lives regarding time management. Using their time for other purposes as well as disconnecting from work faster are the main advantages perceived by the workforce. According to a recent study [58], more than 75% of employees said they do not want to go back to full-time office work, while a greater percentage ask for flexibility in where and when they work. Future research should focus on how employees' needs may define the new work model and what are the implications for companies that are rethinking their returning to office strategies. Thus, a human resource management strategy may need to be adjusted in terms of work flexibility to reflect the changing demands of the workforce. In addition, adaptable rewards and recognition programs may contribute to employee motivation and commitment, as new generations' behaviors are reshaping the workplace.

Furthermore, human capital development is seen as a key business opportunity. The virtual work model came with many challenges and one of them is related to new skills required. The new managerial requirements were also emphasized by [59] in terms of planning and organizing as well as acquiring new skills. Human resource management may be an important factor of organizational change. More broadly, research is needed to determine how the remote work recruitment landscape is challenging businesses and what are the new approaches to manage talent in the virtual workspace.

5.3. Organizational Change Implications

Outcomes factors regarding the hybrid work model, technology innovations and business opportunities represent a solid foundation for future studies that may give rise to organizational change implications. The negative factors affecting work goals accomplishment were mainly related to unplanned tasks or certain issues with the available digital infrastructure, e.g., problems with system hardware/software, poor response time. Companies moved from business continuity plans to new approaches on how to make effective organizational changes to cope with the pandemic context, and eventually to implement a hybrid work model. They are being challenged by the diversity of factors that need to be considered when implementing such a work model, as they have to adapt to new policies and procedures.

On one hand, small companies have been challenged to adapt to a new working environment without having a strong digital infrastructure or prior digital collaboration experience in comparison with larger companies. Thus, they needed to develop a telework strategy in order to ensure business continuity. If organizational needs are properly assessed, then small companies may achieve performance management and develop a collaborative working environment through basic digital technologies. On the other hand,

larger companies had to strengthen their telework model by strategically aligning several departments and functional teams. This may imply the use of more complex digital technologies. For example, employee rewards software may help companies reinforce their values and motivate workers to continuously contribute to organizational objectives; or, monitoring software may allow checking work timelines and track productivity for different remote teams. However, enhancing digital infrastructure through different means may give rise to new concerns in terms of technology use during teleworking and how companies should implement solutions without detrimental impacts on their workforce. A recent study emphasized technostress, a negative impact of technology on employees, that may be a management priority in today's workplace [60]. Consequently, another possible area of future research would be to investigate distinct dimensions of technology use, other than as a facilitator of telework. Other findings also concluded that telework is not solely centered on the adoption of relevant technology, but it covers a wider scope of work practices and relationships [61]. Therefore, regardless of company size, telework triggered organizational change on different levels. The new work model made companies realize that their culture, performance management and the work itself need to be transferred to a digital environment in order to ensure business resilience.

In the post-pandemic period, telework is expected to continue on the premise of its significant development, generating future research opportunities in the long-term relationship with sustainability outcomes [62].

6. Conclusions

This study contributed to the developing field of telework research by providing a systematic research model of generally applicable work dimensions that may assist future initiatives to analyze the impact of telework on the future of work. It addressed current challenges in managing teleworkers and included practical insights for both employees and managers. In addition, the proposed model provided evidence on distinct business practices that may be associated with important workforce challenges that might impact the organizational strategy. The results of the study are of interest mainly for the business operations segments, such as marketing, supply chain, logistics, accounting and finance, human resources, quality, and other activities that could be performed remotely, using digital technology.

The analysis of telework practices undertaken has extended our knowledge regarding the digital environment requirements. We found that resources availability and digital infrastructure efficiency are the primary enabling factors identified as telework inputs. The main telework challenges were found through the analysis of output elements. The results indicate that knowledge exchange influences work goals achievement. Moreover, employees perceive telework as an enabler for flexibility, time saving, increased creativity and more effective use of technology. However, the feeling of isolation creates distinct challenges that negatively affect work productivity and deteriorate professional relationships. The results of this research also support the idea that the knowledge gained from the pandemic in terms of policies, telework practices and collaborative technology may assist companies in changing and evolving. Unplanned tasks and problems with working systems were the identified factors that companies may use in their endeavor of changing the work environment. Additionally, to achieve alignment between business objectives and employees' activities, adequate digital tools should be made available. Outcomes related to the hybrid work model, innovation, and business opportunities may change the work environment, suggesting to put in practice specific competencies in order to overcome overworking behaviors and avoid employee burnout.

The new work model challenges companies to realize that organizational leadership implications, human resources management implications, and organizational change implications need to respond to the trends of digital technology in order to ensure business resilience.

Telework impact on organizational leadership may further be investigated, as the new work model directly influences their responsibilities. Leadership practices are vital to ensure the successful implementation of a telework model.

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