"Does it work?" A case study on Virtual Teams adoption for service delivery during and post Covid-19.

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Abstract

Over the last decades, virtual working methodologies have considerably changed the way businesses think, design, and deliver their services to customers. Moreover, the Covid-19 outbreak has forced them to reorganize internal processes to survive the crisis. Therefore, this contribution goal is to investigate to what extent the use of Virtual Teams (VTs) resulted effective in coordinating activities during and after the Covid-19 lockdown, to deal with the lack of face-to-face interaction for service delivery. An in-depth case study analysis approach has been adopted to mix ethnographical data with semi-structured interviews to some business services organizations. This work aims to nourish the academic debate on the main benefits and threats on VT adoption within organizations. A resulting classification of the main issues concerning VTs can support the use of VT as quality vector of service delivery.

Keywords

Virtual team, organization, service delivery, working methodologies, Covid-19

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1. Introduction

Over the last decades, organizations went through significant changes in the way they operate in worldwide markets. Digitization (Leonardi & Treem, 2020) has allowed firms to internationalize and improve their viability in a global scenario (Hannibal & Knight, 2018). Firms' competitiveness derives from their capacity to be innovative in their product, services, and processes (Juergensen et al., 2020). With the advent of globalization and technological innovation in motion, other external organizational factors spurred the introduction of numerous advanced working methodologies in teams (Wageman et all., 2012).

The Covid-19 pandemic forced to some extent businesses to make use of these new working methodologies to both better coordinate their internal processes and to still deliver their services despite the outbreak restrictions. In fact, managers were called to accurately assess how this disruption affected the customers - organization relation (Klaus and Manthiou, 2020; Tuzovic and Kabadayi, 2021). Furthermore, growing importance is given to how service provision has been guaranteed during and after the lockdown (Kabadayi, et al., 2020; Seetharaman, 2020).

To date, Virtual Teams (VTs) are a widespread form of work, and organizations are increasingly adopting them to carry out innovative and knowledge-intensive activities (Kimble, 2011). Literature addresses VTs for their main characteristics, such as their members' geographical distribution over space and time (Bosch-Sijtsema, 2007), the extensive use of technology as the main means of interaction (Townsend et al., 1998); the organizational, multidisciplinary, and cultural heterogeneity (Ocasio & Radoynovska, 2016) of their members. Recently, research interest in VTs has spread because of their increasing diffusion in organizations, also due to new technologies developments and current socio-economic threats (Kanupriya, 2020). Therefore, VTs effectiveness analysis is placed under the magnifying glass from both scholars and practitioners. The identification of which critical success factors (CSFs) impact on VTs performance is pivotal to draw an overall picture of the rationale that leads the organization to achieve or fail its goals. Nevertheless, despite the credit that scholars largely pay to internal organizational criteria (leadership, trust, communication, and so forth) as the most important to be addressed to justify VTs adoption success, also trends on service delivery and on innovation due to new working methodologies are emerging in the current debate. *Inter alia*, service innovation has always been crucial in business differentiation and growth, nevertheless it has been strategically conceived by top organizational managers in a medium-long term period (Helkkula *et al.*, 2018; Feng *et al.*, 2020). Meanwhile, a crisis like the pandemic one shifted "*the emphasis from discretionary to forced activity, to ensure the organization's survival and resilience*" (Heinonen & Strandvik, 2021, p.102). Hence, in general, the adoption of new working methodologies such as VTs, IT, and innovative ways to ensure service delivery should be addressed because were imposed by the pandemic and not as an organizational choice.

Accordingly, the aim of this paper is to explore the adoption of VT as imposed mean to survive the crisis within service firms to understand, on the one hand, which organizational levers have positively or negatively impacted organizational performance; on the other, to explore how the use of VT has been helpful in ensuring customer relationships and the same quality in service delivery (Huang & Farboudi Jahromi, 2021) during the pandemic. To reach this goal, a specific qualitative analysis protocol (third chapter) including semi-structured interviews was employed and submitted to three organizational levels (top, middle managers, and employees). Answers were analyzed, synthesized, and discussed (fourth chapter) to answer the research questions that emerged from the literature, and illustrated in the second chapter. Conclusions and further research perspectives will follow.

2. VT literature review

2.1 VT overview

VT is a particular working group made up of professionals globally distributed, who adopt predominantly, if not exclusively, virtual communication technology software (Chinowsky & Rojas, 2003). Henry & Hartzler (1997) defines a VT as a group of geographically dispersed people, who may belong to the same or to different organizations, who collaborate to achieve common goals, using technologies to support communication and coordination of their work. This definition is enriched by Maznevski and Distefano (2000) introducing global teams, i.e., teams from different organizations collaborating with each other to reach organizational goals (Cascio, 1989) without face-to-face (FtF) communication. Teams that rarely or never have FtF contacts and that communicate exclusively using technology (Ahuja et al., 2003).

VTs overcome the time, space, and organizational boundaries of traditional teams (Ale Ebrahim et al., 2009; Powell et al., 2004). Thus, they are flexible and efficient because driven by information and skills improvement. In fact, since VTs members are often placed in various locations, networks of communication technologies are required to overcome those limitations, as well as the know-how to make use of them.

VT adoption discloses significant economic advantages for organizations. Firstly, to cancel any transfer costs and face-to-face meetings, still managing to pursue their aims. Furthermore, significant reductions of the stress for team members for reaching the workplace and better management of their work life. Moreover, firms increase efficiency in reaching their goals, making use of employees' knowledge, skills, and expertise (Wellman et al., 1996). Even though this teaming is widely adopted by new flexible and digital organizations, who grown up using IT, it hides some threats. The lack of face-to-face interaction can lead to a lack of trust (Pinjani, & Palvia, 2013), weak communication and coordination, and poor accountability. Undoubtedly, a team's success, whether virtual or not, depends on its members. Technology can be useful to shorten distances, but it is the manager's duty to ensure that relationships are viable and that everyone feels important, as well as to keep productivity high (Hertel et al, 2004). Being far from each other affects VTs members with various socialization and interpersonal problems. Hoegl et al. (2007) argue that collaboration and teamwork are directly proportional to distance: the more it increases, the more becomes critical. That is the reason why communication plays a crucial role: if VTs are not supported by a good connection and IT skills, information exchange is impaired (Chen et al., 2006). Therefore, organizations are forced to provide employees with adequate training. Further problems concern the lack of trust. According to Zaccaro and Bader (2003), trust in VTs consists of three steps: firstly, trust is primarily based on calculation, when in newly born VTs participants discover how advantageous it could be working together. Then, trust concerns knowledge: when the skills and competencies of each member are well-known, particularly how they deal with problems and how they find solutions, greater trust is expected to emerge. Lastly, trust is nurtured when members share values, needs, and goals.

The lack of these all-encompassing conditions generates a lack of interpersonal esteem and trust vacuum that can negatively impact VTs performance.

2.2. Typologies of VT

Different typologies of VTs exist in literature. These are chosen based on the organization's nature, or the goal that is being pursued.

Extreme action teams, for example, are VTs formed by experts in the field in which the firm operates. It could be always subject to change, both in terms of its work organization and on its team members' composition. An important characteristic of this type of VTs is the dynamic delegation, i.e., democratic leadership (Klein et al., 2006).

Self-managed teams are, instead, characterized by not possessing a real formal leadership. Team members carry out their tasks individually and act as their own supervisors. Managers will be external to the group and in charge of managing VTs responsibilities (Solansky, 2008).

Project groups work in Open Source, is a work organization methodology that allows, through a license, to make instantaneous changes through an automatic modification of the source code (to make it more functional for their purposes (Bell & Kozlowski, 2002)).

Team science is a research group of scientists to study a complex phenomenon (Guise et al., 2017). Collaboration can be either interdisciplinary or multidisciplinary: in the first case, knowledge integration occurs as a set of ideas aimed at creating innovative processes; in the multidisciplinary one, the goal is to bring together different subjects in a complementary way, to offer innovative services.

2.3 VT effectiveness during the Covid-19 pandemic: attributes and constructs

Levers of VTs effectiveness continue to receive a great consideration. Several researchers carried out studied VTs to explore their constructs variety (Capece & Costa, 2009) and on how to measure their performance. Scholars, during the last 20 years, have adopted different approaches:

- Potter & Balthazard (2002, p. 427), tried to measure VTs performances through group interaction styles, corroborating the idea that *"...the interaction style of virtual teams will predict objective measures of team performance"*.
- Mathieu *et al.* (2008) identified three levels of performance measure: organizational-level performance, team performance behavior and outcomes, and role-based performance.
- Algesheimer *et al*. (2011) detected a consistent number of attributes relevant to VTs performance assessment: team size, tenure, heterogeneity; past performance; intrateam communication; team cohesion; positive/negative anticipated emotions; shared desire/goals; we-intentions to perform; expected/actual performance.
- Other scholars were Peters & Karren (2009) and Joel and Linda Olson (2012). The first analysed trust and functional diversity, whilst the second task order and sequences.

Nevertheless, these empirical approaches were not designed to analyze the current pandemic scenario, which saw VTs adoption not as a strategic asset but as a forced imposition.

Accordingly, over the past year, scholars attempted to provide a set of conceptual attributes to evaluate VT performance. Newman & Ford (2021) recently offered five ideas for managers to promote a successful culture in a work environment in which employees work in a team virtually either full or part-time.

The five steps model is structured as Table 1 shows.

Table 1. The five-step model of VTs management in Covid-19 pandemic, from Newman & Ford, 2021, pp. 2-3

Constructs	Description
Establish and explain the new reality	*"The first step is the get the team to acknowledge that this new reality represents a change and all the fears and anxieties that people feel in the face of change will be addressed by the leader. Leaders*

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	should be transparent about any changes the organization may be taking regarding business strategy and product or services be offered which may impact work activities."
Sustain the corporate culture and reinforce the perception of leader trustworthiness	*"The second step is to establish an environment that sustains and reinforces the team's commitment to the organization's culture. As virtual team members are extra dependent on the leader to define and sustain the organization and team culture, the leader needs to spend extra time and effort building trustworthiness".*
Upgrade leadership communication tools and techniques to better inform virtual employees	*"Although communication is implicit in much of the earlier discussions of steps, it is so important it merits consideration as its own step. Leaders should be trained to understand that communication techniques which may have worked well in face-to-face settings need to be modified or enhanced to meet the communication needs of virtual employees".*
Encourage shared leadership among team members	*"Following the steps to earn trust and communicate effectively with virtual employees' managers can now focus on the method of leadership that is most effective for virtual employees. Shared leadership is the process where team members each play a role in the collective leadership of team tasks".*
Create and periodically perform alignment audits to ensure virtual employees are aligned with the organization's cultural values	*"The last step is to create and periodically perform an audit to ensure that the virtual employees are aligned with the organization's cultural values and its mission. It's not enough to tell everyone that the organization has a culture and a mission".*

Source: Newman & Ford, 2021, pp.2-3

The logic which lies behind these indicators' choice is geared toward explaining organizational decisions in coordinating teams in a virtual environment influenced by tensions emerged from the pandemic. Furthermore, it resulted necessary to develop a framework that investigates the relational level, on democratic participation, and on the sense of trust that each team member has towards the top and middle management and *vice versa*.
Therefore, the following research question (RQ) could address this:

RQ1: Which are the most reliable constructs emerged from the literature to explore VTs' performances during the Covid-19 pandemic?

To draw an in-depth picture, it was decided to look for responses between different working organizational levels, i.e., top (macro), middle (meso) managers, and employees (micro).

2.4 "Mind the gap": a service delivery perspective

Over the last ten years, VTs studies (Kirkman et al., 2004) have involved more scientific disciplines of management and IT (accounting, organization, marketing, business management, communication, software development).
According to the literature (Haywood, 1998; Lipnack & Stamps, 2000), customer satisfaction is a key asset in VTs performance, since satisfying internal and external customers is vital to VT success. For instance, autonomous VTs often handle customer complaints directly and take care of problems without top and middle management approval (Wellins et al., 1991). This is

paramount to quickly respond to customer requests and, particularly, to environmental needs (Townsend et al., 1998). Responsibilities are intrinsically important to reach organizational goals. Furthermore, given the viable and dynamic nature of the environment, team members should be empowered on how to communicate with each other to satisfy customers (Hackman & Oldham, 1980). Research demonstrates that VTs organizational awareness relates to customer satisfaction (Hyatt & Ruddy, 1997), and that also team empowerment positively affects customer satisfaction (Kirkman & Rosen, 1999).

Despite this established trend in the literature, studies of how internal organizational dynamics have impacted customer relations are still unexplored: methodologies, processes, technologies, and needs are changed. VTs have been implemented in several organizations to increase business activities and services, for research and development (R&D), knowledge management, and customer-oriented purposes (Duran & Popescu, 2014). Accordingly, the Covid-19 spurred the need to analyze if those organizations – forced to adopt virtual working methodologies – suffered the lack of FtF communication also in dealing with customers' needs and service delivery. Has service innovation in organizations supported these changes? And, more importantly, what have been the consequences in terms of service delivery adopting VTs for internal coordination?

Therefore, given the current pandemic condition and this gap in the literature, the second research question aims to assess whether, with the adoption of VTs and the exclusive virtual communication, there have been changes in service delivery and in the relationship with their customers

RQ2: Did the Covid-19 pandemic highlighted threats in the ways service organizations, adopting VTs, delivered their offer, and maintained their relations with customers?

3. Methodology

This research was based on a multiple case study analysis (Yin, 2009) which compared the work organization strategies of two Italian service companies. Despite concerns that case studies of specific situations do not afford results that may be regarded as generally applicable or generalizable, the case study method has been selected for this investigation because of its potential to provide a more detailed understanding (Yin, 1994) of VTs practices. According to Yin, in fact, case studies are the preferred research strategy when a *"… question is being asked about a contemporary set of events over which the investigator has little or no control"* (Ibid, p. 9). Moreover, it facilitates the investigation of a phenomenon within its context, collecting data from various sources to provide a tentative answer to the questions that have inspired this study (Baxter and Jack, 2008).

3.1. Cases' description

Opting for a purposive case (Saunders et al., 2003) two Italian services providers companies (i.e., Projenia and CSI Formaction) were chosen. The sample was deliberately oriented to explore realities that have already partially experienced VT before the lockdown, even though it represented only a small percentage of the daily work hours amount.

Projenia

Projenia is an engineering company specialised in concessional finance and non-repayable grants, with the aim of providing technical assistance and specialised consultancy to public bodies and enterprises in designing and managing European funds, in total out-sourcing. At the beginning of 2010, their managers decided to extend their activities to that of a

multidisciplinary service company, configuring itself as a cooperative society of professional and intellectual production and work. *Projenia Società Cooperativa*, creates and transforms knowledge into products and services, to satisfy its customers and achieve the expected results.

CSI FormAction

C.S.I. FormActions is a training agency accredited by the Campania Region, as well as a company of strategic and organisational consultancy. The macro-types of interest concern initial, higher, continuous training, and adult education. This organisation aims to contribute, through training, to the socio-economic development of territories, sharing its own heritage of knowledge and skills. It designs, implements, and manages training plans aimed at enhancing human resources and the development of new businesses opportunities in markets.

Some recurring features supported the study of these organizations. Firstly, Projenia and C.S.I. FormActions have a tradition of extensive services provision and multiple innovation projects per year, which according to Gilson et al, (2014) can depict an opportunity for understanding how VTs works across various organizations, industries, and skill levels. Secondly, at an organizational level, the cases companies guarantee the investigation of the use of VTs on different organizational levels. Moreover, given their service-oriented nature, they represent a solid sample from which understand how service delivery has changed in the current pandemic scenario, and which potential threats they went through. In a nutshell, both companies have provided an excellent empirical context for addressing the RQs emerged.

3.2 Sample and data collection

Both to explore how organizations managed VTs during the pandemic (RQ1) and to understand if the Covid-19 pandemic enhanced threats in service organizations' VTs adoption (RQ2), eight semi-structured interviews (Amaturo, 2012) were realized between May 2021 and July 2021. They were conducted with representatives from different hierarchical levels, in fact, top managers, managers (as responsible for process management), and employees (for a comparison) have been chosen as informants (Alvesson, 2003). Employees have been selected based on recommendations from the managers; this helped the sampling process but, at the same time, it might involve the risk of bias. This data triangulation (Wilson, 2014) in social sciences is explained by Johannessen and Tufte (2003) to look at a phenomenon from different perspectives. A standard protocol was used for all interviews, yielding similar data points and, therefore, allowing systematic comparison across respondents. The interviews were conducted via Zoom and each of them lasted for about 30 minutes. The interview consisted of open-ended questions divided into six main sections (see the Appendix) according to the critical dimensions identified in the previous step of the empirical research in Newman & Ford's (2021) five recommendations for managing VTs in the Covid-19 pandemic. Furthermore, given the nature of this contribution an ad hoc dimension focused on service delivery was added to explain how VTs worked to provide customers the service required. To generate the constructs items, a further review of the literature has been processed and classified as follows in table 2.

Table 2. VTs constructs

Dimension	Characteristics addressed
(A) Managing the "new normal" within the organizational activities	(1) Relationship activities that "involve expressions of interpersonal affect" (Umphress *et al.*, 2003)

	(2) Interactions not germane to the focal performance task, such as joking, personal or interpersonal discussions (Massey *et al.,* 2003) (3) Interactions aimed to establish operating procedures and how the team will proceed (Massey et al., 2003) (4) Perform the tasks together as a team (Massey et al., 2003)
(B) Corporate culture and leader trustworthiness	(1) Acts that support "task-related, career-related, and social support functions" (Ibarra, 1995) (2) Development activities consist of activities that facilitate performance increases and personal growth and are designed to "coordinate social interactions and maintain social order and work-relevant social norms" (Orlikowski & Yates, 2002). (3) Relationship-building activities that "involve a person gathering information, advice, and resources necessary to accomplish a task" (Umphress *et al.,* 2003)
(C) Leadership communication practice among virtual employees	(1) The frequency and clearness of interaction between leader and follower (Daft & Lengel, 1986; Purvanova & Bono, 2009) (2) Distinctions among member's social and expert status lost or distorted (Dubrovsky et al., 1991) (3) Communication process dysfunction (Hiltz & Johnson 1990; Hiltz & Turoff, 1985)
(D) Shared leadership among team members	(1) The impact of leadership behaviors on task cohesion and perceptions of a cooperative climate (Huang et al.,2010) (2) Idea contribution on tasks and decision (McGrath, 1984; Straus, 1999) (3) Team member's inhibitions to propose solutions (Jarvenpaa et al., 1998)
(E) Assessment the employees' commitment.	(1) Acts that "direct, align, and monitor taskwork" (Marks et al., 2001)
(F) Service Delivery	(1) Customer's assistance (Rosen et al., 2007) (2) Customer's satisfaction (Berberoğlugil, 2020) (3) Customer's retention (Kirkman et al., 2002)

Source: authors' elaboration

Participants were asked a set of questions about their work practices before and after they began working remotely, their uses of technology to do their work, their relationships with team members and organization, their perceptions of themselves as distant, and the strategies they used to either increase or decrease feelings of job insecurity, information about the service provision and so on. Finally, the results' discussions (chapter 5) led to develop a framework in which pivotal key levers to manage work organization in VTs of service companies during the pandemic were identified.

4. Findings

Findings were classified following the RQs logic.

4.1 VTs levers: lessons from the pandemic

Managing the "new normal" within the organizational activities. Managers had tried to adapt the daily work hours to the domestic needs of employees and to better accommodate any family demands that occurred while working from home. There has been, in fact, a clear rescheduling of meetings and deadlines. Still, the two companies have not drastically changed their work organization during the previous year. Given their "service nature", they had already adopted these organizational protocols. Among these, firstly, planning defined goals instead of defining office hours. However, the working time was not completely upset, according to the managers (top and middle). The aim was to give team members the flexibility they needed to accommodate their new realities. Secondly, both individual and group meetings played a major role according to both managers and employees. Individual meetings were useful in motivating employees, making them feel part of the company, and supporting them in case of psychological distress. Group meetings, moreover, reinforced Team Building. Related to Team Building, it emerged that not only online platforms such as Skype, Zoom, etc., were pivotal, but also instant messaging. In addition to a greater frequency of online meetings, the always-on social networks, in fact, allowed for continuous exchange and debate between colleagues.

"...I gave them the possibility to keep Zoom or WhatsApp Web open at all times when they are working so that they can see each other and even chatting among them...".

Moreover, managers, when remote working will end, stated that the organization could benefit from improving Team Building activities through extra-work events (e.g., a winery guided tour) to get employees back to normal more easily:

"...the lack of office time meant that there was no chance of casual encounters such as coffee breaks where we could chat informally about non-work-related matters, so we thought it would be a good idea to organise meetings outside the workplace to strengthen the working group's relationships".

On the other hand, according to some managers, a shift in a domestically oriented approach to work has emerged, i.e., the idea of the house as the only safe place. This kind of approach, daily, can flatten and undermine professional and work development. In other words, the risk of less proactivity is higher than in other moments.

Corporate culture and leader trustworthiness. Concerning this construct, it emerged that during the pandemic not so much has changed. Strategies aimed at spreading corporate culture, such as communication strategies (e.g., clear, not top-down communication, leaving room for individual proposals and discussion between members) were not changed.

"...to remind the team of the values and norms of the corporate culture we always speak in the plural, and all positive results are reported in regional press releases with the name of the employee who contributed to the achievement of the objective."

The assumption that emerged from most of the management (top and middle) and employees' responses is that corporate culture was already interiorised and, therefore, there was not needed to pay particular attention to this issue within the pandemic. Moreover, according to the management, the engagement of employees to the corporate culture influences the most the infancy step of collaboration. In other words, both organizations stated that they picked up resources already in line with the corporate culture. Referring to technical support, it resulted as one of the main issues for the organisation to face. In fact, during the pandemic, there was an improvement in hardware and software equipment for employees. From the interviews also emerged that similarly to the corporate culture, another cornerstone of the working environment was not problematised as it was never questioned: trust in colleagues and in the leader. In short, the ongoing pandemic was not considered as a factor that could affect the level of trust among employees. Behaviours implemented (both before and after), i.e., clarity in communication, clear definition of roles and objectives, a strong members' engagement meant that trust was not affected, and no one felt neglected or insecure about the working environment. The ongoing pandemic, on the other hand, was linked the most to the psychological health of employees, which was given attention through individual interviews or symbolic non-monetary rewards.

"...the psychological health of our employees was a pressing concern during the pandemic, many of them appeared stressed or worried sometimes, so I tried to create moments of dialogue outside work to relieve them of heavy thoughts, and sometimes together with other managers we organised the distribution of material gifts to gratify them".

Leadership communication practice among virtual employees. The main change concerns remote communication during the pandemic. According to some respondents, the lack of the non-verbal aspect of communication undermined its effectiveness, although many (especially employees) confirmed that communication was always frequent, timely, and as clear as possible. Moreover, none of the respondents expressed any concerns about the leaders' communication style, which was apparently effective and clear. Some respondents, however, admitted that they missed the informal chats through which members of the organisations often bond and share valuable information. Two main aspects emerged from the interviews:

a) the frequency of communication increased.

b) instant messaging played a very important role in team communication exchanges.

"…for urgent notifications or requests, instant message or text is generally most effective, however, for other meetings a standard conference call with screen share (to show or collaborate on documents) may be the better choice".

Shared leadership among team members. The interviews showed that focusing on the needs of employees to support them psychologically or make them feel part of the team resulted in a change regarding the leadership management that has become more oriented towards flexibility and relationships.

"Less rigidity, more human relationships, fewer constraints on rules and schedules...".

Therefore, a general interest in shared leadership emerged, although with some limits:

"At this stage, it is still too early to say, we are working on it, but I don't think it is time yet...".

According to many respondents. shared leadership is an excellent asset, nevertheless, to be carefully implemented to avoid the risk that individuals could feel superior to the other members

of VT, compromising team balance. Nevertheless, shared responsibility gained greater attention during the pandemic: some managers admitted that they considered shared leadership, for the first time, to empower team members and make them feel more connected to the organisation.

Assessment the employees' commitment. From the interviews emerged that shifting in work dynamics during the lockdown resulted in few changes in practices for assessing VT effectiveness. Checking progresses remained a regular practice, i.e., individual interviews to regularly monitor factors that can impact their team's effectiveness.

"...evaluation practices have not changed that much, but we now always indicate by e-mail the results achieved and the objectives still to be achieved...".

4.2 Threats in service delivery

In line with the second RQ, during the interview emerged that service delivery practices remained implemented correctly as in FtF working activities. Respondents were able to affirm it thanks to the answers received from the service quality surveys sent to their consumers, and thanks to the fact that customers systematically reconfirmed orders. The service offered by both firms, therefore, has not suffered threats, and indeed the possibilities offered by remote working networks had, to some extent, improved it (e.g., training companies who were capable to invite worldwide lecturers, otherwise impossible to involve FtF, not only because of the distance imposed by the pandemic). The fear of the negative impact of the Covid-19 pandemic on organizations pushed their members to work harder to preserve them. According to respondents, in fact, critical success factors for VTs could be found in human perseverance and resilience: the impetus to act and react; the empathy that made everyone feel together in the same situation; the closeness to customers by showing greater sensitivity to their requests, and so forth.

"...critical success factors? Certainly, the most important of all has been the human side of the teams".

Moreover, the always accessible assistance was seen as a critical success factor, hand in hand with work organization oriented to set defined goals instead of work hours. This has granted VTs members the flexibility they need to accommodate their new realities. VTs limitations for service delivery were, however, highlighted by respondents who, while largely appreciating the possibilities provided by remote working and communication technologies, clearly explained that the more customers can struggle to make use of IT technologies, the more exchanges can be complicated.

5. Discussion

The literature review highlighted different constructs that should be monitored to better manage VTs, especially in such a challenging period as the Covid-19 pandemic. The interviews then, spurred which were most stressed constructs and what was done to prevent the negative impacts of the pandemic on service delivery, and the work organization of VTs in general. Then, at the organizational level, these strategies should be turned into active resources and skills to be integrated to provide better and improved services, to address problems, or adopt a proactive mindset to challenge complexity (Polese et al., 2016). Moreover, organizations can benefit from the 5-step model enriched by the findings of this work to generate value in different ways, from improved service quality to relationships with customers. Accordingly, the most relevant implication is that the adoption of VTs into the organizational structure (strategy) should be

translated into the related integrated processes (organizational level) based on a balanced work routine, fit and alignment to the culture and values, and an effective technological structure.

As table 3 shows, this explorative approach can be enriched by some levers that emerged from the interviews (RQ1) and turned into real drivers to preserve quality in service delivery (RQ2).

Table 3. The correlation between literature constructs and organizational levers

Constructs	Emerging levers
Establish and explain the new reality	Team building
Sustain the corporate culture and reinforce the perception of leader trustworthiness	Managerial commitment
Upgrade leadership communication tools and techniques to better inform virtual employees	Informal communication through instant messaging
Encourage shared leadership among team members	Leadership shift
Create and periodically perform alignment audits to ensure that virtual employees are aligned with the organization's cultural values	Frequent performances monitoring

Source: authors' elaboration

This integrated process can start from the adoption of a mindset oriented towards team building that produces several positive effects on teamwork dynamics, including:

1) the enhancement of team climate, which contributes to increase the employees' organizational commitment;

2) the promotion of interpersonal relationships between team members;

3) the spreading of participation;

which are fundamental ingredients of the recipe for better organizational performance and to meet the specific needs of the customers (Ciasullo et al., 2017).

Given the desk job lack due to the pandemic, these dynamics should be supported by management's commitment and by adopting shared leadership, that establishes a more flexible and human relationship-oriented approach. However, findings show, indeed, that shared leadership adoption could be discouraged by a lack of trust in employees' behaviors (Pearce, et al., 2004, Hoegl and Muethel, 2016). Therefore, an efficient technological architecture that adopt informal communication channels should be implemented, as well as frequent organizational resource monitoring whereby performance-based analysis of each employee can be collected more frequently. Informal communication through instant messaging - especially those allowing easy and intelligent writing, the use of emoticons and smiles - promotes informal communication in organizations, enhancing opportunities to improve both employee's communication and their psychological health sharing experiences and feelings among them (Carramehna et al., 2019). Performance monitoring, instead, according to a consolidated literature stream of organizational performance evaluation (Fedor and Buckley, 1988) can lead to numerous improvements like, according to Poister (2004), could be summarized as follow:

(1) *Resources:* even though resources are not usually considered true performance measures as such, it should be nevertheless considered in which way managers focus on expenditure control or "*improving mix and resources quality*" (Ibid, p.99).

(2) *Outputs:* since they represent "*the immediate products or services produced*" (Ibid, p.99), it could be useful to quantitatively target the number of services offered periodically (e.g., per year), to improve it in upcoming organizational goals.

(3) *Labor productivity*: these measures focus on labor performance (Ibid, p.100), adopting all the appropriate choices that can improve employees' work experience.

(4) *Efficiency*: it focuses on *"the ratio of outputs to the dollar cost of the collective resources consumed in producing them" (*Ibid.p.100*)* which allows comparing how resources are being used according to the productivity reached.

(5) *Service Quality:* it includes the service all-encompassing, *"timeliness, turnaround time, accuracy, thoroughness, accessibility, convenience, courtesy, and safety"* (Ibid, p.100).

(6) *Outcomes:* they represent *"the extent to which a program is effective in producing its intended outcomes and achieving desired results"* (Ibid, p.101).

(7) *Cost-Effectiveness:* these measures *"relate costs to outcome measures"* (Ibid. p.101).

(8) *Customer's satisfaction:* often *"closely related to service quality and program effectiveness"* (p.101), it should be addressed separately since it can include specific protocols (surveys, interviews) to measure this construct.

To summarize, these levers, if activated, may strengthen VTs performances both during and after the Covid-19 pandemic (Figure 1).

Figure 1. Synthesis of results: The five-step model from Newman & Ford (2021) enriched by the emerged levers
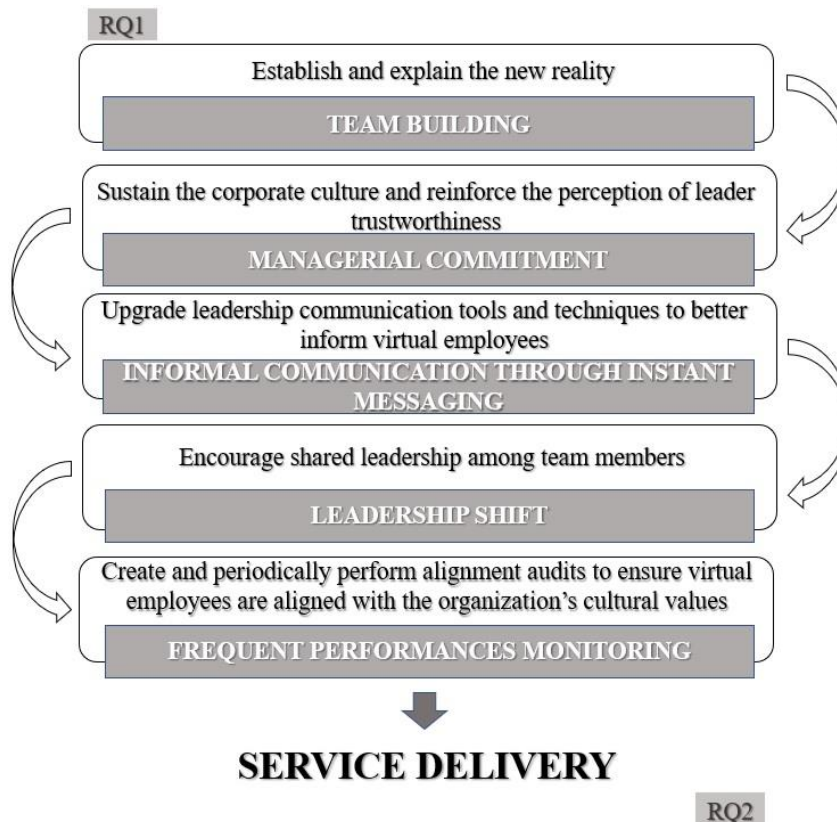
6. Conclusion

This study is based on an empirical research that uses the 5-steps model (Newman & Ford, 2021) proposed in literature which addresses VTs management during the Covid-19 pandemic. Its results spurred a categorization of the key strategic and operational levers for an effective application of VTs within services companies, to ensure service delivery quality. Findings show that VTs implementation during critical periods can benefit from adopting a mindset oriented towards team building, which results in strengthening managerial commitment and into a

leadership shift that may enact hard and soft skills, engagement, and a better work environment. Consequently, this could generate multiple advantages in different ways, from service delivery quality to strengthen internal and external relations. Therefore, by using these emerging levers, firms can exploit the advantages offered by VTs in service delivery.

From a theoretical viewpoint, this study shed a light on the features that should be considered to manage VTs during uncertain periods. The article highlights how VTs – adopting a team building approach - can help to overcome the limitations given by the lack of FtF socialization. An issue that arises when organizations do not consider socialization as a viable aspect in virtual team development (Picherit-Duthler et al., 2004), or even worse, when these opportunities are limited by external factors like a worldwide pandemic. Moreover, thanks to the elaboration of the framework the study can represent a first theoretical step for the conceptualization of the main strategic and organisational levers of VTs management in crisis contexts. From a managerial perspective, the study proposes some relevant insights for managers, highlighting the importance of communication and relationships within VTs. This work suggests that creating VTs confidence synergies is peculiar to implement shared leadership. Thus, the emerging organizational levers can help managers identifying the main enabling elements to strengthen VTs, capable of increasing customers' retention and organizational performances.

Still, several limitations affect this research. The adoption of case study methodology does not permit drawing any generalizations from the findings obtained. This methodological instance can be solved through further empirical research. Moreover, the reliability of employees' responses may have been affected by the fact that they were been chosen for the interviews by companies' managers. Furthermore, the topic of the paper was investigated only from an organizational point of view. Further research, perhaps, could investigate the customers' perspective on service delivery. Moreover, it would be worth to deep investigates the relationship between trust and shared leadership adoption among organizations (Nordbäck, & Espinosa, 2019; Hoch & Dulebohn, 2017), to understand whether middle management can act as a facilitator - in the hierarchy of organizational levels - of this leadership shift.

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Appendix – Open-ended questions divided into six dimensions

ESTABLISH AND EXPLAIN THE NEW REALITY

1) Within the organization of the work during the pandemic, did you consider team members' at-home responsibilities and obligations?
2) Did you change the work organization?
3) Do you hold weekly meetings with each team member at convenient times for them to review progress towards goals and to identify any personal, professional, or team problems that need leader resolution/ a resolution?

SUSTAIN THE CORPORATE CULTURE AND REINFORCE THE PERCEPTION OF LEADER TRUSTWORTHINESS

1) Do you usually find ways to remind the team of corporate cultural values, beliefs, and norms in both team and individual communications?
2) Was the employees' trust in the company an object of interest for you during the pandemic?
3) What strategies did you use to build/strengthen it?

UPGRADE LEADERSHIP COMMUNICATION TOOLS AND TECHNIQUES TO BETTER INFORM VIRTUAL EMPLOYEES

1) What changes occurred in communication during the pandemic?
2) Are there communication norms and etiquette for your team?

3) Do you usually check the communication to ensure that is clear and understandable?

ENCOURAGE SHARED LEADERSHIP AMONG TEAM MEMBERS

1) Did your leadership management change during the pandemic?
2) Were co-workers given leadership roles during the pandemic?
3) What do you think of "shared leadership"?
4) Are the team members trained on how to take on leadership roles?

CREATE AND PERIODICALLY PERFORM ALIGNMENT AUDITS TO ENSURE VIRTUAL EMPLOYEES ARE ALIGNED WITH THE ORGANIZATION'S CULTURAL VALUES

1) Is a periodic audit scheduled to assess the status of the employees' performances?
2) Did the practices for evaluating the effectiveness of the team's work change during the lockdown?
3) What kind of evaluation practices do you put in place?

SERVICE DELIVERY

1) Based on your services offer, has VT adoption helped or complicated your customer relationships?
2) Have your customers been satisfied with your service delivery?