Factors Affecting Productivity of Virtual Workers: A Case of Software Houses in Karachi, Pakistan

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Abstract

The main purpose of this study is to determine the factors affecting the productivity of the virtual workforce. The selected independent variables were poor communication, lack of organization structure, office culture, task management complexity, work unaccountability; and work life unbalance and dependent variable was productivity of virtual workers. The researcher in the current study has selected respondents from Karachi city as it is one of the most populated urban areas and has vast numbers of software houses. The researcher used convenience sampling. The data collected from the employees of software house located in Karachi. The sample size of the study is between 300-350 respondents depending on the accessibility of the respondents accordingly. Quantitative research method adopted in this study. A structured questionnaire is used to collect data from respondents that were based on Likert scale. The collected data run in SPSS (statistical software) in order to check its reliability and validity. As per the findings, Poor Communication, Lack of Organization Structure, Lack of Office Culture, Task Management Complexity, Work Unaccountability and Work Life Unbalance have an impact on dependent variable Productivity of Virtual Workers. The software organizations should have a proper communication system to communicate with co-workers about ongoing projects, keep them informed and track tasks and availability, maintain an easy and orderly work-from-home experience. There are many apps and tools designed to help to stay in touch with the team members. Choosing the right apps will be key to ensuring productivity at home. Moreover, internal feedback system also works best for improving employee's productivity.

Keywords: Virtual working, virtual workers' productivity, work from home, employee performance

Introduction

The global competitiveness of businesses has been revolutionized by advancements in information and communications technology (ICT) and the Internet in the workplace. This has led to cost reductions and productivity gains through high-speed communications. The changing work environment has significantly impacted large businesses, with over 67% of companies implementing flexible working arrangements for long-term employees. This trend is becoming increasingly prevalent in today's business landscape. (Vyas & Butakhieo, The impact of working from home during COVID-19 on work and life domains: an exploratory study on Hong Kong, 2021).

Virtual work emerged as a flexible working model, similar to a virtual organization or company. Virtual organizations are digitally-based cooperation between business units, structured according to core competencies. Virtual work processes are virtualized, and human resource flexibility is essential. Soft factors like internal communication and corporate culture are also emphasized. Virtual work is designed across spatial, temporal, and organizational boundaries, using communication technologies to create connection networks. (Al Mamun & Hasan, 2017).

The virtual working model benefits from globalization, allowing companies to choose their locations and markets, expanding their scope of action. The term "virtual team" has been popular in the USA since the 1980s. Successful virtual work requires investing in good IT equipment and understanding time/space for efficient information transmission. New technologies enable direct global interaction, eliminating obstacles like distances and time zones, and presenting new communication possibilities. This growth in the IT sector explains the increasing use of technology by companies. (Rathnaweera & Jayathilaka, 2021).

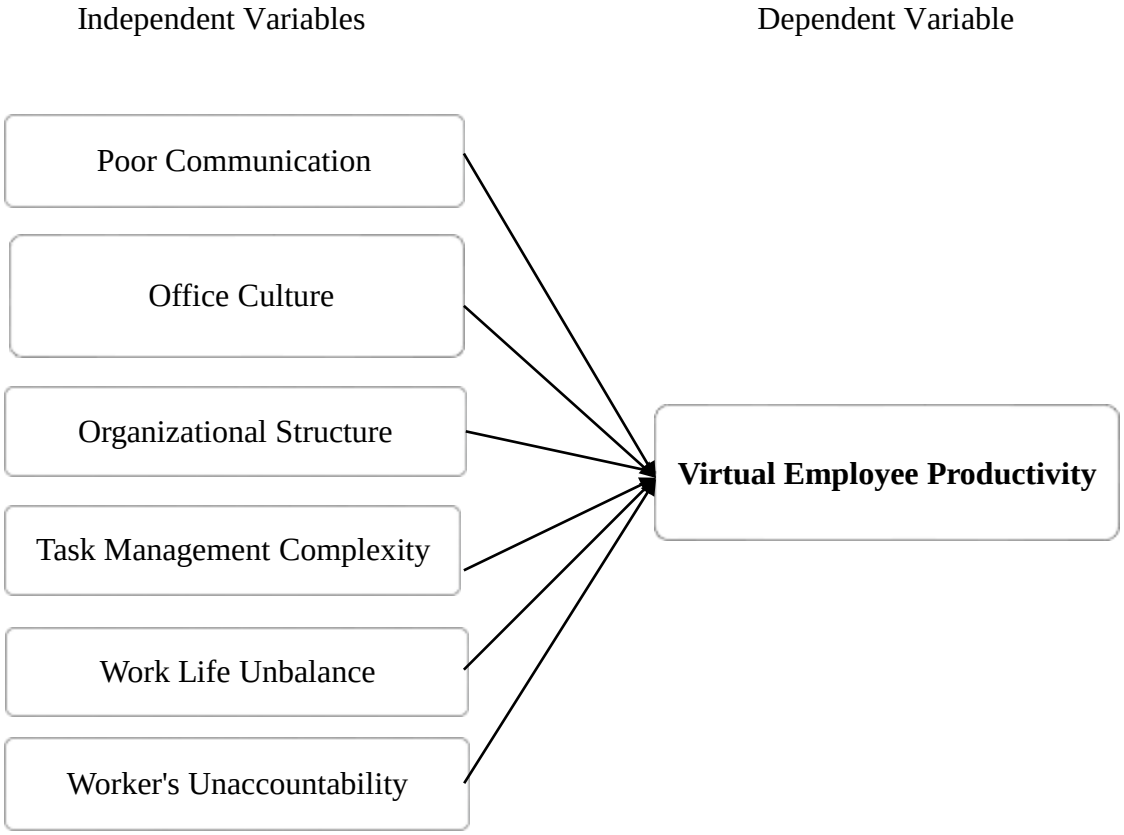
Innovations in communication technology require considering the human factor, as social context is crucial for teamwork quality. Transparent conflict management, trust-building, and overcoming cultural barriers are essential for a common spirit. Productivity is not solely a matter of technical means but also social skills. Virtual work environments offer a global pool of qualified experts, but variables influencing productivity and job satisfaction among virtual workers remain unclear. Research is being conducted to identify these aspects and improve management strategies. (Mehta & Shah, 2019).

Objectives of the Study

The study aims to assess the effects of poor communication, lack of organization structure, office culture, task management complexity, work unaccountability, and work life imbalance on virtual workers' productivity. It also examines the effects of work unaccountability and work life imbalance on productivity. The findings will help inform the development of strategies to improve virtual worker productivity and overall productivity.

Figure 1

Conceptual Framework



The conceptual framework here states the independent and dependent variables which we have selected to conduct this research and identified cause and effect relationship between them. The independent variables were (Office Culture, Organizational Structure, Task Management Complexity, Work Life Unbalance, Worker's Unaccountability) and dependent variable was (Virtual Employee Productivity).

Hypotheses of the Study

H1: Poor Communication has a significant and significant impact Productivity of Virtual Workers.

H2: Lack of Organization Structure has a significant impact on Productivity of Virtual Workers.

H3: Lack of Office Culture has a significant impact on Productivity of Virtual Workers.

H4: Task Management Complexity has a significant impact on Productivity of Virtual Workers.

H5: Work Unaccountability has a significant impact on Productivity of Virtual Workers.

H6: Work Life Unbalance has a significant impact on Productivity of Virtual Workers.

Literature Review

COVID-19 has forced many employees to work from home, despite personal preference. A global virtual work experiment has been implemented, but it's not as successful as expected due to the closure of schools and the need for independent workers to balance childcare and work. This reality has led to a growing divide between remote work and traditional office work. (Davidavičienė, Al Majzoub, & Meidute-Kavaliauskiene, Factors Affecting Knowledge Sharing in Virtual Teams, 2020).

The concept of a home office evolved from a home office with computers and internet access, to a mobile office with cell phones, laptops, and tablets. The virtual office now includes smartphones and cloud-based information, making it easier to telecommute and work from anywhere. (Aropah, Sarma, & Sumertajaya, Factors Affecting Employee Performance during Work from Home, 2020)**.**

Virtual working has gained attention due to the coronavirus, offering flexibility in work schedules, personal-professional balance, and productivity. However, it can also negatively impact physical and mental health. Work-life balance may be compromised if boundaries are blurred, especially for adults working with children. The benefits of virtual working depend on factors like company flexibility, culture, and employee support. (Nakrošienė, Bučiūnienė, & Goštautaitė, Working from home: characteristics and outcomes of telework, 2019)**.**

The coronavirus outbreak has led to a rise in remote work, enabling individuals to operate efficiently and with greater flexibility. Virtual labor offers potential for individuals with family and personal responsibilities, as well as for persons with disabilities. This trend will impact the

workplace and demonstrate the importance of virtual labor for both corporations and workers. (Garro-Abarca, Palos-Sanchez, & Aguayo-Camacho, 2021).

Poor Communication

COVID-19 has significantly impacted the remote work culture, leading to a crisis among employees worldwide. Companies have rapidly adopted remote work, causing challenges such as communication issues, loss of transparency, and reduced collaboration. This has negatively impacted productivity and engagement, making it difficult to maintain interest levels. Communication is a major obstacle faced by virtual teams, as it is difficult to maintain face-to-face interactions and impact remote work effectiveness. (Wolor, Dalimunthe, Febrilia, & Martono, How to Manage Stress Experienced by Employees When Working from Home Due to the Covid-19 Virus Outbreak, 2020).

To avoid misunderstandings and reduce errors in virtual teams, managers should teach employees clear communication and hold regular team meetings. However, software, devices, and the internet can fail, impacting communication activities. Voice calls may not consider facial features, promoting misunderstandings. Face-to-face contact is essential for tasks and crisis situations, and face-to-face discussions will never be outdated. (Morrison-Smith & Ruiz, 2020). Virtual team members may be geographically separated due to factors like time zone, language, culture, and religion. Misunderstandings can occur when individuals chatting in their native languages don't understand each other. It's important to remember that everyone has a different communication technique and may not always understand what you're saying. To build trust in the workplace, adopt the ideal strategies for communication, such as video conference, phone call, online chat, or email. This will make it easier for the team to work together, meet deadlines, and create trust, all of which are necessary for a successful business. (Larson, Vroman, & Makarius, 2020).

Office Culture

The workplace culture is formed by the values, beliefs, and behaviors of employees, management, and staff. It influences both internal and external perceptions of the organization, promoting engagement, satisfaction, and overall performance. Factors such as people, leadership, management, workplace practices, and legislation significantly impact culture. (Wu, Styra, & Gold, 2020).

With remote teams becoming commonplace, it's critical to quickly create the culture a company wants for the business. Building an effective work culture, of course, gets the job done, but brings much more, for example: better morale, less absenteeism and improved employee productivity. We know that creating a corporate culture is demanding. But it's always better to establish the one than to create one as the company go along. It would be like throwing spaghetti against the wall and seeing which ones stick. A good corporate culture does not happen by accident. It is created intentionally. Transparency and clear expectations are the foundations of a strong work environment (Hacker, Johnson, Saunders, & Thayer, 2019).

Organizational Structure

Organizational structure refers to the way work is routed through the organization's levels, allowing teams to perform their duties within assigned parameters. Traditional structures are more codified and hierarchical, but modern systems have evolved since the late 1800s. The Industrial Revolution emphasized efficient, single-tasking, and efficient management, while General Motors pioneered a revolutionary organizational design where divisions built their own cars at their own plants. (Peoples, 2021).

Virtual companies and flexible organizational structures are becoming increasingly common in today's business world. These structures allow employees to be both members and independent individuals, making the relationship between organizations and employees more complex. Telecommuting management becomes more challenging due to different work activities, locations, and hours. Decentralized decision-making relies on trusting employees and improving rules and regulations. (Newman & Ford, Five Steps to Leading Your Team in the Virtual COVID-19 Workplace, 2021).

Task Management Complexity

The dependence of virtual teams on virtual technologies and the inclination to dissolve after a work has been done may make it more difficult to accomplish complex activities that are strongly tied to one another. In addition, the presence of both a high level of job complexity and a high degree of urgency increases the likelihood that misunderstandings and errors may occur. As a direct consequence of this, successful communication is even more essential for great performance in virtual teams while completing these activities. Despite this, Marlow and colleagues believe that virtual teams may effectively execute these tasks so long as the members

of the team foster shared cognition. It can be hypothesized that shared cognition can be developed through the frequent and consistent use of this medium for communication because of the features of CMC technologies such as video conferencing that allow for the preservation of a significant portion of the nuances that are present in face-to-face communication (Khan, Khan, Maqsood, Hussain, & Zeeshan, 2020).

Digital communication tools are categorized based on their media richness, with email and messaging services being less rich. Video conferencing tools convey emotional and relational messages, building trust through direct exchange. Managers should promote the human side in remote teams through warm-ups, meetings, and virtual events. Processes and structures must be clarified and accessible to everyone, with easily accessible knowledge, clear communication channels, and a sense of team support. There is no universal solution to every task, and there is no universal solution for task management systems, chat rooms, or time recording. (Beauregard, Basile, & Canonico, 2019).

Workers Unaccountability

It is impossible for a remote corporation to be successful without the responsibility of its teams. Everyone in the team, regardless of their position or where they fall in the organizational structure, is responsible for taking responsibility of the activities and projects that have been delegated to them. In addition to this, it requires them to acknowledge that it is their duty to finish the project deliverables while maintaining the highest possible standard and keeping the interests of the business in mind at all times (Miller, 2020).

After a quick transition to remote work for many people as a result of COVID-19, leaders and project managers in today's workplace are questioning how they can strengthen team accountability in the workplace while employees are working remotely. This is owing to the rapidly changing nature of the workplace. The requirement for responsibility among remote workers is often stronger than the need for accountability among in-office teams. The absence of face-to-face encounters, office drop-ins, and talks around the water cooler dramatically diminishes the amount of extrinsic incentive that is present, which is the component that drives responsibility at work for the majority of workers (Cho & Park, 2021).

If managers can't connect remote workers with regular employees, it will be more difficult to foster successful cooperation and fewer opportunities will exist for workers to learn from one another. The freedom of working from home is attractive to some, but for the most part, people

need social interaction with their colleagues and the knowledge that they are not alone in their endeavors. Remote employees, on the other hand, have less access to corporate information, participate less in team activities, and may have a poorer sense of belonging to the business as a consequence of their inability to meet or communicate often with their colleagues (Bao, et al., 2022).

Larger teams can be easily overlooked by managers, making digital tools like Kanban boards and Trello essential for managing tasks, monitoring progress, and providing transparency about priorities. Trust is crucial in long-distance leadership, as it enables managers to build trust with employees and among them. Trust is essential for maintaining focus on tasks and ensuring timely results. Establishing trust in virtual teams can help ensure successful cooperation and prevent potential issues. (Xiao, Becerik-Gerber, Lucas, & Roll, 2021).

Work-life Unbalance

Research on the effects of working from home on work-life balance (WLB) lacks coherence. Remote work offers improved adaptability, allowing for better task management and reduced role conflicts. However, it also decreases satisfaction, disrupts work-life balance, and may lead to conflicts between roles at work and outside of work. To address these issues, it is crucial to identify the components contributing to WLB and adapt to firm norms and values. (Bulińska-Stangrecka, Bagieńska, & Iddagoda, 2021).

It has been observed that initially working for home is seen positively by employees and greatly sought after, however it has been further observed that as an employee tend to begin to work from home, there is a significant spillage of personal life dynamics within work parameters that eventually becomes quite perplexing for an employee managing work from home, as he is eventually unable to balance work with personal dynamics in-turn leading to fall in effectiveness and efficiency in the employees respective work (Palumbo R. , 2020).

Virtual Employee Productivity

Organizations might lose millions of dollars in revenue because of insufficient productivity. Low productivity is a concern for business executives since it might result in less profitability for their companies' bottom lines. High employee turnover and poor staff retention may be minimized by managers who have a firm grasp on the productivity-enhancing activities of their workforce. Workers' houses were the center of economic activity during the COVID-19 epidemic. Many

nations have taken steps to encourage this WFH by using their houses as a safety net against economic downturns. It has been suggested that corporations and governments perceive housing as a supporting pillar for economic growth. Even companies that provide work-at-home positions might be considered as an effective strategy to cope with the issue. It needs everyone – managers, workers, and their families to adapt (Jenkins & Smith, 2021).

Social isolation and work-family conflicts are significant job demands of remote work, leading to decreased work engagement and productivity, as well as increased job stress. These findings support previous research and suggest that businesses and workers should examine these aspects and develop recommendations to better manage them. Communication is crucial in reducing social isolation, and firms, HR officials, and employees should expand opportunities for face-to-face interactions. Technological resources can help facilitate interactive experiences, but there is a need to protect digital privacy and avoid excessive interruptions. Workers, managers, and HR officials should consider the frequency, timing, and structure of communication engagements to minimize disruptions and maintain productivity. (Ellis, Dumas, & Forbes, 2020).

Research Methodology

Geographical distribution creates different respondent groups based on geographical boundaries, as consumers have unique needs, preferences, and interests. This study selected respondents from Karachi city, a populated urban area with numerous software houses. Demographic distribution ranks respondents by education, family, age, race, family size, and nationality, which is used by service providers to understand customer behavior and preferences. The study incorporated seven software houses in Karachi City.

Population, Sample & Sampling Technique

The population refers to the subjects, units, or objects studied in a survey. It can be finite or infinite, and can be individuals, organizations, or material objects. In this study, the population consisted of employees aged 20 to 40 working in software houses in Karachi City. The sample size was selected using convenience sampling, with data collected from respondents based on their accessibility. The study aimed to gather data from 300-350 respondents, depending on their accessibility.

Research Design

This study adopted a quantitative research method, which involves collecting numerical data for statistical analysis. This method helps explain, analyze, and test theories to obtain valuable information about underlying phenomena. Researchers use various statistical tests, such as ANOVA, T-test, F-test, and regression analysis, to obtain results and make predictions. The deductive approach is used to test theories and hypotheses, creating various standards. The study was based on a cross-sectional survey, which gathers data from a population at a specific point in time and analyzes the results statistically.

Data Analysis and Results of the Study

The study examined factors affecting productivity of virtual workers in software houses in Karachi, Pakistan. A survey of 330 employees from seven software houses was conducted, focusing on poor communication, lack of office, organizational structure, task management complexity, work life unbalance, and work unaccountability. The data was analyzed using SPSS statistical software to determine the impact of these variables on the productivity of virtual workers.

Reliability Testing

Table 1

Reliability & Validity

Variables	Items	Cronbach's Alpha
Poor Communication	3	.791
Lack of Organization Structure	3	.700
Lack of Office Culture	3	.705
Task Management Complexity	3	.777
Work Unaccountability	3	.710
Work life unbalance	3	.739
Productivity of Virtual Workers	3	.788
All Variables	21	.820

The Reliability table displays Cronbach's Alpha values for each variable, indicating their validity and consistency for future statistical processing. Values greater than 0.5 are considered satisfactory, while values above 0.6 are good for reliability and application. Poor communication, organizational structure, office culture, task management complexity, work

unaccountability, work life unbalance, and productivity of virtual workers have values greater than 0.6, indicating 60% consistency and reliability for further analysis.

Correlation Matrix

Table 2

Correlations

		PC	LOS	LOC	TMC	WU	WLU	PVW
Poor Communication	Pearson Correlation	1	.720**	.617**	.592**	.615**	.651**	.636**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	330	330	330	330	330	330	330
Lack of Organization Structure	Pearson Correlation	.720**	1	.740**	.418**	.609**	.738**	.746**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	330	330	330	330	330	330	330
Lack of Office Culture	Pearson Correlation	.617**	.740**	1	.256**	.554**	.806**	.797**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	330	330	330	330	330	330	330
Task Management Complexity	Pearson Correlation	.592**	.418**	.256**	1	.591**	.427**	.694**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	330	330	330	330	330	330	330
Work Unaccountability	Pearson Correlation	.615**	.609**	.554**	.591**	1	.703**	.788**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	330	330	330	330	330	330	330
Work Life Unbalance	Pearson Correlation	.651**	.738**	.806**	.427**	.703**	1	.826**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	330	330	330	330	330	330	330
Productivity of Virtual Workers	Pearson Correlation	.636**	.746**	.797**	.694**	.788**	.826**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	330	330	330	330	330	330	330

		PC	LOS	LOC	TMC	WU	WLU	PVW
Poor Communication	Pearson Correlation	1	.720**	.617**	.592**	.615**	.651**	.636**
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	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	330	330	330	330	330	330	330
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	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	330	330	330	330	330	330	330
Work Unaccountability	Pearson Correlation	.615**	.609**	.554**	.591**	1	.703**	.788**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	330	330	330	330	330	330	330
Work Life Unbalance	Pearson Correlation	.651**	.738**	.806**	.427**	.703**	1	.826**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	330	330	330	330	330	330	330
Productivity of Virtual Workers	Pearson Correlation	.636**	.746**	.797**	.694**	.788**	.826**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	330	330	330	330	330	330	330

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix above includes the sig 2 value that shows whether a relation exist among the variables. Pearson Correlations indicates the strength of the relationship among the variables. Poor Communication has a correlation coefficient of 63.6 percent with productivity of virtual workers at a p-value of 0.00 which indicates a statistically good association between Poor Communication and Productivity of Virtual Workers. Lack of Organization Structure has a

Correlation Coefficient of 74.6 percent with productivity of virtual workers at a p-value of 0.00 which indicates a statistically strong association between Lack of Organization Structure and Productivity of Virtual Workers.

Lack of Office Culture has a Correlation Coefficient of 79.7 percent with productivity of virtual workers at a p-value of 0.00 which indicates a statistically strong association between Lack of Office Culture and Productivity of Virtual Workers. Task Management Complexity has a Correlation Coefficient of 69.4 percent with productivity of virtual workers at a p-value of 0.00 which indicates a statistically good association between Task Management Complexity and Productivity of Virtual Workers. Work Unaccountability has a Correlation Coefficient of 78.8 percent with productivity of virtual workers at a p-value of 0.00 which indicates a statistically strong association between Work Unaccountability and Productivity of Virtual Workers. Work Life Unbalance has a Correlation Coefficient of 82.6 percent with productivity of virtual workers at a p-value of 0.00 which indicates a statistically strong association between Work Life Unbalance and Productivity of Virtual Workers.

Multiple Linear Regression

Table 3

Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.900[a]	.826	.820	.28969

a. Predictors: (Constant), Work Life Unbalance,
Task Management Complexity, Poor Communication, Work Unaccountability, Lack of Organization Structure, Lack of Office Culture

The table displays the results of a regression model in SPSS, indicating a good fit and a 90.0% association between the independent variables (Lack of Office Culture, Lack of Organizational Structure, Task Management Complexity, Work Life Unbalance, Worker's Unaccountability) and the dependent variable (Virtual Employee Productivity). The coefficient of the R is 0.900, indicating a 0.826 or 82.6% change in the dependent variable. The independent variables contribute to the overall performance of virtual employees.

Analysis of Variances

Table 4

Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	191.017	6	31.836	379.367	.000[a]
	Residual	27.106	323	.084		
	Total	218.123	329			

a. Predictors: (Constant), Work Life Unbalance, Task Management Complexity, Poor Communication, Work Unaccountability, Lack of Organization Structure, Lack of Office Culture

b. Dependent Variable: Productivity of Virtual Workers

The table above analysis of variance (ANOVA) shows f-value and the significance of the model which is represented by the Sig. As per the analysis, it can be said that that the model possesses a predictive value, as significance is 0.00. Thus, the null hypothesis can be rejected hypothesis (that the model has no predictive value). However, the f-value measure the goodness of fit and the value should be 4 or above. Therefore, the model is a good fit as the f-value is greater than 4 which is 379.367.

Analysis of Coefficients

Table 5

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.099	.087		1.134	.258
	Poor Communication	.019	.026	.025	7.48	.015
	Lack of Organization Structure	.258	.031	.288	8.306	.000
	Lack of Office Culture	.015	.035	.015	4.14	.009
	Task Management Complexity	.292	.022	.357	13.013	.000
	Work Unaccountability	.252	.032	.249	7.963	.000
	Work Life Unbalance	.650	.038	.683	17.098	.000

a. Dependent Variable: Productivity of Virtual Workers

The above Coefficient table presents the strength and direction of the independent variables. It also shows the significance of these variables. Poor Communication has a significant impact on Productivity of Virtual Workers as its t-value is 7.48 which is above 2 and its p-value is 0 .015 which is less than 0.05. Lack of Organization Structure has a significant impact on Productivity of Virtual Workers as its t-value is 8.306 which is above 2 and its p-value is 0.000 which is less than 0.05. Lack of Office Culture has a significant impact on Productivity of Virtual Workers as its t-value is 4.14 which is above 2 and its p-value is 0.009 which is less than 0.05.
Task Management Complexity has a significant impact on Productivity of Virtual Workers as its t-value is 13.013 which is above 2 and its p-value is 0.000 which is less than 0.05. Work Unaccountability has a significant impact on Productivity of Virtual Workers as its t-value is 7.963 which is above 2 and its p-value is 0.000 which is less than 0.05. Work Life Unbalance has a significant impact on Productivity of Virtual Workers as its t-value is 17.098 which is above 2 and its p-value is 0.000 which is less than 0.05. Moreover, in the above table, the beta value shows the magnitude of the impact of independent variable on dependent variable. Work Life Unbalance ranked first with a beta value of .683, Task Management Complexity ranked second with a beta value of .357, Lack of Organization Structure ranked third with a beta value of .288, Work unaccountability ranked forth with a beta value of .249, Poor communication ranked fifth with a beta value of .025, Lack of Office Culture comes last with a beta value of .015.

Testing and Analysis of Hypothesis

Table 6

Hypothesis Testing

S No	Hypothesis	T-Value	Sig Value	Empirical Conclusion
H1	Poor Communication structure has a significant and positive impact on productivity of virtual workers.	7.48	.015	Accepted
H2	Lack of organization structure has a significant and positive impact on productivity of virtual workers.	8.306	.000	Accepted
H3	Lack of Office Culture has a significant and positive impact on productivity of virtual workers.	4.14	.009	Accepted

H4	Task Management Complexity has a significant and positive impact on productivity of virtual workers.	13.013	.000	Accepted
H5	Work unaccountability has a significant and positive impact on productivity of virtual workers.	7.963	.000	Accepted
H6	Work life unbalance has a significant and positive impact on productivity of virtual workers.	17.098	.000	Accepted

The above table shows the status of hypotheses that have been accepted / rejected in the research. As per the above table all of the hypotheses H_1, H_2, H_3, H_4, H_5, and H_6 have been accepted. All the independent variables, (Lack of Office Culture, Lack of Organizational Structure, Task Management Complexity, Work Life Unbalance, Worker's Unaccountability) have an impact on dependent variable (Productivity of Virtual Workers).

Discussion and Conclusion

This study aims to determine the factors affecting the productivity of virtual workers. The independent variables include poor communication, lack of organization structure, office culture, task management complexity, work unaccountability, and work life unbalance. The dependent variable is productivity of virtual workers. The study was conducted in Karachi city, a populated urban area with numerous software houses. The sample size was between 300-350 respondents, depending on their accessibility. The quantitative research method was adopted, focusing on numerical data collection and statistical analysis. The researchers used various statistical tests, including ANOVA, T-test, F-test, and regression analysis. The study used a deductive approach, using a structured questionnaire and Cronbach's Alpha model to check the reliability of the data. The findings confirmed all hypotheses H1, H2, H3, H4, H5, and H6. The study found that poor communication, lack of organization structure, office culture, task management complexity, work unaccountability, and work life unbalance significantly impact the productivity of virtual workers.

Discussion

This study aimed to determine the factors affecting the productivity of the virtual workforce, focusing on poor communication, lack of organizational structure, office culture, task management complexity, work unaccountability, and work life unbalance. The dependent variable was productivity of virtual workers. Poor communication in the virtual team can lead to frustration, demotivation, loss of productivity, and reduced employee loyalty. The lack of organizational structure is another significant factor, as companies need to build a strong remote working culture to adapt to the changes linked to the COVID-19 pandemic. A corporate culture with well-established rules and regulations can accommodate virtual working well and help manage remote workers effectively. Task management complexity is another variable that has a significant association with virtual employee productivity. Complex, tightly coupled tasks may be more difficult due to the reliance on virtual tools and tendency to disband after a task has been completed.

Work unaccountability is another significant factor, as it requires team accountability and responsibility for project deliverables. Trust is crucial in remote leadership, as it requires a high level of trust between managers and employees. Establishing clear boundaries between work and personal time can reduce stress and the risk of burnout. Sustainable Development Goal 3 (SDG 3 or Global Goal 3), which focuses on "Good Health and Well-being," was established by the United Nations in 2015 to prioritize employee health and safety. This study identified several major factors affecting the productivity of the virtual workforce and suggested ways to tackle these challenges to improve working conditions for virtual employees.

Virtual working continues to grow. With remote and hybrid working patterns becoming entrenched, businesses need a solid framework more than ever. It may seem obvious, but it is not just about adopting a virtual collaboration platform, this new deal also involves centralizing communications and defining clear processes around exchanges between team members. Furthermore, it can be concluded that all the independent variables (Lack of Office Culture, Lack of Organizational Structure, Task Management Complexity, Work Life Unbalance, Worker’s Unaccountability) have an impact on dependent variable (Productivity of Virtual Workers).

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