

DESIGNING A DIGITAL WORKPLACE WITH REFERENCE TO SELECTED IT COMPANIES: A STUDY.

¹Udaya Kumar.HM, ² Dr.Irshad Nazeer

¹Research Scholar, ²Research Guide & Associate Professor

¹Presidency College affiliated to Bangalore University, Bangalore. ² PG Department of Management, Presidency College, ¹Bangalore, India, ²Bangalore, India.

ABSTRACT

The digital workplace is an integral part of any organization. The Digital Workplace helps employees to enhance their performance. Performance depends on how an employee is involved in their engagement, efficiency, competency, etc. Companies' performance depends on the individual employee, a lot of factors are influencing individual employees' performance it would be organizational, managerial, HR, and individual factors. The workplace is one among which influences more on employee performance, efficiency, engagement, competency. The workplace environment completely changed because of the implementation of advanced technologies and applications. The workplace became a digital workplace.

The main aim of the study is to explain an overview and design of the digital workplace, identify and analyse the digital tools provided by the selected IT companies to their employees. For the present study selected 15 top IT companies from Bangalore city. There are about 400 employees responded for a structured questionnaire, the percentage method is used for analysis. The study reveals that most of the selected companies have provided communication tools, collaboration tools, mobility tools, technology tools; software technologies /applications, and software programming languages to employees' do their work effectively.

Keywords: Digital workplace, Digital tools, communication, collaboration mobility, software technologies, applications, and software programming language tools, etc.

1. INTRODUCTION:

Change is the characteristic of the real growth of any business organization it helps to sustain in the global competition. Employee productivity is the sole of organizational performance. Human resources or Human capital, knowledge worker, workforce, IT employees' also can be called Digital Worker, and so on. Today, be that as it may, information must stream like never before to meet the necessities of shorter development cycles and an undeniably digital workplace. In the era of information and communication technology require a digital workplace that encourages effective communication, collaboration, and technologies; software applications by IT employees.

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the individual employee, a lot of factors are influencing employees' performance it would be organizational, managerial, HR, and individual factors. The workplace is one among which influence more on employee performance, efficiency, engagement, competency, digital skills. The workplace environment is entirely changing day by day because of the rapid implementation of advanced technologies and applications.

1.1. CONCEPT OF WORKPLACE:

The digital workplace is coordination between technology, people, and process [1]. Digital workplace enables employees to work effectively from anywhere, anytime, on any device and it provides an internet-like participative mode and user experience no matter where their location [3].

At first, the workplace of an organization was considered as its premises, for example, heating/cooling, ventilation systems, office, and so forth. These influence employees and add to (or take away from) the effective performance of their work (Vischer, 2008; Davis et al., 2011). In 1998, Hewlett-Packard introduced a printer model called Digital Workplace which immediately got popularity among different kinds of organizations. In any case, paying little psyche to its pervasiveness, the business organization decided to stop the formation of the model. The term by then returned in 2009 when Paul Miller used it to depict the climb of another workplace that was strongly established on advancement. (Benson, et al., 2002; Chinien and Boutin, 2011; Miller and Marsh, 2016) The brisk improvement of development and the presence of front line correspondence and joint exertion instruments have massively influenced the workplace (Benson, et al., 2002; Miller, 2012).

1.2. DEFINITIONS OF DIGITAL WORKPLACE:

“The digital workplace is a business strategy that enables new and more effective ways of working, improves employee engagement and agility, and exploits consumer-oriented styles and technologies.” **Gartner.**

Rudnick said, “It’s how people get work done these days – using the total of all digital tools used in the workplace, including the intranet, enterprise portals, team sites, email, and any other acronym relating to the digital environment.”

2. REVIEW OF LITERATURE:

There are core components of the digital workplace and the main activities of the employees at the workplace that are significant. For instance, the ability to think critically, to communicate successfully, to engage with others, and to team up and share thoughts [4]. Using Collaboration tools that bolster the collective work of employees, a joint effort is empowered through data and substance sharing, correspondence, participation, and coordination. Instances of utilized CSs incorporate the bee sanctuary stage utilized by the “IBM Company and Bosch Connect (Facebook-like platform) utilized by Robert Bosch Company” [4]. Also, employees have to successfully communicate utilizing accessible digital tools, technologies, and applications. Successful communication is one of the primary advanced abilities that

employees ought to have when electronically speaking with colleagues, stakeholders, and customers to organize work activities.

Digital workplace enhances employees' competency to deliver their work effectively by communicating, collaborating, connecting in the workplace [7]. To achieve the set goal we need technologies like communicative tools, collaboration tools, software technologies, and software language applications, etc., enable us to achieve the desirable feature of the digital workplace [8].

2.1. DESIGNING THE DIGITAL WORKPLACE:

A Digital workplace has several components that enable the employees anywhere, anytime, any device approaching to work. IT companies have to provide digital tools and technologies for employees' to perform their assigned tasks or work effectively. There are several digital tools and technologies have been identified and considered for the current study with the help of IT professional and reviewed related literature. Identifies digital tools and technologies put under certain domains as per their usage in the workplace. The use of tools and technologies (Software & Hardware) to achieve the company's goal all employees have to work or perform in a certain place that is called the workplace. But because of innovative digital tools & technologies, today employees need not work in a fixed time and place they can work anywhere and anytime that is called digital workplace.

The digital tools are classified under different domains or components as per their usage in the workplace. They are Communication tools, Collaboration tools, Mobility tools; technology tools such as Software Technologies /applications, Software Programming Languages. The following design of workplace explains the overview of the digital workplace and shows that how whole digital tools compiles each other and support to employees for their effective work.

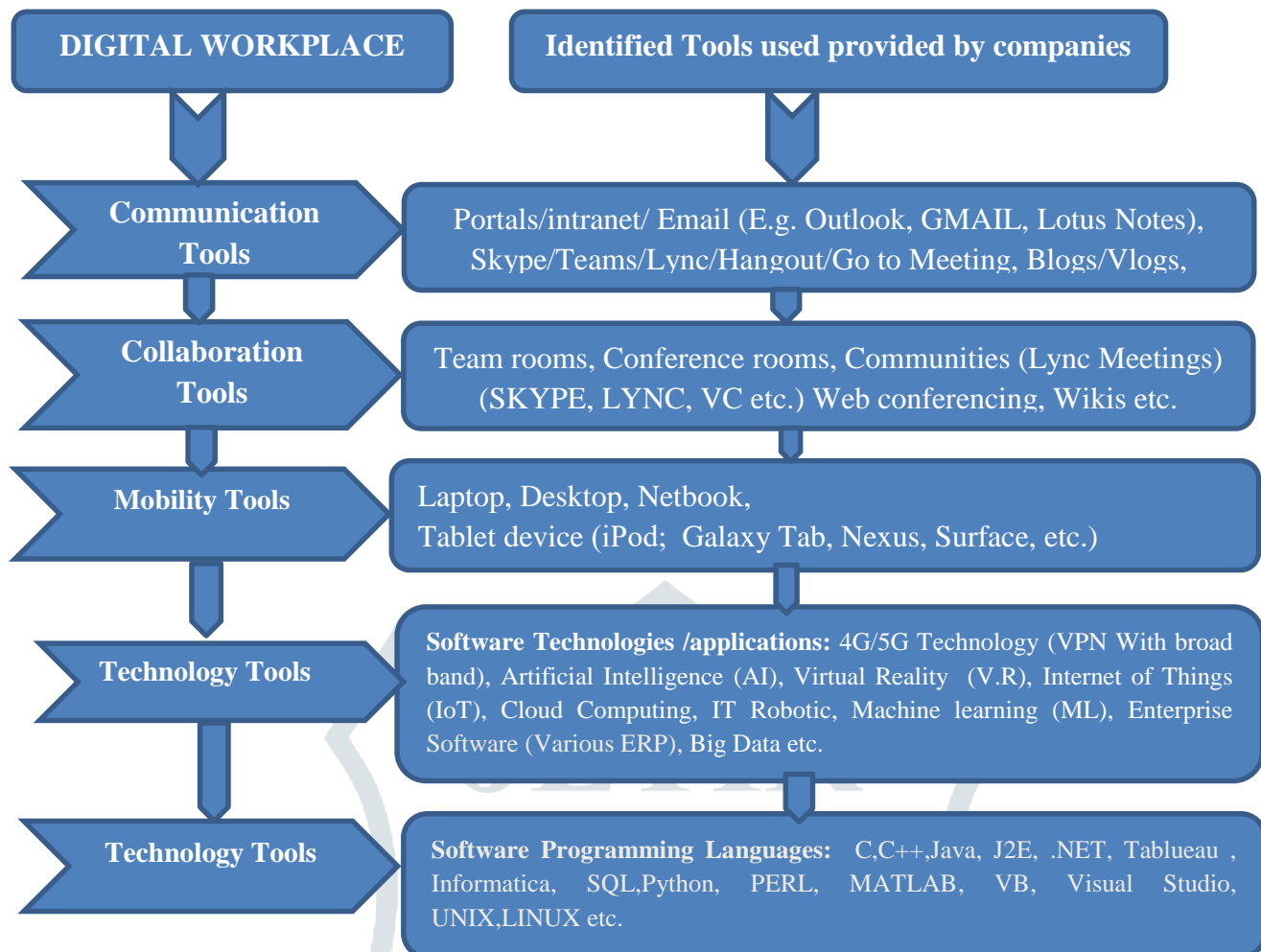


Fig 1. Designing a Digital workplace.

2.1.1. Communication Tools: The IT employees are using the following digital tools for communication with their employees and clients to do their assigned work in the workplace. They are Portals/intranet/ Email (E.g. Outlook, GMAIL, Lotus Notes), Skype/Teams/Lync/Hangout/Go to Meeting, Blogs/Vlogs, Facebook, LinkedIn, Google+, Salesforce, YouTube or other video-sharing tools, Twitter, Chatbots/ Autobots, Podcast/Vodcast, SharePoint/ OneNote/One Drive, Instagram, etc..

2.1.2. Collaboration Tools: Collaboration is the process that ensues between two or more employees or organizations working collectively to do work or achieve a set goal. Employees have to work in a team to complete their work in the better collaboration employees are using digital tools like; Team rooms, Conference rooms, Communities (Lync Meetings) (SKYPE, LYNC, VC, etc.) Web conferencing, Wikis, etc.

2.1.3. Mobility Tools: BYOT, BYOA, BYOD (Bring Your Own Technology, Bring Your Own Apps, and Bring Your Own device): **Mobility** refers to the state of being mobile or movable. Employees can work anywhere, anytime by using digital tools like; Laptop, Desktop, Netbook, Tablet device (iPod; Galaxy Tab, Nexus, Surface, etc.) In the present day, employees are more likely to bring their own devices into the workplace and use them to complete their work. The trend remains to develop business organization and feels more empowered to use their own devices with regulations for business.

2.1.4. Technology Tools-Software Technologies /applications: Technological innovation taking place very rapidly because of global competition in the IT sector. The present new software technologies and application are 4G/5G Technology (VPN With broadband), Artificial Intelligence (AI), Virtual Reality (V.R), Internet of Things (IoT), Cloud Computing, IT Robotic, Machine learning (ML), Enterprise Software (Various ERP), Big Data, etc.

2.1.5. Technology Tools-Software Programming Languages: Software Programming Languages like C, C++, Java, J2E, .NET, Tableau, Informatica, SQL, Python, PERL, MATLAB, VB, Visual Studio, UNIX, LINUX, etc. are significant digital tools will support employees' to perform easier, faster and perfect.

A digital workplace is a vital part of any organization because it lesser the dependence on a physical workplace. The physical freedom gives more changes in the employees' working style and ability.

3. RESEARCH METHODOLOGY:

The research methodology deals with the topic of the study, objectives & scope. The current study is about “Designing a Digital workplace with reference to selected IT companies: A study”.

3.1. RESEARCH OBJECTIVES:

1. To study the overview of the digital workplace.
2. Designing a Digital Workplace for IT employees.
3. Identify the digital tools provided to employees by the employer to do their work effectively.
4. To analyse the digital tools provided by employers from the selected top IT companies.

3.2. SCOPE OF THE STUDY:

Today's world is competitive in which only employees have to update and adapt to the new environment to survive. The study will help to employers about the importance of training on reskilling to adapt and enhance their performance and efficiency level in a digital workplace. The research will support top-level management to take proper steps to control disadvantages in the digital workplace environment. Employees will understand their efficiency level in the digital workplace. It will measure the comfort and interest of employees in the digital workplace.

The focus of the study is on designing a digital workplace with reference to selected IT companies in Bangalore city. There are 397 IT employees were interviewed from 15 companies for the current research study.

Study Area: Study will carry out in ‘**Bangalore city**’. Bangalore city has been selected as it is named as ‘Silicon Valley of India’ due to the concentration of numerous software companies. **IT Services and**

Product based Companies: IT companies have many segments hence this study will be conducting in services-based and product-based IT companies.

Variables for study: Digital workplace means digital tools and technologies providing to employees to do their job effectively. There are plenty of digital tools providing to the employees but the current study will be considered major digital tools provided by IT companies.

3.3. SAMPLE DESIGN:

Sample Unit: The study focuses on service and product-based IT companies in Bangalore city, Karnataka, India. The top 15 service and product-based companies are considered for the current research study.

Sampling Technique: Sampling techniques are used for selecting a sample from the population by reducing the number of respondents in a manageable size.

The sampling technique used for the current research is 'convenience sampling'.

SAMPLE SIZE: The sample size for the current study is 400 IT employees from 15 IT companies in Bangalore city, Karnataka. The collected sample size is 400 out of which 397 is considered remaining rejected.

Sample Size formulation: Sampling is a procedure that helps to draw a portion of units that are representative of the entire population and help to conclude the whole population. The sample size was arrived using the formula for sample size calculation when the population is unknown.

3.4. Considerations for Sample Size Formula:

1. Population Size: Treated as unknown (as there is no reliable statistical data available on the number of IT employees in Bengaluru).

2. The Margin of Error (Confidence Interval): The confidence interval determines how much higher or lower than the population mean that can be allowed to make the sample mean fall. It is fixed at 5%. (0.05).

3. Confidence Level: The confidence that to be maintained so that the actual mean falls within the confidence interval set. The most common confidence intervals are 90% confident, 95% confident and 99% confident. In this case, it is taken as 95%.

4. Standard Deviation: The level of variance that can be expected in the responses. Usually, it is taken as 0.5.

$$\text{Sample Size} = (Z\text{-Score})^2 \times \text{Std.Dev} \times (1\text{-Std.Dev}) / (\text{Error Margin})^2$$

(Note: Z score for 90% = 1.645, Z Score for 95% = 1.96, Z Score for 99% = 2.576)

$$\begin{aligned} 'n' &= [(1.96)^2 \times (0.5) \times (1-0.5)] / (0.05)^2 \\ &= 397. \end{aligned}$$

It is aimed to achieve 400 samples, which includes some extra buffer samples. 397 responses are considered remaining is rejected.

3.5. DATA COLLECTION TOOLS: The secondary data was collected from various journals, magazines, newspapers, and books available in the library. Primary data was collected through interviews from experts (Industry experts and academicians) and a survey was conducted by administering structured questionnaires. The expert interviews were taken by personal visits to companies and a questionnaire survey was conducted by personal visits online as well as in some of the organizations.

Statistical Tool: Simple Percentage.

Questionnaire Design: A structured questionnaire was considered consisting of closed-ended and open-ended questions.

3.6. DATA ANALYSIS TECHNIQUES: The data analysis techniques aspect of the research method can generally be either quantitative or qualitative. In the quantitative research method, the emphasis is on the quantification of the collected data. We use quantitative research in a deductive approach to ascertain the relationship between theory and research, which focuses on testing theory.

4. DATA ANALYSIS & INTERPRETATION:

I have made a list of digital tools that are essential for employees' to do their work effectively with the help of experts and dived into five types of tools as per the usage. Questions asked for 397 respondents from selected top IT companies in Bangalore city. There are 276 male and 171 female employees who responded.

1. Does your company provide Communication tools like Portals/intranet/ Email (E.g. Outlook, GMAIL) Skype/Teams/Lync/Hangout/Go to Meeting, Blogs/Vlogs, Facebook, LinkedIn, Google+, YouTube or other video-sharing tools, SharePoint/ OneNote/One Drive, etc.?

Table 4.1: Communication Tools.

SL NO	Communication Tools	No. of respondents	Percent
1	No	96	24
2	Yes	301	76
	Total	397	100.0

Source: Survey based

Interpretation: 76% of the IT employees' responded the company provided communication tools to do their work effectively-remaining 24% responded not provided.

Conclusion: Most of the employees' responded the company provided communication tools to do their work effectively.

2. Does your company provide collaboration tools like Team rooms, Conference rooms, Communities (Lync Meetings) (SKYPE, LYNC, VC, etc.), Web conferencing?

Table 4.2: Collaboration Tools.

SL NO	Collaboration Tools	No. of respondents	Percent
1	No	12	3
2	Yes	397	97
	Total	397	100.0

Source: Survey based

Interpretation: 97% of the IT employees' responded the company provided collaboration tools to do their work effectively-remaining 3% responded not provided.

Conclusion: Most of the employees' responded the company provided collaboration tools to do their work effectively.

3. Does your company provide Mobility tools like Laptop, Desktop, Netbook, Tablet device (iPad; Galaxy Tab, Nexus, Surface, etc.)?

Table 4.3: Mobility Tools.

SL NO	Mobility Tools (BYOT, BYOA, BYOD)	No. of respondents	Percent
1	No	77	20
2	Yes	320	80
	Total	397	100.0

Source: Survey based

Interpretation: 80% of the IT employees' responded the company provided mobility tools to do their work effectively-remaining 20% responded not provided.

Conclusion: Most of the employees' responded to the company provided mobility tools to do their work effectively.

4. Does your company provide technology tools; Software technologies /applications; Artificial Intelligence (AI), Virtual Reality (V.R), Internet of Things (IoT), Cloud Computing, IT Robotic, Machine learning (ML), Enterprise Software (Various ERP), Big Data, etc.?

Table 4.4: Software Technologies /Applications Tools.

SL NO	Software Technologies /Applications Tools	No. of respondents	Percent
1	No	137	35
2	Yes	260	65
	Total	397	100.0

Source: Survey based

Interpretation: 65% of the IT employees' responded the company provided technology tools to do their work effectively-remaining 35% responded not provided.

Conclusion: Most of the IT employees' responded that the company provided collaboration tools-Software Technologies /Applications to do their work effectively.

5. Does your company provide technology tools; Software Programming Language tools like SQL, Python, PERL, MATLAB, etc., VB, Visual Studio, UNIX, LINUX, and HTML (HyperText Markup Language), PHP (Hypertext Preprocessor), Angular JS, React JS (UI Frameworks), etc?

Table 4.5: Software Programming Languages Tools.

SL NO	Software Programming Languages Tools	No. of respondents	Percent
1	No	17	30
2	Yes	380	70
	Total	397	100.0

Source: Survey based

Interpretation: 70% of the IT employees' responded the company provided collaboration tools- Software programming language tools to do their work effectively-remaining 30% responded not provided.

Conclusion: Most of the IT employees' responded that the company provided collaboration tools- Software Programming Language tools to do their work effectively.

5. FINDINGS:

1. Most of the IT companies provided communication tools to IT employees' do their work effectively.
2. The selected IT companies provided collaboration tools to IT employees' do their work effectively.
3. Most of the IT companies provided mobility tools to IT employees' do their work effectively.
4. Most of the IT companies provided technology tools; Software Technologies /applications to IT employees' to do their work effectively.
5. Most of the selected IT companies provided technology tools; Software Programming Languages to IT employees' to do their task effectively.
6. The overview of the digital workplace and build a Digital Workplace for IT employees.
7. Identified the digital tools provided to employees by the employer to do them effectively.
8. To analyze the digital tools provided by employers from the selected top IT companies.

6. LIMITATION OF THE STUDY:

1. The current study is considered the top 15 IT companies from Bangalore city.
2. It is only focused on five types of digital tools that are communication, collaboration, mobility, technology.
3. Employees' usage of digital tools is not considered.
4. IT enabled, BPO companies are not considered in the present study.

7. CONCLUSION:

The workplace environment entirely changed because of the quick implementation of advanced technologies and applications. The workplace became a digital workplace. The study reveals that most of the selected top 15 companies have provided communication tools, collaboration tools, mobility tools, software technologies /applications, and software programming/ languages to their employees' do their work effectively. The current study tried to make sure that whether the main digital tools are have been provided to their employees. With the help of surveys design a digital workplace and in the future can check how this could impact employees' performance.

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