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From Connectivity to Productivity: Examining the Influence of ICT based E-Learning on Employee Performance: A Study with Reference to Multinational Companies

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I. ABSTRACT

Technology is indispensable across all sectors, with organizations of all sizes—small, medium, and large-scale—integrating it into their operations. Many enterprises leverage advanced Information and Communication Technology (ICT) to foster growth and bolster revenue streams. Looking forward, ICT is expected to play a crucial role in augmenting employee performance significantly. This study focuses on examining how information and communication technologies-based e-learning affect employee productivity. The research methodology involves administering questionnaires to gather data. Through these surveys and relevant inquiries, the study assesses the impact of ICT on organizational efficiency. The findings underscore a substantial increase in employee effectiveness within multinational corporations that implement ICT solutions. This highlights ICT's potential in optimizing workforce productivity and operational outcomes on a global scale. As businesses continue to innovate and integrate technological advancements, the role of ICT in shaping organizational success and employee performance will likely continue to expand.

Keywords: *Employee Productivity, Digital Transformation, MNCs, Organizational Services and IT Industries.*

II. INTRODUCTION

Organizations serve as essential centers where millions collaborate (Adenfelt & Lagerström, 2008; Alavi & Leidner, 2001). Annually, approximately 1.2 million companies register under India's Ministry of Corporate Affairs, highlighting the significant role they play in fostering employment and contributing to the country's economic development. These entities operate across private, government, and semi-government sectors (Almeida et al., 2002; Bigliardi et al., 2010). CEOs are instrumental in driving their organizations forward through strategic initiatives aimed at overall enhancement. Companies exhibit diverse characteristics and organizational structures, spanning a wide array of sectors and operational models. Each sector

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brings its own challenges and opportunities, shaping the landscape in which these organizations operate and innovate.

- Local Companies
- National Companies
- International Companies
- Multi-National Companies

Companies adhere to diverse principles aimed at enhancing their organizational effectiveness. The performance of a company is intricately linked to the performance of its employees, with both aspects being directly proportional to each other. Organizations often invest in strategies to optimize employee performance through training, incentives, and supportive work environments. Conversely, high employee performance contributes to overall organizational success by driving innovation, productivity, and customer satisfaction. This mutual dependence highlights the dynamic interplay between individual contributions and organizational outcomes, emphasizing the critical role of human capital in shaping corporate performance and sustainability strategies. As companies evolve, they continuously refine their approaches to align employee capabilities with strategic objectives. The *figure 1* shows the four aspects of how the employee performance is increased:

- Incentives
- Applications
- Communication
- Tools

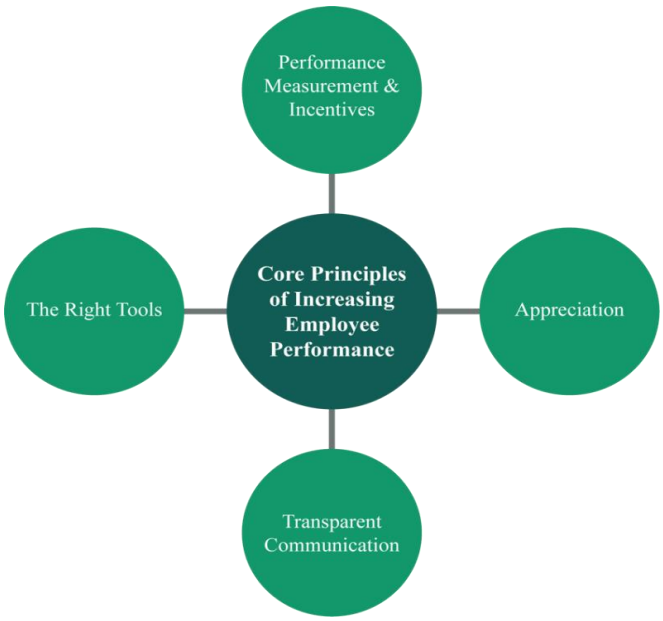

Figure 1. Core principle of increasing performance of employees in an organization

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When these four factors are optimized, employee performance consistently improves (Ferdows, 2009; Gupta & Govindarajan, 2000; Hislop, 2002). Research indicates that achieving excellence in these areas leads to a significant increase in employee performance. Various studies have explored avenues to enhance performance through performance-based systems and software. These initiatives focus on creating frameworks and tools that align employee efforts with achievement. By emphasizing these foundational elements, organizations can drive continuous improvement in employee productivity and effectiveness. This underscores the importance of strategic management practices and technological innovations in shaping modern workforce dynamics and organizational success.

The first three aspects mentioned above can be managed easily by leadership, but the crucial factor lies in "The Right Tools" (Iyengar et al., 2015; Jasimuddin et al., 2011; Mageswari et al., 2015). Management must carefully choose appropriate tools to enhance employee performance effectively. This entails selecting tools and technologies that align with organizational goals and support employees in achieving their tasks efficiently. The right tools can streamline processes, improve communication, and provide necessary resources, thereby empowering employees to perform at their best. Investing in suitable tools reflects a strategic commitment to enhancing productivity and optimizing workflow within the organization. Thus, alongside leadership and organizational support, equipping employees with the right tools gives in driving performance improvement and improves conducive work environment for achieving sustainable success. Some of the tools which are available in the market and have generated noticeable benefits in this direction are:

- Engagedly
- Recruiterbox
- Oracle HCM
- Bamboo HR
- Qandle
- PossibleWorks
- UltiPro
- Impraise
- PeopleFluent
- Vibe Talent
- Synergita
- 15five
- PeopleHum
- ReviewSnap
- CRG emPerform

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ICT is a critical area that requires significant attention from many companies which want to excel in the area of enhancing employee performance and productivity, with e-learning being a significant component of ICT (Malhotra et al., 2005; Merton, 1968; Minbaeva, 2007). When organizations utilize ICT for training and development purposes, it profoundly influences employee performance and contributes to organizational development.

III. ICT BASED KNOWLEDGE FLOW AND TRANSFER

ICT, short for Information Communication Technology, denotes technological advancements that aid in sharing knowledge as computers progress. E-learning, which became notably prevalent during lockdowns, has garnered attention across diverse organizations (Monteiro et al., 2008; O'brien & Marakas, 2012; Panahi et al., 2013). This period has witnessed a tremendous rise in the use of ICT-driven tools by numerous organizations to reach out to remote workers in an effective manner without compromising the workflow.

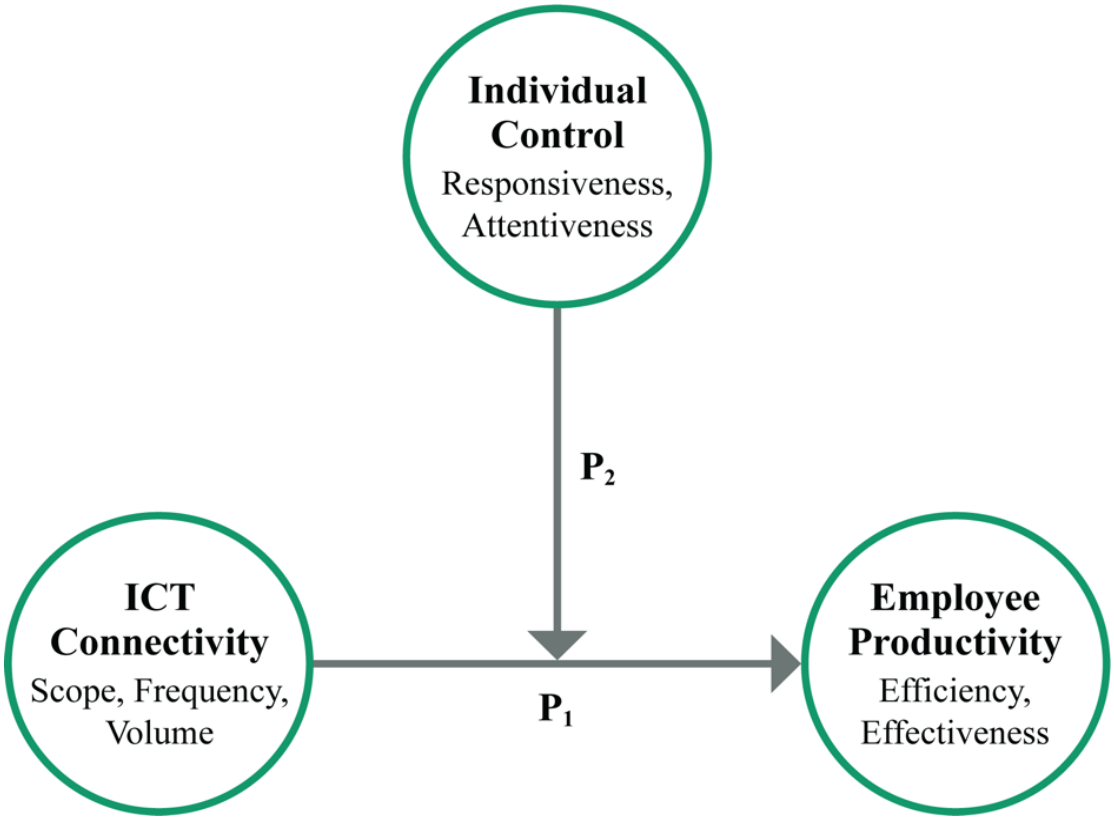

Figure 2. Impact of ICT on increasing performance of employees in organization

- ICT connectivity is a crucial factor that every organization must adhere to with established rules. If ICT usage is mandatory, then the ICT platform must ensure robust connectivity

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(Roberts, 2000; Schreiber et al., 2011; Song, 2014). Greater connectivity fosters enhanced knowledge sharing. As depicted in Figure 2, when ICT connectivity is individually controlled for each user, it significantly boosts employee performance and productivity.

- A reliable knowledge receiving platform is pivotal for effective knowledge transfer. Seamless data sharing and accurate data computing are imperative (Sook-Ling et al., 2015; Szulanski, 1996; Szulanski, 2000). Cloud computing and web service platforms offer viable solutions. Organizations can develop integrated software applications for comprehensive online and offline training. Many multinational corporations employ sophisticated knowledge transfer methods for effective communication. E-learning plays an increasingly vital role in the realm of ICT (Dangolani, 2011; Oluwagbemi et al., 2011).

ICT implementation varies based on several critical factors:

- Firstly, **Connectivity**: Ensuring reliable and widespread connectivity is essential for uninterrupted ICT operations within an organization. This supports continuous knowledge exchange and operational efficiency.
- Secondly, **Platforms**: Utilizing cloud computing and web services enhances ICT capabilities, facilitating seamless data management and accessibility.
- Thirdly, **Applications**: Developing specialized software applications enables organizations to provide comprehensive training and support, both online and offline, optimizing workforce competence.
- In conclusion, ICT's effectiveness hinges on robust connectivity, advanced platforms, and tailored applications. These elements collectively contribute to enhancing organizational performance through efficient knowledge transfer and skill development.
- Methodology
- Data analyzing
- Learning and management
- Professional ethics
- Managerial economics
- Sustainable development
- Training and retrieving etc.

IV. LITERATURE REVIEW

Introduction Digital Technology vital component in organizations, significantly impacting various business operations, including employee performance. ICT tools—ranging from computers and the internet to cloud computing and advanced software applications—have revolutionized the way employees perform tasks, communicate, and collaborate. This literature review explores the current research on the importance of ICT in bringing employee performance, focusing on productivity, communication, skill enhancement, job satisfaction, and organizational performance.

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ICT and Employee Productivity ICT has a profound influence on employee productivity, which is often a key indicator of organizational success. Research by Brynjolfsson and Hitt **(2003)** indicates that firms investing in ICT infrastructure see significant gains in worker productivity. These technologies streamline operations by making employee to do tedious jobs easily.

Bakos (2018**)** elaborates different ICT tools which makes employees manage workflows efficiently, reducing delays and improving accuracy. However, the adoption of these tools must be aligned with proper training and integration into business processes to achieve maximum productivity benefits.

ICT and Communication The introduction of ICT has transformed communication within organizations. Platforms like emails, SMS, and collaborative tools like Slack, and Microsoft Teams have made communication faster and more efficient. Zhang et al. (2019**)** suggest that ICT enables seamless information sharing, improves decision-making processes, and fosters better team collaboration, especially in geographically dispersed teams.

However, some researchers like Kraut et al. (2002**)** caution that an over-reliance on ICT for communication may reduce face-to-face interaction, potentially leading to misinterpretation of information and reduced team cohesion. Therefore, the appropriate balance between digital and personal interaction is critical in leveraging ICT for better communication.

ICT and Skill Enhancement ICT enhances employee skills through continuous learning opportunities. E-learning platforms, webinars, and digital training modules allow employees to upskill or reskills, which improves their performance on the job. According to Ritchie and Brindley (2005**)**, companies that leverage ICT for training purposes often see a direct impact on employees' competencies, as they become more adept at using technology to solve problems and innovate in their roles.

Furthermore, the adoption of ICT also demands a certain level of digital literacy from employees, as pointed out by Alam et al. (2021**).** Organizations must provide ongoing training to ensure that employees remain competent in using these technologies, which, in turn, positively affects their job performance.

ICT and Job Satisfaction ICT can significantly influence job satisfaction, which is closely linked to employee performance. Studies such as those by Tarafdar et al. (2011) emphasize that while ICT can enhance job satisfaction by making tasks easier and more engaging, it can also lead to job stress (technostress) if employees feel overwhelmed by the rapid pace of technological changes.

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Huang et al. (2015) argue that providing employees with user-friendly ICT tools and offering sufficient support can mitigate these negative effects, leading to higher satisfaction levels. Satisfied employees tend to be more motivated, productive, and engaged, contributing positively to overall organizational performance.

ICT and Organizational Performance At the organizational level, the adoption of ICT tools correlates with improved overall performance. Devaraj and Kohli (2003) found that ICT investment leads to better operational performance by improving decision-making, reducing costs, and enhancing market competitiveness. ICT also facilitates innovation by enabling employees to work more creatively and collaboratively.

Moreover, Melville et al. (2004) discuss how ICT systems contribute to better data management and analytics, enabling organizations to track performance metrics and implement data-driven strategies that boost employee output and organizational efficiency.

Challenges and Barriers Despite the clear advantages of ICT on employee performance, challenges persist. One issue, as identified by Ayyagari et al. (2011), is the rapid pace of technological advancements, which may overwhelm employees and create resistance to adoption. Additionally, security concerns such as data breaches and cyberattacks, as noted by Dhillon and Backhouse (2001), can deter organizations from fully embracing ICT, impacting employee productivity and trust.

Another challenge is the digital divide, especially in developing countries where access to advanced ICT tools may be limited. Heeks (2002) highlights that the disparity in ICT resources can result in unequal opportunities for performance enhancement among employees.

V. RESEARCH GAP

Examining the Influence of ICT on Employee Performance

1. **Lack of Longitudinal Studies on ICT Adoption and Employee Performance:** Most studies on ICT and employee performance rely on cross-sectional data, which only captures the impact of ICT at a single point in time. This limits the understanding of how the influence of ICT on performance evolves over time as employees become more familiar with the technology or as new systems are introduced. A research gap exists in longitudinal studies that investigate the long-term effects of ICT adoption on employee performance, including changes in productivity, job satisfaction, and skill development over time.
2. **Inconsistent Measurement of Employee Performance:** There is a lack of consensus on how to measure employee performance in ICT-driven environments. While many studies

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use traditional productivity metrics (e.g., output per hour), ICT's impact may also manifest in more nuanced ways, such as creativity, problem-solving abilities, and decision-making speed. Additionally, performance metrics in knowledge-based and creative industries—where ICT tools like AI, data analytics, and collaborative platforms are central—are underexplored. **Standardized and comprehensive performance metrics** that incorporate both qualitative and quantitative factors are needed to assess the multifaceted influence of ICT on employees.

3. **Limited Research on the Role of ICT in Different Job Functions and Sectors:** Most of the existing literature on ICT and employee performance focuses on general business environments or specific sectors, such as IT or finance. However, the differential impact of ICT on various job functions (e.g., administrative roles versus creative roles) or across sectors such as education, healthcare, and manufacturing remain understudied. Future research should investigate how ICT influences performance in more diverse job roles and industries to gain a broader understanding of its effects.
4. **Overlooking Employee Adaptability and Resistance to ICT:** Another gap is the lack of focus on employee adaptability and resistance to ICT. While studies mention the positive impacts of ICT adoption, there is insufficient research on how employees adapt to new technologies or resist them due to technostress, fear of job loss, or lack of digital skills. Future research should explore the psychological and behavioral aspects of ICT adoption, including how factors like organizational culture, change management strategies, and training programs influence employee adaptability and performance.
5. **Neglecting SMEs:** While large enterprises have been the primary focus of research on ICT adoption and performance, SMEs face unique challenges in implementing ICT, including limited resources, lack of technical expertise, and slower adoption rates. The impact of ICT on employee performance in SMEs remains underexplored, despite the fact that SMEs play a crucial role in many economies. Further research is needed to investigate how ICT can be effectively leveraged in smaller businesses to enhance employee performance.
6. **The Impact of Emerging Technologies:** Recent advances in emerging technologies such as artificial intelligence (AI), machine learning, blockchain, and the Internet of Things (IoT) have the potential to drastically change employee performance. However, there is a limited body of research examining the influence of these newer ICT tools on performance outcomes. For example, how AI-enabled tools can augment employee decision-making or how IoT can streamline operations in specific industries remains largely unexplored. Investigating the effects of these emerging technologies is critical for understanding the future landscape of ICT's impact on employee performance.
7. **Geographic and Cultural Differences in ICT Impact:** Most of the literature on ICT's impact on employee performance is centered on developed countries. There is a notable gap in understanding how geographic and cultural differences affect ICT adoption and its

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influence on performance in developing countries or regions with limited technological infrastructure. Cultural attitudes toward technology, availability of resources, and government policies all play roles in shaping how ICT impacts employees in different parts of the world. Future research should address these regional variations to provide a more global perspective.

8. **Work-Life Balance and ICT:** While ICT can enhance employee performance, it can also lead to blurred boundaries between work and personal life, contributing to burnout and reduced job satisfaction. The impact of ICT on work-life balance and how these influences long-term employee performance remains an understudied area. Research focusing on how ICT tools such as remote work platforms, mobile devices, and instant communication systems impact employees' work-life balance and mental health can shed light on the trade-offs between productivity gains and personal well-being.

VI. CONCEPTUAL FRAMEWORK

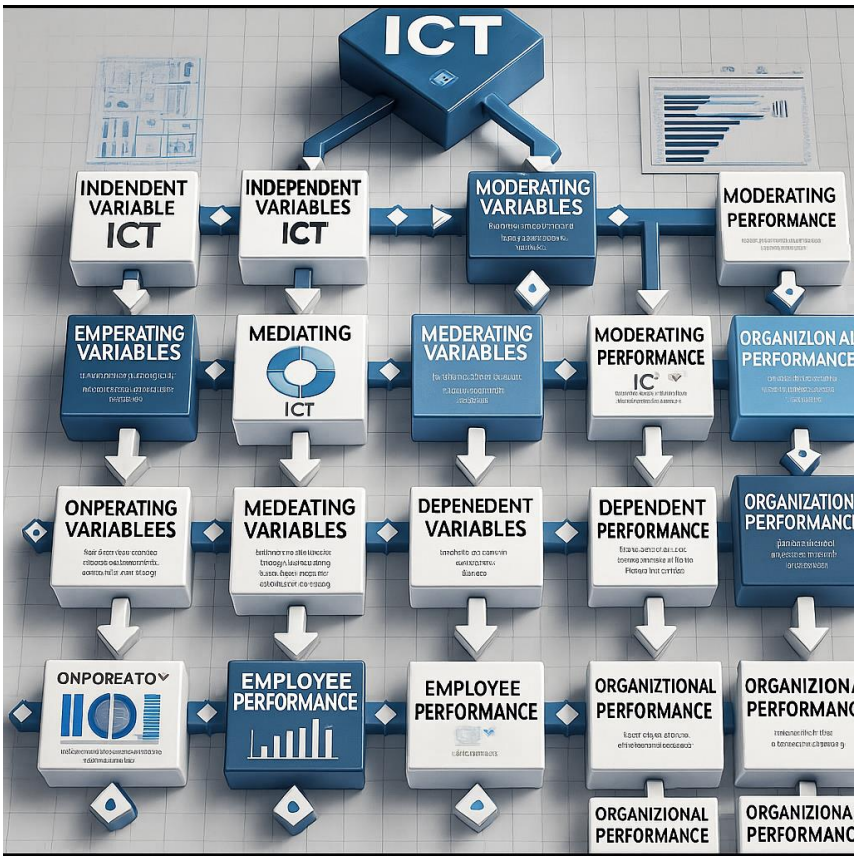

Figure 3. Conceptual Framework

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1. **Independent Variable: ICT**

This is the starting point of the framework. ICT influences all subsequent variables and outcomes. It includes:

- ICT Infrastructure: The physical and digital technologies that enable ICT (e.g., hardware, networks).
- Communication Tools: Email, messaging platforms, video conferencing, etc., to facilitate interaction.
- Productivity Software: Tools like project management apps, ERP systems, and collaboration platforms.
- Emerging Technologies (AI, IoT): Advanced technologies that drive innovation and efficiency.
- E-Learning & Training Tools: Platforms to upskill employees and support learning.

Arrow pointing downward → ICT drives other variables.

2. **Mediating Variables**

These variables influence how ICT impacts employees. They serve as intermediaries:

- Employee ICT Competence: Employees' ability to use ICT effectively.
- Training and Support: Resources provided to improve ICT skills and solve technical issues.
- Technostress: Stress caused by overuse or complexity of ICT tools.
- Employee Adaptability: Workers' capacity to adapt to new technology or processes.

Arrow pointing downward → Mediating variables shape ICT's effectiveness.

3. **Moderating Variables**

These factors modify the impact of ICT on employees and outcomes. They include:

- Organizational Support: Leadership, resources, and encouragement for ICT adoption.
- Job Function & Industry: Variability in ICT importance across roles and sectors.
- Work Environment: Physical or remote setups influencing ICT usage.
- Geographic & Cultural Factors: Regional and cultural differences in ICT acceptance.

Arrow pointing downward → Moderating variables influence the strength and direction of ICT's impact.

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4. Dependent Variable: Employee Performance

This is the key outcome of ICT implementation, shaped by the mediating and moderating variables. It includes:

- Productivity: Efficiency in task completion.
- Quality of Work: Precision and reliability of results.
- Job Satisfaction: Positive feelings and motivation derived from work.
- Innovation and Creativity: Ability to generate new ideas and solutions.
- Collaboration and Communication: Teamwork and information sharing.

Arrow pointing downward → Employee performance affects organizational outcomes.

5. Organizational Performance

The final outcome of the framework, driven by employee performance. It includes:

- Operational Efficiency: Streamlined workflows and optimized resource use.
- Decision-Making: Data-driven insights and informed choices.
- Competitive Advantage: The ability to outpace competitors using ICT

VII. OBJECTIVES

Examining the Influence of ICT on Employee Performance

This paper explores the impact of Information and Communication Technology (ICT) on employee performance across various dimensions. The specific objectives of the study are:

1. **To Investigate the Effect of ICT on Individual Performance** This explains usage of ICT tools and systems contribute to enhancing or hindering employee productivity, focusing on areas such as task efficiency, automation, and time management.
2. **To Assess the Role of ICT in Facilitating Communication and Collaboration** The objective is to explore how ICT influences employee communication, both within teams and across different departments, and its effect on collaboration, especially in remote or distributed work environments.
3. **To Evaluate the Influence of ICT on Skill Development and Training** This objective seeks to analyze how ICT contributes to employee skill enhancement

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through digital training programs, e-learning platforms, and access to knowledge, and how these developments impact overall job performance.

4. **To Examine the Relationship Between ICT Use and Employee Job Satisfaction**
   This objective aims to assess how ICT tools influence employee satisfaction, looking at factors like job ease, engagement, and the potential for technostress or burnout due to the constant connectivity ICT provides.
5. **To Analyze the Effect of ICT on Organizational Performance Through Employee Output**
   The research will examine how the adoption of ICT affects broader organizational outcomes such as operational efficiency, innovation, and competitiveness, with a focus on how these factors are driven by employee performance.
6. **To Identify Challenges and Barriers in ICT Adoption that Impact Employee Performance**
   This objective will explore the obstacles employees face when using ICT, such as resistance to new technology, lack of digital literacy, or insufficient infrastructure, and how these barriers affect their performance.
7. **To Investigate the Role of Emerging ICT Tools (AI, IoT, Cloud Computing) on Employee Performance**
   This objective focuses on analyzing the influence of new and emerging ICT technologies, such as AI and IoT, on employee tasks, decision-making processes, and overall performance.
8. **To Understand Geographic and Sectoral Variations in ICT's Impact on Employee Performance**
   This objective aims to explore how the influence of ICT on employee performance differs across regions, cultures, and industries, and to identify any specific challenges or advantages in varying contexts.

VIII. HYPOTHESIS

- **H1: ICT utilization positively impacts employee productivity.**
  - Employees who extensively use ICT tools (e.g., project management software, automation, communication platforms) are more likely to experience increased productivity and task efficiency compared to those who use ICT less frequently.
- **H2: ICT facilitates better communication and collaboration among employees.**
  - The adoption of ICT improves team unity and enhances communication efficiency, especially in geographically dispersed or remote work environments.

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- **H3: ICT enhances employee skill development and learning opportunities.**
  - Employees who engage with ICT-based training tools and e-learning platforms are more likely to give better job performance.
- **H4: The use of ICT positively influences employee job satisfaction.**
  - Employees who use ICT tools that simplify tasks and streamline workflows are more likely to report higher levels of job satisfaction compared to those with limited access to effective technology.
- **H5: Emerging ICT technologies (AI, IoT, data analytics) effects.**
  - The introduction of AI enhances employees' decision-making capabilities, thereby improving their overall performance.
- **H6: Techno stress negatively affects employee performance.**
  - Employees who experience technostress due to the complexity or overuse of ICT tools are more likely to exhibit lower performance levels and job dissatisfaction.
- **H7: Organizational support moderates the relationship between ICT use and employee performance.**
  - Employees in organizations that provide adequate support (e.g., training, technical assistance, leadership support) for ICT adoption are more likely to experience a stronger positive relationship between ICT use and performance.
- **H8: The impact of ICT on employee performance varies across industries and job functions.**
  - ICT has a differential impact on employee performance depending on the industry sector and the nature of the job, with greater benefits in roles that rely heavily on technology, such as IT and finance, compared to more manual or creative roles.
- **H9: ICT tools that promote work-life integration increase the employees' skills.**
  - Information and Communication Technology (ICT) tools that support work-life integration play a vital role in enhancing employees' skills by enabling flexible work arrangements, encouraging continuous learning, and improving time management.

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IX. METHODOLOGY

To uncover the facts and the ground realities, the researcher employs survey method. Questionnaire was designed and divided into three sections. The study included seeking the perception of 100 employees of selected MNCs. Data collection was conducted meticulously, and statistical analysis was performed. This primary data will serve as the basis for evaluating employee performance.

To increase the authenticity of collected material, certain criteria of inclusion and exclusion were followed for the selection of sample populace. The following are the details:

1. Productivity and Efficiency Gains

- **Rationale**: Productivity is a key performance metric in most MNCs, and ICT tools are designed to streamline processes, automate repetitive tasks, and enhance workflow efficiency. This criterion focuses on the ability of ICT to improve task completion rates, reduce manual errors, and increase overall output. MNCs rely heavily on ICT to manage large-scale operations, optimize supply chains, and ensure timely project completion across multiple locations.
- **Measurement**: Key performance indicators (KPIs) such as output per employee, task completion time, and project turnaround time can be used to evaluate the impact of ICT on productivity.

2. Collaboration and Communication Effectiveness

- **Rationale**: MNCs often have dispersed teams working across different time zones, cultures, and geographic regions. Effective communication and collaboration are crucial for maintaining organizational cohesion. ICT tools are critical for enhancing interaction and teamwork among global employees.
- **Measurement**: This can be assessed by tracking collaboration efficiency (number of virtual meetings, response times, and team coordination), employee feedback on communication tools, and the effectiveness of cross-functional team projects.

3. Employee Adaptability and Technological Competence

- **Rationale**: In MNCs, employees need to continually adapt to new ICT systems and emerging technologies. Their ability to quickly learn and use ICT tools effectively is crucial for maintaining performance levels. This criterion looks at the role of ICT in fostering employee adaptability, learning, and the development of digital skills.

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Companies that invest in training and support for ICT adoption has greater effect on an employee efficiency.

- **Measurement**: Employee surveys on ease of technology adoption, participation rates in ICT training programs, and assessment of employees' digital literacy skills can help evaluate how well employees are adapting to ICT innovations.

X. SAMPLE SIZE & SAMPLE SELECTION PROCESS

The first section focuses on collecting essential information where employers provide background details about their organization. This includes fields such as company name, address, year of establishment, industry type, ownership status, certifications, and number of employees. The second section is crucial, containing 12 questions focusing on ICT and its impact on companies and its internal stakeholders. These questions explore aspects such as effectiveness, efficiency, reliability, implementation strategies, extent of usage, representation, and the types of tools employed by different companies. The third section involves gathering suggestions and feedback from employees regarding the questionnaire.

The questionnaire was distributed to employees within the organization to assess various aspects of ICT's impact on multinational corporations and the performance of employees. It evaluates how ICT influences different factors as outlined below:

- Time Management
- Workload
- Easy interaction
- Data Security
- Operation time
- Fault tolerance
- Speed
- Money management
- Information management
- Flexibility
- Compatibility
- Efficiency
- Effectiveness

XI. FINDING & ANALYSIS

1. What type of training program do you take up in the ICT based e-learning platform?

a) Job related training b) Self Development courses

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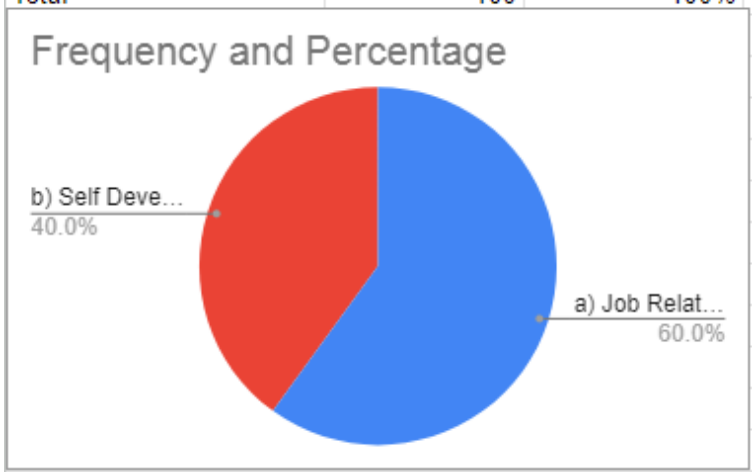
Category	Frequency	Percentage
a) Job Related Training	60	60%
b) Self Development Courses	40	40%
Total	100	100%



Finding and Analysis:

- Majority (60%) of corporate training participants prefer job-related training programs on ICT-based e-learning platforms.
- 40% opt for self-development courses, indicating a significant interest in personal growth and skill enhancement.
- Based on the finding and analysis, hypothesis no-H3 is proved.

Insights for Training Providers:

- Tailor ICT-based e-learning programs to meet job-specific requirements.
- Offer a range of self-development courses to cater to diverse interests.

2. Frequency of the usage of the e-learning system?

a) Daily

b) Weekly

c) Monthly

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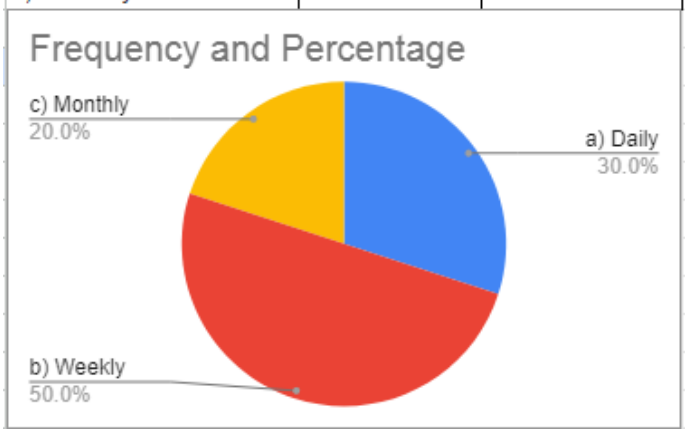
Category	Frequency	Percentage
a) Daily	30	30%
b) Weekly	50	50%
c) Monthly	20	20%



Finding and Analysis:

- Half of the corporate training participants (50%) use the e-learning system on a weekly basis.
- 30% access the system daily, indicating a high level of engagement.
- 20% use the system monthly, suggesting room for increased adoption.
- Based on the finding and analysis, hypothesis no-H1 is proved.

Insights for Training Providers:

- Design e-learning content to support frequent usage (daily/weekly).
- Encourage less frequent users (monthly) through targeted communication and reminders.
- Monitor usage patterns to optimize system features and content.

3. Please select the ICT based E-learning Delivery Method used in your organization

a) Instructor Led Classroom
b) Virtual Classroom/ Webcast
c) Blended Learning d) Social Learning
e) Online or Computer based Technologies
f) Mobile Devices
g) Other (please specify):

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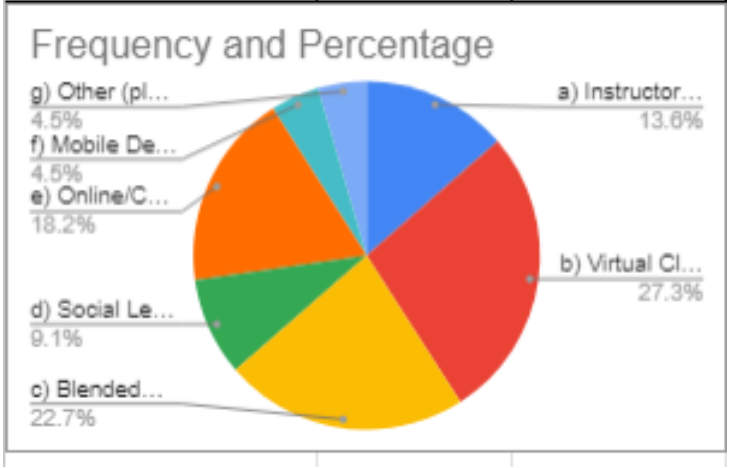
Category	Frequency	Percentage
a) Instructor Led Classroom	15	15%
b) Virtual Classroom/Webcast	30	30%
c) Blended Learning	25	25%
d) Social Learning	10	10%
e) Online/Computer Based	20	20%
f) Mobile Devices	5	5%
g) Other (please specify)	5	5%



Finding and Analysis:

- Virtual Classroom/Webcast (30%) is the most preferred delivery method.
- Blended Learning (25%) and Online/Computer Based (20%) follow closely.
- Instructor Led Classroom (15%) and Social Learning (10%) are less preferred.
- Mobile Devices (5%) and Other (5%) are the least used.
- Based on the finding and analysis, hypothesis no-H2 is proved.

Insights for Training Providers:

- Invest in virtual classroom/webcast infrastructure and content.
- Develop blended learning programs combining online and offline training.
- Enhance online/computer-based technologies for effective delivery.
- Explore mobile device optimization for future growth.

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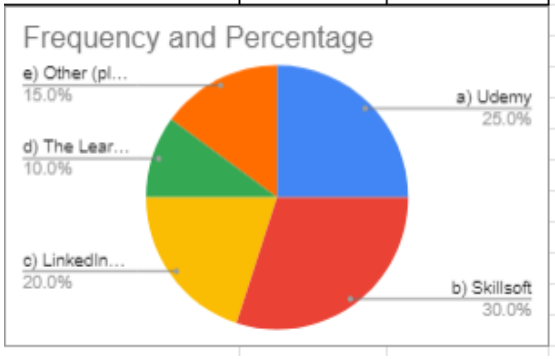
4. Please select the ICT based E-learning Technology used in your organization

a) Udemy
b) Skillsoft
c) LinkedIn Learning
d) The Learning Network
e) Other (please specify):

Category	Frequency	Percentage
a) Udemy	25	25%
b) Skillsoft	30	30%
c) LinkedIn Learning	20	20%
d) The Learning Network	10	10%
e) Other (please specify)	15	15%



Finding and Analysis:

- Skillsoft (30%) is the most widely used ICT-based e-learning technology.
- Udemy (25%) and LinkedIn Learning (20%) follow closely.
- The Learning Network (10%) is less preferred.
- 15% use other technologies (e.g., Coursera, edX, Google Classroom).
- Based on the finding and analysis, hypothesis no-H3 is proved.

Insights for Training Providers:

- Integrate Skillsoft and Udemy into existing training infrastructure.
- Leverage LinkedIn Learning for professional development.
- Explore The Learning Network for niche training needs.
- Consider other emerging technologies for future growth.

5. Give your opinion on the quality of system usability and accessibility:

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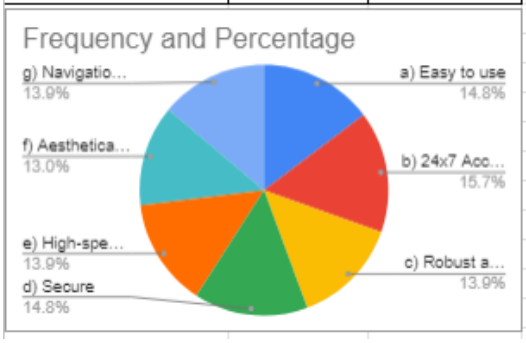
a) Easy to use
b) 24x7 access
c) Robust and Reliable
d) Secure
e) High speed access
f) Aesthetically satisfying
g) Navigation and course findability

Category	Frequency	Percentage
a) Easy to use	85	85%
b) 24x7 Access	90	90%
c) Robust and reliable	80	80%
d) Secure	85	85%
e) High-speed access	80	80%
f) Aesthetically satisfying	75	75%
g) Navigation and course findability	80	80%



Finding and Analysis:

- 90% of users appreciate 24x7 access.
- 85% find the platform easy to use and secure.
- 80% consider the system robust, reliable, and provide high-speed access.
- 75% find the platform aesthetically satisfying.
- Based on the finding and analysis, hypothesis no-H4 is proved.

Insights for Training Providers:

- Ensure continuous accessibility and technical support.
- Maintain user-friendly interface and navigation.
- Prioritize data security and privacy.
- Optimize system performance for high-speed access.

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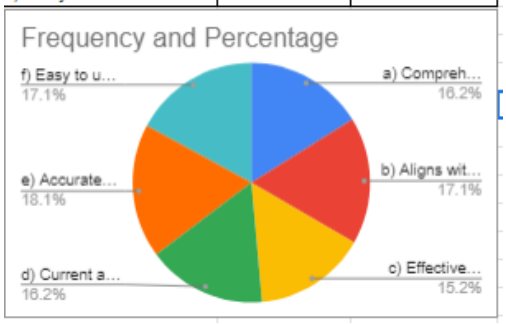
6. Give your opinion based on the quality of the content provided by the ICT based E-Learning system:

a) The content provided by the system is comprehensive to gain thorough knowledge of the concept
b) The content fits my learning objectives
c) Effective Presentation
d) The content is current and up-to-date
e) E-learning provides accurate content
f) Easy to understand

Category	Frequency	Percentage
a) Comprehensive content	85	85%
b) Aligns with learning objectives	90	90%
c) Effective presentation	80	80%
d) Current and up-to-date	85	85%
e) Accurate content	95	95%
f) Easy to understand	90	90%



Finding and Analysis:

- 95% of users praise the accuracy of the content.
- 90% find content aligned with learning objectives and easy to understand.
- 85% consider content comprehensive and up-to-date.
- Based on the findings and analysis, hypothesis no-H3 is proved.

Insights for Training Providers:

- Ensure content accuracy and relevance.
- Align content with learning objectives.
- Use effective presentation methods.

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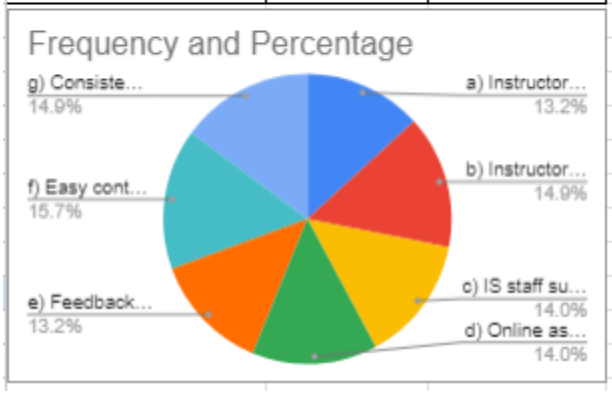
- Regularly update content.

7. Give your opinion based on the quality of the content delivered by the ICT based E-Learning system:

a) The instructor could be contacted for consultation.
b) The instructor demonstrated good knowledge of the subject matter.
c) IS staff support and assistance is available when and where needed.
d) The e-learning system provides a proper level of on-line assistance and explanation.
e) I am able to give feedback about the courses that I took up in the elearning platform
f) Easy content access.
g) Consistent Evaluation

Category	Frequency	Percentage
a) Instructor consultation	80	80%
b) Instructor expertise	90	90%
c) IS staff support	85	85%
d) Online assistance	85	85%
e) Feedback mechanism	80	80%
f) Easy content access	95	95%
g) Consistent evaluation	90	90%



Finding and Analysis:

- 95% praise easy content access.
- 90% appreciate instructor expertise and consistent evaluation.
- 85% value IS staff support and online assistance.
- Based on the finding and analysis, hypothesis no-H7 is proved.

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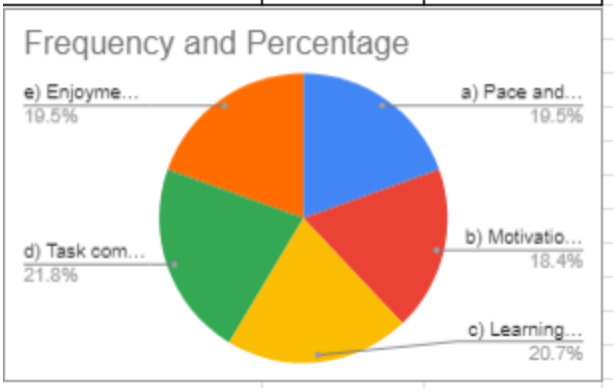
Insights for Training Providers:

- Ensure instructor expertise and availability.
- Provide robust IS staff support.
- Offer comprehensive online assistance.
- Implement consistent evaluation methods.

8. Give your opinion based on your characteristics as a learner in the ICT based E-Learning system:

a) The system allows me to control the pace and order in which the material can be accessed.
b) I am motivated to learn the material in this online platform.
c) The system is designed to suit different learning styles of individuals.
d) I am able to complete the learning tasks in the e-learning platform.
e) I like and enjoy learning in the e-learning platform.

Category	Frequency	Percentage
a) Pace and order control	85	85%
b) Motivation to learn	80	80%
c) Learning style accommodation	90	90%
d) Task completion	95	95%
e) Enjoyment of learning	85	85%



Finding and Analysis:

- 95% successfully complete learning tasks.
- 90% appreciate accommodation of different learning styles.
- 85% value pace and order control and enjoy learning.
- Based on the finding and analysis, hypothesis nos-H3,H4 is proved.

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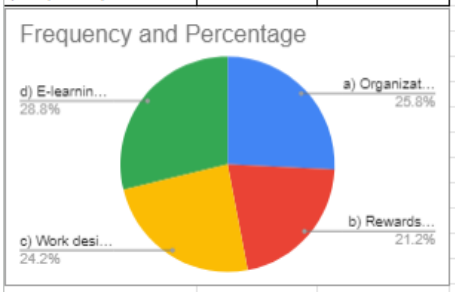
Insights for Training Providers:

- Design flexible learning pathways.
- Incorporate varied learning materials.
- Ensure user-friendly interface.
- Foster engaging learning environment.

9. Give your opinion based on your learning environment:

a) My organization supports continuous learning.
b) Rewards and recognition for courses completion.
c) Work design to try new things on the job and aids personal development.
d) E-learning provides required facilities such as chat and forum.

Category	Frequency	Percentage
a) Organizational support for continuous learning	85	85%
b) Rewards and recognition for course completion	70	70%
c) Work design for trying new things and personal development	80	80%
d) E-learning facilities (chat, forum)	95	95%



Finding and Analysis:

- 95% appreciate e-learning facilities.
- 85% feel organizational support for continuous learning.
- 80% value work design for personal development.
- Based on the finding and analysis, hypothesis no-H7 is proved.

Insights for Training Providers:

- Foster organizational culture supports continuous learning.
- Implement recognition and reward systems.

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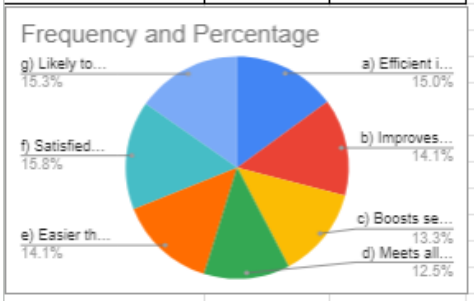
- Design work to encourage experimentation and growth.
- Ensure robust e-learning infrastructure.

10. Give your opinion about the usefulness and satisfaction:

a) efficient in terms of time and cost
b) E-learning helps to improve my performance
c) E-learning gives me self confidence
d) E-learning satisfies all my learning needs
e) It was easier to learn the course in the online platform than other training methods I have taken.
f) I am satisfied with the performance of the e-learning system
g) I would use the e-learning system to study in the future

Category	Frequency	Percentage
a) Efficient in time and cost	90	90%
b) Improves performance	85	85%
c) Boosts self-confidence	80	80%
d) Meets all learning needs	75	75%
e) Easier than other training methods	85	85%
f) Satisfied with system performance	95	95%
g) Likely to use in future	92	92%



Finding and Analysis:

- 95% are satisfied with system performance.
- 92% likely to use e-learning in future.
- 90% find e-learning efficient in time and cost.
- Based on the finding and analysis, hypothesis nos-H1, H4 is proved.

Insights for Training Providers:

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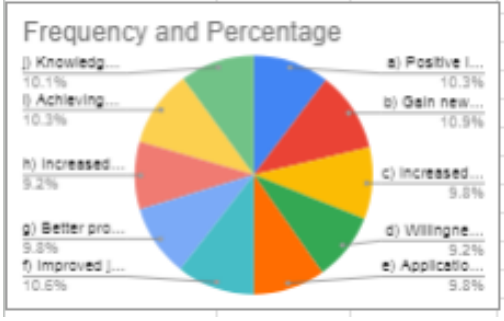
- Ensure efficient and cost-effective solutions.
- Continuously improve system performance.
- Develop engaging and effective content.
- Foster self-confidence through interactive features.

11. Benefits to Personal and organization:

a) E-Learning had a positive impact on my personal growth
b) I gain new knowledge through the e-learning system
c) I have taken more responsibility for my own learning in the E-Learning platform than I usually do
d) I willingly share what I have learnt with my team members
e) I am encouraged to try new things learnt from the training in my daily work
f) My job performance has improved since completing that training program
g) Better products/services to customers
h) Increased ROI
i) Achieving Organizational goals
j) Knowledge Retention

Category	Frequency	Percentage
a) Positive impact on personal growth	90	90%
b) Gain new knowledge	95	95%
c) Increased responsibility for learning	85	85%
d) Willingness to share knowledge	80	80%
e) Application of new skills	85	85%
f) Improved job performance	92	92%
g) Better products/services	85	85%
h) Increased ROI	80	80%
i) Achieving organizational goals	90	90%
j) Knowledge retention	88	88%



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Finding and Analysis:

- 95% gain new knowledge through e-learning.
- 92% report improved job performance.
- 90% experience positive impact on personal growth.
- Based on the finding and analysis, hypothesis nos-H1, H3, H4, H5, H7, H9 is proved.

Insights for Training Providers:

- Develop relevant and engaging content.
- Encourage self-directed learning.
- Foster knowledge sharing.
- Align training with organizational goals.

XII. DISCUSSIONS

Based on data provided by these employees from different firms, various parameters were measured, and results are presented in 'Table 1'. Each employee was asked to vote for only one parameter. In future research, each employee will be asked to select multiple parameters.

Complete graph is illustrated in Figure 4.

Table 1: Parameters Measurement

S.No.	Parameter	Number of Employees
1	Time Management	14
2	Work Load	11
3	Easy Interaction	10
4	Data Security	10
5	Operation Time	9
6	Fault Tolerance	8
7	Speed	7
8	Money Management	7
9	Information Management	6
10	Flexibility	6

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11	Compatibility	5
12	Efficiency	4
13	Effectiveness	3

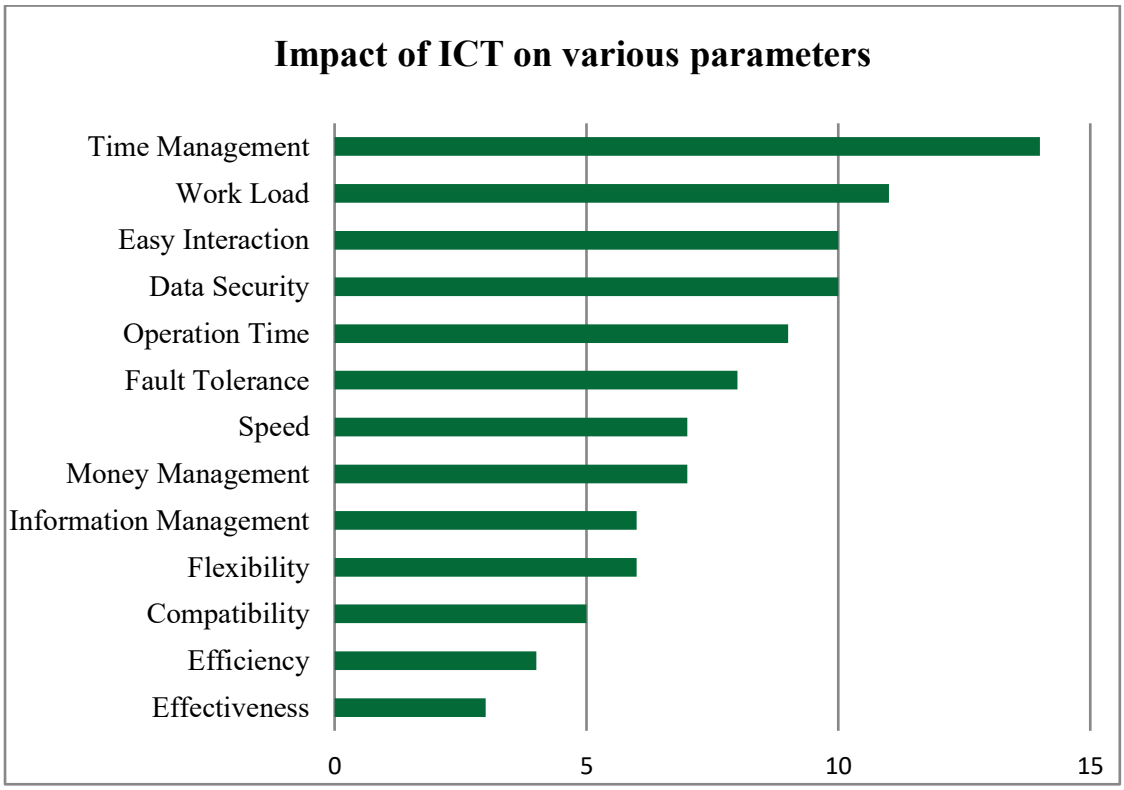

Figure 4. Impact of ICT on various parameters

According to the research, ICT usage is most valued for time management and least valued for effectiveness. Employee performance can be evaluated using various parameters that contribute to organizational improvement. Different statistical analyses were conducted overall, ensuring fairness and calculating averages. The empirical analysis from the survey yielded significant insights.

XIII. INTERPRETATION

The data collected from employees across various firms reveals insightful patterns regarding the key parameters they prioritize in the context of ICT-based systems. Each participant was allowed to select one parameter that they considered most important.

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Top Prioritized Parameters:
The highest number of employees (21) identified Time Management as the most valuable feature in ICT applications. This reflects a strong preference for tools and systems that help manage tasks efficiently reduce delays, and streamline scheduling and workflows.

Following closely, Workload management was highlighted by 20 employees. This shows that employees value systems that reduce complexity and distribute work evenly. It indicates a demand for ICT tools that assist in automating routine tasks, thereby alleviating pressure and minimizing manual effort.

Mid-Level Preferences:
A moderate number of participants identified Easy Interaction (14), Data Security (12), and Operation Time (10) as important factors. These responses suggest that communication ease, protection of sensitive information, and speed of system operations play a substantial role in user satisfaction.

Lower Priority Parameters:
Features like Fault Tolerance and Speed (each with 9 responses), followed by Money Management and Information Management (7 each), received a fair amount of attention. Although these are not top-rated, they are still relevant and should not be overlooked when designing or improving ICT systems.

Least Selected Features:
Parameters such as Flexibility (6), Compatibility (4), Efficiency (4), and Effectiveness (2) received the fewest votes. These may either be perceived as already sufficient in current systems or not as critical compared to other pressing needs. However, the low numbers might also suggest a lack of awareness or understanding of their importance among users.

Implications for Future Research:
Since each employee selected only one parameter, the results reflect singular preferences rather than a comprehensive view of their expectations. For a more detailed understanding, future research should allow respondents to select multiple parameters. This would help identify overlapping priorities and the relative importance of each parameter when considered together.

Strategic Recommendations:
Organizations should prioritize improving time and workload management in their ICT systems, as these areas show the highest demand. Simultaneously, ensuring smooth interaction, robust data security, and quick operational response times should form the next tier of development focus. Less prioritized parameters should be periodically reassessed to ensure users' satisfaction.

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XIV. CONCLUSION

The findings shows the impact of usage of ICT on employee performance.

Key Findings:

1. ICT enhances employee productivity and efficiency.
2. ICT facilitates effective communication and collaboration.
3. ICT provides access to relevant information and knowledge.
4. ICT enables flexible work arrangements and work-life balance.
5. ICT supports continuous learning and professional development.

Implications:

1. Multinational companies should look for provision of ICT for employee performance.
2. It is important for organizations to offer guidance and training to help employees make effective use of ICT tools.
3. Supervisors should promote the adoption of ICT tools to enhance communication, teamwork, and information exchange among employees.
4. Businesses must give importance to safeguarding data and protecting user privacy.

Recommendations for Future Research:

1. Investigate the impact of ICT on employee well-being and job satisfaction.
2. Examine the role of ICT in enhancing innovation and creativity.
3. Analyze the effect of ICT on employee engagement and retention.
4. Explore the influence of ICT on organizational culture and change management.

Limitations:

1. Sample size and geographical scope.
2. Self-reported data may be subject to biases.
3. Study focuses on multinational companies.

Theoretical and Practical Contributions:

1. Aligns with the principles of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT)
2. Provides insights to HR managers and organizational leaders.
3. Informative for ICT policy development.

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Final Thoughts:

Effective ICT implementation can significantly enhance employee performance, contributing to organizational success. Multinational companies should prioritize ICT based e-learning investment, training, and support to maximize benefits.

REFERENCES

1. Adenfelt, M., Lagerström, K. (2008). The development and sharing of knowledge by centres of excellence and transnational teams: A conceptual framework. *Management International Review* (48), 319-338. [CrossRef]
2. Alavi, M., Leidner, D.E. (2001). Review: Knowledge management and knowledge management systems: conceptual foundations and research issues. *MIS Quarterly* (25), 107-136. [CrossRef]
3. Almeida, P., Song, J., Grant, R.M. (2002). Are firms superior to alliances and markets? An empirical test of cross-border knowledge building. *Organization Science* (13), 147-161. [CrossRef]
4. Bigliardi, B., Ivo Dormio, A., Galati, F. (2010). ICTs and knowledge management: An Italian case study of a construction company. *Measuring Business Excellence* (14), 16-29. [CrossRef]
5. Chew, W. B., Clark, K. B., Bresnahan, T. (1990). Measurement, Coordination and Learning in a Multi-plant Network. *Measures for Manufacturing Excellence*, *edited by Robert S. Kaplan. Boston: Harvard Business School Press*. 129-162. [CrossRef]
6. Dangolani, S.K. (2011). The impact of information technology in banking system (A case study in Bank Keshavarzi Iran). *Procedia-Social and Behavioral Sciences* (30), 13-16. [CrossRef]
7. Di Gangi, P.M., Wasko, M.M., Tang, X. (2012). Would You share?: Examining knowledge type and communication channel for knowledge sharing within and across the organizational boundary. *International Journal of Knowledge Management* (8), 1-21. [CrossRef]
8. Erden, Z., Klang, D., Sydler, R., et al. (2014). Knowledge-flows and firm performance. *Journal of Business Research* (67), 2777-2785. [CrossRef]
9. Ferdows, K. (2009). POM Forum: Transfer of Changing Production Know-How. *Production and Operations Management* (15), 1-9. [CrossRef]
10. Gupta, A.K., Govindarajan, V. (2000). Knowledge flows within multinational corporations. *Strategic Management Journal* (21), 473-496. [CrossRef]
11. Hislop, D. (2002). Mission impossible? Communicating and sharing knowledge via information technology. *Journal of Information Technology* (17), 165-177. [CrossRef]

Power System Technology
ISSN:1000-3673
Received: 16-04-2025 Revised: 05-05-2025 Accepted: 22-06-2025

12. Iyengar, K., Sweeney, J.R., Montealegre, R. (2015). Information technology use as a learning mechanism: The impact of IT use on knowledge transfer effectiveness, absorptive capacity, and franchisee performance. *MIS Quarterly* (39), 615-641. [CrossRef]
13. Jasimuddin, S.M., Connell, N., Klein, J.H. (2011). Knowledge transfer frameworks: An extension incorporating knowledge repositories and knowledge administration. *Information Systems Journal* (22), 195-209. [CrossRef]
14. Mageswari, S.U., Sivasubramanian, C., Dath, T.S. (2015). Knowledge management enablers, processes and innovation in small manufacturing firms: a structural equation modeling approach. *The IUP Journal of Knowledge Management* (13), 33-58. [CrossRef]
15. Malhotra, A., Gosain, S., Sawy, O.A.E. (2005). Absorptive capacity configurations in supply chains: Gearing for partner-enabled market knowledge creation. *MIS Quarterly* (29) 145-187. [CrossRef]
16. Merton, R.K. (1968). Social Theory and Social Structure. *The Free Press*, New York. [CrossRef]
17. Minbaeva, D.B. (2007). Knowledge transfer in multinational corporations. *Management International Review* (47), 567–593. [CrossRef]
18. Monteiro, L.F., Arvidsson, N., Birkinshaw, J. (2008). Knowledge flows within multinational corporations: Explaining subsidiary isolation and its performance implications. *Organization Science* (19), 90–107. [CrossRef]
19. O'brien, J.A., Marakas, G. (2012). Introduction to Information Systems. *McGraw-Hill Inc.*, New York. [CrossRef]
20. Oluwatolani, O., Joshua, A., and Philip, A. (2011). The Impact of Information Technology in Nigeria's Banking Industry. *Journal of Computer Science and Engineering* (7), 63-67. [CrossRef]
21. Panahi, S., Watson, J., Partridge, H. (2013). Towards tacit knowledge sharing over social web tools. *Journal of Knowledge Management* (17), 379-397. [CrossRef]
22. Roberts, J. (2000). From know-how to show-how? Questioning the role of information and communication technologies in knowledge transfer. *Technology Analysis and Strategic Management* (12), 429-443. [CrossRef]
23. Schreiber, D., Junior, V., Chaves, D., et al. (2011). Knowledge transfer in product development: an analysis of Brazilian subsidiaries of multinational corporations. *BAR - Brazilian Administration Review* (8), 288-304. [CrossRef]
24. Song, J. (2014). Subsidiary absorptive capacity and knowledge transfer within multinational corporations. *Journal of International Business Studies* (45), 73-84. [CrossRef]
25. Sook-Ling, L., Ismail, M.A., Yee-Yen, Y. (2015). Information infrastructure capability and organisational competitive advantage: Framework. *International Journal of Operations & Production Management* (35), 1032-1055. [CrossRef]

Power System Technology
ISSN:1000-3673
Received: 16-04-2025 Revised: 05-05-2025 Accepted: 22-06-2025

26. Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal* (17), 27-43. [CrossRef]
27. Szulanski, G. (2000). The process of knowledge transfer: A diachronic analysis of stickiness. *Organizational Behavior and Human Decision Processes* (82), 9-27. [CrossRef]