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Digital Transformation And Workforce Readiness With Reference To Bsnl, Kalaburgi

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Abstract: Digital transformation and workforce readiness with reference to within the leading entity, BSNL. The Industry of telecommunications is one full of rapid digital transformations, with operators at its very centre, adapting to the changing technological advancements and consumption patterns. Bharat Sanchar Nigam Limited, or BSNL as it is popularly known, is one such state-owned leading company in India's telecom industry that has plunged headfirst into this transformation to keep the competitive edge. The mission of BSNL is to provide qualitative, reliable, and affordable communication services of choice across India, while the vision lies in leading technological innovations with a flair for customer satisfaction within the telecom sector.

BSNL Kalburgi has embarked on its journey of digital transformation to modernize its operation and upgrade the quality-of-service delivery, aligning with the big goals of Digital India. The organization is adopting modern advanced technologies like cloud computing, AI, and IoT for better process optimization and network reliability and to offer innovative services to the customers. This is not upgrading the technology alone but reengineering the inner culture, processes, and systems so that the company remains competitive in a rapidly changing telecommunications environment.

Workforce readiness is a key aspect of this makeover. BSNL Kalburgi is putting money into the upskilling and reskilling of its staff to make them smart in terms of digital skills. Various relevant topics-covered under training programs-include the following: digital literacy, data analytics, cybersecurity; hence, equipping staff with the ability to operate and maintain new digital systems. This will serve to create a culture of continuous learning and adaptation wherein employees feel empowered toward effectively contributing to the company's digital objectives.

Keywords: BSNL, Effectively, workforce, affordable.

I. INTRODUCTION

The industry experiences continuous development of technology, challenges with regulations, and investments. The appearance of 5G technology is facilitating innovation, with the promise of delivering higher speeds and shorter latency that will allow the implementation of new applications like IoT (Internet of Things), Driverless cars, and smart cities. Telecom has an important place in the modern world. It is responsible for the development of the economy and the provision of digital transformation in all kinds of sectors.

The Indian telecommunication industry is one of the fastest-growing sectors of the economy and forms a vital part of its progress. From merely being a state-controlled monopoly to an open market for all private players, the Indian telecommunication industry has experienced a sea change. Since the liberalization policies in the 1990s, this transformation has been attracting particular attention, more so after the recent regulatory reforms.

India has the second-largest telecommunications market in the world, with over a billion subscribers. The sector is typified by an especially high diffusion rate of mobile phones in view of the higher subscription base contributed by mobile services. All this has been complete possible with the advent of low-cost smartphones and fairly cheap data plans, hence easy access to the internet across the two of, urban and rural zones.

Major players in the Indian telecommunication industry include Bharti Airtel, Reliance Jio, Vodafone Idea, and state-owned Bharat Sanchar Nigam Limited. Reliance Jio literally wowed the sector into disruption with its pricing-for-disruption approach in 2016, turning the whole industry into a data boom, where other telecoms were forced to revise tariffs downward and, in turn, improve service quality.

The regulatory environment, under the TRAI (Telecom Regulatory Authority of India), ensures fair competition and consumer protection. Despite rapid growth, the industry is still fighting off challenges of high spectrum costs, financial stress among operators, and very big funding that are required in infrastructure to support emerging technologies such as 5G.

Increased digital connectivity and bridging of the digital divide, under the Indian government's initiative known as Digital India, will be boosted further in the sector. The Indian telecommunications industry is poised for continuous, innovative growth, majorly contributing to the country's digital economy on account of continuous upgrading and policy support.

II. LITERATURE

(Aras & Gülçin , 2023) This study develops a comprehensive digital maturity model, encompassing strategy and governance aspects of an organization's digital transformation journey, applicable to both private and public organizations.

(TRISCHLER & JASON LI-YING, 2022) This study develops a comprehensive digital maturity model, encompassing strategy and governance aspects of an organization's digital transformation journey, applicable to both private and public organizations.

(Mudul & Anuva Choudhury, 2024) The study explores the impact of employee agility on digital technology adoption and transformation, highlighting key agile characteristics like collaborative mindset, computer self-efficacy, and adaptability in Industry 4.0 context.

(Alrasheedi & David Sammon, 2022) This review paper analyses 70 empirical papers from 2010-2022 to understand Workforce Transformation (WT) the context of Digital Transformation, identifying six key characteristics: digital competency, digital culture, digitally engaged workspace, empowerment, and transformational leadership.

(McCarthy & David Sammon, 2021) The study explores Digital Transformation Leadership (DTL) through a systematic review of 87 papers, identifying eight key characteristics and mapping them to c-suite roles, aiming to increase awareness among leaders.

(Rêgo & Diogo Lourenço , 2023) The article explores the impact of digital transformation on business strategies and professional skills, assessing universities' adaptation to digital literacy and workforce re-skilling, and identifying gaps in existing literature.

(Ostmeier & Maria Strobel , 2022) The study reveals that employees' perceptions of organizational changes, driven by digital transformation, positively impact their proactive skill development, with digital maturity positively influencing this, highlighting implications for research and organizational practices.

(Dias & André M. Carvalho , 2022) This study explores Quality 4.0, a concept focusing on technological implications, business management, strategy models, and human factors, highlighting growing interest in its meaning in the digital transformation context.

(Lee & Juan Meng , 2021) The research examines communication professionals' readiness for Industry 4.0 digital transformations, identifying five key skills and knowledge dimensions. It highlights the need for advanced competencies in data management and digital crisis management, providing practical insights for industry leaders.

(MUEHLBURGER & BARBARA KRUMAY, 2022) The study identifies individual characteristics that support organizational digital transformation (DT) and reveals that employees in highly digitized organizations have higher IDTR levels, enhancing understanding of how traits and organizational culture impact DT success

(Barišić & Joanna Rybacka Barišić, 2022)The paper explores the impact of digital transformation on HR management, highlighting the need for HR leaders to update their skills and competencies to drive organizational performance, highlighting the underemphasis of HR in digital strategies.

(Tratkowska, 2019)This paper discusses digital transformation (DT) definitions, implications for business models, megatrends, and theoretical concepts. It highlights evolving approaches and excellence models, with Digital Capability Maturity Models as a framework.

(Silva, R. Soltovski , & , 2022)The study explores the impact of Industry 4.0 and disruptive technologies on HRM, identifying 13 key themes and guiding HR professionals to adapt to digitalization for a more productive workplace.

(Nurhasanah & Jenris Mangatur Sinambela, 2022)The paper explores the integration of digital technologies into Human Resource Management, highlighting both challenges and opportunities. Challenges include resistance to change, privacy issues, and skill gaps, while opportunities include improved recruitment, employee engagement, performance management, and data-driven decision-making. It emphasizes the need for strategic use of digital technologies for agility and competitive advantage.

(Verma & Murugesan Venkatesan, 2021)The study explores the challenges organizations face in implementing Industry 4.0 technologies and the key HR success factors through a systematic literature review. It aims to develop an effective HR framework to support Industry 4.0 adoption and enhance understanding of its impact on HR management, providing valuable insights for practitioners, academics, and researchers.

(Radukić & Zoran Mastilo2, 2019)This paper explores the impact of digital transformation and network externalities on telecom markets, comparing developed and developing countries. It hypothesizes that digital transformation leads to increased subscribers and reduced service prices, with further increases in subscribers and network consolidation expected.

(Asgharnia & arman ahmadizad , 2023)This study examines the challenges telecom companies face in adopting digital strategies for growth and stability, highlighting the unique difficulties they face in adapting to new business models and emerging technologies, highlighting the importance of digital transformation.

(VINTILĂ & Dan POPESCU b, 2020)The research emphasizes the need to improve organizational communication in the telecommunications industry, particularly in light of the rise of Artificial Intelligence and digital technologies, and emphasizes the importance of aligning communication strategies with digital transformations and HR policies.

(Álvaro Nicolás-Agustín & Álvaro Nicolás-Agustín,, 2022)The study reveals that human resource practices, such as teleworking, teamwork, and employee engagement, are crucial for supporting digital transformation in the Industry 4.0 era, highlighting the strategic importance of human capital management in this process.

(Udovita, 2020) The paper discusses digital disruption effects on industries, describing how digitalization is not about the adoption of technologies but requires a basic rethink of business models and value propositions. This paper answers this critical question through a literature review: what to transform in a business for effective digital transformation and points toward future research directions concerning the effective implementation and measurement of these changes.

III. RESEARCH DESIGN

3.1 STATEMENT OF THE PROBLEM

The research investigates results of the digital transformation on readiness within Bharat Sanchar Nigam Limited are explored in this research, focusing on an organization to: Assess the status of the current state of digital transformation initiatives by BSNL and their implications for the skills, adaptability, and general readiness of the workforce. It will also look into the problems which the employees face in adjusting to new technologies and processes, and check to understand the strategies being implemented by BSNL to harness workforce readiness.

3.2 NEED FOR THE STUDY

The study will provide valuable insights into the current state of digital transformation & readiness of the workforce in BSNL. It also supports to identify key challenges, barriers, and the required skills for successful Digital Transformation. Based on the findings, BSNL would be able to chalk out effective strategies in improving digital transformation and workforce readiness, leading towards its growth and sustainability.

3.3 OBJECTIVES OF THE STUDY

- To assessing current status of digital transformation in BSNL.
- To assess the effect of digital transformation on operational efficiency and customer satisfaction in BSNL.
- To identify the critical challenges and obstacles in the path of digital transformation in BSNL.
- To Assess the current level of workforce readiness within BSNL.
- To determining key competency-skill requirements of the workforce in BSNL to support digital transformation.

3.4 SCOPE OF THE STUDY

The rapid advancement and expansion of digital technology has forced companies operating in this sector, like BSNL, to devise strategies that enable them to adapt to the rapidly changing landscape. Digital transformation is a complete overhaul of how firms operate internally and in terms of how they interact with customers, rather than just implementing new technologies.

Present study will serve the purpose of finding the present state of Digital Transformation at BSNL and also gauge the readiness of the workforce to negotiate through this journey. This in turn will bring out the lacunae and opportunities so as to enable meaningful set of strategies for BSNL competitiveness in the rapidly changing digital landscape. The learning from it will be immensely useful to other government owned companies similarly placed.

3.5 RESEARCH METHODOLOGY

RESEARCH DESIGN

It will adopt a mixed-methods approach, combining the strengths of both quantitative & qualitative research methods to gain a comprehensive knowledge of the subject matter.

DATA COLLECTION METHOD

Quantitative data

1. Questionnaires: A standardized set of questions will be forwarded to a representative group of BSNL employees from different departments and levels.

Questions will focus on

The perception of digital transformation in BSNL

Perceived readiness of workforce towards digital transformation

Identified skills gaps and training needs

Level of employee satisfaction and engagement

2. Secondary Data Analysis: Existing BSNL reports, financial statements, and industry data analysis will provide a broader context and benchmark for comparison.

Qualitative data

1. In-depth Interviews: Top executives, HR managers, IT professionals, and employees working in different departments of BSNL will be interviewed using semi-structured interviews.

Interview questions will explore:

Digital Transformation Strategies and Initiatives

Challenges and obstacles facing the process of transformation

Work force development programs, training initiatives

Future Plans and Expectations from Digital Transformation

ETHICAL CONSIDERATION

- Ethical guidelines will be strictly followed throughout the research process, including:
- Getting informed consent from participants.
- Ensuring anonymity and confidentiality of participation
- Avoiding possible harm or discomfort to participants

Through this, such research methodology helps to gain a wholesome and valuable understanding of the state of digitization transformation at BSNL, which would be very informative for decision-makers and helpful for future planning.

LIMITATIONS OF THE STUDY

Here's a summary of the potential limitations for a study on digital transformation and workforce readiness at BSNL:

1. Limited Access to Data: Internal data related to strategies and a workforce survey are difficult to obtain.
2. Technological Evolution: The rapid pace of change may lead to obsolescence of the research.
3. Sample Constraints: The non-representative or small sample size may be the reason for inadequate results.
4. Perception Bias: People may give their personal views, which might not be the actual reality.
5. Resistance to Change: Organizational and cultural objections can effortlessly cause distortion of data.
6. Diverse Workforce: Various regions and age groups within the workforce means that it is more difficult to make general conclusions.

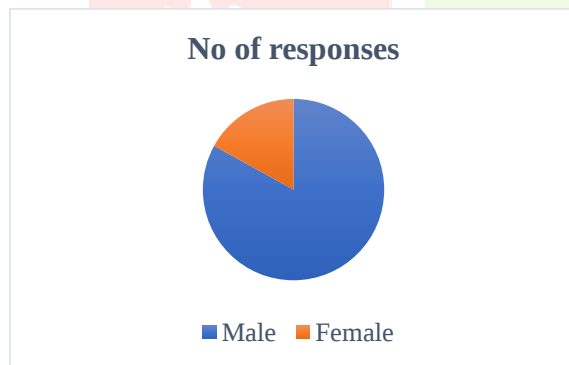
IV . ANALYSIS AND INTERPRETATION

DATA ANALYSIS AND INTERPRETATION

4.1 Gender

Option	No of responses	Percentage
Male	44	83
Female	9	17

Graph 4.1.



Interpretation

This suggests that the gender imbalance in the survey sample is large enough to make the findings on digital transformation and workforce readiness not fully indicative of the experiences of female employees. In provision to get a holistic view and effective ways forward, BSNL should work toward better gender representation in future surveys and also try to balance gender disparities, if any, within the workforce themselves.

4.2.What is the current stage of digital transformation in BSNL.?

Option	No of Responses	Percentage
Initial planning and exploration	17	32.1
Pilot projects and experimentation	19	35.8
Partial implementation and scaling	12	22.6
Full implementation and optimization	5	9.4
Not applicable	Nil	Nil

Graph 4.2.1

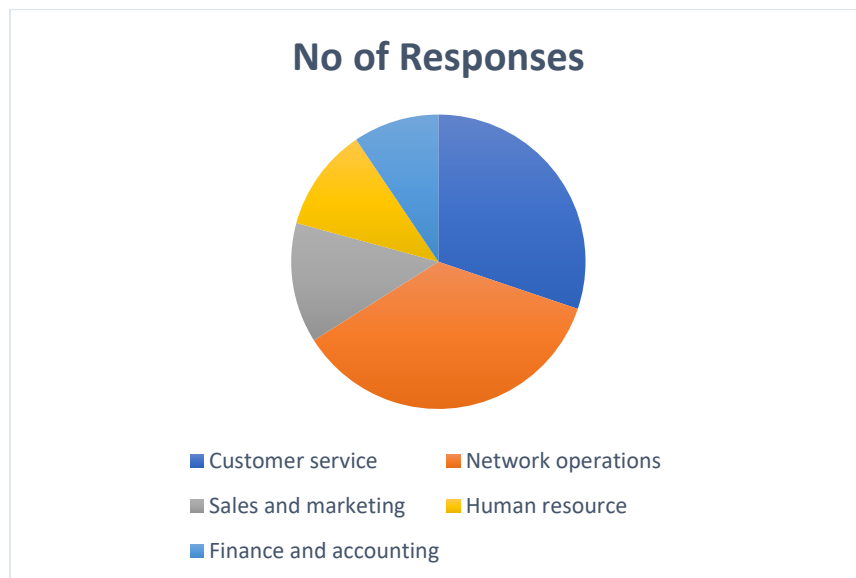
**Interpretation**

The information about the status of BSNL's digital transformation reports that this company is in active transition. The most frequent segment about BSNL was 35.8%, which means the company is in the area of pilot actions and experiments; that may well be considered as checking and probable improvements pertaining to the new digital solutions. "Still in the initial planning and exploration stage," account for 32.1% that is a sign that strategies and laying out of the groundwork for the digital initiatives is ongoing. Partial implementation and scaling were said to be witnessed by 22.6 % of the respondents, meaning some have started but did not implemented and scaled-up yet. While just 9.4% says full implementation and optimization, suggesting that implementation and optimization are still shallow. On the whole, BSNL appears as an organization in transition, with a long way to go before becoming a truly digital native.

4.3.Which area of BSNL has been the most digital transformation?

Options	No of Responses	Percentage
Customer service	16	30.2
Network operations	19	35.8
Sales and marketing	7	13.2
Human resource	6	11.3
Finance and accounting	5	9.4

Graph 4.3.1



Interpretation

According to 35.8% of respondent data, network operations is the highest-affected function due to BSNL's digital transformation. These appear to have been majorly directed at upgrading and modernization of the network infrastructure and its management. Next comes customer service at 30.2%, with more significant enhancements in how the customers interact with and are supported by the company digitally. Sales and marketing, human resources, and finance and accounting red at response rates of 13.2%, 11.3%, and 9.4%, respectively, thus signaling a lower intensity of digital transformation in these areas. Overall, the BSNL digital initiatives are most pronounced in network operation and customer service, percussive of strategic focus on core operational and customer-facing functions.

V. FINDINGS, CONCLUSION AND SUGGESTIONS

5.1 FINDINGS

- **Survey Bias:** BSNL needs to attempt for better gender stability in its questionnaires to obtain unbiased insight into Digital Transformation and Workforce Readiness.
- **Digital Transformation Stage:** The majority of the BSNL digital initiatives are at either a pilot or on the drawing board, hence much more is left to be done in order for the complete implementation of digital solutions to take place.
- **Impact Areas:** The high impact due to this was observed in Network Operations at 35.8%, followed by 30.2% in Customer Service, after which comes moderate impact on Sales, Marketing, HR, and Finance.
- **Transformation Drivers:** Among the main drivers for the transformation of BSNL into a digital organization, there is an intention to stay competitive, positively mentioned by 30.2% of the respondents, and a need to meet regulatory requirements, positively asserted by 20.8% of the same. Costs and customer demand are mentioned in this respect, but come third.

- Effectiveness of Digital Tools: 60.4% of the respondents find the digital tools somewhat effective; whereas, in turn
- Transformation Levels: 58.5% consider the degree of transformation - that is, digital - at BSNL as average; 26.4% consider it low and 15.1% hail it to be high. However, the response doesn't fall in the categories of very high and very low.
- Process Re-engineering: BSNL's internal processes see it "moderately integrated" digitally. As for now, it is foreseen that there is much more done and would be done in this regard.

5.2 CONCLUSION

The findings of the survey reveal that BSNL is moving on a track of digital transformation, but there are a few critical challenges that it throws up. The implementation of the digitization initiative is primarily in its infancy, with lots of room for improvement in many operation areas. While there are remarkable improvements related to Network Operation and Customer Service, other areas like Sales and HR are less affected.

These are clustered into main challenges: insufficient funding, shortage of digital skills, and inability to adapt quickly to rapid technological changes. Employee engagement and training remain strong but in dire need of an enhanced focus on addressing gaps in digital skills and the effectiveness of tools. It also pinpointed that active steps are required by the organization regarding gender balance in the surveys, communicating goals around digital better, and building a stronger culture of continuous learning.

On the whole, digital transformation in BSNL reflects relatively good progress and effectiveness; however, the areas are clear of improvement to achieve greater depth and comprehensiveness of digital integration.

5.3 SUGGESTIONS/RECCOMONDATION

1.Improve Gender Balance in Survey Representation:

Future surveys should be representative by ensuring a balance in gender to avoid skewed perceptions and be representative of the experiences of all employees.

2.Push for Digital Projects:

Continue to push digital projects beyond piloting and planning to full digital implementation in pursuit of a digital-native organization.

3.Focus on Key Impacted Areas:

Focus on network operations and customer service, where the highest impact of digital transformation efforts needs to be concentrated, as well as in less impacted areas such as sales and marketing.

4. Address Major Drivers and Barriers:

Use resources for maintaining competitiveness and ensuring regulatory compliance, yet have the capability to address identified barriers related to not enough funding and gaps in digital skills.

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