



HUMAN vs MACHINE: THE IMPACT OF AI INTEGRATION ON WORKFORCE TRENDS IN FINTECH

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Abstract- The rapid integration of Artificial Intelligence (AI) and robo-advisors in the fintech industry has revolutionized service delivery, customer engagement, and operational efficiency. However, these advancements have also introduced significant shifts in workforce dynamics, raising questions about employment sustainability, skill requirements, and the balance between human and machine contributions. This study examines the impact of AI adoption on employment trends within four fintech companies, exploring how automation has influenced job creation, displacement, and the evolving role of human resources. By analyzing these companies' strategies, this research identifies patterns in workforce transformation, highlighting the challenges and opportunities arising from AI integration. The findings aim to provide actionable insights for fintech stakeholders, offering guidance on navigating the delicate interplay between innovation and workforce management in an increasingly automated industry.

Index Terms- Artificial Intelligence, Human Resource, Fintech, Workforce.

I. INTRODUCTION

OVERVIEW

The Fintech industry is experiencing a major shift as Artificial Intelligence (AI) becomes more integrated, fundamentally changing how financial services are provided, overseen, and enhanced [1]. Fintech, being a cross-disciplinary area combining finance, technology management, and innovation management has started to affect almost all the financial services [2]. AI technologies continue to evolve, finding their way into the core operations of Fintech, encompassing risk assessment, fraud prevention, customer service, and investment strategies [1].

The fintech industry has experienced rapid growth in recent years, driven by advancements in technology and changes in consumer behavior. This even leads to the emergence of new trends that are shaping the future of finance. One of the most significant trends in fintech is the increased adoption of Artificial Intelligence (AI) and Machine Learning (ML) technologies. These technologies are being used to automate various financial processes, such as loan underwriting and risk assessment, leading to improved efficiency and reduced costs [3].

We contend that artificial intelligence will, in fact, significantly lessen the demand for human labor. We also see that some people worry about joblessness because of machine automation. However, given that most of us would prefer to spend our time on something other than our current employment, we should welcome the work-eliminating effects of AI with open arms [9].

The gradual establishment and the scope of use of artificial intelligence on the world innovative technology market increases daily [7]. By analyzing transaction records in real time, AI algorithms detect unusual patterns and flag suspicious activity before it results in financial losses. This helps financial institutes reduce their exposure to fraud and enhance their reputation for security and reliability. Cross-selling opportunities, targeted promotions, and tailored recommendations are possible by AI real-time consumer data analysis. As a result, customer engagement and loyalty could increase. But all this is possible only if certified AI professionals can be found who have the knowledge to develop and operate AI algorithms that can recognize increasingly complex patterns, analyze outcomes, and integrate them into financial operations. And then it also results in the reduced need for human intervention [8].

OBJECTIVE

Fintech in simple terms is leveraging technology to deliver banking and financial solutions to individual and enterprise customers [4]. Automation, robotics, algorithms and artificial intelligence (AI) in recent times have shown they can do equal or sometimes even better work than humans, multiple studies have documented that massive numbers of jobs are at risk as programmed devices continue their march into workplaces [6].

Though studies also suggest that occupation-specific skills acquired by attending professional schools or holding occupational licenses, particularly those related to human-intensive services, are less likely to be replaced by AI and robotics [5]. In this paper we aim to analyze the possible impacts of artificial intelligence (AI) and robotics on employment particularly in the fintech industry.

This paper will look at the level of AI integration by the fintech companies and will compare the workforce dynamics before and after the AI integrations. By studying the scenario at a few fintech companies we would be able to establish the similarities and differences on the effects of the AI integration on employment in the fintech industry.

II. COMPANY BACKGROUND

PAYTM

Paytm, founded in 2010 by Vijay Shekhar Sharma, is one of India's leading digital payment and financial services platforms. Initially starting as a mobile recharge platform, Paytm has expanded its offerings to include a wide range of services such as digital wallets, banking, insurance, and e-commerce.

Paytm is primarily customer-centric, focusing on providing seamless digital payment solutions to individual users and small businesses.

PHONEPE

PhonePe, launched in 2015 by Sameer Nigam, Rahul Chari, and Burzin Engineer, is a prominent digital payments platform in India. It allows users to transfer money, pay bills, recharge mobile phones, and shop online. PhonePe operates on the Unified Payments Interface (UPI) platform, which has significantly boosted its adoption.

Similar to Paytm, PhonePe is customer-centric, aiming to simplify digital transactions for individual users and merchants. While Paytm monetizes through **diverse services** (banking, lending, ticketing), PhonePe earns mainly from **UPI & financial services** like insurance and investments. Both Paytm & PhonePe dominate consumer transactions & digital payments.

BHARATPE

BharatPe, founded in 2018 by Ashneer Grover and Shashvat Nakrani, is a fintech company that provides payment solutions to small merchants and kirana stores. BharatPe's unique selling proposition is its QR code-based payment system, which allows merchants to accept payments without incurring any transaction fees.

BharatPe is primarily focused on serving businesses, particularly small and medium enterprises (SMEs), by offering them financial products and services.

RAZORPAY

Razorpay, established in 2014 by Harshil Mathur and Shashank Kumar, is a full-stack financial solutions provider for businesses. It offers payment gateway services, business banking, and lending solutions. Razorpay caters to a wide range of businesses, from startups to large enterprises.

Razorpay is business-focused, providing tailored financial solutions to help businesses manage their payments and finances more efficiently.

BharatPe targets small merchants & kirana stores with QR-based payments & lending. Razorpay caters to startups & enterprises with payment gateways & neo banking solutions.

BharatPe & Razorpay generate income through MDR, lending, and business banking solutions.

First, we'll examine the AI developments at the following companies. Then, we'll examine the workforce data individually. When comparing the workforce changes before and after AI, we will consider the time when each organization experienced the rise of AI as the separation line.

III. AI INTEGRATION IN FINTECH

PAYTM

Paytm has been at the forefront of integrating AI into its operations. The company has developed AI-driven chatbots for customer service, fraud detection systems, and personalized financial product recommendations. Paytm's AI capabilities have evolved significantly since 2017, with a focus on enhancing user experience and operational efficiency

Early Investments in AI (2017) :

In April 2017, Paytm invested in QorQL, a healthcare AI startup, indicating its early interest in AI technologies. This move suggested Paytm's recognition of AI's potential to enhance various sectors, including finance and healthcare.

Focus on Core AI Integration (2023) :

Vijay Shekhar Sharma, Paytm's founder and CEO, publicly declared the company's dedication to embedding AI into its core payment operations. This marked a shift from experimentation with AI to a focused strategy of deep integration.

Development of AI for Credit Assessments (2023) :

Paytm began developing an AI-powered software stack to enable quick and efficient credit assessments. This initiative reflected the company's pivot toward using AI for optimizing critical financial services.

Vision for Automating Workflows with AI (2023):

Paytm's leadership highlighted plans to use AI for automating manual processes, signaling a transformative phase where AI was no longer an auxiliary tool but central to operations.

Paytm's journey with AI reflects a strategic evolution from initial investments to deep integration within its services, positioning the company to leverage AI's transformative potential in the fintech landscape.

Paytm has been able to survive since it began its operations in the year 2010 despite mounting losses. This has been largely due to the continuous fund raising where global investors from countries like the US and Japan have placed their bet on the success story of Paytm. The obvious reason for the faith by these global investors could be attributed to the solid expansion strategies of Paytm across verticals like banking, mutual funds, insurance, online shopping applications [9].

Paytm can be seen having its peak AI operations in 2023, as there were many significant AI integrations happening in this particular year. So, we'll look at the workforce data and compare before, during and after 2023, particularly for Paytm.

PHONEPE

Customer Support Automation (2018-2020)

PhonePe started leveraging AI-powered chatbots to automate customer service queries. AI automation expanded to handling basic customer inquiries like balance checks and transaction issues.

Fraud Detection and Risk Management (2019)

In the realm of security, PhonePe extensively utilizes machine learning models for risk assessment and fraud detection. These models analyze vast amounts of data to identify patterns indicative of fraudulent activities, thereby safeguarding user transactions and maintaining platform integrity.

Operational Efficiency and Workforce Optimization (2021)

PhonePe launched its Enterprise Resource Planning (ERP) system, integrating AI chatbots (Freddy bot platform) to automate decision-making. By embracing AI, PhonePe significantly enhanced its operational efficiency. The company reported a 40-fold increase in transactions, attributing this surge to AI-driven automation. Consequently, PhonePe reduced its support workforce by 60%, underscoring AI's role in streamlining operations that previously required human intervention.

Advancements in Data Processing (2022-24)

Demonstrating a commitment to innovation, PhonePe developed the Edge Framework system to process financial data directly on users' devices. This system employs AI to extract bill details, validate car inspection images, and scan credit card information, ensuring seamless and secure processing while reducing reliance on cloud-based solutions.

PhonePe's strategic adoption of AI has been instrumental in its growth and operational efficiency. By automating customer

support, enhancing fraud detection, and innovating data processing methods, PhonePe exemplifies the transformative impact of AI in fintech. As AI technologies continue to evolve, their integration into fintech operations is poised to drive further advancements, benefiting both companies and their customers.

While AI adoption continued in 2022-2024 with innovations like on-device AI processing (Edge Framework), the biggest impact of AI on PhonePe's operations was observed in 2021 in terms of workforce reduction, customer support automation, and transaction scalability.

BHARATPE

BharatPe began implementing proprietary AI-based underwriting algorithms to assess the creditworthiness of its merchant partners, utilizing insights from their transaction data (2020).

The company enhanced its fraud detection capabilities by deploying an AI/ML-driven fraud and risk engine capable of real-time anomaly prevention and adaptation to evolving threats (2021).

In January, BharatPe received an in-principle nod from the Reserve Bank of India (RBI) to operate as an online payment aggregator, further solidifying its position in the fintech space (2023).

The company launched BharatPe Shield, an AI-driven solution designed to safeguard UPI transactions, reflecting its ongoing commitment to leveraging AI for enhanced security (2024).

As AI technology continues to evolve, BharatPe is expected to further integrate AI into its services, focusing on personalized customer experiences, advanced risk management, and innovative financial solutions. The company's strategic adoption of AI underscores its dedication to staying at the forefront of fintech innovation.

BharatPe has progressively integrated Artificial Intelligence (AI) into its operations since its inception in 2018. A significant milestone in this journey occurred in 2020 when the company implemented proprietary AI-based underwriting algorithms to assess the creditworthiness of its merchant partners, utilizing insights from their transaction data.

ROZARPAY

AI and ML Integration (2020)

Razorpay began leveraging machine learning (ML) and AI to improve business outcomes and strengthen cybersecurity strategies, focusing on fraud detection and operational efficiency.

AI-Powered Co-Founder Service (2023)

In an industry-first move, Razorpay introduced the 'World's First Co-Founder Service,' powered by AI, to support entrepreneurs in managing their businesses more effectively.

AI in Payments (2024)

Razorpay emphasized the transformative role of AI in digital payment systems, highlighting its impact on fraud detection and transaction efficiency. Accelerated AI Model Development: By collaborating with platforms like Data Robot, Razorpay achieved a tenfold increase in the speed of AI model development, enabling rapid deployment of solutions for fraud reduction and other critical use cases.

Razorpay continues to integrate AI across its services, focusing on enhancing customer experiences, streamlining operations, and bolstering security measures to maintain its competitive edge in the fintech industry. Throughout its journey, Razorpay has

IV. WORKFORCE CHANGES

PAYTM

Operational efficiency

Paytm's staff underwent significant changes in 2023 as a result of incorporating artificial intelligence (AI) into its business processes. Due to AI-driven automation that increased productivity and decreased the need for manual intervention, the company announced a "slight reduction" in its personnel. According to a spokeswoman, AI has exceeded predictions, allowing Paytm to reduce personnel expenses by roughly 10% to 15%.

AI driven management

Vijay Shekhar Sharma, the company's founder and CEO, highlighted how AI is revolutionizing the sector and warned that firms who don't concentrate on developing technology that may take the place of human operations may find it difficult to stay competitive. He pointed out that a thinner workforce is the result of AI's efficient handling of jobs that were previously completed by hand.

As the company strives to become a fully AI-driven enterprise, he has underlined the significance of AI in Paytm's future. He has urged staff members to use AI tools to cut expenses and development time.

Bhavesh Gupta, the company's chief operating officer, went into further detail about this change, stating that Paytm can now do jobs more quickly and with fewer employees thanks to AI-powered technology. He said that AI has simplified tasks that previously required human labour, such as some sales and operations procedures, which has increased operational effectiveness and reduced costs.

These developments at Paytm reflect a broader trend in the industry, where AI integration is leading to workforce restructuring and a reevaluation of human roles in favour of automated solutions.

PHONEPE

AI-Driven Automation

exemplified the fintech industry's broader adoption of AI, utilizing advanced technologies to innovate and improve financial services.

While Razorpay has been integrating AI since 2020, 2024 marks the year of its most significant AI-driven innovations, making it a peak moment in its AI evolution.

AI-powered chatbots that can answer more than 90% of consumer questions were deployed by PhonePe. These chatbots greatly reduced the need for human intervention by using sophisticated natural language processing to handle a variety of difficulties, from simple account inquiries to more complicated transaction issues.

PhonePe reported an improvement in its Net Promoter Score (NPS) during the same period, indicating greater customer happiness, despite the reduction in human support staff. This good development was mostly due to the efficacy and efficiency of AI-driven support.

Reduction in Support Staff

PhonePe cut their customer service staff by over 60% over the five years before 2024, going from about 1,100 personnel to just over 400. Natural attrition and a calculated choice not to backfill jobs that were rendered obsolete by automation were the main factors in this decrease. Crucially, the business made it clear that no current employees were laid off as part of this optimization.

A major turning point in PhonePe's operations was the company's strategic deployment of AI in 2021, which resulted in a revolution in customer service and considerable manpower optimization. In addition to increasing productivity, these adjustments also raised customer happiness and helped the business succeed financially without experiencing any unanticipated layoffs.

BHARATPE

Although BharatPe has not disclosed any layoffs or reorganizations that are directly related to the use of AI, automation is causing changes in India's finance sector as a whole. According to a survey, venture capitalists, BFSI specialists, and fintech founders believe that AI-driven automation may result in a 30–50% decrease in entry-level support positions.

The business has taken the initiative to incorporate AI and machine learning into its operations, especially in fields like risk management and fraud detection. For example, BharatPe's AI/ML-powered fraud and risk engine improves the effectiveness and security of its services by being skilled at preventing anomalies and social engineering in real time.

ROZARPAY

AI model creation

By lowering the time needed to construct models by 90%, Razorpay has greatly enhanced its AI model development process. The corporation can respond to business difficulties more quickly and efficiently thanks to this acceleration. More strategic use of the workforce is possible.

Streamlining HR Processes

AI-powered HR automation solutions have been deployed by Razorpay to perform recurring duties including benefits administration, leave management, and payroll processing. This automation boosts the organization's overall productivity and efficiency by freeing up HR experts to concentrate on strategic objectives.

With features like an offer letter generator, a self-serve employee dashboard, a CTC calculation, and more, Razorpay X Payroll can automate any HR procedure thanks to its more than 25 interfaces with leading HRMS systems. It is the only automated program in India that manages state-by-state compliance laws and regulations at no additional expense.

V. CONCLUSION

The fintech market in India was valued at 1,920.16 billion in 2019, and if it continues to expand at a compound annual growth rate of 23%, it may reach 6,207.41 billion by 2025. Digital payments via electronic wallets, corporate and retail loans, insurtech, and wealth tech are some of the main subsectors of this fintech market [9].

Due to these enormous, predicted numbers and the growing number of fintech start-ups, international institutional investors have started betting on Indian businesses in hopes of a higher return on equity. Digital transaction penetration has been aided by government attempts to promote digitization, such as demonetization and direct benefit transfer facilities as part of financial inclusion programs [10].

Leading organizations have restructured their workforces to differing degrees as a result of the fintech industry's adoption of

AI and automation. BharatPe and Razorpay have concentrated on using AI to increase efficiency without drastically reducing their workforce, while Paytm and PhonePe have adopted AI-driven tactics that have resulted in considerable reductions in some functions. These advancements demonstrate how AI is revolutionizing operational structures and how crucial strategic personnel planning is in the rapidly changing financial sector.

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