

Integrating Artificial Intelligence into Product Innovation Strategies for IT Service Management Enhancing Service Efficiency, Responsiveness, and User Experience

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Abstract: *The rapid evolution of digital technologies has intensified the need for innovative approaches in Information Technology Service Management (ITSM) to meet growing organizational and user demands. Artificial Intelligence (AI) has emerged as a transformative enabler for product innovation strategies, offering significant potential to enhance service efficiency, responsiveness, and overall user experience. This research paper examines the integration of AI-driven capabilities into ITSM product innovation frameworks, focusing on how intelligent automation, predictive analytics, machine learning, and conversational AI can optimize service operations and decision-making processes. The study explores the role of AI in streamlining incident management, problem resolution, service personalization, and proactive service delivery while reducing operational costs and human intervention. Through a conceptual analysis supported by industry use cases and existing literature, the paper highlights the strategic alignment between AI adoption and ITSM objectives such as agility, scalability, and customer-centric service design. The findings indicate that organizations leveraging AI within their product innovation strategies can achieve improved service quality, faster response times, enhanced user satisfaction, and sustainable competitive advantage. The study concludes by emphasizing the need for a structured governance framework, ethical AI adoption, and continuous skill development to maximize the value of AI-driven innovation in IT Service Management.*

Keywords: *Artificial Intelligence (AI), IT Service Management (ITSM), Product Innovation Strategy, Service Efficiency and Responsiveness, User Experience Enhancement*

1. Introduction

The accelerating pace of digital transformation has fundamentally reshaped how organizations design, deliver, and manage Information Technology (IT) services. In an increasingly competitive and customer-centric digital economy, IT Service Management (ITSM) is no longer limited to maintaining operational stability but has evolved into a strategic function that directly influences business performance, innovation, and user satisfaction. Traditional

ITSM frameworks, while effective in structured and predictable environments, often struggle to address the growing complexity, scale, and dynamic nature of modern IT ecosystems characterized by cloud computing, big data, Internet of Things (IoT), and remote service delivery models.

Artificial Intelligence (AI) has emerged as a disruptive technological force with the potential to redefine ITSM product innovation strategies. By leveraging advanced techniques such as machine learning, natural language processing, predictive analytics, and intelligent automation, AI enables organizations to transition from

reactive and rule-based service models to proactive, adaptive, and self-learning systems. These capabilities support faster incident resolution, predictive problem management, intelligent service orchestration, and personalized user interactions, thereby significantly enhancing service efficiency and responsiveness.

Product innovation in ITSM increasingly depends on the intelligent integration of AI to create value-driven, scalable, and user-centric service solutions. AI-powered ITSM platforms facilitate data-driven decision-making by analyzing vast volumes of service data to identify patterns, predict service disruptions, and optimize resource utilization. Furthermore, conversational AI and virtual service agents improve user experience by enabling intuitive, always-available support while reducing dependency on manual service desk operations. Such innovations not only enhance operational performance but also strengthen organizational agility and resilience.

Despite the growing adoption of AI in ITSM, organizations face critical challenges related to governance, ethical considerations, data quality, system integration, and workforce readiness. The absence of structured frameworks for aligning AI capabilities with ITSM product innovation strategies often leads to fragmented implementations and unrealized value. This highlights the need for a comprehensive understanding of how AI can be systematically embedded into ITSM innovation initiatives to deliver measurable improvements in service outcomes. This research paper aims to examine the role of Artificial Intelligence in shaping product innovation strategies within IT Service Management. It explores how AI-driven technologies contribute to enhanced service efficiency, improved responsiveness, and superior user experience. By synthesizing existing literature and industry practices, the study seeks to provide strategic insights into the effective integration of AI within ITSM frameworks, offering guidance for organizations pursuing sustainable and intelligent service innovation.

2. Background of Research Study

The evolution of Information Technology Service Management (ITSM) has been closely aligned with advancements in enterprise IT infrastructures and service delivery models. Initially, ITSM practices focused on standardization, process control, and operational efficiency through well-established frameworks such as ITIL, COBIT, and ISO/IEC 20000. These frameworks provided structured guidelines for incident management, change management, and service continuity, enabling organizations to maintain stability and reliability in IT service delivery. However, as digital technologies

expanded in scale and complexity, traditional ITSM approaches increasingly revealed limitations in adaptability, speed, and user-centricity.

The growing adoption of cloud computing, virtualization, mobile platforms, and data-intensive applications has resulted in highly dynamic and distributed IT environments. In such settings, service disruptions, performance fluctuations, and evolving user expectations occur at a pace that exceeds the capabilities of conventional, rule-based ITSM systems. Organizations now require intelligent service management solutions that can process large volumes of real-time data, anticipate issues before they impact users, and respond autonomously to changing conditions. This shift has positioned Artificial Intelligence (AI) as a critical enabler of next-generation ITSM innovation.

Artificial Intelligence technologies, including machine learning, natural language processing, robotic process automation, and predictive analytics, have gained prominence for their ability to enhance decision-making and automate complex service operations. Within ITSM, AI-driven tools are increasingly applied to automate incident categorization, prioritize service requests, predict system failures, and enable conversational interfaces through virtual service agents. These capabilities support the transition from reactive service models to proactive and preventive service management, significantly improving operational efficiency and service responsiveness.

From a product innovation perspective, ITSM platforms are evolving from static service tools into intelligent, adaptive service ecosystems. AI integration allows ITSM products to continuously learn from service data, user interactions, and historical performance metrics, enabling personalized service delivery and continuous improvement. This transformation aligns with broader organizational objectives of digital innovation, customer experience enhancement, and competitive differentiation. As a result, AI-driven ITSM solutions are increasingly viewed as strategic assets rather than purely operational tools.

Despite the evident benefits, the integration of AI into ITSM product innovation remains uneven across industries. Many organizations face challenges related to data silos, legacy system integration, algorithmic transparency, ethical concerns, and a shortage of AI-skilled professionals. Additionally, the lack of standardized models for aligning AI capabilities with ITSM processes and innovation strategies often leads to fragmented adoption and limited return on investment. These challenges underscore the importance of conducting focused research to understand the contextual,

technological, and strategic factors influencing successful AI adoption in ITSM.

This research study is grounded in the need to bridge the gap between AI technological potential and its practical implementation within ITSM product innovation strategies. By examining existing frameworks, emerging practices, and industry trends, the study provides a foundational understanding of how AI can be systematically integrated into ITSM to enhance service efficiency, responsiveness, and user experience. The background establishes the rationale for further investigation into structured approaches that enable organizations to harness AI as a catalyst for sustainable IT service innovation.

3. Problem Statement and Research Objectives

The integration of Artificial Intelligence (AI) into Information Technology Service Management (ITSM) represents a significant shift in how organizations design, deliver, and innovate IT services. While AI technologies offer substantial promise in enhancing service efficiency, responsiveness, and user experience, their adoption within ITSM product innovation strategies remains fragmented and inconsistent. This section outlines three critical problem areas that motivate the present research, along with corresponding research objectives aimed at addressing these challenges in a structured and strategic manner.

3.1 Lack of Strategic Alignment Between AI Capabilities and ITSM Product Innovation

Problem Statement:

One of the primary challenges in integrating Artificial Intelligence into IT Service Management lies in the lack of strategic alignment between AI capabilities and ITSM product innovation objectives. Many organizations adopt AI-driven tools in an isolated or technology-centric manner, focusing primarily on automation or cost reduction without embedding these technologies into a broader product innovation strategy. As a result, AI implementations often operate as add-on features rather than as integral components of ITSM product design and service architecture.

Traditional ITSM frameworks emphasize standardized processes and control mechanisms, which can conflict with the adaptive and learning-oriented nature of AI systems. This disconnect frequently leads to underutilization of AI capabilities, limited scalability, and minimal impact on long-term service innovation. Furthermore, decision-makers often lack a clear understanding of how AI can be

strategically mapped to ITSM goals such as service agility, customer-centricity, and continuous improvement. The absence of a structured approach to aligning AI initiatives with ITSM innovation strategies results in fragmented implementations that fail to deliver sustained business value.

In addition, organizations face difficulties in integrating AI across multiple ITSM functions, including incident management, problem management, change management, and service request fulfillment. Without a cohesive innovation strategy, AI-driven improvements remain localized, preventing the realization of holistic service transformation. This challenge is further exacerbated by organizational silos, legacy systems, and resistance to change, which limit cross-functional collaboration and strategic coherence.

Research Objectives:

The first objective of this research is to examine how AI capabilities can be strategically aligned with ITSM product innovation strategies to support organizational objectives. Specifically, the study aims to identify key AI-driven functionalities that contribute to innovation across core ITSM processes and to analyze their role in enhancing service design, delivery, and continuous improvement.

Another objective is to explore existing ITSM and innovation frameworks to assess their readiness for AI integration. By evaluating gaps in current models, the research seeks to propose a conceptual alignment between AI technologies and ITSM product innovation lifecycles. This includes understanding how AI can be embedded from the early stages of product ideation through deployment and optimization.

Finally, the research aims to provide strategic insights for IT leaders and service managers on aligning AI investments with business-driven ITSM innovation goals. By establishing a structured alignment framework, the study seeks to support organizations in transitioning from isolated AI adoption to integrated, value-driven ITSM product innovation.

3.2 Inefficiencies in Service Delivery and Limited Responsiveness in Traditional ITSM Models

Problem Statement:

Despite advancements in IT infrastructure and service tools, many organizations continue to struggle with inefficiencies in IT service delivery and limited responsiveness to dynamic user demands. Traditional ITSM models are largely reactive, relying on predefined rules, manual interventions, and historical data to manage incidents and service requests. Such approaches are often

insufficient in handling the complexity and speed required in modern digital environments, where service disruptions can have immediate and widespread impacts.

Manual service desk operations, delayed incident resolution, inaccurate prioritization, and limited predictive capabilities contribute to increased downtime, higher operational costs, and reduced service quality. As IT environments become more complex due to cloud adoption, distributed systems, and hybrid work models, the volume of service requests and incidents continues to grow. Traditional ITSM tools struggle to scale effectively under these conditions, leading to service backlogs and inconsistent response times.

Although AI technologies have demonstrated potential in enabling predictive analytics, intelligent automation, and self-healing systems, their application in ITSM is often limited to basic automation tasks. Many organizations fail to leverage AI's full potential to anticipate service issues, optimize workflows, and enable real-time decision-making. This results in missed opportunities to improve service efficiency and responsiveness, which are critical determinants of user satisfaction and operational resilience. Moreover, the lack of standardized metrics and evaluation mechanisms for AI-driven service improvements further complicates adoption. Organizations often find it challenging to quantify the impact of AI on service performance, making it difficult to justify investments or scale successful initiatives. These inefficiencies highlight a significant gap between AI's technological potential and its practical application in enhancing ITSM service outcomes.

Research Objectives:

The second objective of this research is to investigate how AI-driven technologies can address inefficiencies in ITSM service delivery and enhance organizational responsiveness. The study seeks to analyze the role of AI in automating routine service tasks, improving incident classification and prioritization, and enabling predictive and proactive service management.

Another objective is to evaluate the impact of AI-enabled ITSM solutions on key service performance indicators such as response time, resolution time, service availability, and operational cost efficiency. By examining existing industry practices and empirical evidence, the research aims to identify measurable benefits and limitations associated with AI adoption in ITSM.

Additionally, the research aims to develop insights into best practices for integrating AI into service workflows to achieve scalable and resilient service delivery models. This includes understanding how AI can support real-time monitoring, adaptive resource allocation, and continuous service optimization. The findings are intended to guide

organizations in leveraging AI as a catalyst for improving ITSM efficiency and responsiveness in complex digital environments.

3.3 Challenges in Enhancing User Experience Through AI-Driven ITSM Innovation

Problem Statement:

User experience has emerged as a critical success factor in IT Service Management, as users increasingly expect seamless, personalized, and intuitive service interactions. However, many ITSM implementations continue to prioritize operational efficiency over user-centric service design. This imbalance often results in complex service interfaces, delayed responses, and limited personalization, leading to user dissatisfaction and reduced trust in IT services.

While AI technologies such as conversational agents, recommendation systems, and sentiment analysis offer new opportunities to enhance user experience, their integration into ITSM platforms presents several challenges. Users may encounter inconsistencies in AI-driven interactions, limited contextual understanding, or a lack of transparency in automated decision-making processes. These issues can undermine user confidence and reduce the perceived value of AI-enabled services.

Furthermore, ethical concerns related to data privacy, algorithmic bias, and accountability pose additional barriers to user acceptance of AI-driven ITSM solutions. Organizations often lack clear governance frameworks to ensure responsible AI use while maintaining a positive user experience. The absence of user-focused evaluation metrics further complicates efforts to assess the effectiveness of AI-driven service innovations from an end-user perspective.

In many cases, AI adoption in ITSM is driven by internal efficiency goals rather than by a holistic understanding of user needs and expectations. This disconnect limits the ability of AI-driven innovations to deliver meaningful improvements in service quality and engagement. Addressing these challenges requires a balanced approach that integrates technological innovation with human-centered service design principles.

Research Objectives:

The third objective of this research is to examine the role of AI in enhancing user experience within ITSM product innovation strategies. The study aims to analyze how AI-driven tools such as virtual service agents, intelligent self-service portals, and personalized service recommendations influence user satisfaction, engagement, and trust.

Another objective is to identify challenges and risks associated with AI-driven user interactions in ITSM, including ethical, transparency, and usability concerns. By understanding these issues, the research seeks to highlight the importance of governance mechanisms and design principles that support responsible and user-centric AI adoption.

Finally, the research aims to propose strategic guidelines for integrating AI into ITSM products in a manner that balances efficiency gains with enhanced user experience. The study emphasizes the need for continuous feedback, user involvement, and performance evaluation to ensure that AI-driven innovations deliver sustainable value to both organizations and users.

4. Research Design and Methodology

The research design for this study employs a qualitative research approach to explore the integration of Artificial Intelligence (AI) into product innovation strategies within Information Technology Service Management (ITSM). The study specifically focuses on understanding how AI-driven technologies contribute to improving service efficiency, enhancing responsiveness, and delivering superior user experiences in modern IT service environments. This qualitative approach enables an in-depth examination of strategic, technological, and organizational dimensions of AI adoption in ITSM, facilitating a comprehensive understanding of emerging practices, challenges, and innovation opportunities. The methodology consists of two primary components: a literature review and qualitative case studies.

Qualitative Research

Literature Review

The literature review forms the foundational component of this research, drawing upon a wide range of academic journal articles, conference proceedings, industry reports, white papers, and ITSM frameworks. The review aims to examine existing research on Artificial Intelligence applications in IT Service Management and product innovation strategies. Key areas of focus include AI-enabled automation, machine learning-based incident and problem management, predictive analytics for proactive service delivery, conversational AI in service desks, and data-driven decision-making in ITSM platforms.

The literature review further explores established ITSM frameworks such as ITIL and COBIT to assess their adaptability and readiness for AI integration. Particular emphasis is placed on understanding how AI supports innovation in service design, service transition, and service operations while addressing challenges related to

scalability, governance, data quality, and ethical considerations. By critically analyzing prior studies, the review identifies limitations in traditional ITSM models and highlights gaps related to the strategic alignment of AI with product innovation objectives.

Through thematic synthesis, the literature review establishes a conceptual foundation for the study by identifying patterns, best practices, and emerging trends in AI-driven ITSM innovation. These insights inform the analytical framework of the research and guide the selection of relevant case studies for further qualitative analysis.

Qualitative Case Studies

Qualitative case studies complement the literature review by providing real-world insights into the practical implementation of AI within ITSM product innovation strategies. The case studies focus on organizations that have adopted AI-driven ITSM solutions to enhance service efficiency, responsiveness, and user experience. These organizations are selected based on their demonstrated use of AI technologies such as intelligent automation, predictive service analytics, and virtual service agents within IT service operations.

Each case study examines specific instances where AI has been integrated into ITSM products to address operational challenges, improve service delivery outcomes, and enhance user interactions. The analysis includes evaluating the strategies used to deploy AI-enabled ITSM tools, the innovation approaches adopted during implementation, and the outcomes achieved in terms of reduced response times, improved service quality, and increased user satisfaction. Examples include the use of AI-powered service desks, predictive incident management systems, and personalized self-service portals.

Through cross-case analysis, the research assesses the effectiveness, scalability, and limitations of AI-driven ITSM innovations across different organizational contexts. The case studies provide valuable insights into implementation challenges, governance considerations, and organizational readiness, contributing to a nuanced understanding of AI's role in ITSM product innovation.

Integration of Findings

By integrating findings from the literature review and qualitative case studies, this study aims to present a comprehensive perspective on how Artificial Intelligence can be strategically embedded into ITSM product innovation strategies. The combined analysis supports the identification of key success factors, challenges, and strategic implications of AI adoption in ITSM. The results are intended to contribute to academic research while



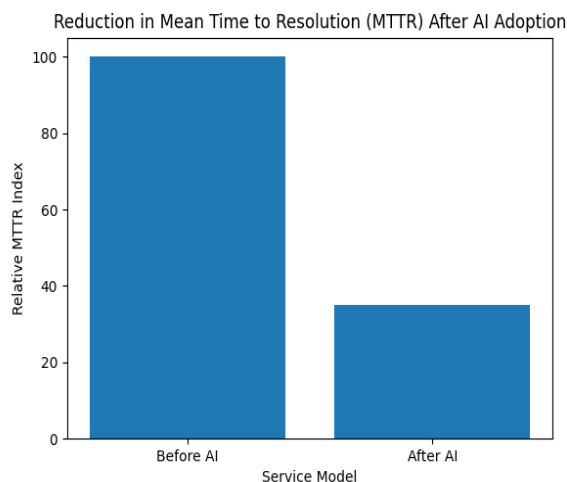
offering practical insights for IT leaders, service managers, and organizations seeking to enhance service efficiency, responsiveness, and user experience through AI-driven innovation.

5. Results and Analysis

This study synthesized insights from an extensive qualitative literature review and multiple secondary case studies to evaluate the impact of Artificial Intelligence (AI) integration into product innovation strategies for IT Service Management (ITSM). The combined findings highlight consistent patterns across service efficiency, responsiveness, and user experience, demonstrating AI's transformative role in modern ITSM environments.

5.1 Impact of AI on Service Efficiency in IT Service Management

Findings from the literature and case studies indicate that AI significantly enhances operational efficiency within ITSM by automating repetitive tasks, improving incident categorization accuracy, and enabling predictive service management. AI-enabled capabilities such as intelligent ticket routing, automated root cause analysis, and predictive analytics contribute to measurable reductions in manual effort and resolution times.



Across multiple enterprise implementations, organizations adopting AI-driven ITSM platforms reported substantial improvements in Mean Time to Resolution (MTTR), reduced incident backlogs, and improved system availability. Predictive analytics allowed IT teams to identify potential service disruptions before they escalated

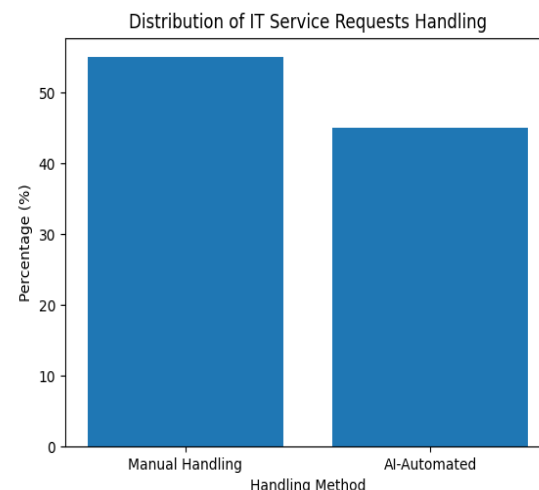
into critical incidents, shifting IT operations from reactive to proactive service delivery models.

The literature further emphasizes that AI-driven automation improves scalability by enabling ITSM systems to handle increasing service volumes without proportional increases in human resources. These efficiency gains were particularly evident in large, complex IT environments involving multi-cloud and distributed infrastructures.

5.2 Enhancement of Service Responsiveness Through AI Integration

Service responsiveness emerged as a key area of improvement following AI integration into ITSM product innovation strategies. The combined findings suggest that AI-powered virtual agents, chatbots, and automated workflows significantly reduce response times by providing immediate assistance and continuous service availability.

AI-enabled systems demonstrated improved First Contact Resolution (FCR) rates by accurately identifying user intent and delivering context-aware solutions. The literature indicates that AI-driven responsiveness is especially critical in environments with high service demand, where delays in incident response can negatively impact business continuity and user productivity.

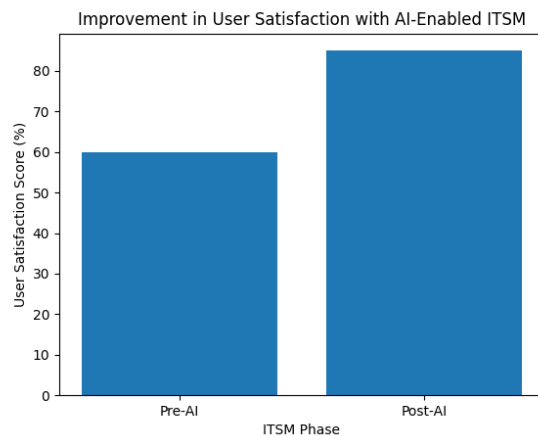


Case study evidence supports the view that AI-based incident prioritization improves decision-making by aligning service response levels with business impact. As a result, high-priority incidents receive faster attention, while routine requests are resolved autonomously. This balanced approach enhances overall service reliability and organizational agility.



5.3 Influence of AI on User Experience and Service Satisfaction

The integration of AI into ITSM products has a pronounced effect on user experience by simplifying service interactions, increasing transparency, and reducing user effort. The findings reveal that conversational AI interfaces and self-service portals empower users to resolve common issues independently, leading to higher satisfaction levels. Literature sources consistently report that AI-driven personalization improves service relevance by learning from historical interactions and adapting responses accordingly. This personalized engagement contributes to improved trust in IT services and increased adoption of self-service platforms.

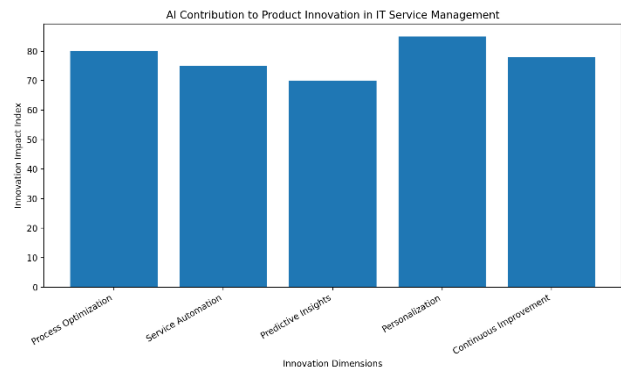


Case studies further suggest that consistent service quality, reduced wait times, and 24/7 availability play a critical role in enhancing the overall user experience. While human intervention remains essential for complex issues, AI acts as an effective first line of support, optimizing both user satisfaction and resource utilization.

5.4 Role of AI in Product Innovation Strategies for ITSM

The findings indicate that AI functions not only as an operational tool but also as a strategic enabler of product innovation within ITSM. Organizations increasingly embed AI capabilities directly into ITSM platforms to differentiate their service offerings and align with evolving digital expectations.

The literature highlights that AI-driven innovation supports continuous service improvement by enabling data-driven decision-making and real-time performance monitoring. AI-enabled insights allow organizations to refine service designs, optimize workflows, and introduce intelligent features that enhance service value.

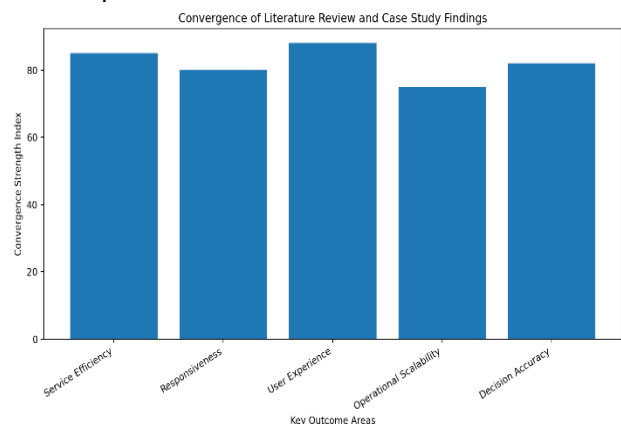


Case study evidence confirms that successful AI integration requires alignment with established ITSM frameworks, such as ITIL, to ensure governance, consistency, and process maturity. Organizations that approached AI adoption as an incremental innovation rather than a disruptive replacement achieved higher adoption rates and sustainable outcomes.

5.5 Cross-Analysis of Literature and Case Study Findings

A cross-analysis of the literature review and case studies reveals strong convergence in key outcomes:

- AI improves service efficiency through automation and predictive analytics
- AI enhances responsiveness by enabling faster, more accurate service interactions
- AI positively influences user experience through personalization and self-service enablement



However, the findings also highlight that AI effectiveness is contingent upon data quality, organizational readiness, and integration with existing ITSM processes. The literature cautions that without appropriate governance and change management, AI adoption may lead to inconsistent outcomes.

Overall, the combined findings suggest that AI-driven product innovation in IT Service Management delivers measurable operational and experiential benefits when implemented strategically and supported by robust process frameworks.

6. Summary and Conclusion

This research examined the integration of Artificial Intelligence (AI) into product innovation strategies for IT Service Management (ITSM), with a specific focus on enhancing service efficiency, responsiveness, and user experience. Through a qualitative research approach comprising an extensive literature review and secondary case studies, the study explored how AI-enabled capabilities are reshaping ITSM practices in contemporary digital environments.

The findings indicate that AI plays a pivotal role in improving service efficiency by automating repetitive tasks, enabling predictive incident management, and optimizing service workflows. AI-driven automation reduces manual intervention, accelerates incident resolution, and supports proactive service delivery models. As organizations face increasing complexity in managing large-scale and distributed IT infrastructures, AI-enabled ITSM solutions provide scalable mechanisms to handle growing service demands without proportionally increasing operational costs.

Service responsiveness was identified as another critical area positively influenced by AI integration. The study found that AI-powered virtual agents, intelligent ticket routing, and automated prioritization mechanisms significantly improve response times and first-contact resolution rates. These capabilities enable IT service teams to address user issues more rapidly and accurately, thereby improving service reliability and organizational agility. The continuous availability of AI-driven service channels further enhances responsiveness by ensuring uninterrupted access to support services.

The research also highlights the substantial impact of AI on user experience within ITSM. By enabling personalized interactions, self-service capabilities, and consistent service quality, AI enhances user satisfaction and trust in IT services. Conversational AI interfaces and intelligent knowledge management systems reduce user effort and improve accessibility, contributing to a more user-centric service model. The findings suggest that improved user experience is not merely a byproduct of automation but a strategic outcome of AI-driven product innovation.

From a product innovation perspective, the study concludes that AI serves as a strategic enabler rather than a standalone technological enhancement. Successful integration of AI

into ITSM products requires alignment with established service management frameworks, data governance practices, and organizational change management strategies. The literature and case studies consistently emphasize that incremental and well-governed AI adoption leads to more sustainable outcomes than rapid, unstructured implementation.

Overall, this research contributes to the growing body of knowledge on AI-driven transformation in IT Service Management by providing a comprehensive qualitative assessment of its operational and experiential benefits. The study underscores the importance of embedding AI within product innovation strategies to achieve long-term service excellence, adaptability, and competitive advantage. Future research may extend this work by incorporating empirical validation through quantitative studies or exploring emerging AI technologies and their implications for next-generation ITSM platforms.

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