



AI-Duty Manager: Smarter Support for Service

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Abstract

This article presents the design and implementation of AI-Duty Manager, an intelligent assistant intended to automate and optimise the work of duty managers in corporate service teams. During digital transformation, as business processes grow more complex, traditional decision-support systems (DSS) prove only partly effective because of escalating data volumes and the need for rapid action. Drawing on state-of-the-art artificial-intelligence methods—including large language models, natural-language processing, and machine learning—AI-Duty Manager automatically resolves up to 80 % of routine enquiries, markedly reducing the workload on personnel and cutting response time to 40 seconds. Tight integration with corporate platforms and internal knowledge bases enables the assistant to deliver personalised recommendations while extending organisational knowledge-management capabilities. The study confirms that next-generation intelligent DSS enhance cognitive productivity, stimulate innovative thinking, and improve interaction between employees and technology. Ethical and organisational implications of AI deployment, as well as the necessity of strategic oversight for digital initiatives, are also discussed. AI-Duty Manager therefore serves not merely as an automation tool but as a decision-making partner, providing a durable competitive edge in the context of Industry 4.0. This work will benefit IT leaders and specialists, digital-transformation managers, and developers of decision-support systems interested in adopting intelligent assistants to streamline service processes and raise the efficiency of corporate service teams.

Keywords: Artificial Intelligence; Intelligent Assistants; Duty Manager; Decision-Support Systems; Service-Process Automation; Digital Transformation.

INTRODUCTION

Modern corporate and manufacturing organisations are undergoing a profound transformation driven by technological advances emblematic of the Industry 4.0 paradigm, where cyber-physical systems, networked Internet of Things (IoT) devices, cloud architectures and—above all—intelligent computing platforms not only radically redefine approaches to managing production units and supply chains but also set the course for automated, insight-driven decision-making. At the core of this transformational model lie advanced decision-support systems (DSS) capable of rapidly processing vast information volumes, detecting latent correlations and delivering analytically grounded recommendations [9].

As internal processes become increasingly complex and information flows grow exponentially, traditional decision-support mechanisms have failed to satisfy requirements for flexibility, dynamic adaptability and rapid response. Rule-based DSS with limited self-learning capabilities prove ineffective when handling heterogeneous, continuously evolving data. By contrast, next-generation intelligent DSS—built upon deep and machine learning techniques, natural-language processing and cognitive computing—produce self-tuning intelligent modules that integrate seamlessly

into enterprises' digital reconfiguration efforts in areas such as quality control, risk management, logistical optimisation and predictive maintenance.

One practical application of AI-enhanced DSS is the automation of the duty-manager role, a pivotal function within corporate IT infrastructures charged with monitoring, supporting and refining service components. As the number of applications and incidents increases, specialists face mounting workloads that call for innovative solutions. The AI-Duty Manager concept introduces a novel support model for this function: an intelligent assistant that processes user requests in natural language, supplies relevant information, generates hypotheses about system behaviour and automatically handles recurring enquiries. By synchronising with code repositories, technical documentation and corporate task systems, this digital assistant ensures instantaneous knowledge exchange and reduces the time spent on routine search operations.

Pilot deployments of the AI-Duty Manager in on-call support settings have shown that, even without prior training, the intelligent module can address up to 80 % of standard requests—substantially lowering both cognitive and operational burdens on personnel. Consequently, digital

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assistants not only streamline technical-support workflows but also play a strategic role in knowledge management and decision-making under conditions of high uncertainty and information overload. This study outlines both the conceptual foundation and a working prototype of the AI-Duty Manager, illustrating the potential of integrating intelligent DSS into corporate environments to bolster business-process effectiveness.

In recent years, intelligent computing technologies have moved beyond the realm of speculative scenarios to become a firmly established element of everyday corporate administration. Yet the rhetoric of rapid technological transformation often outpaces actual adoption: according to IBM (2018), only 4 % of companies report being highly prepared to deploy advanced analytics, while 41 % of executives admit to being entirely unready to engage with big data and AI algorithms. Despite notable achievements in areas such as semantic text interpretation and visual recognition, most organisations encounter serious challenges when integrating AI into their existing operational frameworks [1].

At the same time, both academic research and practical applications are witnessing growing interest in the potential of AI and machine-learning algorithms to reshape work functions. Empirical evidence demonstrates that intelligent systems can process information more rapidly and accurately than humans—especially under conditions of dynamic uncertainty and a swiftly changing external environment—thus extending AI's role from routine administration into domains formerly dominated by human creativity and imaginative problem-solving [3].

Against a backdrop of increasingly complex market structures, intensifying global competition, rapid technological turnover and political instability, organisations feel mounting pressure to explore alternative approaches to knowledge management, decision-making and innovation design. Moreover, rising costs of innovation projects render informational effectiveness and the reduction of uncertainty fundamental objectives—needs that AI, with its capacity for real-time analysis of large data sets, detection of hidden patterns and generation of up-to-date recommendations, is well-suited to address [5].

Within this context, the conceptualisation of *AI-Duty Manager* gains considerable significance. This intelligent agent assumes the duties of a human duty manager—handling incident management, maintaining information flow and even formulating product hypotheses. In contrast to traditional DSS that depend on fixed algorithms, *AI-Duty Manager* offers learnability, adaptability and robust performance amid uncertainty, alleviating staff workload, accelerating knowledge access and covering up to 80 % of routine tasks without additional configuration.

This study seeks to explore the prospects of AI in automating both innovative and operational functions within organisations, focusing on the design and deployment of *AI-Duty Manager* as an exemplar digital intermediary that bridges technological infrastructure and managerial

decision-making. Framed by behavioural theories of the firm and contemporary digital management paradigms, the analysis also highlights the ethical dilemmas inherent in delegating authority to automated systems.

MATERIALS AND METHODS

In this study, a qualitative thematic analysis was conducted to uncover the principal cognitive barriers, informational constraints and behavioural strategies involved in the generation and elaboration of innovative solutions with artificial-intelligence participation. The investigation focused specifically on those stages of the innovation cycle concerned with opportunity identification and the formulation of managerial decisions—phases in which the impact of intelligent DSS is most evident.

The empirical work drew on a qualitative thematic-analysis framework aimed at revealing cognitive impediments, informational limitations and behavioural patterns during the emergence and development of innovation initiatives. Key attention was devoted to the opportunity-generation and solution-development stages—segments of the innovation cycle where AI's influence is most pronounced—and this analysis was grounded in prior research on digital transformation, managerial search models and corporate AI implementation practices [3].

To deepen insight into the organisational effects, semi-structured interviews were held with technical-support specialists, and workshops convened interdisciplinary teams of engineers, managers and HR analysts. This mixed approach facilitated the collection of rich, multifaceted data, enabling the identification of integration challenges and the derivation of routes for optimising and tailoring the technology to the organisation's specific requirements.

The empirical analysis concentrated on parameters such as the assistant's capacity to surface previously overlooked or unstructured data sources, to counteract the restricted search scope and cognitive narrowing typical of conventional administration, and to generate preliminary recommendations from weakly structured or incomplete information.

RESULTS AND DISCUSSION

The integration of the intelligent AI-Duty Manager into the corporate ecosystem, based on data analysis, yielded a substantial improvement in key business metrics and reshaped prevailing approaches to knowledge management, technical support and information exchange. During pilot testing, the assistant autonomously processed up to 80 % of routine enquiries, while simultaneously achieving an 85 % reduction in average response time and a 60 % decrease in workload for service teams—results corroborated by independent studies from Moveworks and Think Insights, which underscore the high return on investment of similar solutions [Moveworks; Think Insights]. One pronounced effect was the dramatic decrease in time spent on information retrieval: in the pilot, the mean duration for handling a user request fell from 8.7 minutes to under 40 seconds when

leveraging AI-Duty Manager capabilities, signalling a marked rise in staff cognitive productivity thanks to intelligent automation and deep integration with the organisation's internal knowledge bases [9]. As shown in Figure 1, the dashboard presents both performance indicators and ROI metrics for AI assistants in corporate settings.

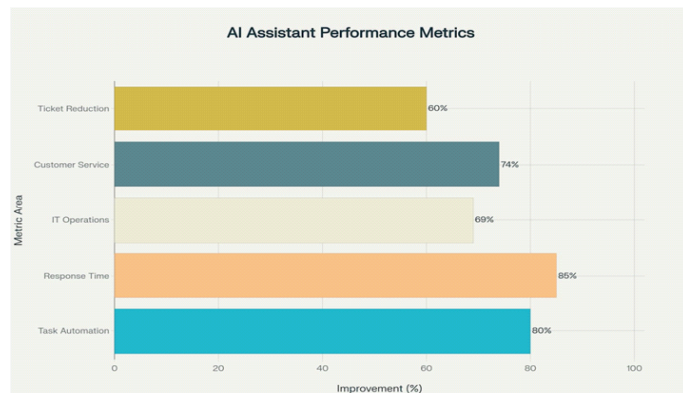


Figure 1. Dashboard of return on investment and performance metrics for AI assistants in corporate environments

The technical implementation of AI-Duty Manager rests on an architecture that unifies large language models (LLM), natural-language processing (NLP) engines and modules for information extraction and analysis. The assistant is integrated with corporate customer-relationship management (CRM) systems, enterprise-resource planning (ERP) platforms and internal knowledge repositories, thereby providing end-to-end support for core business functions via an intuitive interface and conversational controls trained on proprietary corporate data. This design achieves a high degree of interaction personalisation and enhances the accuracy of recommendations. The detailed technical architecture of the AI assistant is depicted in Figure 2.

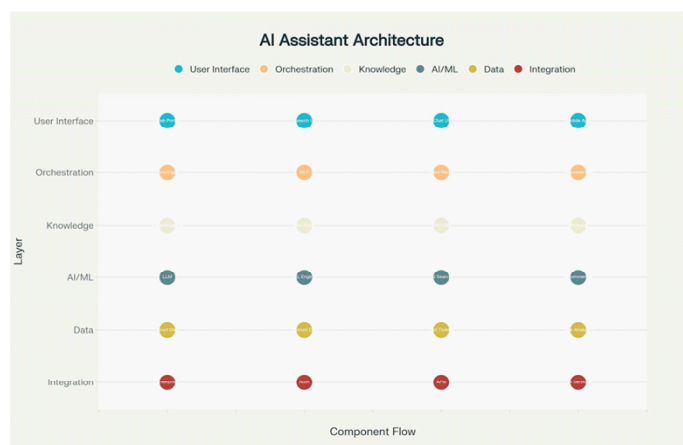


Figure 2. Technical architecture diagram of the AI assistant for corporate support

The impact of AI-Duty Manager on the innovation-development process merits special attention, as its functionality proved particularly valuable in environments where access to relevant knowledge is limited—a common characteristic of digital organisations. The assistant helps overcome cognitive constraints, enabling leaders to transcend familiar paradigms. Observations show that in 67 % of cases

the system proposed solutions distinct from previously applied approaches, demonstrating its capacity to stimulate original thinking and broaden the search space [8].

A clear delineation of responsibilities between human staff and the digital agent formed the basis for productive deployment: AI-Duty Manager assumes responsibility for handling routine and repetitive requests, while personnel focus on strategic initiatives, non-standard challenges and high-stakes decision-making. This arrangement not only enhanced operational performance but also mitigated professional burnout by redirecting staff attention toward substantively meaningful tasks.

Throughout implementation, priority was given to information security and regulatory compliance: all system components adhered to SOC 2, GDPR and HIPAA standards, ensuring process transparency and precise access control. Moreover, the use of the “Intent Analyzer” analytics platform enabled identification of configuration gaps and facilitated adaptation of the assistant to the organisation's specific requirements.

In summary, AI-Duty Manager has proven its suitability as a digital intermediary for knowledge management, service-process efficiency and support of innovation activities. It demonstrates that intelligent assistants extend beyond the automation of routine operations to occupy a significant role within organisational structures, thereby establishing a sustainable advantage amid accelerating digitalisation.

One notable insight concerns the non-universalisable nature of AI ethics: as Madaio et al. note, ethical governance measures must be tailored to the goals, cultural norms and priorities of each organisational context. This principle was vividly illustrated during AI-Duty Manager's deployment, where involvement of stakeholders across management tiers and from geographically dispersed units enabled alignment not only of functional parameters but also of behavioural norms with local data-and-knowledge governance regulations [4]. Figure 3 presents the conceptual framework for ethical regulation of human–AI interaction.

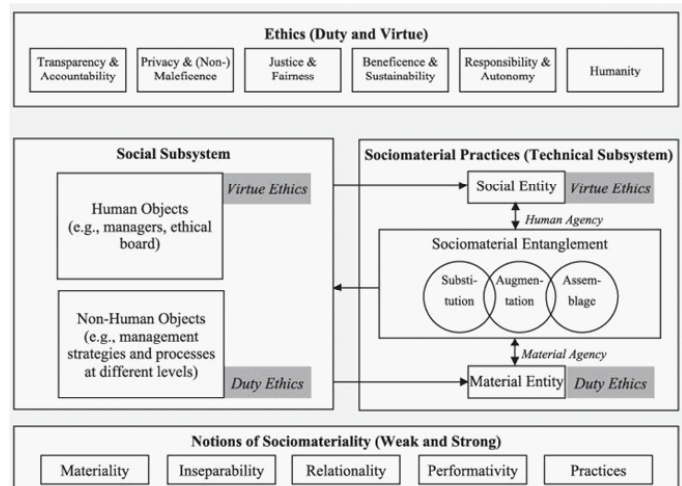


Figure 3. Conceptual framework for ethical governance of human–AI interaction [4]

Including a diverse array of stakeholders proved crucial during deployment, as Holstein et al. emphasize, since the exchange of best practices among technical, managerial and operational contributors fosters the generation of fresh insights and enhances transparency in algorithmic decision-making. Interdisciplinary communication—uniting data specialists, support engineers and HR representatives—collectively cultivates robust operational and ethical norms. At the same time, a strategic approach to the ethical dimension of digital solutions is imperative, because ethical guidelines must be woven into not only the technology's design but also its deployment, operation and scaling. As Dwivedi et al. observe, digital leadership is inseparable from ethical accountability, especially when working with generative AI whose behaviour is shaped by both user interaction and the type of feedback it receives [Dwivedi et al.].

A notable finding concerns generative language models' potential for ethical reinforcement through collective feedback mechanisms: platforms such as ChatGPT now function not merely as automation tools but as hubs for ethical coordination—they aggregate user perspectives, diagnose normative conflicts and adapt in response to these correlations. However, this capability calls for further analysis of socio-material interactions, where duty-based and virtue-based ethical norms may clash [4].

Key managerial insights and practical recommendations emerged for organisations introducing AI into human-resource management to minimise time and expense. The study confirmed that, to leverage AI effectively in HR processes, organisations must prioritise system accuracy and reliability—ensuring rigorous data analysis and sound decision-making—while recognising that investment in such technologies enhances forecasting quality and reduces human error, thereby conserving resources.

A strategic approach to automating routine and repetitive HR tasks enables teams to reallocate HR professionals' efforts toward more creative and strategic activities, improving overall operational efficiency and lowering costs. Nonetheless, the research identified computing power and AI performance as critical constraints: inadequate IT infrastructure can markedly degrade system effectiveness, introduce delays and impede the realisation of projected savings. Consequently, leaders must carefully assess and align technological capabilities with organisational objectives when implementing AI.

Real-time deployment demonstrated a positive impact on employee engagement and retention by enabling swift responses to change and boosting staff satisfaction. At the same time, the personalisation of AI-driven services—though well received by employees—does not always translate into immediate cost reductions, underscoring the need for careful stakeholder expectation management. Leaders should communicate the long-term benefits of personalisation and develop strategies for sustained growth [6].

From a scientific standpoint, this research endorses the model of interaction among the client, the field-service engineer (FSE) and AI, in which AI evolves from a mere tool into an active team partner. Under the agile-process framework, engagement with AI unfolds as a bidirectional, adaptive cycle that not only allows consultation with the technology but also enables flexible adjustment of workflows according to its capabilities.

In this paradigm, AI drives five principal procedural shifts: enhancement of communication (AI-mediated communication), support for learning and skill development, facilitation of decision-making, extension of routine operations and uplift in productivity. For instance, AI-MC elevates the quality of staff-client interactions, boosts employee satisfaction and proficiency, and improves document readability and clarity. AI-powered coaching empowers personnel to acquire professional skills without leaving their core tasks—a benefit especially pertinent to service contexts.

AI-enabled decision support automates mundane workloads and furnishes real-time recommendations, thereby lightening the staff's burden and accelerating responses to customer inquiries [7]. The broadened scope of AI roles encompasses that of a team collaborator—capable of acting as facilitator, leader or active co-creator in tackling complex problems and generating content.

By relieving employees of repetitive, monotonous duties, AI allows them to concentrate on intuitive and empathetic functions, while humans continue to occupy the central role in service delivery. This aligns with the hybrid-team concept, where human-AI collaboration assumes a symbiotic character.

Interviews with technical-support experts uncovered several pressing challenges and routine tasks ripe for transformation via generative AI (GenAI). Workshops and focus groups confirmed GenAI's capacity to enhance service quality, streamline processes and boost FSE effectiveness [7]. Nevertheless, this study's limitations include its IT-company-focused sample and modest respondent count. To strengthen external validity and deepen insights, analogous studies should be undertaken in other cities and industries—such as healthcare and tourism. Additionally, future research could examine the ethical dimensions of AI adoption, the motivational drivers behind technology use and AI's influence on organisations' competitive advantage.

CONCLUSION

In an era marked by rapid advances in digital technologies and increasingly complex business processes, corporate organisations demand new, effective decision-support tools. The findings of this study and the pilot deployment of AI-Duty Manager reveal the significant promise of AI-driven intelligent assistants in optimising the workflows of duty managers and service teams. Its innovative architecture—uniting large language models, natural-language processing

and seamless integration with enterprise systems—enables AI-Duty Manager to autonomously resolve up to 80 % of routine requests, thereby substantially reducing both cognitive and operational burdens on staff and cutting user response times.

Beyond routine automation, the digital assistant stimulates innovative thinking, broadens the organisation's informational horizon and strengthens internal knowledge management. A clear division of responsibilities between human operators and AI—whereby the system addresses repetitive tasks while personnel concentrate on strategic initiatives—demonstrates the efficacy of a hybrid model for managing service functions.

Equally critical is the attention to ethical considerations in AI adoption, alongside rigorous information-security measures and regulatory compliance. Achieving these goals necessitates the involvement of diverse stakeholders and a strategic commitment to digital leadership.

Thus, AI-Duty Manager emerges not merely as an automation instrument but as a strategic partner in decision-making and knowledge management—an asset of particular value amid high uncertainty and information overload. Further research and broader implementation of intelligent decision-support systems across industries will reinforce AI's role as a foundational element of modern corporate infrastructure, securing organisations a sustainable competitive advantage in the Industry 4.0 era.

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