# SUMMARY

## of the doctoral dissertation entitled Implementation of cognitive technologies in management in the modern business services sector

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This doctoral dissertation examines the implementation of cognitive technology in management within the modern business services sector. The research addresses an identified research gap concerning successful implementation and coordination mechanisms among entities engaged in cognitive technology adoption processes, encompassing machine learning and intelligent process automation, in service-oriented organizations operating under conditions of accelerated digital transformation.

The primary objective is to develop and empirically validate an integrated theoretical framework for effective cognitive technology implementation in modern business services organizations. The main objective is achieved through nine specific objectives, encompassing both theoretical-cognitive dimensions (systematization of knowledge, determination of organizational competencies' roles, identification of adoption factors) and utilitarian dimensions (analysis of implementation processes, assessment of managerial competencies, investigation of employee perceptions, development of practical recommendations).

The research employs mixed methodology, integrating quantitative survey research encompassing 489 respondents across various organizational levels with qualitative in-depth interviews conducted with 10 management-level experts possessing decision-making authority in cognitive technologies. The research sample concentrates on organizations within Poland's modern business services sector, with particular emphasis on enterprises implementing intelligent process automation solutions. The temporal scope covers 2020-2024, with empirical data collected during 2023-2024, capturing the current state of adoption in the post-pandemic business environment.

The dissertation structurally encompasses six substantive chapters. Chapter two provides literature review and theoretical framework, developing an epistemological taxonomy tracing the conceptual evolution of cognitive technologies from the mid-1980s to the contemporary period and documenting a paradigmatic transition from mechanistic to complex adaptive thinking. Chapter three conducts systematic bibliometric and scientometric analysis, revealing academic isolation between technical artificial intelligence domains and management research, and presents detailed characterization of Poland's modern business services sector, identifying four main sectoral components and documenting consistent employment growth and advanced

generative AI adoption. Chapters four and five present empirical findings, combining quantitative analysis with qualitative insights from expert interviews, while chapter six synthesizes results and discusses their implications for management theory and practice.

The research formulated twelve specific research questions and six main hypotheses, which were subjected to empirical verification through advanced statistical methods. Hypothesis validation demonstrated statistically significant relationships between key variables, confirming most theoretical assumptions while revealing unexpected patterns requiring revision of prevailing assumptions in the literature.

Research findings were classified into two categories of scientific contribution. Confirmatory validation established empirical quantification of theoretically postulated relationships, including confirmation of innovation prioritization as an implementation facilitator, identification of organizational readiness as the strongest single predictor of adoption success, and quantification of managerial competencies' impact, while simultaneously revealing their differentiated effectiveness in addressing various types of implementation barriers.

The most important research discovery, constituting a novel contribution to theory, demonstrated that ethical considerations exhibit stronger predictive power for implementation success than technological innovation orientation, challenging widespread technological determinism assumptions in the literature. The study revealed a systematic deficit in organizational approaches to ethics, identifying a significant gap between compliance-focused approaches and authentic integration of ethical considerations into decision-making processes. This discovery necessitates revision of implementation priorities, recognizing the ethical dimension as a primary success determinant rather than merely a supplementary consideration.

The research also established linkages between employee perceptions of cognitive technologies and their professional development and job satisfaction, confirming that successful implementation requires systematic attention to the employee dimension and mechanisms of technology's impact on individual professional experiences.

The central theoretical achievement of the dissertation is the development of the dual functionality paradigm of cognitive technologies, conceptualizing these technologies as systems simultaneously executing operational and managerial functions, creating synergistic value exceeding traditional automation approaches. This model transcends previous conceptualizations, recognizing integrated organizational transformation potential and providing theoretical framework for understanding the multidimensional impact of cognitive technologies on management systems.

Qualitative research with management-level experts provided data triangulation through in-depth thematic analysis, revealing three cross-validation patterns and identifying contextually differentiated success factors. Organizations functioning in heavily regulated environments demonstrate distinct implementation patterns compared to organizations in technology-oriented contexts, emphasizing the necessity of contextualizing adoption strategies.

Based on empirical findings, an integrated matrix of strategic recommendations was developed encompassing five priority domains: institutionalization of multidimensional innovation assessment frameworks, development of structured ethical governance frameworks with ethics-by-design methodologies, establishment of holistic organizational readiness assessments, development of differentiated competency programs addressing specific barriers, and systematic integration of employee skill development with technological initiatives.

The theoretical contribution of the dissertation manifests in four main areas: development of the dual functionality paradigm as an innovative framework for conceptualizing cognitive technologies; empirical challenge to technological determinism through demonstration of ethical dimension superiority over innovation in predicting implementation success; creation of an integrated theoretical framework unifying technological, organizational, and social perspectives; and development of systematic evolutionary taxonomy documenting paradigmatic transition in understanding and application of cognitive technologies.

The applicative dimension of the research encompasses validated diagnostic instruments enabling organizations to assess implementation maturity, sectoral empirical benchmarks for the Polish modern business services market, evidence-based implementation roadmap for progression from rule-based automation through intelligent process automation to advanced cognitive automation, and systematic catalog of implementation barriers with targeted intervention strategies.

The dissertation identifies methodological limitations related to geographic specificity of the study, cross-sectional design constraining causal inference, reliance on self-report data, and rapid pace of technological development potentially limiting long-term applicability of certain detailed findings. Proposed future research directions include longitudinal studies tracking implementation dynamics over time, cross-national comparative investigations validating theoretical framework in diverse contexts, sectoral extensions, in-depth exploration of causal mechanisms of ethical considerations' impact on organizational success, and experimental designs testing effectiveness of developed strategic recommendations.