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Critical lessons from large-scale AI telecom implementations

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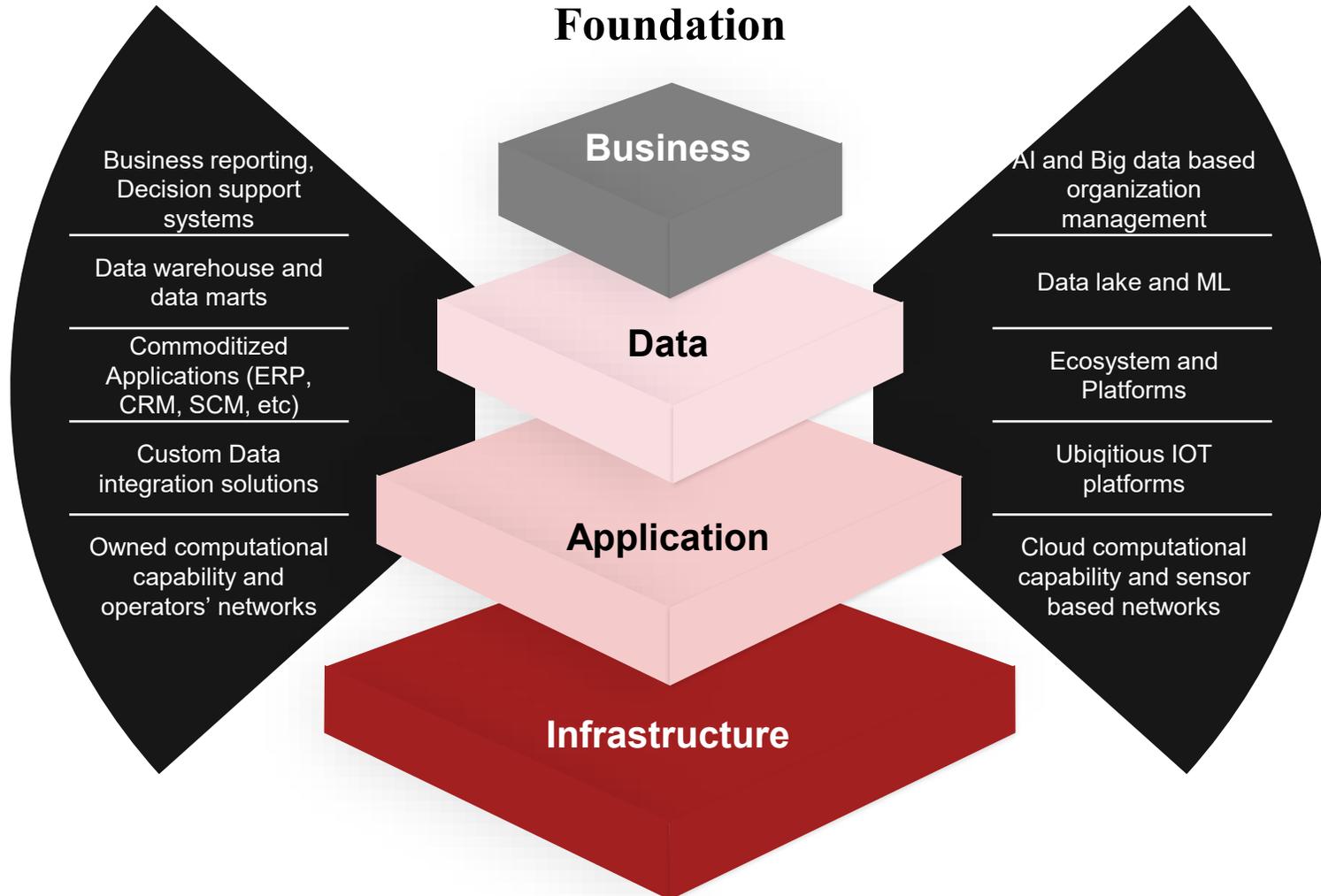
Unlocking AI's Value: AI-Driven Business Impact



Enterprise Architecture Foundation

Existing Enterprise Architecture

- Digitalization hasn't met expected productivity gains.
- AI investments show unclear returns, with some reducing productivity.
- Siloed EA causes fragmented knowledge and limits integration.



Digital Enterprise Architecture

- A critical mass of new AI technologies is needed for business impact.
- In digital EA intangible capital needs to be accumulated across all levels.

Research Objectives and Methodology



Research Question

Evaluates factors hindering digitalization and focuses on AI to boost productivity and ROI.



Hypothesis

AI success relies on intangible capital, overcoming resistance, strong processes, and knowledge.



Research Objectives



AI Solutions and Productivity

Transforming EA's lower layers to digital enables knowledge-based capital.

Research Methodology

Qualitative Case Study Approach

Focus on 3+ large companies investing in digital solutions.



Data Gathering Phase

Conduct interviews with C-level execs, assess AI plans, and discuss implementation factors.



Analysis Phase

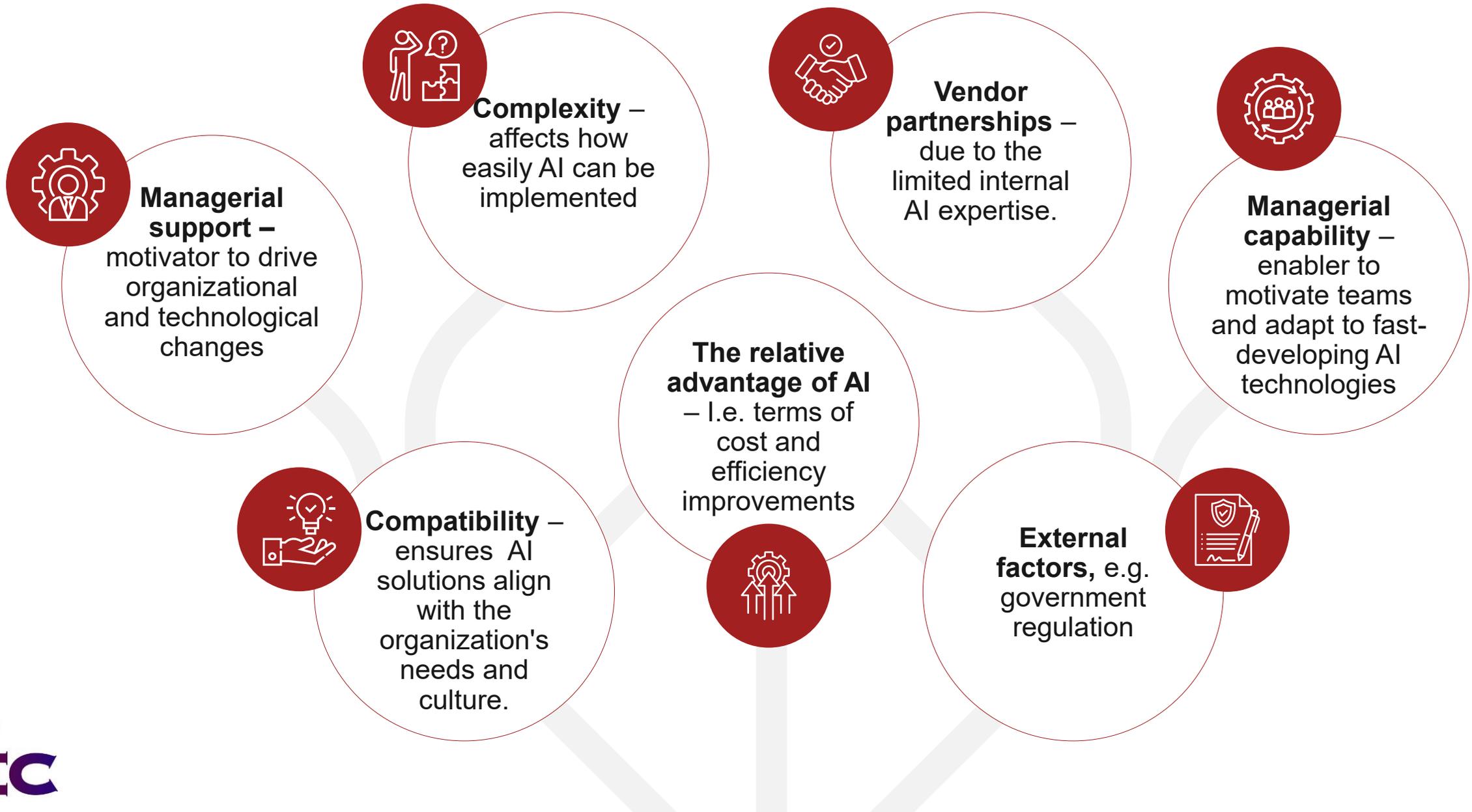
Digital transformation and implementation factors analyzed by industry.



Key Impediments and Recommendations



Factors Influencing AI Adoption





Case 1: redefining a telecom to ai-first

Project Overview

Mobile telco aimed to develop AI-first target state

Objectives

Organization size reduced x3 with the new model. Fully automated select functions.

Expected Economic Benefits

Fully automated customer care; SAC improvement x3; >60% productivity from corp functions

Investment Costs

IT and software stack
Transformation costs

Central American Mobile Telco

Network construction and development(core, RAN, backhaul), Network monitoring and maintenance, Voice and data transmission management, Customer data management (activation, billing)

Core equipment, auxillaries, end user equipment, accessories

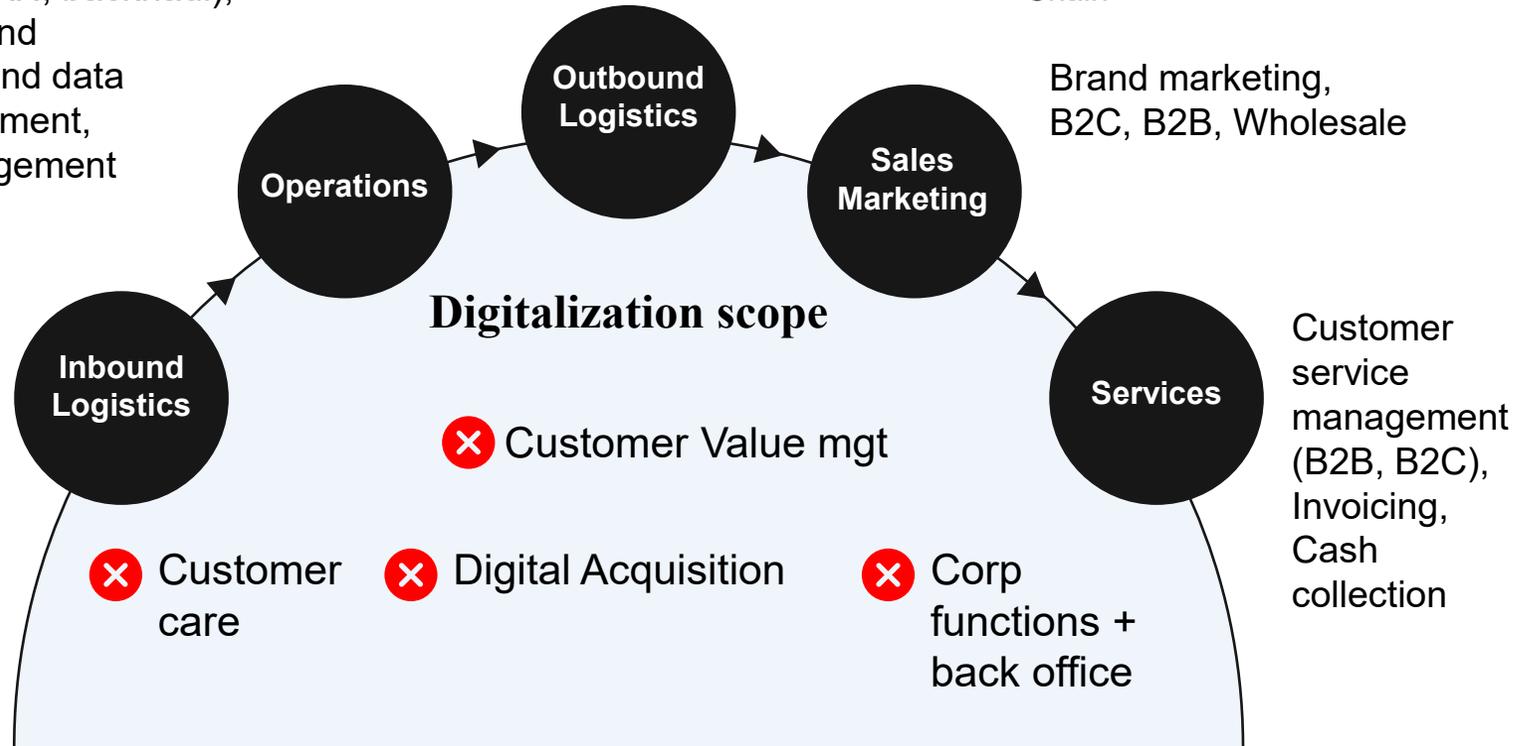
Direct-to-consumer omnichannel order mgt; Device lifecycle and reverse logistics



Economic effect mainly achieved
● Overall Value Chain



Economic effect NOT achieved



Pilots implemented:

- Self-service via in-app/WhatsApp AI on RAG
- Agentic hyper-personalized content
- Streamlined chatbot based procure-to-pay, billing disputes, resolutions, escalations, collections, payment

Scale and ROI not achieved due to execution complexities



Case 2: telco efficiency improvement

Project Overview

Integrated telco aimed to strategically improve operational efficiency

Objectives

Reduce costs and headcount in all major functions.

Expected Economic Benefits

EBITDA effect +5pp

Investment Costs

IT and software stack
Transformation costs

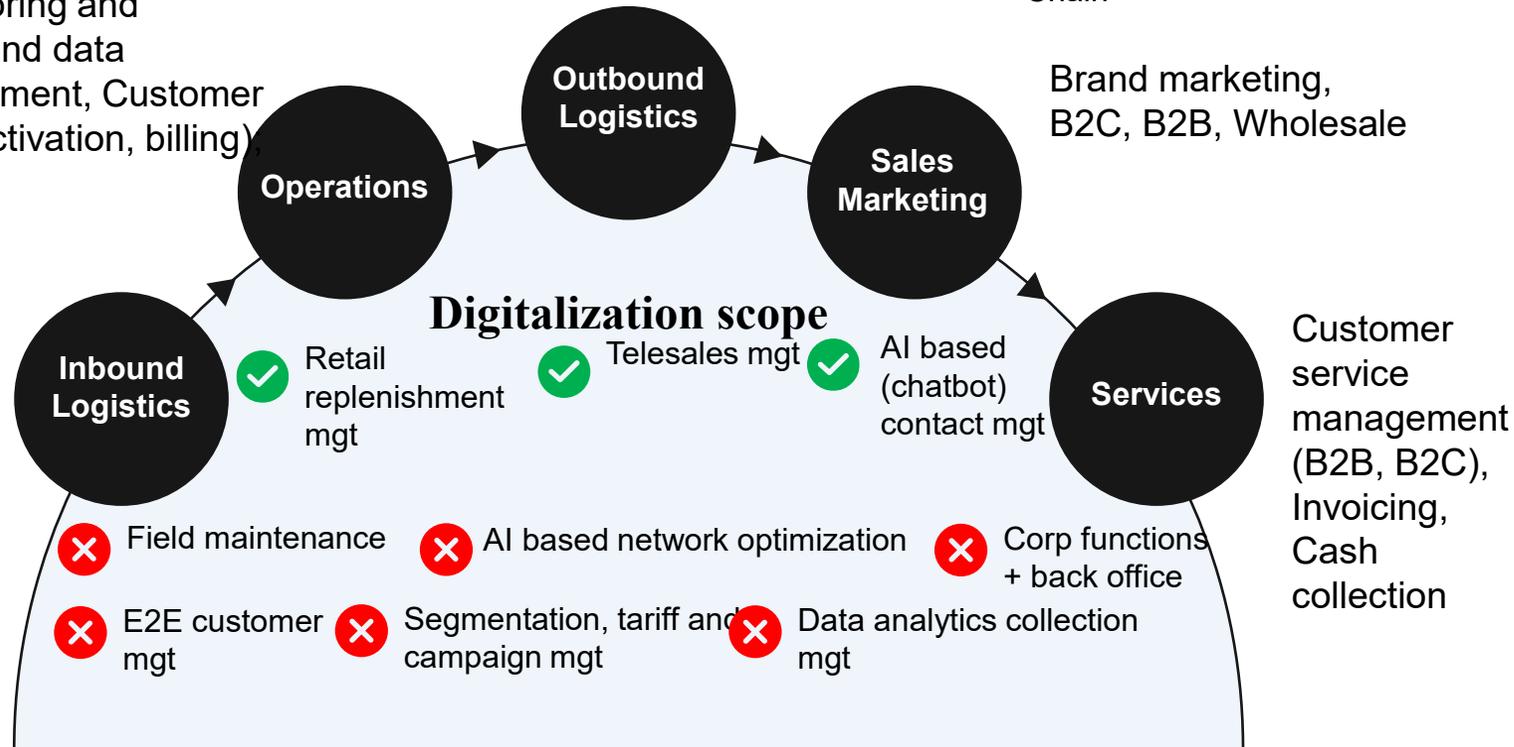
North American Telco

Network construction and development (backbone, metro, last mile), Network monitoring and maintenance, Voice and data transmission management, Customer data management (activation, billing) Service provisioning

Core equipment, auxillaries, end user equipment, accessories

End user equipment, accessories and device shipment; Device repair management

- ✓ Economic effect mainly achieved
- ✗ Economic effect NOT achieved
- Overall Value Chain



- A few AI digitalization projects were completed successfully
- Several projects that were expected to provide highest impact were partially completed with low ROI achieved
- Overall effect was <1pp of EBITDA



Case 3: telco software factory

Project Overview

Automating internal telecom customer processes, App dev for external B2B clients

Objectives

Improve customer exp and reduce costs; Monetize extern-ly invest-s in app dev and data

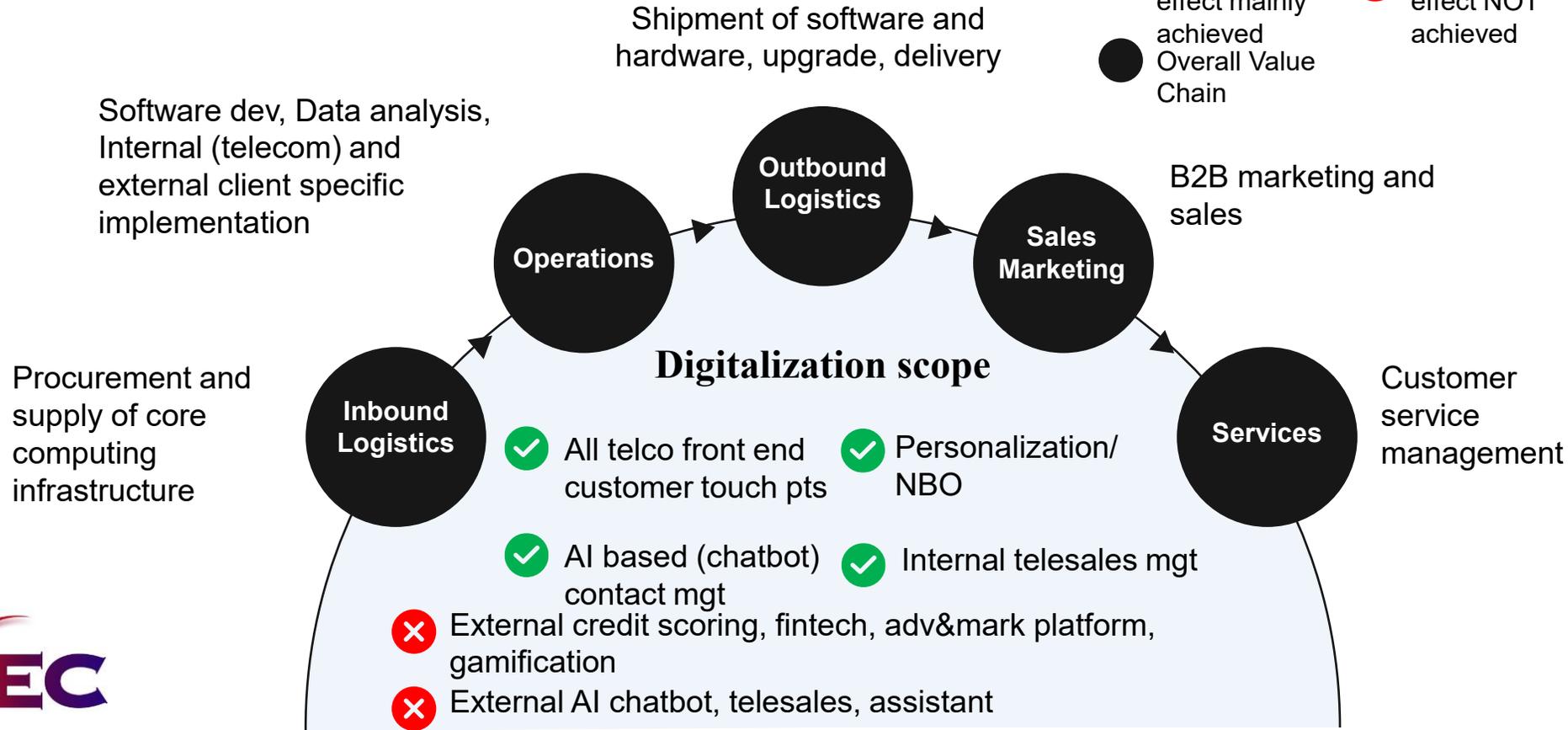
Expected Economic Benefits

IT cost savings
Incremental rev from existing and external customers

Investment Costs

Up to \$6M annually on development team, SW & HW infra

Multi product/service telco software factory



focused on telco customers (personalization NBO, telesales, chatbot) achieved planned ROI. Products for external market (gamification, credit scoring, adv platform) did not achieve ROI

Synthesis of AI adoption factors



Impact of key factors on digital/AI implementation initiatives.

	Managerial Support	Managerial capability	Compatibility	Complexity	Relative advantage	Gov regulation	Vendor support
AI First NA Telco	+	+	+	-	+	+	+/-
Telco operational Efficiency	+	-	+	-	+	+	+/-
Telco Software Factory	+	+/-	-	-	+	N/A	+

- Factor had crucial negative impact in achieving planned results

- Factor had some negative impact in achieving planned results

+/- Factor had both positive and negative impacts, was not crucial for achieving results;

+ Factor had mostly positive impacts

+ Factor had crucial positive impact on results achieving

- Digitalization projects met timelines and budgets but achieved only 20-30% of expected returns, while advanced AI systems struggled due to data gaps and complexity.
- Success was hindered by underestimated complexity, misalignment with business needs, and insufficient management capabilities for organizational changes

Lessons Learned – AI maturity is required for ROI



Effectiveness of Digitalization

Focus on automating operations, effective for routine tasks.

Underestimated Complexity

Management underestimated AI complexity, causing implementation challenges.

Lack of Compatibility

Many large-scale AI implementations were unjustified, and misaligning

Inadequate Managerial Capability

Management failed to assess AI's business value, leading to poor decisions

Enterprise Architecture Foundation

Business



AI automation creates opaque processes; many implementations weren't justified when simpler solutions would suffice; management lacked clear business rationale for AI recommendations.

Data



Growing data volumes create opaque systems rather than insights; management restricts investments in non-normalized data without clear business outcomes.

Application



App flexibility demands require agile multi-service architecture; management prioritizes familiar business functions over integration platform investments.

Infrastructure



Proliferating infrastructure components create costly, unmanageable environments; management underestimates data sources needed for business processes and decisions.

AI capability maturity framework



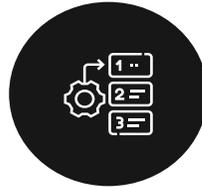
Maturity Capability Stage	Digital groundwork	Demand-Driven Optimization	Business Model Expansion	Eco-system Integration
Scope	Building digital infrastructure (technology, organization, processes)	Adhering to AI stakeholder demand (achieving efficiency in digital operations, effective up selling)	Building innovative AI digital business models (new roles in value chain or adjacent sectors, elements of cross selling of services)	Effectively integrating core and new businesses achieving synergetic effect in up and cross selling



Align AI initiatives with business capability maturity: Digitize foundational enterprise layers before scaling AI at the business level.



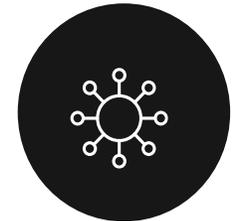
Build intangible capital early: Invest in knowledge, data stewardship, and cross-functional skills for AI-driven change.



Prioritize managerial upskilling: Equip leadership with AI fluency and change management to drive adoption.



Start small, scale with relevance: Avoid overengineered AI; start with process automation and expand where value exists.



Redesign business models before implementing AI: Successful AI requires rethinking value chains, decision rights, and incentives, not adding AI to existing processes.

AI transformation not a tech project - it's a business transformation powered by AI

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