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NEGZ Kompetenznetzwerk Digitale Verwaltung

DISCOVER DIGITAL ADMINISTRATION 2025

Dynamic Capabilities for AI Adoption in Public Administration: A Look Back and Analysis of German Federal AI Strategies

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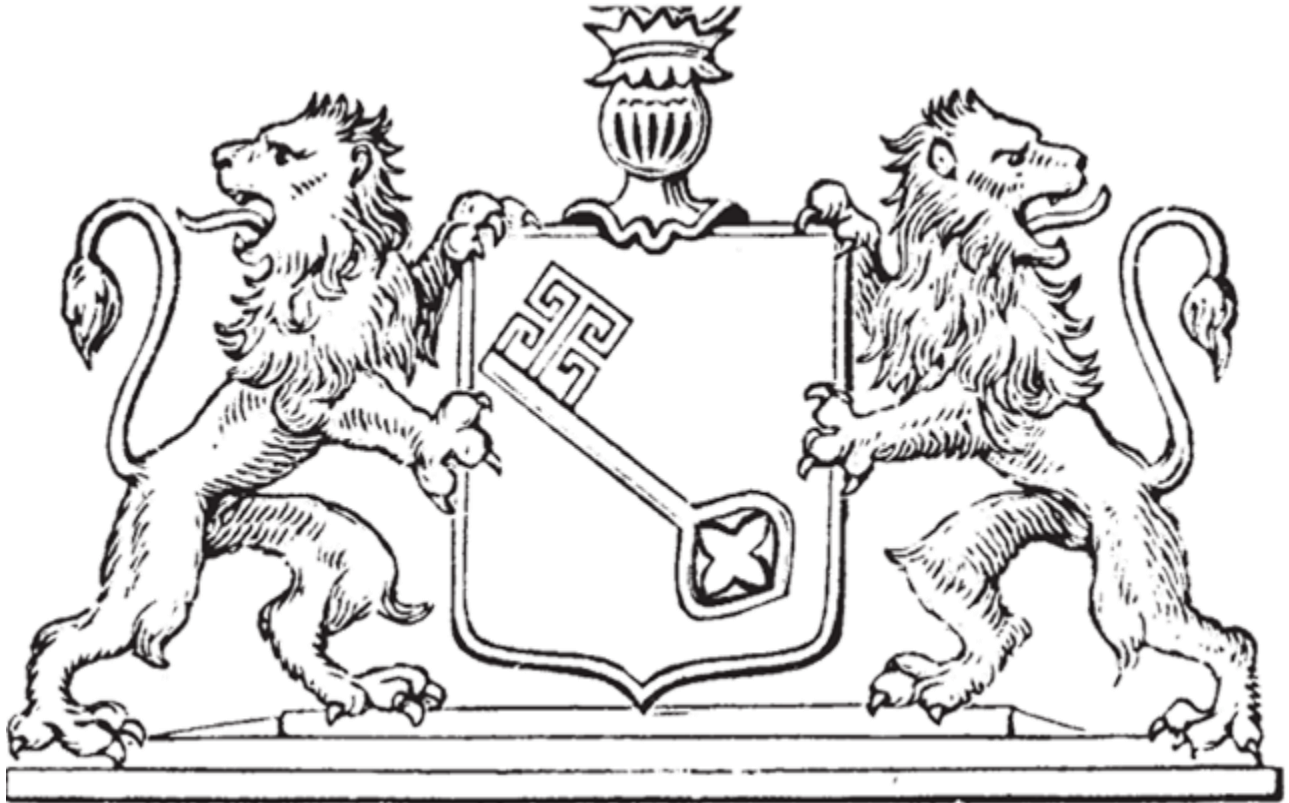
Jan Westermann
Steffen Fock
Stefano Geerken
Björn Niehaves



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The AI Productivity Paradox

→Companies that adopt industrial artificial intelligence see productivity losses before longer-term gains, according to new research (Burnahm 2025)

→Despite $30–40 billion in enterprise investment into GenAI, 95% of organizations are getting zero return (Challapally et al. 2025)

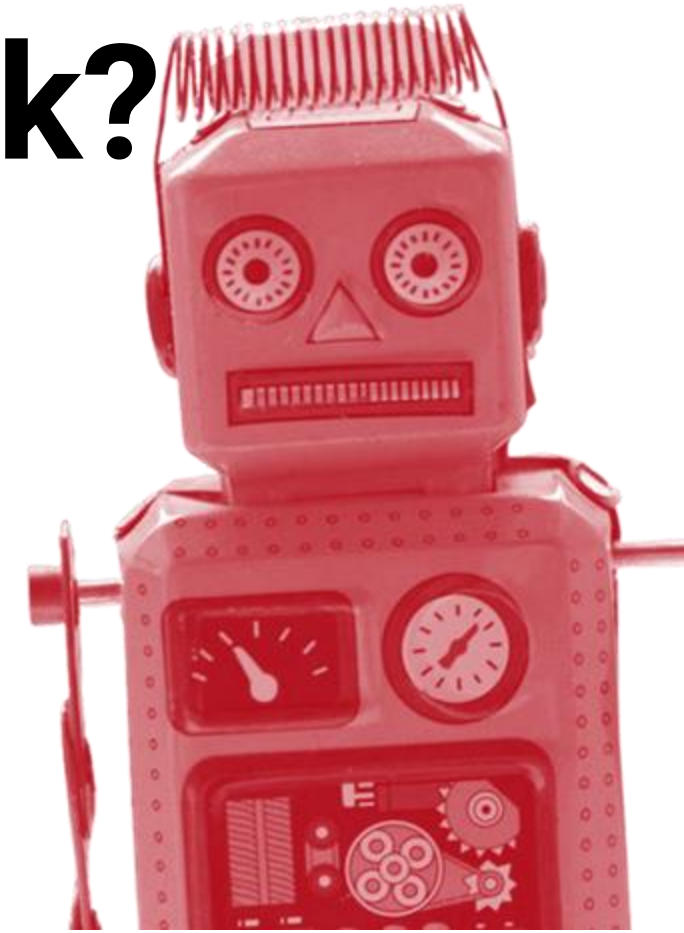
MIT Nanda, Challapally, A., Pease, C., Raskar, R., & Chari, P. (2025, Juli). State of AI in Business 2025 Report (Version 0.1) [Bericht]. MLQ / Project NANDA. https://mlq.ai/media/quarterly_decks/v0.1_State_of_AI_in_Business_2025_Report.pdf
Burnham, Kristin (2025). The 'productivity paradox' of AI adoption in manufacturing firms. MIT Sloan – Ideas Made to Matter. https://mitsloan.mit.edu/ideas-made-to-matter/productivity-paradox-ai-adoption-manufacturing-firms

Does AI Improve Administrative Work?

→ Experimental study, German public administration, n=40 with control group, w/o GPT-4

15,5 % (!) faster

18,0 % (!) better



B. Niehaves: KI -Produktiv oder Problematisch? eGovernment Digitale Verwaltung. Wissenschaftliche Kolumne, 02/2025

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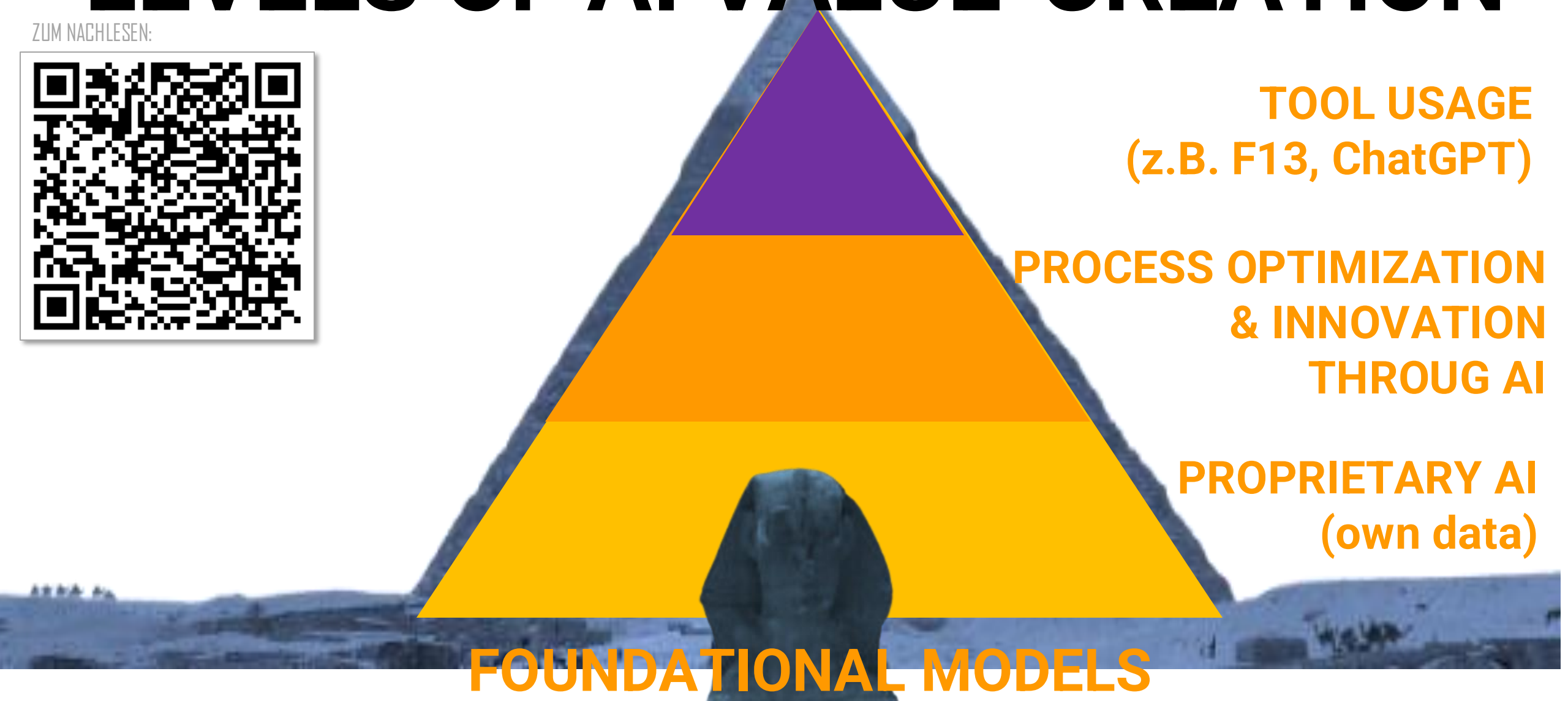
LEVELS OF AI VALUE-CREATION

ZUM NACHLESEN:



TOOL USAGE
(z.B. F13, ChatGPT)

PROCESS OPTIMIZATION & INNOVATION THROUG AI

PROPRIETARY AI (own data)

FOUNDATIONAL MODELS


HOW CAN AI BE INTEGRATED INTO THE VALUE CREATION PROCESSES OF PUBLIC ADMINISTRATION?

Research Objective(s):

Overall objective

Examine how dynamic capabilities (sensing, seizing, transforming) support the adoption and integration of AI in public administration.

How to approach objective

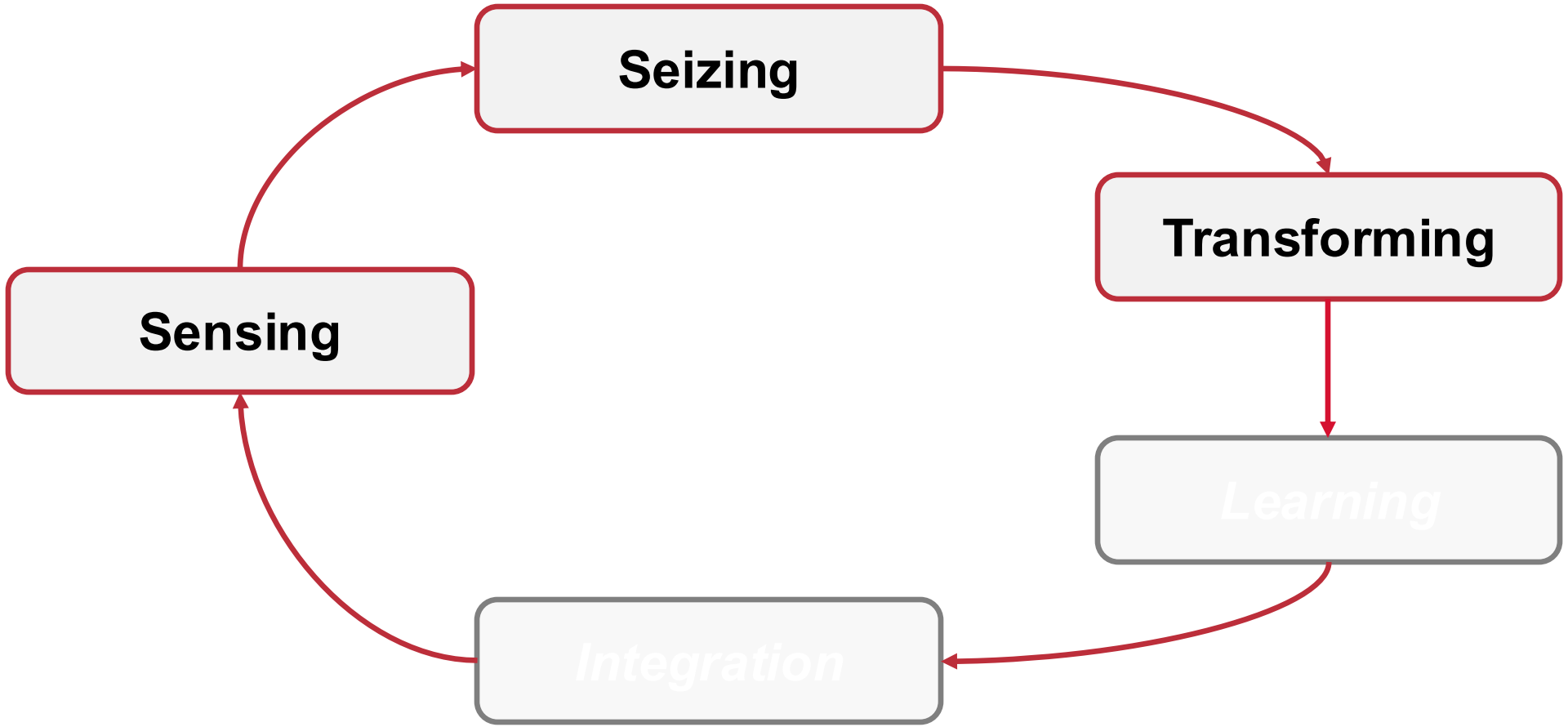
- Apply the dynamic capabilities framework as an analytical lens for studying AI adoption.
- Assess the relative weight of sensing, seizing, and transforming within strategic approaches.

Cases of Analysis

- Analyse the AI strategies of Germany's federal states regarding their treatment of dynamic capabilities.
- Compare differences and commonalities across federal states.
- Derive implications for strengthening state-level strategies in alignment with dynamic capabilities.

Dynamic Capabilities

'The ability to integrate, build, and reconfigure internal and external competencies to address rapidly-changing environments'. *(Teece et al. (1997)*



Teece, D. J., G. Pisano, and A. Shuen (1997) "Dynamic capabilities and strategic management," Strategic Management Journal (18) 7, pp. 509-533.

Indikators for Measuring: 1. Sensing

The ability to identify, interpret, and assess opportunities and threats.

➢ Strategic scanning and foresight	➢ *Systematically exploring markets, technologies, and environments to anticipate future changes and disruptions.*
➢ External knowledge acquisition	➢ *Actively drawing in insights from customers, partners, competitors, and networks to inform strategic direction.*
➢ Data and analytics use	➢ *Leveraging structured information and advanced analytics to detect patterns and opportunities.*
➢ Strategic flexibility	➢ *Ensuring the organization can adjust its strategy quickly when new information or shifts emerge.*
➢ Strategic responsiveness	➢ *Shaping leaders‘ mindset to remain open, adaptive, and attentive to weak signals in the environment.*

Indikators for Measuring: 2. Seizing

The ability to mobilize resources and capture opportunities once identified.

➢ Speeding of decision-making	➢ *How quickly leaders can commit resources and make strategic choices when opportunities are identified.*
➢ Effect of new offerings	➢ *The proportion of total value generated by recently introduced offerings, showing the ability to capitalize on innovations.*
➢ Flexibility of investment allocation	➢ *The ease and frequency with which financial and human resources can be shifted toward emerging priorities.*
➢ Strategic alliance formation	➢ *The number and quality of partnerships or joint ventures created to exploit new markets or technologies.*
➢ Time-to-market for innovations	➢ *The average time it takes to move an idea from development to commercial launch, reflecting agility in execution.*
➢ Scaling capability	➢ *The organizations ability to rapidly expand successful pilots or innovations to full operational scale.*
➢ Customer adoption rate	➢ *The speed and extent to which customers embrace the organization‘s new offerings, indicating successfull use.*

Indikators for Measuring: 3. Reconfiguring/Transforming

The ability to continuously renew, recombine, or shed resources and processes.

➢ Frequency of organizational restructuring	➢ *How often the organization adapts its structure (e.g., new divisions, merging units, process redesign) to align with strategic priorities.*
➢ Discontinuation of obsolete services	➢ *The rate at which underperforming or outdated offerings are phased out to free up resources for new opportunities.*
➢ Workforce upskilling and reskilling	➢ *Investment in developing employees‘ new skills to support strategic transformation and technological change.*
➢ Process adapatbility	➢ *The organization‘s ability to redsign core processes quickly when invornmental conditions change.*
➢ Legacy system replacement	➢ *The proportion of outdated technologies, processes, or routines actively replaced with updated solutions.*

Indikators for Measuring: 4. Learning

The capacity to build, transfer, and institutionalize new knowledge.

Indikators for Measuring: 5. Integration

The ability to combine and orchestrate internal and external resources.

Prevalence in Current Public Sector AI Strategies:
→ Our cases

- Examined AI strategies of **five German states**:
  Niedersachsen, Schleswig-Holstein, Hessen, Brandenburg, Sachsen

- **Main criterion**: Presence of a dedicated AI strategy that explicitly address AI use/adoption in public administration

Prevalence in Current Public Sector AI Strategies: → 1. SENSING

Data & analytics use dominates:

- Schleswig-Holstein: focus on data-driven administration, e.g. “KI soll die Verwaltung entlasten, durch Analytik bessere Entscheidungen ermöglichen”.
- Sachsen: Open Data Portal as a backbone for AI training and administrative innovation.

External knowledge acquisition:

- Niedersachsen: broad stakeholder involvement (chambers, universities, civil society) institutionalized in the strategy process.

Strategic foresight weak overall, exception Brandenburg:

- Formal SWOT analysis and structured monitoring (“jährliches Wirkungsmonitoring, Zwischen- und Schlussevaluation”).

→ Sensing in administrations is primarily data-driven; foresight remains under-institutionalized except in Brandenburg!

Prevalence in Current Public Sector AI Strategies: → 2. SEIZING

Alliance formation is key:
- Sachsen: participatory strategy process with citizen platform input.
- Brandenburg: interministerial working group (IMAG) + advisory board institutionalize administrative alliances.

Flexible investment allocation:
- Hessen: €1.2bn digital budget steered centrally; "KI made in Hessen" branded around responsibility and flexible resource allocation.

Scaling capability limited:
- Schleswig-Holstein: KI initiatives remain pilots (e.g. chatbot prototypes) without system-wide roll-out.

Citizen adoption as driver:
- Sachsen: citizen engagement via digital participation strengthens legitimacy.

→ *Alliance-building dominates seizing capacities; scaling AI adoption remains weak.*

Prevalence in Current Public Sector AI Strategies: → 3. TRANSFORMING

Workforce reskilling:
- Brandenburg: explicit upskilling and training to support transformation.
- Hessen: continuous reskilling anchored in “KI in der smarten Verwaltung entwickeln”.

Process adaptability & legacy replacement:
- Hessen: modernization of administrative IT, including replacement of legacy data centers with sustainable infrastructure.
- Brandenburg: clear roadmap for legacy system phase-out linked to evaluations.

Organizational restructuring:
- Brandenburg: interministerial coordination body as structural anchor (IMAG KI) + advisory board institutionalize administrative alliances.

Obsolete service discontinuation:
- Rarely explicit; mostly implicit in digital transition narratives (e.g. Niedersachsen)

→ Transformation capacity is strongest where legacy replacement and workforce reskilling are explicitly institutionalized (Brandenburg, Hessen).

Prevalence in Current Public Sector AI Strategies: → OVERALL

- **Dynamic capabilities framework** provides a useful lens to analyse AI adoption in public administration.
- **Relative weight**: sensing and seizing appear more visible in strategies than transforming:
  - *Sensing*: Data analytics and external knowledge acquisition are consistently emphasized, while structured foresight mechanisms remain underdeveloped.
  - *Seizing*: Alliance-building and participatory approaches are recurrent; scaling and citizen adoption mechanisms are less articulated.
  - *Transforming*: Workforce reskilling and legacy replacement are acknowledged but not yet systematically embedded across cases.

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Many thanks for your attention!

Looking forward to your questions and inspriration on how to proceed from here!