Denmark's GenAI Paradox: From Lagging to Leading

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BCG

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Executive Summary

The most extensive Nordic survey to date has been performed to investigate the adoption and application of generative AI (GenAI) by Danish companies, yielding a comprehensive analysis of how businesses are interacting with and harnessing the power of this innovative technology. Including responses from more than 572 Danish company executives and senior management across all industries and company sizes, the survey presents us with a representative picture of the full Danish industry.

The overall result?

- An overwhelming majority of Danish executives, 81%, foresee GenAI having a positive impact on their businesses, with 50% anticipating it to be a transformative force.

- Despite the high expectations, only 5% of companies are moving beyond the pilot stage, and only 21% are planning to use the full breadth of GenAI opportunities.

- Although 71% of companies see insufficient talent as a bottleneck (concern/roadblock), 55% of those companies are not even planning any of the proposed workforce and people enablers.

This report synthesizes our findings on the current state of GenAI adoption among Danish companies and best practices for success. We provide actionable recommendations to guide businesses in harnessing the true transformative potential of GenAI and securing a competitive edge in the evolving landscape.

What did we learn?

High hopes and untapped potential but the value-proof points are there: The most advanced companies see GenAI as a catalyst for growth and transformative impact, yet most Danish businesses are just getting started and only focusing on the rudimental basics.

The winning formula amongst Danish GenAI champions: Balance swift *execution* and *excitement* around a clear vision for GenAI impact aimed at increasing both efficiency and company growth. Avoid individual business-case-triggered GenAI pilots but let a bold overarching vision guide action. Quantify the business impact you want to achieve with GenAI and select opportunities that target this ambition.

It's a CEO mission, not a tech topic: For GenAI to reach its full potential, CEOs must gain adequate subject matter expertise to understand the transformative opportunities and be the driving force behind a bold vision that brings technology and business together.

From stuck to scale up—get started! Not all answers will be clear upfront: Building GenAI capabilities is a continuous journey of learning and adjusting. Taking action is the most important first step, and while several archetypes of challenges will emerge, most can be overcome if proactively anticipated and managed.

Prioritize enablers and future-proof your business: While most companies are only focused on GenAI implementation, effective leaders are prioritizing critical enablers, such as workforce skills, responsible AI governance, data readiness, and future-proofing technology foundations. Ignoring these risks delays down the line.

Follow a bold vision, and walk the path to success: Once started and moving through the GenAI journey phases, understanding and setting the right priorities per phase is key to progressing and continuous learning.

GenAI transformations adhere to the 10–20–70 principle: A single thread connects the pioneers of AI at scale. They typically dedicate 10% of their AI efforts to algorithms, 20% to data and technological backbone, and 70%—the lion's share—to business and people transformation.

By synthesizing these insights from companies across Denmark, this report provides a clear strategic roadmap for Danish companies to jumpstart their GenAI capabilities and cement long-term competitive advantages.

What do we propose?

In the era of rapid technological progress, artificial intelligence has become a crucial determinant of competitive advantage. For Danish companies to sustain their innovative prowess on the global stage, it is imperative that they harness the potential of GenAI capabilities.

Denmark cannot afford to postpone its engagement with GenAI. Falling behind in the early stages exponentially amplifies the challenges of catching up later. The longer companies hesitate to embark on their GenAI journeys, the further they will lag behind their Nordic counterparts.

Drawing from the comprehensive insights gathered through our survey, Boston Consulting Group has formulated a strategic roadmap to expedite GenAI adoption among Danish businesses. This data-driven guide:

- **Highlights** the critical success factors enabling current frontrunners to rapidly outpace competitors.

- **Identifies** the central obstacles and emerging challenges that risk derailing GenAI initiatives.

- **Provides** clear, phased recommendations on strategic priorities and enablers required at each stage.

Properly leveraging GenAI's transformative potential is not merely a technological achievement. When implemented successfully as part of an enterprise's full AI toolkit, GenAI becomes a catalyst for fundamentally redefining business models, processes, and ways of working.

For Danish companies, mastering GenAI is imperative for sustaining global competitiveness. This report serves as a comprehensive guide for leaders to navigate the uncertainties and ambiguities of this uncharted domain with confidence.

Introduction

The Challenge of GenAI in Denmark

Despite its modest geographic size, Denmark has consistently punched above its weight through the innovative prowess of its businesses. From cutting-edge design and engineering to world-class research and development, Danish companies have left a significant impact globally.

Denmark is a competitive player in the business landscape because we're knowledge-based innovators who go beyond theory—they act.

In 2022, the release of ChatGPT, a free-to-use hyper-intelligent AI chatbot developed by OpenAI, put the spotlight on a new frontier of capabilities through generative AI (GenAI) to a massive audience. It sent shockwaves around the world and marked the dawn of a new paradigm in the potential of AI platforms to transform businesses and society.

The age of GenAI has arrived with AI capabilities that are shaking up global competitiveness—offering significant advances in areas where Denmark has historically excelled. Danish companies stand at a crossroads: Will they seize this as an opportunity to move ahead, or see global competitiveness decrease?

In late 2023, the Danish government announced a new digitalization strategy, which touches upon how to capture AI's potential and recognizes how critical it is for Danish businesses to act.

But how successful has this intention been in practice?

Despite the high level of digitalization among Danish businesses, they still lag behind their Scandinavian neighbors in the realm of GenAI. Refer to Exhibit 1 on the Boston Consulting Group Digital Acceleration Index.

To uncover how to move Denmark ahead, Boston Consulting Group has conducted a one-of-its-kind report in the Nordics—a survey to understand the factors behind Denmark's current position in the GenAI space. To clarify what works (and doesn't work) for the Danish context, we:

- **Perform an objective assessment** of Denmark's current GenAI readiness and maturity.

- **Identify challenges** Denmark faces in GenAI and AI acceleration.

- **Reveal the strategies that work** for the most advanced companies and distills winning approaches.

- **Provide clear, actionable recommendations** for Danish business leaders on guiding principles and prioritized actions, consolidating them into a single, comprehensive roadmap.

Exhibit 1 - Denmark trails behind its Scandinavian neighbors in the level of GenAI adoption
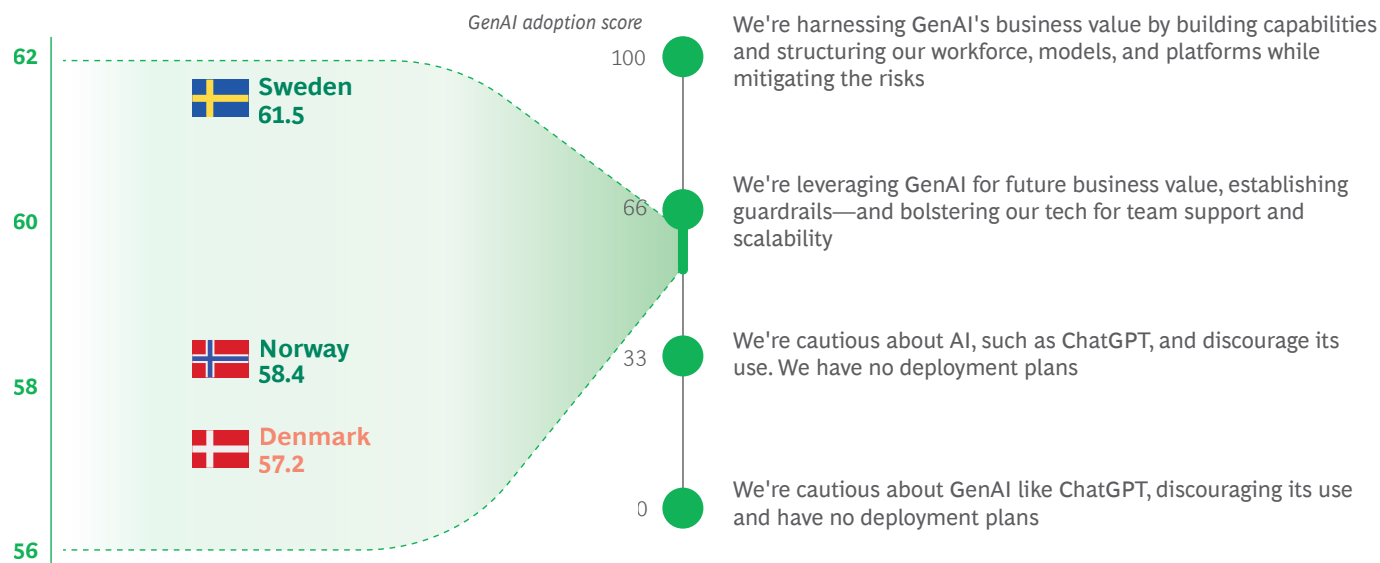
Source: BCG Digital Acceleration Index (DAI) - Global Study 2023.

A Paradox in Denmark: High Hopes, Untapped Potential

81%
of companies believe that GenAI will be **impactful** for their business, but only...

5%
of companies have **implemented several capabilities**

High hopes:

- **81%** of Danish leaders believe GenAI will have a positive impact on their businesses.

- **50%** anticipate GenAI will lead to significant or transformative outcomes for their business.
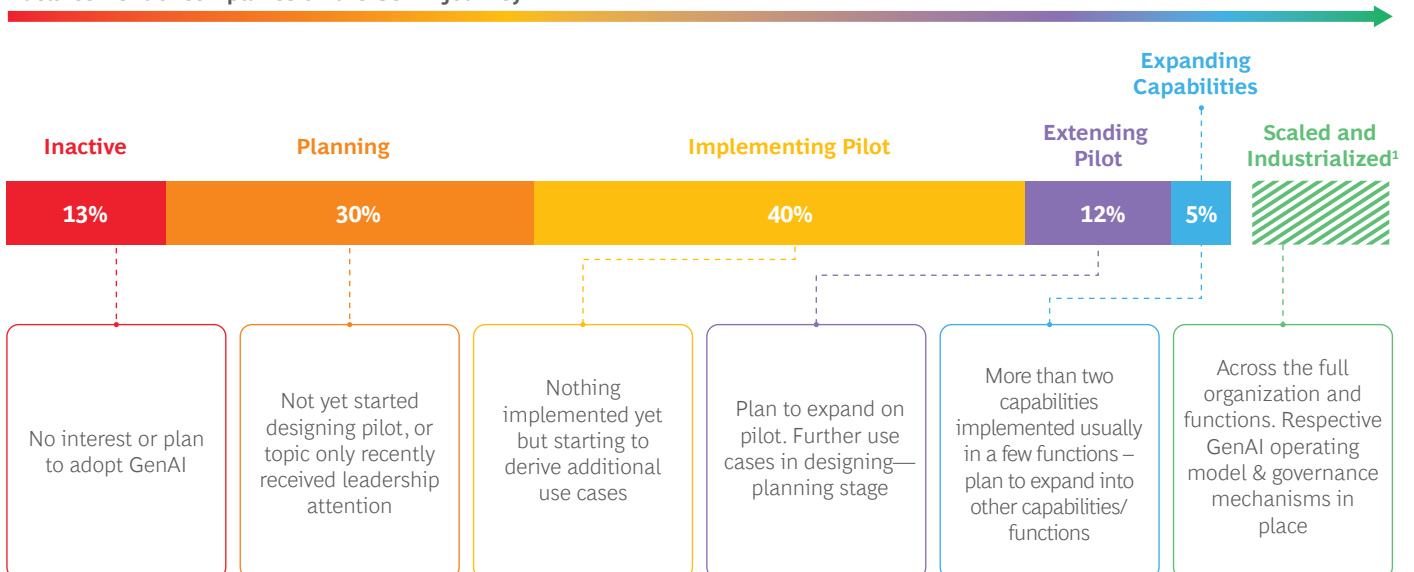
Untapped potential:

- **13%** of leaders have no plans to take action on GenAI efforts.

- **30%** of leaders are planning for GenAI but have not yet taken any active steps toward implementation.

- **52%** are piloting or extending GenAI efforts.

- **Only 5%** of companies have several capabilities implemented.

Most leaders in Denmark overwhelmingly see GenAI as a game changer, yet not many have come far—and even fewer have plans to utilize its full potential. (see Exhibit 2).

Exhibit 2 – Denmark is in the early stages of exploring and integrating generative AI technologies

Overview of distribution of companies into GenAI implementation phases

Advancement of companies on the GenAI journey

| Inactive	Planning	Implementing Pilot	Extending Pilot	Expanding Capabilities	Scaled and Industrialized[1]
13%	30%	40%	12%	5%	
No interest or plan to adopt GenAI	Not yet started designing pilot, or topic only recently received leadership attention	Nothing implemented yet but starting to derive additional use cases	Plan to expand on pilot. Further use cases in designing—planning stage	More than two capabilities implemented usually in a few functions – plan to expand into other capabilities/ functions	Across the full organization and functions. Respective GenAI operating model & governance mechanisms in place

[1] Very few have reached this maturity.

Why GenAI is Different

Artificial Intelligence (AI) has long been a specialized instrument, predominantly known by a narrow group of experts. Its application has been limited to areas such as predictive analysis and pattern detection, often elusive for many.

However, the introduction of GenAI significantly transforms our view and interpretation of AI. With its user-oriented and accessible tools, GenAI pushes the boundaries for AI applications across all disciplines. However, the incorporation of GenAI strays from traditional tech and IT projects with detailed roadmaps and business cases.

The advancement of GenAI is fast-paced, unpredictable, exponential, and does not conform to the same linear progression as preceding technology. Until now, most have pursued the familiar route, meticulously planning capability roll-out and rigorously implementing cost measures. However, for GenAI, a more courageous approach is essential to not miss the train.
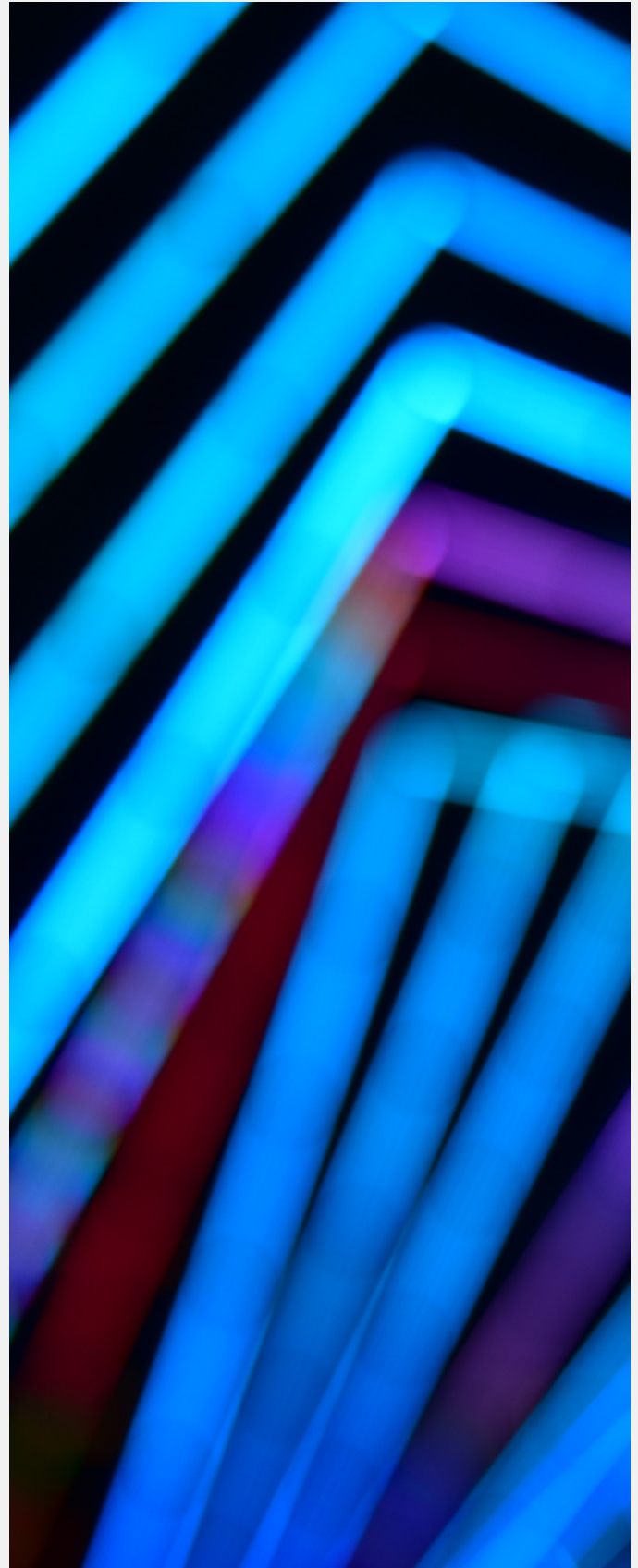
How GenAI Drives Value

GenAI has the potential to drive value across all functions in a company, and what it can do only stops with imagination. Nevertheless, within the short time of the GenAI buzz, we can already identify some capabilities where GenAI shows extremely strong potential.

Main Capabilities

Conversation
Engagement between humans and AI

Interactive and dynamic engagement of information, ideas, or questions between humans and AI systems, responding to questions and generating appropriate responses. Application examples: Chatbot for healthcare professionals (HCPs) interactions and internal chatbot for employees.

Content Generation/Transcription
Generate & capture multimedia content

Create specific types of content, e.g., text images, videos, and audio code. Application examples: Meeting minutes transcriptions and marketing context and localization.

Summarization
Condense information

Summarize large amounts of information or text into shorter, more concise versions that capture the key points of the content. Application examples: Key takeaways of documents, content aggregators, and syntheses.

Ideation
Creativity, exploration and solution-mapping

Generate new and innovative ideas, concepts, designs, and unique product solutions; explore uncharted territories in scientific fields. Application example: Innovative product concept generation.

Knowledge extraction
Organize knowledge from diverse data

Extract structured knowledge from unstructured or semi-structured data sources. Application example: Clinical data extraction from protocols or patient records. Sanofi Wiki knowledge management tool.

Problem-solving and Insights
Analyze data for decision-making and discovery

Logical and reasoning process to make inferences and draw conclusions, make informed judgments, and derive new insights based on available information, data, and knowledge. Application example: Sentiment analysis.

AI Agendas
Tackle tasks with many resources

Solve complex tasks by planning and executing a set of actions by accessing a suite of tools. Application example: An AI-powered virtual assistant for drug information or automation of supply chain optimization workflows.

> **Imagine how your business' GenAI solutions can be partly or fully autonomous instead of only thinking about isolated GenAI usage for specific tasks. To fully unlock its potential, we must look beyond the most basic ways of using the technology to see its significant and transformative impacts.**

Some ways GenAI can be used to transform various aspects of a business:

1. Boosting productivity in daily tasks, such as drafting emails based on short text input.

2. Seamless interaction between humans and GenAI, including coding with advanced co-piloting solution.

3. Semi-autonomous GenAI, e.g., marketing campaigns with critical review stops by a human operator.

4. Fully autonomous GenAI solutions, e.g., market research through a GenAI call operator.

Like our Nordic neighbors, the majority of companies see the potential of GenAI, yet only a handful leap at the chance to realize it.

Roughly 50% of survey respondents aren't considering capabilities beyond basic content creation, as shown in (see Exhibit 3), thus missing out on the transformative possibilities in enhancing efficiency, creating new customer experiences, or developing GenAI-powered offerings that are still uncharted.

To truly capture GenAI's potential, we must imagine possibilities beyond the simple technology solutions readily available today—and instead focus on transforming core processes.

Some companies are already demonstrating how to do this:

In manufacturing, which we will later reveal as one of the least progressed industries within GenAI, advanced companies are implementing GenAI-powered solutions to understand and converse in human language. This is significantly changing the potential for real-time maintenance, proactive assistance in field service, and operations planning, e.g., by identifying and offering solutions for process bottlenecks or refining demand forecasting and inventory management.

But overall, only 10% and 11% of companies are actively prototyping or using GenAI for proactive assistance and operations monitoring and automation. (See Exhibit 3).

In financial services, advanced companies are implementing GenAI in core customer journeys, such as lending, to prepare and understand customer data or documents and provide more accurate credit decisions in days rather than weeks.
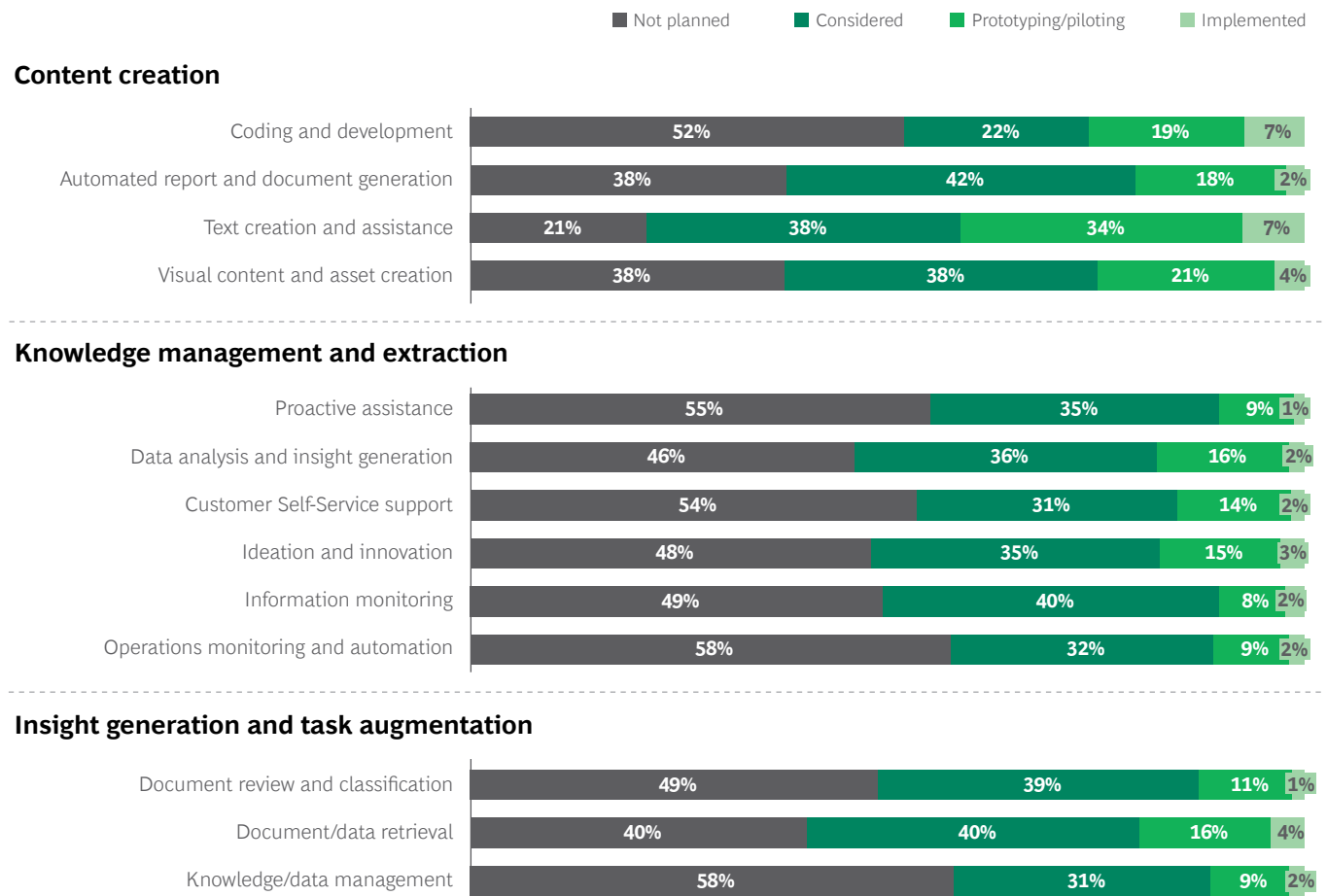
However, only 12% of companies are actively utilizing GenAI in document review and classification. (See Exhibit 3).

In the consumer goods and retail industry, advanced companies are implementing GenAI to synthesize massive amounts of consumer data into new product ideas, transforming entire innovation processes from weeks to days.

Yet overall, only 18% of companies are active in data analysis and insight generation. (See Exhibit 3).

The common denominator amongst these ambitious proof points is that they rely on an equal balance of visionary focus and execution to unlock the transformational capabilities of GenAI.

Exhibit 3 – Implementation overview of GenAI use cases across companies

Legend: ■ Not planned ■ Considered ■ Prototyping/piloting ■ Implemented

Content creation

	Not planned	Considered	Prototyping/piloting	Implemented
Coding and development	52%	22%	19%	7%
Automated report and document generation	38%	42%	18%	2%
Text creation and assistance	21%	38%	34%	7%
Visual content and asset creation	38%	38%	21%	4%

Knowledge management and extraction

	Not planned	Considered	Prototyping/piloting	Implemented
Proactive assistance	55%	35%	9%	1%
Data analysis and insight generation	46%	36%	16%	2%
Customer Self-Service support	54%	31%	14%	2%
Ideation and innovation	48%	35%	15%	3%
Information monitoring	49%	40%	8%	2%
Operations monitoring and automation	58%	32%	9%	2%

Insight generation and task augmentation

	Not planned	Considered	Prototyping/piloting	Implemented
Document review and classification	49%	39%	11%	1%
Document/data retrieval	40%	40%	16%	4%
Knowledge/data management	58%	31%	9%	2%

Note: Totals may not equal 100% due to rounding.

Winning Formula
Balance Visionary Excitement and Strong Execution

Seeing the wide range in how companies consider and act on GenAI, we aimed to understand who the actual leaders are—and what sets them apart.

To understand this, we mapped companies on two dimensions:

- **Excitement**: How positively leaders anticipate the impact of GenAI across various impact categories and the enthusiasm for rallying the company around a unified vision to capture it.

- **Execution**: How far companies have progressed in making their GenAI vision a reality and how far they have progressed in implementing capabilities to deliver GenAI at scale.

From our findings, four distinct groups of companies have emerged—each with its own approach to GenAI and unique takeaways. (See Exhibit 4):

Exhibit 4 - Survey respondents split into four clusters by excitement and execution
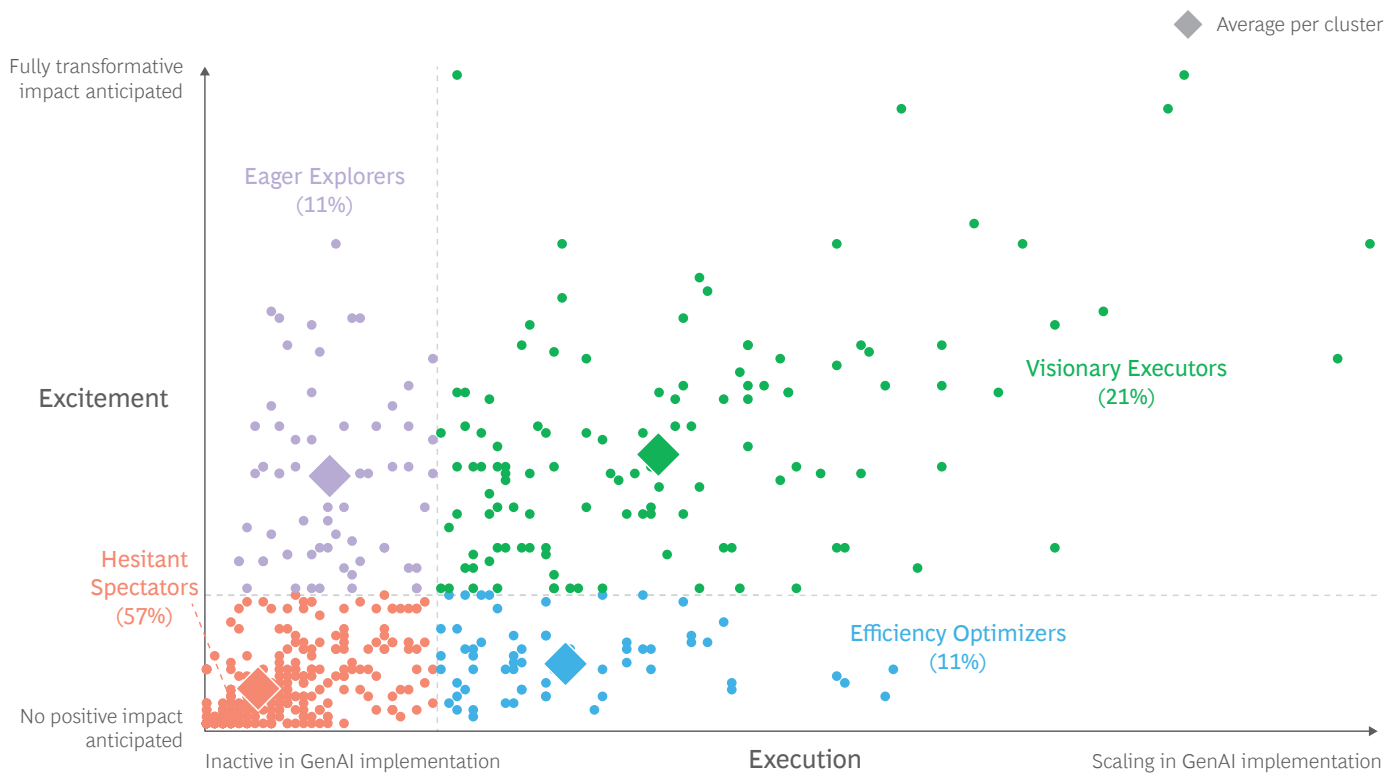
Hesitant Spectators (57%)

This group makes up the majority of companies. They do not have a strong GenAI agenda, nor are they mobilizing to put significant capabilities in place. These companies often lack knowledge of GenAI opportunities and risk being left behind.

- 34% of Hesitant Spectators see no positive impact from GenAI on their businesses.
- 66% of Hesitant Spectators haven't prioritized GenAI on any type of executive agenda.
- 74% of Hesitant Spectators have only a rudimentary understanding of the potential of GenAI.

Eager Explorers (11%)

This group has started experimenting with GenAI capabilities but have not executed much. While they are often visionary on the potential of GenAI, they often get stuck in experimentation and prototyping loops and have yet to build the enabling capabilities required to execute at scale.

- 94% of Eager Explorers anticipate significant or transformational change from GenAI on their business.
- Over 94% of Eager Explorers believe in benefits beyond efficiency, including revenue growth.
- 78% of Eager Explorers have prioritized GenAI on an executive agenda.
- Eager Explorers prototype and implement at twice the rate of Hesitant Spectators.

Efficiency Optimizers (11%)

This group is both moving on GenAI and implementing fundamental enabling capabilities. However, they often focus their activities only on GenAI capabilities that address efficiency. These companies risk missing the full transformational capabilities of AI, which might hurt future competitiveness.

- 100% of Efficiency Optimizers have prototyped or implemented at least one GenAI capability, mainly through off-the-shelf solutions or system extensions.
- 82% of Efficiency Optimizers have placed GenAI on their strategic agenda, but the vision is exclusively focused on efficiency and cost reduction.

Visionary Executors (21%)

This group balances both excitement and execution by enabling capabilities and embracing a broad set of GenAI capabilities according to an articulated vision focused on cost and growth. This group is planning to use the full breadth of GenAI opportunities.

- Visionary Executors have implemented twice as many GenAI capabilities as the Efficiency Optimizers.
- Top executives in this group have a comprehensive understanding of GenAI and strategies for leveraging it. They have the highest percentage of experts across all groups (e.g., 35% more than Hesitant Spectators).
- 93% of Visionary Executors have placed GenAI on an executive agenda.
- 96% of Visionary Executors believe in significant or transformative impact.

What we can learn from the Visionary Executors

For companies to unlock the full potential of GenAI, a balance between excitement and execution is required. Though 87% of companies are planning to or already implementing GenAI, only 21% manage to achieve this balance and are set up for long-term success.

Even though leaders with low excitement levels believe in the positive potential of GenAI, they only utilize it to pursue an efficiency mission, severely underestimating its true potential. Meanwhile, those with high excitement do not simply chase wild ideas; they steer toward a larger vision of increasing both efficiency <u>and</u> company growth.

While these visions may seem ambitious, companies balancing excitement and execution are not only dreaming big; they are already acting on it. In addition to exploring GenAI opportunities targeting efficiency, they also engage with more transformative targets, for example, changing customer experiences or enabling new products and services, and implement them in the respective functions. 47% of companies with high excitement (Eager Explorers and Visionary Executors) are already actively engaging in or implementing GenAI within their innovation and R&D efforts, in contrast with the 11% of their less enthusiastic peers (Hesitant Spectators and Efficiency Optimizers).

If excitement and execution are not managed together, Danish companies risk getting left behind as the full potential of AI, unlocked by GenAI, is not realized.
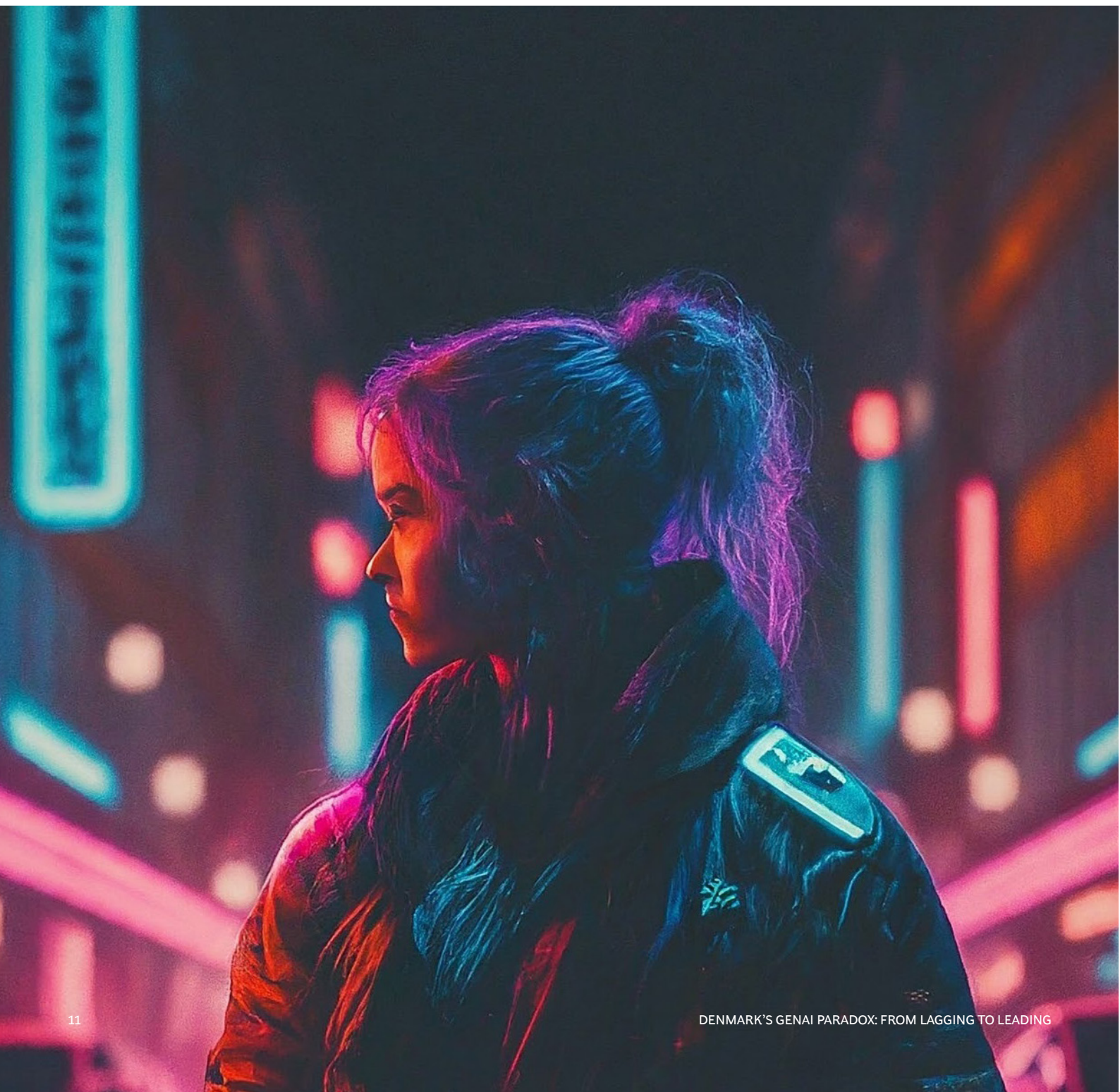
Size Doesn't Matter – Excitement Does

At first glance, the *excitement* and *execution* of GenAI vary by size, as seen in Exhibit 5 and Exhibit 6. It's easy to jump to the conclusion that size leads to both higher *excitement* and *execution* levels.

However, looking further among the four defined groups, size is only an indicator of progress if companies are not excited. We see this by comparing the more excited groups of *Eager Explorers* and *Visionary Executors* with the less excited groups of *Efficiency Optimizers* and *Hesitant Spectators*.

On average, larger companies are more advanced – but among the further progressed companies, the excited ones are farther ahead regardless of size, indicating that with ongoing *execution*, the impacts of enthusiasm slowly supersede the effects of size.

In the top-performing group, little to no spread exists between company sizes, favoring smaller companies. What we can conclude from this: The GenAI game is for everyone, not just the larger players. The most successful companies so far are those who believe in GenAI's meaningful and substantial impact on their businesses and can act on it.

Exhibit 5 - On average, company size matters for GenAI execution

Average excitement and execution scoring
by company size

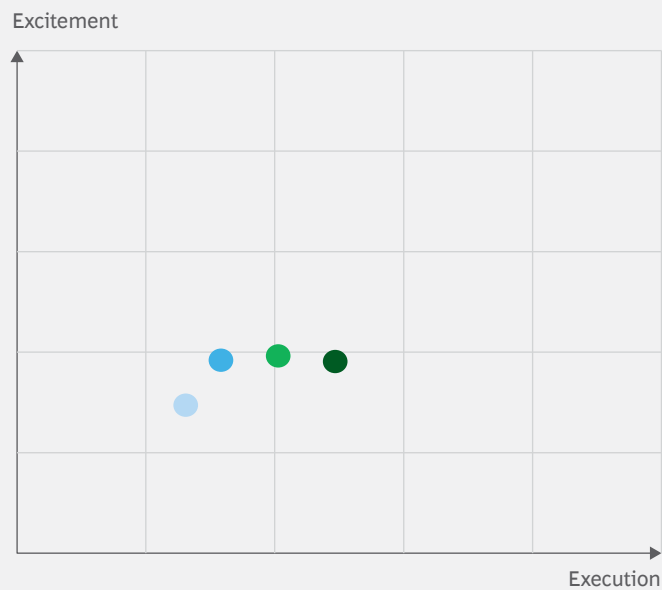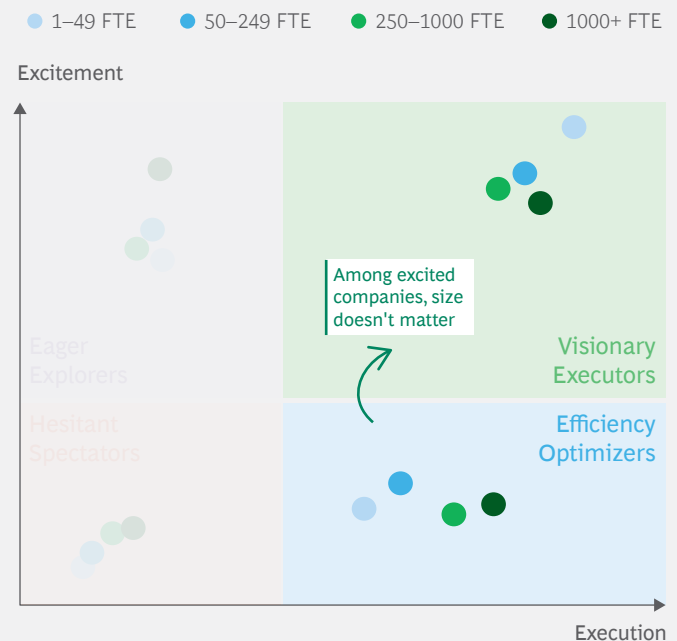## Exhibit 6 - However, excitement matters more for execution progress

Average excitement and execution scoring
per cluster and company size

● 1–49 FTE   ● 50–249 FTE   ● 250–1000 FTE   ● 1000+ FTE

Among excited companies, size doesn't matter

Getting GenAI on the CEO Agenda

Companies that have truly progressed with GenAI exhibit a mix of informed leadership, strategic focus, clear responsibility, and the swift and intentional introduction of foundational enablers. But no differentiator is as important as placing GenAI on an executive agenda to drive excitement and execution. And of these, it is the CEO's agenda, compared to any other C-Suite (specifically CTOs/CIOs) agenda, that drives real enthusiasm and progress.

- 79% of the Visionary Executors have GenAI on the CEO agenda, while only 14% on the CTO/CIO agenda. (see Exhibit 7).

- Among Efficiency Optimizers, 56% place it on the CEO agenda with 26% on the CTO/CIO agendas.

- But it's not only the placement of ownership. It's also the expertise of the executives that determines the focus GenAI takes and the degree of its transformative nature. Of the Hesitant Spectators, only 5% of the respondents are knowledgeable about GenAI, compared to 38% of Visionary Executors. (see Exhibit 8).

Exhibit 7 - Companies with successful GenAI programs have high C-level ownership
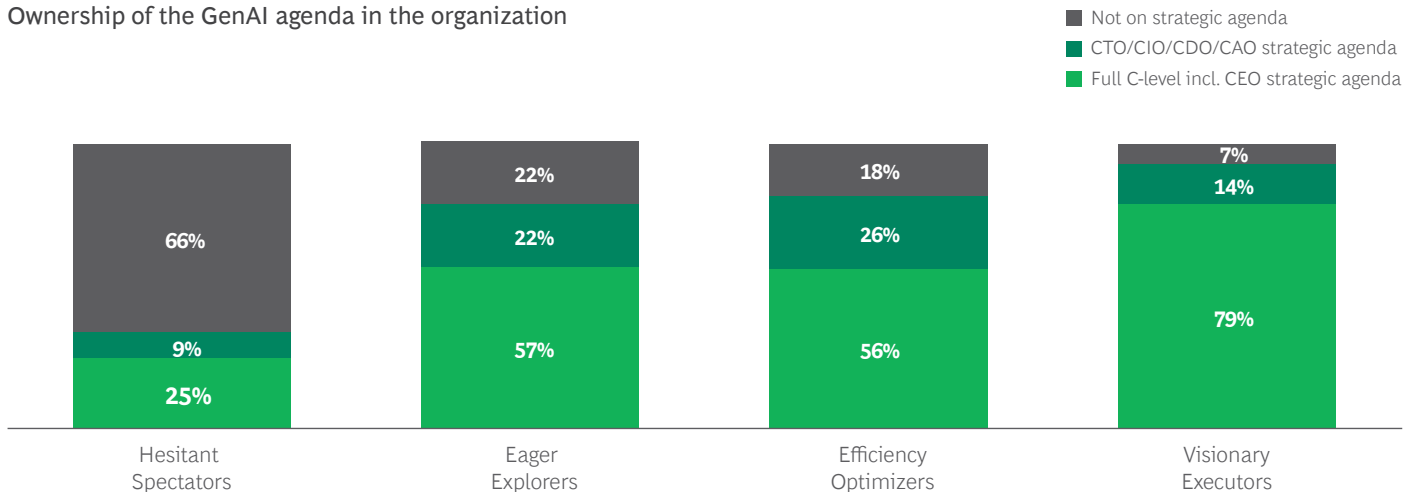
Ownership of the GenAI agenda in the organization

- ■ Not on strategic agenda
- ■ CTO/CIO/CDO/CAO strategic agenda
- ■ Full C-level incl. CEO strategic agenda

	Hesitant Spectators	Eager Explorers	Efficiency Optimizers	Visionary Executors
Not on strategic agenda	66%	22%	18%	7%
CTO/CIO/CDO/CAO strategic agenda	9%	22%	26%	14%
Full C-level incl. CEO strategic agenda	25%	57%	56%	79%

Exhibit 8 - Those who are further ahead also have the highest GenAI expertise

Level of GenAI expertise

- ■ Moderate to no GenAI expertise
- ■ High-level GenAI expertise

	Hesitant Spectators	Eager Explorers	Efficiency Optimizers	Visionary Executors
Moderate to no GenAI expertise	95%	82%	70%	62%
High-level GenAI expertise	5%	18%	30%	38%
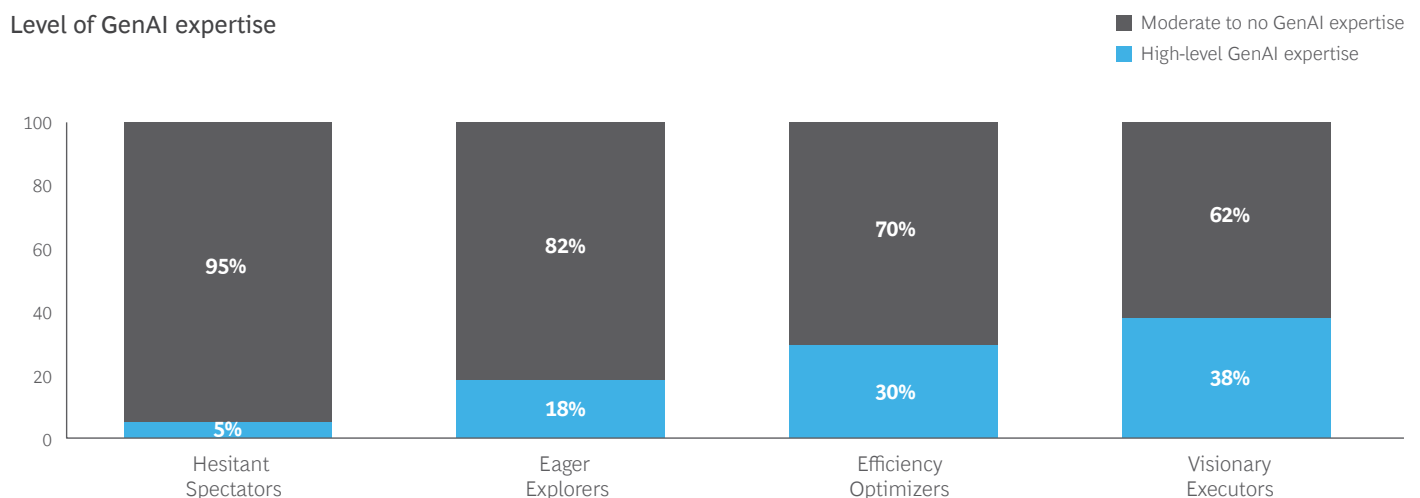
Note: Totals may not equal 100% due to rounding.

From Being Stuck to Scaling Up

All companies face similar challenges, irrespective of their level of excitement and vision. The majority of respondents considered 9 out of the 12 outlined challenges as concerns or even roadblocks. (See Exhibit 9) This shifts the focus from simply identifying the challenges companies face to understanding when specific challenges emerge and are at risk of becoming roadblocks.

To assist companies in their GenAI journey and help them overcome the challenges they face, we analyzed the following factors:

- The specific phases in which challenges emerged, as opposed to the overall view provided in Exhibit 9.

- The intensity of the challenges in each phase.

- When the challenges might transition from mere concerns to active roadblocks.

Exhibit 9 – 9 out of 12 challenges anticipated by majority of companies

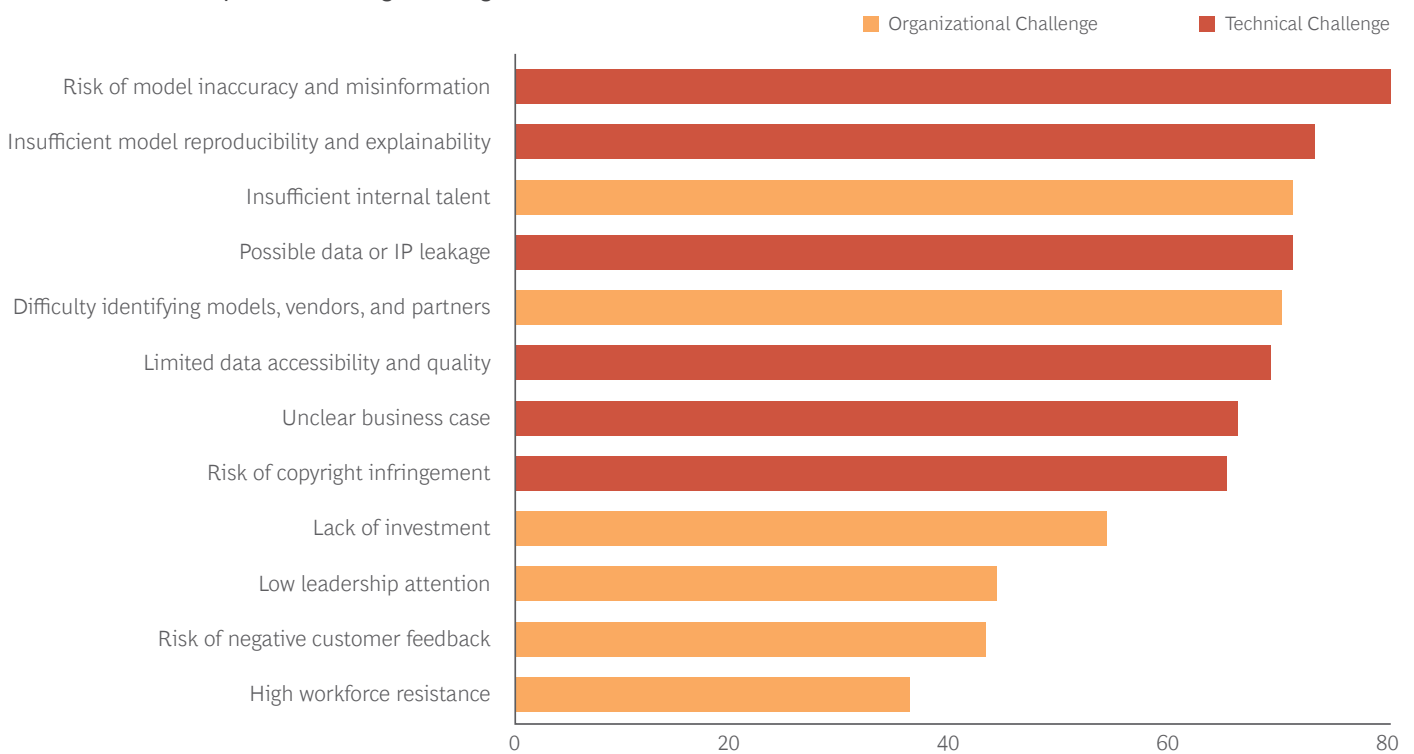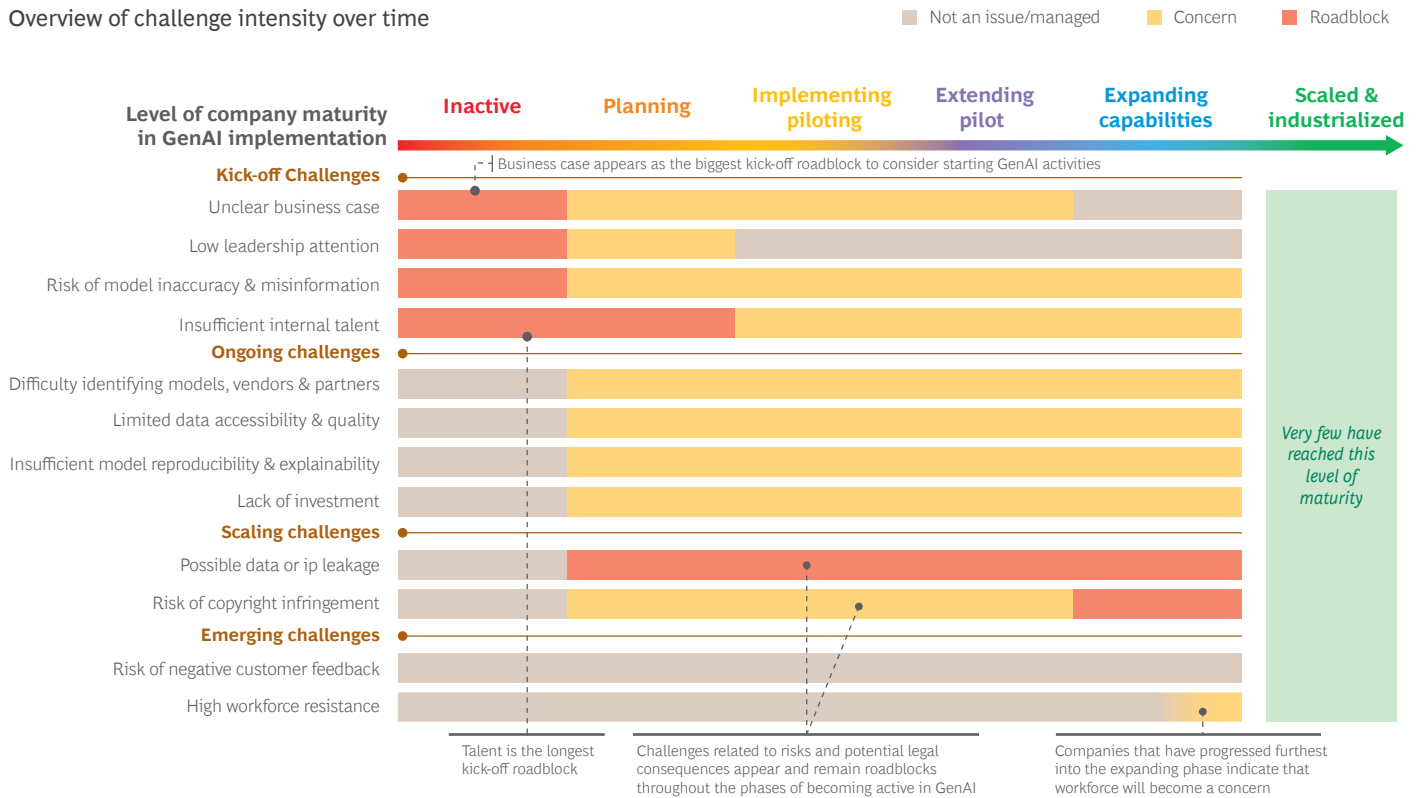Distribution of companies marking challenges as concerns or roadblocks

■ Organizational Challenge   ■ Technical Challenge

Challenge	Value
Risk of model inaccuracy and misinformation	80
Insufficient model reproducibility and explainability	73
Insufficient internal talent	71
Possible data or IP leakage	71
Difficulty identifying models, vendors, and partners	70
Limited data accessibility and quality	69
Unclear business case	66
Risk of copyright infringement	65
Lack of investment	54
Low leadership attention	44
Risk of negative customer feedback	43
High workforce resistance	36

Exhibit 10 - Challenges change throughout the GenAI journey

Overview of challenge intensity over time

Legend: ▢ Not an issue/managed   ▢ Concern   ▢ Roadblock

Level of company maturity in GenAI implementation

Phases: Inactive | Planning | Implementing piloting | Extending pilot | Expanding capabilities | Scaled & industrialized

Kick-off Challenges
- Business case appears as the biggest kick-off roadblock to consider starting GenAI activities
- Unclear business case
- Low leadership attention
- Risk of model inaccuracy & misinformation
- Insufficient internal talent

Ongoing challenges
- Difficulty identifying models, vendors & partners
- Limited data accessibility & quality
- Insufficient model reproducibility & explainability
- Lack of investment

Scaling challenges
- Possible data or ip leakage
- Risk of copyright infringement

Emerging challenges
- Risk of negative customer feedback
- High workforce resistance

Very few have reached this level of maturity

Talent is the longest kick-off roadblock

Challenges related to risks and potential legal consequences appear and remain roadblocks throughout the phases of becoming active in GenAI

Companies that have progressed furthest into the expanding phase indicate that workforce will become a concern

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As depicted in Exhibit 10, four types of challenges were identified through the analysis:

1. Kick-off challenges: These emerge as roadblocks at the beginning of a GenAI journey, likely due to internal structural reasons:

- 29% of *inactive* companies see an *unclear business* case as a roadblock.

- 4% of companies in the *expanding capabilities* phase view the same challenge as a roadblock.

- Low leadership attention may start as a roadblock, but then it disappears, highlighting again the importance of placing it on the executive agenda for visibility.

- Insufficient internal talent and risk of model inaccuracy & misinformation begin as roadblocks yet decrease to concerns in the early stages of adoption after initial talent is available.

- Model inaccuracy & misinformation declines quickly while issues regarding insufficient internal talent persist until pilot prototyping begins, likely due to high demand and long hiring processes.

Most kick-off challenges can likely be attributed to structural barriers within individual companies. The issue of unclear business cases often originates particularly in the conventional structures surrounding tech project approvals—usually requiring a positive business case based on quantified benefits to secure initial resources—but these structures may no longer work with GenAI.

Unlike traditional tech ventures, GenAI's benefits are tricky to nail down in numbers. This isn't just due to a scarcity of benchmark projects but also the broad applicability and the often exploratory, less tangible goals. However, dodging quantifications altogether can backfire and risk GenAI ending up "IT for exploration's sake." To resolve this, companies should translate their vision into quantified business targets instead of calculating benefits—and define value-driven GenAI efforts that directly support them.

2. Ongoing challenges: These challenges emerge as concerns once companies start planning their journey. Challenges like model/vendor/partner selection, model explainability, data accessibility and quality, and lack of investment emerge early and remain concerns throughout the GenAI journey. These issues are mostly tech-related, thus reflecting GenAI's early development stage. The lack of investment challenge appears as an ongoing challenge, likely due to the persistent necessity to continuously invest in the build-up and running of the needed IT landscapes and the required talent expenses.

3. Scaling challenges: These challenges are primarily found as legal issues like copyright infringement and data/IP leakage. While the risk of copyright infringement becomes apparent only in the late implementation stage, the possibility of data/IP leakages presents a roadblock for companies as soon as they start planning for GenAI, potentially contributing to some of Denmark's hesitations. These challenges are unlikely to dissipate over time but are expected to become more defined as regulations surrounding AI are established. As we are writing this report, the guiding cornerstones planned to be set by the AI Act are not in place yet, but companies should already start to prepare for internal risk assessments and strategize on how to respond to upcoming regulations. Nevertheless, companies should already be implementing responsible AI practices, including weighing the trade-off between business value and risk.

4. Emerging challenges: Challenges around workforce resistance and customer feedback are generally not faced by the majority. However, when looking at companies that have progressed the furthest in the expanding phase, we see concerns around the workforce increasing, hinting at future challenges to be solved.

GenAI Enablers Future-Proof Danish Businesses

Companies with successful GenAI journeys focus on strategic deployment of enablers like workforce empowerment, implementing responsible GenAI (RAI) mechanisms, setting up data fundamentals, and building a technological backbone. Not doing so quickly will cause companies significant delays in achieving that transformation.

Through an analysis of enablers across four key areas, we provide insights into how organizations are—and can— effectively navigate their GenAI enabler initiatives.

We asked respondents to indicate the extent to which they have *planned, designed,* or *rolled out* suggested activities along four enabler groups. (See Exhibit 11).

Exhibit 11 - Danish company leaders were surveyed about the readiness of critical GenAI-enabling activities across maturity steps

Technology foundation building	Data enablement activities	Governance and responsible AI actions	Workforce and people initiatives
• Adapted technical integration concept to GenAI	• Accessible and usable core system data	• Ensured guiding principles for responsible AI	• Adopted non-IT roles' descriptions for GenAI
• Enabled data at scale mechanisms	• Pre-processes and documented data	• Established GenAI risk assessment processes	• Expanded existing GenAI profiles
• Designed technical target picture	• Established metadata processes to measure GenAI effectiveness	• Defined GenAI risk appetite	• Defined and recruited new GenAI profiles
• Selected tools, applications, and model vendors	• Prepared data platform/ pipeline for extensions	• Conducted GenAI awareness training	• Conducted GenAI employee upskilling
		• Established GenAI governance mechanisms	

Four maturity steps used as a basis for the assessment:

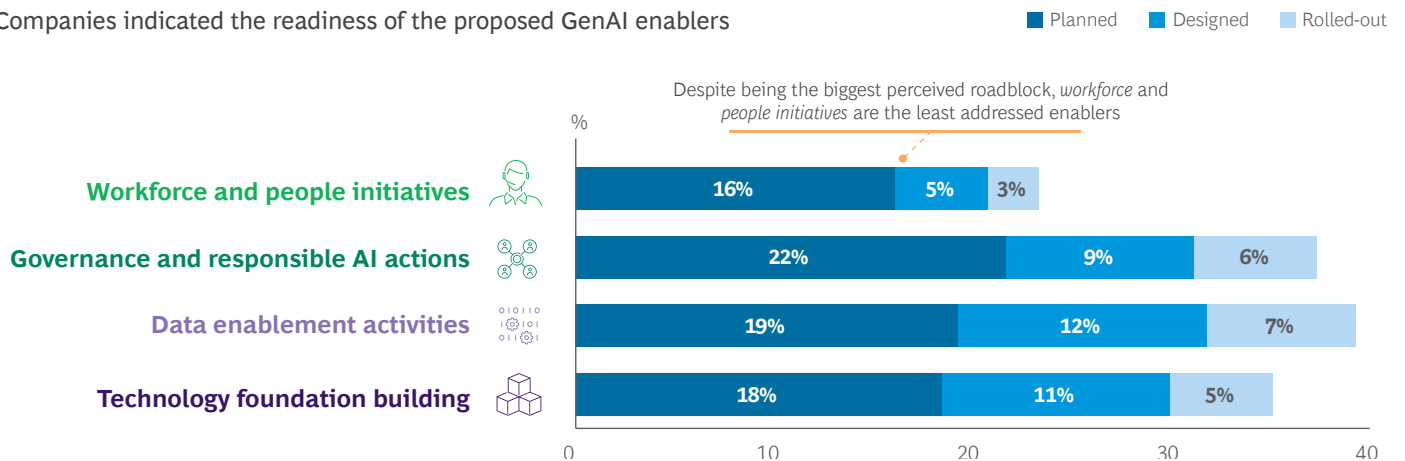Not Planned → Planned → Designed → Rolled Out
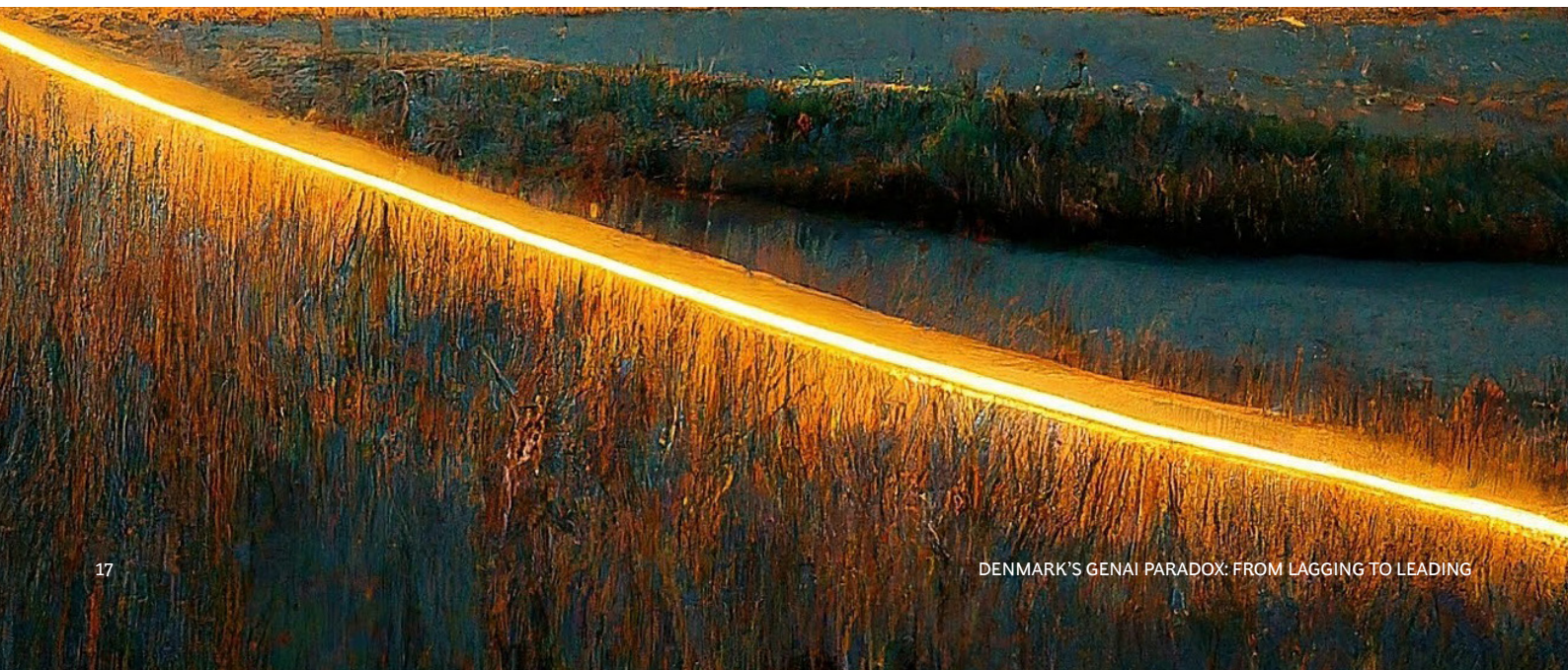
When considering overall enabler readiness, as shown in (see Exhibit 12), and plotting how far companies are in each of the GenAI adoption stages in implementing respective enablers, as shown in (see Exhibit 13), we note that:

Overall, companies seem to focus on implementing GenAI but are neglecting crucial preparations:

- 87% of companies are at least considering GenAI implementation.

- 27% on average plan enabler build-up across the four GenAI enabler categories.

Exhibit 12 - Companies are late moving forward with enabling activities overall—particularly neglecting workforce and people initiatives

Companies indicated the readiness of the proposed GenAI enablers

■ Planned ■ Designed ■ Rolled-out

Despite being the biggest perceived roadblock, *workforce* and *people initiatives* are the least addressed enablers

%

Enabler	Planned	Designed	Rolled-out
Workforce and people initiatives	16%	5%	3%
Governance and responsible AI actions	22%	9%	6%
Data enablement activities	19%	12%	7%
Technology foundation building	18%	11%	5%

0   10   20   30   40

Talent Paradox

71%
of companies see *insufficient internal talent* as a challenge but of these companies...

55%
are not planning any *workforce and people initiatives*

Talent paradox: Though 71% of companies see insufficient talent as a bottleneck (concern/roadblock), 55% of those companies are not even planning any of the proposed workforce and people enablers.

Only the companies currently expanding their GenAI capabilities show high interest in all enabler groups:
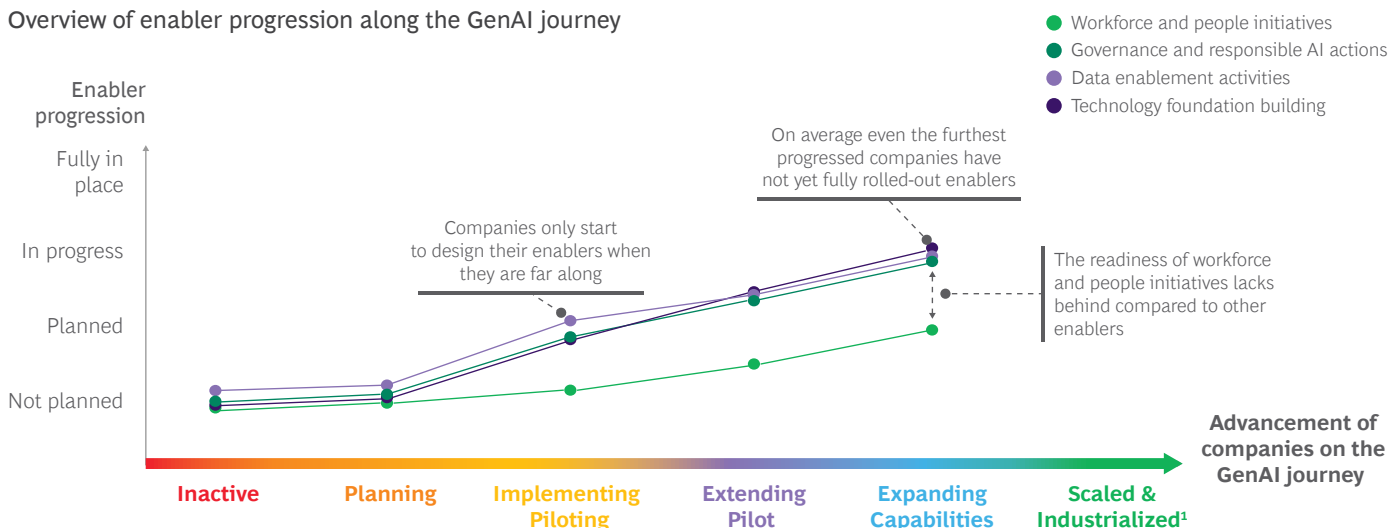
- 89% are at least planning technology foundation building.

- 86% are at least planning governance and RAI actions.

- 79% are at least planning workforce and people initiatives.

- 75% are at least planning data enablement activities.

The data also indicates that companies take a reactive approach to enablers. They only start thinking about them once they've already implemented and are ready to extend their first pilot, as shown in (see Exhibit 13)—meaning they design the enablers only shortly before scaling.

Failure to put enablers in place early will risk later delays due to their typically long lead times. Today, this risk is common among Danish companies, though some are managing to parallelize pilot and enabler implementation.

Exhibit 13 - Companies are overall starting with enabling activities late and especially neglecting workforce and people initiatives

Overview of enabler progression along the GenAI journey

Legend:
- Workforce and people initiatives
- Governance and responsible AI actions
- Data enablement activities
- Technology foundation building

Enabler progression (y-axis): Fully in place / In progress / Planned / Not planned

Advancement of companies on the GenAI journey (x-axis): Inactive / Planning / Implementing Piloting / Extending Pilot / Expanding Capabilities / Scaled & Industrialized[1]

Companies only start to design their enablers when they are far along

On average even the furthest progressed companies have not yet fully rolled-out enablers

The readiness of workforce and people initiatives lacks behind compared to other enablers

[1] Very few have reached this maturity.

While this may sound like an easy solution to a complex problem, the magic lies (as always) in the right prioritization, and companies that are parallelizing enabler activities while planning their GenAI pilots save time and prevent delays if these should become roadblocks for scaling later.

Putting the right enablers in place also significantly reduces the risk of encountering roadblocks later in the journey:

The two most impactful things leaders can do are define the target IT picture and implement integration concepts to reduce challenge intensity on average by 35%.

While public discussions around talent often focus on new GenAI profiles, existing talent is often neglected. However, preparing the technology backbone for GenAI requires a significant workload for the existing IT landscape and data platforms. Hiring additional existing profiles can accelerate the process. In fact, our data shows it reduces challenge intensity for a lack of data accessibility and quality and for identifying the right models, vendors & partners by 22%.

The biggest roadblocks for scaling are legal concerns. RAI enablers would help to avoid them, as they are critical to managing related roadblocks. With effective risk appetite definition, the likelihood of copyright infringement becoming a roadblock decreases by 15%, along with the roadblock likelihood of IP/data leakage risk, which decreases by 29%.
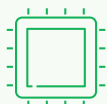
Tech capabilities are fundamentally important

Defining your technical target picture and integration concept reduces the likelihood 11 out of 12 challenges become roadblocks by **35%**

While GenAI is a new technology, what enables it requires significant effort on existing IT foundation

22% reduced likelihood of roadblocks within *data accessibility* and *tech selection* when recruiting additional existing IT profiles

Diving Into the Danish Industries

Digging deeper into *excitement* and *execution* from an industry perspective, we found a trend that more excited industries also demonstrate a higher level of execution. Once again, this confirms that excitement is paramount to GenAI progress.

In the most excited and advanced groups, we find the industries of TMT (technology, media, and telecommunications), science & engineering, and services & marketing. All have a core business that is heavily digital, technical, or creative, and hence, have the potential to see more transformative change compared to other industries, such as construction.
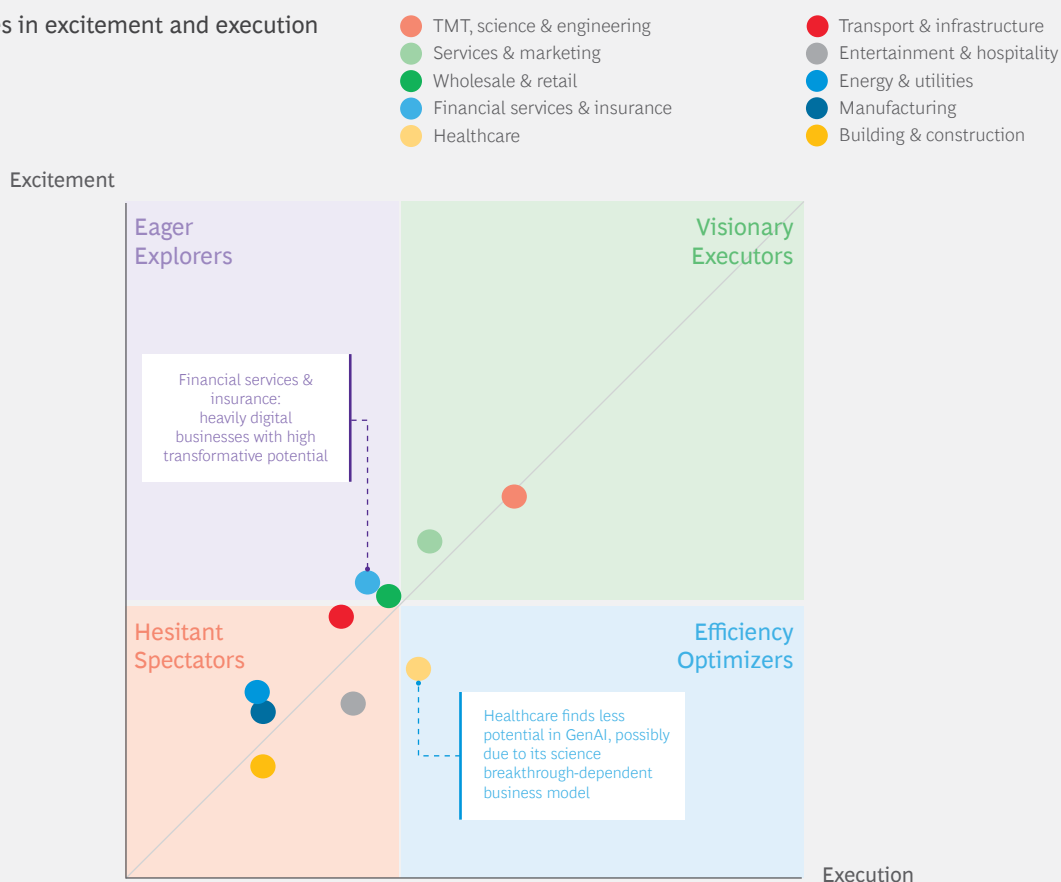
Two notable outliers are healthcare and financial services. Healthcare is advanced but not as excited as financial services, which is excited but not very progressed. Healthcare businesses in the survey are medium-to-large companies (59% have 250+ FTEs), and we know from Exhibit 6 and Exhibit 7 that for those less excited, size is an indicator of progress.

Healthcare is an industry where the core business might not be applicable in a straightforward way for the use of GenAI, as it is heavily dependent on scientific breakthroughs with extremely long clinical timelines, usually spanning years.

The data in Exhibit 14 shows industry averages. We have observed a broad spectrum of *excitement* and *execution* in all industries, indicating that actors from all industries believe in GenAI and have started moving.

Exhibit 14 – Industries show different profiles for GenAI excitement and execution

Industry averages in excitement and execution

- 🔴 TMT, science & engineering
- 🟢 Services & marketing
- 🟢 Wholesale & retail
- 🔵 Financial services & insurance
- 🟡 Healthcare
- 🔴 Transport & infrastructure
- ⚫ Entertainment & hospitality
- 🔵 Energy & utilities
- 🔵 Manufacturing
- 🟡 Building & construction

Excitement

Eager Explorers

Visionary Executors

Financial services & insurance: heavily digital businesses with high transformative potential

Hesitant Spectators

Efficiency Optimizers

Healthcare finds less potential in GenAI, possibly due to its science breakthrough-dependent business model

Execution

The same trend can be found looking from the perspective of enablers and their challenges. TMT, science & engineering, and services & marketing, which are the furthest progressed, also have more enablers in place. (See Exhibit 15). More enablers in place do not show that fewer challenges are faced. (See Exhibit 16).

All industries are facing technical challenges, but TMT and science & engineering do not find IP/data leakage or copyright to be as much of a challenge as the less progressed or excited industries. Having deep technical knowledge in fields related to GenAI development enhances understanding and expertise.

Healthcare reports only minor organizational challenges, though they are significantly worried about technical challenges. But they've progressed far compared to the more challenged financial services & insurance sectors, which means they have only focused on simpler efficiency gain opportunities that can be implemented as COTS (commercial off-the-shelf) or as an enterprise extension.

Exhibit 15 - Large variation on progress to establish GenAI across industries

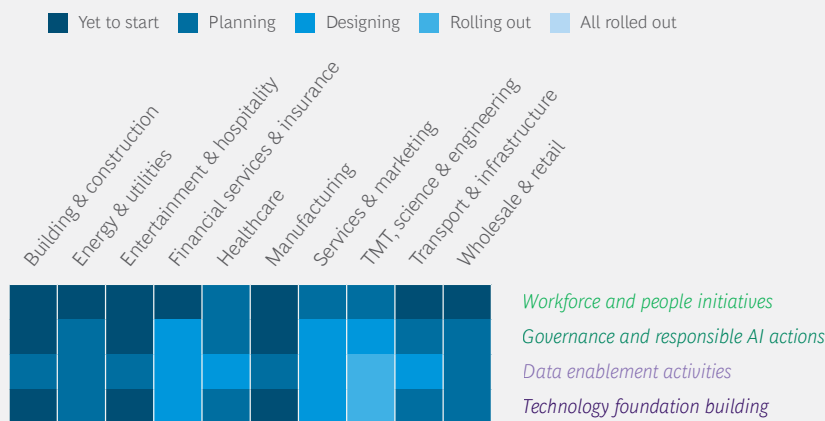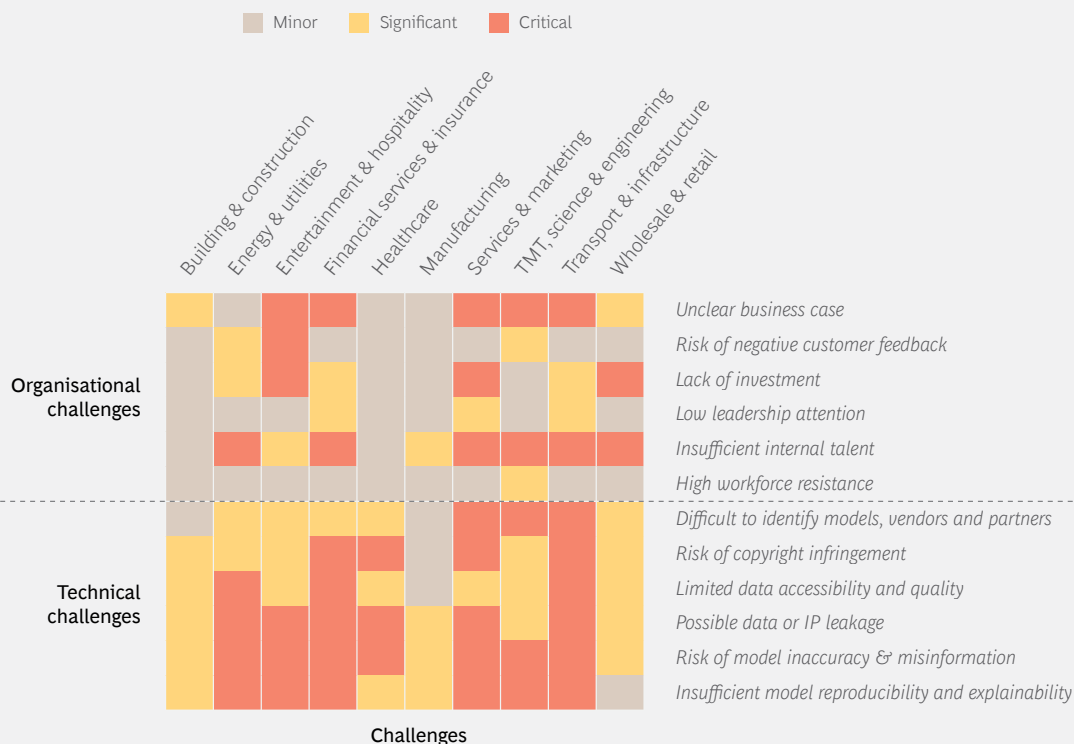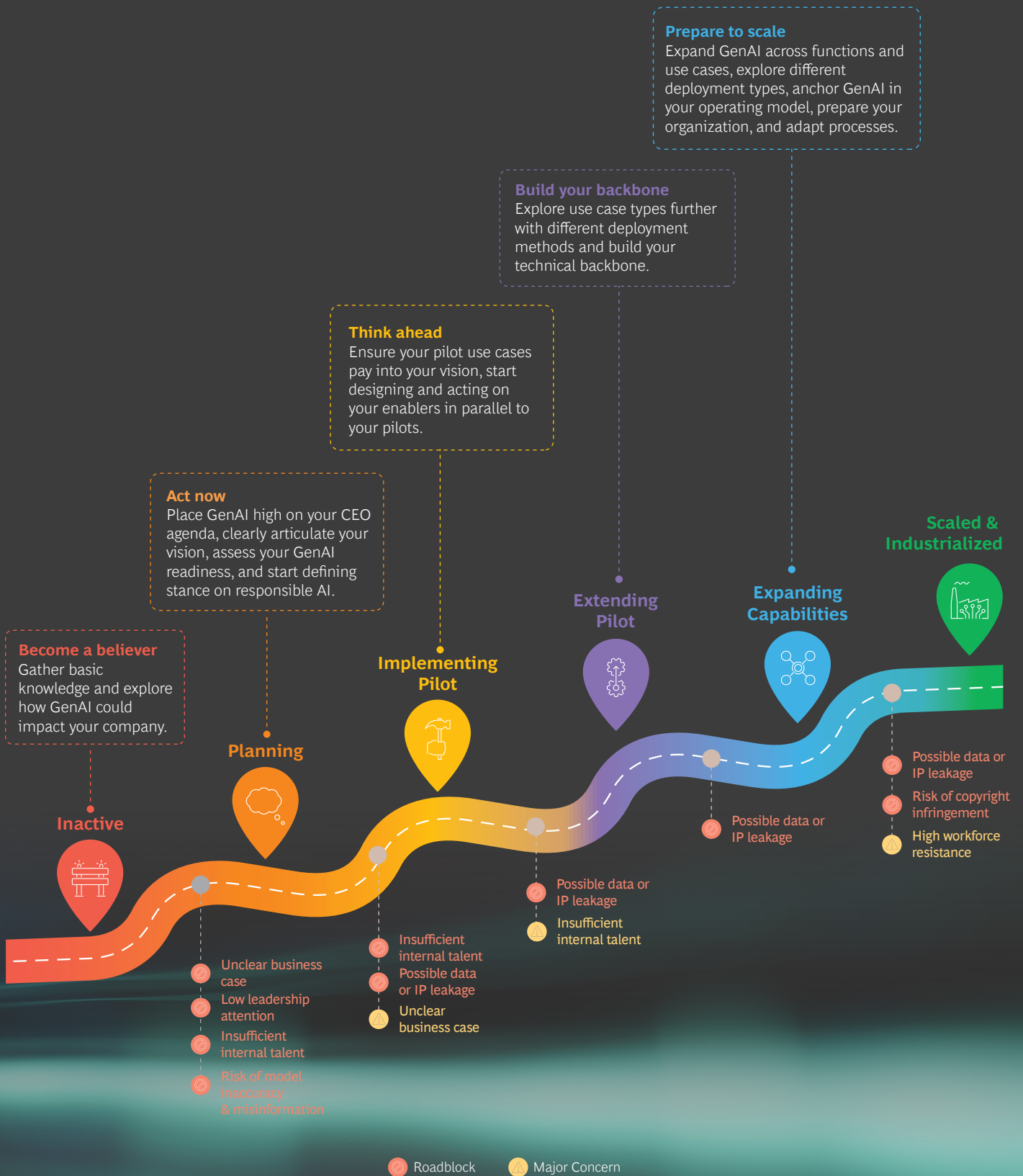Progress of GenAI enablers per industry

Exhibit 16 - High variation in challenges faced by industries

Challenges faced per industry

Data Reveals the Path to Success

Prepare to scale
Expand GenAI across functions and use cases, explore different deployment types, anchor GenAI in your operating model, prepare your organization, and adapt processes.

Build your backbone
Explore use case types further with different deployment methods and build your technical backbone.

Think ahead
Ensure your pilot use cases pay into your vision, start designing and acting on your enablers in parallel to your pilots.

Act now
Place GenAI high on your CEO agenda, clearly articulate your vision, assess your GenAI readiness, and start defining stance on responsible AI.

Become a believer
Gather basic knowledge and explore how GenAI could impact your company.

Scaled & Industrialized

Expanding Capabilities

Extending Pilot

Implementing Pilot

Planning

Inactive

Unclear business case
Low leadership attention
Insufficient internal talent
Risk of model inaccuracy & misinformation

Insufficient internal talent
Possible data or IP leakage
Unclear business case

Possible data or IP leakage
Insufficient internal talent

Possible data or IP leakage

Possible data or IP leakage
Risk of copyright infringement
High workforce resistance

🔴 Roadblock   🟡 Major Concern

For Danish companies, the successful path forward for GenAI can be informed based on the phase implementation. For each of these phases—Inactive, Planning, Implementing Pilot, Extending Pilot, and Expanding Capabilities—we offer structured recommendations for companies to progress.

These insights are effective approaches we believe will help Danish companies adopt GenAI implementation as a strategic asset and make constructive progress in this area, leading to critical innovation and economic growth. We recommend the following actions in each phase:

Inactive   **Planning**
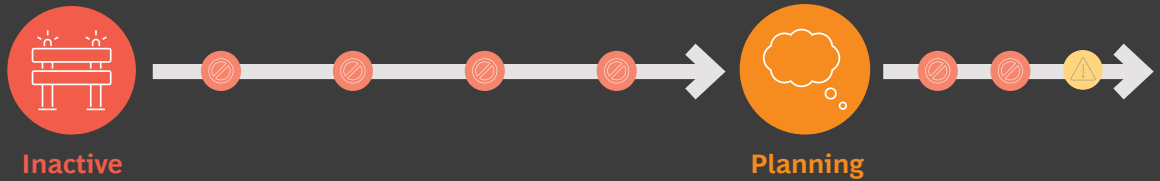
Roadblocks	Roadblocks
• Unclear business case	• Insufficient talent
• Low leadership attention	• Possible data or IP leakage
• Insufficient talent	• Unclear business case
• Risk of model inaccuracy & misinformation	

Enabler Stage	Enabler Stage
Nothing planned	Majority not planned

Actions	Actions
Become a believer	**Act now**
Gather basic knowledge and explore how GenAI could impact your company	Place GenAI high on your CEO agenda, clearly articulate your vision, assess your GenAI readiness, and start defining stance on responsible AI

Description (Inactive)

Don't let the pursuit of upfront business case calculations or concerns over model accuracy hinder your start. Initial obstacles tend to diminish once companies embark on their GenAI journey. Begin the process, and solutions will emerge as you advance.

Knowledge is key: Make sure you become informed about GenAI and its full potential to get excited about GenAI and its transformative powers.

Connect with others who succeeded and learn how they started their journey to realize roadblocks such as low leadership attention and risk of model inaccuracy & misinformation are of little to no concern.

- Later, when starting your journey, enabling activities are important. For now, get to know them and understand your strengths and weaknesses.
- **Technology foundation building/data enablement Activities:** Understand the technical possibilities and requirements of GenAI.
- **Workforce and people initiatives:** Initiate discussions and become informed about employees' eagerness and readiness to adopt GenAI.
- **Governance and responsible AI actions:** Read up on responsible AI and use it for navigation.

Description (Planning)

Top adopters see GenAI not just as a technological but as a strategic asset, place it on your CEO agenda and make it one of your strategic priorities.

GenAI leaders recognize it as both an efficiency tool and a growth catalyst; create a clear vision for GenAI in your company.

Instead of upfront business case calculations, translate your vision it into quantified targets, and measure their achievement along the way.

Basic GenAI knowledge will only get you started. Further increase your knowledge to "advanced" across leadership levels. Don't focus your pilots around only one GenAI capability. Diversify to maximize learning by doing.

Plan your enabler journey by assessing your "as-is" status:

- **Technology foundation building:** Assess your tech and data readiness and gain an overview of available vendors/ models/partners. Hold noncommittal talks with vendors to gain transparency over investment needs as well as technical possibilities and limitations.
- **Workforce and people initiatives:** Map out the existing capabilities to understand skill gaps and circumvent talent shortages by starting to upskill dedicated IT employees.
- **Governance and responsible AI actions:** Define guiding principles and risk appetite to allow an informed tradeoff between business value and risk moving forward.

Implementing Pilot → **Extending Pilot**

Implementing Pilot	Extending Pilot

Roadblocks

- 🚫 Possible data or IP leakage
- ⚠️ Insufficient internal talent

Enabler Stage

Majority not planned

Actions

Think ahead

Ensure your pilot use cases pay into your vision, start designing and acting on your enablers in parallel to your pilots

Description

Orient and streamline all your prioritized pilots towards enabling your GenAI vision to avoid scattered efforts across your business or "IT for the sake of IT" initiatives.

To ensure selected GenAI use cases pay into your quantified vision targets, establish key performance indicators and measuring mechanics to track benefits retrospectively throughout pilot stages, allowing transparency over vision achievement and course correction if required.

Denmark's GenAI-frontier has shown that it is not a one-time pilot endeavor. Start with building out enablers in parallel to avoid regret:

- **Technology foundation building:** Initiate your target architecture design and shortlist potential tools, models, and vendors to detail talent and investment needs.
- **Data enablement activities:** Data enablers are the most advanced among survey participants. Ensure the basics are in place across functions, e.g., data models, pipelines, accessibility, and quality.
- **Workforce and people initiatives:** Start hiring additional existing roles to build tech backbone and reduce talent challenges.
- **Governance and responsible AI actions:** Design and pilot risk assessment processes, as well as monitoring and governance mechanisms, as input for tool and use case selection in upcoming phases.

Roadblocks

- 🚫 Possible data or IP leakage

Enabler Stage

HR still not planned - rest planned, but also 30% still not

Actions

Build your backbone

Explore further use case types, explore with different deployment methods and build your technical backbone

Description

Most progressed adopters kick-start efficiency with out-of-the-box tools and explore other deployment types on the side to address tailored use cases and build competitive advantage.

Most progressed companies are still working on their enablers; start implementing early—lead times are longer than you think:

- **Technology foundation building:** Outline integration concepts and onboard key tool/model vendors for rapid scaling ability and mitigating tech concerns.
- **Data enablement activities:** Start establishing metadata systems to gauge GenAI accuracy and efficacy for responsible expansion.
- **Workforce and people initiatives:** Adapt non-IT profiles and start awareness training and early change management initiatives to mobilize the organization.
- **Governance and responsible AI actions:** Professionalize and anchor prior responsible AI activities to be better equipped to manage upcoming leakage and copyright concerns.

Roadblocks

- ⊘ Possible data or IP leakage
- ⊘ Risk of copyright infringement
- ⚠ High workforce resistance

Enabler Stage

HR mainly planned – rest in design

Actions

Prepare to scale

Expand GenAI across functions and use cases, explore different deployment types, anchor GenAI in your operating model, prepare your organization, and adapt processes

Description

Denmark's GenAI leaders are exploring a broad array of GenAI use cases to fulfill a transformative vision.

- **Technology foundation building/data enablement activities:** GenAI is in its infancy and developing further. Keeping up with it is a marathon, not a sprint. Set yourself up for long-term success to keep up speed and achieve lasting impact.
  - — Solidify and professionalize your tech backbone and ensure flexible computing scaling mechanisms are in place (also for up and down-stream systems).
  - — Implement more tailored deployment types to expand your ability outside out-of-the-box capabilities.
  - — Embrace continuous learning to keep pace with tech evolution; gather best practices from your journey to pivot swiftly with innovation.

- **Workforce and people initiatives:** Approximately 50% of firms see GenAI as a game-changer. Your workforce is a big part of the AI transformation, which only reaches full effectiveness when an organization focuses most of the effort— about 70%, based on our 10–20–70 rule—on people.
  - — Allocate clear ownership, and establish an efficient GenAI operating model for scaling.
  - — Understand your GenAI talent gaps and expand recruiting and upskilling activities.
  - — Adjust business processes to allow for the use of GenAI solutions and continuously incentivize and train non-technical personnel to use these.
  - — Ensure continued focus on change management to mobilize the organization.

- **Governance and responsible AI actions:** Leading GenAI adopters report rising legal and customer concerns with wider use. Proactive management can prevent them from becoming roadblocks.
  - — Ready your supporting functions, e.g., PR and legal, to proactively manage customer feedback concerns and preempt potential legal exposure.

We are yet to see in the next years.

Conclusion

A Critical Call to Action

The comprehensive survey conducted by Boston Consulting Group in collaboration with key Danish industry organizations reveals a landscape of high anticipation and untapped potential for GenAI across Denmark's industries.

Denmark has consistently been at the forefront of digitization, yet it finds itself trailing its Nordic counterparts in the realm of emerging AI technologies. However, the sentiment towards GenAI among Danish executives is overwhelmingly positive, with 81% recognizing its business potential and even 50% viewing it as a transformative force. Despite such optimism, a mere 5% have progressed beyond pilot stages, and only 21% are actively working toward harnessing the full capabilities of GenAI.

For Danish companies to thrive in the GenAI landscape, it is crucial to strike a balance between visionary leadership and pragmatic execution. This requires not only the active involvement of CEOs but also a focus on key enablers and strategies to navigate the hurdles of adoption effectively.

As Denmark stands at the beginning of a technological revolution that could redefine global competitiveness, the call to action is clear:

Embrace GenAI with urgency and base your implementation of this new technology on an informed vision that harnesses the full spectrum of its transformative potential, thereby ensuring Denmark's sustained leadership in the digital future.

About the Research

During the winter of 2023, a comprehensive survey was launched to evaluate the extent to which organizations are engaging with GenAI and related enablers, including RAI activities, workforce and people initiatives, data enablement activities, and technical foundation building. The analysis drew from responses provided by more than 572 company executives and senior management, spanning 21 industries and encompassing all company sizes, offering a representative snapshot of the Danish industry. The original industries are composed according to the Dansk Branchekode and have been merged into ten comprehensive industry groups to enhance interpretability. The participants are composed of members of the named industry organizations participating in this collaboration.

The progress of GenAI implementation was assessed through questions pertaining to the roll-out of GenAI capabilities, the targeted functions, and the readiness of associated enablers. The level of excitement towards GenAI was gauged by analyzing the degree of positive impact companies anticipate across various factors, ranging from simple efficiency gains to transformative business growth. To identify GenAI leaders, a cluster analysis was performed, concentrating on the progress of use case implementation and the anticipated impact. After a thorough evaluation of progression stages and reducing dimensions to a single progress score across diverse capabilities and a single excitement score for all impact types, an unsupervised K-means clustering algorithm was employed to categorize groups based on the breadth and depth of their GenAI initiatives. Furthermore, a K-prototypes algorithm, which combines K-means and K-modes, was utilized to account for the different types of variables in the dataset.

The clustering process was used to establish valid boundaries, resulting in four distinct clusters based on the elbow method and business sense. GenAI leaders were identified as those belonging to the most advanced of the four maturity groups. These groups were defined by the progressive nature (scale) and inclusiveness (scope) of their targeted GenAI capabilities. "Scale" refers to the extent to which capabilities are rolled out, while "scope" reflects the number of capabilities a company's GenAI program is targeting.

Additionally, an ordinal regression technique was applied to identify the effect of enablers implemented by companies in the areas of data enablement activities, technology foundation building, workforce and people initiatives, and governance & responsible AI actions on the challenges they face. In this case, the regression facilitates the understanding of the nature of association between GenAI enablers and challenges by deriving the value of the dependent variable (challenge intensity) through an ordinal analysis of the independent variable's (GenAI enabler) value. Only strong effects identified through the odds ratio were included in the study results to prevent noise-dependent insights, and these were validated through supporting data analysis and business insights to avoid incorrect causality assumptions. For instance, for the improvement of an enabler with a decreasing effect on a challenge, the odds ratio indicates the decrease in likelihood that the challenge intensity increases while all other variables are held constant.

In the final phase of the study, the analysis results were interpreted and validated using business experience, expert interviews, understanding of the Danish market and client challenges, and by comparing them to other global Boston Consulting Group GenAI reports and benchmarks.

Insights were enriched by Boston Consulting Group's knowledge gathered through the experience of diverse technical implementations of new or evolving technologies to provide a value-driven recommendation on the path to realizing GenAI adoption in the industry.
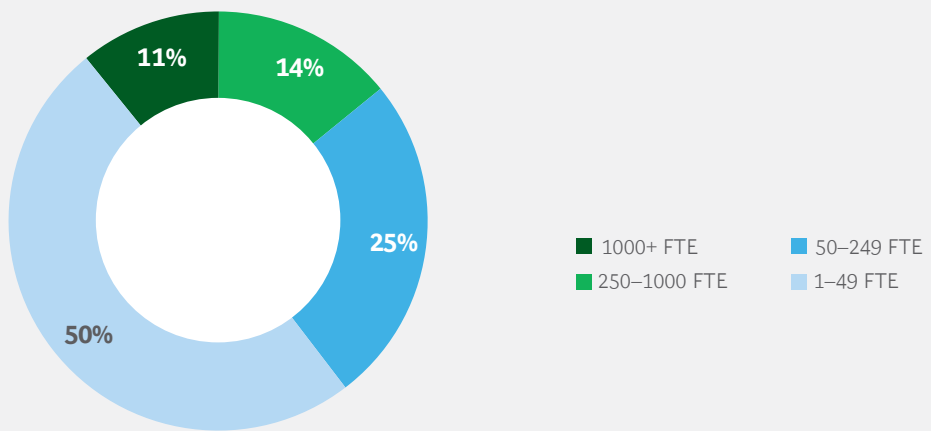
Limitations of this report

- **Representativeness of company groupings:** Overall, only few companies are very far in GenAI adoption, and hence, conclusions/insights taken from this group do not represent insights from companies that have fully scaled GenAI. When considering insights based on groupings from participants, i.e., clustering or progression intervals, the insights are based on majorities. Therefore, they do not account for outliers in the respective groups.

- **Participant and option space bias:** To assess GenAI capability and function progress, impact, challenges, and enablers, we asked participants to indicate either their implementation status, impact, or challenge intensity for pre-defined categories. While these are comprehensive, the insights may not reflect the full option space out there. In addition, most survey respondents hold executive positions at their company (mostly CEOs), thus reflecting a pure leadership perspective on the topic.
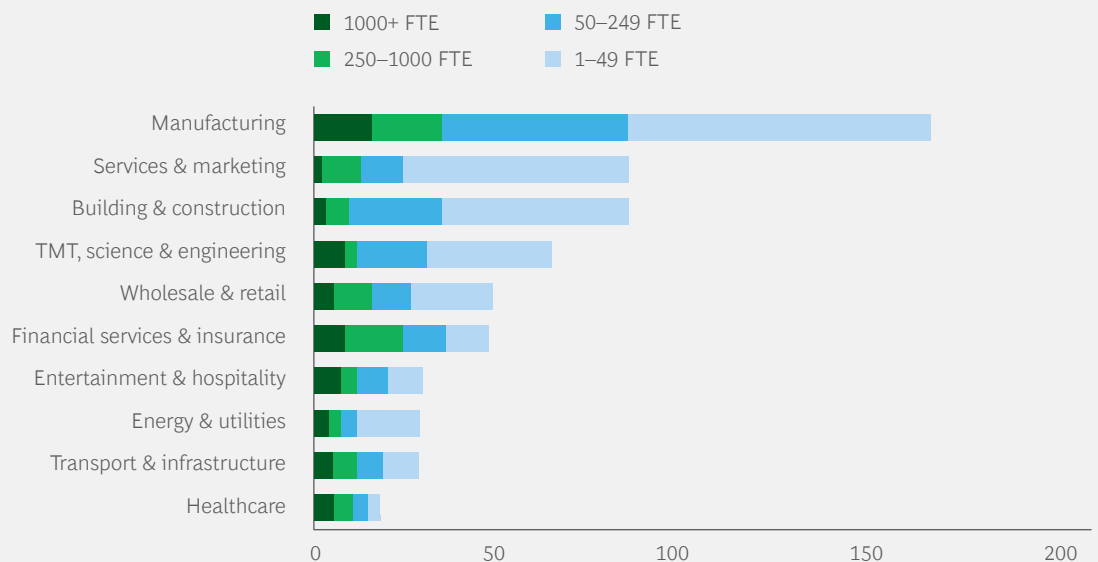
- **Analysis limitations:** Lastly, while all insights rest on mathematical analyses, the interpretation and suggested causal relationships are rooted in domain knowledge and Boston Consulting Group project experience.

Company size split of survey respondents

Legend:
- 1000+ FTE
- 250–1000 FTE
- 50–249 FTE
- 1–49 FTE

Values: 11%, 14%, 25%, 50%

Industry split of survey respondents

Legend:
- 1000+ FTE
- 250–1000 FTE
- 50–249 FTE
- 1–49 FTE

Categories (top to bottom):
- Manufacturing
- Services & marketing
- Building & construction
- TMT, science & engineering
- Wholesale & retail
- Financial services & insurance
- Entertainment & hospitality
- Energy & utilities
- Transport & infrastructure
- Healthcare

Axis: 0, 50, 100, 150, 200

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Acknowledgments

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