AI Roadmap

Care-AI

Your AI Roadmap

# Successfully Implementing Artificial Intelligence in Care

Whether you are a facility manager, IT specialist, care manager, or project team member:

This roadmap is for everyone who plans, supports, or is responsible for digital transformation in care.



*As of: 23 September 2026*

Interreg

Deutschland – Danmark

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# 00 About the AI Roadmap

## What is the AI Roadmap?

The roadmap outlines the key aspects that should be considered when **implementing technologies and Artificial Intelligence in care facilities** and guides you step by step through the process.
It serves as your structured **navigation tool** for preparing the use of AI on a sound basis, planning it in compliance with legal requirements, bringing your team on board, and realistically assessing both opportunities and risks.

### What you will learn from the roadmap

- ✓ **Identify needs:** Precisely identify the needs of your care facility.
- ✓ **Check requirements:** Assess technical, organisational, and legal requirements at an early stage.
- ✓ **Consider people and ethics:** Take human, ethical, and user-centred factors – such as team acceptance and data protection – into account from the very beginning.

## Project context: The German-Danish Care-AI project

This roadmap was developed as part of the three-year German-Danish Interreg project **“Care-AI – Paving the Way for AI in Elderly Care.”**

The project was initiated in response to demographic challenges in Germany and Denmark: while the number of people requiring care is increasing, the shortage of care professionals is becoming more acute.

Care-AI investigated how Artificial Intelligence can support care staff, people receiving care, and their relatives – with a particular focus on **biographical work**.

To the Care-AI funding website (Interreg Germany-Denmark)

To the Care-AI project website

## The goal of Care-AI: Bringing technology, people, and organisations together

Successful AI implementation rarely works through software alone. It can only succeed if AI is viewed through a sociotechnical lens – understanding the interplay between people, technology, and organisation.

**People:** Expectations, concerns, training, and acceptance among care staff, residents, and relatives.

**Technology:** Interfaces, data processing, and usability in the context of everyday work under pressure.

**Organisation:** Work processes, involvement of works councils or employee representatives, budgeting, and legal clarity.

## The cross-border project team

This AI roadmap brings together the expertise of a strong interdisciplinary partnership spanning research, care practice, business, and networks:

**Research and education:** Professionshøjskolen Absalon (DK), Institute for eHealth, Management and Healthcare Provision (IeMVG) at Flensburg University of Applied Sciences (DE)

**Care practice and municipalities:** AWO Pflege Schleswig-Holstein (DE), Greve Municipality (DK), Faaborg-Midtfyn Municipality (DK)

**Technology and business:** soventec GmbH (DE), CODIN IT (DE)

**Network:** Digitale Wirtschaft Schleswig-Holstei / DiWiSH (DE)

## Learning from practice, for practice

The project explored the sociotechnical factors that can enable or hinder successful AI implementation.

As part of this process, we developed a **prototype AI application** together with people working in care facilities. We combined the valuable insights gained from this practical work with existing expertise and made them available in this roadmap as concrete guidance for care facilities.

## How to use the roadmap

Navigate step by step through our **7 modules** – from the basics and data protection requirements to budgeting and team involvement, all the way to piloting and scaling.

Go to Step 1: Needs Assessment – Finding the Right Starting Point

# 01 Needs Assessment

Identify your team’s actual needs to avoid unnecessary investments at an early stage.



## What this step involves


- Finding the right starting point
- Why this step determines the success of your project
- 4 questions to guide your decision-making
- 5 Practical Methods for Conducting a Needs Assessment
- Digital Maturity Across Countries: Germany and Denmark
- Your Outcome After This Step

# Finding the right starting point

By carrying out a targeted needs analysis, you can safeguard your **budget** and ensure that the technology will make a **noticeable difference to your team's workload** later on.

Before purchasing software, you should identify where the biggest **bottlenecks lie in your day-to-day care work** and which **processes** are suitable for the use of AI.

So don't start by asking: "Which AI is the easiest to install?"

Instead, focus on the question: "Which specific problem in our organisation do we want to solve?"

## Why this step determines the success of your project

AI solutions only create value when they address **real challenges** in day-to-day care. Without clear objectives, there is a risk of investing in technologies that fail to meet practical needs and are rejected by the team.

A successful needs assessment uncovers **administrative burdens** and identifies processes that cost your employees **valuable time**.

A needs assessment should not be conducted solely from behind a desk. Instead, it should be based on an early and systematic collection of perspectives directly from everyday care practice.

### Success factor

Successful projects start with a clearly defined use case – not with a technology.

**AI is the tool, not the goal.**

## 4 questions to guide your decision-making

Use these guiding questions in your next strategy meeting:

- ? What are currently the biggest **challenges** in day-to-day care?
- ? **Where do delays, information loss, or excessive workloads occur?**
- ? Which **routine tasks** take up time that is needed for direct care?
- ? What measurable **goal** (e.g., saving time on documentation) are you pursuing?

# 5 Practical Methods for Conducting a Needs Assessment

## Method 1: Activate the team perspective

Survey your employees anonymously or openly. Organize short team **workshops** or **individual conversations** to collect examples of challenges and burdens in their everyday work.

### Practical tip

Don’t ask your team for ideas about AI. Instead, ask exclusively about specific **problems** they encounter in their everyday work. Then sort and prioritize the topics identified according to urgency and relevance.



## Method 2: Observe processes objectively

Have selected workflows in day-to-day care observed step by step. Ideally, use someone from outside the respective area of expertise to gain an **objective perspective**.

Document the **current processes** and analyze where recurring delays or duplicate work occur, where information gets lost, or where reducing workloads would have the greatest impact.

## Method 3: Involve residents and relatives

Also take the **needs** of residents and their relatives into account, for example through:

- Written **surveys** (questionnaires, surveys)
- Short conversations or structured feedback sessions
- Analysis of existing **feedback**, e.g., from a suggestion or complaints box

## Method 4: Make use of external networks

Use the expertise of provider organizations, professional associations, universities, or competence centers. Exchanging experiences with other care facilities can show you which solutions have already proven successful in similar situations.

Potential points of contact include:

- **Other care facilities:** Do they have similar problems and pain points? Have they found AI-based or digital solutions? If so, which ones?
- **Provider organizations** that support multiple facilities and have an overview of developments across organizations
- **Municipalities** or **state-level initiatives**

  An overview of the similarities and differences in decision-making structures in Germany and Denmark when identifying care needs can be found in **Step 7 – Scaling**. It shows which stakeholders are involved in decision-making and implementation processes in each country.
- **Professional associations** that provide practical knowledge, recommendations for action, or networks
- **Professional societies** that translate scientific findings into practice
- **Universities** and **research institutions**, particularly those working in nursing/care, digitalization, or implementation science
- **Competence centers** for digitalization or AI
- **Networks** or **model projects** where experiences and best practices are shared



## Method 5: Determine your level of maturity: The digital assessment tool

Before moving on to detailed planning, you should assess your facility's existing **conditions**.

The scientifically developed KIP-RA **assessment tool** (from the ProKIP project, funded by the German Federal Ministry of Education and Research (BMBF)) supports you in this process.

It assesses your **readiness** across five dimensions, including process, technical, and social aspects, and recommends individually tailored implementation pathways.

**Further information:**
Learn more about ProKIP

**Go directly to the assessment:**
KIP-RA online tool

### What does "maturity level" mean?

The **maturity level** indicates how well an organization is prepared to introduce and use AI – from technical infrastructure and data protection issues to the team's openness to change.

## Organizational Readiness (ORIC): A tool for organization-specific needs assessment

An organization can be technically well equipped and still not be ready for AI. Conversely, an organization with average IT infrastructure can successfully introduce AI if everyone supports the project.

The scientific **ORIC model (Organizational Readiness for Implementing Change)** describes this readiness based on two pillars:

- **Shared commitment (Change Commitment):** How strong is the motivation across the entire team to actively support and contribute to the change?
- **Confidence in their own capabilities (Change Efficacy):** Does the team believe it has the necessary skills and resources to implement the change?

# Digital Maturity Across Countries: Germany and Denmark

In Germany and Denmark, the practical circumstances often differ:

| | |
|---|---|
| **Infrastructure under development:** The exchange of health data and the use of digital care documentation are undergoing an ongoing transformation process.<br><br>**Focus on enablement:** Success depends heavily on targeted training, clear processes, and local acceptance. | **Strong digital foundation:** Denmark has more advanced digital public services and interconnected health data.<br><br>**Identical practical challenges:** Despite a higher level of digitalization, Danish care facilities face the same challenges: interface issues, IT incompatibilities, and the need for coordination within teams. |

### Practical tip

A high level of **organizational readiness** is more important than digitalization alone. Invest in **motivation** and **trust** at an early stage, before purchasing new software. Assess your organization's readiness using the **ORIC questionnaire** (available German, Danish oder English; Source).



## Insight from the Care-AI project

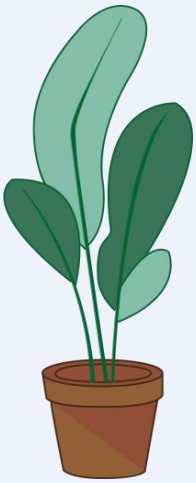
The use of modern devices or digital documentation systems does not automatically mean a smooth AI implementation. Always assess your organization's **readiness** individually and independently of the country's overall level of digitalization.



## Your Outcome After This Step

Once you have completed the needs assessment, you will have the following foundation in place:

- ✓ A prioritized list of the **biggest challenges** in your day-to-day care
- ✓ A clear understanding of the **causes** of process delays
- ✓ A well-founded basis for deciding where AI can meaningfully **support** your organization



## What Happens Next

Your foundation is in place and the key areas for action have been identified? The next step is to gain clarity: In **Step 2: The Importance of AI for Care**, learn how to realistically assess the potential of AI, define suitable use cases, and avoid overwhelming your team.



## Sources


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# 02 The Importance of AI for Care

Learn from real-world examples where Artificial Intelligence can make a tangible difference for your team and why human expertise remains irreplaceable.



## What this step involves


- Understanding Opportunities and Limitations
- What is Artificial Intelligence (AI)?
- What does AI mean in elderly care? – A Podcast
- How AI Can Support Your Organization: 3 Key Opportunities
- Different Perspectives – Shared Goals
- What Does This Comparison Mean for Your Management Team?
- 5 Questions to Guide Your Decision-Making
- AI Technologies in the Care Context at a Glance
- Where AI Reaches Its Limits
- Examples of Successful Applications in Care Practice
- Your Outcome After This Step
- Key Messages for Communicating with Your Team

# Understanding Opportunities and Limitations

In this step, you will develop a realistic understanding of the **potential** of Artificial Intelligence (AI) in your organization. You will learn about different areas of application, assess risks appropriately, and make well-founded **strategic decisions** for your care practice.

Artificial Intelligence is not a replacement for staff, but a highly effective **tool**. It can take over routine tasks, relieve your team of administrative work, and create more time for human interaction and personal care.

This can provide valuable **support**, as elder care across Europe is facing increasing demographic pressure. By 2055, the EU population is expected to be significantly older, while the share of people of working age is projected to decline. This will increase the need for care and support, while relatively fewer professionals will be available to provide it.

### Practical tip

Start by familiarizing yourself with the possibilities and limitations of AI. Clarify the following questions for your organization:

- What do we **mean** by AI, and what role should it play in our care practice?
- Which **opportunities** do we want to make use of?
- Which ethical **boundaries** and **requirements** are important to us?



# What is Artificial Intelligence (AI)?

A digital checklist on a tablet instead of a handwritten note is **digitalization**. If a system automatically identifies pressure ulcer or fall risks based on stored care data, we are talking about **Artificial Intelligence**.

## How AI Can Support Your Organization: 3 Key Opportunities

AI derives predictions, recommendations, and decision support from existing data. For your day-to-day care, this means:

1. **More time for direct care:** AI voice assistants can capture reports directly on a smartphone, formulate free-text entries, and summarize lengthy records within seconds. Staff schedules can also be optimized automatically.

2. **Identify risks earlier:** Sensors and AI algorithms continuously analyze health data. The system can alert your team at an early stage to gradual changes, such as an increased risk of falls or wounds.

3. **Support professional care decisions:** AI prioritizes information and provides valuable insights. Responsibility and decision-making authority always remain with your qualified care professionals.

### Quote

*„The question we should ask ourselves is: How can professional care work be supported so that the profession can actually do what it is capable of doing and what it has been trained to do?“*

***— Interview with nursing experts in the Care-AI project***

### What does AI mean in elderly care? – A Podcast

This podcast was generated with the help of AI. The content was developed by humans and reviewed for accuracy. (As of: 14 September 2026)

Read the written summary



# Different Perspectives – Shared Goals

The German-Danish Care-AI project shows that the **motivation** for using AI in long-term care differs in emphasis between the two countries.

These differences are not based on different values or priorities, but on different structural **challenges**.

## Starting Point

While the shortage of skilled workers and the high administrative **burden of documentation** are often the starting points for digitalization and AI projects in Germany, Denmark places greater emphasis on improving the **quality of care** and promoting the greatest possible **independence** for older people.

Ultimately, both countries pursue the same **goal: high-quality, safe, and person-centered care.**

|  |  |
|---|---|
| The use of AI is often justified by the goal of **reducing the workload for staff**.<br><br>The focus is on:<br>• reducing administrative tasks,<br>• supporting documentation and staff scheduling,<br>• and maintaining care provision despite the shortage of skilled workers.<br><br>**Improving the quality of care** for residents remains a key objective. | The use of AI is often justified by the goal of **improving the quality of care** and promoting residents' independence.<br><br>AI is also intended to reduce the workload for staff. However, this reduction in workload is primarily seen as a consequence of improved care provision. |

# What Does This Comparison Mean for Your Management Team?

The motivations in practice are not mutually exclusive:

- Staff who spend less time at their desks have **more time for direct care**.
- **Higher quality of care**, in turn, can make your team's daily workflows easier.

### Practical tip

At the beginning of your AI project, clearly define the primary objective you want to pursue. This clarity will make it easier to select a provider and measure success later on.



### 5 Questions to Guide Your Decision-Making

- ? Do we understand the specific opportunities and technical limitations of AI in care?
- ? Are we aware that AI is a tool to support care professionals, not a replacement for them?
- ? How will roles and responsibilities within our teams change through the use of AI tools?
- ? What are our employees' attitudes toward the use of AI?
- ? How do we ensure that AI applications preserve the dignity and autonomy of residents?

# AI Technologies in the Care Context at a Glance

You do not need to become IT experts. However, understanding the basic building blocks can help you when selecting a provider:

| AI field | What does the technology do? | Application in care |
|---|---|---|
| **Machine Learning (ML)** | Identifies patterns in data and calculates probabilities. | Fall risk analysis, activity monitoring. |
| **Natural Language Processing (NLP)** | Understands, processes, and generates human language. | Voice input for documentation, chatbots, translation. |
| **Computer Vision and Deep Learning** | Analyzes images, videos, and complex movements. | Wound documentation, camera/sensor-based fall detection. |
| **Expert systems, hybrid systems** | Combines specialist knowledge with predefined rules and data. | Decision support for care interventions. |

# Where AI Reaches Its Limits

To avoid misguided investments and disappointment, you should take the following limitations into account:

**No replacement for professional intuition**

An uncertain look or a subtle change in behavior – professional care relies on human perception. AI provides indications, but humans remain responsible for evaluating them.

**Structural and practical barriers**

Robotics often encounters obstacles such as door thresholds, confined spaces, or stairs. Technology must be highly practical and robust enough for everyday use.

**Data quality challenges**

Care documentation often relies on individual free-text entries rather than structured data. However, AI requires clean, standardized data to produce reliable results.

**Risk of bias**

Many AI models are trained using data from the general population. As a result, they may not always accurately capture the physical characteristics and needs of very old people.

# Examples of Successful Applications in Care Practice

The following practical examples have been anonymized to prevent conclusions being drawn about individual organizations or project partners.

## Example 1: Voice Documentation in Everyday Work

### Overview

Care professionals dictate reports and handovers directly into a smartphone. The AI processes care-specific terminology and transfers the data into the documentation system. No internet connection is required. The solution complies with data protection requirements.

### Measurable result

In a pilot study at a German university hospital, the use of a voice documentation system reduced documentation time per shift from 64 to 25 minutes.

### Key insight

AI delivers value when it is directly integrated into the workflow and provides tangible relief. Continuous and close involvement of users has a positive impact on acceptance.

## Example 2: Fall Risk Analysis Using a Smartphone

### Overview

Care professionals record a person walking for 30 seconds. The AI calculates a 3D skeleton and provides a fall-risk assessment and prevention recommendations.

### Measurable result

In a study conducted in 16 care facilities, the use of an AI-based fall risk assessment reduced fall risk by 17.8%.

### Key insight

AI supports risk assessment but does not replace professional care interventions.



## Example 2: Sensors for Fall Detection

### Overview

AI-based sensors detect falls in residents' rooms immediately and trigger an alert.

### Challenges

Initially, staff and relatives expressed concerns about monitoring and data protection. In addition, internal administrative approval processes (contracts, risk assessments) within the municipal administration significantly delayed the start of the project.

### Key insight

The biggest obstacle was not team acceptance, but the lengthy administrative and data protection approval processes within the Danish municipality. Make sure to allow sufficient time for these processes!



## Example 4: Documentation and Summaries in Care

### Overview

An AI application for home and residential care was piloted in 11 Danish municipalities. It provides speech recognition, automatic categorization within care documentation, and AI-generated summaries of residents' records before home visits.

### Measurable result

Care professionals reported significant time savings when preparing for visits and completing documentation, resulting in more time for direct care.

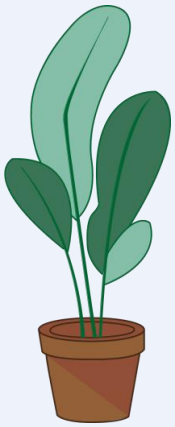
### Challenges

There was no clear legal basis for the routine processing of citizens' data using AI. In addition, the approximately 32 different Danish dialects posed significant challenges for speech recognition.

### Key insight

Team acceptance was very high. The biggest challenge was not the technology, but the legal framework. Consider using real-world testing environments ("regulatory sandboxes") to trial AI applications in a legally secure setting.

## Your Outcome After This Step



- ✓ You now have a clear understanding of where AI can create genuine added value in your organization and where human expertise remains indispensable.
- ✓ The key question is what concrete benefit AI creates for the organization, its employees, and the people receiving care.

## Key Messages for Communicating with Your Team



- ✓ AI identifies patterns and risks at an early stage
- ✓ AI reduces burdensome administrative work
- x AI does not assume legal responsibility
- x AI can never replace empathy and human interaction

## What Happens Next

You know what AI can do and where its limitations lie? Now it's time to create legal certainty: In **Step 3: Law, Ethics & Data Protection – Acting Responsibly**, learn how to comply with GDPR and the EU AI Act, clarify liability issues, and build trust among everyone involved.



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# 03 Law, Ethics & Data Protection

Use data protection and ethics as a solid foundation for implementing AI systems responsibly and transparently.



## What this step involves

- Acting Responsibly
- The three pillars of legally compliant AI implementation
- Area 1: Ethics and responsibility
- Area 2: Legal framework
- What is the EU AI Act? – A Podcast
- Area 3: Implement data protection under the GDPR
- The 5 most important GDPR steps
- Who decides what? Responsibilities for digitalisation, data protection and care
- Your implementation checklist
- Your outcome after this step

# Acting Responsibly

With the right legal and ethical guardrails:

- **protect** your facility from liability risks,
- **secure** the approval of your works council team
- and **build** trust among staff and residents.

## Data protection is no obstacle

When AI is used, highly sensitive care data meets novel technologies. Data protection is not an obstacle; it is the **foundation** for secure implementation.



## The three pillars of legally compliant AI implementation

To ensure that your AI project is legally and ethically sound, you need to consider three areas from the outset:

- **Area 1: Ethics and responsibility**
- **Area 2: Law and liability**
- **Area 3: Data protection**

# Area 1: Ethics and responsibility

AI should support care staff – not replace the human relationship.

As a management team, answer four core **ethical questions** in advance:

- ? **Transparency:** Do all parties involved (staff, residents and relatives) understand where and how AI is being used?
- ? **Human connection:** Is there still enough time for human interaction despite the use of AI?
- ? **Protection of vulnerable groups:** Are people with dementia or disabilities given protection?
- ? **Critical reflection:** Is your team aware that AI models can make incorrect assumptions because of biased training data?

### Info

AI never takes on **legal responsibility**. Every critical decision must be reviewed and approved by a qualified nurse.

### Involve staff and the works council early

The use of AI changes roles and workflows. If staff fear surveillance or job losses, the project will fail.

- **Works council, employee representation:** Involve these bodies from day one. In Germany, co-determination under the Works Constitution Act and the Occupational Safety and Health Act is regulated.
- **Build competencies:** Training on basic technical knowledge and ethical reflection helps prevent misuse and blind trust in the system.

Learn more in **Step 5: Involving stakeholders**.

### Practical tip

**Invest in your team, not just the software. Involve your team in the decision-making process from day one.**

**Clarify internally in advance:** How do we deal with AI errors? When is AI used? What data are processed? Where are the limits of such a system?

Learn more in **Step 2: The Importance of AI for Care**.

Communicate transparently that **responsibility always remains with people**. This reduces uncertainty, acknowledges your team's changing role with appreciation, and helps ensure acceptance in day-to-day work.



# Area 2: Legal framework

The EU AI Act regulates AI systems according to their **risk potential**. Strict requirements apply to care facilities because care data and health-related assessments have a direct impact on people.

## How the EU AI Act classifies AI

| Risk class | Meaning in care | Examples | Facility obligations |
|---|---|---|---|
| **Unacceptable** | Prohibited. Risk of violating fundamental rights. | Manipulative systems that influence behaviour. | Use is completely prohibited. |
| **High risk** | Makes decisions affecting health, safety or dignity. | Fall-risk analyses, AI-assisted care-level assessment, robots. | Strict risk assessment, transparency, human oversight. |
| **Limited risk** | AI systems with direct user interaction. | Chatbots, AI voice assistants. | Information obligation: users must be able to recognise that AI is being used. |
| **Minimal risk** | Administrative tools without a link to individuals. | Logistics or staff scheduling tools. | No special requirements. |

## Medical Device Regulation (MDR)

If your AI application assesses **health risks** (e.g. fall or pressure-ulcer risk) or supports diagnoses, it is generally considered a **medical device**. Make sure the provider has a valid CE marking.

If your AI application performs medical functions, it must meet the **MDR requirements** – in addition to the requirements of the GDPR and the AI Act. This keeps the AI safe, legally compliant and beneficial to your residents.

## What is the EU AI Act? – A Podcast

This podcast was generated with the help of AI. The content was developed by humans and reviewed for accuracy. (As of: 14 September 2026)

Read the written summary



# Area 3: Implement data protection under the GDPR

Health data are among the special categories of **personal data** under Article 9 GDPR. Avoid uncontrolled data accumulation and involve your **Data Protection Officer** (DPO) from the outset.

### Practical tip

If you do not have an internal **Data Protection Officer**, be sure to seek external support for this complex topic. The DPO can help you with all relevant points:

- Review **providers** and conclude **contracts** (such as a data processing agreement)
- Assess **risks**
- Obtain legally valid **consent** from residents, relatives or legal guardians
- Regular **audits** of the AI system

### The 5 most important GDPR steps

- **Conclude a data processing agreement (DPA)**
  Ensure that a legally valid DPA with the software provider is in place.
- **Check data storage location**
  Are data processed locally, in a national cloud, on EU servers or in a third country (e.g. the US)?
- **Conduct a data protection impact assessment (DPIA)**
  Mandatory for high-risk systems under Art. 35 GDPR. Your DPO can assist you.
- **Obtain consent**
  Inform residents or their legal representatives in an understandable way and obtain any required consent.
- **Apply data minimisation**
  Strictly adhere to data minimisation (Art. 5 GDPR) – process only data that are strictly necessary for the purpose.

# Who decides what? Responsibilities for digitalisation, data protection and care

Partner projects showed that the greatest delays are usually caused not by technology, but by a lack of legal coordination. The following table shows which institutions in Germany and Denmark are relevant in this context:

| Area | Germany | Denmark |
|---|---|---|
| **Legal basis** | Digital Healthcare Act (DVG), Digital Healthcare and Nursing Care Modernisation Act (DVPMG), Health Data Use Act (GDNG), as well as General Data Protection Regulation (GDPR)/Federal Data Protection Act (BDSG) | Social Services Act (Serviceloven), Health Act (Sundhedsloven), General Data Protection Regulation (GDPR)/Danish Data Protection Act |
| **Data protection** | Federal Commissioner for Data Protection and Freedom of Information (BfDI) and state data protection authorities | Danish Data Protection Agency (Datatilsynet) |
| **IT security** | Federal Office for Information Security (BSI) | Danish Agency for Societal Security (Styrelsen for Samfundssikkerhed) |
| **Care** | Federal Ministry of Health (BMG); implementation by the federal states and long-term care insurance funds | Ministry of Children, Seniors and Housing (Børne-, Ældre- og Boligministeriet); implementation by municipalities |
| **Digitalisation** | Federal Ministry for Digital Transformation and Government Modernisation (BMDS) | Ministry of Digital Affairs (Digitaliseringsministeriet) |

## Common European rules – different practices

Our German Danish exchange in the Care-AI research project quickly showed that although both countries are subject to the same European rules, care facilities handle artificial intelligence, data protection and legal requirements very differently.

In practice, **open questions** and areas of **legal uncertainty** continue to cause considerable uncertainty.

Where possible, therefore, make use of official regulatory **sandboxes** to test projects and initiatives in a legally secure environment.

## Your implementation checklist

Use this checklist to start Step 3:

- ✓ **Data Protection Officer (DPO)** is involved from the planning phase.
- ✓ **Works council / employee representation** is officially informed and involved.
- ✓ **Risk class** under the EU AI Act has been determined.
- ✓ **DPA** and, where applicable, the DPIA are fully documented.
- ✓ **Usage guidelines** and clear review obligations for professionals are established. At least one qualified nurse must review every critical decision.
- ✓ **Training plan** for the care training team has been developed.
- ✓ **Risk management** has been established: prepare technical documentation and define responsibilities. There is a procedure for regular review and reassessment of risks, data protection requirements and legal obligations.
- ✓ **GDPR** is complied with. Technical and organisational measures protect sensitive data.

## Your outcome after this step



- ✓ You have clarified the legal and ethical framework for your facility.
- ✓ Your project has legal safeguards in place.
- ✓ The relevant bodies are involved.
- ✓ Your team is prepared to use AI responsibly.

## What Happens Next



The legal framework is in place and the boundaries have been defined? Next, it’s time to select the right solutions: In **Step 4: Concept Development**, learn how to find suitable software partners, assess interfaces, and negotiate contracts with confidence.

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# 04 Concept Development

Plan costs, resources, and technical infrastructure.



## What this step involves


- A Concept for Sustainable Implementation
- 6 Reflection Questions for Developing your Concept
- Main topic 1: Financing and Budgeting
- Main topic 2: People and Culture
- Main topic 3: Technical Requirements for AI
- Main topic 4: Key Success Factors at Organizational Level
- Practical example – Digitalization in a country comparison: Denmark and Germany
- Practical example – When wishful thinking meets outdated structures
- Your result after this step

# A Concept for Sustainable Implementation

Introducing AI is not a technical “plug-it-in-and-you’re-done” exercise, but a sustainable **process of change**.

With a well-thought-out **concept**, you protect your project from costly bad investments, establish clear responsibilities and ensure that the intended relief reaches day-to-day care practice.

## 6 Reflection Questions for Developing your Concept

- **Strategy and direction:** Where do we currently stand with the digitalization of our facility? What goals are we pursuing with digital solutions?
- **Finances:** What costs will arise in the short term and, above all, in the long term (e.g. for licences, maintenance, training, regular updates)?
- **Personnel:** Who on the team will take care of the implementation and internal processes? Who will be the permanent point of contact for the team? How much working time do we need to allocate for this?
- **Technology:** Is our existing technical infrastructure (facility-wide Wi-Fi, modern end devices) sufficient?
- **Funding:** Which points of contact can provide information about funding opportunities and technical requirements?
- **Interfaces:** Can the new AI software read data from our existing care documentation system?

### Practical tip

Hold a **joint meeting** with management, IT managers / software providers and nursing management. An internal contact person for finances and funding opportunities should also be part of the discussion.

Together, check whether your facility already has a **digitalization strategy** or a digital **development plan**. If not, start with a simple overview:

- Which **digital solutions** do we already use?
- Which **challenges** would we like to solve through digitalization and AI?
- What **next steps** are realistic?



## Main topic 1: Financing and Budgeting

### Use funding opportunities

There are numerous attractive **funding programmes** for care at federal and state level. These provide not only information, but also **advice** and **support** with the application process.

### Total budget, not just the purchase price

Plan ahead. **Additional costs** often arise for integration into your care documentation system or for external consulting.

## Main topic 2: People and Culture

### Reducing fears

New technology often causes **concerns** (“Will AI replace me?”, “What if I do something wrong?”). Address these concerns openly. From the outset, allow sufficient time for clear and understandable **training**.

### Clear responsibilities

Projects fizzle out when no one feels permanently **responsible**. Clearly defined, named roles are needed (e.g. **digitalization officers**) so that care staff have someone to contact when questions arise.

### An overview of existing funding opportunities

The **Kompetenzzentrum Digitalisierung und Pflege** provides a regularly updated overview of existing funding opportunities at both federal and state level on its website. This information helps you identify suitable funding programmes and gain an overview of the available options. Please note that the Kompetenzzentrum Digitalisierung und Pflege does not provide individual funding advice and is not available as a personal point of contact for specific funding enquiries.



## Funding and Financing: A Comparison Between Countries

|  |  |
|---|---|
| **Funding programmes** for digitalization and AI exist at both federal and state level.<br><br>**Care facilities** and their provider organizations often must identify suitable funding opportunities themselves and apply for funding.<br><br>The care landscape is characterized by **non-profit welfare organizations and private providers.** As a result, financing routes, decision-making structures and responsibilities can differ considerably between facilities.<br><br>Due to the different provider and organizational structures, facilities often need to clarify financing, responsibilities and technical requirements more **individually.** | Financing and funding are more strongly shaped at **municipal** level. Larger municipalities sometimes have their own innovation funds and can also draw on national support programmes for AI and digitalization. Smaller municipalities sometimes finance such initiatives directly from their care budgets.<br><br>Elderly care is predominantly organized by municipalities. Many funding and support programmes are therefore aimed directly at municipalities. Privately operated care facilities are rare and often work on behalf of a municipality. Access to municipal funding opportunities therefore generally takes place through the responsible municipality.<br><br>**Municipal structures** can, in principle, enable joint planning, financing and scaling of digital solutions across several facilities. However, whether this actually leads to easier implementation depends on the individual municipality, its financial and organisational resources, as well as the existing cooperation structures. |

## Main topic 3: Technical Requirements for AI

### Low hardware requirements

Most modern AI solutions are **cloud-based** and run via the internet. You do not need expensive high-performance computers on site.

### The minimum infrastructure

A stable, secure **Wi-Fi** network in all residential areas, modern mobile **end devices** (tablets/smartphones, e.g. for gait-analysis or wound-analysis apps) and a reliable **power supply** (e.g. for fall sensors) are essential.

### The “interfaces” bottleneck

Many AI tools work best when they can use data from your existing systems (documentation, staff scheduling, etc.) and external sources (pharmacies, hospitals). In practice, however, standardized **interfaces** are often lacking. AI also requires **structured data**, whereas care documentation often consists largely of individualized free text.

### Data protection (GDPR)

Because highly sensitive health data is involved, **IT security** must be robust from the very first second. Learn more about this in **Step 3**.

## Main topic 4: Key Success Factors at Organizational Level

### Benefit for care practice

AI must make work easier, not harder. If technology **supports professional care** practice, it will be accepted.

### Decision-making authority remains with people

AI is not a replacement for qualified care professionals – it should **support** decisions.

### Clear strategy and prioritization at management level

Without open, committed and **innovation-oriented leadership**, innovation remains blocked.

### Practical tip

Before the project starts, appoint a clear, interdisciplinary **project team** with defined decision-making authority.

Carry out an “**infrastructure check**” using a simple questionnaire for all areas (care, IT, administration).



## Practical example – Digitalization in a country comparison: Denmark and Germany



**In a Danish care centre, the structure is clear:** if staff are asked who is responsible for introducing a new AI-supported fall-prevention solution, they can immediately give a clear answer and name a designated local contact person.
**In a comparable German case, the structure is often more fragmented:** responsibility is divided between nursing management, the provider organization's IT department and senior management.
**The result:** The software provider does not know whom to contact, decisions are delayed and committed care professionals become frustrated and give up in the face of unclear reporting and decision-making channels. In the worst case, *"…something like this naturally fizzles out quickly, and that is extremely frustrating for the employees who want to take responsibility and get involved." (Interview with an IT expert)*

## Practical example – When wishful thinking meets outdated structures

A nursing service manager wants to introduce **AI-supported staff-scheduling software** to provide the team with flexible support when staff are absent at short notice.
But the project quickly stalls: decision-making authority lies solely with conservative senior management, which **blocks** the idea for months.

When management finally agrees, it ties the budget to the unrealistic expectation that the technology will immediately cut costs and replace staff – pushing the actual **benefit** for care professionals into the background.

**The final setback comes at the purchasing stage:** the facility's existing software landscape is a patchwork of different providers for documentation and time recording. These systems block the new AI solution because interfaces are missing or require high additional costs.

## Practical tip

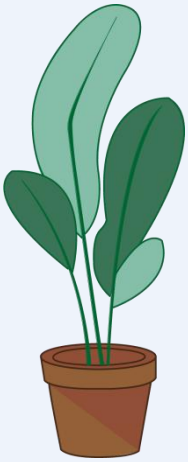
Clarify the provider organization's **expectations** and the technical **openness** of your existing software providers in advance to avoid blockages and costly bad investments.



## Your result after this step

You now know what the project will cost, who will manage it and whether your technology is ready. You can:

- ✓ realistically assess costs and make use of funding opportunities
- ✓ assess IT infrastructure and interfaces
- ✓ clarify responsibilities and make processes transparent



## What Happens Next

The right AI provider has been selected and the contract is in place? Now comes the step that will determine whether your project succeeds or fails: **Step 5: Involving Stakeholders** shows you how to bring nursing staff, residents, and families on board from the start and build genuine acceptance for the new solution.



# 05 Involve Stakeholders

Address concerns early on and turn your team, residents, and relatives into active participants in the change process from day one.



## What this step involves


- Shape change together
- Your benefit: Why genuine participation matters
- 7 reflection questions for your management team
- Germany vs. Denmark: Different approaches to introducing technology
- Successful practical example: Voice-controlled dashboard
- A participatory test team in 4 steps
- Persona group 1: The nursing and care team
- What does this mean for your approach in practice?
- Persona group 2: Residents in need of care
- What does this mean for your approach in practice?
- Persona group 3: Family members
- What does this mean for your approach in practice?
- Your result after this step

# Shape change together

It changes the day-to-day work of your professionals, the experience of residents and the expectations of family members.

Every care facility has staff with different levels of **experience**, **skills** and **attitudes** towards digital technologies. Residents and family members also differ in their **expectations** and **needs**.

By involving everyone affected **from day 1**, you reduce fears, prevent internal resistance and ensure that the new technology is actually used in everyday practice.

### Quote

*„Every change is driven by people.“*

***– Insight from the Care-AI project***

### Your benefit: Why genuine participation matters

Early participation turns those affected into **co-creators**. This step helps you to:

- Identify **barriers to acceptance** before expensive software is purchased.
- Plan **training** needs precisely for different levels of prior knowledge.
- Build **trust** among residents and family members through transparent communication.



## 7 reflection questions for your management team

- ? Who in our facility is directly or indirectly **affected** by the new AI?
- ? What **concerns** (e.g. surveillance, job loss, feeling overwhelmed by technology) could arise?
- ? How do we **inform** residents and family members in a clear and transparent way?
- ? Which specific **AI competencies** does our team need?
- ? How do we **involve** both tech-savvy and sceptical staff?
- ? Which **contact persons** (e.g. digitalisation leads) are available in everyday practice?
- ? How do we **measure** whether the AI is perceived as a genuine relief?

## Why off-the-shelf standard software often fails

One of the biggest hurdles in AI projects is that many digital solutions are not sufficiently adapted to the realities of day-to-day care. If transparency is lacking and future users are not allowed to help shape the solution, resistance can quickly arise.
**The result:** Software is purchased but simply ignored in day-to-day practice.

## Success factor

Regardless of who initiates the process, implementation in practice will fail without **involving the care team** at an early stage.



# Germany vs. Denmark: Different approaches to introducing technology

Differences between Germany and Denmark can be seen when introducing AI-supported technologies in long-term care:

|  |  |
|---|---|
| In Germany, **care facilities** often identify their needs themselves – for example, when staff or managers recognise specific challenges in day-to-day work where AI could provide support.<br>As a result, implementation often takes place gradually and emerges from **practice** (“*bottom-up*”). | In Denmark, **municipalities** and **public-sector actors** play a stronger, coordinating role in the digital transformation of care.<br>Needs are more often considered strategically at a **higher level**, prioritised and then implemented in care facilities (“*top-down*”). |

### Successful practical example: Voice-controlled dashboard

As part of a German research project, a voice-controlled dashboard was developed directly together with care staff and managers.

- **The success:** The software was tailored precisely to existing workflows, was intuitive to use and supported the team without rigidly automating processes.
- **The key insight:** AI systems can only be implemented successfully if they are adapted to the specific structures, communication channels and organisational characteristics on site.

# A participatory test team in 4 steps

Do not simply introduce new technologies on a set date. Use this proven practical method:

1. **Define a limited test area:** Together with the software provider and nursing management, select 1–2 care units or rooms for a realistic test phase.
2. **Put together a mixed team:** Deliberately include both groups in the test team: tech-savvy professionals and staff who are sceptical about change. Sceptics identify weaknesses early and, if the test is successful, become convincing champions.
3. **Run a practical test (approx. 6 months):** Let the team test the AI under real-world conditions. The added value must be noticeable under the pressures of everyday work – not only in theory.
4. **Share experiences with the team:** The test participants report their experiences directly to the other staff. This builds trust naturally and encourages other teams to want to use the solution as well.

### Tool: Personas as a compass for different perspectives

In the Care-AI project, typical profiles (personas) of all stakeholders were developed based on field research. They show how different roles in a care facility **view** the introduction of AI, which **challenges** they experience and how you can respond to them specifically during the **change process**.

**Use them** to consider the different perspectives in advance.



# Persona group 1: The nursing and care team



### Anke (Nursing Professional in Germany)

*“I want time for people, not for additional technology.”*

Anke has worked as a nursing professional for many years. She is generally **open** to digital solutions but experiences her day-to-day work as being heavily shaped by **documentation**, **communication** with family members and **organisational** tasks.

**Slow systems** and duplicate documentation cause her **frustration**. She accepts new technologies when they provide immediate relief and can be integrated easily into existing workflows.



### Mette (Registered Nurse in Denmark)

*“AI should support me in clinical decision-making.”*

Mette is also open to digital technologies. Unlike Anke, however, she primarily associates AI with **clinical decision support**, **monitoring** or **medication safety**.

For her, the added value lies less in organisational relief than in improved clinical care. At the same time, there is a risk that **psychosocial aspects** of care may fade into the background.



### Louise (Social & Healthcare Assistant in Denmark)

*“Why should we change something that has worked for years?”*

Louise has worked in the same care facility for almost forty years. She knows her residents very well and has a wealth of **experience**.

At the same time, she initially approaches new technologies with **scepticism**. Only when she experiences a concrete **benefit** herself does she develop trust in new solutions.



### Naomi (Care Assistant in Germany)

*“I want support, but it needs to be understandable and practical.”*

Naomi works as a care assistant and brings a great deal of **empathy** to her work. She already uses digital applications in her private life and is open to new technologies.

At the same time, she lacks **knowledge** about AI. Previous digitalisation projects have created **additional work** for her rather than providing relief.

Applications that support her with **language barriers**, **documentation** or **biography work** would be particularly helpful.

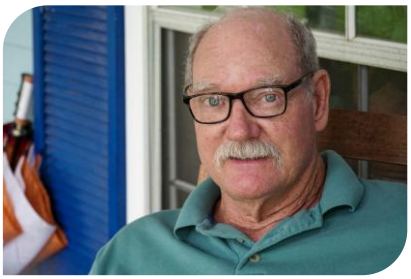
### Reflection prompt

While German care professionals often assess the benefit in terms of **relief in day-to-day work**, **clinical benefits** are emphasised more strongly in Denmark. Both perspectives should be considered during implementation.

### What does this mean for your approach in practice?

- ✓ Involve your staff at an **early** stage.
- ✓ Show the **practical benefits**: use demonstrations or workshops to show how AI saves staff time.
- ✓ Let your staff **try** the system themselves.
- ✓ Offer regular **information sessions**, training and feedback loops
- ✓ Involve all **professional groups** early and continuously – from needs analysis and selection through piloting to evaluation.
- ✓ Identify which (experienced) colleagues could act as **multiplicators**.
- ✓ Explain AI **clearly** and without technical jargon.
- ✓ Take different levels of **prior digital experience** into account.
- ✓ Ensure that **contact persons** and **support** are available. A dedicated team (e.g. digitalisation leads) should answer questions, record problems and coordinate adjustments.

# Persona group 2: Residents in need of care



### Kurt (Resident in Denmark)

*“I want to be understood.”*

Kurt is mentally alert, but due to a medical condition has great difficulty expressing himself **verbally**.

For him, AI could not only **relieve** staff but also enable greater **participation** and self-determination – for example through **assistive communication technologies**.



### Gitte (Resident in Denmark)

*“Safety means something different to every person.”*

Residents experience changes very differently.

Gitte reacts very sensitively to change because of her **dementia** and mental illness. New voices, unfamiliar routines or unknown technologies can trigger **anxiety** for her.

### Reflection prompt

AI can not only improve **work processes** but also enhance residents’ **quality of life**. This perspective should already be considered when selecting suitable applications.

### What does this mean for your approach in practice?

- ✓ Introduce technology extremely **carefully** for vulnerable residents.
- ✓ Human closeness and familiar routines **always** take precedence over efficiency.

# Persona group 3: Family members

### Hildegard (Wife of Hermann, Germany)



*“I want to understand what is happening to my husband.”*

For Hildegard, the technology itself is not the focus; her **concern** is for her husband.

She has questions about **data protection**, **humanity** and possible **surveillance**. If these concerns are taken seriously and answered in an understandable way, her willingness to accept new technologies increases.

### What does this mean for your approach in practice?

- ✓ Inform family members at an **early stage**.
- ✓ Create opportunities for questions and dialogue.
- ✓ Answer questions about data protection and benefits transparently and clearly.

### Practical tip

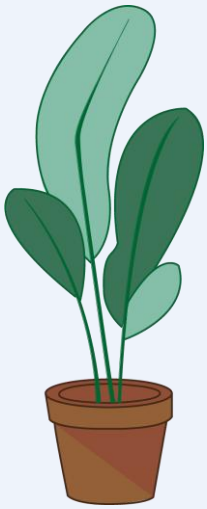
Do not use these personas as rigid categories, but as a **reflection aid**. For each planned AI application, ask yourself:

*“How would Anke experience this solution? What questions would Hildegard have? Would Gitte feel safe because of it? And what added value would it offer Kurt?”*

These **changes of perspective** help ensure that implementation decisions are not made solely from a technical point of view but are consistently designed around **people**.



## Your result after this step



You have learned that successful implementation means consciously taking the diversity of all stakeholders into account and shaping change together. You have developed a clear strategy for your change management:

- ✓ All affected **stakeholder groups** have been identified.
- ✓ A **test team** of practice experts and sceptics is ready.
- ✓ A transparent **communication and training plan** for staff, residents and family members has been set up.

## What happens next



Your team is prepared and the concepts are in place. The next step is to put them into action: Find out in **Step 6: Pilot Phase & Evaluation** how to conduct the practical test in a structured way, measure success and learn from mistakes.

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# 06 Pilot Phase & Evaluation

Test the software under real-world care conditions, evaluate its benefits, and learn systematically from practical experience.



## What this step involves

- Gaining experience and learning from it
- Your benefit: Minimise risks, create evidence
- Reflection questions: 6 areas for your evaluation
- The 3 dimensions of success measurement
- 4 success factors for a meaningful pilot
- Your result after this step

# Gaining experience and learning from it

During the pilot phase, you test the AI solution under **real-world conditions** in a clearly defined area of your facility.

This is not just about simply “switching on” the software, but about demonstrating that the technology relieves your team and improves the quality of care.

The subsequent **evaluation** provides you with a sound basis for decision-making: Is the investment worthwhile for a facility-wide roll-out?

### Practical tip

Pilot projects create a protected environment for this. They make it possible to test AI **in practice**, clarify open questions and further develop the application **together**.



### Prerequisite

A **meaningful pilot** requires you to clearly define the test area and assemble a mixed test team. You can find tips on this in **Step 5: Involving stakeholders**.

## Your benefit: Minimise risks, create evidence

A protected pilot run protects you from costly bad investments and helps ensure practical success:

- ✓ **Real-world test instead of a paper exercise:** You can see clearly whether the AI works with your real care data and processes.
- ✓ **Fix problems on a small scale:** Resolve technical hurdles or data-protection questions within a protected environment.
- ✓ **Build acceptance within the team:** The pilot professionals become local experts and convince the rest of the team through their own experience.

### Practical tip

Ask the manufacturer directly about a **trial or pilot licence**. Test phases can often be offered at a reduced price by the provider or financed as a funded business case from your own digitalisation budgets.

## Reflection questions: 6 areas for your evaluation

1. **Benefits and impact**

- Are the concept-defined goals (e.g. time saved on documentation) being achieved?
- What concrete added value do care staff and people receiving care experience in everyday practice?
- Does the system help your facility to be perceived as a modern employer?

2. **User perspective and acceptance**

- What everyday obstacles arise? Is the AI used regularly or bypassed?
- Is the software intuitive to use, or does it require too many clicks/inputs?

3. **Human oversight and safety**

- Are the AI results plausible and traceable?
- Who reviews recommendations? Is it ensured that decisions are not adopted without review?

4. **Organisation and training**

- What process adjustments or new roles are needed in everyday practice?
- Are the training concepts sufficient, or is more training-on-the-job needed?

5. **Fairness and diversity**

- Does the AI system work equally reliably in all care situations and for all resident groups?
- Does the AI for example correctly handle different accents, dialects or language proficiency levels within the team without disadvantaging staff with a migration background?

6. **Continuous monitoring**

- How do we monitor the performance and accuracy of the AI after implementation?
- Which metrics do we track over the long term?

# The 3 dimensions of success measurement

The success of an AI project is not measured solely by technical metrics such as response time or failure rate. Only when all three dimensions are rated positively is your system ready for scaling.

| Evaluation dimension | What you need to look out for | What you need to look out for |
|---|---|---|
| **Technical performance** | Does the software run stably, accurately and reliably within the usual workflow? | Error rates, system failures, software response times. |
| **User acceptance** | Does the team trust the system? Does the software make their work easier, or does it cause frustration? This is where you can see whether the involvement from **Step 5** has had the desired effect. | Surveys, observations in everyday practice, usage statistics. |
| **Quality of care** | Does the tool increase resident safety or save time for personal interaction? | Fall rates, care reports, feedback from residents and family members. |

# 4 success factors for a meaningful pilot

**Training-on-the-job instead of theory alone**

Standard training sessions in a seminar room are rarely sufficient. Support staff directly on site during the first weeks of work. This training-on-the-job makes it possible to clarify questions in day-to-day care immediately and address concerns directly.



**Digitalisation as an investment in employer attractiveness**

Do not consider the use of AI only from a cost perspective. In times of skilled-worker shortages, modern technology is a genuine competitive advantage.

*“Care professionals can now choose where they want to work.* [Employee benefits] *today include things such as the use of technology and assistive tools that make day-to-day care easier, where you receive the best possible support while working […] and, with higher levels of care needs, can spend more time with people.”*

**Demand practical applicability: Software must fit the facility**

Every care facility has its own structures. A good core system is not enough – the provider must be willing to make system changes that fit your processes.

**Embrace imperfections: Learn from experience**

Avoid false perfectionism. The aim of the pilot phase is a functional, safe system that is accepted by the team – not a flawless solution from the very first minute.

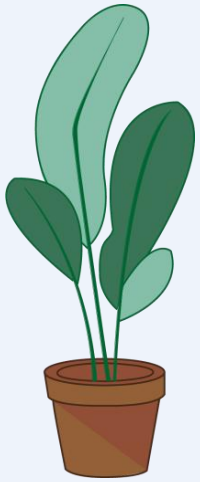
### Practical tip

Demand **flexibility** from the software manufacturer. Describe your specific workflows and ask directly: “How can your software be adapted to our requirements?”

### Your result after this step

At the end of the evaluation, you will have the following foundation:

- ✓ **Evidence-based data** on the benefits, costs and time savings of AI.
- ✓ **Feedback** from your care management team on barriers and adjustment needs.
- ✓ A clear, well-founded **decision** for or against a facility-wide roll-out of the AI system.



### What happens next

Was the pilot phase successful and do the figures add up? In the final **Step 7: Scaling**, you will learn how to establish the solution sustainably throughout the entire facility and ensure its continued use.

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# 07 Scaling

Safely transition your AI solution from the pilot phase to regular operations and embed the progress across your organisation for the long term.



## What this step involves


- Establish solutions sustainably
- Your benefit: Why organization-wide scaling pays off
- Germany and Denmark: Different paths to scaling
- Reflection questions for your scaling checklist
- When is your facility ready for scaling?
- Avoid typical pitfalls
- Your outcome after Step 7

# Establish solutions sustainably

After a successful pilot project, the decisive question is:
**How do we make the leap from trial operation to organization-wide use?**

The focus is now no longer on proving that the software is ready for use, but on its sustainable, safe, and organizationally embedded transition into routine operations throughout the entire facility.

## Your benefit: Why organization-wide scaling pays off

Only when the AI solution is used throughout the entire facility does it realize its full potential:

- ✓ **Effective relief for everyone:** Time savings and higher quality of care benefit all residential units and departments at the same time.
- ✓ **Better cost-benefit ratio:** Upfront investments in hardware, licenses, and infrastructure pay off much faster through widespread use.
- ✓ **Standardized processes:** Consistent processes reduce the risk of errors in day-to-day care and make it easier to onboard new professionals.
- ✓ **Sustained skills development:** Your team develops digital skills over the long term – a key building block for the future viability of your facility.
- ✓ **Learning organization:** Continuous feedback makes it possible to keep adapting processes and AI functions to new practical requirements.

### Practical tip

Organization-wide implementation turns isolated successes into sustainable, organization-wide **progress** in quality of care and cost-effectiveness.



# Germany and Denmark: Different paths to scaling

The expansion of digital solutions depends heavily on regional care structures.



### Decentralized and institution-based care landscape

**Scaling within the provider network:**

Digitalization projects usually arise from specific needs of individual facilities, providers, or care groups.

Scaling takes place across the provider network or chains of facilities.

**Slower transfer across boundaries:**
Because facilities make independent decisions and use different IT systems, dissemination across provider boundaries is often slower.



### Municipal comprehensive planning

**Regional planning:**

Responsibilities are clearly divided between municipalities and regions: while municipalities are responsible for planning and organising care services, including nursing homes, responsibility for hospital care lies with the regions.

**Faster dissemination:**
The possibilities for scaling digital solutions depend on the level at which they are being considered. As municipalities in Denmark use different digital systems and have different organisational structures, the conditions vary from one municipality to another. This can make the nationwide implementation of new systems more challenging. Within an individual municipality, however, common systems and standards are generally used, which means that a new digital solution could potentially be planned and rolled out more easily across several nursing homes within the same municipality.

# Reflection questions for your scaling checklist

Use these questions within the management team to identify organizational gaps before implementation.

### Organization

- Are clear responsibilities defined for the long term for ongoing operation, maintenance, and IT security?
- How do we deal with software updates, changes to care standards or new legal requirements (e.g. EU AI Act)?

### Employees

- Are practical, ongoing training and support concepts available for (new) employees?
- Are local champions (key users; local contacts) clearly designated in all residential units and given dedicated time?

### Cost-effectiveness

- Do we know the long-term follow-up costs (e.g. licenses, maintenance, interfaces) and staffing requirements?
- Are we using all available funding and refinancing options offered by long-term care insurance funds or the federal state?

### Success factor

Successful scaling occurs where technological possibilities are aligned with actual **care needs** and all stakeholders work **together**.

# When is your facility ready for scaling?

A successful pilot is an important milestone – but it is not enough on its own. Before expanding, check the following four prerequisites:

## Define clear responsibilities

Establish a **steering committee** (management, IT, nursing professionals) that coordinates ongoing operations, reviews feedback, and makes risk-related decisions.

## Ensure a reliable data foundation

AI is only as good as the underlying data. Ensure that nursing documentation and vital signs are **recorded in a structured and high-quality manner** and transferred cleanly via standardized interfaces (APIs).

## Ensure an open IT architecture

Avoid isolated stand-alone solutions. Prioritize **interoperability**, so the AI system integrates seamlessly into existing nursing documentation and staff scheduling systems.

## Embed continuous training

One-off training is not enough. Build **on-the-job support** (training-on-the-job) and regular refresher courses into the annual plan.

### Practical tip

Evaluate first, then scale. First check whether the pilot achieved the desired goals and whether the necessary organizational and technical prerequisites are met.
Create a regularly updated **overview**, e.g. using the metrics you defined earlier. This allows you to see immediately whether the team is using the technology regularly or where problems still occur in day-to-day work.



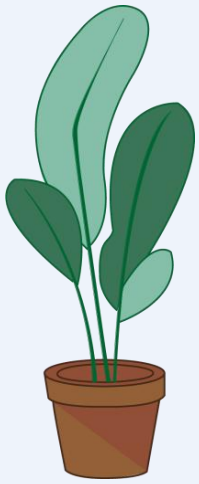
# Avoid typical pitfalls

| Problem | Why it occurs | How to avoid it |
|---|---|---|
| **Software does not fit local workflows** | The solution is rigid and cannot be adapted to local conditions. | Choose configurable platforms and require interface adaptations from the vendor. |
| **Resistance within the team** | Fear of losing control, surveillance, or additional technical workload. | Continue with a participatory approach: share success stories from the pilot and involve key users. |
| **Weak innovation culture** | Lack of support from managers. | Managers lead by example in using the system, recognize small successes, and promote an open learning culture around mistakes. |
| **Unclear refinancing** | Lack of budget for ongoing license operation after funding ends. | Review funding programs early and coordinate refinancing options with payers. |
| **Static operation** | The system is no longer developed after implementation. | Establish agile processes: agree on regular audits, reviews, and updates with the vendor. |

## Your outcome after Step 7

You have successfully made the transition from pilot operation to sustainable use:

- ✓ The AI solution is firmly integrated organizationally, technically, and legally into **routine operations**.
- ✓ **Roles**, **IT support** and **continuing education concepts** are established for the long term.
- ✓ Continuous **monitoring** secures the long-term benefits for quality of care, employer attractiveness, and cost-effectiveness.



## Takeaway for overall success

AI is not a finished product that you buy once. It continues to evolve. Regularly check whether the application still fits your current workflows, for example using the needs analysis in **Step 1: Needs Assessment**.

## Sources

- Most of the content used in the AI Roadmap is based on the project context developed in the “Care-AI” project and the materials compiled there.

# Appendix

## Summary of the podcast “Artificial Intelligence in Elderly Care”

*Comprehensive Topic Summary of the Podcast Episode*

## 1. Demographic Pressure and the Caregiving Shortage

A staggering global deficit of healthcare workers collides directly with an unprecedented aging demographic curve. The podcast highlights that as early as 2019, the global healthcare sector faced a shortage of **17 million healthcare workers**—a gap equivalent to the entire population of the Netherlands missing from the global healthcare labor force.

In Germany, used as a primary case study, the number of care-dependent individuals is projected to jump from **5 million to up to 8 million by 2050**. Merely maintaining baseline standards of care requires an additional **600,000 professional caregivers**, personnel that simply do not exist in the labor pool. Compounding this labor deficit, **85% of individuals over age 65 suffer from at least one chronic condition**, with multimorbidity (managing 3 to 5 interacting conditions simultaneously) representing the standard operational reality in elder care facilities.

## 2. Conceptual Boundaries: Digitalization, Robotics, and Artificial Intelligence

Care facilities frequently conflate technology buzzwords to justify premium pricing; the podcast establishes strict definitions to separate marketing claims from actual technical capabilities:

- **Digitalization:** Translates paper processes into static electronic rules. It represents moving from a paper clipboard to an iPad (e.g., an electronic health record displaying a pre-programmed reminder to check a resident's skin every 48 hours). It follows static rules without learning.
- **Robotics:** Refers strictly to physical hardware, motors, and mechanical structures. A high-tech bed that automatically tilts a resident every two hours is a mechanical robot; it only becomes an AI system if it integrates predictive learning software.
- **Artificial Intelligence (AI):** Defined by its capacity to learn, adapt, and identify hidden patterns in massive unstructured datasets without explicit human programming. Illustrated by the **smart thermostat analogy**: a traditional thermostat reacts to a fixed temperature threshold (digitalization), whereas a smart thermostat learns routine habits and proactively adjusts ambient conditions before human intervention.

## 3. Validated Real-World Successes in Clinical Practice

While much of the market remains overhyped, the 2024 synthesis document confirms three distinct areas of genuine, evidence-based success:

- **Natural Language Processing (NLP) with CogStack:** In the UK, systems like CogStack analyze messy, unstructured clinical notes and doctor records, automatically structuring them into usable database entries. Clinical trials demonstrate a **40% to 60% reduction in documentation time** for nursing staff.
- **Passive Fall Monitoring:** Machine learning models evaluating gait patterns and room movement achieve validated sensitivity rates exceeding **85%** for early fall detection.
- **Therapeutic Companion Robotics (Paro):** Randomized controlled trials confirm that interacting with the therapeutic seal robot Paro significantly reduces agitation and loneliness in dementia patients, yielding measurable clinical reductions in the need for sedative medications.

## 4. The Research Evidence Gap and Algorithm Degradation

A critical analysis of published scientific literature reveals a massive disconnect between marketing promises and operational reality:

- **The 10% Real-World Gap:** Less than 10% of published AI publications in elder care evaluate actual real-world application in care homes. Over 90% reflect theoretical research conducted in sterile laboratory settings.
- **Zero Clinical Advantage:** Approximately 40% of predictive AI tools tested in clinical trials demonstrate zero measurable clinical advantage over standard human nursing care.
- **Data Blind Spot & Algorithm Degradation:** Individuals aged 85 and older are virtually absent from AI training datasets, which rely primarily on data from 50- to 60-year-olds. Consequently, algorithms experience severe accuracy degradation. For instance, while a 50-year-old with a urinary tract infection (UTI) presents with high fever and elevated white blood cells, an 89-year-old frail patient may show zero fever and present only with acute sudden confusion. A temperature-tracking algorithm completely misses the infection.

**Summary Table: Key Quantitative Findings from the English Podcast**

| Domain / Topic | Metric / Statistic | Clinical & Operational Impact |
|---|---|---|
| Global Labor Deficit | **17 Million Shortage** | Massive deficit in healthcare workers globally colliding with aging population trends. |
| German Care Projection | **5M to 8M by 2050** | Requires 600,000 additional nurses just to maintain current baseline care levels. |
| CogStack NLP Efficiency | **40% - 60% Time Saved** | Substantially reduces nursing paperwork burden, addressing root cause of staff burnout. |
| Published AI Literature | **< 10% Real World** | Over 90% of AI studies are confined to sterile labs; 40% show no clinical benefit in trials. |
| Multimorbidity Baseline | **85% of Seniors (>65)** | High clinical complexity requiring management of multiple interacting conditions. |

## 5. The 4D Risk Model and Ethical Dangers

To evaluate ethical risks, the synthesis utilizes the 2020 framework by Rubeis, identifying four distinct vectors of harm:

- **Depersonalization:** Standardization requirements flatten an 80-year human history of habits and preferences into a single statistical risk score, reducing a resident to a collection of vital signs.
- **Discrimination:** Algorithms trained on non-representative data penalize non-standard expressions of pain or distress (e.g., stoic silence in specific cultural backgrounds being misread as absence of pain).
- **Dehumanization:** Replacing human touch and check-ins with camera surveillance and automated pill dispensers causes the essential human element of caregiving to evaporate.
- **Disciplining (The Panopticon Effect):** Continuous 24/7 monitoring (optical sensors, bed pressure pads) enforces mathematical behavioral baselines. A resident pacing at 3:00 AM triggers anomaly alerts, prompting staff to enforce compliance simply to quiet the dashboard alarm.

## 6. Clinical Deskilling and Systemic Pressures

Institutional pressure and fear of professional reprimand create a severe risk of clinical **deskilling**. If a veteran nurse relies on intuition to override a green AI dashboard and turns out incorrect, she faces disciplinary action. Conversely, if she defers to the machine and a patient suffers, liability falls on the software vendor. Over time, alarm fatigue and systemic pressure condition caregivers to trust the screen over independent clinical judgment, causing diagnostic intuition to atrophy.

The synthesis establishes **Human in the Loop** as a non-negotiable ethical red line: AI models may recommend interventions, but human caregivers must retain full authority, understanding, and institutional backing to override algorithmic decisions.

## 7. Implementation Strategy: Everyday Utility and Co-Design

The primary reason sophisticated AI systems end up unplugged in supply closets is that facility managers treat deployment as an IT project rather than an organizational development process. Key operational requirements include:

- **Alltagstauglichkeit (Everyday Utility):** Technology must solve a specific, highly tangible friction point for nurses on a routine afternoon; flashy showroom demonstrations fail in chaotic environments.
- **Co-Design Methodology:** Nurses, care aides, and residents must be actively involved in selecting technology and redesigning workflows from day one.
- **Accounting for Hidden Costs:** Facilities chronically underestimate operational costs, including continuous data management, model re-training against algorithm degradation, Wi-Fi infrastructure upgrades, and ongoing training for high-turnover nursing staff.

## 8. The Core Strategic Question

The podcast concludes with a crucial unresolved question regarding efficiency gains from tools like CogStack: **Who ultimately keeps the saved time?** Will the 40% to 60% reduction in documentation time be returned to residents in the form of meaningful human connection and dignity, or will corporate management utilize the efficiency metrics to increase resident-to-caregiver ratios, leaving seniors just as isolated in frictionless, screen-dominated environments?

## Summary of the podcast “EU AI Act in Elderly Care”

# 1. Introduction, Objectives and Core Idea of the EU AI Act

**Host:** Welcome to our podcast for decision-makers in long-term care. Today we are discussing the EU AI Act (Regulation (EU) 2024/1689) – the world's first comprehensive legal framework regulating artificial intelligence.

**Expert:** The main objective of the regulation is to promote trustworthy, safe, and human-centric AI across the European Union while minimizing risks to fundamental rights, health, and safety.

**Host:** How does the regulation approach this? Are there blanket bans?

**Expert:** No, the EU AI Act follows a risk-based approach. AI systems are not regulated uniformly, but according to the level of risk they pose to individuals and society. The higher the risk, the stricter the regulatory requirements. Low- or minimal-risk applications retain ample room for innovation.

**Host:** How is AI defined under the AI Act?

**Expert:** AI is defined as the capability of machines to execute tasks autonomously based on algorithms, mimicking human problem-solving and decision-making capabilities.

# 2. Relevance of the EU AI Act for Long-Term Care

**Host:** Why is this legal framework so directly relevant to long-term care facilities?

**Expert:** Long-term care is a particularly sensitive application area because it directly affects vulnerable groups, including elderly individuals, care-dependent persons, and individuals with cognitive impairments.

**Host:** What AI systems are already being used in care facilities?

**Expert:** Applications range from care documentation and planning, risk assessment (e.g., fall risks), assistance and monitoring systems, to staff scheduling, voice assistants, and robotics.

**Expert:** Many of these applications influence decisions with direct impacts on health, safety, and human dignity. Therefore, the EU AI Act establishes mandatory minimum standards for quality, transparency, human oversight, and data security.

# 3. Risk Classes and Classification for Care Facilities

**Host:** Let's review the four risk classes defined by the EU AI Act. What qualifies as unacceptable risk?

**Expert:** 1. Unacceptable Risk: Systems posing a clear threat to fundamental rights are banned (e.g., manipulative systems, social scoring, or emotion recognition in sensitive contexts like workplaces). In care, any AI designed for behavioral manipulation is strictly prohibited.

2. High Risk: Systems with significant impacts on health, safety, or fundamental rights. In long-term care, this includes AI-assisted care classification, prioritization of care services, and safety-critical assistance systems.

**Host:** What requirements apply to high-risk AI systems?

**Expert:** Providers and operators must comply with strict rules: systematic risk management and quality management, high-quality non-discriminatory datasets, comprehensive technical documentation, transparency, human oversight, and high accuracy, robustness, and cybersecurity.

**Expert:** 3. Transparency Risk: Limited-risk systems such as chatbots or voice assistants require clear disclosure so users know they are interacting with an AI.

4. Minimal Risk: Administrative or logistical AI tools involving no personal data face no additional regulatory obligations.

## 4. Timeline, Compliance Deadlines, and GDPR Relationship

**Host:** What implementation deadlines must care executives keep in mind?

**Expert:** Adopted in 2024, the regulation enters into force in phases: February 2025 saw the ban on unacceptable risk systems. August 2025 brings rules for general-purpose AI models. August 2026 activates transparency obligations and initial high-risk rules, and August 2027 marks full application of high-risk requirements.

**Host:** How does the AI Act interface with the GDPR?

**Expert:** The AI Act complements the GDPR. While GDPR governs personal data protection, the AI Act focuses on the operation, safety, and systemic impacts of AI. Both legal frameworks interlock and must be satisfied concurrently.

## Takeaway for decision-makers in care facilities

The EU AI Act creates legal certainty and safeguards vulnerable individuals. Implementing transparent, secure AI under human oversight sustainably improves care quality and operational efficiency. Early risk assessment during technology procurement is essential.

# We wish you every success with your AI implementation!

Do you have any questions or comments?

Please feel free to contact University College Absalon and ask for the Care-AI project team.



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