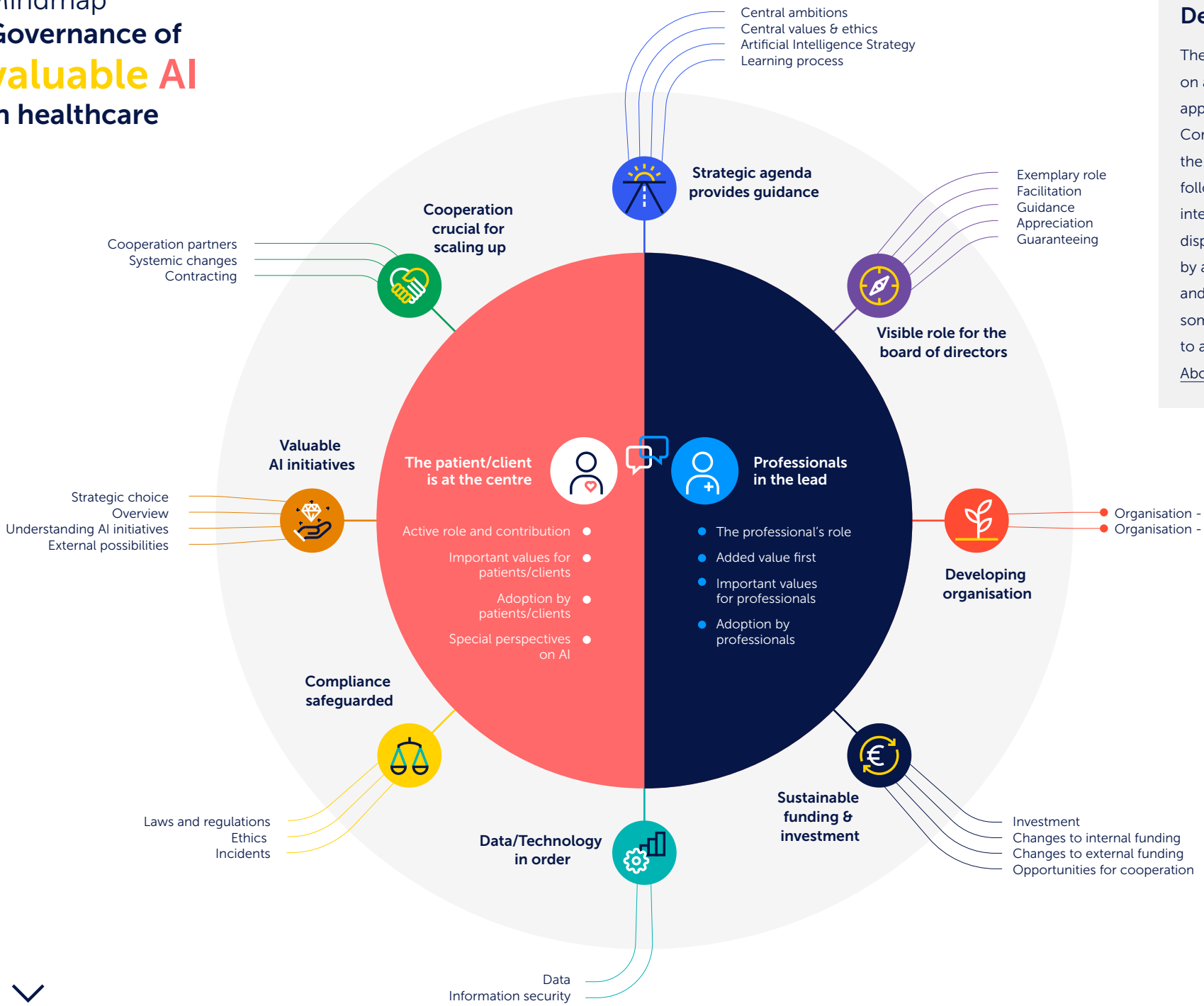
Mindmap

Governance of valuable AI in healthcare



Definition of AI

The High-level expert group on artificial intelligence – appointed by the European Committee and welcomed in the Netherlands – uses the following definition of artificial intelligence (AI): 'Systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals.'

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Introduction

If we translate the potential of AI into the actual value experienced by patients, healthcare providers and citizens, this has an enormous impact on the way healthcare is provided. It offers opportunities for the quality of our healthcare, but there are challenges as well. This potential is underscored by the possibilities for AI applications to support healthcare professionals with prevention, diagnostics, treatment or the fast and accurate evaluation of images, speech or text. Healthcare innovators observe that the successful innovation, efficient implementation and sustainable scale-up of AI in healthcare is possible only with board room support.

With **the advance of AI** in healthcare institutions, it is up to you as a board of directors to play an active role and to ensure that what is being developed and implemented fits the organisational structures and frameworks. This involves technological and organisational aspects, but especially legal and ethical aspects. To ensure quality healthcare provision and a good image, you want AI to be applied reliably and transparently both in client-facing settings and behind the scenes. This requires good internal governance of AI.

Directors can also play an important role in the cooperation between healthcare or other institutions, for instance in the development and realisation of AI, in sustainable funding structures and to achieve the broader social value of AI.

Make a start with this mind map
This mind map offers an overview of the main executive perspectives on AI in healthcare. We intend for it to stimulate and support you as a healthcare director in prioritising the development and application of valuable AI on the strategic agenda, and in making it an explicit part of the organisation's strategic course.

The mind map brings together ten important themes and suggests questions to help you as a healthcare director with the internal conversation about valuable AI. Use the mind map as:

1. a reference for your own reflection, exploration and grasp of the subject;
2. an agenda for external and internal coordination, agreements and cooperation;
3. building blocks for a strategic course aimed at valuable AI for your organisation.

Use the resources that are already available
This version of the mind map offers an overview at the board room level of things to pay attention to around AI, often formulated as questions. It also refers to other resources and best practices where relevant. These resources are:

- **Hulpmiddel handelingsruimte AI:** an integral framework for the development, implementation and scale-up of valuable AI in healthcare, with indications in each phase for requirements in five dimensions: added value, application, technology, accountability and ethics.
- **Leidraad AI:** a field standard for assessing the medical or other quality and effectiveness of predictive AI-guided algorithms for health and healthcare, written by and for a broad group of experts in the field.
- **Aanpak begeleidingsethiek:** methodology in which all stakeholders jointly explore concrete courses of action at the level of technology, environment and behaviour in order to enable the ethical use of AI in healthcare.

This mind map is not finished. We consider this tool to be a growth model that we as healthcare directors work on together. Hence, we call on fellow healthcare directors and other innovators to have more conversations about this and to contribute their questions, dilemmas and best practices around AI through the action team. Together, we will clarify what board roles and contributions regarding AI are desirable.

For now, we wish you the best of luck with the tool.

The action team on Governance of valuable AI in healthcare

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The patient/client is at the centre

Active role and contribution

Strategy: how are patients/clients being actively involved in our strategy and strategic goals for valuable AI?
Development: how are patients/clients actively contributing to the development of valuable AI?
Data sharing: how are patients/clients actively contributing by making their data available to enable valuable AI?
Application: how are patients/clients actively contributing and what is their role in the use of AI in their own treatment?

Important values for patients/clients

Trust: how do we increase and safeguard the trust that patients/clients have in the use of AI in our healthcare provision?
Responsibility: how do we strengthen and safeguard our responsibility towards patients/clients in using AI in our healthcare provision?
Inclusiveness: how do we guarantee the inclusiveness of our healthcare provision and preventing the exclusion of individual or groups of patients/clients from the use of valuable AI in our healthcare provision?
Autonomy: how do we increase and guarantee the autonomy, shared decision-making and freedom of choice of patients/clients in the use of AI in our healthcare provision?

Adoption by patients/clients

Awareness: how do we stimulate the awareness of patients/clients of the opportunities and conditions of the use of AI in our healthcare provision?
Knowledge: how do we ensure that patients/clients have the right level of knowledge about AI as we implement it in our healthcare provision?
Skills: how do we strengthen and safeguard the digital skills of all patients/clients in order to implement AI in our healthcare provision in a valuable way?
Distribution of roles: how do we make agreements about the distribution of roles between patients/clients on the one hand and professionals on the other and about whether or not patients/clients will interpret and apply AI independently?
Home environment: how do we make agreements about the home environment of the patient/client in order to enable the valuable implementation of AI in treatments?

Special perspectives on AI

Healthcare at a distance: how do we guarantee the safe and person-centred use of AI in treatments in the home environment?
Positive health: how do we ensure that AI contributes to positive health in a valuable way?
Prevention: how do we ensure that AI contributes to disease prevention in a valuable way?
Network: how do we involve relatives and friends of patients/clients in the use of AI?

Available tools:

Leidraad AI – Chapter 6
Aanpak Begeleidingsethiek

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Professionals in the lead

The professional's role

Cooperation between professionals & IT: how do we ensure that our professionals are expressly involved partners in the development of AI and that they always remain in the lead when it comes to using AI?

Added value first

Quality of work: how do we ensure that AI improves the quality of our healthcare provision and our activities?
Innovation of work: how do we ensure that the implementation of AI is not a subsidiary activity but instead replaces the current modus operandi?
Efficiency of work: how do we ensure that AI improves the efficiency of our healthcare provision and our activities?
Regulatory pressure: how do we prevent the implementation of AI in our healthcare provision from increasing the regulatory pressure on our professionals?

Important values for professionals

Trust: how do we increase and safeguard the trust of our professionals in the use of AI in their job?
Professionalism: how do we increase and safeguard the professionalism of our professionals as they use AI in their job?
Autonomy: how do we increase and safeguard the autonomy of our professionals as they use AI in their job?

Adoption by professionals

Awareness: how do we stimulate professionals' awareness of the opportunities and conditions of the use of AI in our healthcare provision?
Knowledge: how do we ensure that professionals have the right level of knowledge about AI as we implement it in our healthcare provision?
Skills: how do we strengthen and safeguard the digital skills of professionals in order to implement AI in a valuable way?
Distribution of roles: how do we guarantee that the distribution of roles between professionals and AI is clear and safeguarded at all times?
Work environment & guidance: how do we guarantee a work environment and guidance that will enable the valuable implementation of AI in our healthcare provision?

Available tools:

Leidraad AI – Chapter 6

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Strategic agenda provides guidance

Central ambitions

Short and long term: what are our short-term and long-term ambitions as a healthcare organisation?

Central values & ethics

Important values: what are our most important values as a healthcare organisation?
Ethical considerations: what are our ethical considerations as we stimulate and implement AI in our organisation?

Artificial Intelligence Strategy

Contribution of AI: in what areas can AI support us in implementing our strategy?
Integral component: are digitalisation, social and other innovation and AI integral components of our strategic course?

Learning process

Learning curve: what does our organisation's learning curve regarding AI look like?

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Visible role for the board of directors

Exemplary role

Tone of the Top: how do we as board of directors make the importance of AI clear to the organisation?
Formulating the importance of AI: can we as board of directors adequately formulate the importance of valuable AI and our strategic course for AI, both internally and externally?

Facilitation

Facilitation: how do we enable the development and use of AI in our organisation?
Enablers & challengers: what are the main enablers and challengers for the development and use of AI in our organisation?

Guidance

Guidance: how do we allocate and reallocate resources to enable the development and use of AI?

Appreciation

Appreciation: how do we appreciate the development and use of valuable and safe AI in our organisation?

Guaranteeing

Guaranteeing: how do we guarantee the development and use of valuable and safe AI in our organisation?

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Valuable AI initiatives

Strategic choice

In-house development or purchase: do we as an organisation consciously opt for in-house development of AI or for purchasing existing solutions?

Overview

Overview: do we have a complete and current overview of all AI initiatives in our healthcare organisation?

Understanding AI initiatives

Impact: how does the AI application contribute to our strategic goals?
Stakeholders: which stakeholders are involved in the development and use of the AI application?
Patient/client role: what is the role of the patient/client in the development and implementation of this AI application?
Professionals' role: what is the role of the professional in the development and implementation of this AI application?
Business case: what is the business case for the AI application?
Technical implementation: how are the technical availability and reliability of the AI solution guaranteed?
Alternative working methods: how has the AI application become an efficient, effective and valuable part of the working method of professionals?
Ethics: how have all ethical considerations and dilemmas around this application been identified, considered and safeguarded?
Laws and regulations: what laws and regulations safeguard the legal implications and conditions around the AI application?

External possibilities

Technological opportunities: do we have an overview of the possibilities (new technology or proven applications) of AI outside of our organisation?
Scale: how are we setting up partnerships to develop, implement and scale up AI together?

Available tools:

Hulpmiddel Handelingsruimte AI
Leidraad AI – Chapters 2,3,4 and 5
Health Technology Assesment AI

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Laws and regulations

Tasks and norms: how are all legal tasks and norms around AI safeguarded in our organisation?

Ethics

Ethical considerations: how do we as an organisation safeguard ethical considerations and questions regarding valuable AI?

Incidents

Incidents: have we as an organisation considered the procedure to follow in case of AI incidents?

Available tools:

Hulpmiddel Handelingsruimte AI
MDR Guide for medical Software (FME)
Leidraad AI – Chapter 1
Handreiking AI in de zorg (Ter Meersch)

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Organisation – hard side

Process: do we have a clear process (read the scope tool) with which to guide the development and use of AI applications in our organisation? (see the link below)
Roles and responsibilities: do we have a clear distribution of roles and responsibilities around the development and use of AI in our organisation?
Expertise and capacity: do we have sufficient capacity (FTEs) and expertise to enable the development and/or use of valuable AI?

Organisation – soft side

Culture and language: how does our organisation think (expectations and implications), talk and act regarding the possibilities of AI?
Awareness: how are we raising awareness among our professionals of the opportunities, preconditions and challenges around the application of valuable AI in our healthcare provision?
Equipment: how do we ensure that our organisation and professionals are ready for the actual implementation of AI?
Multidisciplinary cooperation: how do we stimulate multidisciplinary cooperation to develop AI?
Simplicity: how do we discontinue processes/structures that obstruct the implementation of AI?
Social innovation: how do we facilitate social innovation (such as new roles and types of cooperation) that enables the valuable implementation of AI?

Available tools:

Leidraad AI – Chapter 6
Hulpmiddel Handelingsruimte AI

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Cooperation partners

Support: which partners do we need to create support for the development and use of AI?
Funding: which partners do we need to enable funding and shared savings for the benefit of AI?
Knowledge: which technological and knowledge partners do we need to enable the development of AI?
Scaling up: which partners do we need to enable the successful scale-up of AI?
Existing suppliers: how do we ensure the inclusion of existing suppliers in the movement we want to create for the benefit of AI?

Systemic changes

Blockages and changes: how do we address obstacles/blockages and necessary systemic changes at or with external partners?

Contracting

Contracting: which arrangements are in place for contracts with cooperation partners?

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Data

Quality: how do we guarantee the quality of data in our organisation?
Reliability: how do we guarantee the reliability of data in our organisation?
Safety: how do we guarantee the safety of data in our organisation?
Availability: how do we guarantee the availability of data in our organisation?
Bias and discrimination: how do we guarantee that bias and discrimination in the data are ruled out in our organisation?

Information security

Aware and competent: to what extent are all of our professionals at all levels of our organisation aware of and competent with regard to the security (including behaviour) of knowledge, information and data?

Technical preconditions

Technical preconditions: how do we guarantee the technical preconditions for the implementation and use of AI in our organisation?

Available tools:

Leidraad AI – Chapter 1

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Investment

Investments: how do we enable investments in the development and use of valuable AI?
Funding costs and benefits: where do the costs/benefits of the development/use of AI occur?
Long term: how do we make the sustainable use of AI financially viable?
Sustainable agreements: what sustainable agreements have we made with funders such as health insurers, investors and start-ups?

Changes to internal funding

Internal: which changes to internal funding agreements (e.g., allocation models of medical specialist companies) are necessary to enable the successful implementation of AI?

Changes to external funding

External: which changes to external funding and associated agreements (e.g., with health insurers and the Dutch Healthcare Authority (NZA)) are necessary to enable the successful implementation of AI?

Opportunities for cooperation

Cooperation: how and with whom can we work together to fund the development and use of valuable AI?

Available tools:

Health Technology Assesment AI

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This resource was developed by the action team on Governance of valuable AI in healthcare, part of the Valuable AI for Health programme of the Ministry of Health, Welfare and Sport. It is a first step towards active dialogue and cooperation between healthcare directors regarding the governance of valuable AI in health and healthcare.

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