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# AI Governance Model for a Learning Company

## Improving the Governance of AI through a Framework and Roadmap for Improvement

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This has been an enjoyable thesis experience examining an interesting topic of AI governance as part of my Metropolia degree programme studies; involving my lecturers, fellow students, professional colleagues, friends and family.

Since this thesis has been quite a journey, I am especially grateful and acknowledge several people who have contributed to this completion.

First, my case company supervisor and organisational manager for their direct interest and support for this work.

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# Abstract


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The thesis objective was to improve the governance of AI for the case company, which is a leading provider of learning methods and material throughout Europe. The case company was interested to explore the emerging domain of AI regulation and the best way to govern, which was an important topic complementing steps being taken by the case company to explore its ambitions with AI technologies

The thesis study was conducted using applied action research conducted through five main steps; setting the thesis objective, exploring available knowledge and best practice, conducting the current state analysis, building an initial proposal, and then validating and finalising the proposal. The data collection included internal documents, interviews and discussions with the key stakeholders.

The outcome of the thesis is the governance model proposed end-2024 including a roadmap for improvement based on the current state assessment and observations obtained from the initial proposal building step. The case company appreciated the thesis outcomes, including work of mapping current processes, providing an updated view of how to best implement the governance framework, as well as identifying areas of improvement for existing processes. As a result, the case company is taking steps to embed updated governance process as explored through this thesis work.



Keywords: AI Governance, Governance of AI, AI Act, Artificial Intelligence, Analytics, Operational governance of AI, Governance model

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# 1 Introduction

Artificial intelligence and, in particular, generative AI has received immense focus following the release of Chat GPT and other solutions late 2022. The case company in focus for this thesis during 2024, is an example of a learning company adopting artificial intelligence to improve operations, products and services in the K12 learning market.

As contextual background, the case company faced the (then) upcoming requirements of AI regulation. At the commencement of this thesis work in December 2023, the European Parliament had been developing and finalising legislative steps to regulate the use of AI. And during 2024, while this thesis was underway, regulation was enacted and became operational.

Hence, the case company was faced with the environmental considerations emerging for regulation and requirements of AI. Consequently, the objective of this thesis was to improve the governance of AI in the case company.

## 1.1 Business Context

The case company is a leading provider in the K12 education market within Europe, operating in 12 countries. It provides blended learning solutions to teachers and students along with learning management systems to schools.

## 1.2 Business Challenge, Objective and Outcome

The case company is taking steps to adopt artificial intelligence to enhance its operations to deliver customer value through improved products and services. The adoption includes objectives to improve analytics and develop products and services with increased personalization.

The provision of products and services for the customers and segments by the case company include: (a) Blended learning solutions for students, (b) Learning management systems for teachers and students, and (c) School management systems for school administrators.

At the commencement of this thesis work end-2023, activities were underway to deliver an ambitious digital transformation and technology modernisation programme within the organisation; for example, including optimisation of activities and harmonisation of its digital learning platform.

As a member of a stock exchange listed group, the case company operates within the publicly stated policy (and targets) set towards environmental sustainability and corporate governance, and is a signatory to the UN Global Compact, which includes goals directed towards inclusive learning and trustworthy data.

Throughout this thesis period, the European Union was considering then obtained political agreement for a proposal to regulate artificial intelligence which is expected to have direct application to the case company.

The AI Act, which is referenced throughout this thesis, was initially proposed in 2021 and took over three years in parliamentary process to be agreed on 14 March 2024. The regulation was published in the Official Journal on 13 June 2024 and became operative 2 August 2024.

Against this background, the objective is to develop *an AI governance framework for the learning company*. The planned outcome is to develop *an AI governance framework for the learning company,* although this was eventually refined towards a definitional model for AI governance and improvement requirements.

## 1.3 Thesis Outline

This thesis has been undertaken through applied action research. It is written in seven sections. Section 1 (this section) describes the introduction and background to the thesis and company. Section 2 briefly describes the method used, which is applied action research. Section 3 describes the research undertaken to identify best practice knowledge and key components for a definitional model of AI governance. Section 4 reports on the results of the current state analysis. Section 5 outlines the initial proposal of the model to improve AI governance in the case company, built from an initial research draft. Section 6 describes a finalised proposal based on validation from stakeholder input. Section 7 provides concluding remarks.

## 1.4 Key Concepts

**AI** means artificial intelligence. See also AI system.

**AI Act** means Regulation (EU) 2024/1689, being the European Parliament regulation enacted 13 June 2024 to regulate artificial intelligence systems.

**AI Governance** means a system of rules, practices, processes, and technological tools that are employed to ensure an organization's use of AI technologies aligns with the organization's strategies, objectives, and values; fulfils legal requirements; and meets principles of ethical AI followed by the organization.

**AI system** means a machine-based system designed to operate with varying levels of autonomy, that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. This meaning has been taken from the AI Act.

**Artificial Intelligence** means AI (included in this section). See also AI system.

**Draft AI Act** means the legislative drafts (and related work commencing from 2021) leading up to the regulation referred to as the **AI Act**.

**GDPR** means the General Data Protection Regulation, as described in Regulation (EU) 2016/679.

**Governance** means the process of making and enforcing decisions within an organization or society. It encompasses decision-making, rule-setting, and enforcement mechanisms to guide the functioning of an organization or society.

# 2 Method and Material

This section describes the research approach, research design, and data collection and analysis methods used. The first section covers the research approaches that can be used, the second section describes the research design and, lastly, the third section outlines the data collection and analysis used.

## 2.1 Research Approach

There are several approaches or methods that can be taken to research which, according to Saunders, Thornhill, and Lewis (2019) is a process undertaken in a systematic way with a clear purpose to find things out. Saunders et al. describe a continuum for basic research and applied research, using a table to describe their differences (2019, figure 1.1). Two definitions can be drawn from this work.

Firstly, basic research:

> is undertaken to understand the process of business and management and their outcomes, which results in universal principles linking the process to its relationship and outcomes… [with] findings of significance and value to society in general.

Secondly, and in comparison, applied research is to:

> improve understanding of a specific business or management problem, results in solution to problem, [generating] new knowledge limited to the problem, [with] findings of practical relevance and value to manager(s) and organisation(s).

A narrow definition for quantitative research is that it typically involves numeric data analysis methods, while qualitative research is non-numerical. One way to understand quantitative research is that it examines relationships between variables using statistical methods. On the other hand, qualitative research can be understood to study participants meanings and relationships to develop a conceptual framework and theoretical contribution (Saunders et al. 2019). There is also a mixed research approach that uses a combination of the two.

In carrying out research, primary data is collected through the means of a field study, while secondary data is collected via a desk study. Typically, primary data is collected to

solve the researchers' problem and secondary data for other reasons (Saunders et al. 2019).

Various research approaches and methods are outlined by Kananen (2013) reproduced in Table 1 below.

Table 1. Classification of different research approaches and methods including their characteristics

| Factor | Research approaches | | Researches with multiple approaches / strategies | | |
|---|---|---|---|---|---|
| | Qualitative research | Quantitative research | Case research | Design research | Action research |
| Relationship between theory and practice | Induction or from practice to theory | Deduction or from theory to practice | Abduction | Abduction | Abduction or interaction between theory and practice |
| Purpose of research | Understanding | Generalisation / Prediction | Understanding | Change | Intervention / Change |
| Researcher's role | External participant | External observer | External participant | External participant | Active actor |
| Research questions | Open questions / Theme interview | Structured questions | Mainly open questions | Mainly open questions | Mainly open questions |
| Responses | Text descriptive | Numbers quantitative | Open | Open | Open |

As seen from Table 1 above, there are various research approaches which includes case research, design research and action research (Kananen, 2013, p.29). The active role of the researcher is important to note in action research, as contrasted with the external participant or observer role used in other types for external research.

Referring directly to the active role of researcher, "in design and action research the researcher has a central role in organising a change" (Kananen, 2013, p.29). In the applied action research, there is phenomenon, process or situation that one wants to be improved after development of change (Kananen, 2013, p.13). Hence, applied action research is a form of intervention whereby the researcher will also participate in the change process. And to focus more on action research: it always has a practical element to bring about change and will also involve a research element; the target of action

research is all levels of the business; and it is nearly always targeted at people and their activities. (Kananen, 2013, pp. 40-41)

For this thesis, it is considered that applied action research is a relevant approach to the case company in focus, mainly because it is experiencing the phenomena which is the subject of study: AI governance requirements arising from regulation.

## 2.2 Research Design

The study was conducted as illustrated in Figure 1 below.

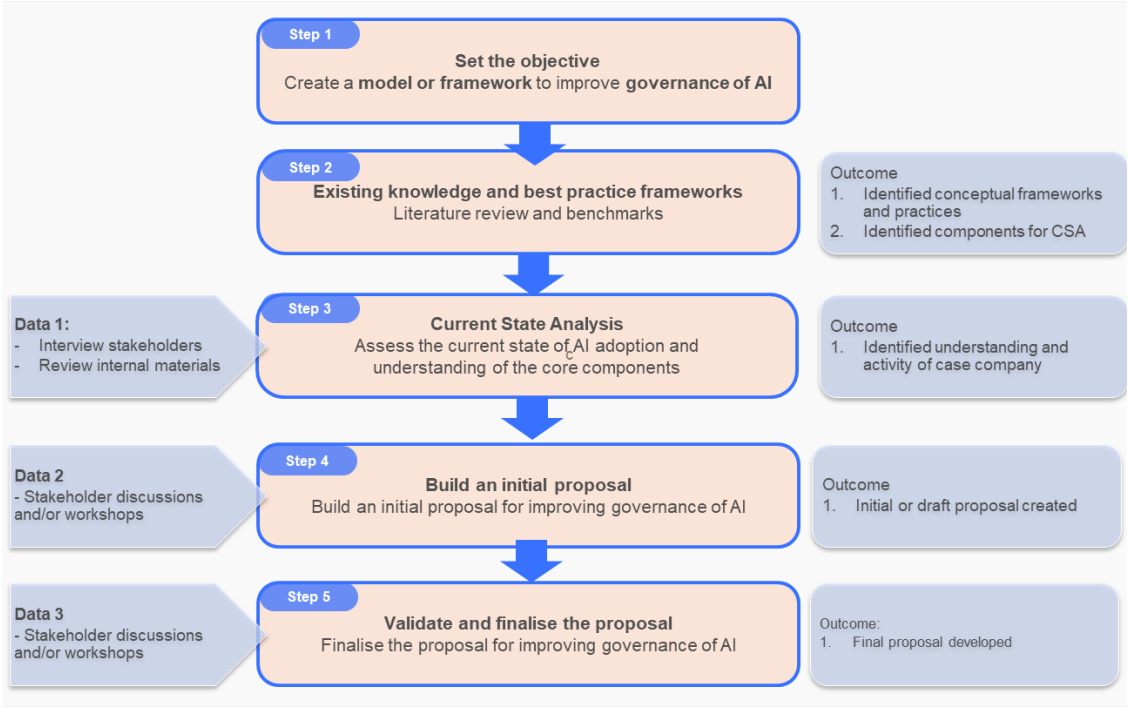


Figure 1. Applied action research design plan (updated)

As shown in Figure 1 above, the design plan involves five steps (or phases). The first step involves setting the objective. The second step involves reviewing existing external research and literature on AI governance. This step is taken for two reasons: firstly, to inform the researcher on conceptual frameworks and their components; and secondly, to better inform the themes and concepts to be the focus of the current state analysis (step 3).

Step 4 involves developing an initial proposal, which starts with the researchers' initial thinking built from conceptual framework analysis (step 2) and current state analysis (step 3). The researcher's first draft proposal will be refined following internal discussions (Data 2) with various stakeholders.

Step 5 involved validating and finalising the proposal. This is done by presenting the proposal to key stakeholders and obtaining their feedback (Data 3). The outcome is a proposal to improve AI governance for the case company.

Originally, the research design included a plan to trial or pilot the proposal in use for an agreed period. The passage of time taken for the research and other organisational internal projects necessitated a change; the opportunity arose to present this work as input towards an internally focussed enterprise review regarding the organisational review of data and analytics.

## 2.3 Data Collection and Analysis

Table 2 below shows details of Data collections 1-3 used in this study.

Table 2. Details of Data collection sets 1-3 used in this study

| **Person** | **Role** | **Date** | **Data type** | **Topic/Description** | **Record as** |
|---|---|---|---|---|---|
| Data 1, the Current State Analysis | | | | | |
| Person 01 | Chief Technology Officer | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Person 02 | Manager | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Person 03 | Managing Director | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Person 04 | Chief Information Officer | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Person 05 | Chief Product Officer | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Person 06 | Platform Director | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |

| | | | | | |
|---|---|---|---|---|---|
| Person 07 | Head of Intelligent Automation | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Person 08 | Head of User Research and Data Engineering | 2024-04 | Interview. | AI adoption, Governance, AI Act | Transcript. |
| Data 2, the Building of the Proposal | | | | | |
| Person 09 | Director Privacy & Compliance | 2024-05 | Meeting. | Proposal (July) pack. | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-07 | Meeting, workshop. | Proposal (July) pack. | Transcript. |
| Person 10 | Chief Legal Officer | 2024-07 | Meeting, workshop. | Proposal (July) pack. | Transcript. |
| Person 05 | Chief Product Officer | 2024-07 | Meeting. | Proposal (July) pack. | Field notes. |
| Person 11 | Head of Digital Compliance | 2024-07 | Meeting. | Proposal (July) pack. | Field notes. |
| Person 08 | Head of User Research and Data Engineering | 2024-09 | Meeting. | Proposal (July) pack. | Field notes. |
| Person 08 | Head of User Research and Data Engineering | 2024-09 | Meeting. | Proposal (Sep) pack. | Field notes. |
| Person 05 | Chief Product Officer | 2024-09 | Meeting, workshop. | Proposal (Sep) pack. | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-09 | Meeting, workshop. | Proposal (Sep) pack. | Field notes. |
| Person 13 | VP Legal | 2024-09 | Meeting, workshop. | Proposal (Sep) pack. | Field notes. |
| Person 14 | Chief Security Officer | 2024-09 | Meeting, workshop. | Proposal (Sep) pack. | Field notes. |
| Person 11 | Head of Digital Compliance | 2024-09 | Meeting, workshop. | Proposal (Sep) pack. | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-10 | Meeting. | Proposal next steps. | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-10 | Meeting. | Proposal next steps. | Field notes. |

| | | | | | |
|---|---|---|---|---|---|
| Person 05 | Chief Product Officer | 2024-11 | Meeting. | Proposal review and co-create | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-11 | Meeting. | Proposal review and co-create | Field notes. |
| Person 05 | Director Privacy & Compliance | 2024-11 | Meeting. | Proposal review and co-create | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-11 | Meeting. | Proposal review and co-create | Field notes. |
| Data 3, the Validation of the Proposal | | | | | |
| Person 08 | Head of User Research and Data Engineering | 2024-12 | Meeting. | Group | Field notes. |
| Person 09 | Director Privacy & Compliance | 2024-12 | Meeting. | Group | Field notes. |
| Person 11 | Head of Digital Compliance | 2024-12 | Meeting. | Group | Field notes. |
| Person 12 | Platform Product Director | 2024-12 | Meeting. | Group | Field notes. |
| Person 13 | Privacy Manager | 2024-12 | Meeting. | Group | Field notes. |
| Person 14 | Privacy Specialist | 2024-12 | Meeting. | Group | Field notes. |
| Person 15 | Information Security Officer | 2024-12 | Meeting. | Group | Field notes. |
| Person 16 | Compliance & Quality Manager | 2024-12 | Meeting. | Group | Field notes. |
| Person 17 | Privacy Officer | 2024-12 | Meeting. | Group | Field notes. |
| Person 18 | Chief Information Security Officer | 2024-12 | Meeting. | Group | Field notes. |
| Person 19 | Business Technology (Privacy Lead) | 2024-12 | Meeting. | Group | Field notes. |
| Person 20 | Procurement Category Manager | 2024-12 | Meeting. | Group | Field notes. |

| | | | | | |
|---|---|---|---|---|---|
| Person 08 | Head of User Research and Data Engineering | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 12 | Platform Product Director | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 20 | Procurement Category Manager | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 05 | Chief Product Officer | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 15 | Information Security Officer | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 20 | Procurement Category Manager | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 21 | Privacy Project Manager | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 22 | Head of Regional Procurement | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 19 | Business Technology (Privacy Lead) | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 05 | Chief Product Officer | 2024-12 | Feedback. | Proposal validation | Field notes. |
| Person 23 | Chief Procurement Officer | 2024-12 | Feedback. | Proposal validation | Field notes. |

As seen from Table 2 above, data was collected in three rounds. The duration for data collection varied, typically up to maximum 1 hour: Data 1 interviews were 60 minutes. Data 2 and Data 3 discussions were between 30-60 mins.

The first round (Data 1) involved interviews of persons for the current state analysis. Individuals were invited to participate and those who agreed to participate within the timeframe for Data collection 1 were interviewed for their perceptions.

The second and third rounds (Data 2 and Data 3) involved discussions and development with stakeholders from various areas: Technology, User research, Legal, Privacy, Compliance, Business, Analytics, Security, Procurement.

Table 3 below provides details of documents reviewed as part of Data collection 1 used in this study.

Table 3. Internal documents reviewed in the current state analysis, Data 1

| # | Name of document / material | Topic / content | Description |
|---|---|---|---|
| 1 | Data privacy security and privacy by design | Privacy & Security by Design process improvements.<br>(see appendix) | Internal audit (2024), Review the management of and adherence to the Security and Privacy by design practices |
| 3 | IT Governance Audit | IT related improvements.<br>(see appendix) | Internal audit (2022), Review the practices around IT Governance within the Group. |
| 4 | Case company intranet | Various | Internal pages related to:<br>- AI Information Hub<br>- Policies, Standards and guidelines<br>- Compliance<br>- Privacy<br>- Procurement<br>- Information Security |
| 5 | Case company confluence | Various | Developer and technology based information available for products and services |
| | AI Information Hub | Various | Internal pages related to:<br>- case company and AI related |
| | Policies, Standards, Charter and guidelines | Various<br>(see appendix) | Corporate governance, standards, policies and guidelines on topics such as:<br>- Information Security,<br>- Code of Conduct,<br>- Corporate Governance Framework,<br>- Charter,<br>- Privacy & Compliance,<br>- Treasury & Taxation,<br>- Incident Management,<br>- Entertainment,<br>- Technology, |

| | | | |
|---|---|---|---|
| | | | - Communications,<br>- Procurement |
| | Compliance & Privacy | Various | Corporate requirements for compliance and privacy |

As seen from Table 3 above, the documents examined included topics related and potential areas of relevance to AI governance; in particular functional areas of IT, legal, compliance, privacy, along with operational aspects such as forums and product development. Some material has been listed more expansively in appendixes.

# 3 Available Knowledge and Best Practice on AI Governance

This section discusses the external research and available knowledge relating to AI governance. Prior to undertaking this thesis, and from the researcher's own personal experience, it was hypothesized that there is no one universally accepted definition for AI governance, nor AI. This position was the starting point for further research through literature review. In short, the researcher considered the following proposition and focus question for this work: Could we comfortably combine the well-understood concept of 'governance' with the newer understanding and function of 'AI'?

## 3.1 Introduction to the AI Topic

One starting point is typically the privacy perspective given the connection to 'fundamental human rights' and 'data', such as regulated by the General Data Protection Regulation (see Regulation (EU) 2016/679). The International Association of Privacy Professionals (IAPP) and OneTrust are sources for information that comment from this perspective.

In the 2023 work titled 'Privacy and AI governance report', the International Association of Privacy Professionals (IAPP) references towards standard AI guidelines and country frameworks as the basis for developing an in-house approach to AI governance (2023, p.13). IAPP asserts the key elements of responsible AI governance process involves three elements (2023, p.18): Office for responsible AI, being a corporate function to define standards, requirements, processes and execution of responsible AI; Initial assessment of AI projects, being the method of business units to examine their AI deployment project; Ethics board impact, being a review board assessing the pros and cons of the AI deployment project against the guidelines (technology, project, best practices) already developed

In the OneTrust (2023) report, a privacy assessment tool provider offers their approach to build an AI governance program; in the absence (at that time) of legislation, building a bespoke governance programme would be based on available frameworks, sectoral laws and proposed regulations (such as the EU AI Act) (2023, p.4).

Some key elements identified from OneTrust (2023) include: Establishing a diverse AI governance team to oversee the organisation AI systems from top-down and bottom-up

(2023, p.4); Training this team in responsible AI and include in this data governance (2023, p.5); Implementing accountability across the AI lifecycle throughout the organisation, through auditable policy, procedures and practice (2023, p.10).

Other similar material can be found directed towards building a governance programme; for example, another IAPP (2023) report titled “Professionalising organizational AI governance”, which outlines their research of organisations who have relied upon various governmental frameworks; US NIST AI Risk Management Framework, OECD Framework for the Classification of AI systems, Australia’s AI Ethics Framework, Japan’s Governance guidelines for the Practice of AI principles, Singapore’s AI verify model.

What struck the researcher is three things. First, there was not always a formal definition of AI governance. Nor was there consistency of same. Oftentimes the material seemed to assume that AI governance, as a phrase, is a known and defined item.

Second, the target of discussion was sometimes, but not always, an organizational context. That is, an enterprise in business. This was notable since the thesis work involved a case company focus and the researcher assumed that more material supporting enterprise and business related application existed in this domain. Oftentimes, however, much material focused upon government framework, or strategy, for utilizing AI in order to progress towards the future..

Thirdly, the approach to governance was typically the call to principles or guiding statements but not the implementable method or activities. That is, the aspirational direction was named but the practical steps to take were not always called out.

Hence, steps were taken to revisit the above materials with stronger focus on organizational application and implementation. This is discussed further below.

### 3.1.1 Governance

The concept of governance can be found in ISO 37000:2021, published in *Governance of organizations – Guidance* by the International Organisation for Standardisation (2021, p.1), with two interacting terms:

> *governance of organizations:* human-based system by which an organization is directed, overseen and held accountable for achieving its defined purpose,
>
> *organizational governance framework*: strategies, governance policies decision-making structures and accountabilities through which the organization's governance arrangements operate (ISO, 2021, p.1)

### 3.1.2 Artificial intelligence

For artificial intelligence or AI there are also similar and different definitions. One definition from the United States is found in NIST AI 100-1, published in *Artificial Intelligence Risk Management Framework* by National Institute of Standards and Technology (2023):

> AI system as an engineered or machine-based system that can, for a given set of objectives, generate outputs such as predictions, recommendations, or decisions influencing real or virtual environments. AI systems are designed to operate with varying levels of autonomy (NIST, 2023, p.1)

Another definition, originating from the European region and the OECD (2022) when classifying AI Systems:

> An AI systems is a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments. AI systems are designed to operate with varying levels of autonomy. (OECD, 2022)

For the purposes of this thesis, the AI Act definition under consideration by the European Parliament (starting May 2023) and ultimately adopted by the European Parliament and Council (2024) in the AI Act is used:

> AI system means a machine-based system designed to operate with varying levels of autonomy, that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. (European Parliament and Council, 2024)

## 3.2 AI governance

Further, given the AI Act progressing, it is important to review contextual materials related to the development of the AI Act. For example, drafts of the AI Act by the European Commission (2021), official commentary from the European Parliament (2023) on the proposal for the AI Act; European Commission (2021) Ethical guidelines for

trustworthy AI; and other public material from commentators such as the High Level Expert Group on Artificial Intelligence (2020).

### 3.2.1 Overview: Where is the definition of AI governance?

Birkstedt et al. (2023) demonstrates that AI governance is variously described but not well defined for operational implementation. The systematic literature review by Birkstedt et al. found only limited or no definition for AI governance, typically coupled with a focus on public policy, applied ethics and AI value (2023, p141). The authors were instrumental in confirming that oftentimes governance was directed to society or broader themes of social value or government imperative (2023, p 141.). Birkstedt et al. (2023, Table 3) highlight several examples:

> AI governance can be characterized as a variety of tools, solutions, and levers that influence AI development and applications. Some examples include: promoting norms, ethics and value frameworks (which may take the form of self-regulation from leading tech companies choosing to work on specific projects or not); researching the effects, implications and possible solutions to AI use raising awareness for stakeholders; building technical solutions that ideal with certain issues raised by AI technology (such as algorithm interpretability and explainability, which is the ability to precisely understand how an algorithm as made its decision); and implementing legislative measures and establishing formal regulatory bodies that have jurisdiction to govern AI-related technologies and fields. (2023, p. 144)

In effect, what was typically in focus for the research was commentary aimed towards the ‘public good’ for and in the use of AI, ‘societal’ best-practice or ‘must-not-do’ red-lines, government and country-level pleas for regulation and focus. It seems to be a focus on the ‘what’ to include in AI governance or ‘what’ to aim for as a north start destination.

Robles and Mallinson (2023) undertake a systematic review of AI governance frameworks from perspectives of government and private. They identify similarity of thought in the literature, such as “policy to govern technology, acceptance by most actors, and risk mitigation” (2023, p. 359). The authors note further differences in the methods to achieve this: one, targeting regulation and procedures such as performance measures, digital infrastructure governance, context and culture, and ethics; and two, targeting risk management (2023, p. 359). And in looking towards international context, the authors reference the EU AI governance framework emerging through the AI Act, as well as the more flexible US approach to open standards. In the end, they propose elements to include in AI governance framework such as accountability, transparency,

policy learning, privacy and data protection, civil rights, non-discrimination, fairness and safety. (2023, p. 364).

Camilleri (2023) follows a similar path to fill the gap in AI governance frameworks that provide outcome-based and process base guidelines for AI actors (2023, p. 2). In his view, 'artificial intelligence governance' or 'AI governance' integrates the notions of 'AI' and 'corporate governance' (2023, p.6). This is consistent with the researcher's own view. Camilleri proceeds with a literature review and, in the end, proposes an AI governance framework outlined in the Figure 2 below to promote accountable, transparent, explainable interpretable reproducible, fair, inclusive and secure AI solutions (2023, p. 2):

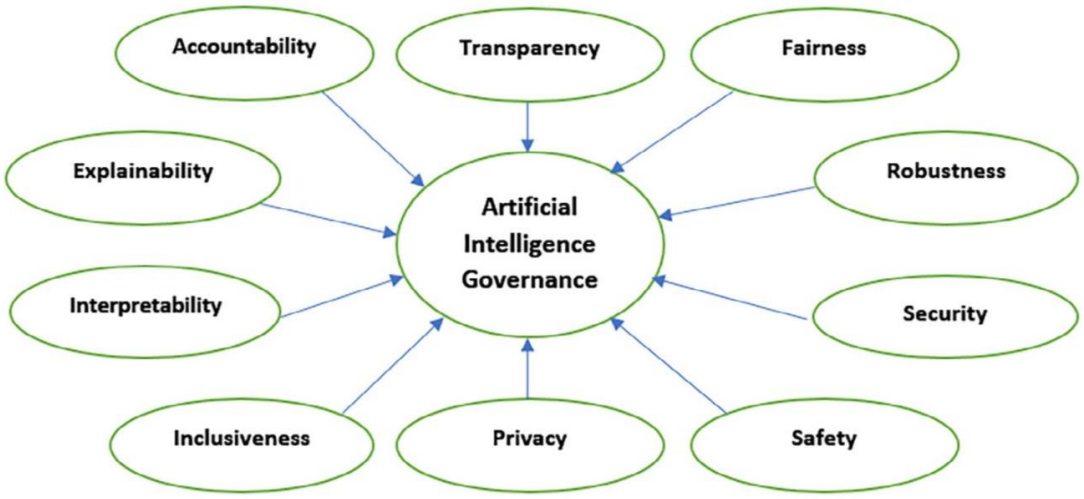


Figure 2. An example of a responsible artificial intelligence governance framework by Camilleri (2023)

As shown from Figure 2 above, a detailed level of elements are recommended for inclusion in an AI governance conceptual model for practitioners, which are ingredients or 'what' at an operational or tactical level.

### 3.2.2 A definition of AI governance found

Camilleri (2023) combines 'AI' with 'corporate governance'; describing the pathway in the direction of formal rules and voluntary principles intended to guide practitioners in

their research, development and maintenance of AI systems (2023, p.6). However, Mäntymäki et al. (2022) define AI governance as follows:

> AI governance is a system of rules, practices, processes, and technological tools that are employed to ensure an organization's use of AI technologies aligns with the organization's strategies, objectives, and values; fulfills legal requirements; and meets principles of ethical AI followed by the organization. (2022, p.603)

Interestingly, a similar and complementary definition is given by Schneider et al. (2023), where simplicity and focus towards the organization was key (2023, p.233):

> AI governance for business comprises of the structure of rules, practices and processes used to ensure that the organization's AI technology sustains and extends the organization's strategies and objectives.

To finalise an approach to the definition of AI governance, the researcher prepared the analysis of definitions in Table 4 below to confirm preference for the working definition and framework model.

Table 4. Comparison of definitions for AI governance

| Author | Mäntymäki et al (2022) | Schneider et al (2023) | Camilleri (2023) |
|---|---|---|---|
| Subject | AI governance | AI governance for business | AI governance |
| What | System of rules, practices, processes, and technological tools | Structure of rules, practices and processes | [1] Formal rules and<br>[2] voluntary principles |
| How | Employed to ensure organization's use of AI technologies | Used to ensure organization's AI technology sustains and extends | Guide practitioners |
| Why / Outcome | [1a] Aligns with the organization's strategies, objectives, and<br>[1b] values;<br>[2] fulfills legal requirements;<br>[3] meets principles of ethical AI followed by the organization. | [1] strategies and objectives | [1] research, development and maintenance of AI systems |

As seen from Table 4 above, the definitions focus on a similar approach, and in the end Mäntymaki et al. is more thorough and compelling.

### 3.2.3 AI governance within an enterprise

Additionally, Mäntymäki et al. (2022) also offered the model shown in Figure 3 below, which is considered a useful step toward understanding AI governance more simply within an enterprise (2022, p. 605):

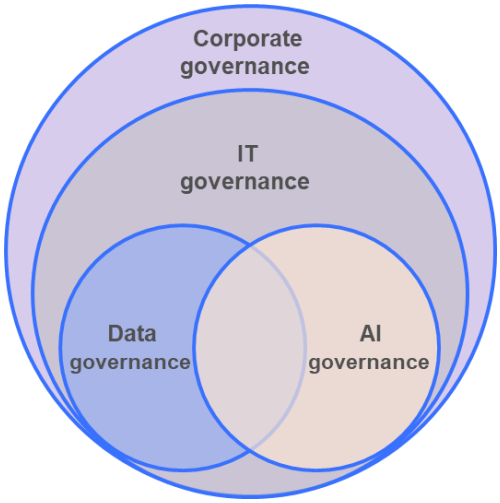


Figure 3. AI governance within an organisations governance structure by Mäntymäki et al. (2022)

As shown in Figure 3 above, the conception of AI governance fits within a broader enterprise system. From the top level involving corporate governance, through to a second level involving IT governance, which itself encompasses a third level involving two overlapping areas of data governance and AI governance.

This three-layered concept seems relevant for application in companies: firstly, that governance has aspects that focus on strategy (‘the right things to do’), operational and tactical levels (‘do the things rights’); secondly, that artificial intelligence and it’s governance necessarily involves the use and governance of data, which the figure highlighting; and lastly, fits towards an often-used model for data and digital examination, namely: people, process, technology.

Schneider et al. (2023) provides a counterpoint, which involved consideration of Figure 4 below.

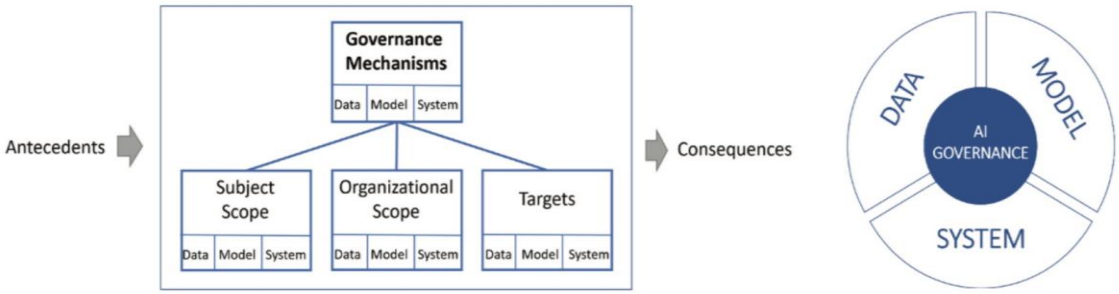


Figure 4. AI governance and core conceptual framework by Schneider et al. (2023)

Figure 4 above illustrates the view that the core of AI governance meets at the intersection of data, model and systems governance (Schneider, 2023, p. 232). What is important to note is the definition of AI used:

> From a governance perspective, it is appealing and natural to define AI in the following three areas: data, model, and (AI-)system since they relate to existing governance areas. Furthermore, they build on top of each other. AI governance refers to data and IT governance, covering both systems (commonly a large software code basis) and models (typically a small code basis). In contrast, model governance is a new area that comprises the governance of relatively small software codes (compared to traditional software) that contain models and procedures for training, evaluation, and testing. (Schneider, 2023, p.233)

When comparing the approach to Mäntymäki et al. (2023), the definition shows the focus on systems being large-code and models being small-code; the concepts leant more towards technical or IT side and less towards business.

Secondly, Figure 5 below was identified as an interesting build by Schneider et al. called the governance cube.

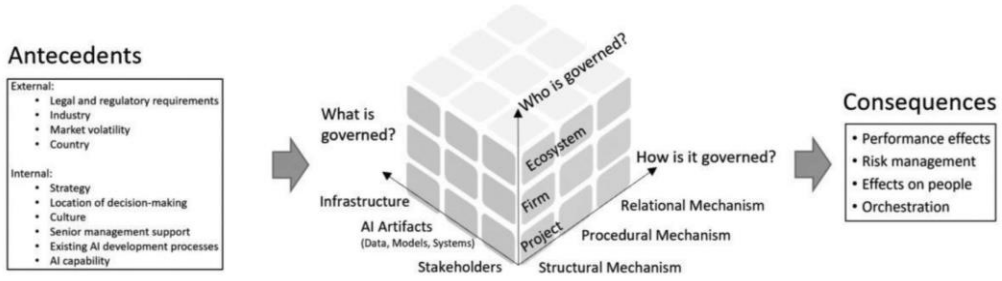


Figure 5. AI governance cube by Schneider et al. (2023)

Figure 5 above illustrates the governance cube by Schneider et al., which serves the purpose to assist in focusing attention on ‘What is governed?, How is it governed? And Who is governed? (2023, p.245).

Thirdly, the governance mechanisms are divided into structural mechanisms, procedural mechanisms and relational mechanisms (Schneider et al., 2023, p.233), which can be seen in Figure 6 below.

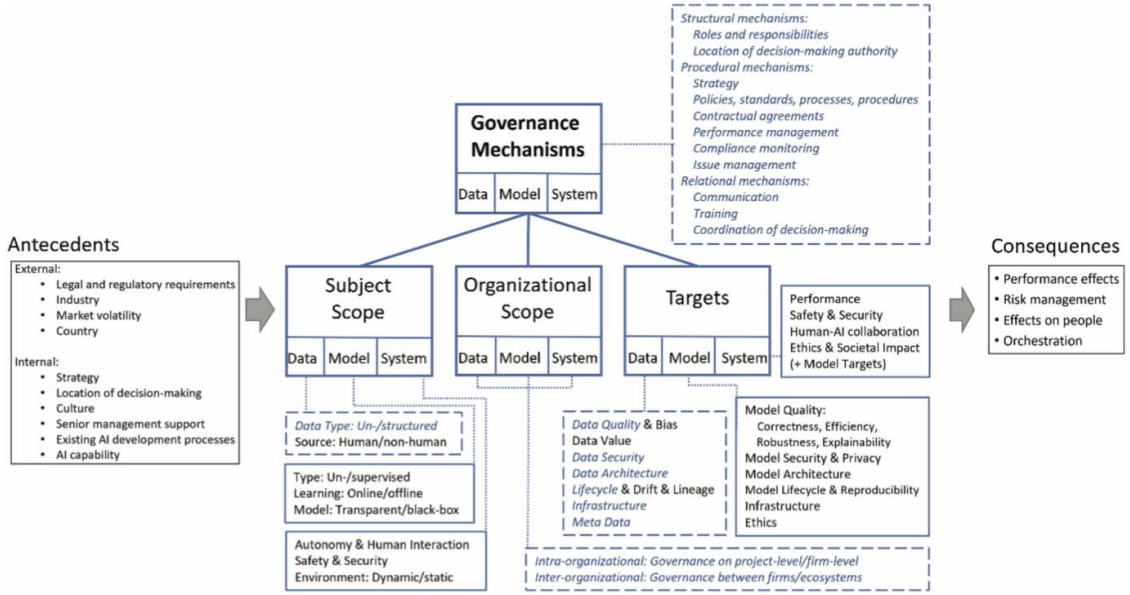


Figure 6. Breakdown of concepts within the conceptual framework of data governance concepts by Schneider et al. (2023)

Figure 6 above illustrates the concepts by Schneider et al. (2023), which builds upon previous work by others. It is deep, detailed and focused on data and other technical related aspects (data, model, systems).

## 3.3 Conceptual Framework of this thesis

The detailed models by Schneider et al. (2023) were selected as counterpoints to those selected and ultimately used when relying on Mäntymäki et al. In answer to the question - why take one direction over another?, the response simply leans towards an intuition or judgment, based on the thesis focus for improving AI governance within the case company context. An attempt to identify points of commonality, and perceived distinction, is shown in Table 5 below.

Table 5. Brief comparison of concepts

| Column 1 | Column 2 | Column 3 | Column 4 |
|---|---|---|---|
| Theme | Mäntymaki et al. (2022) | Schneider et al. (2023) | Comments |
| AI definition | AI refers to a research field, a set of information system capabilities of interpreting data, learning and adaptation, as well as a more general moving frontier of cutting-edge computing. AI includes diverse techniques, with machine learning, rob | define AI in the following three areas: data, model, and (AI-) system | Focus on AI Act and its definition leant towards column 2.<br><br>Additionally, the more succinct description in column 3 was considered more technical and useful for a IT as opposed to business context. |
| AI governance definition | AI governance is a system of rules, practices, processes, and technological tools employed to ensure organization's use of AI technologies aligns with the organization's strategies, objectives, and values; fulfills legal requirements; meets principles of ethical AI followed by the organization. | AI governance for business - Structure of rules, practices and processes used to ensure organization's AI technology sustains and extends strategies and objectives | The expansion in column 2 towards external legal frameworks and ethical elements was considered important for the case company context |
| AI governance emphasizes elements concepts | - elements interlink to form a functional entity<br>- regulating behaviour via rules, practices, process and tools<br>- elements in place to govern "use" as a broad term throughout the AI system lifecycle<br>- alignment with internal (eg strategy, objectives) and external requirements (eg legal) | - fostering collaboration across functions<br>- structuring and formalizing AI management through a framework<br>- focusing on AI as a strategic asset<br>- defining how and who makes decisions<br>- developing supporting artefacts (policy, standards and procedures),<br>- monitoring compliance | Reasonable similarity between both column 2 and column 3. |

| | | | |
|---|---|---|---|
| | - align with ethical AI principles | | |

As seen from Table 5 above and previous comments, the direction of Mäntymäki et al. was selected as guidance for own development in this thesis. For example, there is similarity in line of thought for the “how and who makes decisions” (column 3) can be implicit in the “regulating behaviour via rules” (column 2). On balance, the extension to consider ethics and the regulatory environment is important and should be encouraged (Mäntymäki et al., 2023, p.604). The work continued as reference for further thinking where relevant.

# 4 Current State Analysis of Case Company´s AI Governance

This section discusses the results from the current state analysis. This current state analysis was conducted by collecting Data 1.

## 4.1 Description of the CSA process

This current state analysis was conducted by interviews and document review. The interviews were conducted with a focus upon specific aspects for ‘high-risk AI system’ within the AI Act. The reason for the latter is two-fold.

Firstly, the AI governance definition refers to “legal requirements”, which in Europe at this time of research (during 2024) brought clear focus directed towards the developing AI Act. Secondly, the researcher considered the case company might fall within the scope of a broadly described theme for ‘high-risk AI systems’ being the ‘educational and vocational training’ elements (Annexure III, AI Act).

The focus of Data collection interviews covered these themes: Interviewee role and background; AI activity, benefits and challenges; AI governance understanding and perceptions; AI Act awareness and preparedness; ethics principles. The document review was undertaken to supplement the interview data collection.

## 4.2 Description of the Case Company’s Current AI Governance

The documentary review demonstrated the case company had commenced work to improve the governance AI, although this was at early stages. Of note is the work undertaken to develop and document case company´s AI ethics principles which were finalized in 2023; as well as work commenced to document the organizational meeting structure and responsibilities for AI related forum and committees.

The document review identified specific material quite easily on the “AI Information Hub”: for example, “Sanoma guiding ethical AI principles”, “Guidelines for using public generative AI”. Additionally, there was reference to AI within a “IPR” policy (that is, intellectual property rights).

Further work was also planned for 2024, which coincided with and complemented this thesis work. As a headline description, initiatives were agreed as follows: governance model for AI; common guidelines; managed inventory of AI and analytics use cases; AI development milestone gates for ethics, legal, privacy, security, procurement; AI assessment and checklist templates; draft instructions of use for AI to customers; draft supplier agreement clauses / templates for suppliers providing AI; tools selected for AI management; and development of reporting metrics for 2025 ESG.

## 4.3 Analysis of the Case Company's Current AI Governance

Interviewees were quite strong in their understanding of the organization's business and strategy, along with how AI related tools could support and advance internal and external productivity. There was a common view that the adoption of AI within the case company was at an early stage.

### 4.3.1 AI benefits and connection to business

In relation to the business benefits for adopting AI in the case company, interviewees were commonly noting internal and external dimensions. For example, the opportunity to use AI for productivity increases both internally for technology delivery (engineering and coding), and for supporting content creation for business related products. Some also referred to the use of AI to directly support external customers with their product-related matters, improving the assistance to teachers in their support of student learning. One interviewee referred to three business benefit aspects; cost reduction, lead-time reduction to go to market quicker, improving the quality and consistency of product content.

Interviewees were aware of various challenges for adopting AI within the case company, for example: internal competency; the level of human-checking for the integrity of the output; the cost or potential cost savings for the use of AI related tools; the perceived quality of business products by externals who might move towards creating content themselves; the care to avoid operating in high-risk way with customers such as students; the strict form of regulation in dealing with children and their future and education.

Interviewees noted some challenges involving data and related infrastructure as a challenge for using AI; there was reference to data not well structured and properly accessible in a harmonized way, many products with different data models, different data infrastructure and database management systems.

### 4.3.2 AI governance and perceptions

As a sample in Table 6 below, interviewees provided the following responses to describe their view of AI governance.

Table 6. Examples of interviewee responses to describe AI governance

| **Interviewee response: What does AI governance mean to you?** |
|---|
| We have a process in place to make sure that we use AI in an ethical way; within our internal workflows and external output to customers; we ensure it has human oversight of the outcomes that are generated; we make sure that there's a real kind of approach in place; we can't let AI run ... but that we make they use ethically use. (Person 05) |
| For me it's a set of processes, tools, and procedures that actually provide us with the guidelines to really use AI according to the definition, the standards that the company cites to follow. (Person 06) |
| technical governance … implementing and making it work … operating it, monitoring it, and what comes with it; privacy related governance of what are we doing with data; how much are we staying compliant with our ideas and initiatives when it comes to legal frameworks; dynamics and complexity that you closely have to monitor what is happening; on the regulatory side; innovation, governance to really identify, detect and the ideas in the organization, how we can make use of AI; Compliance, privacy related governance elements, but also innovation related and then of course the implementation related governance, how to make it work then finally. (Person 01) |
| the ethics side of things… make sure that you know how to appropriately use AI tools in your daily job; the corporate guidelines... that are kind of governing that sort of ethics; governance is more about sort of guidelines on when to use AI, how to use it, what can you share; what is produced ... should be checked by humans always kind of the thing; so to me it's the ethics; the rules and the guidelines, and that to me is governance and how that is organized... Who is sort of looking after those guidelines? (Person 02) |

As seen in Table 6 above, interview respondents provided similar and sometimes varied approach to AI governance, citing phrases like ‘guidelines’, ‘legal frameworks’, ‘process, tools, procedures’, ‘process’, ‘ethics’.

Using a 1 – 10 rating scale, interviewee opinions were sought regarding their perception of the state of AI governance. Responses varied and ranged from descriptions such as “low” and “midway”, through to numerical ranges of 3 - 6. One interviewee considered it around the midpoint, with a 10 meaning all the right steps exist and an embedded process in the way of working.

### 4.3.3 AI accountability

When asked about accountability, interviewees commented on a governance forum or Steering Committee created in late 2023, referred to generally as the “SteerCo” or “AI SteerCo”. The document review also identified this material on an “AI Information Hub”.

### 4.3.4 Key forums and bodies

As outlined in Figure 7 below, the case company had already introduced oversight towards the AI program of work, led by the AI Steering Co-ordination body.

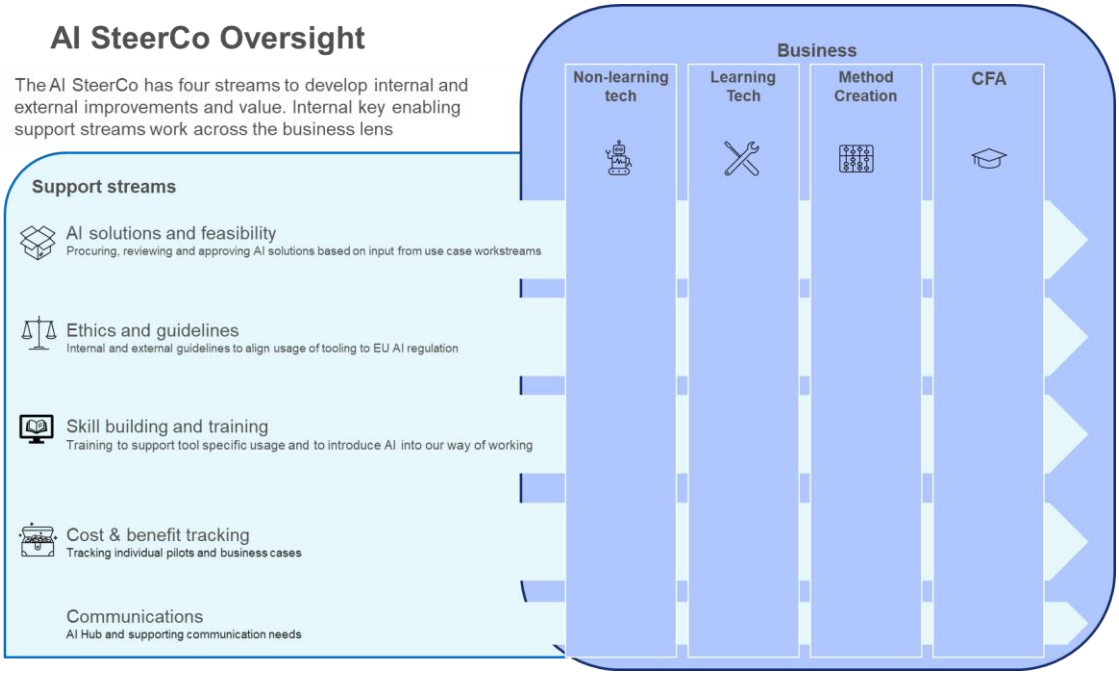


Figure 7. AI SteerCo oversight (current operational approach)

As shown from representation in Figure 7 above, the organisational approach to AI body of work within the case company involved the intersection of four business areas with support stream layers.

The “AI SteerCo” focussed on understanding activities and improving co-ordination within the business layer (non-learning technology, learning technology, method creation and CFA), while connecting towards the supporting streams as needed (AI solutions and feasibility, Ethics and guidelines, Skill building and training, Cost and benefit tracking, Communications).

### 4.3.5 AI policy, practice, standards

Interviewees expressed a high awareness of the aspiration to use AI properly, and to control and manage same appropriately. Interviewees also had a high understanding of who to contact for further advice.

Interviewees drew out the opportunity to leverage current oversight practices, such as those already in place for security, and also privacy compliance; they observed that general procedures and policies are in place that can be applicable to AI.

Interviewees made reference to the limited level of AI specific policy, practice and standards available.

### 4.3.6 Tools and technology

Interviewees had a general awareness of tools and technology to govern or control AI. Their focus was primarily upon the use of AI for internal efficiency and for external consumption. One interviewee commented upon a database, or managed inventory being prepared to stocktake and ultimately help control the AI related activities.

From the documentary analysis, a short page was available to describe products or applications that were approved for use that involved AI.

### 4.3.7 AI Act awareness

The interviewees awareness of the AI Act was basic, which is to be expected given Act itself was still in development at the time of interview (first half 2024). Additionally, the persons initially interviewed held various business as opposed to legal or compliance related roles.

### 4.3.8 Principles and values

The interviewees had basic awareness of the ethical principles developed by the case company.

## 4.4 Key Findings: Summary of Current State Analysis

The elements emerging from the interviews and document analysis is summarized by the researcher in Table 7 below, with columns three and four providing a summary of the perceived understanding or awareness of themes, as well as opportunity for improvement identified.

Table 7. Current state of AI governance and opportunity for improvement

| Theme | Elements | Overall understanding or awareness of theme | Opportunity for improvement identified |
|---|---|---|---|
| AI activity | AI connection to business and opportunity | Awareness and understanding considered towards the stronger end. | Improving the content and quality of material within a single location for all AI related activity |
| AI benefits and challenges | Well considered understanding in the use of AI for internal and external opportunities.<br><br>Critical thinking for the challenges of AI consistent with publicly available commentary. | Stronger understanding and awareness for the organisational benefits and challenges in the use of AI | As above, with a clear AI related strategy communicated throughout the case company. |
| AI Governance understanding | Understanding of AI governance and oversight requirements<br><br>AI Accountability setup via a central committee, although for steering and oversight.<br><br>Limited level of process and practices. | Middle / stronger understanding of associated governance requirements (corporate, information security, privacy), although no commonly understood definition of AI governance within the case company.<br><br>Basic level of AI specific implementation and application of process and procedure. | Focus of this thesis work and ongoing case company action. |
| AI Act awareness and preparedness | General awareness and knowledge<br><br>Policy, Standards, Practice | Weaker and basic level of understanding and awareness. | Opportunity to increase knowledge through internal / external development program. |
| Ethics principles | Finalised | Middle awareness although weaker understanding for practical application. | Opportunity to increase knowledge and application through documented process and procedure. |

As seen from the Table 7 above, a summary has weaker or stronger levels of understanding or awareness and application towards several themes observed during interview or documentary review (column 3), along with opportunities for focus and improvement (column 4). For example, for the theme (column 1) “AI benefits and challenges”, the interviewees and the case company material demonstrated a stronger understanding and awareness for the organisational benefits and challenges in the use of AI (column 3).

## 4.5 Selected Focus Areas

From the interviews and internal document analysis summarized in Table 7 above, the focus to improve AI governance was targeted towards the following areas. First, a definitional model of AI governance needs to be developed. Second, a model that would assist the case company to understand the AI governance and the AI Act. And third, a series of supporting models (or materials) would assist in operationalizing governance within the case company. These areas become the focus for development in Section 5 below.

# 5 Initial Proposal for an AI Governance Model for the Case Company

This section brings together the results of the current state analysis and the conceptual framework towards the proposal based on internal co-creation and discussions (Data 2).

## 5.1 Overview of the Proposal Building Stage

The initial proposal was created by way of, first, revising the inputs from the previous stages, and then refining through discussion and feedback with stakeholders.

That is, with a preferred working definition of AI governance (Section 3 above) and the results from the current state analysis (Section 4 above), several models (or figures) as an initial proposal were co-created with the stakeholders.

During the thesis work and, specifically in second-half 2024 (proposal building), it became apparent that the case company would undertake an internal review of operations. This was formerly announced and became known in September 2024. Some interviewees may have been aware of preparatory work prior to this official announcement, but none made specific reference in discussions / feedback. Two of the case company review areas of focus are relevant to this proposal building work. Firstly, simplify the case company operational model, clarify roles & responsibilities, and invest in future capabilities. And secondly, clarify governance and organisational structure, way of working, and future competence and skills. Further, the case company “focus” programme involved five workstreams examining areas of “what” (strategic roadmap, architecture and technology); “how” (operating model): and “enablers” (Data & AI, Procurement).

## 5.2 Inputs from the Stakeholders to the Initial Proposal (Data 2)

Following the stakeholder discussion and consideration, there was alignment and agreement towards two aspects as an initial proposal: the definitional model of six elements (Figure 9 below), supported by the case company governance and AI Act model (Figure 8 below).

The exemplars received mixed reception; understanding varied, as did the level of agreement. From the feedback, they were considered as “thoughtful” drafts which were

not capable to be elevated to the level of agreed propositions. At this point, the case company operational review programme created impetus to re-cast the thesis approach in two ways.

Firstly, the initial proposal from the thesis work was confirmed and supported (see Figure 12 below, Figure 8 below, Figure 9 below), with a request for observations on areas of improvement (referred to as “Roadmap of improvements”). This approach reshaped the original intention of working towards a fuller AI governance framework.

Secondly, the thesis work would be provided as input that would inform and support the case company review programme.

Observations from interviewees were generally supportive of the direction to improve the Privacy and Security by Design Process (see Figure 15 below), although there was also discussion about first re-drafting the current process prior to additions towards the AI Assessment.

## 5.3 Initial Proposal

Two key models were built as the basis for the initial proposal as outlined below.

### 5.3.1 Case company governance and the AI Act

One model (or artefact) involved the revising of the three-layered governance model referred in Figure 3 above, by developing an understanding of the interaction between the concept of organizational governance and the AI Act in Figure 8 below.

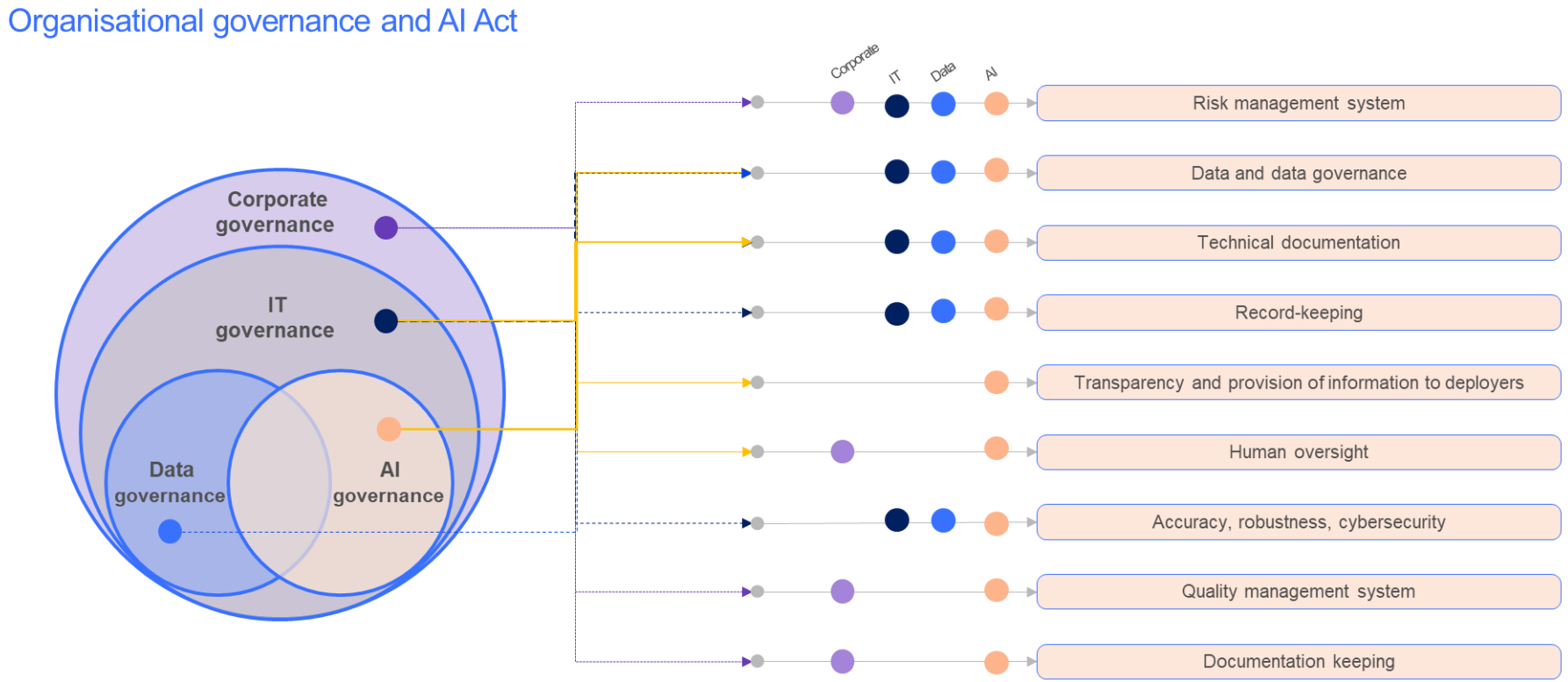


Figure 8. Organisational governance and the AI Act

Figure 8 above, referred to as “Organisational governance and the AI Act” illustrates the model which combines thinking for organizational governance of AI (and other aspects) when considered against the developing AI Act. The model was built by reviewing the underlying legal requirements “high-risk AI system” elements within the draft AI Act, and identifying where they should (or could) fit and connect within the organisation governance model for corporate, IT, data and AI.

A level of judgement meant that overlap or parallel requirements could occur. For example, the second-listed element “Data and data governance” is a requirement of the AI Act and therefore connects to AI governance. In parallel, the requirements are themselves obviously connected to “Data governance” as that term is generally understood. It was also considered that “IT governance” would also connect to this second listed element.

### 5.3.2 A model for the definition of AI governance

A second model developed, and shown in Figure 9 below, was created to represent the preferred working definition for AI governance (see 3.2.2 above).

## Definition

AI governance is a system of **rules, practices, processes** and **technological tools** that are **employed to ensure** an organization's **use of AI technologies aligns** with the organization's **strategies, objectives, and values**; fulfills **legal requirements**; and meets **principles of ethical AI** followed by the organization.

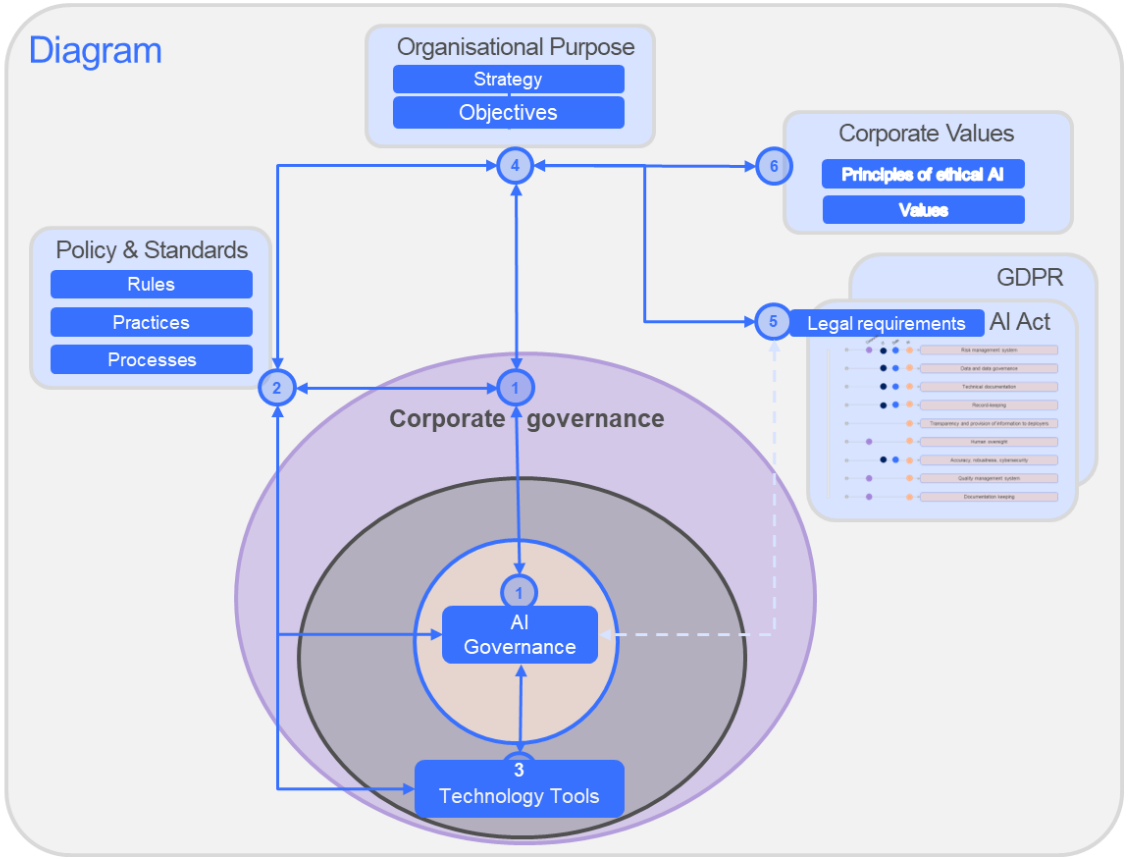


Figure 9. A diagram for defining AI governance in the case company

Figure 9 above was developed as diagram and representation of the definition of AI governance, by connecting the six elements of the definition towards a three-layered model which describes governance layers at the corporate level, IT level and AI level (as shown in Figure 9 above).

#### 5.3.2.1 Element 1 is AI governance

This element of the conceptual framework is AI governance, which involves implementing leadership at a strategic and operational level.

At the strategic level, this involves ensuring there is an accountable person who ensures the enterprise risk for AI is identified and managed (strategic leadership). At an operational (or management) level, this involves implementation of activities that bring the required management actions to life.

It is useful to remember that AI governance and governance can be both a verb (being an action towards governance) and a state of being or a noun (being a thing under governance).

#### 5.3.2.2 Element 2 is policy and standards

This element of the conceptual framework means the rules, practices and processes that an enterprise must uphold to identify and manage AI risk.

#### 5.3.2.3 Element 3 is technology and tools

This element of the conceptual framework means employing tools directed towards the purpose of AI governance. That is, technology and tools that are used to implement, or control AI within the enterprise.

#### 5.3.2.4 Element 4 is organisational purpose

This element of the conceptual framework means the strategy and objectives for using and adopting AI in business. That is, this element connects the use of AI to the business imperative or the ‘why’ the organisation exists.

#### 5.3.2.5 Element 5 is legal requirements

This element of the conceptual framework means complying with relevant regulations such as AI Act, GDPR Act and copyright law. That is, it refers to the relevant and various legal requirements or ‘hard law’.

#### 5.3.2.6 Element 6 is corporate values

This element of the conceptual framework refers to the organisations’ heart or values, typically the aspiration or intentions an organisation strives to uphold in operation, sometimes called ‘soft law’.

## 5.4 Stakeholder review and refinement

In discussion with stakeholders, models were built, confirmed or refined to better align with the case company environment.

### 5.4.1 A definitional model for AI governance

Interviewees were more comfortable with the definitional model for AI governance (see Figure 9 above). It was particularly easier to discuss and understand the six element model against the definition, when contrasted with the alternative described below.

One interviewee commented upon it’s clarity (Person 11): “Yeah, I like this one. Yeah, it's very clear. It's really stating where it's what. So I like that one.“

### 5.4.2 A contrasting model that did not resonate as strongly

Another model, shown in Figure 10 below, was developed and explored as an alternative approach.

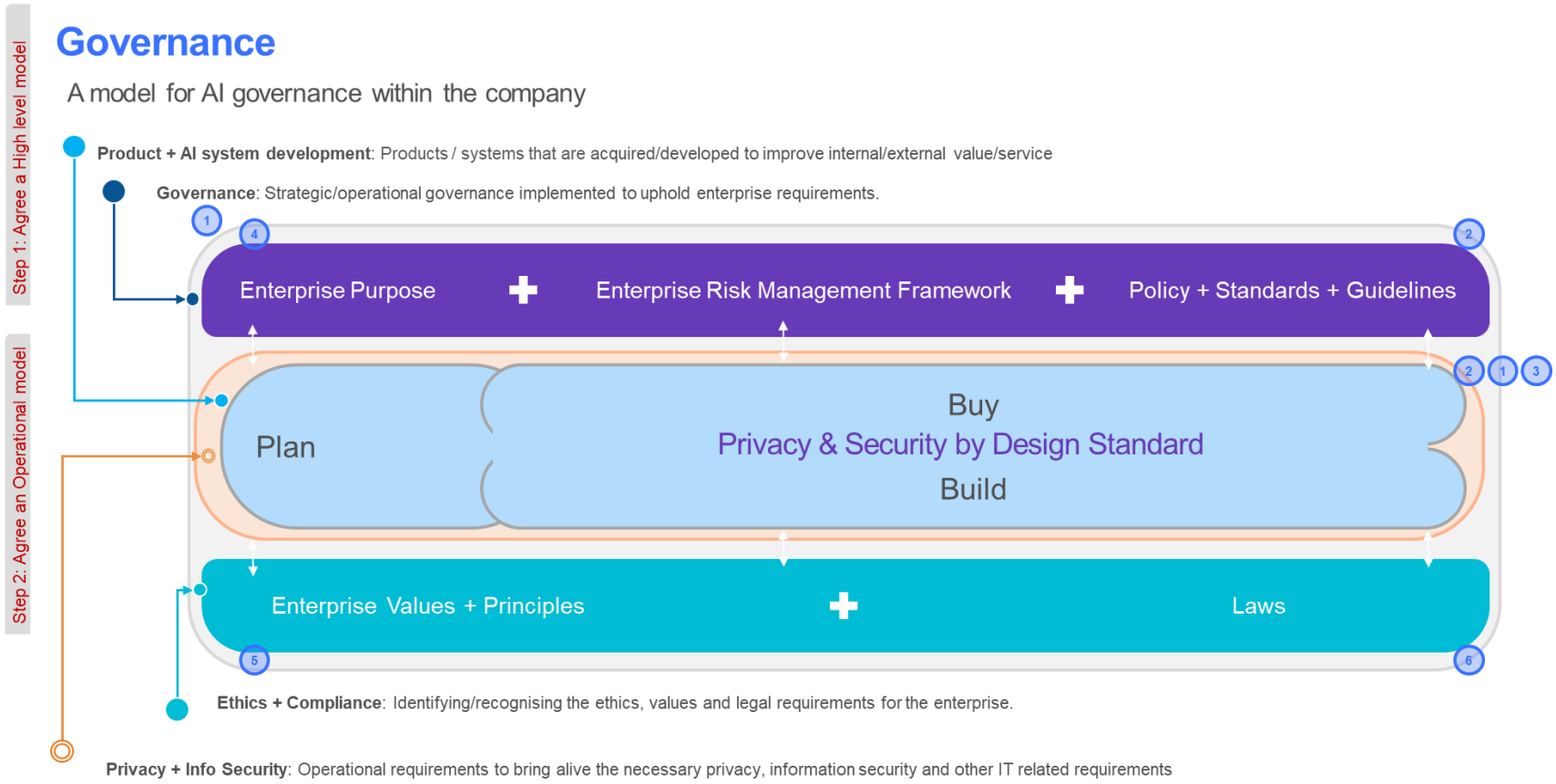


Figure 10. A model for AI governance within the case company based on the Privacy Security by Design Model

The model in Figure 10 above intends to assist in considering the definition of AI governance, which was built by connecting to the case company approach for Privacy Security by Design. Note the reference in Figure 10 above to “Buy” and “Build”, shown in the centre and reflecting the case company approach, and then supplemented with the additions of “Plan” at the start (or left side) based on feedback.

The numbered elements within the Figure 10 above correspond to the definition discussed earlier (refer 5.3.2 above, A model for the definition of AI governance). For example, on the top level see “Policy & Standards & Guidelines” in the top level right was connected to number 2 (Element 2 is policy and standards), while on the bottom level see “Enterprise Values & Principles” connected to number 5 (Element 5 is corporate values), and “Laws” connected to number 6 (Element 6 is legal requirements).

It was clear in discussion with interviewees that this model did not immediately resonate. One interviewee indicated this model was the more complex one, and slightly harder to digest. Another interviewee (Person 11) provided a similar perspective: “although I do get what [it] is about... At the same time, for me it's confusing… I don't know why, but I like the other overview better … Yeah, I do understand what you're trying to do here, and I do like the idea behind it... But when I look at it, I don't see it immediately.

As a consequence of this feedback, the primary model going forward was Figure 9 above, as opposed to the contrasting model Figure 10 above.

### 5.4.3 Organisational governance and the AI Act

Given the interviewees supportive comments and impressions from the model (Figure 8 above), revisions were made to refine this to an agreeable and workable model, as further developed in Figure 11 below, and then Figure 12 below.

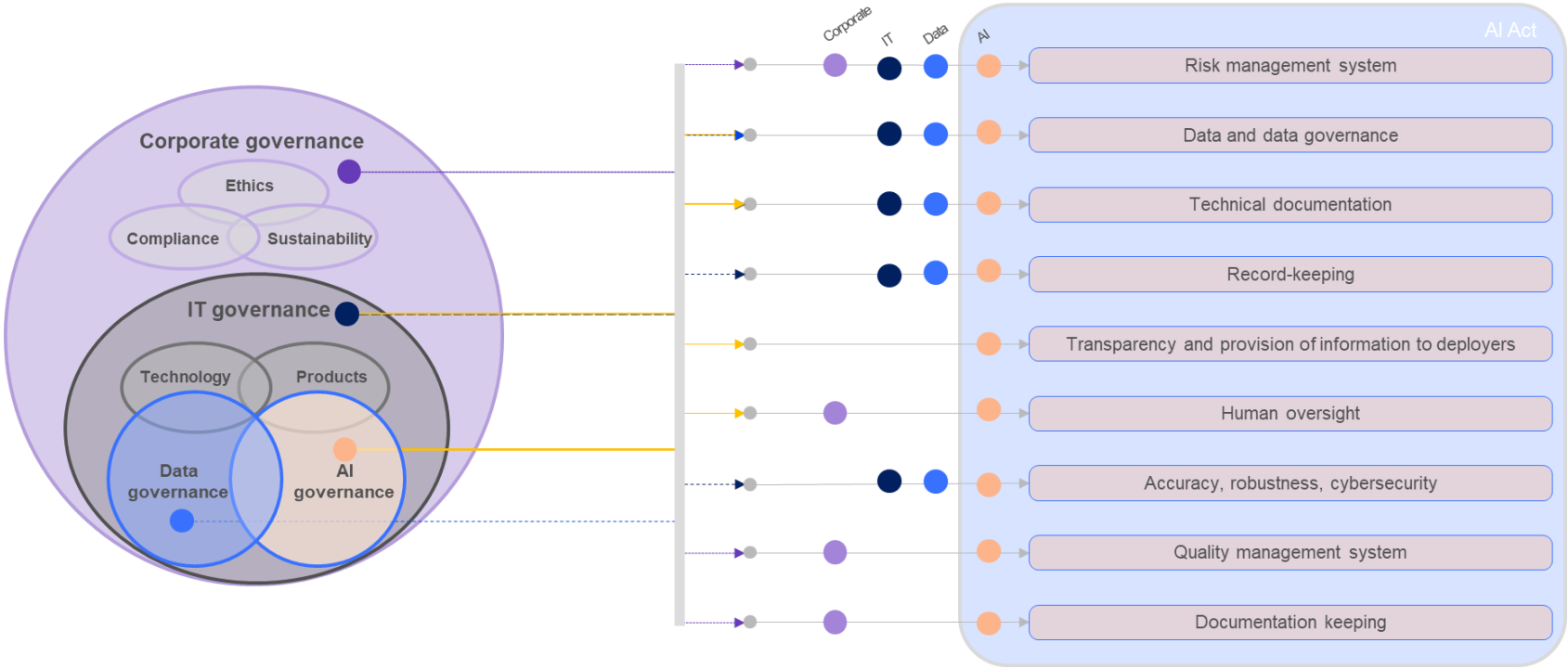


Figure 11. Case company governance and the AI Act (July 2024 version)

Figure 11 above shows the refinement and revision taking place with stakeholder feedback, as at July 2024. One interviewee observed that the corporate governance aspects would align with the case company approach to ethics, sustainability and governance aspects. Another interviewee commented upon model revisions attempting to connect to technology and products, as it involved the third layer.

Following further feedback, the final landing point for this model is shown in Figure 12 below.

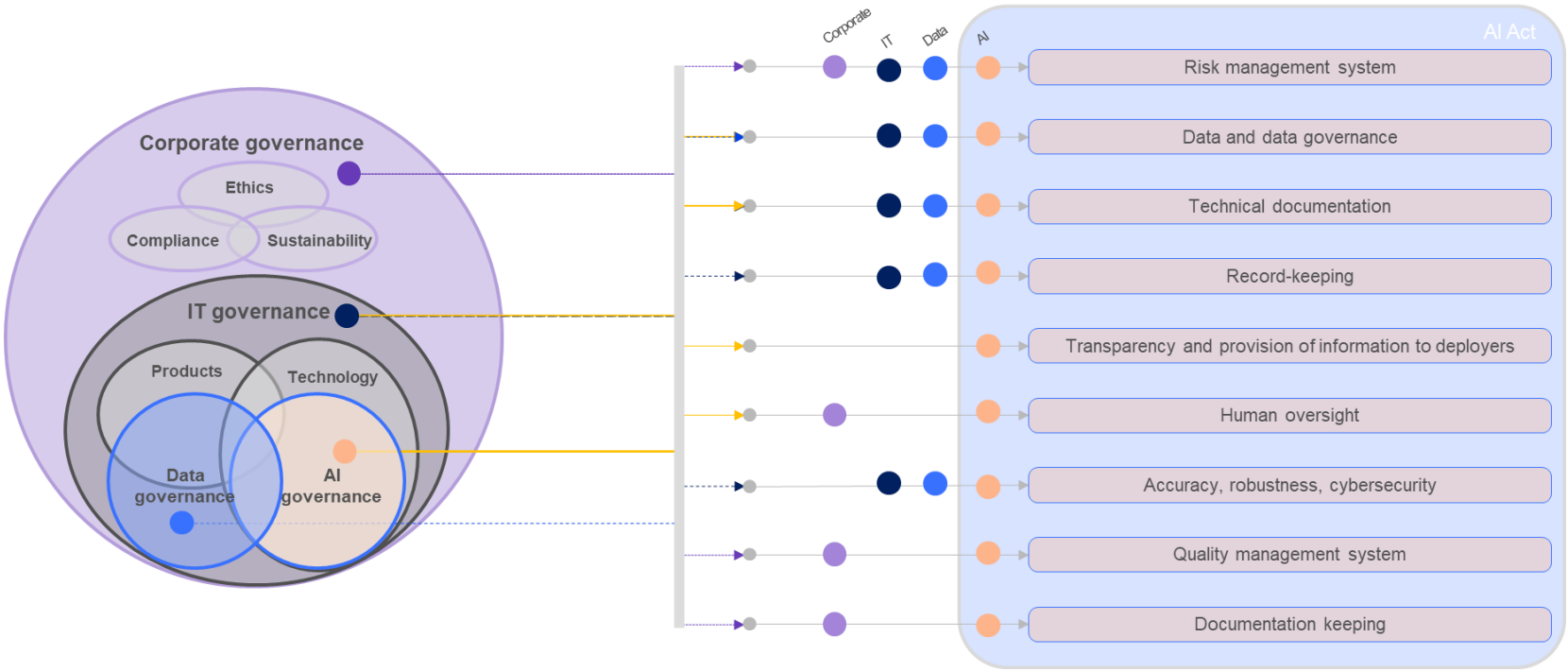


Figure 12. Case company governance and the AI Act (Sep 2024 version)

Figure 12 above shows the final model for case company governance and the AI Act. This model resonated most strongly; as described above, this was considered the clearest and simplest model to look at and understand.

### 5.4.4 Exemplars for the elements

A series of models were developed to further advance case company thinking to improve the implementation of the six elements for the definition of AI governance within the enterprise.

#### 5.4.4.1 Operational model and draft charter to improve AI governance

An operational model to improve AI governance within the case company was developed for discussion, as shown in Appendix 6 (An operational model for governance including policy and people).

As seen from the Appendix 6, an operational or organisational model was developed to improve the approach to AI governance, in line with the AI governance definition (Figure 9 above) and the organisational governance model (Figure 12 above).

A “program board” for strategic organisational AI governance leadership (along with Data and Analytics) was included to drive the case company governance for AI. This was considered to better align with other boards already in the case company, for example Privacy Program Board. The model also suggested that a specific AI policy would be developed, further to information already available within the case company. The “AI SteerCo” and other associated bodies found in the current state analysis (see Figure 7 above), such as the “AI Solutions and Feasibility body”, would be retained and improvements made to report upwards towards the “AI Program Board”.

To assist with understanding and operationalising an organisational model, a high-level draft charter was prepared as shown in Appendix 7 (Draft Roles and responsibilities for an improved AI governance body).

One interviewee suggested that an AI governance model doesn't necessarily mean that a proposed operational structure is required, suggesting that the focus can be on the

higher level and elements describing what needs to be implemented. In other words, the recommendation was made to provide the operational model and charter as exemplars (not proposal), and which could provide insight towards a gap analysis for improvement.

Hence, the main point of feedback was that following provision of the six-element definition (Figure 9 above) and associated material (for example, see the developments in Figure 11 above, and then Figure 12 above), the case company would need to self-develop an appropriate operational model.

#### 5.4.4.2 Improving the operational and tactical governance of AI

Another model, shown in Figure 13 below, intends to assist the case company to understand the operational level of work required to govern and control AI.

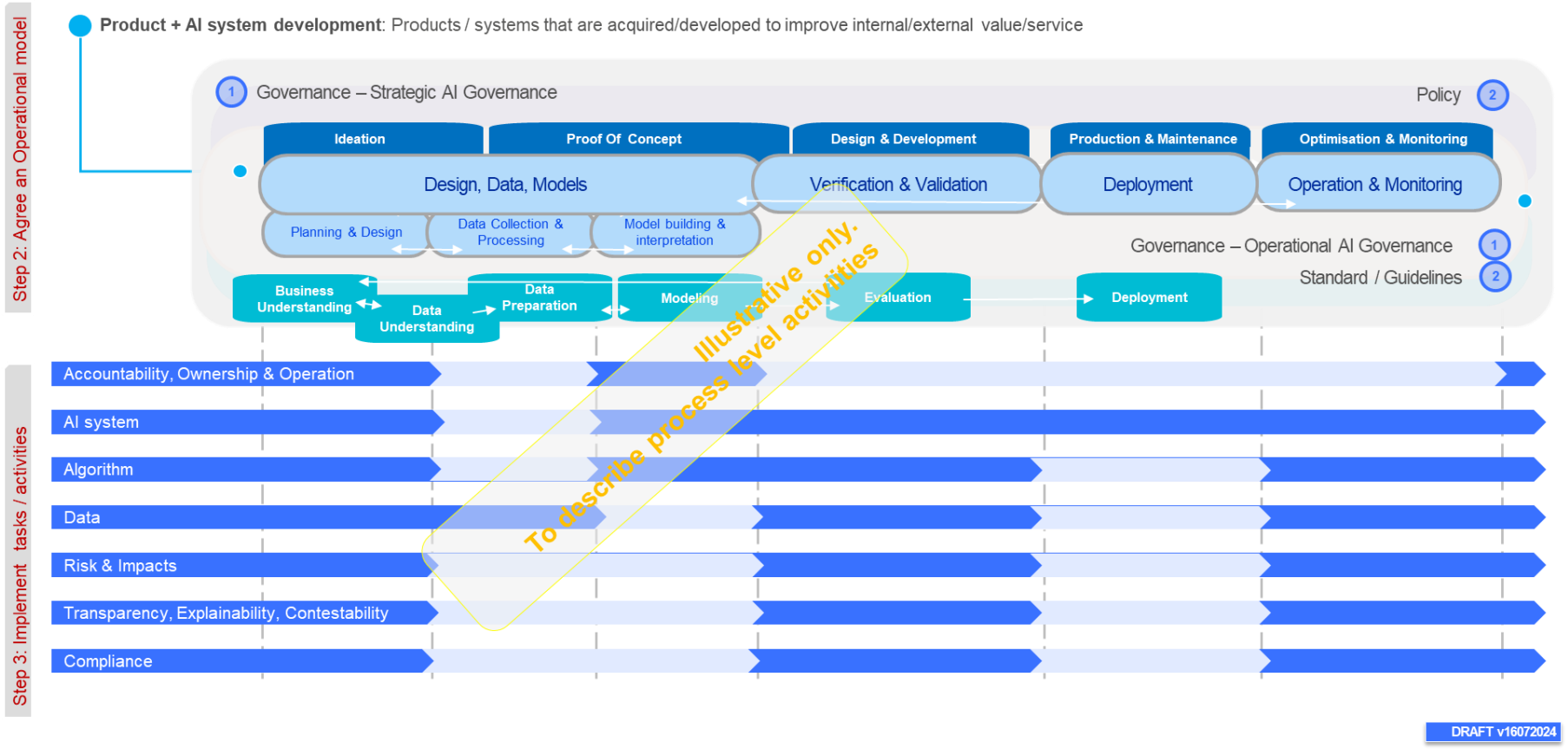


Figure 13. The case company and OECD development model with activities to control AI

Figure 13 above, is a complex model based on inspiration from Mäntymäki et al. (2022) work titled “Putting AI ethics into practice: The hourglass model of organizational AI governance”. The figure has two main aspects to note on the top and bottom half.

The first aspect, which is represented on the bottom half of the diagram, describes a series of seven categories (with underlying activities and tasks not represented in the model) to control and govern AI, when plotted against the OECD AI system development lifecycle phases (Mäntymäki et al, 2022). For example, “Data” is a category that needs to be controlled throughout most phases of the development lifecycle, excluding the “Model building & interpretation” and “Deployment” phases.

The second aspect, which is represented on the top half of the diagram and explained in Figure 14 below, is built from three elements identified during the current state analysis and research phase.

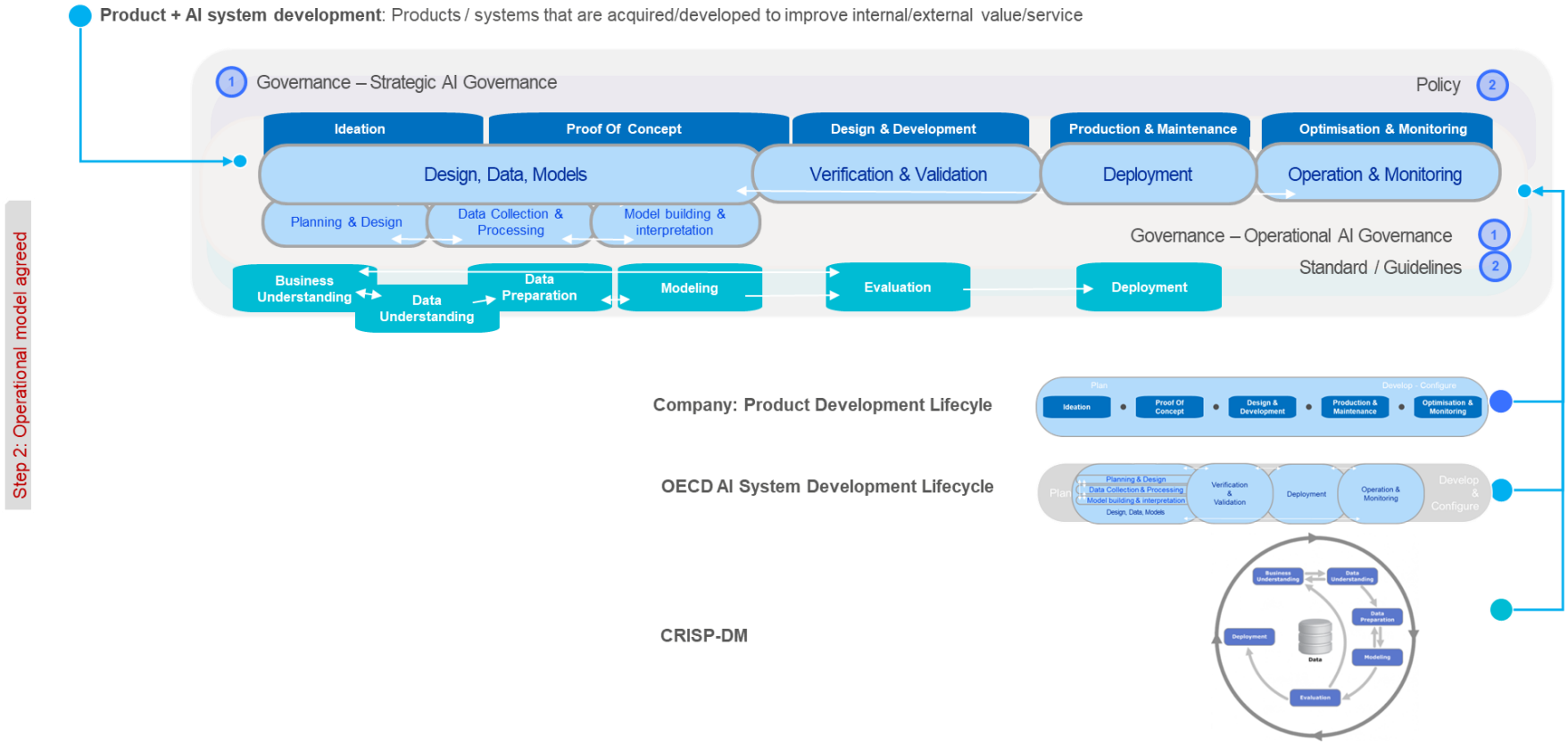


Figure 14. Understanding the case company process model/s used to build products, analytics and/or AI systems

As shown from Figure 14 above, the model describes the case company development lifecycle aligned to three development processes: one, the case company description of product development lifecycle; two, the OECD AI system development lifecycle described by the OECD (2022); and three, the CRISP-DM development lifecycle, which was also referred by case company material.

The purpose of Figure 14 above as it has been combined towards Figure 13 above, was to assist the case company to understand the extent of implementing a fuller AI governance framework. This work aligned with the original thesis aim (ultimately revised) to develop an AI Governance Framework along with a definitional and conceptual model. Accordingly, the models above and a summary explanation was prepared, as shown in Table 8 below.

Table 8. Summary of operational categories of AI governance

| Operational Category | Description | AI Governance Model Theme / ISO 42001 |
|---|---|---|
| Accountability, Ownership & Operation | Ensuring necessary decision rights and responsibilities to govern the AI system and its algorithmic components to align the system with the organization's strategic goals and values. Designing and implementing appropriate workflows and organizational structures for developing AI systems | Theme 1: AI Governance<br>Theme 4: Organisational purpose<br>ISO 42001, 5, Leadership and Commitment |
| AI system | Ensuring that the AI system is developed, operated, and monitored in alignment with the organization's strategic goals and values. | Theme 1: AI Governance<br>Theme 2: Policy & Standards<br>ISO 42001, 4, Context of the organization<br>ISO 42001, 6, Planning (AI risk treatment) |
| Algorithm | Ensuring that the algorithms used by an AI system are developed, operated, and monitored in alignment with the organization's strategic goals and values. | Theme 1: AI Governance<br>Theme 2: Policy & Standards<br>Theme 4: Organisational purpose<br>ISO 42001, 6, Planning (AI risk treatment) |
| Data operations | Ensuring that data are sourced, used, and monitored in alignment with the organization's strategic goals and values. | Theme 1: AI Governance<br>Theme 2: Policy & Standards<br>ISO 42001, 6, Planning (AI risk treatment) |
| Risk & Impacts | Identifying, managing, and monitoring potential risks and impacts caused by the AI system to align the system with the organization's strategic goals and values. | Theme 1: AI Governance<br>Theme 2: Policy & Standards<br>Theme 4: Organisational purpose<br>ISO 42001, 6, Planning (AI risk treatment) |
| Transparency, Explainability, Contestability | Ensuring that the AI system transparency, explainability, and contestability is aligned with the organization's strategic goals and values. | Theme 1: AI Governance<br>Theme 2: Policy & Standards<br>ISO 42001, 6, Planning (AI risk treatment) |
| Compliance | Understanding the regulatory environment of an AI system and ensuring its compliance with the relevant regulations | Theme 1: AI Governance<br>Theme 5: Legal requirements<br>ISO 42001, 6, Planning (AI risk treatment) |

As seen from Table 8 above, the work of Mäntymäki et al. (2022) in column 1 and column 2 was reconsidered by making additional observations in column 3, intended to connect to the six elements (or themes) in the definitional model, as well as highlight connections to the ISO/IEC 42001, titled “Information technology – Artificial intelligence – Management system” published by the International Organisation for Standardisation (2023).

As discovered during document previous research, the ISO framework was considered relevant because the case company already had a significant work program underway to align with and obtain certification related to Information Security and Technology standards issued by the ISO.

One interviewee (Person 11) provided some support for the model: “Yeah, I really like the connection with the ISO as well because [the case company] are looking... Can we broaden [our] ISO certification?”; the interviewee liked the 7 areas describing where they are involved as steps of the production phase; and without deeply exploring the details the interviewee considered it nice to have.

Another interviewee (Person 05) commented upon its usefulness as a view of the operational activity, “instead of governance, it was rather operational alongside the tech workflows. Because if you're trying to kind of put the AI technology into perspective, this is what [it] means [to] provide an AI system within the product environment.”

#### 5.4.4.3 Improving current approach towards privacy, security by design

The case company incorporates privacy and data protection into products by continued implementation of a Privacy Programme and a Privacy and Security by Design process (see Sanoma Annual Report 2023), described in the Figure 15 below.

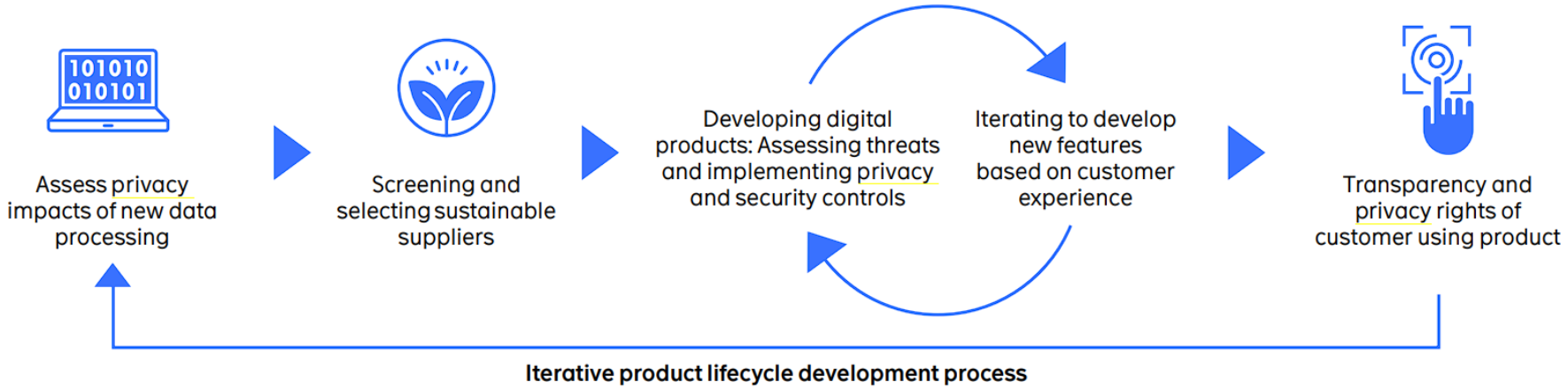


Figure 15. Case company privacy and security by design process in product development

As outlined in Figure 15 above, the case company develops digital products by assessing threats and implementing privacy and security controls by conducting privacy impact assessments (Sanoma, 2023, p.42). As referred in the 2023 annual report, work was planned during 2024 towards integrating AI assessment into the process (Sanoma, 2023, p.43).

A proposal for improving the process for Privacy Security by Design was built as a model exemplar (Appendix 9). The proposal was titled “Privacy and Security and Ethical AI by Design”, and included suggested additions to the current process to improve AI Assessment, including: additions to vendor selection questionnaires; addition to standard contractual appendixes; updates to the current checklist; addition of an “AI System Assessment”; addition of steps to “Re/Configure” and “Re/Develop”; and steps to “Monitor / refine product / operations / feature”.

# 6 Validation of the Initial Proposal

This section reports on the results of the validation stage and points to further developments to the initial Proposal. At the end of this section, the final proposal and areas of improvement are presented.

## 6.1 Overview of the Validation Stage

The steps taken for validation included the following: first, the proposal was supplemented by observations for current operational implementation and areas of initial improvement addition (based on Data 2 feedback including the preferred ISO framework); second, the sign-off stakeholders were engaged in a presentation discussion for initial comment; and third, the sign-off stakeholders were invited to provide their written comments for improvement, and final support.

Hence, the validation process of the initial proposal involved key stakeholders further considering and then supporting the proposal (plus areas of improvement) as input towards the case company operational review programme. Put simply, senior stakeholder approval was sought in order to validate the proposal and approach.

## 6.2 Developments to the Initial Proposal (based on Data Collection 3)

The initial proposal was advanced in two ways: first, a key-stakeholder review of the initial proposal was undertaken; and second, observations made for current operational implementation and further areas of improvement (colloquially, a roadmap of requirements). The key-stakeholder review of the initial proposal is shown in Table 9 below.

Table 9. Key-stakeholder suggestions (findings of Data 3) for the Initial proposal

| | *Elements of the Initial proposal* | *Parts commented in Validation* | *Description of the comment/ feedback by experts (in detail)* | *Development to the Initial proposal* |
|---|---|---|---|---|
| 1 | Element 1 | AI governance | The description would be improved to focus attention towards leadership and management | AI governance – Leadership and enterprise management |

| | | | | |
|---|---|---|---|---|
| 2 | Element 2 | Policy and standards | The description would be improved by expanding and clarifying. | Policy, standards and process |
| 3 | Element 3 | Technology and tools | The description would be improved by revising towards the case company tools and their purpose. | Technology tools – Risk monitoring tools |
| 4 | Element 4 | Organisational purpose | The description would be improved by directly referring to case company AI strategy. | Organisational purpose – SL AI strategy |
| 5 | Element 5 | Legal requirements | The description would be improved by drawing specific attention towards several legal areas further than AI and Privacy. | Legal requirements – AI, Privacy, Security and Property Rights |
| 6 | Element 6 | Corporate values | The description would be improved by directly referring to case company context. | Corporate values – Ethical AI principles and ESG |

As seen from Table 9 above, the suggestions were to improve the focus and description towards the case company context. That is, while the key-stakeholders were supportive and confirmed the AI governance definition and model (Figure 9 above), they suggested improvements to the explanation that suits the case company.

## 6.3 Final Proposal and explanation

To bring this together, the explanation of AI governance involves the definition and agreed six themes (supplemented by the final diagrams in Figure 16 below, and Figure 17 below):

I. AI governance – Leadership and enterprise management

II. Policy, standards and process

III. Technology tools: Risk monitoring tools

IV. Organisational purpose: SL AI strategy

V. Legal requirements: AI, Privacy, Security and Property rights

VI. Corporate values: Ethical AI principles and ESG.

Figure 16 below and Figure 17 below show the final model for case company governance and the AI Act.

## Definition

AI governance is a system of **rules, practices, processes** and **technological tools** that are **employed to ensure** an organization's **use of AI technologies aligns** with the organization's **strategies, objectives, and values**; fulfills **legal requirements**; and meets **principles of ethical AI** followed by the organization.

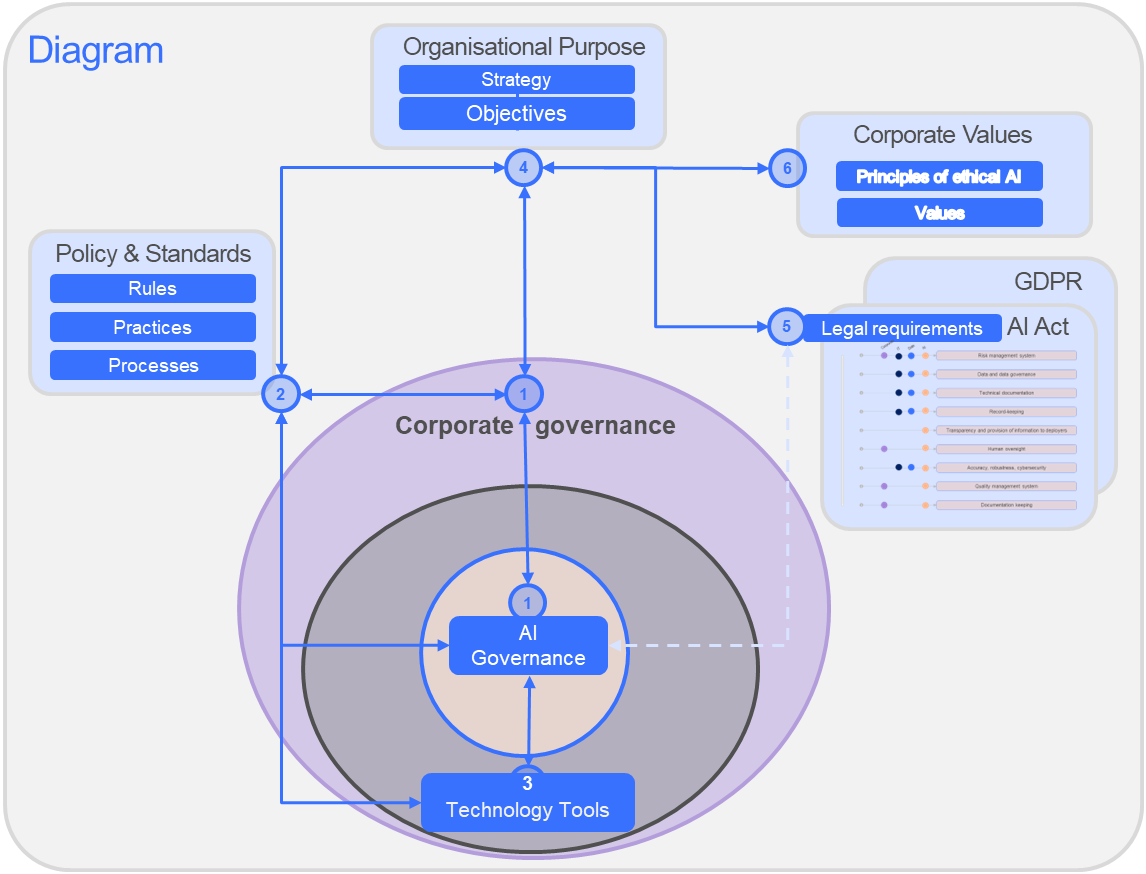


Figure 16. Final - Defining AI governance in the case company

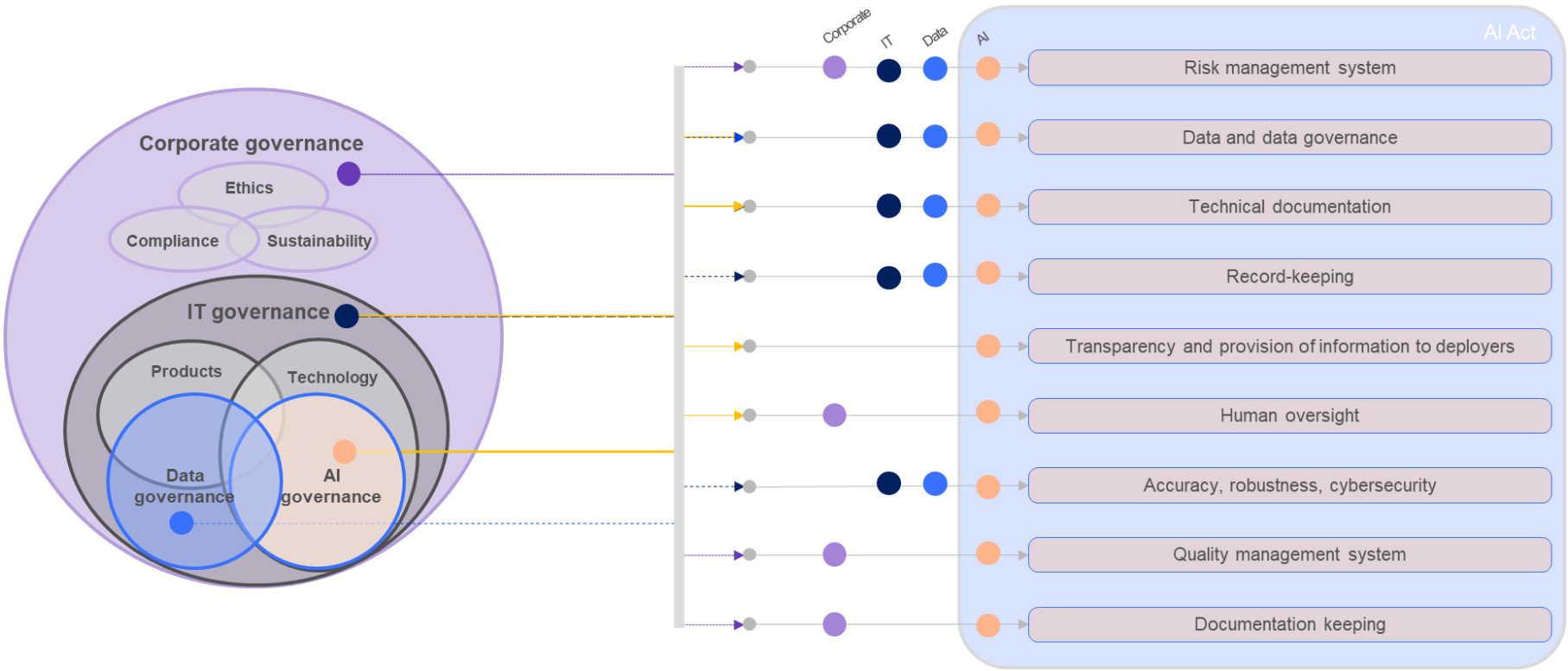


Figure 17. Final - Case company governance and the AI Act

## 6.4 Recommendations and areas of improvement

Along with the finalisation of the proposal as described in section 6.3 above, the key-stakeholder review validated the potential areas for improvement as shown in Appendix 10 (Further guidance activities to implement an AI governance framework).

As shown in the Appendix, the key-stakeholders confirmed the six-elements for AI governance and finalised an assessment for next steps recommendations. Several observations, as confirmed above, were drawn from initial work and feedback received during the initial proposal stage (see 5.4.4 above).

From this review step, one individual took a moment to provide positive written feedback (Person 15): “Overall I do want to compliment you on your good work”.

Although not directly commented by key-stakeholders, additional details to guide future work was developed from the ISO 42001 requirements (ISO/IEC 42001, 2023, Annexure A-B), and is shown in Appendix 11 (Roadmap of requirements for AI governance).

# 7 Conclusion

This final section seven contains the key findings from this thesis study, primarily conducted during 2024. The main steps and outcome are described in the executive summary, followed by the recommendations for implementation and next steps. Lastly, comments are made on the thesis result quality and the outcome of the thesis is evaluated.

## 7.1 Executive Summary

The goal of this thesis work was to improve the governance of AI in the case company, which is a leading provider of learning solutions within the K12 market. The outcome of was the delivery of an agreed definitional model for AI governance that can guide the case company in steps for implementation, along with observations for areas of improvement.

The process used in this thesis work is applied action research and qualitative research method; this process typically involves the researcher being an active participant in the topic, as the method is focused on creating a workable solution or enhancement to an organizational challenge. The data collection involved qualitative research undertaken using interviews, workshops and documentation review.

The researcher examined external literature to better understand the frameworks available to improve AI governance for the case company. A business and enterprise level perspective was taken in selecting a workable model, in contrast to a technical or IT focused one. A definitional model for AI governance was identified, as well as the elements to bring it alive within an enterprise.

In reviewing the current state of the case company, which resulted in Data collection 1, it was clear that the organization had only recently commenced its journey in using AI and developing a comprehensive approach to controlling and governing same. The AI Act was a clear driver for this thesis work as well as the case company desire to improve governance of AI generally, which was an important position to achieve when the AI regulation would apply to the case company operating within the educational markets.

From this review, the key areas of focus were selected to assist the case company to improve approaches and governance bench-strength. First, an agreed definition for AI governance was advanced. Second, a model for understanding corporate governance layers connected with the AI Act was developed. And third, work was undertaken to identify operational areas of improvement that would need to be implemented.

A definitional approach for AI governance was created with stakeholders following from the initial work identified in the best practice literature review. The stakeholders were supportive of two models that were considered to assist their understanding and guide case company AI governance improvements. Alternative models were explored that did not rise to the same level of support. In the end, a definition was adopted and a diagram model of six elements endorsed. A secondary model to describe case company governance alongside the AI Act was also supported. This phase makes up Data collection 2.

As a consequence of the case company commencing an operational review program, testing and validation of the proposal was undertaken by a senior stakeholder or key-stakeholder review (known as Data collection 3). The initial proposal was therefore refined and endorsed as contribution towards the operational review. In effect, the two models were finalised and endorsed, coupled with an analysis of areas for improvement.

The recommendations and areas of improvement for next steps have already been covered in Section 1.1 above. The managerial implications of this work will be significant, and it is heartening to see that the operational review program of the case company has the senior level authority to drive improvements of “what”, “how” and “enablers”.

## 7.2 Thesis Evaluation

The objective and key purpose of the thesis was to improve governance of AI in the case company. When originally contemplated and commenced in late 2023 / early 2024, the original outcome was to build a fulsome AI governance framework, as well as trialing same for a three month-period in the organisation. This was not to be. In the end, the thesis has produced an agreed and workable definition for AI governance to guide next steps towards AI organisational improvements, with initial suggestions for areas of improvement.

From the researcher's perspective, this change in output is the result of the following three aspects.

One, the focus on an AI governance definition involved more work to understand, explain and agree than originally envisaged. On the positive side, it is always useful to have a clear focus in mind before embarking on an improvement program such as the researcher originally envisaged in creating an implementable governance framework.

Two, developing associated material and models to assist the case company stakeholders in understanding the potential consequence and changes resulting from the AI governance definition also required time and energy. And this itself brought added complexity.

In short, the scale of the case company organisation was a factor that increased both theoretical complexity (how would this model work within a large multi-national organisation) along with realistic timeframes for operational implementation (how long would it take to implement).

Three, the organisational review of operations created an opportunity to revise the original output while still making steps towards the main objective (improving AI governance in the case company). Put another way, the journey towards the objective and goal moved from path A (a fuller framework) towards path B (input towards an organizational improvement program).

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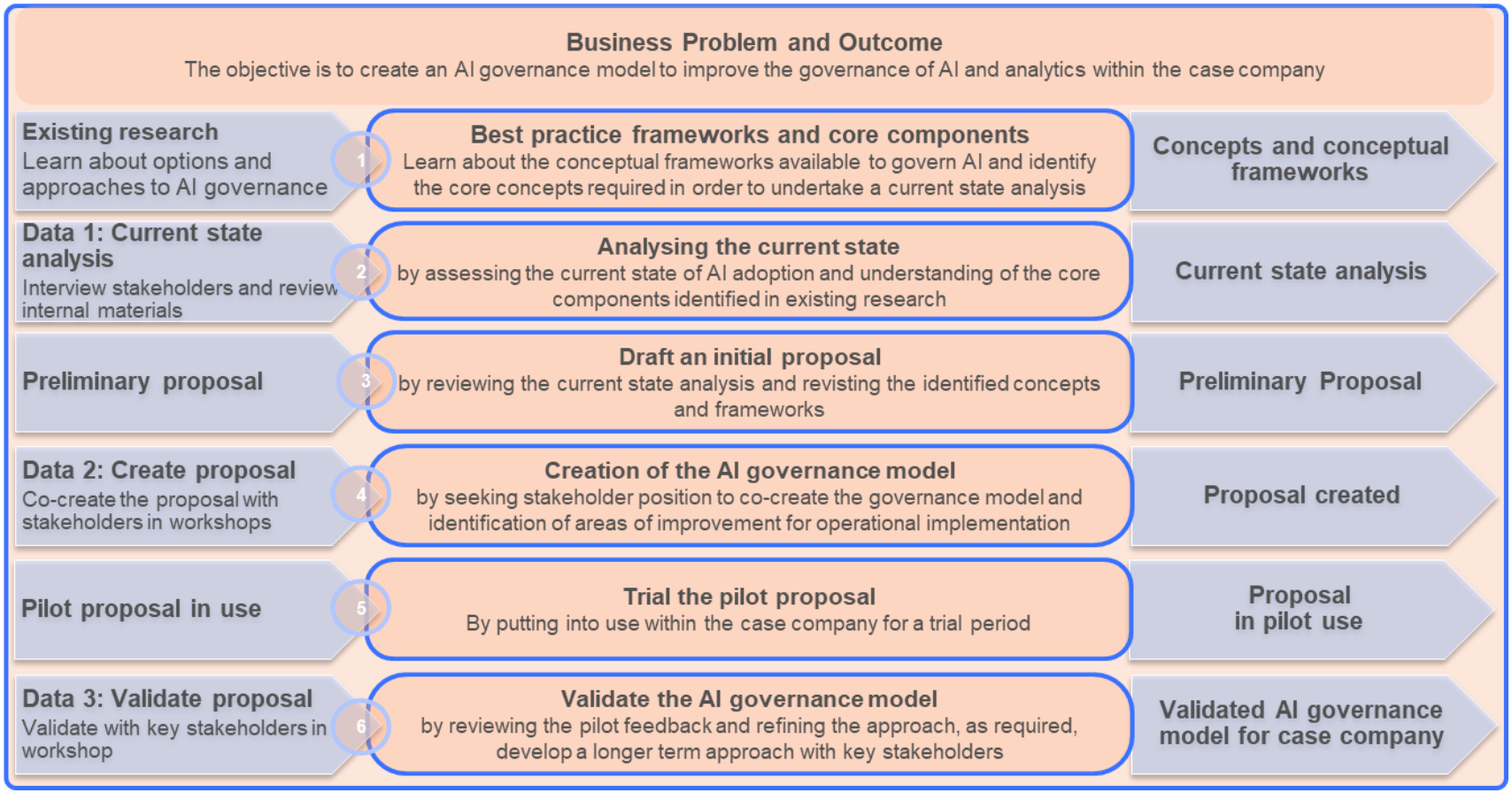
## Appendix 1. Original research plan



## Appendix 2. Interview questions

| Themes | Questions |
|---|---|
| Interviewee | 1. What is your name, role and responsibility within [case company]? |
| Interview | 2. How does your role or responsibility relate to AI? |
| AI | 3. What does AI (Artificial Intelligence) mean to you? |
| AI activity | 4. What is the current state of AI adoption within [case company]? |
| AI benefits | 5. What are the primary business benefits for AI adoption? |
| AI benefits | 6. Who will receive these benefits? |
| AI challenges | 7. What are the challenges with adopting AI in [case company]? |
| AI governance | 8. What does AI governance mean to you? |
| | 9. Ranking: On a scale of 1 – 10, what is the current state of AI governance?<br>Scale 1 – 10: means 1 (starting / beginner), 5 (midpoint / average), 10 (complete) |
| | 10. In relation to the current state, what and how is it being governed? |
| AI Act awareness | 11. Are you aware of the AI Act? |
| | 12. Ranking: Using a scale of 1–10, what is your level of knowledge regarding the AI Act?<br>Scale 1 – 10: means 1 (starting / beginner), 5 (midpoint / average), 10 (complete) |
| AI Act preparedness | 13. What level of preparedness do you think [case company]has in relation to the AI Act? |
| | 14. Ranking: Using a scale of 1–10, what is the level of preparedness for the following themes of the AI Act:<br>Scale 1 – 10: means 1 (starting / beginner), 5 (midpoint / average), 10 (complete) |
| | 1. Risk management<br>Risk system is established, implemented, documented and maintained. |
| | 2. Data and data governance<br>The quality criteria of data for training, validation and testing. |
| | 3. Technical documentation<br>Technical documentation will be completed prior to market placement or service. |
| | 4. Record keeping<br>Technical configuration for logging and automatic event logs over the lifetime. |
| | 5. Transparency and provision of information for others to use<br>(Designed and developed in such a way to ensure that their operation is sufficiently transparent to enable deployers to interpret and use it appropriately) |

| | |
|---|---|
| | 6. Human oversight<br>Designed and developed with effective human oversight by persons during operative use. |
| | 7. Accuracy, robustness, cybersecurity<br>Designed and developed to achieve appropriate accuracy, robustness, cybersecurity and performance consistency throughout the lifecycle. |
| | 8. Quality management system (ie documented policy, procedure and instructions)<br>A system to ensure compliance with the regulation, that is documented documented in a systematic and orderly manner in the form of written policies, procedures and instructions. |
| Ethics principles | 15. Are you aware of [case company] ethical AI principles? |
| Ethics principles | 16. What action do you understand is required by them? |
| General | 17. What else would you like to raise about the topic, not already covered? |
| Experts | 18. Who do you suggest ought to be interviewed as part of this current state analysis? |

## Appendix 12. Written statement on the use of AI based tools in this thesis

**By Adrian Low, the student of BI Master´s Degree Programme**
**Thesis title: AI Governance in a Learning Company**

According to the *"Guidance for addressing the use of AI-based tools in studies at Metropolia Business School (for written submissions)"* from August 2023, I make this statement on the use of AI-based tools in my submitted Master´s thesis.

**Which AI-bases large language models or other AI-based tools I used**

Microsoft CoPilot.

**In which parts of the thesis which tools were used, and for which tasks (please make a list)**

Current state analysis: To provide an understanding of the Metropolia grading description, in order to build a model for weaker vs stronger levels of understanding. (This was removed in the Final version – noted here for completeness).

Reference list. Assisting the creation of a Harvard reference style citation for EU regulation and ISO standards.

**What portion of the text was helped with these tools, for each use**

Reference list. As described above, support to create a reference description for EU regulations and ISO standards.

**Which prompts were asked, exactly (please indicate the page number in the text where used)**

What is the Harvard reference style to describe the EU GDPR?
What is the Harvard reference style to describe the EU AI Act?

What is the Harvard style to describe the ISO?
How does Metropolia University (Finland) grade students using the 1 – 5 scale?

**Here, I describe what continues an ethical and reliable use of AI-based tools that I used *(use, for example, the recommended documents from "MBS Guidance" referred to above)***

My use of AI-based tools did not involve the creation of diagrams (models), tables nor the production of any substantive text preparation in writing this thesis. The use of AI-based tools supported minor aspects of this work, for efficiency purposes.

**Here, I describe how ethically and reliably I used the AI-based tools in my thesis submission**

See above.

**This written statement makes part of my thesis and is done to help in evaluation and assessment.**

4 June 2025, Helsinki, Finland
*(Date and place)*

Adrian Low
_____
*(Signature)*