Unlocking AI's potential: A roadmap for SMEs and non-profits in New Zealand

A practical guide to strategic AI adoption

Poutū-te-rangi / March 2025

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©BERL Reference No: 6112 Poutū-te-rangi / March 2025

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Introduction

This paper explores the integration of artificial intelligence (AI) within small and medium-sized enterprises (SMEs) and non-profit entities. It was developed as part of the coursework for a Master of Technological Futures programme, and is now offered freely for the benefit of resource-constrained organisations.

The primary objective of the research was to develop a comprehensive roadmap that aligns AI adoption with strategic business goals. The methodological framework employed in this research includes a multi-faceted approach comprising document reviews, literature scans, stakeholder engagement, and a privacy impact assessment (PIA). This approach ensures a thorough understanding of the current state of AI, identifies potential AI opportunities, and establishes concrete strategies for ethical and responsible AI practices.

The roadmap for developing an integrated digital strategy is organised into several key steps that provide a structured and comprehensive approach to integrating AI into business operations, ensuring alignment with strategic goals, ethical practices, and continuous improvement. The findings and roadmap presented in this paper offer valuable insights for SMEs and non-profits seeking to leverage AI technologies to enhance operational efficiency and innovation.

This roadmap provides a practical guide for SMEs and non-profits in New Zealand to successfully integrate AI into their operations. It outlines a step-by-step approach to strategic alignment, ethical considerations, implementation, and continuous improvement, enabling organisations to leverage AI for enhanced efficiency, innovation, and competitive advantage.

Step-by-step roadmap for developing an integrated digital strategy

1. **Articulate strategic alignment**: Define clear objectives for AI adoption, illustrating how these technologies align with an overarching business strategy and contribute to long-term goals.
2. **Establish leadership mechanisms:** Set up clear leadership structures to oversee AI initiatives, delineating responsibilities, establishing decision-making processes, and ensuring accountability across all organisational functions.
3. **Conduct a Privacy Impact Assessment:** Identify and mitigate privacy risks associated with AI implementation, ensuring compliance with relevant privacy laws and building trust with clients and stakeholders.
4. **Identify use cases:** Identify specific use cases where AI can add value to operations, focusing on areas such as operational efficiencies, quality assurance, and innovation opportunities.
5. **Understand technological needs:** Evaluate the technology needed to support AI initiatives, focusing on improving data management capabilities, including data collection, storage, quality, and security, and evaluating the computational resources required for AI implementation.
6. **Understand capability needs:** Identify and acquire the necessary talent and skills related to AI, including hiring individuals with relevant expertise, and implementing training and upskilling programmes to build AI capabilities within the team.
7. **Establish ethical and responsible AI practices:** Incorporate ethical considerations into AI implementation, addressing potential biases, establishing ethical guidelines for data usage, and ensuring compliance with relevant regulations and standards.
8. **Measure success and progress:** Develop metrics to measure the success of AI initiatives, enabling the tracking of progress, evaluation of effectiveness, and evidence-based decision making.
9. **Implement the digital strategy:** Execute the digital strategy, utilising insights from the research methods to address infrastructure requirements, overcome data challenges, and deploy AI solutions incrementally, promoting learning and improvement through experimentation and measurement of results.

Step 1: Articulate strategic alignment

AI integration is not just a technological upgrade but a strategic imperative that can transform an organisation's operations and competitiveness. To fully leverage AI's potential, it is crucial to align AI initiatives with overarching business objectives and long-term goals. This alignment ensures that AI adoption drives meaningful value creation and supports the organisation's vision for the future.

Define a clear AI vision

The cornerstone of strategic alignment is defining a clear AI vision. This vision should:

- Illustrate how AI technologies support the overarching business strategy
- Contribute to long-term organisational goals
- Provide a roadmap for focused AI initiatives
- Ensure AI projects achieve specific business outcomes.

Firstly, to articulate how AI will drive innovation and competitive advantage, it is essential to identify specific areas where AI can create unique value propositions. This involves outlining how AI will enhance existing products, services, or processes, and describing how AI will enable new business models or revenue streams.

Next, define the desired future state of AI integration across the organisation. Envision how AI will transform key business functions and workflows, describe the expected impact on organisational culture and ways of working, and outline the anticipated changes in decision-making processes and data utilisation.

Finally, set ambitious yet achievable long-term goals. Establish clear, measurable objectives for AI adoption over a three-to-five-year horizon, ensuring that these goals are challenging enough to drive significant change yet realistic given resource constraints. Align these goals with broader organisational strategic objectives.

Ensure strategic alignment

To ensure strategic alignment, and guarantee that AI initiatives support the overarching business strategy, begin by conducting a thorough review of the current business strategy.[1] A business

[1] The term business strategy can be replaced by organisational strategy, strategic plan, or any other term that applies to your organisation.

strategy outlines how an organisation creates value and gains a competitive advantage (Boyles, 2022). The strategy outlines the direction and actions a business intends to take and provides a roadmap for decision making. Success is often measured by key performance indicators (KPIs) or other measures.

The first task is to identify, define, and document your business strategy, and ensure it is up-to-date, so that it supports digital strategy development. This involves analysing key strategic initiatives, priorities, and performance indicators to identify areas where AI can directly support or accelerate strategic goals. Engage with key stakeholders to understand their strategic priorities and challenges.

Next, identify improvement areas based on the business strategy. Pinpoint key areas for enhancement, such as financial performance, market position, customer satisfaction, operational efficiency, or innovation capabilities. For example, an objective for improving team capability could be "enabling continuous organisational learning and innovation". Promote a sense of ownership and enthusiasm for the AI initiative among employees by engaging in discussions to identify day-to-day challenges and highlight areas where AI could make a significant impact and improve their business strategy.

Set SMART objectives, develop action plans, and establish KPIs

Next, map AI objectives to business outcomes. For each AI initiative, clearly articulate how it contributes to specific business goals. Prioritise AI projects based on their potential impact on critical business metrics, and develop a matrix that shows the direct linkage between AI capabilities and strategic objectives.

Ensure objectives are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART). Prioritise objectives based on strategic importance, potential value, ease of implementation, and alignment with the organisation's AI vision and overall business goals. An example of SMART goalsetting for the objective, "enable continuous learning and innovation" is:

- **S:** Implement an AI skills development programme
- **M:** Train 100 percent of relevant employees in AI basics
- **A:** Through structured learning programmes
- **R:** Supports the organisation's commitment to knowledge and achievement
- **T:** Complete initial training within 12 months.

Create detailed action plans for the objectives that outline specific steps, resource requirements, and timelines for the SMART goals. Define KPIs to track progress and measure success. Engage employees in shaping the action plans to enhance buy-in and commitment. These action plans form the skeleton of your digital strategy for AI adoption.

Finally, create a strategic narrative. Develop a compelling story that illustrates how AI adoption will transform the organisation. Highlight the strategic rationale behind AI investments and their expected returns. Use this narrative to build buy-in across all levels of the organisation.

Establish a framework for continuous improvement

To establish a framework for continuous alignment between AI initiatives and evolving business needs, it is essential to implement regular strategy review sessions. The process of reviewing connects to step 2 of the roadmap, where leadership mechanisms and decision-making processes are described. Schedule quarterly reviews to assess each objective's progress and conduct bi-annual comprehensive assessments of AI strategy implementation. Plan annual strategy reviews to ensure continued alignment with overall business goals. Adjust AI initiatives as needed based on changing market conditions or business priorities, and create a framework for adjusting objectives based on emerging AI technologies and market changes.

Develop feedback mechanisms by creating channels for ongoing input from different organisational functions, or units, on AI needs and opportunities. Establish a process for capturing and acting on insights from AI implementations, and regularly survey stakeholders, including employees and clients, to gauge the perceived value and alignment of AI initiatives.

Support a culture of strategic thinking around AI by encouraging leaders across the organisation to consider AI's potential in their strategic planning. Provide training and resources to help teams identify AI opportunities that support business goals, and recognise and reward initiatives that demonstrate strong alignment between AI and business strategy.

By following this structured approach, organisations can ensure that their AI adoption strategy is well-defined, strategically aligned, and provides a clear roadmap for achieving long-term business goals.

Step 2: Establish leadership mechanisms

For AI adoption to be successful, leadership must be structured and aligned with the organisation's overall business plan. To effectively integrate AI into business operations, follow these steps and best practices in AI governance and management.

Assess the current state

Before implementing new AI leadership mechanisms, it is crucial to understand the current landscape. This involves:

- **Reviewing existing structures:** Examine organisational charts, job descriptions, policy documents, and project/workstream management methodologies
- **Identifying decision-making processes:** Understand how decisions are currently made at strategic, organisational, and project/business unit levels
- **Evaluating accountability frameworks:** Assess how roles, responsibilities, and deliverables are defined and managed in existing projects/workstreams
- **Identifying gaps:** Determine where the organisation lacks AI-specific leadership, expertise, or resources.

Define decision-making domains

Clearly delineate decision-making responsibilities across three key domains:

- **Strategic level:** Define the process for collaborative decision making involving the leadership team, focusing on long-term AI direction and major initiatives. Include how these decisions align with the overall business strategy
- **Organisational level:** Outline how the leadership team and relevant managers will make decisions to ensure efficient resource allocation and operational effectiveness for AI initiatives. *Documentation requirement:* A resource allocation decision matrix for AI projects
- **Project/workstream level:** Establish a process for project/workstream-specific decisions, involving the project/workstream leaders, ensuring alignment with project/workstream goals and AI governance policies.

Establish key leadership roles

Effective leadership mechanisms are critical for aligning AI initiatives with business strategy and ensuring that they are executed efficiently. Accountability is essential for maintaining transparency and trust within the organisation, and it helps to ensure that all stakeholders are held responsible for their contributions to AI initiatives (Ammanath et al., 2021).

Create or adapt key leadership roles to oversee AI initiatives:

- **AI Steering Committee:** Establish a committee to oversee AI strategy and implementation, set strategic direction, approve major AI projects, and ensure alignment with business goals. The Committee should include representatives from various departments or areas of the organisation, and have regular meetings (e.g., monthly or quarterly) to review progress and make strategic decisions
- **AI Project Lead:** Appoint a dedicated lead responsible for the day-to-day management of AI projects. Clearly outline responsibilities, including project planning, resource allocation, stakeholder communication, and risk management
- **AI Data Governance Manager:** This role will be responsible for ensuring ethical use of data and compliance with data privacy regulations. It is likely that the role will be allocated to the current Privacy Officer and/or someone with responsibility for ensuring that processes and systems around data management are fit for purpose. This includes adequate infrastructure, appropriate use of software and/or platforms, and adherence to data privacy and security guidelines in New Zealand, including the Privacy Act 2020, and overseas, e.g., the General Data Protection Regulation (GDPR).[2]

Define clear workflows for decision making, including:

- **Consultation requirements:** Identifying who needs to be consulted before decisions are made.
- **Approval authority:** Establishing who has final approval for distinct types of decisions.
- **Escalation paths:** Implementing clear financial thresholds for escalation to the Steering Committee, and pathways for addressing ethical concerns.

[2] The GDPR is a comprehensive data protection law enacted by the European Union (EU) that came into effect on May 25, 2018. It aims to protect the privacy and personal data of individuals within the EU and the European Economic Area (EEA). The GDPR establishes strict guidelines for the collection, storage, processing, and sharing of personal data, and it grants individuals greater control over their personal information.

Implement accountability frameworks

Develop robust frameworks to manage accountability across all levels of AI initiatives. Examples of frameworks include Responsible, Accountable, Consulted, Informed (RACI) matrices, and financial delegation authorities. Other accountability frameworks may already be in use and are easily adaptable within your organisation.

RACI matrix

Table 1 RACI for AI projects

Task/ Responsibility	AI Steering Committee	AI Project Lead	AI Data Governance Manager	Other Team Members
Set strategic direction for AI initiatives	A/R	C	C	I
Approve major AI projects	A/R	C	C	I
Ensure alignment with business goals	A/R	R	C	I
Address implementation challenges	A	R	C	C
Manage day-to-day execution of AI initiatives	I	A/R	C	R
Coordinate with team members	I	A/R	C	R
Report on progress to AI Steering Committee	I	A/R	C	C
Ensure projects are within budget and timeline	C	A/R	C	R
Ensure data governance compliance	C	C	A/R	I
Oversee data management practices	I	C	A/R	R
Conduct privacy impact assessments	I	C	A/R	C
Ensure regulatory compliance	C	C	A/R	R

Key:

- **R** = Responsible (The person or people responsible for completing the task and doing the work)
- **A** = Accountable (The person who is ultimately accountable for the correct and thorough completion of the task)
- **C** = Consulted (Those who need to be consulted before a decision or action is taken, and whose input is required)
- **I** = Informed (Those who need to be informed after a decision or action is taken, and kept up-to-date on progress).

The delineation of responsibilities serves to avoid confusion and overlap in duties, ensuring clear ownership of tasks and outcomes across different job functions. This RACI matrix example provides a clear overview of who is responsible, accountable, consulted, and informed for various tasks and responsibilities in AI initiatives (Table 1). This project management tool helps ensure clear ownership and accountability while minimising confusion and overlap in duties. This way, all team members understand their specific responsibilities and accountabilities in AI initiatives.

Financial delegation authority

A financial authority delegation framework is used to regulate key financial transactions and decision-making processes. This framework defines financial thresholds and levels of authority for decision making, ensuring fiscal responsibility and transparency. Defining and implementing clear financial thresholds and approval workflows for AI-related expenditures helps maintain fiscal responsibility and transparency, particularly at the organisational level.

Design AI-specific processes

Develop specific processes to support AI initiatives, incorporating documentation standards:

- **Data governance process:** Document the process for managing data quality, security, and compliance, including data access requests, data breach protocols, and data retention policies
- **AI project approval process:** Outline the steps required to propose, evaluate, and approve AI projects, including business case development, feasibility assessment, and resource allocation
- **Ethical review process:** Establish a process for reviewing AI projects for ethical considerations, including bias detection, fairness assessments, and transparency requirements. This may be included in the data governance processes and policies.

Implement change management

To ensure the successful adoption of new AI leadership mechanisms, it is essential to engage stakeholders by conducting consultations with employees to gather feedback on proposed structures and processes. Implementing the new mechanisms on a small scale for real-world testing, before a full-scale rollout, allows for phased implementation even if the small scale is a handful of people. Providing training and communication ensures that all employees understand their roles and responsibilities within the new AI leadership framework. Additionally, continuous improvement should be prioritised by regularly reviewing and refining AI leadership mechanisms based on feedback, performance data, and evolving business needs.

Step 3: Conduct a Privacy Impact Assessment

Under the New Zealand Privacy Act 2020, organisations must conduct a Privacy Impact Assessment (PIA) when undertaking projects that involve significant changes to the way personal information is handled. This includes AI projects that collect, use, or disclose personal information. A PIA helps identify and mitigate potential privacy risks, ensuring compliance with the Act and building trust with clients and stakeholders.

Conducting a PIA is crucial for several reasons:

- **Ensuring compliance with privacy laws**: A PIA helps organisations ensure that their data collection, processing, and storage activities comply with relevant privacy laws and regulations, avoiding legal penalties and maintaining their reputation.
- **Identifying and mitigating privacy risks**: By conducting a PIA, organisations can identify potential privacy risks early in the development process and implement measures to mitigate them, preventing data breaches, unauthorised access, and other privacy incidents.
- **Building trust with stakeholders**: Demonstrating a commitment to privacy through a PIA enhances trust with clients and/or customers, employees, and other stakeholders, making them more likely to engage with and support the organisation's digital strategy.
- **Improving data management practices**: A PIA provides insights into data handling practices, highlighting areas for improvement and enhancing overall data management and protection strategies, benefiting both current and future initiatives.
- **Supporting informed decision making**: The findings from a PIA inform decision making throughout the development of a digital strategy, helping organisations balance innovation with privacy protection.
- **Avoiding reputational damage**: Conducting a PIA helps organisations avoid reputational damage by ensuring privacy risks are identified and addressed early, protecting the organisation's reputation, and encouraging a positive public image.

In the New Zealand context, privacy considerations are primarily guided by the Privacy Act 2020, which sets out the legal framework for protecting personal information (Office of the Privacy Commissioner, 2020). The Privacy Commissioner, as the regulatory body responsible for overseeing this legislation, provides comprehensive guidance on conducting PIAs. This guidance includes

detailed processes and customisable templates designed to assist organisations in effectively evaluating and mitigating privacy risks (Office of the Privacy Commissioner, n.d.).

The roadmap step for conducting a PIA, as outlined, has been developed with careful consideration of these New Zealand-specific resources and requirements. By aligning with the Privacy Commissioner's guidelines, organisations can ensure that their PIA process not only meets local regulatory standards but also benefits from best practices tailored to the New Zealand business environment. This approach supports a culture of privacy awareness and compliance that is particularly relevant to the unique challenges and opportunities faced by New Zealand-based organisations in the digital age.

PIA process

- Define the scope of the assessment:
    - Identify specific data processing activities to be examined
    - Determine types of personal data involved. Examples of data types include:
        - Customer data: Names, addresses, purchase history, online behaviour
        - Employee records: Personal details, performance data, health information
        - Health information: Medical records, treatment history, diagnostic data
- Form a multidisciplinary team:
    - Include legal, IT, data, systems administration, and privacy experts (internal and external, depending on organisational structure, capability, and needs)
    - Ensure diverse perspectives and expertise
- Map data flows by creating a detailed data flow diagram illustrating the movement of data through systems and processes
- Identify privacy risks:
    - Consider factors such as data breaches, unauthorised access, and data misuse. Potential risks include:
        - Data breaches: Unauthorised access to sensitive data
        - Bias and discrimination: AI models making unfair or discriminatory decisions

        - Lack of transparency: Difficulty understanding how AI systems make decisions
        - Inaccurate predictions: AI models providing incorrect or misleading information
    - Assess potential impact on individuals' privacy rights and the organisation
- Develop and implement mitigation measures:
    - Implement measures such as encryption, access controls, and data minimisation. Examples of mitigation strategies include:
        - Data breaches: Implement strong data encryption, access controls, and security monitoring
        - Bias and discrimination: Use diverse datasets, bias detection algorithms, and fairness-aware AI techniques
        - Lack of transparency: Employ explainable AI (XAI) methods to understand and interpret model decisions
        - Inaccurate predictions: Regularly evaluate model performance, use robust validation techniques, and incorporate human oversight
    - Document effectiveness of measures
- Engage stakeholders, collect feedback, and review and revise PIA findings based on input
- Compile a PIA report:
    - Ensure comprehensive documentation of all PIA activities, including a description of the AI project and its purpose; identification of personal information; assessment of privacy risks; mitigation strategies; and sign-off by relevant stakeholders (e.g., Privacy Officer, legal counsel)
    - Share with relevant stakeholders and authorities if required
- Monitor and review:
    - Continuously monitor data processing activities
    - Conduct periodic reviews to address changes in activities or regulations.

Step 4: Identify use cases

In the process of integrating AI into operations, identifying and documenting specific use cases is a crucial step. According to Silva (2022), use case diagrams are valuable for visualising and documenting use cases. These diagrams effectively map out the system under consideration, the actors involved (users of the system and the roles they perform), the use cases themselves (potential tools or processes for solving a problem), and the relationships between these elements (interactions between actors and use cases within the system).

Use cases serve multiple purposes in the context of technology implementation. As Cockburn (2000) notes, they help in defining the scope of a system, clarifying requirements, and facilitating communication between stakeholders. In the context of AI integration, use cases can help organisations identify specific areas where AI can add value, prioritise implementation efforts, and align technology adoption with business objectives (Davenport & Ronanki, 2018).

Moreover, use cases play a crucial role in bridging the gap between technical capabilities and business needs. They provide a common language that both technical and non-technical stakeholders can understand, encouraging better collaboration and ensuring that AI implementations are driven by genuine business requirements rather than technology for its own sake (Marr, 2019). By developing detailed use cases, organisations can gain a clearer understanding of how AI can be practically applied within their specific context, the potential benefits it can bring, and the challenges that may need to be addressed during implementation.

Use case process

Identifying and documenting specific use cases is crucial when integrating AI into operations. Use cases provide a structured way to capture and communicate how AI will be utilised to achieve specific goals or solve particular problems within an organisation.[3] This step outlines a logical process for identifying, developing, and documenting AI use cases.

[3] A 2024 Harvard Business Review article by Marc Zao-Sanders provides an overview of how people are integrating generative AI (GenAI) into their work and personal lives, identifying 100 use cases across six main themes of usage. The breadth of the use cases highlights both GenAI's practical applications and potential pitfalls based on real-world usage patterns.

Understanding the system and context

To begin, it is essential to understand the system and its context. This involves defining the system boundaries and primary goals of AI integration, identifying key stakeholders and actors who will interact with AI systems, assessing current operations to identify areas that could benefit from AI integration, and reviewing existing documentation and processes relevant to potential AI applications.

Gathering requirements and identifying potential use cases

Next, gather requirements and identify potential use cases by engaging with stakeholders to understand their needs, expectations, and pain points. List the main functions or tasks that actors could perform with AI assistance, focusing on goals that provide value to the actors and align with the business strategy. Brainstorm potential AI applications based on stakeholder input and operational assessment.

Describing and prioritising use cases

Once potential use cases are identified, describe and prioritise them based on:

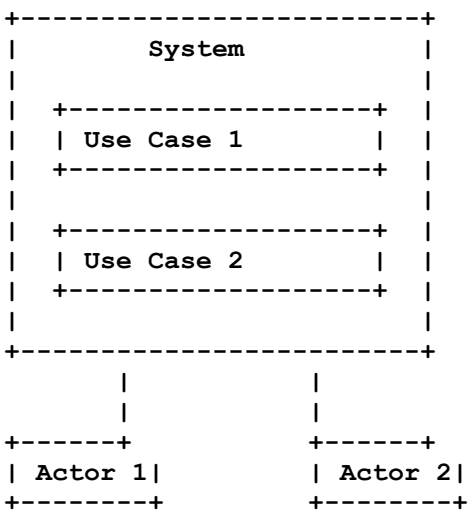
- **Impact:** Potential benefits for the organisation
- **Feasibility:** Technical and resource requirements
- **Strategic alignment:** How well the use case supports overall business goals
- **Data availability and quality:** Whether the necessary data is readily available and of sufficient quality
- **Ethical considerations:** Whether the use case raises significant ethical concerns
- **Regulatory compliance:** Whether the use case can be implemented in compliance with relevant regulations.

Write brief descriptions for each use case, including the actors involved, the goal of the use case, and any pre-conditions and post-conditions. Group related use cases to identify broader AI application areas and prioritise them based on their importance to business objectives, frequency of use, feasibility of AI implementation, and potential benefits and challenges.

Creating use case diagrams

Create use case diagrams by drawing the system boundary for each prioritised use case or group of related use cases. Place actors outside and use cases inside the system boundary, drawing lines to show relationships between actors and use cases. Use standardised UML (Unified Modelling Language) notation for clarity and consistency.

Figure 1 Example use case diagram



In this diagram:

- The **System** boundary is represented by the outer rectangle
- **Use Case 1** and **Use Case 2** are the specific use cases within the system
- **Actor 1** and **Actor 2** are the stakeholders or users who interact with the system
- The lines connecting the actors to the use cases represent the interactions between them.

This is a basic example, and use case diagrams can be more complex depending on the system and the number of use cases and actors involve

Reviewing, refining, and validating

Review, refine, and validate the use case diagrams and descriptions by presenting them to stakeholders for feedback. Refine the diagrams and descriptions based on stakeholder input to ensure that they accurately represent the desired AI functionality, and confirm that all key stakeholder requirements are addressed.

Developing detailed use case documentation

For selected high-priority use cases, develop detailed use case documentation. This includes creating comprehensive descriptions with detailed workflows, and data requirements and sources; expected AI functionalities (e.g., prediction, classification, natural language processing); integration points with existing systems; expected outcomes and success criteria; potential AI technologies or approaches suitable for each use case; required resources (e.g., data, expertise, infrastructure) for implementation; and potential challenges, risks, and ethical considerations associated with AI implementation.

Use the following guidance, with the example of predictive maintenance for non-profit vehicles, to document each potential use case.

- **Problem statement:** Describe the problem or opportunity that the AI solution will address. *Our non-profit relies on a fleet of vehicles to deliver services to the community. Unexpected breakdowns lead to service disruptions and high repair costs.*
- **Proposed AI solution:** Outline the proposed AI solution and how it will work. *Implement a predictive maintenance system using AI to analyse vehicle sensor data (e.g., engine temperature, mileage, fuel consumption) and predict potential maintenance needs before breakdowns occur.*
- **Expected benefits:** Quantify the expected benefits of the AI solution (e.g., cost savings, increased efficiency, improved customer satisfaction). *Reduce vehicle downtime by 20 percent, lower repair costs by 15 percent, and improve service delivery reliability.*
- **Data requirements**: Identify the data required to train and operate the AI solution, including data sources, data quality requirements, and data governance considerations. *Vehicle sensor data, maintenance records, and repair history. Data must be collected in real-time and stored securely.*
- **Technical feasibility:** Assess the technical feasibility of implementing the AI solution, including the availability of necessary technology and expertise. *Feasible with existing Internet of Things (IoT) sensor technology and cloud-based AI platforms.*
- **Ethical considerations:** Identify and address any ethical concerns related to the AI solution, such as bias, privacy, and transparency. *Data privacy is a concern. Ensure data is anonymised and used only for predictive maintenance purposes.*
- **Key stakeholders:** List the key stakeholders who will be involved in the AI solution, including project sponsors, data owners, and end-users. *Fleet manager, drivers, maintenance team.*

- **Success metrics:** Define the metrics that will be used to measure the success of the AI solution. *Reduction in vehicle downtime, decrease in repair costs, improvement in service delivery performance.*

Planning for implementation

Plan for implementation by developing a high-level implementation roadmap for prioritised use cases, estimating timelines and resource requirements, identifying dependencies between use cases and existing systems, and outlining change management considerations for each use case.

Maintaining and updating

Finally, maintain and update the use case documentation regularly as the AI system evolves or new requirements emerge. Establish a process for regularly reviewing and updating use cases, and continue to engage with stakeholders throughout the AI implementation process.

By following this structured approach, organisations can effectively identify, prioritise, and document AI use cases that align with their business objectives. This process ensures that AI integration efforts are focused on areas with the highest potential impact and value, while also providing a clear roadmap for implementation.

Step 5: Understand technological needs

Adopting AI successfully requires a strong technology foundation that can support AI solutions. This includes improving data management capabilities, such as data collection, storage, quality, and security, and evaluating the computational resources required for AI implementation. Specific data management capabilities required for AI include:

- **Data integration:** The ability to combine data from various sources (e.g., databases, cloud storage, external APIs) into a unified and accessible format. This includes ETL (Extract, Transform, Load) processes, data warehousing, and data virtualisation
- **Data governance:** Establishing policies and procedures to ensure data quality, accuracy, security, and compliance with relevant regulations (e.g., Privacy Act 2020). This includes data access controls, data encryption, and data auditing
- **Data lineage:** Tracking the origin, movement, and transformation of data throughout its lifecycle. This helps ensure data quality and enables traceability for auditing and compliance purposes
- **Data cataloguing:** Documenting the metadata associated with data assets.

According to Joshi and Wade (2020), a well-designed technological infrastructure is essential for leveraging the full potential of AI technologies. For small businesses and non-profits without in-house IT expertise, evaluating technological infrastructure for AI integration can be challenging. However, this step is crucial for successful AI implementation. Here's how to approach it:

1. **Conduct a basic technology audit:**
    a. List all the current software and hardware used in your organisation
    b. Note which external providers you rely on for IT services
    c. Identify any obvious gaps or outdated systems
2. **Assess data management practices:**
    a. Review how you currently collect, store, and use data
    b. Check if your data is easily accessible and in a usable format
    c. Evaluate your data security and privacy measures
3. **Collaborate with external providers:**
    a. Consult with your current IT provider:

i. Discuss your AI ambitions with your existing IT support. A typical technology stack for AI projects includes:

1. Cloud computing platforms: Cloud providers such as AWS, Azure, and Google Cloud offer a range of services for AI development, including compute resources, data storage, and machine learning platforms
2. Data storage solutions: Solutions for storing and managing large datasets, such as data lakes (e.g., AWS S3, Azure Data Lake Storage) and data warehouses (e.g., Amazon Redshift, Google BigQuery)
3. AI development frameworks: Open-source libraries and frameworks for building and training AI models, such as TensorFlow, PyTorch, and scikit-learn
4. Machine learning platforms: End-to-end platforms for developing, deploying, and managing AI models, such as Azure Machine Learning, Google AI Platform, and DataRobot

ii. Ask for their assessment of your current infrastructure

iii. Seek their advice on necessary upgrades or changes

b. Seek expert advice:

i. Consider hiring an AI consultant for a professional assessment

ii. Look for free or low-cost advisory services from government or non-profit tech support organisations

4. **Costing AI resources for SMEs and non-profits:** When estimating the cost of AI resources, consider the following factors:

a. Cloud computing: Cloud costs vary based on usage. Start with a small instance and scale up as needed. Consider reserved instances or committed use discounts for long-term cost savings

b. AI software: Open-source AI frameworks (e.g., TensorFlow, PyTorch) are free to use. Consider cloud-based machine learning platforms for ease of use and scalability, but factor in their subscription costs

c. Data storage: Estimate the amount of data you will need to store and choose a storage solution that fits your budget. Cloud storage options offer pay-as-you-go pricing

d. Maintenance: Factor in the cost of ongoing maintenance and support, including monitoring, patching, and upgrades. Consider using managed services to reduce maintenance overheads

5. **Explore cloud-based solutions within budget:**

   a. Research suitable AI-ready cloud platforms that are cost-effective

   b. Consider how these could supplement or replace existing systems

   c. Estimate costs for necessary upgrades and ongoing maintenance

6. **Prioritise essential upgrades:**

   a. Based on the information gathered, list critical infrastructure improvements

   b. Focus on changes that will have the most significant impact on AI readiness

   c. Plan for scalability by ensuring any innovative solutions can grow with your organisation's needs

   d. Consider future AI applications when making infrastructure decisions.

The goal is to create a foundation that supports AI initiatives while being manageable and cost-effective for smaller organisations.

Step 6: Understand capability needs

The rapid evolution of AI requires a commitment to continuous learning and innovation to remain competitive. Organisations should cultivate a culture that promotes experimentation, learning from failures, and adapting to new insights and technological advancements for long-term success in AI initiatives (Atsmon, 2023). Effective integration of AI into business operations requires identifying and acquiring the necessary talent and skills, which includes hiring individuals with relevant expertise, and implementing training and upskilling programmes to enhance AI capabilities within the team.

Assess and develop AI capabilities

It is essential to start by understanding the current state of AI skills and knowledge within your team. Conduct a skills assessment to identify gaps in AI expertise. This could include surveying employees to assess their current skills and knowledge in AI-related areas, conducting interviews to understand their AI needs and challenges, and/or workshops to evaluate employees' ability to apply AI concepts to real-world problems. Ask employees about their confidence in using AI for identified use cases from step 4, and facilitate discussions to uncover specific skill gaps, such as the ability to create effective prompts for generative AI. In addition to internal assessments, identify areas where external expertise may be required to supplement your existing resources.

Develop a tailored learning strategy

Based on the assessment, create a customised training programme to address the identified skill gaps and to build AI capabilities within the team. Implement a mix of learning approaches, starting with free or low-cost online resources such as MOOCs, webinars, and AI community forums. Platforms like Coursera, edX, and Udacity offer courses and certifications in AI, machine learning, and data science. Consider engaging external providers to conduct targeted AI training sessions.

It is also valuable to establish mentorship schemes, pairing junior team members with more experienced colleagues to encourage knowledge sharing and practical skills development. Learning should focus on building both foundational AI knowledge and advanced, practical skills relevant to your specific use cases.

It is vital to have employees trained to identify and mitigate risks to privacy, but also to be innovative and imaginative. Provide training to employees on privacy principles, the Privacy Act 2020, and

specific risks associated with AI. Encourage innovative approaches to privacy protection, such as privacy-enhancing technologies and data minimisation techniques.

Encourage a culture of experimentation and continuous learning

Cultivate an environment where team members feel comfortable experimenting with AI tools and technologies. This includes encouraging learning from both successes and failures. Conduct pilot projects to evaluate new AI solutions and approaches in your specific context, allowing employees to gain hands-on experience. To support ongoing learning, appoint an "AI champion" who will be responsible for maintaining and updating an AI playbook/guidebook, developing and managing a prompt library, facilitating ongoing engagement with AI tools, and sharing knowledge across the team. Be sure to regularly refine and update AI resources based on employee feedback and usage to ensure that they remain relevant and effective.

Leverage external resources and expertise

To stay at the forefront of AI developments, it is vital to look beyond your organisation. Collaborate with AI experts, research organisations, and consultancy firms to access specialised knowledge and insights. Participate in relevant conferences, meetups, and online forums to stay connected with the latest trends and best practices. Additionally, consider engaging external providers for professional assessment and support in implementing AI tools, and to provide specialised guidance and practical advice.

Implement flexible talent acquisition strategies

Attracting and retaining AI talent requires a strategic approach. Develop clear and compelling job descriptions that highlight the exciting opportunities and challenges of working in AI. Research industry compensation benchmarks to ensure competitive salaries and benefits for the skills you are recruiting for. Build a culture of innovation, collaboration, and continuous learning to attract and retain employees with AI skills. This includes providing opportunities for professional development, encouraging experimentation, and recognising and rewarding AI achievements.

Be open to flexible talent acquisition strategies. Consider part-time, contract, or remote work arrangements to access AI talent that might be outside your local area or beyond your budget for full-time employees. Also, collaborate with external partners on projects requiring specialised AI

knowledge and skills. These flexible arrangements can help bridge identified capability gaps and complement internal skill development efforts.

Monitoring and adapting continuously

The landscape of AI is constantly evolving, and so it is critical to monitor and adapt your organisational capabilities accordingly. Regularly reassess your AI capabilities as new technologies and needs emerge. Update your learning strategies and resources to address emerging skill requirements. Encourage ongoing feedback from employees on AI tools, processes, and training needs. By staying informed about new AI developments and their potential impact on your organisation, you can ensure that your team remains equipped to leverage AI effectively.

Step 7: Ensure ethical and responsible AI practices

As AI technologies become more integrated into business operations, it is essential to ensure that they are used ethically and responsibly. This includes addressing potential biases, ensuring transparency, and complying with relevant regulations and standards. According to Joshi and Wade (2020), ethical and responsible AI practices are crucial for building trust with clients and stakeholders and ensuring the long-term success of AI initiatives.

Developing ethical guidelines

Adopt or develop a formal ethical framework for AI, based on the following principles:

- **Fairness:** AI systems should be designed and used in a way that avoids bias and discrimination against any group or individual
- **Transparency:** The workings of AI systems should be understandable and explainable, allowing users to understand how decisions are made
- **Accountability:** Clear lines of responsibility should be established for the outcomes of AI systems, with mechanisms in place to address any unintended consequences
- **Privacy:** Data privacy and security should be protected at all times, in compliance with relevant regulations and ethical guidelines
- **Beneficence:** AI systems should be designed and used in a way that maximises benefits while minimising harm to individuals and society.

Create guidelines for AI usage that promote responsible practices and comply with relevant regulations, such as the General Data Protection Regulation (GDPR) and the Privacy Act 2020. Compliance with these regulations is essential to avoid legal penalties and maintain the organisation's reputation. Conduct Privacy Impact Assessments (PIAs) to identify and mitigate privacy risks associated with AI implementation (Office of the Privacy Commissioner, 2023) (see step 3). Regularly review and update these guidelines to reflect new insights and technological advancements.

Encourage a culture of ethical AI

This includes enabling an environment that prioritises ethical considerations by providing employee training and education, encouraging open discussions, promoting transparency and accountability, and engaging with the AI community. This approach ensures responsible AI usage and enhances collaboration within the broader AI landscape (see step 6).

Addressing potential biases and fairness

Ethical AI practices align with broader social responsibility goals, ensuring that AI technologies are used in ways that benefit society and do not cause harm. This includes addressing potential biases, ensuring transparency, and promoting fairness and inclusiveness. Use diverse data sets, conduct regular audits, and train and test AI models on representative data. Ensuring transparency and fairness can enhance the overall effectiveness of AI initiatives and improve business outcomes (Enholm et al., 2022).

Implement techniques for detecting and mitigating bias in data and algorithms, such as:

- **Data auditing:** Analyse datasets for potential sources of bias
- **Algorithm evaluation:** Evaluate AI models for fairness across different demographic groups
- **Bias mitigation techniques:** Apply techniques such as re-weighting, resampling, and adversarial debiasing to reduce bias in AI models.

Provide clear documentation of AI systems and communicate their limitations and potential risks to clients and stakeholders to ensure transparency and accountability. By addressing these risks proactively, organisations can prevent negative impacts on individuals and the organisation (Brey & Dainow, 2023). Demonstrating a commitment to ethical AI practices can enhance trust with clients, employees, and other stakeholders. When stakeholders see that an organisation takes ethical considerations seriously, they are more likely to engage with and support AI initiatives (Valero, 2024).

Explainable AI (XAI) is crucial for building trust and understanding in AI systems. Implement methods for making AI models more transparent and interpretable, such as:

- **Feature importance analysis:** Identify the most important features that influence model predictions.
- **Rule-based explanations:** Generate rules that explain how the model makes decisions
- **Visualisations:** Use visualisations to illustrate model behaviour and decision-making processes.

Continuously monitor, evaluate, and improve

Establish processes for monitoring and auditing AI systems to ensure they are operating ethically and responsibly. This includes:

- **Regular audits:** Conduct regular audits of AI systems to assess their performance, fairness, and compliance with ethical guidelines
- **Performance monitoring:** Continuously monitor AI systems for unexpected behaviour or degradation in performance
- **Feedback mechanisms:** Establish channels for users to provide feedback on AI systems and report any concerns.

Review PIAs and ensure ongoing compliance with ethical guidelines and regulations. Consider engaging an external privacy expert to review the PIA process and provide independent assurance of compliance and effectiveness. Establish mechanisms for addressing emerging ethical issues, use explainable AI techniques, and maintain clear communication with clients and stakeholders about the AI systems' capabilities and limitations.

Step 8: Measure success and progress

To ensure the success and progress of AI initiatives, it is essential to establish clear metrics that align with business goals and ethical standards (step 7). The two key components and tasks are:

1. **Develop Key Performance Indicators (KPIs):** Identify relevant metrics aligned with business goals (step 1). Examples of specific metrics to track progress:
    a. **Financial performance:** Return on Investment (ROI), cost savings achieved, revenue generated
    b. **Customer satisfaction:** Customer satisfaction scores, Net Promoter Score (NPS), customer retention rates
    c. **Operational efficiency:** Reduction in process cycle time due to AI automation, decrease in error rates through AI-driven quality control, improved resource utilisation through AI-powered optimisation
    d. **Innovation:** Number of new products or services launched due to AI, employee engagement in AI-related projects
2. **Develop and implement a monitoring framework:**
    a. Define and describe components, including KPIs, identify monitoring frequency, and the responsible party
    b. Collect and analyse data related to KPIs
    c. Establish a process for regularly reporting on AI performance, including:
        i. **Reporting frequency:** Define how often reports will be generated (e.g., monthly, quarterly)
        ii. **Report content:** Specify the metrics and information that will be included in the reports
        iii. **Report distribution:** Identify who will receive the reports and how they will be distributed.

Monitoring framework for AI implementation

Building on the SMART goals identified in step 1 and other steps within the roadmap, develop a monitoring framework to measure the success of AI implementation (Table 2). The AI Steering Committee will ideally oversee the development and deployment of these metrics, conducting regular

reviews to ensure they remain relevant and aligned with evolving business goals and ethical standards. Incorporate stakeholder feedback to continuously improve AI initiatives and their impact on the organisation.

This framework provides a structured approach to monitoring and evaluating AI use, ensuring that AI initiatives are aligned with business goals, adhere to ethical standards, and deliver tangible benefits. By establishing and monitoring these metrics, organisations can ensure their AI initiatives are successful, ethical, and aligned with strategic objectives. This approach promotes accountability, transparency, and continuous improvement in the use of AI technologies.

It is essential to balance the potential rewards of monitoring with the effort required to collect data. Some benefits may be more challenging to quantify directly. Consequently, a pragmatic approach to measurement should be taken, focusing initially on easily quantifiable metrics while acknowledging that the framework will evolve as AI adoption progresses.

Table 2 Monitoring framework

Component	Description	Metrics	Frequency	Responsibility
Operational efficiency	Assess the impact of AI on operational processes and resource allocation.	Time savings, cost reductions, productivity improvements.	Quarterly	AI Project Lead
Continuous learning and innovation	Ensure continuous AI skill development in employees.	All employees trained in AI basics, use of AI playbook fully integrated, prompt library additions.	Quarterly	AI Project Lead
Productivity	Evaluate the impact of AI on overall productivity and workload management.	Number of tasks automated, reduction in manual work hours, increase in output per employee.	Quarterly	AI Project Lead
Accuracy	Measure the accuracy and reliability of AI systems in performing tasks and generating insights.	Error rates in data analysis, accuracy of AI outputs, reduction in rework due to errors.	Quarterly	Data Manager
Research capabilities	Evaluate effectiveness of AI systems in enhancing research processes.	Reduction in time spent on analysis for qualitative research and data analysis.	Quarterly	Data Manager
Client impact	Evaluate the impact of AI on client experiences and project outcomes.	Client feedback, reduction in client revision requests, AI-powered proofreading and editing system implemented and used.	Biannually	AI Steering Committee
Ethical and responsible AI practices	Ensure AI initiatives adhere to ethical standards and regulations.	Ethical guidelines developed, implemented, and regularly reviewed, ethical issues identified and resolved.	Quarterly	Data Manager
Data quality / availability	Ensure the quality and accessibility of data used in AI initiatives.	Data accuracy, completeness, consistency, timeliness, data accessibility.	Quarterly	Data Manager

Component	Description	Metrics	Frequency	Responsibility
Transparency and explainability	Ensure AI systems are transparent and decision-making processes are explainable.	Documentation completeness, use of explainable AI techniques, stakeholder communication, any AI models have documented decision-making processes.	Biannually	AI Project Lead
Bias and fairness	Identify and mitigate biases in AI systems to ensure fairness.	Bias identification mitigation measures implemented.	Quarterly	Data Manager
Compliance	Ensure AI initiatives comply with relevant regulations and standards.	Compliance audit results, number of compliance issues identified and resolved.	Annually	AI Steering Committee
Continuous improvement	Use insights from monitoring and evaluation to make necessary adjustments and improvements.	Number of improvements implemented, feedback from stakeholders, performance review results, time taken to implement AI processes.	Ongoing	AI Steering Committee

Step 9: Implement the digital strategy

The previous steps of the roadmap outline a comprehensive AI integration roadmap, detailing steps 1 through 8. These steps cover strategic alignment, leadership mechanisms, PIAs, use case identification, technological needs, capability needs, ethical AI practices, and measuring success and progress.

Step 9, which refers to implementing the digital strategy, is necessary. While the first eight steps provide a robust framework and preparatory groundwork, the actual implementation is crucial for translating these plans into actionable outcomes. Without this step, the strategy remains theoretical and does not achieve its intended impact.

Implementing the digital strategy involves executing the well-defined plans and ensuring that the AI initiatives are integrated into the business operations effectively. This step is essential for realising the benefits of AI and ensuring that the strategic goals are met. Here are the tasks involved in implementing the strategy:

- **Execution of plans**: The first task is to execute the detailed plans developed in the previous steps. This includes deploying AI technologies, setting up necessary infrastructure, and ensuring that all systems are operational. The AI Steering Committee will oversee this process, ensuring that each task is completed on time and within budget. Implement AI solutions in a phased approach – start with small-scale pilots to test and validate any AI platforms before deploying them more widely, gradually scaling up successful projects.
- **Resource allocation**: Proper allocation of resources, including financial, human, and technological, is critical. This involves ensuring that the right people are in place, with the necessary skills and training, and that the technological infrastructure is robust and scalable.
- **Change management**: Implement change management strategies to ensure that employees are prepared for the changes brought about by AI, including communicating clearly and transparently about the benefits and impacts of AI; providing training and support to help employees adapt to new roles and responsibilities; and involving employees in the AI implementation process to increase buy-in and ownership.
- **Monitoring and evaluation**: Continuous monitoring and evaluation are essential to track progress and measure the effectiveness of AI initiatives. This involves collecting data on key performance indicators (KPIs) and using this data to make informed decisions. Regular reviews and adjustments ensure that the strategy remains aligned with business goals and can adapt to any

changes or challenges that arise. Collect feedback from employees to identify areas for improvement. Use an iterative development approach to continuously refine and improve AI solutions based on data and feedback.

- **Stakeholder engagement**: Engaging with stakeholders throughout the implementation process is crucial. This includes regular communication with employees, clients, and other stakeholders to ensure that they are informed and supportive of the AI initiatives. Feedback from stakeholders can provide valuable insights and help refine the strategy.
- **Addressing challenges**: Implementation often comes with challenges, such as technical issues, resistance to change, or unforeseen obstacles. Having a plan in place to address these challenges is essential. This includes having a dedicated team to troubleshoot issues, providing additional training or support as needed, and being flexible and adaptable in the approach.
- **Ethical considerations**: Ensuring that AI initiatives are implemented ethically and responsibly is paramount. This involves adhering to the ethical guidelines developed in step 7, conducting regular audits to identify and mitigate any biases, and ensuring transparency and accountability in all AI-related activities.
- **Continuous improvement**: Implementation is not a one-time task but an ongoing process. Continuous improvement involves regularly reviewing and updating the strategy based on feedback and performance data. This ensures that the AI initiatives remain effective and aligned with the evolving needs of the business.

Implementing the digital strategy is a critical step that brings the AI integration roadmap to life. It ensures that the strategic goals are achieved, the benefits of AI are realised, and the organisation is well-positioned to leverage AI technologies for long-term success.

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