MIS716 AI FOR BUSINESS

AI SOLUTIONS FOR HOME INSTEAD GEELONG

TECHNOLOGY CONSULTANCY REPORT

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This report is done as a part of the postgraduate program at Deakin University. This is prepared in 2022 trimester 1 for the unit *MIS716 AI for Business* as a group assignment.

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Abbreviations used in the Report:

- HIG: Home Instead Geelong
- HCP: Home care package

Executive Summary

This report aims to recommend the possible Australian AI service provider to Home Instead Geelong and help the institution identify and assess potential risks in the AI solutions. Home Instead Geelong is a home care service provider that provides a wide range of home care services to the disabled and the elderly over 65 years old. The owner intends to integrate AI solutions into the business, especially the AI service robots and AI social robots in home-based care. The institution explores potential AI opportunities in Australia and aims to understand and mitigate the risks of the digital solution. The methods involve identifying stakeholders, identifying AI risks in each stakeholder group, evaluating risks, and deriving mitigation strategies.

The conducted research identifies seven stakeholders and uses the AI risk (AIR) framework to present the AI risks confronted by each stakeholder group. The risk analysis adopts the risk matrix to measure the overall risk performance of each domain, and the determinants are discussed in the report. Solutions are also proposed behind each risk domain to help the organization manage and mitigate AI risk.

AI risks are caused by various reasons technologically and ethically. HIG should have an eye on building a risk management framework and integrating responsible AI into the organization's long-term value if the business had decided to implement the digital transformation. It will be a challenging task that requiring consistent efforts. Therefore, HIG should fully evaluate its commercial capability, understand the potential risks, and have a clear mindset on AI risk management before moving to the final decision.

Table of Contents

Acknowledgements

The group would like to thank everyone who was supported this project. The unit chare Lemai Nguyen and the tutor Kaushalya Nallaperuma have organized sufficient consultation sessions for the report writing. A special thanks to the owner of Home Instead Geelong Giovanni Siano for providing the group with valuable business information and data to produce the report.

1. Background Introduction

'Everything we do at Home Instead is driven by our universal mission to enhance the lives of ageing adults and their families.' (Home Instead, 2021)

HIG was founded by Giselle Siano and Giovanni Siano in 2018. Committed to providing high quality home care service for clients over 65 years of age and clients with disabilities, HIG aims to employ over 1,000 CAREGivers by 2025.

HIG is seeking digital transformation opportunities using the home care service robot to improve service quality and optimize the client experience. The report identifies the stakeholders and the AI risks consisting with each stakeholder group. Also, it helps the owner analyze and evaluate each risk domain in detail and proposes relevant solutions with the RAI framework. The end part concludes the limitations of the research and recommendations for the transformation.

2. Stakeholders and the AI Risk

2.1 Identify and describe relevant stakeholders in their AI application

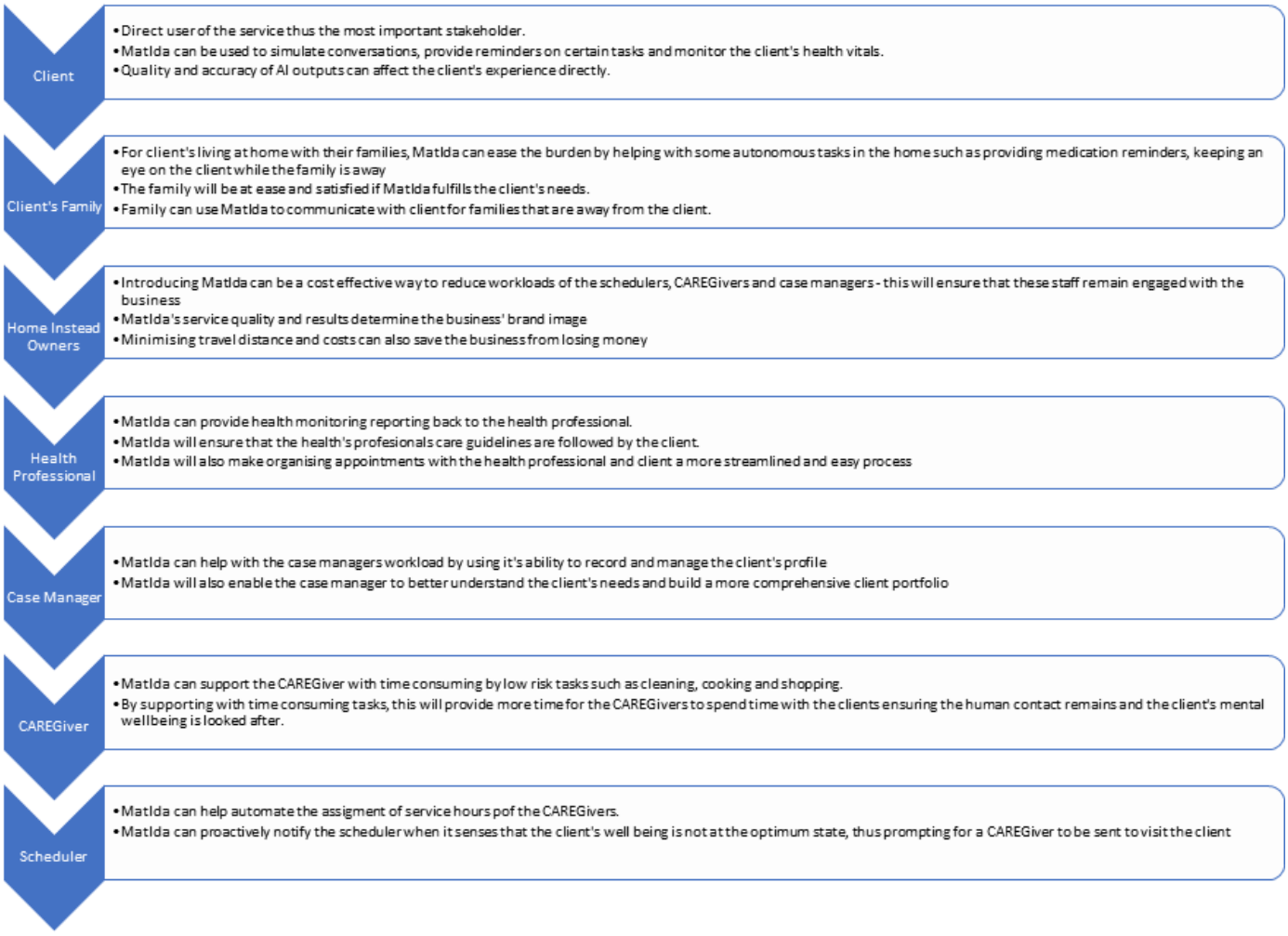
To accurately address the AI risks that are associated with HIG's digital transformation and help the business to better meet the clients' needs, it is critical to first understand the stakeholders that are relevant to this AI application.

Theoretically, everyone has the possibility to be impacted by the robotic revolution. Robot Matlda can provide many functions. However, HIG is not willing to get a full subscription because some services such as Hospital care for people with Younger Onset Dementia (YOD) and

Education are not included in HIG's list. Based on the description of the case, the services that are related to HIG are (HC Innovation 2018):

- Residential aged care
- Home-based dementia care
- Community center care

Seven stakeholders are picked from this case.



2.2 AI risks Associated with the Robotic Application

Since there is no absolute safety guarantee for AI, it is critical to understand the risks confronted by the stakeholders. The following part uses the AIR framework to address the AI risks associated with the stakeholders. The risk matrix (Figure 1) is used for evaluating the risk performance.

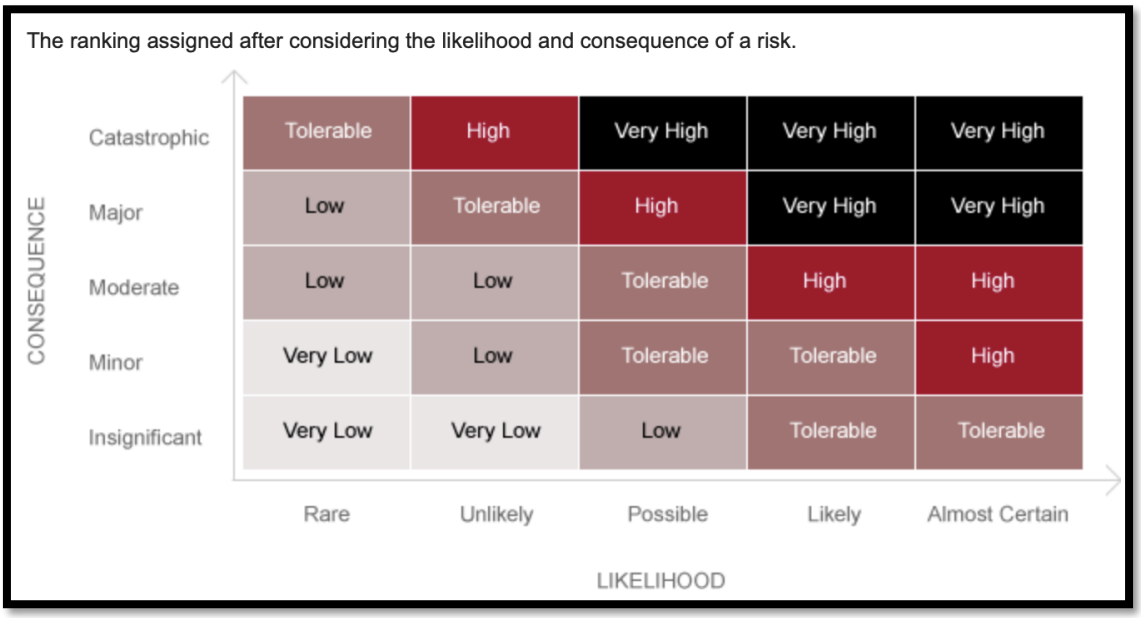


Figure 1: AI Risk Matrix (Chartered Accountants 2022)

AI Risk Domains	Risk Performance	Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Performance	**R1: Risk of Errors.**	- Language barriers	All Especially for: Client & Client's family	Design of the algorithm is Lack of lingual variety	likely	Moderate	High
		- Robot mixing up medication scheduling	- Health Professionals - Client & Client's family - Scheduler	- missing/inaccurate data, complex algorithms. - Deployment of application & change management - Poor data quality.	Likely	Major	Very High
	R2: Risk of Instability of Performance.	- Change the HCP/ treatment plans	- Client - Client's family - CAREGiver - Scheduler - Case managers - Health professionals - Owner	- Change of data quality/source/ lack of testing data/ wrong model - System upgrade	Likely	Moderate.	High
	R3: Lack of Feedback Process.	- Don't receive feedback from clients and caregivers	- Client - Client's family - CAREGiver - Case managers - Scheduler - Health professionals - Owner	The program cannot provide feedback if clients or their family do not participate the feedback session.	Likely	Moderate.	High

AI Risk Domains	Risk Performance	Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Security	**R1: Cyber Intrusion.**	- System crackdown - Loss of clients' profile	- Client - Client's family - CAREGivers - Scheduler - Health professionals - Owner	Vendor system instability, AI system is abused by malicious actors	Unlikely	Major	Tolerable
	R2: Open-source software	- Do not understand what & how the system drive the robot, neither do they know where the data will be used and stored - Cannot control the system and data use - Vendor/ third party sell clients or business' data to others	- Client - Client's family -CAREGivers - Scheduler - Case managers - Health professionals - Owner	AL/ML algorithms are also available via open sources and third parties, and users are not aware of the underlying algorithms	Likely	Major	Very High
	R3: Privacy	- Not ask for consent when collect clients' data	- Client - Client's family -CAREGivers - Scheduler - Case managers - Health professionals - Owner	- Drift in AI systems - Negligence in design	Possible	Major	High
	R4: Adversarial attacks:	- The classifier in the robot identifies the 'eligible' client as 'ineligible'	- Client - Client's family -Case manager - Health professionals - Owner	ML is fooled by adversarial algorithms and generate incorrect decisions	Likely	Moderate	High

AI Risk Domains	Risk Performance	Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Control	**R1: Risk of AI misbehaving**	- force clients to follow instructions by sending annoying brainwash reminders repetitively - affect the client and might in turn affect/harm the CAREGivers	All Especially: - Client - Client's family - CAREGivers	AI system is abused or misused by malicious actors	Unlikely	Major	Tolerable
	R2: Inability to Control Malevolent AI	- receive blackmail - insult users	- Client - Client's family - CAREGivers - Case managers - Schedulers - Health professionals - Owner	AI/ML is manipulated by malevolent actors/ algorithms	Unlikely	Major	Tolerable

AI Risk Domains	Risk Performance	Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Economics and Finance	**R1: Financial performance**	- Hidden/Increasing in subscription or rental cost - CAREGivers have too much to do in learning how to use the robot and teaching the clients (opportunity cost)	- CAREGivers - Owner	The vendor updates the old AI system and add more functions which requires more payment	Likely	Moderate	High
	R2: Risk of concentration of power	-Overly rely on the AI service supplier	- Owner	Algorithms and design are controlled in limited AI vendors	Unlikely	Minor	Low
	R3: Job displacement risk	- Taking away jobs from CAREGivers and schedulers. - Health professionals receive less client visits	- CAREGivers - Case manager - Scheduler - Health professionals	Autonomous decision-making and service	Unlikely	Moderate	Low

AI Risk Domains		Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Legal and Compliance	**R1: Risk of opaqueness**	- do not know where and how the clients' data and health advice will be used, and neither know who will use the data - Not sure how to explain AI for elderly patients in a justified way they will understand? (6th principal of AI in AU)	- Client - Client's family - CAREGivers - Health professionals - Owner	AI/ML algorithms complexity and low transparency	Likely	Moderate	High
	R2: Risk of bias and lack of fairness and inclusiveness	- Not receive appointments /applications from the ethnic minority community clients - label the clients (education, race, gender etc.) and reflect poor information from clients who are from a lower education/family background	- Client - Client's family - CAREGivers - Health professionals - Owner	AI/ML learns from Inappropriate data and human prejudice	Likely	Major	Very High
	R3: Liability risk	- Breach legal act - invasion of client privacy	- CAREGivers - Health professionals	Designer did not follow the responsible AI principles. / Drift or data misuse.	Unlikely	Major	Tolerable

AI Risk Domains	Risk Performance	Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Societal	**R1: Risk of an intelligence divide**	- Use fake information to mislead the decisions/ activities	- Client - Client's family - CAREGivers - Health Professionals	- AI/ML algorithms complexity and low transparency - Open source	Likely	Moderate	High
	R2: Changes to power distribution and relationships	- Lose contact with human/environment	- Client - Client's family - CAREGivers -Case manager - Scheduler - Health professionals - Owner	AI/ML complexity and automation	Unlikely	Moderate	Low

AI Risk Domains	Risk Performance	Risk Description	AI stakeholders	AI design and use factor(s)	Likelihood	Consequence	Overall rating
Ethical	**R1: Values misalignment risk**	- AI decisions treat client differently, which misalign with the value of the business and the society	ALL Especially: - Owner	AI/ML learned from biases and human prejudice	Likely	Major Impact the business' social image and damage the reputation of the brand.	Very High
	R2: Ethical principles	- restrict the client's movement and independence - Robot cannot identify faces from minority ethnic background - scheduler creates not enough time for each patient and it goes against the companion value that Home Instead have - not every client gets the time or service that promised in the contract.	- Client - Client's family - Case manager - CAREGivers - Scheduler - Owner	System design did not put human first. Overly focus on the function	Likely	Major	Very High

3. AI Risk Analysis & Solutions

3.1 Performance

The potential language barrier between Matlda and the clients can be seen as a performance risk that is likely to happen due to Australia being a multicultural society. According to Ethnic Communities´ Council of Victoria, over 26% of Australians were born overseas and 49% have at least one parent from overseas (Ethnic communities´ Council of Victoria, 2017). If there is not enough consideration in the robot design in the data stage ensuring the variety in lingual function, the robot's language ability can be limited when speaking with clients in a foreign or unpopular dialect. Therefore, clients and their family members who are non-native English speakers can suffer from consequences led by language barriers such as inefficient communication, missing reminders, and poor companionship. However, this risk could drop when human staff like CAREGivers step in and assist the robot and client to communicate.

Another risk of error could happen when the robot mixes the scheduling or medicine. If there is a poor configuration in the AI system, inaccurate data entry could trigger inaccurate schedule/ medication. This risk has a sizeable likelihood, as the robot is programmed using the data captured from the client management system where the CAREGivers and health professionals input the information manually. The consequence is major for this risk since the client can be poisoned or receive inappropriate treatment because of the mismatch of medication or scheduling.

Instability risks can be seen when the AI robot changes plans made by the case managers, health professionals and schedulers which can cause confusion to the Client, family and the CAREGivers. This will cause a loss of trust in the service and impact the owner. These instability risks are likely triggered by a change in data quality and source, improper data testing and validations and the use of complex algorithms that cannot be interpreted. The likelihood of this occurring is high as Matlda has been developed locally and the product itself is not at a mature stage.

Lack of feedback is another risk that Home Instead needs to consider, this can be since Matlda has not been designed to capture feedback, or hesitance in completing feedback surveys by the

clients and CAREGivers. This risk is likely to have moderate consequences but will also increase the workload of the case managers, schedulers and health professionals as these stakeholders will not have any avenue to measure and monitor the service quality of Matlda.

. Iterative model validation alongside high quality of data can reduce these risks

3.2 Security

According to the Australian Computer Society (ACS, 2020), Australia is one of the countries impacted the most by cyber-attacks, thus this is an important risk area that HIG will need to look into. Cyber-attacks caused either by poor system stability, collapse of vendor systems or attacks by malicious actors could cause catastrophic consequences to the business and all stakeholders that we have listed. This will cause a loss of confidential and sensitive data as the robots are recording and monitoring using facial, video and audio recordings. The impact this will have on the business is quite high and will tarnish the brand name and loss of trust from the community.

The use of open-source software also poses a security risk that impacts all stakeholders. This is due to the limited knowledge and understanding around how the robot algorithm works and how the data collected is used, stored, and shared. HIG will also need to consider the limited access or control that comes along with the use of open-source software. This risk has a considerable likelihood of occurring and can cause major concerns to the business legally and financially should there be a leak of confidential and sensitive data by these vendors.

Privacy and consent are risks that also impact all stakeholders for HIG to consider. Matlda will be collecting information and will not be able to ask permission from users at each attempt at collection. HIG will need to consider how consent on collection is collected from all stakeholders, as not all clients and CAREGivers will be comfortable with the idea of being monitored constantly. Negligence in design and drifts in the system can also pose privacy risks, although possible to happen, it's unlikely to be intentional as the robots should be programmed to adhere to the rules outlined in the Privacy Act 1988.

Adversarial attacks are other risks that HIG should consider, as the AI may incorrectly classify an 'eligible' client as 'ineligible'. This can also cause ethical concerns around inequities, bias and

fairness. Clients and their family will be most impacted by this risk, followed by case managers, health professionals and the owner.

The consequences are moderate because HIG and health professionals may suffer from income reduction for losing potential clients and for the clients who indeed need help and cannot access the service.

3.3 Control

Clients and CAREGivers are more likely to be impacted the most should the robots start misbehaving. The risk of AI misbehaving includes restricting movement, forcing user to complete certain tasks by sending constant reminders, and also the use of cold or inappropriate language that the robot could have learned from humans or bad data. Although unlikely to happen at this stage, there is also a risk of robots steering away from programmed tasks. These risks can be caused by AI misuse or malicious attacks, as can be seen in 2016 when Microsoft launched a chatbot on twitter that started citing far right politics in a matter of hours (Hunt 2016).

Risk in control can also refer to inability to control malevolent AI. The robot could be used by hackers to extort the business or clients or fail to follow the aged care standards. The risk exists because the AI or ML algorithms can be manipulated by malevolent attackers. Although unlikelt to happen, if it does, the consequences are major for all the stakeholders that can pose significant economic, legal and ethical challenges.

3.4 Economics and Finance

Financial and economic risks such as the increase in rental costs, system upgrades and maintenance alongside the hidden financial costs that are associated with the time it takes to teach the stakeholders how to use these robots should be considered. Although the increase in costs can be mitigated by increasing the fees to the clients, this may also result in the likelihood of the client's not being able to afford the use of the robots. This increase in financial costs has a high likelihood of occurring with a high-risk rating should it occur, as the business will need to find a way to balance this.

There is also the risk of concentration of power that HIG needs to consider. Deloitte EMEA (2018) outlines the over reliance on third party AI vendors resulting in a loss of control of the use of AI service or operations should these vendors cease business.

Longer term economic shifts especially around the CAREGivers, case managers, schedulers and health professionals also need to be considered, as through iterative development within the robots, there may be a time where a reduction in staffing will likely to happen as these robots can take over more tasks. This likelihood is low for now as robots are still at a weak AI stage and it has a long way to go to replace human labor (Lee 2022).

3.5 Legal and compliance

As presently there are still many gaps in AI/ML algorithms, the risk of opaqueness is one that is likely to occur, not only impacting the client and family, but also the CAREGivers and health professionals. This is because these stakeholders are not informed on what data is being collected and how the data is used. The lack of clarity around how the client's health plans are used and followed can cause concerns. With the use of complex algorithms, HIG will also need to consider that it will be hard to explain to its stakeholders how the robot works which can cause a loss of trust and lack of buy in to the use of the robots. This lack of knowledge and transparency can also cause financial and legal consequences to HIG as a business and will affect its market share and brand reputation.

With the use of biased training data and how service robots' processes tasks autonomously by following complex algorithms in response to environmental inputs (Etzioni & Etzioni, 2016, p. 149), the likelihood of the robots providing biased and unfair service can be high and can reflect in the robots' decision-making process. This can cause major legal consequences to HIG as a business if the robots offend its clients and staff.

Privacy risks also occurs through the use of these robots, this needs to be looked at holistically across all stakeholders, where considerations is to be given around how consent to agreeing to the use of robots is collected – consent needs to be obtained from all stakeholders that are interacting with the robot regularly, thus should be collected from Clients and their families,

CAREGivers and Health Professionals to adhere to the Privacy Act 1988 (OAIC, 2022). Without consent, this can pose HIG with the risks of lawsuits for the invasion of privacy.

be documented to understand if there are gaps in the process that need to be addressed.

3.6 Societal

The Risk if Intelligence Divide is one that is likely to happen as the robots are connected to open-source software and the systems used may not be configured to a high level to identify incorrect/fake information being fed into the robots' models. This can cause the robots to mislead the clients with incorrect information, and the consequence of this would be on where the client stops following the care plan put in place. This will be one of moderate risk ratings, where the care service cannot be carried out adequately.

Losing human relationships and contacts is a challenge to all stakeholders. Relying on AI can result in losing human life and disconnecting with the environment (Cheatham, Javanmardian & Samandari 2019). It can be caused by machine automation. However, it has a low likelihood as the service robot is not advanced enough and a lot of tasks still require human participation.

3.7 Ethical

Ethical risk consists of values misalignment and breach of ethical principles. It is a risk domain that all the stakeholders face with. The performance of this risk could include treating users differently based on their social labels, impacting users' autonomy, and making discriminate decisions. AI/ML can reflect the bias and prejudice from its training data, so, it is likely for stakeholder to have unpleasant experience with AI. The consequence is major. Ethical risk is always a hot topic in AI use because it can cause significant problems to the economy and humanity.

4. Responsible AI Framework

Legally Defensible

Legal: Proper consent collection protocols is required to gain consent from stakeholders who will be using the service of the robots directly or indirectly.

Legal: All stakeholders using the robots should be informed with how the data is collected, stored and used to be compliant to the Australian Privacy Act 1988. This will reduce the risk of opaqueness.

Legal: Clear policies around liabilities need to be developed and this needs to be transparently communicated to all stakeholders directly or indirectly using the robots.

Performance: HIG should also investigate if they can work with the robot developers to train and tune the robots with all the different languages that the client speaks and dynamically add more languages as new clients are brought into the home, thus ensuring HIG is adhering to the responsible AI with legally defensible principles that is part of Australia's AI principles of fairness and human centered values

Governance

Security: Vendor management policies to ensure HIG has access and control over the data used by vendors. Due dilligence on vendor background and contractual obligations is placed onto vendor to provide reasonable safeguards to prevent security breaches and the misuse or sharing of the data.

Control: Clear risk management policies around adverse event protocols to instill trust and confidence in stakeholders should an adverse event occur. Refer to (*figure 2*) for proposed framework

Finance: Input from financial experts to model short and long term costs of using these robots. Hidden costs such as training time and increase in rental fees should be included in the modelling

Ethically Responsible

Societal: The use of robots needs to be used in a manner where the clients dignity is at the forefront. This will require clear guidelines on how and when will the robots be used to support the client.

Performance: To address potential language barriers HIG should invest in further customisation of the Matlda robots to identify situations with communication breakdowns which then notifies a CAREGiver to assist a client. For home based Clients, thorough risk assessment needs to occur to identify potential language barriers.

Societal: HIG needs to ensure that once Matlda is implemented, they do not lose touch of their value of companionship. To address the risks of client's being too dependable on the robots, monitoring on the tpe of questions asked by the clients is required to reduce attachement to the robots (Hickin, 2022)

Adverse event occurs

- Clients equipped with physical buzzers.
- Buzzer sents signal to system and robot is disabled immediately.
- Matlda's system administrators accessing data collected on incident to assess the severity of incident.

Notification

- Care take is notified and sent to assess the situation.
- Client's family is immediately notified of misharm occurance
- Emergency services are notified if needed by accessing the video and audio data collected by the robots.

Assessment

- Robots are deployed for futher assessment.
- Support care plans are shared with Client and family to ensure adequate mental and medical support is provided.

Figure 2 AI Implementation Framework

5. Discussions and Recommendations

Across the seven AI risk domains discussed above, there are a few areas that HIG needs to include in the digital transformation strategy to support the clients. Focus should be placed on areas that are highlighted as high risk, where proper systems ought to be adopted to mitigate the risks effectively.

One of our recommendations for HIG is to include an AI implementation framework (Fig 3 & 4) alongside the introduction of the Matlda. Having a clear framework indicating policies around

data collection and storage, privacy and consent, can provide instructions for IT and Data professionals and ensure risks such as schedule mix-up or language barriers can be reduced.

The framework will help reduce the risks associated with privacy and security concerns, the risk of bias, and lack of fairness and inclusiveness. Having the appropriate frameworks and AI systems, robots can be iteratively tuned to learn complex patterns.

Within this framework, HIG also needs to consider economics and financial pressures like the robot rental and hidden costs including training the CAREGivers to navigate the robot. The business needs to consider the short-term and long-term costs carefully when planning the budget. Because once Matlda is implemented, it requires adequate resources to maintain the operation. Apart from viewing the pressures from HIG's perspective, we also need to consider for the client by understanding how the ascending costs can affect their affordability.

Moreover, the framework discusses management policies towards strong vendor, where proper due diligence should be conducted before signing the contract. Learning how vendors access, use and store the collected data can ensure the transparency of the AI use. It is imperative that HIG can access their own data. Another element to consider in the vendor management policy is including contractual agreements to prevent data from sharing with other third parties. By having these conditions in place, the risks caused by using open-source software can be reduced.

Finally, within this framework, HIG will need to respect relevant legal regulations. HIG should have proper systems in place to provide transparency to its clients, the families and all HIG employees on how, what and when data is collected and used, thus reducing the risk of opaqueness. This can be achieved by giving onboardings to all the users of the robot, where clear disclosures are provided to all relevant stakeholders and make sure they fully understand the risks associated with the robot.

Besides, HIG should set up proper consent configurations to ensure that consent is obtained in the use of the robot. Proper software should be installed to monitor the consent session, which adheres legal requirements such as the General Data Protection Regulation (GDPR) (may be implemented in Australia in the future). Considerations of withdrawal of consent should also be factored in the policy.

Within ethics and social, HIG requires clear guidelines that clarify the task contents for the robot and the human workers. It will ensure the dignity of the client will be maintained, and the robots will be integrated with care. The robot is not replacing cares ought to be done by human labors, and it is important to maintain human interactions. We suggest HIG to limit tasks that can be automated like reminders and health monitoring to Matlda, but leave social, physical and emotional care to CAREGivers to maintain a good balance of human interaction and the use of robots and limit the clients over reliance on the robots. (Yew, 2020)

Using a holistic approach to combine adequate technology professionals, data systems and infrastructures with legal, privacy, vendor management, and finance and economic policies to reduce risks associated with the implementation of the robot. HIG can effectively mitigate and manage the potential risk in each domain.

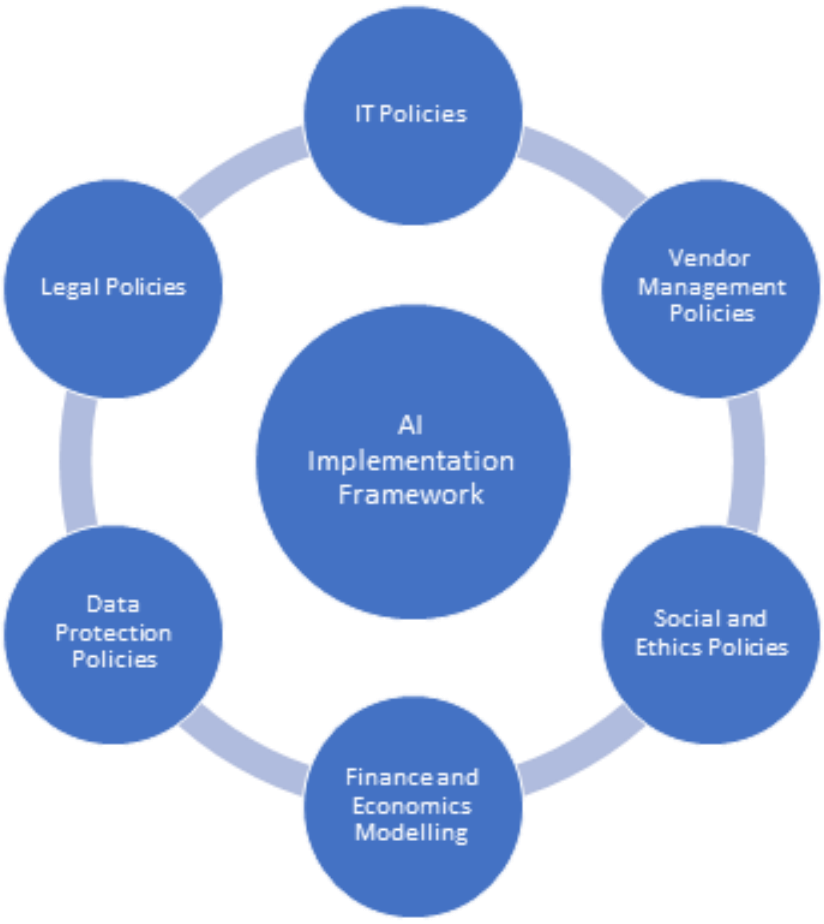


Figure 3

IT Policies	Vendor Management Policies	Data Protection Policies	Finance and Economics Modelling	Legal Policies	Ethics and Social Policies
•Secure Network/Firewall to protect from malicious attacks. •Integrated systems between platforms (scheduling systems, Matlda systems & client management systems) •Adequate technoogy staffing - Data Stewards, Security Specialists, Machine Learning Specialists •Matlda robots are iteratively tuned to provide a more comphrehensive service •Regular data validation of data captured and inputted into Matlda's system to ensure no errors present with the data	•Due Diligience - Company background checks •Contractual agreements to not share data between other vendors •Vendors to contractually provide access to Home Instead to data collected, and makes reasonable safeguards to protect data	•Only collect data that is required •Sensitive data is deidentified when possible •All stakeholders are informed on what, why and how data is collected •Data collections adhered to Australian Privacy Act 1988	•Short term and long term costs are modelled out •Hidden costs around the time training all relevant stakeholders on how to use Matlda is factored in. •Buffer for Matlda maintenenance is included in ongoing budgets.	•Systems in place for stakeholders to provide and withdraw consent - this can be done on Home Instead's client and staff management CRM •All stakeholders are informed on liabilities to ensure transparency •Policy in place to ensure that data used to tune Matlda does not contain any that can cause bias and unfairness - racial, gender, disability data is removed from robot tuning	•Clear split of tasks between Matlda and CAREGivers - Matalda is to be used as an extension of the service and not replacement of CAREGivers. •Client's dignity should be at the forefront in the policity. •CAREGivers should be included in the decision making process on what tasks Matlda will undertake to ensure that they do have any job displacement concerns.

Figure 4

6. Conclusion

To conclude, while there are many risks associated with the implementation of Matlda to Home Instead Geelong, we also need look at the benefits of having the robot in place. hand in hand Some key benefits to the organization would be improvement of home service quality and work efficiency. If the organization can identify the potential risks in advance and build a solid risk management framework, the robot can be an ideal choice to help HIG catch the wave of innovation and increase competitiveness. However, constructing a long-term value for a business and integrating responsibility, accountability, and consistency into AI applications is still a challenging topic that requires joint efforts of people from all walks of life in the long run.

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