

Presentation with PowerPoint for 5 minutes:

Criterion 1:

There are many characteristics of data have been found regarding storage location and security in Neoteric organisation. These are:

Insecure data which have been detected by the security software of the hospital database. Inaccurate data have been found from the inaccurate diagnostic results of the Neoteric hospital that can cause financial loss for the organisation. Financial data are collected from the Neoteric's revenue and earnings fluctuated data. Information technology or IT related data have been found from the technological changes in diagnostic testing. Regulatory data are collected from the changes in regulation and metadata have been found while describing several ways of information using data catalogs, business glossaries and data lineage.

Type of Data	Details of data characteristics
Insecure Data	The security software of this hospital detected several unauthorised access requests to the hospital data base.
Inaccurate Data	Inaccurate diagnostic results due to actual or alleged mistakes or errors could result in financial loss and/or reputational damage.
Financial Data	Neoteric's reported revenue and earnings will fluctuate with changes in the currency exchange rates between the Australian dollar (Neoteric's reporting currency) and the currencies of Neoteric's offshore operations.
Information Technology	Technological changes in diagnostic testing tend to happen more slowly than in industries.
Regulatory data	Changes in regulation can have the impact of increasing costs or reducing revenue (through volume reductions).
Metadata	Neoteric needs to manage metadata that describes several ways of information using data catalogs, business glossaries and data lineage.

In relation to data qualities, there are more characteristics of data have been found in Neoteric's organisation. These are incomplete or delayed data that can cause reputational damage as well as patient's life and death consequences. Personal data which are collected from the patient's medical records, and it will be unlawful and unethical while collecting this information without consent. Big data, it is found from Neoteric's vast amount of on-premises data. In this case, Neoteric might confront technologies challenges as they are planning to embark their big data in the cloud. Apart from this, Neoteric uses artificial intelligence or machine learning algorithms

with unknown data. Here, users may program biased AI systems without noticing the data that can arise concerning questions about responsibilities of people and organisation.

Type of data	Details of data characteristics
Delayed data	Poor data quality or incomplete or delayed data extends functional cost. Because time and other resources are spent detecting and correcting errors. This action sometimes makes patients' life and death consequences which can cause reputational damage for any organization.
Personal data	As Neoteric is using patients' medical records and their own data, in this case, Neoteric might struggle with patient data ownership. As this information are personally identifiable (PII), it will be unlawful and unethical while collecting this information without consents and might bring the large amount of penalties for this organisation.
Big Data	Apart from this, it is found that Neoteric handles vast amount of on-premises data which known as big data as well as trying to embark their digital transformation to migrate and integrate with the newly infrastructure such as cloud. In this case, Neoteric might confront with various technologies and tools' challenges in adoption in the cloud such as Hadoop and spark system where needs to take decision appropriately in which technology or algorithm will be suitable for the organisation.
Unknown data	Neoteric uses the artificial intelligence algorithms with unknown data where users may program biased AI systems without noticing the data that can cause concerning questions about responsibilities of people and organisation.

Criterion 2:

Evaluates Neoteric's data governance schemes including the management of data quality and validity and make draft suggestions for improvement:

As Data Governance purpose is to provide high-quality and authenticated data to the organisation, it is considered to focus on some strengths, opportunities, gaps and risks for improvements in the Neoteric's data governance system that are given as below:

Neoteric's Strengths:

❖ Neoteric's Data:

- Patient medical records (including name, address, and medical history)
- Statistics (i.e., hospitalisations, patient demographics, diagnoses, procedures, name of physician/hospital/billing)

❖ Neoteric's existing infrastructure:

- Billing and accounting using a popular online software solution
- Customer relationship management (CRM) solution to integrate sales, marketing, and customer service

❖ Fostering Doctor-Patients relationship

❖ Neoteric's Coalition

Neoteric's Opportunities:

❖ Neoteric's digital transformation plan for storing and delivering data

❖ Neoteric's Artificial Intelligence (AI) and Machine Learning (ML) approach.

Apart from this, to analyse the gap to govern the data, the 'SWOT' tool has been used where strengths, weakness, opportunities, and threats are represented. Here, the Neoteric's weaknesses are aggressive expansion plan, Neoteric's data inconsistency, insecure data, incomplete data, and lack of technology understanding as well as threats are customer churn, reputational damage, and large amount of penalties. To mitigate the weaknesses and threats, Neoteric's strengths and opportunities will play a vital role.

Apart from this, to analyse the gap, it is considered to follow the 'SWOT' tool or Strengths, Weakness, Opportunities and Threats together that are given as below:

Strengths:	Weaknesses:
1) Neoteric's Data such as statistics (patient demographics, diagnoses), health surveys, Neoteric's financial and payroll data. Using these data appropriately for the users and maintaining data governance principles, Neoteric will earn reputation and value for their entire organization.	1) Aggressive expansion plan where Neoteric's currencies are vulnerable specifically in nationally.
2) Neoteric's existing infrastructure such as electronic records database containing medical and personal information (and which is categorised as sensitive data).	2) In accordance with data governance, Neoteric's another weakness is data inconsistency or data inaccuracy which has been found from inaccurate diagnostic results due to actual or alleged mistakes or errors that are not met with the data governance principles.
3) Fostering Doctors-Patients relationship approach to develop a	3) Neoteric's insecure data. One of the security software of this hospital detected unauthorised access requests to the hospital databases.
	4) Lack of understanding what's the

<p>company whose services are optimally aligned with the needs of the physicians and their patients.</p> <p>4) Neoteric's coalition. According to data governance, Neoteric is representing collaborative culture where harmony and synergy are central standards (Dennis 2020).</p>	<p>vital in digital transformation and starting with the new technology such as using SmartWatch app.</p> <p>5) As Neoteric is planning to expand their business to various location, it is hypothesized that the data will be delayed during transformation in various locations.</p>
<p>Opportunities:</p> <p>1) Neoteric's digital transformation plan for storing and delivering data. Neoteric is currently considering a significant change management by moving their legacy electronic health record system to the cloud where Neoteric will get huge benefit to develop the future business using various technology and strategy such as Hadoop distribution, Amazon Redshift and so on.</p> <p>2) Neoteric's artificial intelligence (AI) and machine learning (ML) approach will make an opportunity to improve data governance system by analysing contextual data points to individual's profiles. In this case, Neoteric can use several methodologies to make the high-quality data such as data masking, data encryption etc.</p>	<p>Threats:</p> <p>1) If Neoteric cannot stable their currency rate at least in nationally, it will become a threat for their future development.</p> <p>2) The data inconsistency or inaccuracy can cause customer churn or reputational damage which is not meeting with the data governance requirements.</p> <p>3) Insecure data might bring large amount of penalties by breaching the users' confidential information as Neoteric is using personally identifiable information (PII) in their databases which is completely against the data governance principles (Seiner 2017).</p>

Here, Neoteric's above strengths and opportunities can help to mitigate their weaknesses and threats. Because Neoteric's digital transformation plan to the cloud can assist them to minimise the gap of delaying the delivery of the information. In this case, Neoteric can apply machine learning approach using some methodologies such as Hadoop distribution and Amazon Redshift (aws 2023). Moreover, using machine learning approach with ROI calculation, Neoteric can minimise threats of having revenue loss or reputational damage (Linna 2020).

As Neoteric is representing collaborative culture with the stakeholders (Dennis 2020), it will help experts and users to get trained more about data literacy so that

they understand transparently more about vital things of the digital transformation such as data and its ownership (Anderson and Li 2017).

Apart from this, in relation to data governance, some terms are not being done yet at Neoteric Healthcare Organisation which should be completed for the organisation's future development. Neoteric needs to manage metadata that describes several ways of information using data catalogs, business glossaries and data lineage. Here, Knight (2023) suggests that 'data catalogs simplify the metadata developments by locating and guiding the datasets, business glossaries become backbone applying metadata management for assuring technology and business understanding as well as data lineage describes information on data origins, movement, and characteristics'.

"Moreover, some global industry-standard regulatory constraints around data privacy including sourcing, storage and use of data are not addressed yet. These are:

- Data dominion
- Data localization
- Privacy Acts (PROTEGRITY 2023)"(as shown in appendix C).

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In relation to data governance, some terms are not address been yet. These are: Metadata management and global regulatory constraints which can lead to lots of risks for Neoteric organizations such as data will be ineffective for lack of technology understanding, incomplete data will cause life and death consequence as well as conflict will arise in decision-making for the effect of cognitive biases.

Risks:

If opportunities for improvement and gaps are not addressed, there are lot of risks can occur to the organisation and its stakeholders which are also not difference for the Neoteric Organisation. These are:

Opportunities for improvements	Gaps are not addressed	Types Of Risks	Details of risk
Neoteric's digital transformation plan	As different technologies in one hand, Neoteric needs to figure out which technology will be suitable for which task (MITCHELL 2019).	Individuals with lack of training and knowledge	Having high-quality data with a clear meta data will be ineffective, if individuals cannot access the data using the desired technology (Anderson and Li 2017).)
		Data Inaccuracy and inconsistency	Inaccurate diagnostic results due to actual or alleged mistakes or errors could result in financial loss and/or reputational damage as well as risk can associate with siloed data (Hilary 2019).

Neoteric's artificial intelligence and machine learning approach	Neoteric is using electronic records database containing medical and personal information which need to monitor regularly that are not addressed here (Elastic 2018).	Insecure Data	one of the European newspapers claimed the security software of this hospital detected several unauthorised access requests to the hospital data base which can cause customer churn for this organisation.
		Data delayed	If data is not monitor regularly, it will generate incomplete, and delayed data as well as action sometimes make patients' life and death consequences which can cause reputational damage for any organisation.
Neoteric's coalition	Neoteric should consider hybrid operating model.	Conflict can arise in decision-making.	The effect of cognitive biases on information interpretation
Neoteric wants to expand their business globally.	Neoteric hasn't addressed about data privacy and other values while sharing data.	Data ownership or accountability	In accordance with data governance, risk can associate with data ownership or accountability (Beckett 2014).

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Therefore, to govern the data and to mitigate all the risks and threats, it is recommended to encourage compliance with privacy, informed consent ethically by following some evidence based best practices such as human being at the centre, accountability, empowering stakeholders, transparency as well as exhibiting awareness for the consent form. Eventually, Neoteric needs to follow the data governance core principles and to generate the data governance team with the 360-degree view to avoid entire ethical dilemma.

To encourage compliance with privacy, informed consent ethical and legal constraints, Neoteric needs to follow some evidence based best practices. These are:

- **Human being at the centre**, for instance, careful consideration needs to make while implementing artificial intelligence (AI) with respect to humanity. <https://standards.ieee.org/initiatives/autonomous-intelligence-systems/> (6.1.1)
- **Accountability**, Neoteric needs to care about accountability such as ‘who is governing AI or machine learning algorithms as well as who is responsible for the ethical standards of the super computers’ TED Institute 2018, *Can we protect AI from our biases?* | Robin Hauser | TED Institute, YouTube, 12 February, viewed 3 August 2020, https://www.youtube.com/watch?v=eV_tx4ngVT0 (6.1.2)
- **Empowering stakeholders**, Neoteric can arrange proper training and education, certification programs to empower stakeholders in designing, developing and using Autonomous Intelligence System (AIS). <https://standards.ieee.org/initiatives/autonomous-intelligence-systems/>
- **Transparency**, in this case, Neoteric has to care about some open-ended questions such as in which country the data is stored? What the datasets are? What is for the business? <https://dataethics.eu/data-ethics-principles/> And clear explanation about the parameters regarding the AI or machine learning algorithms as well as updated the current rules and regulations to overcome the regulatory constraints.
- Apart from this, Neoteric needs to be aware of the consent form to avoid the ethical dilemma as they are using personally identifiable information (PII).

Eventually, Neoteric needs to follow the data governance core principles and generate the data governance team with 360-degree view. Talend A Qlik Company (2023) *Metadata Management 101 What, Why, and How*, talend website, accessed 23 May 2023. [Metadata Management 101: What, Why, and How | Talend](#) to accomplish the above best practices adequately.

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In the end, the communication matrix plan has been generated as communication strategies to motivate the key stakeholders to advocate for adoption of ethical data management practices which has been represented here as a structured table.

Stakeholder Management Strategy: Communications matrix

The following communication matrix has been generated using the opportunities and risks that identified in the Neoteric organisation. Here, the communication plan diagram or matrix is built to influence the key decision makers to advocate for adoption of ethical data management practices that is given as below:

Data Governance

Communication Plan Matrix

	Data Governance Roles						
Groups Communication types	Group 1		Group 2	Group 3	Group 4		Group 5
	Executive Leadership Team (ELT) (Executive level)	Data Governance Council (Strategic Level)	Enterprise Data Stewards (Tactical Level)	Data Stewards (Operational Level)	Information Technology (Support level)	Data Governance Partners (Support Level)	Deputy Data Stewards (Everybody Else)
Orientation Communications							
Program Presence & Awareness							
On-boarding Communications							
Charter and Principles	Create accessible information.	Collect data to deliver services.	Developing data requirements.	Mapping data meaning.	Deliver tools.	Maximise value.	Adopt the best practices.
Role-based Activities	Approve enterprise strategic plan.	Provides guidance policies, methods, and tools.	Escalating well-documented issues.	Define, produce, and use data on a daily basis.	Support areas of the organisation including IT.	Support areas of the organisation.	Accountable for data project management.
Governance Documentation	Focuses on data that is provided through graphical dashboard.	Focused on the data, and metadata.	Accountability for data within a specific subject area.	Drives the business and keeps it functioning.	IT Security is focused on the security discipline area.	Governed metadata in formalising accountability.	Everybody is focused on data and its inventory management.
On-Going Communications							
Performance Metrics	1)Approve 2)Act	1)Acceptance 2) Performance	1)Subject 2)Quality	1)Accountability	1)Collect 2)Report	1)Collect 2)Report	1) Efficiency
Alerts & Triggered Events	Alert about the upcoming events.	Making strategic decision.	Coordinates the Operational level activities	Alerted daily with the producing data by following the events.	Collecting information regarding IT from the events.	Inform about the project management.	Tailor their data governance program to inform their insights.
Council/ Minutes/ Mass Comm	In person meeting	Face-to-face/Microsoft Team Meeting	In person meeting with metrics	In person/Face-to-face team meeting	A 30-minute phone call	Microsoft Team meeting/ Zoom meeting	In person/ Microsoft Team meeting

