

PI Revision Lecture

2017 Specimen Paper

1. Company grow because of acquiring other companies. CEO wants to reflect on the structure and operations of the company before continuing further acquisitions.
 - a. Company has global markets and a diverse product range. Suggest a couple of principles of organisation of the company + strengths and weaknesses.
 - Geography - APAC, EMEA, North America
 - Product - group companies into product groups
 - Function - HR, Finance, Quality, etc.

S+W

 - Geography - product range differentiates by legal regime, regulation, highly specific cultural issues
 - lack of coherence
 - loss of commonality across markets.
 - Product - strengths of commonality across markets
 - lose on catering for different regulation
 - b. Organic - individual skills and characteristics have played an important part in company development.
Suggest 2 other options that the company could adopt to manage more effectively at scale
 1. Bureaucratic
 - ⊕ standardizing the way things work
 - fixed job descriptions
 - ⊖ a little bit too rigid
 - lose flexibility on people taking on more than one role
 2. Matrix
 - PMs who manage things and people who work on things
 - one software engineer can work on more than one thing
 - ⊕ flexibility to manage the resource management
 - ⊖ contention for effort between managers
 - c. How to make the company less resilient to the loss of staff?
 - job description helps structure work and progression
 - promotion opportunities
 - formal appraisal/review system - you get your position reviewed regularly and possibly a salary raise
 - job rotation
 - more formal approach to training

- d. Systematic acquisition of companies.
- i. Characteristics of the company and its products that suggest it may be a suitable target to purchase.
 - complementary - produce something you don't
 - competitor - produce something better
 - ii. Key characteristics in financial reporting
 - balance sheet - assets and liabilities
 - profit and loss - profitability of the company
 - cash flow - how is trading going

} not independent?
2. UK supermarket investment in video surveillance. Tracks customer behaviour in the supermarket.
- a. Issues w.r.t. the GDPR as implemented in the UK DPA, and solution to ensure compliance.

This data is identifiable personal data.

 - Explicit consent
 - you have to get it repeatedly
 - how do you gain it?
 - What enough consent?
 - Retention
 - how long can you keep the data?
 - do you get consent to retain longer?
 - Subject Access
 - how do you do this securely?
 - Purpose
 - how general is permissible?
 - Right to forget
 - b. Use ML to prevent theft.
 - i. How compliance with GDPR might influence the ML techniques
 - anonymising the data
 - Who is the data processor? Do they obey territorial restrictions?
 - Is the training set biased?
GDPR: fairness and transparency
 - explainability
 - how would you explain your tech to the public?
 - ii. Other UK legislation
 - Equality Act: ethnicity bias potential bias
(intrinsic bias in training set)

- c. Ethical issues that might arise
 - EDHR - Article 8 (privacy)
 - how to make it private?
 - blur out images (e.g. Google Street View)
 - challenges around linking videos but erasing identifying marks (i.e. faces, number plates on cars)

3. Diagnostic tool for life-threatening condition

- a. BCS code of conduct outlining the measures the company can take to ensure its employees can easily conform to the code of conduct.
 - 3 key areas

professional competence and integrity

- need to be trusted with that data

- need to have relevant experience in diagnosing

duty to relevant authority

- confidential information

- need to know the regulatory framework

public interest

- how likely is the device to make a mistake?

→ ensure employees can explain to the public

- b. Issues in introducing the tech to public + NHS.

- ease of integration to current system

- training of staff

- evidence that this is an improvement (data)

✓ legal

- c. Issues on basing diagnosis on the prediction tool alone

- liability

- explainability (under GDPR)

- culpability (who you blame) → if death occurs

- since the tool is not a person

- d. How standardisation can affect tool development.

- multiple relevant standards

- how to generate evidence

- you want suppliers to comply as well