Course Code: ANL201 Data Visualisation for Business

TMA01 Jan 2021 Semester

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Submission Date: 17 Feb 2021

**(a)** Microsoft’s mission statement is to empower every person and every organisation on the planet to achieve more through utilisation of its computing products. Microsoft’s mission is about using its computer technology and software products to benefit customers and help them achieve more. For instance, the provision of speedy data processing in offices and enhanced information access in homes can help Microsoft’s customers become more productive and competitive, thereby empowering them to achieve more. Microsoft’s mission statement also reveals that the company’s target market includes all individuals and organisations worldwide.

**(b)** A vision statement sets out the desired future state of the organisation. Based on the shareholder letter, I can infer that Microsoft’s vision is to become a world leading technology company that improves the lives of people on the planet through the benefits and opportunities created by its innovative products. The company’s Chief Executive Officer, Satya Nadella, mentioned in the shareholder letter that Microsoft “will continue to work alongside our customers to help them build their own digital capability and work to earn their trust every day”, hence Microsoft’s vision is about using its technology to help people and organisations around the world to develop and realise their full potential, and together, making this planet a better place to live in.

**(c)** Using the balanced scorecard as a platform, Microsoft’s strategic themes can be categorised into four different perspectives, namely learning and growth, internal business processes, customer, and financial.

Under learning and growth perspective, Microsoft’s strategic themes include product research and development, attracting and retaining of industry talents, and focusing on environmental sustainability and corporate social responsibility to foster a sustainable future. Microsoft’s research and development efforts focus on three interconnected ambitions, namely reinventing productivity and business processes, building intelligent cloud and intelligent edge platform, and creating more personal computing. Having a diversified and inclusive workplace for its employees is important for Microsoft to serve its diverse portfolio of customers across the world and to attract and retain industry talents to compete with its competitors. In addition, Microsoft believes in giving back to the society and is committed to reducing carbon emissions through various environmental initiatives and is also expanding its support for the non-profit sector.

Under internal business processes perspective, Microsoft’s strategic themes include cost-efficient distribution, sales and marketing of its products and services, responsive after-sales support for end users, as well as product quality assurance across every layer of the company’s differentiated technology stack – from application infrastructure, to data and artificial intelligence, to business process, to productivity and collaboration.

Under customer perspective, Microsoft strives to brand itself as a trusted technology company that is committed to protecting its customers’ privacy and data, while upholding cybersecurity, and ensuring responsible use of its artificial intelligence technology.

Finally, Microsoft’s financial strategic themes include growth, profitability and shareholder value. The company’s overall financial performance is summarised in its annual report and the record-breaking revenue achieved for fiscal year 2019 reflects successful application of the company’s strategic objectives using the balanced scorecard system.

**(d)** According to Ware (2013), there are four stages of data visualisation which include data collection and storage, data pre-processing, graphics engine, and human visual and cognitive processing. In the first stage of data collection and storage, challenges faced by organisations like Microsoft may include not having the permission required from customers to collect and use their data, and the need to ensure compliance with international privacy laws and regulation. Data pre-processing in stage two is a tedious process, especially for big technological companies that deal with a variety of big data volume. Data scientists must be engaged to help verify data quality, and to select, format and clean the data collected. Next, the use of display hardware and graphics algorithms to produce data visualisation on screen can also be capital intensive as domain experts that truly understand the business must be involved to help evaluate the results of data mining. Lastly, understanding the audience profile for whom the data is generated for is vital in the selection of modelling tools. As many graphical symbols are transient and tied to a local culture or application, culturally embedded aspects of visualisation persist and hence must be taken into consideration during the process of data visualisation.

**(e)** The stock performance of Microsoft in comparison to NASDAQ Computer Index and S&P 500 Index was provided in page 9 of the annual report. It is interesting to note that the stock of Microsoft had outperformed that of NASDAQ Computer and S&P 500, especially from 2018 onwards. Microsoft’s stock performance reflects investors’ outlook and sentiments on the company’s future, hence the data presented in the line graph implied that investors were generally positive about Microsoft’s future performance, and believed that Microsoft’s growth will be stronger as compared with other competing technological companies included in the NASDAQ Computer Index. In addition, as the stock performance of NASDAQ Computer was better than that of S&P 500, we can also conclude that investors believed that growth in the digital and technology sector will outperform that of other industries going forward. The increase in stock price for Microsoft is good for the company as it provides a source of capital for the company to fund and expand their business.

The segment results of operations presented in page 27 of the annual report is another interesting information as it provides a comparison of the performance in each of the three operating segments under the company. For instance, Microsoft’s management will see that its Intelligent Cloud segment had delivered the largest increase in revenue from 2018 to 2019 with a percentage change of 21%, though overall increment in revenue across the company level is only 14%. Such information is helpful as it provides insights on industry trends, and can enable the company’s management to identify growth opportunities or to ascertain if cost reduction measures are necessary.