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**ANL201**

**Data Visualisation for Business**

# **Tutor-Marked Assignment**

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**Question 1 (a)**

Microsoft’s mission statement is to empower every individual and every organization on the planet to achieve more. This is linked to the platforms and tools developed by Microsoft, which enable various entitles (small businesses, multinationals, non-profits, governments) to better achieve their objectives.

**Question 1 (b)**

Microsoft’s vision for 2020 was to continue building deeper partnership with its customers, pioneer key technological breakthroughs and progress in various spheres of the digital landscape, and to contribute towards a sustainable future by working on environmental and social progress. These are the three main elements of Microsoft’s desired states as an organisation in 2020. The first is demonstrated by the emphasis placed by Microsoft on earning and sustaining the trust of customers, partners and communities, creating a mutually empowering and beneficial relationship. The second can be seen from Microsoft’s express desire to be the forerunner in a variety of fields. Finally, the third is highlighted by the commitments taken towards environmental sustainability and corporate social responsibility.

**Question 1 (c)**

According to Perry (2011), strategic themes refer to the main, elite business stratagems that form the company’s business model’s foundation. A strategic theme can be viewed as an area in which a company needs to excel in achieving its vision. Microsoft’s strategic themes are as follows: 1) technology breakthroughs and progress, 2) trust, 3) environmental and corporate social responsibility, 4) culture.

**Technology breakthroughs and progress:** Microsoft aims to be the pioneer in the modern era of intelligent cloud and intelligent edge, developing innovations that empower customers and investing in large and growing markets in order to drive digital transformation there. This strategic theme encompasses a range of sectors, namely applications and infrastructure, data and AI, business applications, modern workplace and gaming.

**Trust:** Microsoft aims to foster a relationship of trust between itself and its customers, partners and communities. This comes in the form of fundamental alignments of business models and confidence in the underlying technology (*Jain et al., 2016*), which Microsoft specifically focusing on privacy, cybersecurity and ethical development of AI.

**Environmental and corporate social responsibility:** Microsoft aims to contribute towards and foster a sustainable future where everyone has access to the benefits and opportunities that are created by technology. It seeks to use its capacities as a global technology company to enable and accelerate digital transformations that lead to a low-carbon future.

**Culture:** Microsoft seeks to listen to customers and innovate to meet their unarticulated needs, working as a unified entity to build and deliver the best solutions for customers. It also seeks to create a diverse and inclusive workforce that will best serve its diverse customer base worldwide.

**Question 1 (d)**

The four stages of the data visualization process are: 1) data collection and storage, 2) data pre-processing, 3) graphics engine, and 4) human visual and cognitive processing.

At the first stage, difficulties stem from the velocity and volume of the data that has to be collected and stored. In Microsoft’s case, this is quite a notable concern given its wide geographical scope of operations, meaning that in some areas, it may not have the infrastructure necessary to collect and store the data that is being created. Furthermore, another potential problem is that there may not be sufficient data in more remote or rural communities generated for there to be meaningful data visualization.

At the second stage, the algorithms used to reduce any data to visual illustrations may have certain flaws; for example, the individual or individuals developing the algorithm may highlight different pieces of data that are more important to consider and then discard other pieces of data entirely (*Kirk, 2012*), perhaps in accordance to what is perceived to be Microsoft’s organizational priorities, but this may not be the case and the specific needs in each situation may not be adequately addressed. There may also be oversimplication of the data.

At the third stage, the sheer range of activities and operations undertaken by Microsoft may result in an overreliance on visuals to showcase all the data that is deemed important for Microsoft’s purposes, but this may not be adequately supported by the graphics engine or this may result in a presentation that does not manage to effectively capture what is required or important.

At the final stage, there may be latent biases involved in the processing of the data visualization. This is particularly important for Microsoft too because of the diversity of its customers and communities, meaning that uniformed interpretation and processing of the visualization (ie. without properly accounting for or eliminating one’s prejudices) may result in distorted findings that work against the company’s interests. Overreliance on visuals may also hinder efforts to clearly understand the data presented.

**Question 1 (e)**

An interesting point from the data in Microsoft’s 2019 Annual Report is that the increase in revenue generated by Microsoft’s products has been increasing at a significantly slower rate than other sources of revenue (‘service and other’). This has been the case over the previous two fiscal years: from 2017 to 2018, revenue from products increased from (in millions) $63,811 to $64,497, while that from services and other sources increased from $32,760 to $45, 863. This trend has sustained over the following year, with revenue from products increasing to only $66,069 in 2019 while revenue from services and other sources increased to $59,774, representing another considerable increase (around a 30% increase).

This is interesting because the stark discrepancy between the rate of growth of each area is not exactly aligned with our orthodox understanding of Microsoft, namely that it specializes in a wide range of products in digital technologies. Instead, the data suggests that its service offerings will only continue to grow in importance moving forward, possibly signaling a change in market trends as well. This is not necessarily good or bad per se to the company, given that it has also been actively developing and improving its service offerings (eg. LinkedIn: offering a service that transforms the way customers hire, market, sell and learn). However, it should be mindful of this tentative trend moving forward, when deciding on the resources invested towards R&D in products and services; given that demand for its services appears to be growing substantially, it may be more commercially sensible to dedicate a greater proportion of its resources towards attaining a greater range of innovative service offerings (eg. commercial cloud services). That being said, at the time of writing, the revenue generated from its products is still higher than its services, thus caution is advised before jumping to conclusions or implementing significant changes in this regard. This is something that Microsoft would be better-off monitoring for the time being.

Another interesting point stems from the segment results of Microsoft’s operations, which reflects an increased rate of growth for productivity and business processes (eg. Office Commercial and Office Consumer revenue), as well as intelligent cloud (eg. server products and cloud services, like GitHub and Azure), instead of more personal computing (eg. Windows Commercial, Windows OEM). The percentage change in revenue for the first two segments was 15% and 21% respectively from 2018 to 2019, while it was only 8% for the last. This is interesting as well because it provides a clearer idea of the key drivers of Microsoft’s growth, in turn enabling the senior management to make better decisions when it comes to developing its strategic programs. This is generally a good sign for the company; as noted above, Microsoft’s vision and strategic themes both include considerable emphasis on achieving breakthroughs in, inter alia, intelligent cloud and intelligent edge, and these results show that its efforts to do so have borne fruit. This also shows that the company is generally on the right track, in terms of the alignment between its performance and strategic objectives.

Moving forward, it would be beneficial for Microsoft to closely scrutinize the main areas which is not doing as well (eg. phones, patent licensing), and then determine what (if any) action should be taken in this regard (eg. to make improvements or to slowly phase out these areas of operation and focus on those which have much growth potential).

**References**

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