PROJECT ANALYTICS

**IN DECISION MAKING**

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# Introduction

KPMG (Klynveld Peat Marwick Goerdeler) is a leading network of professional firms that operates globally. The company is headquartered in Amstelveen, Netherlands. The company generally provides services for audit and assurance, advisory, and tax and legal-related services. The company is working in 146 countries and territories and provides services to people around the globe. In this topic, the discussion will be on the importance of the decision-making process in KPMG as it is the most important part of a successful organisation and it helps to implement various strategies that are required for the running of the business and will also highlight the current approaches of the company to business and data analytics. It will also elaborate on how the company ensures that the data used by them are reliable and what will are areas of improvement the company needed. This topic will further evaluate the contribution of the analytics that KPMG uses to maintain the sustainability of the organisation. Lastly, it will discuss the ethical contribution of the company towards society or to the country in which the company is running its business operation and the ways through which the business and data analytics can be used to support the ethical contribution.

# Part 1

## Discussion of the importance of decision-making within the organisational setting of KPMG.

Importance of decision-making: Decision-making is a crucial part of KPMG and the leaders of the company are generally responsible for effective decision-making, but every employee of the company has the liberty to make a perfect decision that has a positive impact on the organisation (Dos Santos, *et al.*,2019). Decision-making helps to improve the productivity of the organisation, and cultural diversity in the company, and helps to the effective utilisation of resources and time. There are certain key areas of the company where proper decision-making is necessary to influence the work of the organisation.KPMG uses its decision-making skills for understanding the barriers which the company faces, finding the proper solution and information regarding the barrier, and creating and proper environment for the company. With a proper decision-making process resources will be allocated in a manner that is profitable to the company, however, ineffective decision-making will lead to a cost to the company. Through proper decision-making processes, leaders create an inclusive culture within the organisation which helps to motivate the employee towards the work which in return will increase the productivity of the company. For effective decision making it is necessary to narrow down the areas in which improvement is required through proper decisions. For instance, the important areas should be decided properly and ample time is required for the same so it is necessary to have proper knowledge about the company.

Models of decision-making and their impact: The analytical hierarchy process is a widely used method, through this method, the process of implementing the alternatives and aggregating the most reliable alternative is calculated. It is generally employed for the best selection of alternatives. The ranking is generally done in the context of the overall goal of the organisation which is generally broken down into various criteria. This process is generally used to mitigate the risk associated with the project of the company.KPMG makes effective use of the tool to mitigate any potential threat that may arise in the course of business. The rational decision-making process Is the procedure to utilize the knowledge it helps to identify the problem and to mitigate those by gathering the facts associated with the problem it is a step-by-step process for reaching a decision it is the analytical process of the decision-making that the companies use for the decision which is based on the fact (Nurachman and Irawan., 2020). KPMG uses this process of decision-making while providing services related to tax and legal services as they change according to the prevailing needs of society.

The decision-making process of KPMG: One of the key areas of the decision-making is the management of the Assets of the company the KPMG decision-making is two-fold which integrates the hierarchy in both top-down which is the management of the asset and the bottom-up which is the operational approach. This decision-making process of the KPMG helps the organisation for the proper utilisation of the resources in the best possible way. In both the operational approach and the top-down approach the company uses the qualitative method. Through the qualitative analysis method, the company inspect physically the risk-based factor and the reliability factor of the resources which helps to determine how the resources will be maintained and if necessary will be replaced by others. However, sometimes in the top-down approach quantitative method is used and is based on the strategic rule of asset management helps to evaluate the cost of the company the resources that are required for the bottom-up approach are generally higher than compared to the top-down approach.

The company applies the decision to the identification of the company’s capability and how it will be delivered. They focus on sharing the service center and business process outsourcing model for optimising their delivery services. For the effective working of the two approaches needs to reconcile and a decision-making process needs to make that concurs with the objectives of the business While deciding on the cost of maintaining the company or the adoption of the advanced technology and the satisfaction of the customer needs to be taken into account. For an instant, for a telecommunication company that provides internet at a high speed while deciding while taking decisions about replacing routers the objective that needs to be taken into account is the advanced technology and its criteria and the satisfaction of the customers that they are providing.

## Analyse current approaches to data analytics and business analytics.

**Data analytics**

Descriptive analytics:

It is a valuable tool to increase the revenue of the business and helps in the improvement of the product which in return helps to retain the customers. It is the process of evaluating the current and historical data to identify the ongoing trends and the relationship of the business to such trends and it is considered as the simplest form to analysis the data. This analytics is used by the organisation on the daily basis. The organisation generally tracks customer engagement through social media or the traffic on the website this is an example of using the descriptive method of analytics.KPMG is a service provider company and they use descriptive analytics as the tool for tracking the growing rate of customer usage of their services (Fosso Wamba, *et al*.,2019). The analysis of the financial statement also comes under the descriptive-analytic of a business.KPMG also use these analytics to evaluate the charging demand for their service among the customers. This tool helps to analyse the market by conducting various survey that helps to identify the customer demand for the company's product or services.KPMG used the following metrics of descriptive analytics, the monthly sales growth of the company, evaluate the number of customers using the service, and the total revenue generated per customer.

Diagnostic analytics:

It is the process by which data is used to determine the reason behind the ongoing trends and the correlation between various variables. It can be evaluated manually by using an algorithm or statistical software. It puts an impact on the fact that what is the reason behind the trends and the relationship that exist between the factors that are related to the trends (Tapia, *et al*.,2020). The tool is used to analyse the reason behind the demand for the product or the services offered by the company.KPMG observed a certain demand for the services related to the taxation l policy the company used this tool to identify the reason behind the increasing demand for this service by using this tool to evaluate the related factors that as the change in the taxation policy by the legislation legislature increase the demand of their services related to tax.

Big data analytics:

This tool is used to describe used to evaluate the process of unveiling the patterns of customer needs and the ongoing trends with the help of the raw data which helps them to make decisions from the informed data. Customers generate an abundance of data every time they use a mobile app or they open their mail or they tag on social media. Through this process, the organisation collects a large amount of data and they have recognises the advantages that are related to the collection of the data (Wang, et al.,2022).This tool helps the company to evaluate the huge amount of unstructured data KPMG use this data analytic tool to evaluate their customers. The company collects the data when the customer uses their AI (Artificial Intelligence ) services or when they visit their website In the next step the company processes the data collected to evaluate the needs of the customers like what service the customer wants according to the search history of the customers.

**Business analytics**

Financial analytics: Every company needs proper financial planning to forecast the future so that they can cope with the ever-changing needs of the market. It helps to get accurate and current financial data which gives the company a competitive edge(Holmlund, et al.,2020). It is important together all the financial data for every organisation as it gives insights into the financial status of the company and helps to improve the financial profitability for the stakeholders and the business both. Managing the Assets of the company and the cash is a crucial part of every business.KPMG uses this tool for the effective running of the business which in return help to improve productivity and helps the team to make an important decision regarding any financial risk that may arise in the future.

Operational analytics: It is the tool used to monitor the current operation of the business and analyse the data within the department of the organisation which helps to increase the productivity and the profitability of the business (Araz, *et al.,*2020). It monitors the day-to-day operations of the business and it makes effective use of artificial intelligence which provides the company with more transparency and helps them to decide a better way. The tool is generally used by the service providers like KPMG which offers flawless services to the customer by giving them a proper evaluation of the audit and accounts and the tax services.

Supply chain analytics: The supply chain is generally involved various parties those exchange information or resources to fulfill the needs of the customer.Gathering information is a crucial part of any business, supply chain analytics is the method or the tools used by the organisation to get the details from the data that are associated with the process of the value chain (Riahi, *et al.*,2021). The tool helps to lower the risk associated with the value chain and also reduce the cost of the business it also helps in the proper planning of the resources and preparing for the future.KPMG uses these analytical tools to evaluate the market of the suppliers with whom they are connected for giving better services to the customers.

Market research: It is the process through which the company collects data for making better decisions for the proper running of the business. For the effective running of a business, it is important to have a better understanding of consumer needs and preferences, to gather information about the consumer the companies conduct various surveys, online questionnaire or interview processes which give details data regarding the consumer need which helps to grow the business profitability (Óskarsdóttir, *et al*.,2019). It is important for the satisfaction of the customer and to grow the productivity of the business it helps together valuable information which opens opportunities for the business to expand in the competitive environment by offering innovative services

# Part 2

## Discussion of ways in which KPMG ensures that the data used for project decision-making are valid and trustworthy

***Data collection and verification:*** The focus company makes use of various sources for collecting data in order to maintain authenticity and avoid depending on a particular source of data. This enables the company to compare the data collected from various sources and determine their authenticity. In order to make effective and informed decisions, the company relies upon different sources which include the industrial database, the internal database of the company, the public database as well as other external sources which include industrial reports and reports released by other relevant organisations. This ensures that the company gathers accurate data that can continue its decision-making process in terms of its project management activities. The company further validates the collected data through various techniques including data profiling, data integrity checkups and data sampling (Kaddoura and Gumaei, 2022). The data sampling methodology enables the company to collect data focusing on a particular population of customers and stakeholders of the company. This ensures that the company is capable of making decisions based on its understanding of best practices. Data profiling is used by KPMG in order to analyse the collected data to identify possible inconsistencies, duplicates, addresses and other unwanted discrepancies which can otherwise have a negative impact.

***Data cleaning and standardization:*** When data is collected by KPMG for various projects, they are initially in a scattered and unorganised format. Directly using the data in the project as well as making use of them to make important decisions can have questionable impacts on the validity of the project. This would require the organisation to redo the project or the project may end up getting cancelled altogether by the stakeholder. Therefore, the company makes sure to clean the data and use a standardised form of the data to avoid such unpleasant circumstances. This allows the data to remove errors and identify missing data that the company needs to make a wholesome decision (Hariri *et al.*, 2019). The data is standardized in order to ensure that consistency is maintained throughout the data structure and helps the company to analyse inefficiencies in the collected data. The data standardisation process involves formatting the data in order to incorporate consistency, it allows using the standard tools and frameworks for analysing the data and finally, it allows the company to eliminate any redundancies in the collected data.

***Data analysis and modelling:*** KPMG employs various techniques to analyze data that will further be used for the decision-making process in terms of its programs and projects. The company makes use of advanced Data Analytics such as Big Data and other advanced tools that allows the company to analyse the collected data and determine patterns and trends in them. The company also employs predictive modelling procedures, data visualisation and data analysis in order to gain an advantage in the form of the accuracy of data collection as well as the time effectiveness of analysing the collected data (Ajah and Nweke, 2019). The predictive modelling procedure used by the company enables it to analyse pre-existing or historical data related to the projects and services offered by the company to its clients in order to find necessary patterns that can help the company make a future prediction. The company also employs a data visualisation process in order to create a graphical representation of collected data or other visual tools which enables the company to determine trends and make use of them in its decision-making process. KPMG uses statistical methods as well in order to analyse the statistical data collected by the organisation. The company uses the statistical method to identify the relationship between various variables used in the statistical format of data. The company then make effective decisions based on its understanding of different variables and their interconnected relationships.

***Data governance and management:*** The company also follows strict data governance processes in order to ensure the consistency and accuracy of the collected data. This particular method of governing the data involves setting up data quality standards, data life cycle management and data ownership. The life cycle management of data outlines the process of collecting the data, storing it and processing it. At the very end of this process, the collected data is kept in archives throughout its lifecycle in order to make it available for future use. The company gets involved in data ownership as well which allows the company to identify individuals responsible for gathering the data and ensuring that the individuals are capable of maintaining the quality of data. At last, the quality standard set by the company for data collection defines prerequisite criteria that the data has to fulfil in terms of accuracy and completeness (Mikalef *et al.,* 2019). Fulfilling the criteria enables the data to be incorporated into the decision-making process of the company.

In addition to all the above processes, the company also engages in ***continuous monitoring*** processes. This ensures that the data collected are valid and can be trusted completely for using them as a base for making necessary decisions within the company (Janssen *et al.*, 2020). The monitoring allows the company to implement quality checks which send alerts to the Company in case of detecting any altercations and inconsistencies in the data. The company then performs are a review of the data as well as the process in order to ensure that it uses information that is relevant to its decision-making process.

## Recommendations for improvement of KPMG

**AI-based data cleaning tool**

Incorporative automated systems to clean data will allow the company to make its processes time effectively. Automation of the routine process of cleaning data will reduce the total time invested in deriving data that is used for making decisions (Altendeitering and Guggenberger, 2021). Projects upon which the company works are essential for its business operations. Hence, making decisions in regard to those projects holds utmost importance. Therefore, using artificial intelligence in the cleaning process will allow the company to easily eliminate human errors and errors due to other manual cleaning processes. This will increase the efficiency of the collected data that will be used in the important operations of the focus organisation. The AI uses algorithms and mathematics techniques to identify repetitions in the values of the data which can be easily eliminated in terms of duplicates (Nivetha and Sreemitha, 2021). Duplicate entries of data can cause biases in terms of making definite use of these data in the process of making necessary decisions associated with the programs that KPMG works on. Therefore, it is very important to cut down on redundancy and optimise the efficiency of gathering both textual and numeric data that will be used for making efficient decisions. The AI cleaning tool can be particularly used by KPMG to identify and analyse data that can be used by the company to minimise the tax liabilities of its clients. KPMG can use its tool to manage the risks associated with taxes and provide exceptional advisory services for its client. The tool will allow the company to provide proper tax planning and compliance advice as well as resolve any tax receives through proper arbitration and litigation to its clients.

**Development of quality check framework**

The development of an efficient and comprehensive technology that is capable of ensuring that the data that is used for making decisions is of the highest possible quality will ultimately fulfil the requirement of the stakeholders of the company. As a result of this, Master Data Management (MDM) tools can be used by KPMG in its project. The company basically provides consultancy services to international organisations. The company provides financial advisory services and Audit services in order to improve the financial reporting aspects of its clients. There the company needs to be capable of making a proper analysis of the data provided by the clients in order to make a proper plan and framework to provide advisory services. Therefore, using MDM will allow the company to identify consistent data that is aligned with the particular requirement of the client in terms of its financial reports (Krismawati *et al.,* 2019). This will also help to improve the quality and reliability of the company in order to make proper decisions and identify authentic sources for the collection of the necessary data required for designing the advisory plans. It will allow the company to develop well-structured plans to provide consulting services and have a positive impact on the reputation of the company. In case the client organisation is able to reap the highest benefits from the services offered by KPMG, it will lead to word of mouth for other similar companies. This will allow the company to increase its customer base and add value to the name of the organisation in the market.

# Part 3

## Assessment of the contribution of analytics to the sustainability of the professional service sector in which KPMG operates

**Improved decision-making:** Using analytics allows organisations operating in the professional service sector to make data-driven and at the same time well-informed decisions. This contributes to the quality of operations and services provided by the organisations to their clients which ultimately contributes to the sustainability of the professional service sector (Lepenioti *et al.*, 2020). The quality of performance of existing organisations attracts customers to avail of Financial Consulting Services. It also contributes to finding effective solutions in terms of tax disputes with customers.

**Increased efficiency:** Different types of data analytics such as diagnostic analytics and descriptive analytics contribute to the efficiency of identifying opportunities for further development of the sector. It contributes to the processes which alternately optimise the services provided by the organisations in the service sector. Proper analysis of data adds to the operational performance of the organisation which ultimately contributes to the performance of the client in their respective domains (Sousa *et al.*, 2019). As a result of this, analytics does not just contribute to the service sector but also directly contributes to the other industries to which the plans of the service sector belong. These analytics particularly contribute to maximizing the cost saving of the organisations which ultimately increases the sustainability of the service sector in the market.

**Better management of risk:** Since the companies operate in the service sector and provide Consultancy Services to their external stakeholders, it is very important for the companies to be capable of analysing the risk associated with the business activities and operations of their clients. Based on these factors as well as proper analysis of the risk factors which include cybersecurity threats, financial risk, tax default and regulatory compliance among others (Dubey *et al.,* 2021). Based on its analysis, the company can provide effective solutions and take practice measures to safeguard its customers ultimately protecting its own sustainability in the market.

**Satisfactory client service:** Various analytics especially supply chain (SC) analytics allow organisations to collect data to find solutions for the disputes faced by their clients. Just like any other analytics, SC analytics too allows companies to tailor their advisory services in a way that is able to fulfil the specific reference of its clients. As a result of this, the organisations are capable of gaining the loyalty of the customers and establishing a trustworthy relationship with them. This will make the clients come back to the organisations for further advice in the future. This continues to the lifecycle of the sector and helps in establishing sustainability throughout the industry.

***Innovation:*** Organisations are capable of identifying growth opportunities and identifying areas for further innovation which ultimately contributes to the service sector becoming sustainable in the market. It allows organisations to predict upcoming market trends as well as analyse the emergence of innovative technology which are capable of satisfying the meet of the customers. They are capable of providing diversified solutions to clients which helps the overall sector establish sustainability (Zaki, 2019).

## Discussion of ways in which analytics can be used to support the ethical contribution to the Netherlands society

**Fraud detection-** Data analytic tools and business analytics which is used by organisations can help in the identification of duplicates which ultimately contributes to potential fraudulent cases. Duplicate data can lead the service organisation to make inconsistent and inefficient decisions that can possibly land their clients in legal troubles and tax controversies (Mansour *et al.*, 2022). The financial organisations in the company contribute to the overall GDP of the Netherlands and in case of any huge financial fraud, the overall economy of the country can experience huge disturbance. Hence, employing these analytics by the service sector allow organisations to identify anomalies which ultimately saves both large and small financial organisation in the Netherlands.

**Sustainability-** The analytics can be used by the service sector to identify sustainable practices which will allow the sector to continuously contribute to the economic status of the country. It will help the organisation operating in the sector to identify areas which require improvement. Using analytics can allow organisations to keep track of their own progress and determine scopes for the expansion of their advisory services (Conboy *et al.,* 2020). As a result of this, the sector will be able to expand in new areas which will support the ethical contribution of the service sector in the Netherlands society. It will allow the organisation to remain transparent in an activity as well as follow the regulatory compliance set up by the Netherlands government.

**Regulatory compliances-** It is these rules that organizations need to follow to protect the information and the safety of humans the business that works in the consumer data regulations of the health employees safety is need to follow all the regulatory compliance that is prevailing for the sectors in that country the organisation that which will fail to comply the rules will be fine for the violations of such rules and will have a bad reputation in the market. An organization that complies with the rules get benefit as their data is protected from cyber attack (Beerbaum,2021). Netherland society complies with the legislative rules laid down by the Dutch which helps them to maintain the integrity of the business as the protection of the data is their prime area of focus. The constant change in the market environment makes the necessity to lay down strict rules and regulations for the service sector industry.

**Social responsibility-** Social responsibility generally means the responsibility that the company takes for the impact of its business on the environment, society, and employees. To carry out the business properly it is important to strike a balance between the profit and the planet as well as on the humans. It is important to provide better working conditions to the employees and to avoid any kind of corruption in the business (Fernández‐Gago, *et al.*,2020).To maintain social responsibility Netherland society has paid great importance to the sustainable development of the business they use energy efficiently and save them, they use their raw material and reuse resources as far as possible. Society makes sure that the customer gets valuable services and the company should be corruption free so that the customers can rely on them and use their services it helps to maintain transparency between the customer and the business relationship.

# Conclusion

Drawing from the above discussion, it can be concluded that project analytics play a major role in the efficiency and effectiveness in terms of the decisions made by KPMG. KPMG makes decisions in terms of clients in a number of contexts which includes taxation activities, auditing and assurance services and others. The company employs various decision-making models such as the Analytical hierarchy process, rational decision-making process and others. These models allow the company to make informed decisions which contribute to the performance of the organisation in the market. The decision-making processes along with the various analytics used by the company make the overall service provided to clients effective and efficient in terms of dealing with their respective issues. The above report discusses the various ways in which KPMG ensures that the organisation makes use of credible data which ultimately benefits the organisation. The company employs various verification and data collection methods as well as incorporates data cleaning and verification methods in order to ensure that the collected data are capable of contributing to the quality of the decision-making process. The report also makes recommendations and discusses ways in which analytics can contribute to the overall society of the Netherlands.

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# References

Ajah, I.A. And Nweke, H.F., 2019. Big data and business analytics: Trends, platforms, success factors and applications. Big Data and Cognitive Computing, 3(2), p.32.

Altendeitering, M. and Guggenberger, T.M., 2021. Designing Data Quality Tools: Findings from an Action Design Research Project at Boehringer Ingelheim. In ECIS.

Araz, O.M., Choi, T.M., Olson, D.L. and Salman, F.S., 2020. Data analytics for operational risk management. Decis. Sci., 51(6), pp.1316-1319.

Beerbaum, D.O., 2021. Applying Agile Methodology to regulatory compliance projects in the financial industry: A case study research. Available at SSRN 3834205.

Conboy, K., Mikalef, P., Dennehy, D. And Krogstie, J., 2020. Using business analytics to enhance dynamic capabilities in operations research: A case analysis and research agenda. European Journal of Operational Research, 281(3), pp.656-672.

Dos Santos, P.H., Neves, S.M., Sant’Anna, D.O., de Oliveira, C.H. and Carvalho, H.D., 2019. The analytic hierarchy process supporting decision making for sustainable development: An overview of applications. Journal of cleaner production, 212, pp.119-138.

Dubey, R., Gunasekaran, A., Childe, S.J., Fosso Wamba, S., Roubaud, D. and Foropon, C., 2021. Empirical investigation of data analytics capability and organizational flexibility as complements to supply chain resilience. International Journal of Production Research, 59(1), pp.110-128.

Fernández‐Gago, R., Cabeza‐García, L. and Godos‐Díez, J.L., 2020. How significant is corporate social responsibility to business research?. Corporate Social Responsibility and Environmental Management, 27(4), pp.1809-1817.

Fosso Wamba, S. and Akter, S., 2019. Understanding supply chain analytics capabilities and agility for data-rich environments. International Journal of Operations & Production Management, 39(6/7/8), pp.887-912.

Hariri, R.H., Fredericks, E.M. And Bowers, K.M., 2019. Uncertainty in big data analytics: survey, opportunities, and challenges. Journal of Big Data, 6(1), pp.1-16.

Holmlund, M., Van Vaerenbergh, Y., Ciuchita, R., Ravald, A., Sarantopoulos, P., Ordenes, F.V. and Zaki, M., 2020. Customer experience management in the age of big data analytics: A strategic framework. Journal of Business Research, 116, pp.356-365.

Janssen, M., Brous, P., Estevez, E., Barbosa, L.S. and Janowski, T., 2020. Data governance: Organizing data for trustworthy Artificial Intelligence. Government Information Quarterly, 37(3), p.101493.

Kaddoura, S. And Gumaei, A., 2022. Towards effective and efficient online exam systems using deep learning-based cheating detection approach. Intelligent Systems with Applications, 16, p.200153.

Krismawati, D., Ruldeviyani, Y. And Rusli, R., 2019, July. Master data management maturity model: A case study at statistics business register in statistics Indonesia. In 2019 International Conference on Information and Communications Technology (ICOIACT) (pp. 931-936). IEEE.

Lepenioti, K., Bousdekis, A., Apostolou, D. and Mentzas, G., 2020. Prescriptive analytics: Literature review and research challenges. International Journal of Information Management, 50, pp.57-70.

Mansour, A.A.Z., Ahmi, A., Popoola, O.M.J. And Znaimat, A., 2022. Discovering the global landscape of fraud detection studies: a bibliometric review. Journal of Financial Crime, 29(2), pp.701-720.

Mikalef, P., Pappas, I., Krogstie, J. And Pavlou, P., 2019. Big data and business analytics: A research agenda for realizing business value.

Nivetha, J. And Sreemitha, A., 2021. Towards Automated Data Cleaning Workflow (No. 5652). EasyChair.

Nurachman, D.E. and Irawan, E., 2020. Effectiveness of Blended Learning Based on Constructive Feedback in Improving Rational Thinking Ability of Students. INSECTA: Integrative Science Education and Teaching Activity Journal, 1(1), pp.34-44.

Óskarsdóttir, M., Bravo, C., Sarraute, C., Vanthienen, J. and Baesens, B., 2019. The value of big data for credit scoring: Enhancing financial inclusion using mobile phone data and social network analytics. Applied Soft Computing, 74, pp.26-39.

Riahi, Y., Saikouk, T., Gunasekaran, A. and Badraoui, I., 2021. Artificial intelligence applications in supply chain: A descriptive bibliometric analysis and future research directions. Expert Systems with Applications, 173, p.114702.

Sousa, M.J., Pesqueira, A.M., Lemos, C., Sousa, M. And Rocha, Á., 2019. Decision-making based on big data analytics for people management in healthcare organizations. Journal of medical systems, 43, pp.1-10.

Tapia, A., Leiva, V., Galea, M. and Werneck, R., 2020. On a logistic regression model with random intercept: diagnostic analytics, simulation and biological application. Journal of Statistical Computation and Simulation, 90(13), pp.2354-2383.

Wang, J., Xu, C., Zhang, J. and Zhong, R., 2022. Big data analytics for intelligent manufacturing systems: A review. Journal of Manufacturing Systems, 62, pp.738-752.

Zaki, M., 2019. Digital transformation: harnessing digital technologies for the next generation of services. Journal of Services Marketing.