Strategic Framework for Advancing Big Data Management Capabilities at Moët Hennessy Louis Vuitton

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1 Introduction – Clarity of Objectives for LVMH

1.1 Company Overview

"At the intersection of luxury and innovation, LVMH Moët Hennessy Louis Vuitton harnesses the transformative power of big data to redefine excellence and sustain its leadership in the global luxury market."(Lai, Y. et.al, 2023) LVMH (Louis Vuitton Moët Hennessy) is a multinational luxury goods conglomerate known for its portfolio of prestigious brands in fashion, cosmetics, jewellery, and wines & spirits. LVMH, a leading luxury goods conglomerate, utilizes Big Data infrastructure to gather customer insights, optimize its supply chain, and personalize marketing efforts. By analysing vast amounts of data from various sources, including online purchases and social media interactions, LVMH can tailor its strategies to consumer preferences and market trends. This data-driven approach also informs product development, allowing LVMH to innovate and launch new offerings that resonate with customers. LVMH likely invests in advanced Big Data infrastructure and analytics capabilities to stay competitive in the rapidly evolving luxury goods market and drive business growth and profitability.

1.1.1 Company's Mission and Vision

Mission

LVMH statement is: "The mission of the LVMH group is to represent the most refined qualities of Western "Art de Vivre" around the world". LVMH must continue to be synonymous with both elegance and creativity. Our products, and the cultural values they embody, blend tradition and innovation, and kindle charm dream and fantasy".

Vision

LV is willing to develop core values in the political, social, societal and environmental spheres of responsibilities as the core objectives of the top hierarchy level is dictated by code of conducts, charts and as well as a large documentation depicting its engagement and control over the steps of production transparency

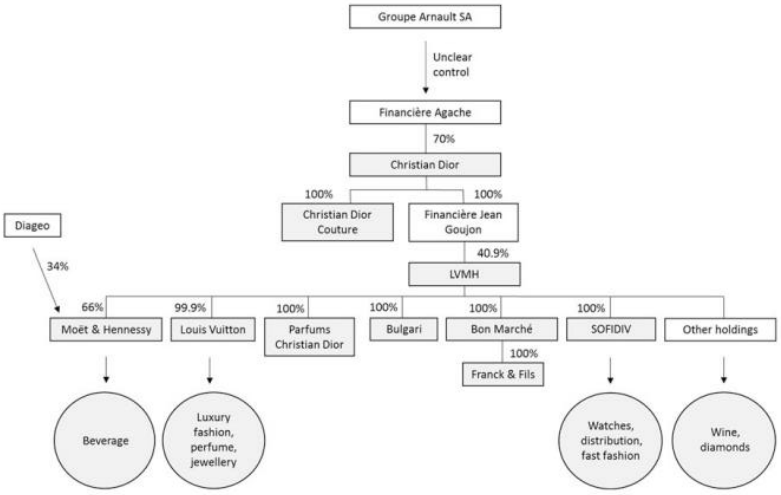
1.1.2 Values of the company

"Each of the Group's 75 Maison's must cultivate the highest level of quality, not simply to maintain it year after year, but also to elevate it as we continually set even higher standards." (LVMH et.al,2022) Every member of LVMH shares the four fundamental ideals defined by Bernard Arnault. These four requirements serve as sources of inspiration for achieving greatness and represent the foundational principles of performance and sustained success.

- **Innovate with Integrity**: LVMH combines current and history to create timeless products via creativity and innovation. The Group is committed to innovation, which drives expansion and explores new technologies while respecting its historic legacy.
- **Pursue Excellence Relentlessly**: Every Maison at LVMH strives to improve both the craftsmanship and the quality of their products and services. The finest quality of its workers supports this commitment to perfection.
- **Empower Entrepreneurial Spirit**: An entrepreneurial mindset at every level drives the Group's dynamic movement. LVMH's independent structure provides practical flexibility and reactivity, giving it the spirit of a startup even as a global leader, creatively managing entrepreneurial problems and pursuing quality
- **Commit to Making a Positive Impact**: LVMH practices CSR and environmental responsibility with the highest ethical standards. Sustainability and ethics are important to the Group's activities to benefit society, the environment, and its stakeholders.

1.1.3 Structure of an Organisation

Louis Vuitton is one of the 60 brands/divisions of the holding company LVMH, which is financially controlled by Bernard Arnault, the Chairman and CEO who represents the company. The structure followed a principle of decentralisation of decision-making on the group's brands level, with brands being seen as houses of family history. Driving the creativity of each brand is crucial for maximising its value. Michael Burke has been the chairman and executive of the brand since 2012, taking over from his predecessors Yves Carcelle and interim jorN Constans due to health reasons. Each company within LVMH operates independently.



Structural Breakdown of LVMH's Brand Portfolio

1.1.4 Significance of big data

The data push is a fresh opportunity to expand the LVMH's spaces for sharing knowledge, use cases and best practices. (Adegeest, D.-A. et.al, 2022) In the luxury sector, big data is pivotal for understanding evolving consumer behaviours, optimizing operational efficiency, and personalizing customer experiences. For LVMH, leveraging big data analytics enables:

- **Enhanced Customer Insights:** Through the analysis of extensive datasets, LVMH has the capability to reveal profound insights pertaining to customer preferences and trends, hence enabling more efficient targeting and personalisation strategies.
- **Operational Excellence:** The utilisation of big data facilitates the optimisation of supply chains, enhancement of inventory management, and simplifying of operations, resulting in cost reduction and improved profitability.
- **Innovation and Trend Prediction:** LVMH utilises data analytics to detect new trends, allowing the Group to maintain a competitive edge in the highly competitive luxury market.

1.2 Cross-sectoral Comparisons of Big Data Strategies

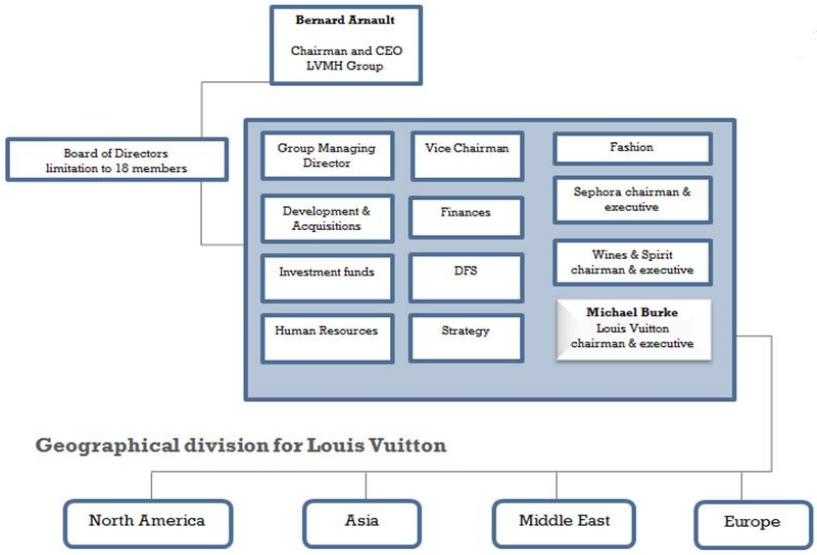
"In a strategic report by LVMH (2023), the luxury conglomerate outlines its comprehensive approach to leveraging big data, emphasizing the integration of advanced analytics across its global operations to enhance customer experiences, streamline supply chain efficiency, and foster innovation in line with its mission to lead the future of luxury.

Personalized Marketing: LVMH utilises client data to customise marketing campaigns and improves the upscale shopping experience by offering customised services and product recommendations. Technological giants such as Google and Amazon leverage user data analysis to personalise content, ads, and product recommendations in order to maximise user engagement and revenue.

Supply Chain Optimization: LVMH analyses feedback and purchase trends to provide unmatched customer service and product options that meet the needs and expectations of its customers. Hospitality and Entertainment: Businesses which utilise big data, such as Marriott and Netflix, may better understand their customers' tastes and tailor their experiences to boost customer satisfaction and loyalty

Customer Experience Enhancement: This is a fundamental element of LVMH's strategy as the luxury sector develops through customer satisfaction and loyalty. Utilising data analytics allows for the development of detailed customer profiles, resulting in tailored experiences that are crucial in the luxury industry.

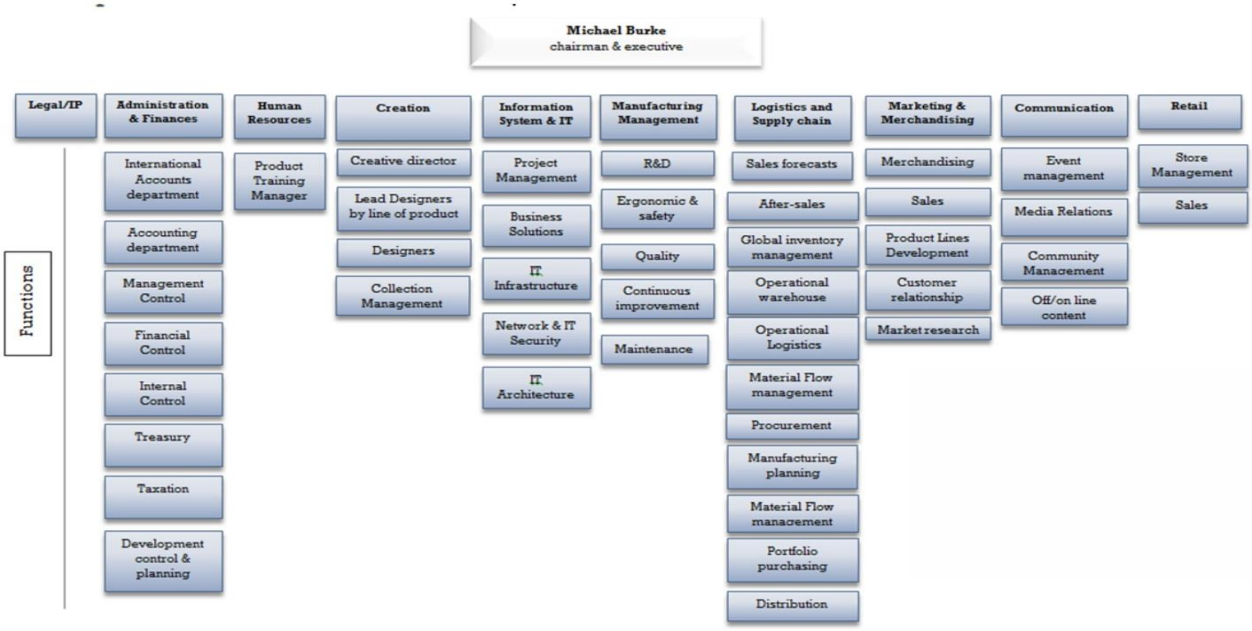
Innovation and Product Development: Uses data analytics to identify consumer demands and new trends, directing the creation of cutting-edge goods and services that strengthen its position as the industry leader. Pfizer and other companies rely on big data to help with drug research and development. This is because big data allows them to analyse large datasets for possible therapies and accelerate clinical studies.



Strategic Organizational and Geographic Layout of LVMH

1.2.1 Level Big Data Strategies at LVMH

LVMH Moët Hennessy Louis Vuitton is harnessing big data to enhance its operations across marketing, product development, supply chain, customer service, and HR management. Utilizing analytics for predictive insights, LVMH's department-specific strategies aim to drive innovation and operational efficiency. A Bain & Company report (2021) highlights that adopting big data strategies is crucial for luxury industry leaders, helping LVMH to generate valuable insights and maintain its success in the luxury market.



Overview of Louis Vuitton's Departmental Organization

Choosing a robust Information System and IT infrastructure is pivotal for LVMH's big data analytics because it supports the company's capacity to leverage large amounts of intricate data across its portfolio of luxury brands worldwide. With the use of a system like this, LVMH is able to combine and evaluate various data streams, including supply chain logistics, customer preferences, and sales transactions. This allows for the real-time insights and predictive analytics that are crucial for streamlining operations, enhancing customer experiences, and

influencing strategic choices. In a data-driven market environment, this technological foundation is essential for LVMH to sustain its leading position through constant innovation and market adaptation to the ever-changing luxury market.

1.2.2 Insights and Universal Value of Big Data Analytics

Big data analytics is an universal transformation tool that drives personalised marketing, operational efficiency, and innovation across industries. The way that LVMH uses consumer data for tailored marketing is part of a larger trend that highlights the importance of customising experiences to user preferences across industries, a trend that is also evident in internet giants such as Google and Amazon. Similar to manufacturing and pharmaceutical practices, supply chain optimisation and product development strategies highlight the role that big data plays in improving productivity and promoting innovation.

1.3 The Data Expert: Storing, Managing, and Analysing Big Data.

The Data Scientist is in charge of developing and executing into practice database solutions for big data storage. Data analysts and scientists are the Essential components in managing the flow of data within an organization "Storage of big data is the persistence and management of data in a scalable way that satisfies the needs of applications that require fast access to the data" (José María Cavanillas, Curry, E. and Wolfgang Wahlster et.al,2016) Their work begins with the **storage of big data**, where they are responsible for creating and maintaining systems that can handle the immense volume, velocity, and variety of data typical in a conglomerate like LVMH. Designing databases requires the ability to store large amounts of data, scale for future growth, and ensure the security of sensitive information.

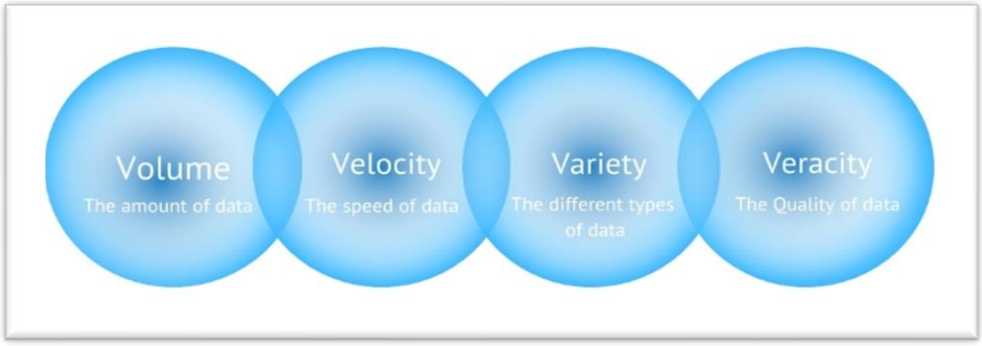
Once the storage systems are in place, the **management of big data** becomes the ongoing task. Beyond the technical challenge of storing big data, these professionals manage the data to maintain its integrity and accessibility. "On considering big data, making a profound transformation in computing, such as different sampling methods, aggregation (computing descriptive statistics), dimensionality reduction techniques, etc., is a feasible and effective approach before big data analysis and management".(Singh, M.K. and Kumar G., D. et.al,2016) They set up guidelines to manage and maintain the accuracy, consistency, and security of the data. This role is crucial in ensuring that the data can be trusted for making informed decisions.

The **analysis of big data** is where the strategic dimension of their role becomes evident. Data analysts and scientists use statistical tools and machine learning algorithms to sift through the stored data, identifying patterns and insights that can inform strategic decisions. "The massive amounts of high-dimensional data bring both opportunities and new challenges to data analysis" (Challenges with Big Data Analytics et.al, 2015) They collaborate together with various departments within the company to understand their unique requirements and supply them with data insights that can guide the creation of new products, marketing plans, better customer service, and other initiatives. this process takes raw data and turns it into valuable information that can fuel innovation, streamline operations, and elevate customer experiences.

2. Current Operational Metrics and Data Insights

2.1 Data Dynamics and the Four V's of Big Data at LVMH

The integration and management of structured, semi-structured, and unstructured data within LVMH's operations demonstrate a robust approach to leveraging the four V's of big data: volume, variety, veracity, and velocity. The execution of this complete data strategy allows LVMH to sustain its position as a leader in the luxury market through the utilisation of well-informed decision-making, operational optimisation, and the improvement of consumer experiences.



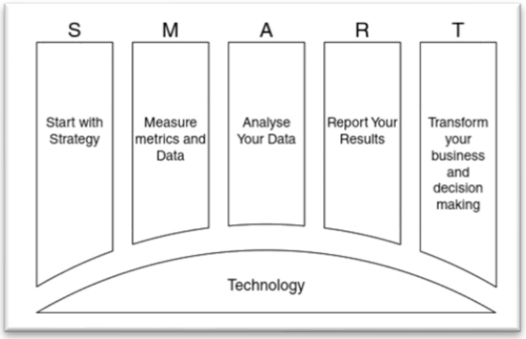
The 4 V's of Big Data Infographic

LVMH demonstrates a proficient handling of structured, semi-structured, and unstructured data throughout its extensive activities, showcasing a strategic expertise in the four fundamental aspects of big data: volume, diversity, veracity, and velocity. The substantial amount of data, ranging from comprehensive customer profiles in customer relationship management (CRM) systems to extensive operational logs, requires strong storage capabilities and advanced analytics in order to extract practical insights. The wide range of data, which includes accurate financial records, inventory counts, social media feedback, and multimedia content, presents a challenge for LVMH in terms of implementing flexible data processing methods that can effectively include different types of data. It is essential to verify the accuracy of this extensive data.

LVMH's strategic decisions are based on precise customer insights, dependable financial reporting, and genuine market research. The rapid generation and analysis of data, especially in real-time situations like online transactions and social media monitoring, necessitates the need for flexible and effective data processing skills. Through adeptly navigating through these complexities, LVMH not only strengthens its standing as a leader in the luxury market but also utilises its extensive data strategy to cultivate operational effectiveness, strategic flexibility, and an in-depth knowledge of the market, thereby guaranteeing its long-lasting prosperity and flexibility in a dynamic industry environment.

2.2 Data Sufficiency Review: LVMH's Strategic Goals with Marr's SMART Dashboard

the foundational principles outlined by (Dautov, R. and Distefano, S. et.al2017), who initially characterized big data with the three Vs: volume, variety, and velocity. However, as the domain has matured, the framework has expanded to include additional dimensions such as veracity, variability, and value, reflecting a broader understanding of big data's complexities. Recognising the various dimensions of big data is crucial, as it illustrates the need to not only collect data but also focus on its accuracy, variety, and the benefits it offers. Marr's SMART strategy dashboard is a powerful strategic management tool that enables organisations to effectively align their activities with their overall strategic objectives. It provides valuable insights through data collection and analysis, helping businesses make informed decisions. It utilises the SMART criteria to ensure that strategies are clearly defined and actionable, resulting in more effective decision-making and improved outcomes.



Marr’s SMART Data Strategy Framework

The SMART strategy dashboard for LVMH describes a data-driven approach to strategic business management, starting with clearly defined goals that lead to the collection and measurement of relevant data. With the expertise

of an analyst, LVMH conducts thorough analysis to extract valuable insights that drive decision-making. These findings are effectively communicated to stakeholders, ensuring clear and informed communication. Through this process, valuable insights are generated to drive strategic decision-making and enhance LVMH's operations, keeping them in sync with the ever-evolving luxury market. Technology is the foundation of this entire process, allowing for the advanced management of data that drives LVMH's strategic development.

In the fast-paced world of luxury goods, LVMH stands at the forefront, exemplifying how effective data management can catalyze business growth and innovation. Managing a diverse data ecosystem is a crucial task for LVMH, as it involves handling structured, semi-structured, and unstructured data with significant volume, variety, veracity, and velocity. This luxury giant deals with an enormous quantity of functional and customer data. Their main challenge lies in extracting valuable insights from the numerous interactions and transactions that occur across their global brands. Similar to a data scientist, LVMH strategically utilises data analytics to improve decision-making, enhance customer experiences, and increase operational efficiency. They understand the significance of flexibility and precision in utilising big data to stay ahead in the competitive luxury market.

Table 1, Big Data Within LVMH's Informational system and IT Function

Data Type	Structured/ Unstructured	System of Creation	System of Capture	System of Storage	Accessibility	Analogous LVMH Term	Value of Data	Volume	Velocity	Does Metric Support Strategy
Sales Records	Structured	POS Systems	MRP, POS Systems	Oracle Database	Web Interface, 3270 Screen	Operational Data	Critical	High	Real-time, Daily	Yes
Inventory Counts	Structured	MRP Systems	MRP Systems	Adabas Table	3270 Screen/Web Interface	Inventory Data	Critical	Medium	Daily, Batch	Yes
Customer Feedback	Semi-Structured	Social Media, Email	API, Manual Entry	AWS S3 Bucket	Web Interface, Email	Market Insights	High	Large	Continuous	Yes
Supplier Contracts	Structured	External Creation	Email, EDI	Oracle Database	Web Interface	Contractual Data	High	Moderate	Periodic Updates	Yes
Marketing Campaign Data	Semi-Structured	Marketing Platforms	API, Manual Entry	Cloud Storage, Databases	Web Interface, Analytics Tools	Campaign Performance	Medium	High	Real-time, Periodic	Yes
Product Design Files	Unstructured	Design Software	Direct Upload	Cloud Storage	Specialized Software	Design Assets	High	Varied	As needed	Yes
Market Research Reports	Semi-Structured	Market Research Firms	Email, Download	Oracle Database, Email	Web Interface, Email	Market Analysis	High	Moderate	Periodic	Yes
Social Media Interactions	Unstructured	Social Media Platforms	API	AWS S3 Bucket	Analytics Tools	Consumer Insights	High	Very Large	Continuous	Yes
Operational Logs	Structured	Internal Systems	Automated Capture	Adabas Table, Cloud Storage	Direct Database Access	Log Data	Medium	Very Large	Real-time	Yes
HR Records	Structured	HR Systems	Manual Entry, Automated	Oracle Database	HR Management System	Employee Data	High	Moderate	Periodic, As needed	Yes
Email Communications	Semi-Structured	Internal, External	Email Servers	Email Servers	Email Clients	Communication Records	Medium	Large	Continuous	Yes
Video Content (e.g., Ads)	Unstructured	Marketing Department	Direct Upload	Cloud Storage	Specialized Software, Web	Marketing Assets	High	Large	As produced	Yes
Customer Purchase History	Structured	POS Systems, E-commerce	Automated Systems	Data Warehouses	CRM Systems, Analytics Tools	Sales Data	Critical	High	Real-time, Daily	Yes
Legal Documents	Semi-Structured	Legal Department	Scanned, Manual Entry	Document Management System	Secure Web Portals	Compliance Records	High	Moderate	As needed	Yes
Retail Store Traffic	Semi-Structured	Sensor Systems	Automated Capture	Cloud Analytics Platform	Analytics Dashboard	Customer Behavior Data	Medium	High	Real-time, Hourly	Yes
Product Returns Data	Structured	POS Systems, Customer Service	Manual Entry, Automated	Oracle Database	Web Interface, 3270 Screen	Return Management Data	High	Medium	Daily, Batch	Yes
Digital Asset Metadata	Semi-Structured	Content Management Systems	Automated Capture	Digital Asset Management System	Web Interface, Specialized Software	Asset Catalog Data	Medium	Large	Continuous, As updated	Yes

Product Returns Data	Structured	POS Systems, Customer Service	Manual Entry, Automated	Oracle Database	Web Interface, 3270 Screen	Return Management Data	High	Medium	Daily, Batch	Yes
Digital Asset Metadata	Semi-Structured	Content Management Systems	Automated Capture	Digital Asset Management System	Web Interface, Specialized Software	Asset Catalog Data	Medium	Large	Continuous, As updated	Yes
Competitor Analysis Reports	Semi-Structured	Market Research, Intelligence	Download, Manual Entry	Cloud Storage, Databases	Analytics Tools, Web Interface	Market Strategy Data	High	Moderate	Periodic	Yes
Environmental Impact Data	Structured	Sustainability Department	Surveys, Sensors	Data Warehouses	Web Dashboards, Reports	Sustainability Reports	High	Moderate	Periodic, Real-time	Yes
Fashion Show Feedback	Unstructured	Social Media, Customer Surveys	Manual Entry, API	Cloud Storage, Databases	Analytics Tools, CRM	Customer Sentiment Data	High	Large	Event-based	Yes
Manufacturing Process Logs	Structured	Production Systems	Automated Systems	On-premises Databases	Manufacturing Systems	Production Efficiency Data	Critical	Very High	Real-time	Yes
Augmented Reality Experiences	Unstructured	Marketing, IT Development	Direct Upload	Cloud Storage	Specialized Software, Web	Interactive Marketing Data	Medium	Large	As produced	Yes
E-commerce Interaction Logs	Semi-Structured	Website, Mobile Apps	Automated Capture	Cloud Analytics Platform	Analytics Dashboard	User Experience Data	Medium	Very Large	Continuous	Yes
Loyalty Program Data	Structured	CRM Systems, POS Systems	Automated Systems	CRM Databases	CRM Systems, Analytics Tools	Customer Loyalty Data	High	High	Real-time, Daily	Yes
Quality Control Records	Structured	Manufacturing Systems	Automated Capture	On-premises Databases	Quality Management Systems	Quality Assurance Data	Critical	Moderate	Real-time, Batch	Yes

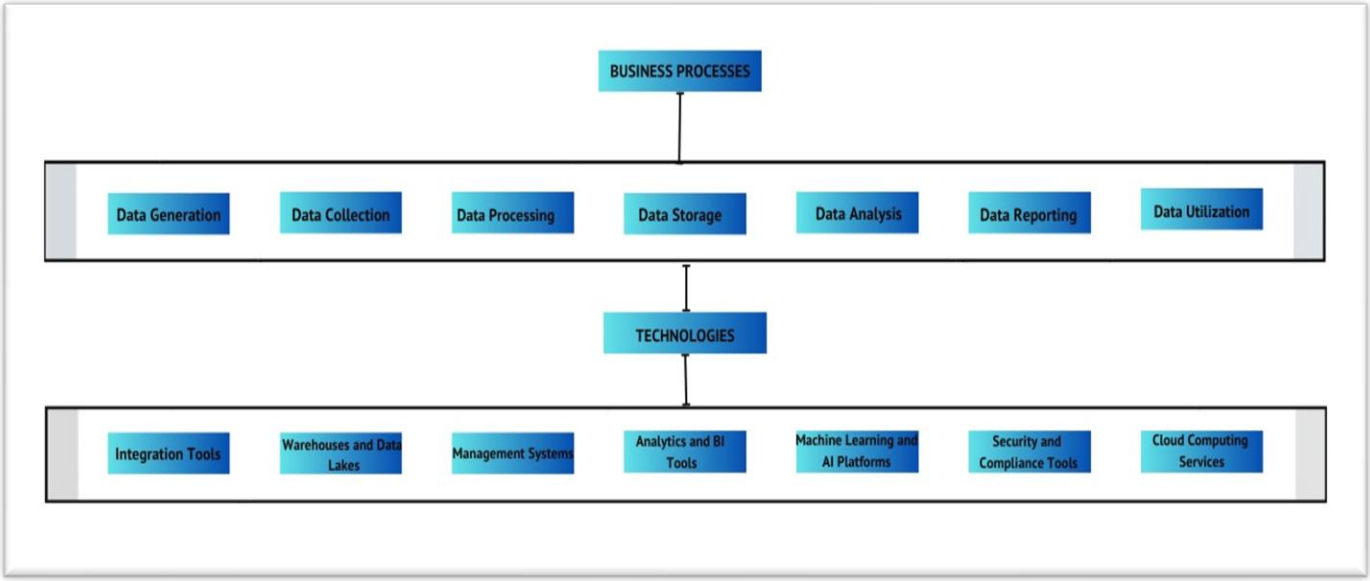
The above tables illustrate a comprehensive overview of how a luxury conglomerate like LVMH could manage and utilize big data across its diverse operations. These tables provide a comprehensive breakdown of data types, including structured, semi-structured, and unstructured. They cover various aspects such as data sources, capture and storage methods, accessibility, organisational value, volume and velocity, and alignment with strategic goals. Adopting a systematic approach to data management is essential for successful big data analysis. It empowers LVMH to utilise extensive information from different areas of its operations, enabling informed decision-making, enhanced customer experiences, and a long-term edge in the luxury market.

With the knowledge of an experienced professional, LVMH embraces the ever-changing luxury industry, utilising advanced data analysis to drive innovation and maintain its position as a leader in the market. The carefully organised tables outline a complex system for handling a wide range of data types, each with its own methods of creation, capture, storage, and accessibility. With a data-driven mindset, LVMH can effectively analyse its operations, customer interactions, and market research to gain valuable insights. This approach allows them to align their strategic objectives with data-driven decision-making processes.

LVMH uses structured sales and inventory data to enhance operational efficiency and strategic planning. This enables them to optimise their supply chain and tailor their products to meet market demand with precision. Working with semi-structured data from email and digital marketing campaigns provides valuable insights into consumer interactions, allowing for the development of targeted marketing strategies that effectively engage specific target audiences. By harnessing data on customer preferences, market dynamics, and operational efficiency, LVMH maintains its position as a leader in the luxury market. This approach highlights the importance of utilising data in the realms of storytelling, innovation, and sustainable growth, enhancing LVMH's position as a leader in the luxury industry.

3. Enhanced Overview of Big Data Management Infrastructure

Big Data Management spans from Data Generation and Acquisition to Utilization, involving stages like Collection, Processing, Storage, Analysis, and Reporting, to derive actionable insights for strategic decisions. With the help of advanced IT technologies such as Integration Tools, Data Warehouses, Analytics Tools, AI Platforms, and Cloud Services, this ecosystem guarantees precise data analysis and secure management. It enables organisations to adopt a data-driven approach to their strategic decision-making.



Big Data Operational Framework and Technological Architecture

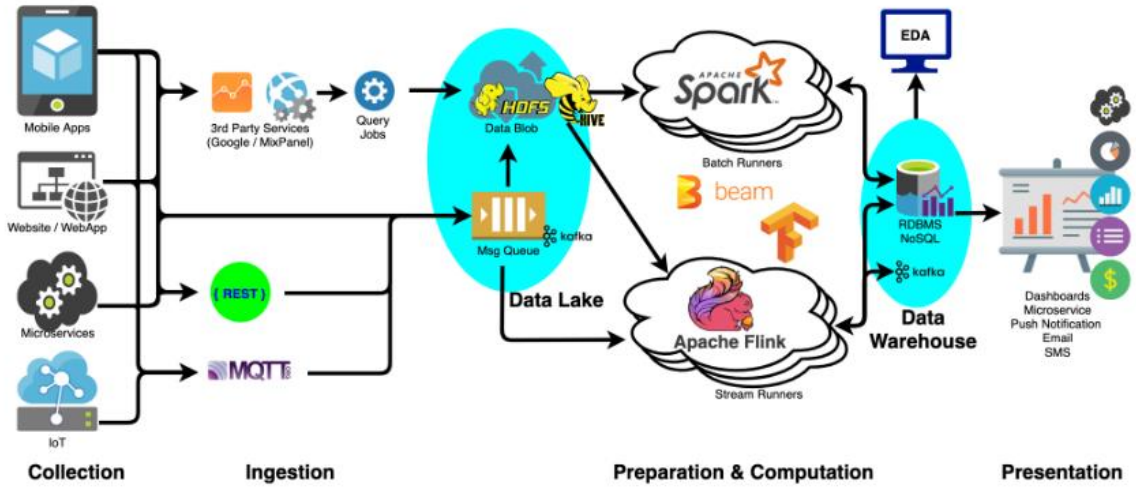
3.1 .1 Business Processes in Big Data Management

Advanced Data Generation and Acquisition: highlighting innovative methods as essential data sources, such as the use of IoT (Internet of Things) devices in manufacturing or real-time customer interaction tracking in e-commerce. Businesses such as LVMH might use IoT to improve supply chain transparency and product authenticity.

Sophisticated Data Collection and Aggregation: Emphasising the importance of API integrations and real-time data streams, such as social media analytics tools that offer instant consumer sentiment analysis. Similar approaches can be seen in tech companies that prioritise user engagement metrics.

Intelligent Data Processing and Cleansing: Exploring the use of AI-powered tools to automatically correct and format data, similar to how financial institutions employ AI to identify and remove fraudulent transactions from datasets.

Robust Data Storage and Management: Examining the implementation of hybrid cloud and on-premise solutions to improve security and scalability, much like how healthcare organisations handle patient records to meet regulations and maintain accessibility.



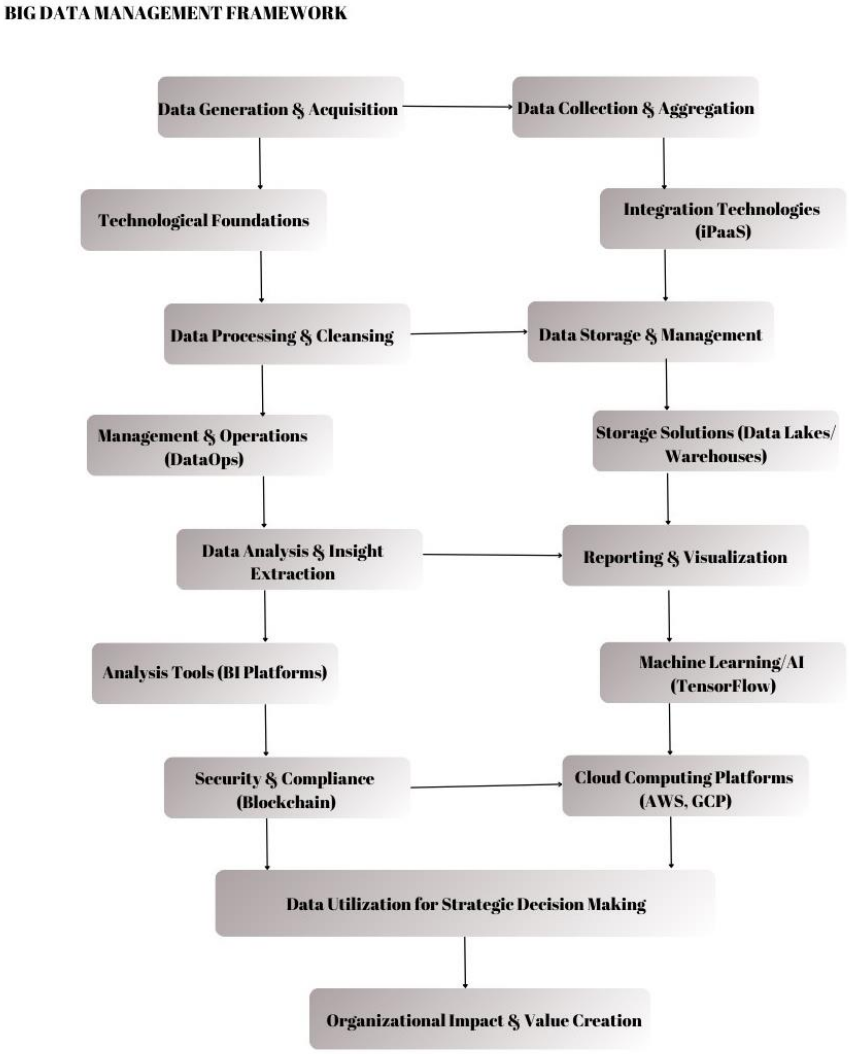
System Architecture Diagram

3.1.2 IT/Data Warehousing Technologies

Embracing advanced technologies and methodologies is crucial in today's business landscape, especially with the proliferation of big data management. Companies are now using Integration Platforms as a Service (iPaaS) to facilitate smooth integration across various data environments. This integration guarantees a seamless flow of information between cloud-based and on-premise systems, a crucial capability for companies operating in sectors such as luxury retail, including industry leaders like LVMH. The reasoning for this strategic adoption is to optimise logistics, improve global tracking, enhance supply chain management. With the deployment of cutting-edge data warehouses and data lakes, such as Google BigQuery and Amazon Redshift, real-time analytics can now be conducted on an unparalleled scale. Just like a data scientist, the ability to efficiently query massive amounts of data reflects the advancements made by the tech industry in managing large-scale datasets. This emphasises the importance of strong data handling solutions that can cater to various sectors, including the specific requirements of luxury retail.

In addition, the implementation of DataOps methodologies offers a holistic approach to managing the entire data lifecycle. It combines the flexibility of continuous integration and deployment (CI/CD) with data analytics. This strategy enables companies to quickly adapt to emerging insights and changing market demands, reflecting the flexibility observed in contemporary software development methods. Using tools like SAS and Tableau is crucial in this ecosystem, allowing companies to extract valuable insights from their data and accurately predict consumer behaviour. With these capabilities, the retail industry can effectively tailor offerings to meet the nuanced preferences of consumers. Just like a data scientist, the use of machine learning and AI platforms such as TensorFlow and IBM Watson is transforming analytics in different fields. These technologies in finance enable advanced predictive modelling and risk assessment, enhancing decision-making processes with insights driven by data.

In addition, the strategic use of blockchain technology is revolutionising security and compliance, particularly in industries that prioritise data integrity and transaction security. With the expertise of a data scientist, this innovation guarantees the protection of data, promoting trust and transparency in operations—an essential aspect for the banking sector. Similarly, the widespread adoption of cloud computing services like AWS and Google Cloud showcases the move towards adaptable and streamlined data storage and processing systems. This shift is incredibly impactful for content delivery in the gaming industry and beyond, as the capability to quickly adjust resources based on user demand is extremely valuable. These technological advancements and methodological approaches demonstrate a comprehensive approach to data management, highlighting their crucial role in fostering innovation, improving operational efficiencies, and maintaining a competitive edge in various industries.



Comprehensive Big Data Infrastructure and Lifecycle Framework

Data Lake Architecture stands out for luxury brands, offering a versatile solution that handles a variety of data, from structured transactions to unstructured social media content. With its impressive scalability, this solution empowers brand growth. Additionally, its advanced analytics and machine learning capabilities drive personalised marketing and increase customer experiences. data lakes offer a wide range of analytical tools and the ability to provide real-time insights. This makes them a cost-effective option, especially when used on cloud platforms. In addition, their seamless interaction with diverse systems creates a complete ecosystem for streamlined data management, which is highly advantageous for the luxury sector.

3.2 Evaluating Data Storage Strategies for LVMH

Beginning with Amazon EC2 and other AWS services provides LVMH with flexible computing resources that can be easily adjusted to meet demand, which is essential for effectively managing peak periods and marketing campaigns. With this approach, one can enjoy cost savings compared to traditional server maintenance, improve global service delivery by reducing delay, and have peace of mind knowing that your security and data protection are taken care of. Services such as Amazon S3 for data storage, Amazon RDS for database management, Amazon CloudFront for content delivery, and AWS Lambda for serverless computing contribute to LVMH's digital operations. Utilising AWS Machine Learning services such as Amazon SageMaker, one can achieve personalised experiences and optimised supply chains. This integration greatly improves LVMH's digital infrastructure, ensuring it has the necessary capacity and effectiveness to support its luxury brands in the highly competitive digital marketplace. It fosters innovation and enables the delivery of exceptional customer experiences.

Following that, the next proposal expands on this, proposing that once data is readily available, it is crucial to

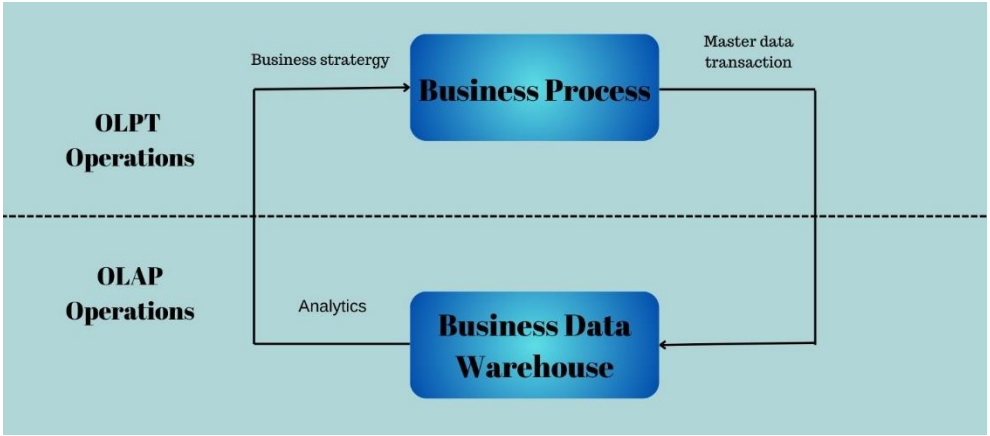
have staff with sufficient knowledge and a system of data governance within the company. Transitioning LVMH's digital infrastructure from AWS to IBM Cloud provides a strategic advantage by utilising IBM's robust offerings to overcome specific limitations of AWS. IBM Cloud is well-known for its industry-specific solutions, which are especially advantageous for the luxury retail sector. It offers a more tailored approach that aligns better with LVMH's diverse needs compared to the broader approach of AWS. IBM Cloud stands out for its strong focus on data privacy and security, ensuring that sensitive customer information is well-protected. This has the potential to address data sovereignty and compliance concerns more effectively than AWS. IBM Cloud offers exceptional capabilities in hybrid and multicloud management, enabling seamless integration across environments. With tools like IBM Cloud Satellite, it provides a solution to the segmented approach that can be found with AWS.

IBM Watson's AI and machine learning services on IBM Cloud provide exceptional customer insights and personalisation capabilities, utilising IBM's extensive research expertise. IBM Cloud offers reasonable pricing and effective cost management, hence reducing the billing complications commonly associated with AWS. LVMH's transformation strategy is a gradual process: beginning with a thorough evaluation of needs, followed by pilot initiatives to assess the compatibility of IBM Cloud, and finally, implementing a complete migration and continuous optimisation. This decision not only handles the restrictions of AWS but also leverages the **operational efficiency and innovation characteristics of IBM Cloud, thereby greatly enhancing LVMH's digital** transformation.

The final recommendation within the report Adopting IBM Cloud provides LVMH with a competitive edge, as it overcomes the limitations of AWS by offering tailored solutions for the industry, robust data security, and advanced cloud management capabilities. This strategic decision allows LVMH to enhance its operational efficiency, drive innovation, and respond more effectively to the specific demands of the luxury market. With the implementation of IBM Cloud, LVMH will be able to tap into fresh avenues for growth and enhance its competitive advantage in the world of technology.

3.3 Analyzing LVMH's Data Storage Methods for OLTP and OLAP

The evaluation of the strategic decision of transferring LVMH's digital infrastructure from AWS to IBM Cloud presents an effective reasoning for utilising specialised cloud services to optimise operational effectiveness, data administration, and consumer interaction strategies. Nevertheless, it is essential to undertake a thorough analysis of the storage and management of various forms of data, namely structured, semi-structured, and unstructured. This analysis is especially significant in light of the demands associated with online transaction processing (OLTP) and online analytical processing (OLAP) within the intricate framework of LVMH.



OLTP and OLAP Data Integration Framework

Transitioning LVMH's digital infrastructure to IBM Cloud instead of AWS offers a valuable chance to enhance its operational efficiency, data management, and customer engagement. Upon analysing LVMH's data storage, it becomes evident that there are important factors to consider. This includes the management of structured, semi-structured, and unstructured data in relation to OLTP and OLAP systems. When considering OLTP, which deals with daily transactions, the decision between cloud-based and in-house relational databases depends on finding the right balance between meeting global compliance requirements and weighing the trade-off between flexibility and control. Similar to a data scientist, the efficiency of managing semi-structured and unstructured data greatly depends on the utilisation of advanced indexing and search features within cloud platforms, which provide

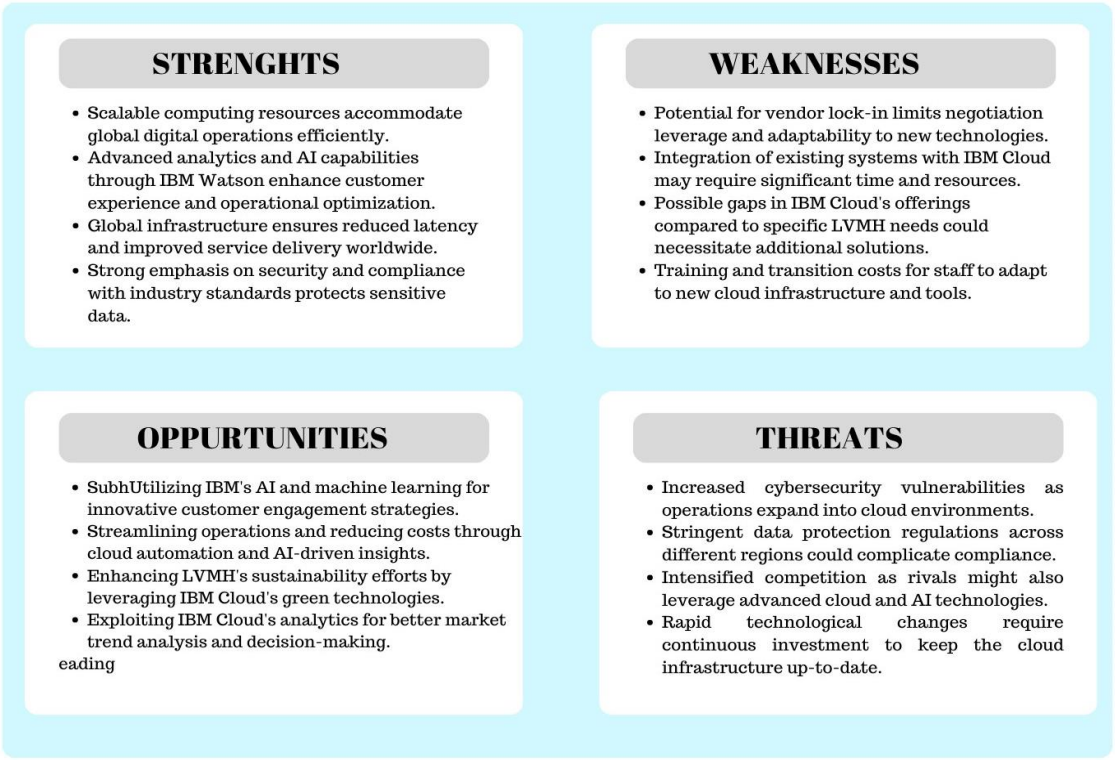
scalable solutions for handling all data types. In addition, it is crucial for LVMH to integrate these databases with OLAP and data warehousing technologies in order to swiftly adapt to market changes and gain valuable insights. This emphasises the importance of selecting a cloud provider that offers extensive support for data analytics and warehousing capabilities.

The critical review underscores the importance of LVMH ensuring effective data integration for real-time analytics, prioritizing data security and compliance with international standards, and carefully evaluating the cost versus benefits of cloud solutions. Understanding the importance of maintaining market leadership, LVMH must carefully select cloud services and data management practices that align with its strategic objectives and operational needs. This will allow them to leverage their digital infrastructure effectively.

3.4 Compliance Analysis and SWOT for LVMH's Big Data Infrastructure

Conducting LVMH's digital infrastructure movement to IBM Cloud involves a multitude of important factors, including legal, security, and ethical considerations, which play a crucial role in the conglomerate's operations and reputation. Operating in multiple countries requires strict compliance with data sovereignty laws and regulations, such as the GDPR in Europe. This ensures that data storage and processing meet high standards as required by LVMH. One must establish well-defined binding contracts with IBM Cloud that outline service levels, data handling practices, and breach notification protocols in order to minimise legal risks. From a security standpoint, the shift emphasises the significance of protecting valuable customer and operational data from potential breaches and cyber threats. Ensuring top-notch security measures, managing access to sensitive information, and encrypting data both in transit and at rest are essential tasks to safeguard against unauthorised access and maintain data integrity.

From an ethical point of view, the transition to IBM Cloud brings attention to the importance of managing and safeguarding customer privacy. Operating with the utmost responsibility and transparency, LVMH must navigate the ethical use of customer data to ensure the preservation of trust. In addition, the use of AI and automation technologies raises important ethical questions, especially when it comes to the potential biases in AI algorithms and the effects of automation on jobs. Overall, the legal, security, and ethical challenges emphasise the importance of LVMH taking a careful approach to its cloud transition. It is crucial for LVMH to ensure that adopting IBM Cloud not only brings technological and operational advantages, but also meets the highest standards of legal compliance, security, and ethical responsibility.



LVMH SWOT Analysis for IBM Cloud Implementation

The proposed shift of LVMH's digital infrastructure to IBM Cloud from AWS marks a pivotal decision in its digital strategy, aiming to capitalize on IBM's strengths in analytics, AI, and global reach. This strategic move is crucial for improving LVMH's operational efficiency and customer engagement. It requires a thorough SWOT analysis to successfully navigate the details of this transition. The analysis below provides a strategic framework for LVMH to consider leveraging IBM Cloud's capabilities against AWS's current offerings. It outlines the potential advantages, challenges, and market implications.

4. DISCUSSIONS AND CONCLUSION

4.1 Strategic Unity: Integrating Findings with Organizational Aims

The analysis underscores the strategic shift of LVMH's digital infrastructure to IBM Cloud, aiming to leverage big data and advanced analytics to fortify its leadership in the luxury market. This move is meticulously aligned with LVMH's strategic objectives, which include personalizing marketing efforts, optimizing the supply chain, enhancing customer experiences, and driving innovation and product development. Key limitations such as data sovereignty, security challenges, and the integration complexity of diverse data systems emerge as critical concerns in LVMH's current setup.

Table 2: LVMH's Strategic Aims and IBM Cloud Solutions Alignment

Strategic Aim	Key Limitations Identified	Proposed Solution: IBM Cloud	How It Supports LVMH's Strategic Aims
Personalized Marketing	Data sovereignty and compliance challenges.	Advanced analytics and AI	Enables enhanced customization of marketing campaigns and services, similar to strategies employed by Google and Amazon.
Supply Chain Optimization	Security concerns with sensitive data.	Secure data management	Provides insights into customer feedback and purchase trends for optimizing supply chain efficiency, akin to improvements seen in Marriott and Netflix.
Customer Experience Enhancement	Integration complexity of diverse data systems.	Scalable and secure data handling	Facilitates the development of detailed customer profiles for personalized experiences, crucial for luxury industry success.
Innovation and Product Development	—	Global infrastructure and analytics	Accelerates analysis of consumer demands and trends, supporting the creation of innovative products, mirroring the approach of companies like Pfizer.

With the transition to IBM Cloud, you can expect a range of powerful features that will revolutionise your operations. From advanced analytics and AI capabilities for personalised marketing, to secure data management for protecting sensitive information, and scalable infrastructure for seamless data integration, IBM Cloud has got you covered. These features not only address the identified challenges, but also drive LVMH towards its strategic goals.

With the power of analytics and AI, IBM Cloud empowers LVMH to tailor marketing campaigns and services, achieving remarkable results in personalised marketing. IBM Cloud can enhance LVMH's supply chain operations, just like how it has improved efficiencies in companies such as Marriott and Netflix. Utilising advanced data analytics to improve customer experiences is crucial for achieving personalised interactions, which is essential for success in the luxury sector. Lastly, IBM Cloud supports LVMH's innovation and product development by offering a platform for analysing consumer data and market trends, similar to Pfizer's utilisation of big data in research and development. The shift to IBM Cloud is carefully planned to address current limitations and take advantage of IBM's cloud capabilities. This move will help LVMH improve customer engagement, streamline operations, and stay at the forefront of the luxury industry with data-driven strategies.

4.2 Value-Focused Data Strategies: Enhancing Management on a Budget

Through the transition of LVMH's digital infrastructure to IBM Cloud, the luxury conglomerate can make smart decisions to optimise their data capture, management, and analysis, while minimising infrastructure investment. With the aim of maximising on IBM Cloud's wide range of services, this strategic decision aims to minimise the

costs linked to physical data centres and exclusive servers. Additionally, it will strengthen the conglomerate's capacity to utilise big data for valuable insights.

Table 3: LVMH's Objectives and Benefits of IBM Cloud Integration

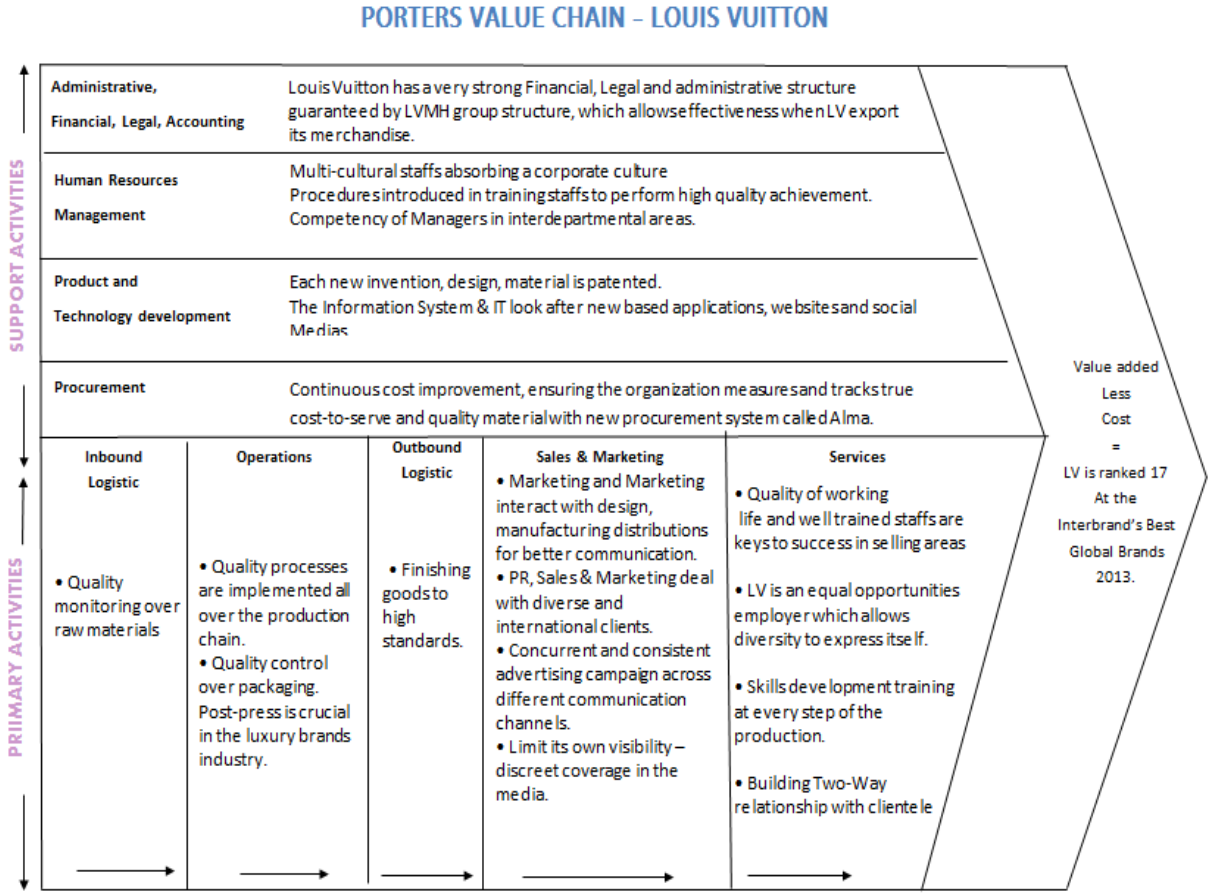
Objective	Strategy	Benefits
Minimize Infrastructure Investment	Adoption of IBM Cloud's scalable infrastructure	Reduces costs related to physical hardware, maintenance, and upgrades.
	Cloud-based solutions	Eliminates the need for significant upfront investment in data centres and servers.
Maximize Data Capture and Management	Leveraging advanced analytics and AI	Enhances the processing and analysis of structured, semi-structured, and unstructured data.
	Utilization of IBM Cloud services	Facilitates efficient data storage, accessibility, and security across global operations.
Maximize Data Analysis	Implementation of IBM's AI capabilities	Enables personalized marketing, improved supply chain efficiency, and tailored customer experiences.
	Agile adaptation to market trends	Quickly integrates new technologies for better market responsiveness and innovation.

The strategic proposal for LVMH to transition its digital infrastructure to IBM Cloud focuses on optimizing both financial and operational efficiencies while significantly enhancing data management capabilities. This transition is strategically aligned with maximising infrastructure investments by utilising IBM Cloud's scalable and flexible cloud-based solutions. By adopting this approach, LVMH can steer clear of the significant initial expenses and continuous upkeep costs linked to physical data centres and servers. This grants them the flexibility to allocate resources in a more agile manner, aligning with the company's evolving requirements. In addition, the advanced analytics and artificial intelligence (AI) capabilities of IBM Cloud are poised to transform the way LVMH captures, manages, and analyses data. These technologies enable efficient processing of diverse data types, leading to personalised marketing strategies, organised supply chains, and enhanced customer experiences through deeper insights into consumer behaviours and market trends.

In addition, the implementation of IBM Cloud will enhance LVMH's data security and regulatory compliance worldwide. IBM prioritises the security of customer and operational data by implementing strong security protocols and adhering to international data protection laws, such as the GDPR. This ensures that sensitive information is well-protected and minimises the risk of breaches and legal issues. By adopting a comprehensive approach, LVMH aims to minimise potential financial liabilities and strengthen the trust and loyalty of its clientele. Transitioning to IBM Cloud represents a strategic decision aimed at reducing expenses and enhancing technological and data analytic capabilities. This aligns with LVMH's objectives to drive innovation and maintain a leading position in the luxury market.

Appendix-1

From1.1.2 , LVMH upholds four fundamental values—innovation with integrity, relentless pursuit of excellence, empowering entrepreneurial spirit, and commitment to a positive impact—that shape its dedication to quality and sustained success



The following image showcases a Porter's Value Chain analysis for Louis Vuitton, illustrating how the brand enhances value throughout its operations. With the support of the LVMH Group, Louis Vuitton maintains a strong administrative, financial, legal, and accounting foundation, which enhances its efficiency and adherence to regulations. Just like a data scientist, the brand prioritises investing in its diverse human resources to foster a corporate culture that promotes exceptional performance. With a keen eye for innovation and a forward-thinking approach, Louis Vuitton stays ahead of the curve in product and technology development. By securing patents for its groundbreaking ideas and embracing new media and technology, the brand ensures that its offerings stay relevant and maintain a competitive edge.

With a keen eye for cost management and a dedication to sourcing high-quality materials, Louis Vuitton's procurement team utilises an efficient system called AIma. This demonstrates their commitment to maintaining a balance between cost and quality. With the precision of a meticulous brand, quality control takes centre stage in inbound logistics as the company closely monitors its raw materials. Operating with the precision of a seasoned professional, the operational phase is marked by rigorous quality processes that maintain the brand's impeccable standards throughout the production chain. Finished goods in outbound logistics are held to the same high standards.

Just like a data scientist, Louis Vuitton carefully crafts its marketing and sales strategy to align with its prestigious image. The brand places great emphasis on targeted visibility and maintaining a consistent brand identity throughout its marketing campaigns. Emphasising high-quality interactions is a priority in both pre- and post-sales services, guaranteeing exceptional customer service. Staff training and development play a crucial role in strengthening the brand's image and enhancing sales effectiveness.

Appendix -2

As discussed in section 2.1, big data is commonly associated with four fundamental "4 V's." The section that follows provides a brief explanation of the definition and interpretation of how each of these elements has been taken into account within the framework of this study:

Volume: Large datasets are generated from daily operations and customer interactions, showcasing high volume of data such as social media interactions and operational logs. Handling this volume necessitates strong storage and processing capabilities to efficiently manage data and facilitate strategic decision-making, especially for crucial and valuable data areas such as sales records, customer purchase history, and manufacturing process logs.

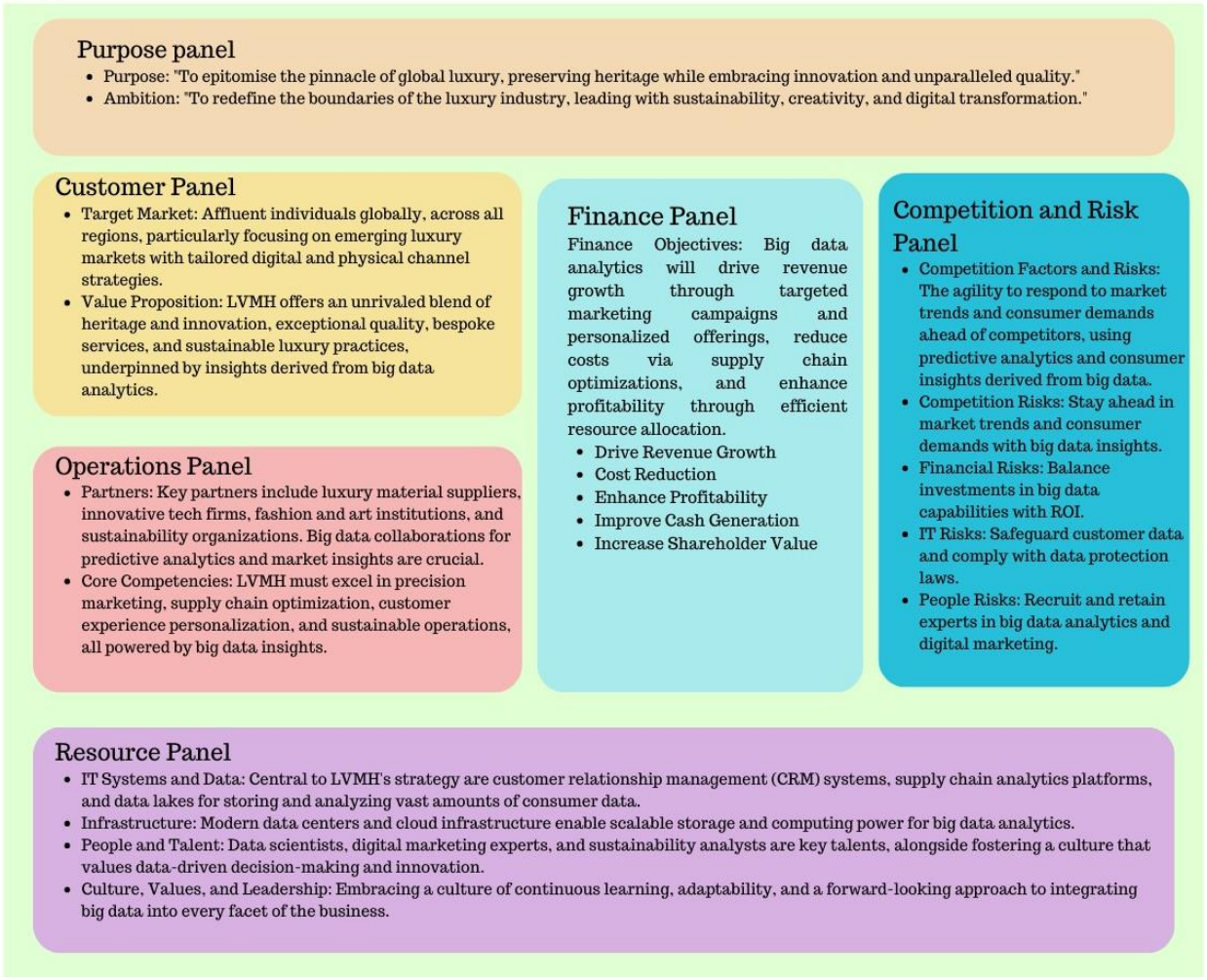
Variety: It includes a diverse range of data, including structured data in Oracle Databases and Adabas Tables, as well as unstructured content in cloud storage and semi-structured email communications. With the wide range of data sources available, it is crucial for LVMH to have flexible data management systems that can handle various data formats. This allows them to extract valuable insights from different sources such as operational logs, HR records, and customer feedback. These insights are then used to achieve important goals like improving customer experience and streamlining supply chain operations.

Velocity: The demand for real-time and daily updates is clear when it comes to sales records, inventory counts, and e-commerce interaction logs. Being able to process and analyse data quickly is essential for staying efficient and responsive to market demands. Utilising high-velocity data, LVMH can effectively achieve its strategic goals by accessing real-time information for decision-making. This enables the implementation of strategies such as personalised marketing and supply chain optimisation, which are backed by the most up-to-date data.

Veracity: Demanding data quality measures are necessary for high-value data areas critical to strategy, such as legal documents, quality control records, and sustainability reports. It is crucial to ensure the accuracy of this data in order to achieve strategic goals such as conducting precise market analysis, complying with regulations, and promoting innovation in product development.

Appendix 3

In Section 2.2, the use of Marr's SMART strategy board is explored as a tool that assists in understanding and defining an organization's strategy. Here is a completed strategy board at an LVMH Informational system and IT functional level to showcase the internal functional strategy. While the main goal of the function is to provide support and reduce costs, a step further in this case and proposed a strategy that involves leveraging big data and data analytics.



Appendix 4

From the section 3.2, Evaluating LVMH's data storage strategies involves analyzing their current systems for managing structured, semi-structured, and unstructured data to optimize for efficiency, security, and strategic alignment with business objectives.

Data Type	Storage Solutions	Key Considerations
Structured Data	Relational Database Systems (RDBMS) - Amazon RDS, IBM Db2 on Cloud	Data sovereignty, Regulatory compliance, Scalability, Security
Semi Structured/ Unstructured Data	Content Management System (CMS), Object Storage - Amazon S3, IBM Cloud Object Storage	Data indexing and search capabilities, Scalability, Flexibility
OLTP System	Managed Database Services - In-house servers, Amazon, IBM Cloud	Performance, Security, Real-time data integration, Operational flexibility
OLAP/Data Warehosing	Data Warehousing Solutions - Amazon Redshift, IBM Db2 Warehouse	Integration with OLTP systems, Real-time analytics support, Scalability, Security

The table presents an approach for LVMH to effectively manage its various data kinds through the utilisation of cloud platforms such as IBM Cloud or AWS. Scalable and safe management solutions for structured data can be provided by services such as Amazon RDS or IBM Db2 on Cloud. These services effectively cater to the

requirements of data sovereignty and regulatory compliance. Content management systems or object storage solutions, such as Amazon S3 or IBM Cloud Object Storage, are effective tools for managing semi-structured or unstructured data. These systems offer a variety of formats, including text and multimedia, and are designed to provide flexible data indexing and search capabilities. OLTP systems, which are crucial for the efficient processing of transactions, get advantages from the utilisation of managed database services that provide optimal performance and robust security measures. OLAP and data warehousing technologies, such as Amazon Redshift or IBM Db2 Warehouse, play a vital role in facilitating intricate data analysis and decision-making processes. These technologies demand the smooth connection with OLTP systems and the provision of real-time analytics capabilities. LVMH can improve its data management and analytics skills by utilising these cloud-based technologies, which will help maintain its market leadership by enhancing operational efficiency and providing strategic insights.

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