DSBL Capstone

Step 0 - Introduction. 100-day Data Science Plan: Build a Data Science Strategy

Upon assuming a new leadership role within a company (whether from an internal move or joining the company anew), it is common for an executive to be asked to prepare a plan for their first 100 days in the job.

As part of this project, you will build/create the following:
1. Identification of six data science opportunities for the organization
    a. Opportunities must be spread across three different functional areas
    b. Detail the risks, challenges, and key factors for success for each of these opportunities
2. Prepare a roadmap for executing these six data science opportunities.
    a. Rack and stack evaluation of these opportunities
3. Prepare a Human Capital plan for your data science organization
4. Prepare a Technical plan for your data science organization
    a. Data and Data Architecture Strategy
    b. Machine Learning Architecture

The work product for this Capstone project will be a detailed presentation to the CEO, detailing your plan and the rationale behind your decisions.

This project asks you to prepare that 100-day data science plan for a company of your choosing; this could be your current company or some other existing company.

Name of Company Chosen: Harris Scarfe

Brief Company Description:
An Australian retailer Founded in 1849 in Adelaide, South Australia, Harris Scarfe currently operates 52 retail stores nationally as a full range lifestyle and homewares store. Products they sell are bed linen, homewares, kitchenware, electrical goods, kitchen appliances, women's and men's apparel, footwear, and luggage.

Step 1 - Identify Data Science Opportunities in the Business

Throughout the course, you have been exposed to multiple examples of data science projects implemented in a business setting. Now, based on your knowledge of your specific business context, you will generate six potential projects to be considered by the executive leadership team. These projects must span three unique functional areas of the business, with any one functional area representing no more than 3 projects:

Please identify your six projects here:
Project 1: Trend Forecasting
Project 2: Data Driven Recruitment/Retention Management
Project 3: Customer Sentiment Analysis
Project 4: Price Optimization
Project 5: Inventory Management
Project 6: Fraud Detection

Project 1 Name: Trend Forecasting

Business Functional Area: Marketing and Sales

1. Description of the project (including business problem to be addressed, how data science will address that business problem, and th   e targeted business objective (revenue? customer acquisition? cost reduction?):

- Business Problem Addressed   : In today's hyper-connected world, it is becoming increasingly difficult for companies to gain a deep insight into consumer behavior. With the rise of mobile devices, social media, and technology, consumers are now more empowered than ever before in their   decision making, creating a complex dynamic between customers, companies, and products. This shift has had a significant impact on the way companies conduct market research to determine customer needs and wants, as traditional tools and methods are often   outdated and unable to keep up. As a result, many organizations are struggling with how to gain a comprehensive understanding of consumer behavior and preferences to remain competitive.

- Role of data science in addressing the business problem: Data science allows businesses to gain comprehensive insights into customer demographics and preferences. Companies can leverage large data sets to determine important demographic characteristics of their customers and develop customized services and products to be   tter match the needs of their target market. Additionally, data science can be used to obtain data on customer activity, such as purchase history or browsing behavior, and determine the most relevant purchasing patterns. Identifying these patterns provides valuable insights into what drives customer decisions, helping companies optimize their marketing methods, tailor their offerings to consumers, and can help them predict trends three to eight months in advance

- Targeted business objective(s):   Predict and recommend best offers to the customers based on the past purchases and search history; Improve customer purchases; examine and analyze customer shopping behaviors/patterns and preferences; improve customer sati   sfaction.

2. Data Science Classification
- Approach: Predictive Analytics
- Type of Model: Supervised (Classification)

3. Data needed for project and sources for that data

- Interaction data
- Behavioral data
- Customer profile
- Survey

These data points can be extracted from sales reports from online or in   -store transactions from the company's already existing system. Another source of these data can be purely from observation.

4. Magnitude of opportunity (with justification)
The magnitude of opportunity is   large, primarily because this will be the company's overall basis of what products they will focus on to sell to their customers, which will increase customer purchasing habits and frequencies.

5. Cost and complexity of development and implementation
- The cost and complexity of this project will likely be average since the company already has an existing online system that can generate reports to extract the required data points.

6. Likelihood of value capture (Low/Medium/High) with justification
- Because there are existing systems and customers in place, and with the company's experience in the retail industry, the likelihood of value capture is high.

7. Key Business Stakeholders
- Head of Sales
- Corporate Sale Team Leader
- Solution Architect (for the company's existing systems)

Project 2 Name: Data-driven Recruitment/Retention Management

Business Functional Area: HR

1. Description of   the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):

- Business Problem(s) Addressed:

1. Attracting the right candidates
   - Attracting the right candidate to fill a job vacancy can be a challenge. With so many potential candidates, it can be difficult to know who the right person for the role is. Recruitment is an important process as it is time-consuming and can be costly for an organisation to get wrong. It is therefore important for recruiting managers to ensure that they are taking the right approach to attract the right candidate and make the best hire.

2. High turnover rate
   - High turnover rate is a vital problem facing many businesses today. It occurs when employees leave a company rapidly or at a much higher rate than normal. This challenges businesses in a variety of ways, causing instability and making it difficult to retain top talent, maintain productivity, and make long-term plans.

- Role of data science in addressing the business problem: Using data, companies can understand the candidate market and create and efficient recruitment process that allows employers to identify, attract, and hire the best-suited candidates for the job. The business can also gain insights into the skills and traits that will be successful prospective employees. By assessing examples of a candidate's work, recruiters can better understand the quality of their skillset. AI-driven algorithms can automate and speed up the process. For example, AI can match candidates with job postings at a much faster rate and improve the accuracy of those matches. Companies can also use AI to predict how successful a candidate is likely to be in a role. Data science can also help businesses to predict employee turnover. By analyzing relevant data, organizations can identify patterns in employee traits, behaviors, and attitudes that can indicate their likelihood of leaving the organization. This data can then be used to create plans to ensure the employee remains in the organization, most likely through a reward system or incentives. In addition, it allows to automate some of the tedious and repetitive recruitment hiring processes that will help the recruiters to focus on sound strategic decisions.

- Targeted business objective(s):   Understand the candidate market and create an efficient recruitment process that will allow employers to attract and hire the best-suited candidates for the job; Effectively managing the motivation of staff members and creating an effective work environment which can include providing comfortable, updated technology, to having an effective team dynamic.

2. Data Science Classification

- Approach: Predictive
- Type of Model: Clustering and Recommended System

3. Data needed for project and sources for that data
- Candidate's resume profile
- Job postings/ads

4. Magnitude of opportunity (with justification)
The magnitude of opportunity for this project is relatively low because recruitment and employee retention is not the main priority for the business.

5. Cost and complexity of development and implementation
The cost and complexity are high for implementing this project since the company does not have an existing system. They would need to invest a significant amount of resources to implement this project given the fact that HR has a wide range of modules.

6. Likelihood of value capture (Low/Medium/High) with justification
The likelihood of value capture is medium because it will automate tedious and repetitive processes in the recruitment area including but not limiting to sourcing of CVs, providing pre-screening questions with automated ranking, and automating the shortlists or rejected profiles. Additionally, the cost and complexity in implementing this project is quite high, therefore getting a medium likelihood of value capture.

7. Key Business Stakeholders
- Recruiters
- Hiring Managers
- Candidates

Project 3 Name: Customer Sentiment Analysis

Business Functional Area: Customer Service

1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (r   evenue? customer acquisition? cost reduction?):

- Business Problem Addressed: One major problem that the company has is poor customer service. When shoppers walk into a store, they expect attentive, knowledgeable, and polite service from the staff. Unfortu nately, they lack well   -trained customer service employees who can accurately help shoppers find the items they need. This can cause customers to feel neglected, which can decrease their satisfaction with the store and its products. Furthermore, employees w   ith inadequate customer service skills may contribute to a slower checkout process, lowering the overall speed of service.

- Role of data science in addressing the business problem: By utilizing data -driven decision making, the company can acquire an unde   rstanding of customer feedback and deliver consistently improved customer service. The business will be able to convey both positive and negative sentiments about the products. It can be gathered through customer surveys, feedback forms, and reviews. When customer sentiment data is collected accurately and reliably, businesses can benefit from its invaluable insights.

- Targeted business objective(s):   Improve customer satisfaction and customer retention. Boost customer loyalty and increase patronage. Help   build credibility and trust in the company and its product. The company can use customer sentiments as an effective way to essentially improve customer satisfaction.

2. Data Science Classification
- Approach: Predictive Analytics
- Type of Model: Supervis ed (Regression) or Natural Language Processing

3. Data needed for project and sources for that data
- Customers' feedback by answering surveys sent to their email
- Social media/Website reviews

4. Magnitude of opportunity (with justification)
The magnitude of benefit is relatively substantial because it will enable the business to identify how the customers feel about the products offered in their stores. By understanding the customer emotions, t hey will be able to pinpoint the areas need to improve and identify growth opportunities. This will also increase customer loyalty and tremendously improve customer experience.

5. Cost and complexity of development and implementation

The cost and complexi ty of implementing this project is low. There are a lot of third -party applications available in the market that can be used to obtain the result needed in analyzing the customers' feedback.

6. Likelihood of value capture (Low/Medium/High) with justifica tion

The likelihood of value capture is high because the company can leverage existing third -party applications. The company would also need to extract data from multiple sources such as customer reviews, customer surveys, and customer feedback. These data would then be analyzed using known methods to provide customer insights and emotional triggers.

7. Key Business Stakeholders

- Functional SMEs
- Customer Service
- Customers

Project 4 Name: Price Optimization

Business Functional Area: Sales

1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):

- Business Problem Addressed: One of the m ajor problems that retailers commonly face concerns price elasticity. Price elasticity measures how an increase or decrease in price affects consumer demand. The business must be able to predict how varying their prices will affect consumer demand and ther efore, their profitability. The business must also consider the issue of competition when setting prices. They must remain competitive and set the prices low enough to stay attractive, yet high enough to make a significant profit.

- Role of data science i n addressing the business problem: Data science can assist with price optimization by analyzing customer response to price changes. This could involve looking at the rate of decline in sales as prices increase, or the rate of increase in sales as prices de cline. By analyzing customer response to varying prices, businesses can adjust their pricing strategies accordingly. Utilizing machine learning will be able to analyze much larger data sets where more variables are considered than the traditional pricing m ethod.

- Targeted business objective(s): To generate maximum profits from pricing by offering the most competitive prices in the marketplace while still covering their cost of goods sold; to identify the most profitable products and services to focus on.

2. Data Science Classification
- Approach: Predictive
- Type of Model: Supervised (Regression)

3. Data needed for project and sources for that data
- Products description
- List of product prices sold in different season
- Historical sales and transacti on data
- Operational cost such as sourcing, shipping, and marketing
- Competitor prices
- Inventory levels

4. Magnitude of opportunity (with justification)
The magnitude of the opportunity is high with the potential to drastically increase profits while improving customer loyalty and satisfaction. By utilizing data analytics, the business can target the

right customer segment with optimal pricing strategies. Machine Learning can constantly modify prices to consider shifts in demand across the market or take customer preferences into account over time. Further, it can lessen the revenue leakage by spotting discrepancies between forecasted prices against actual prices.

5. Cost and complexity of development and implementation

Price optimization comes with s ignificant financial and technical costs. Cost and complexity in price optimization data science require the analysis of big data sets, uncertain scenarios, dynamic pricing laws, customer satisfaction levels, as well as sales promotions and market trends.   The organization must also factor in the expense of acquiring and storing large datasets, as well as hiring staff that has expertise in interpreting and making strategic decisions. Thus, the analysis must be done with meticulous care due to the high stakes   associated with pricing decisions as incorrect assumptions can have major impacts on revenue margins.

6. Likelihood of value capture (Low/Medium/High) with justification

Implementing price optimization by applying data science will improve the profit mar   gins by offering products at the most competitive price points while simultaneously increasing the demand through comprehensive market research and analytics. As such, the value capture is medium as it will be complex to implement due to the meticulous nat   ure of the project, but it can still continue to effectively identify pricing opportunities that align with company objectives.

7. Key Business Stakeholders
- Business unit leads
- Board members
- Sales Department
- Data analysts

Project 5 Name: Inventory Optimization Software

Business Functional Area: Procurement

1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (rev   enue? customer acquisition? cost reduction?):

- Business Problem Addressed: The company deals with a lot of inventory, keeping track of orders and shipments can be difficult and time   -consuming. Failure to do so can lead to inferior customer service and a d ecrease in sales. Moreover, incorrect ordering or over   -ordering can lead to a decrease in working capital, as purchases are not made at the most economical price or in a timely fashion. Dealing with inventory, the company must understand their data, includ   ing cost of goods sold, sales, and ordering trends, to maximize the benefit of their inventory investments. Without this data, the business is unable to monitor, adjust, and update their inventory management systems, resulting in significant losses.

- Role of data science in addressing the business problem: Data science can facilitate inventory and stock management by analyzing data sets, uncovering insights, and implementing automated solutions to reduce manual efforts in assessing inventory levels and r   eplenishment. By using a data - driven approach, businesses can have a more accurate understanding of their inventory and make better -informed decisions about where, when, and how to restock.

- Targeted business objective(s):   The business can reduce their c   osts by better controlling the amount of inventory needed to meet customer demand. This helps to prevent overstocking, which can lead to unnecessary expenditure on products or services that are unlikely to be used or sold. Equally, by optimizing stock leve ls, businesses can minimize the risk of understocking and minimize the chance of missing out on customer sales as a result.

2. Data Science Classification
- Approach: Predictive
- Type of Model: Supervised (Regression)

3. Data needed for project and sources for that data
- Inventory levels
- History sales
- Production costs

4. Magnitude of opportunity (with justification)

The magnitude of opportunity of Inventory Optimization is significantly high as it can properly handle and monitor all the sold products in a very efficient way. It improves labor productivity, reduce costs, and maximize profits. By providing an up -to-date view on stock availability at any given time, it provi des invaluable support to business decision making and contribute to a better customer service by ensuring consistent supply chain performance. Investing in a comprehensive inventory management system is expected to yield significant savings over time.

5. Cost and complexity of development and implementation

Past Inventory data is already gathered by the business hence the cost of this project will be likely on average. However, this type of data involves complex algorithms, resources, and deeper understanding of analytical principles to effectively use the in sights gained from predictive models.

6. Likelihood of value capture (Low/Medium/High) with justification

Inventory Optimization project has an average certainty of value capture. It can achieve better production planning and scheduling, controlling pro duction costs, and can create a unified inventory system across multiple warehouses but still take into consideration the complexity of the data involved in the implementation.

7. Key Business Stakeholders
- Top management
- Warehouse managers
- Procurem ent team
- Strategic planner
- Inventory analysts/Financial analyst

Project 6 Name: Fraud Detection

Business Functional Area: Finance Technology

1. Description of the project (including business problem to be addressed, how data science will address tha t business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):
- Business Problem Addressed: Since retail has become increasingly transactional, driven by the growth in technology, deterring fraud is now more chal   lenging. Fraud can take many forms, such as credit card fraud and identity theft.

- Role of data science in addressing the business problem: By combining data mining, analytics and machine learning, data science can detect irregular customer activity and   alert businesses to potential fraud instances. Data science can be used in customer screening process to authenticate customers more accurately.

- Targeted business objective(s):   To help identify patterns of fraud and identify at   -risk customers who may b e more likely to commit fraud. The business can analyze customer spending patterns and identify customers who are spending more than their income which may indicate fraud.

2. Data Science Classification
- Approach: Prescriptive
- Type of Model: Unsupervis ed (Anomaly Detection Method)

3. Data needed for project and sources for that data
 - Customer profile such as email address, age, location, and fraud rate of customer's IP address
- Customer spending history
- Payment method

4. Magnitude of opportunity (with justification)
The magnitude of opportunity of fraud detection is relatively high because the organization can protect assets and operations from fraudulent activities that can lead to big revenue loss and customers unsatisfaction. Machine learning can analyze the custom   er purchase patterns to evaluate and instantly identify unusual transaction behavior.

5. Cost and complexity of development and implementation
The cost and complexity of fraud detection is no easy task and require significant investment in both aspects. The data science team must develop an algorithm that collects large amounts of data to

accurately detect potential fraudulent patterns.   In addition, acquiring infrastructure for such development can be highly expensive as it involves server clusters for backend-computations. It can also increase the overall cost for the possible overheads due to maintenance or scaling of complex machine development projects.

6. Likelihood of value capture (Low/Medium/High) with justification

As it would incur a significa nt amount of cost and the complexity to be quite challenging, the likelihood of success in implementing this project would be relatively low.

7. Key Business Stakeholders

- IT Security Chief
- Finance Director
- Customers

Step 2 - Developing a Roadmap: Prioritizing Data Science Opportunities in the Business

A strategic approach to data science requires the business to consider the relative opportunities, costs, and risks of potential projects to identify the best order to carry out the projects. What should be tackled first? What is best pushed off until later? Completing the Data Science Roadmap requires stepping through key considerations to determine which project(s) should be considered 'top priority' and at what pace these and subsequent projects should be initiated.

1. Complete this "Rack and Stack Exercise" worksheet to determine the relative strategic alignment, cost, complexity of implementation, certainty of value capture, and magnitude of benefit for each of the six projects

	Direct Alignment with Strategic Goals?	Cost	Complexity of Implementation	Certainty of Value Capture	Magnitude of Benefit
	1=Low; 5=High	1=High; 5=Low	1=High; 5=Low	1=Low; 5=High	1=Small; 5=Large
Project 1: Marketing and Sales – Trend Forecasting	5	3	3	4	5
Project 2: HR – Data Driven Recruitment/Retention Management	3	2	2	3	2
Project 3: Customer Service – Customer Sentiment Analysis	4	4	4	5	4
Project 4: Sales – Price Optimization	5	2	2	3	5
Project 5: Procurement – Inventory Optimization	5	2	1	3	5
Project 6: Finance Technology - Fraud Detection	4	1	1	2	4

Note: You may choose to represent this information on slide 8 of the CEO Presentation Template

Please complete Step 2, Part 2, the Data Science Opportunity Matrix, using slide 1 of the CEO Presentation Template (You may or may not decide to include this slide as part of your CEO presentation)

Step 2, Part 3: Complete the table below by referencing the first four data science projects chosen for implementation. Include your justification for each project's order of implementation (e.g., how will the third project benefit from being implemented after the completion of the first two projects?)

Project Order	Project Title	Order Justification
1	Customer Sentiment Analysis	The feasibility of this project is high and is directly aligned to the company's strategic goals. Starting off with this project will benefit the implementation of the next one because the resulting analyzed data will determine important data points.
2	Trend Forecasting	The feasibility of this project is relatively high. It is important to analyze the trend based on the customers' feedback to make informed decisions on predicting consumer demands. It will enable the business to focus on which products to procure.
3	Price Optimization	The feasibility of this project is medium but has a high impact on business value. After forecasting the trends, the analysts will be able to create competitive pricing strategies that will create an immediate positive impact to the business.
4	Inventory Optimization	This project has an average feasibility score but business value impact and likelihood of success are rather high. It is one of the key functional areas that the business needs to focus on and again would create an immediate positive impact in operations.
5	Fraud Detection	Implementing this project can be quite tedious and costly as it involves acquiring new infrastructure for server clusters that will perform backend-computations. Different KPIs need to be considered for better analysis.
6	Data Driven-Recruitment/Retention Management	This project would be the last to be implemented even though there is a high business value impact. The main reason for this, aside from having low likelihood of value capture and feasibility, is that it is a completely different domain which should not affect the other projects directly. In other words, it can be viewed as a "good to have" project to be implemented which can add value to the business in the long run.

Note: You may choose to represent this information on slides 6 and 7 of the CEO Presentation Template

Step 3 - Establishing a Data Science Human Capital Strategy for your Data-driven Business

Now that we have established a roadmap for carrying out data science projects, our attention must turn to building and configuring the organization we will leverage to carry out this roadmap. The Data Science Human Capital Plan completed in this step will cover the organizational structure and talent configuration best suited to carry out the business's roadmap, as well as the activities that the organization in particular -- and business more broadly -- must complete in order to promote a data-driven culture throughout the business.

1. Identify the organizational model best suited for the data science organization that your business will need to deliver on the roadmap completed in Step 2. Provide justification for your selection based on the needs, scope, and timing of projects to be implemented in the Data Science Roadmap. If your organization should start with one model and evolve toward a different model, you may provide that detail and justification in your response.

Organizational Model: Centralized and Federated - Functional Mo del

Justification:

There are two models that could be suitable in the company's data science roadmap. The first one is a Federated – Functional Model. This model provides the company with a variety of benefits such as it gives the company access to i nsights that they may have been unable to access before. This allows the company to gain a more comprehensive view of their customers, products and services and make better decisions that drive growth. In addition, since the company is only starting its da ta science journey, using this model would allow data scientists to focus on their respective functional areas. This means that the company, with the help of the data scientists, can easily identify issues and challenges in each functional area. This would also mean that having data scientists assigned to each specific functional area of the business, it would be faster for them to identify issues and challenges compared to other models. Eventually, the company would ideally move towards a more Centralised model. This model will provide a single point of control, allowing the company to optimise data collection, data storage, and data analysis all in one place. This also eliminates redundant efforts and cost savings as it eliminates the need for multiple dat a scientists working from various locations. Moreover, the single source of control provides better direction for data mining, data engineering, and analytics teams; increasing the overall accuracy and insights gained from the data. Overall, transitioning to a centralized model of data science provides increased cost savings, improved team efficiency and collaboration, and better data security management.

2. Complete the "Human Capital Plan" Worksheet for your data science organization.

- Identify the first ten professional roles for which you would recruit. How would you organize these roles into teams within the organization?

For example, if you had 4 data scientists split evenly into two teams, your response would look like this:

	Position	**Team**
1	Data Scientist	1
2	Data Scientist	1
3	Data Scientist	2
4	Data Scientist	2

Identify your roles and teams below:

	Position	**Team**
1	Data Science Architect	1 to 6
2	Data Scientist	1 to 6
3	Data Scientist	1, 2, 3
4	Data Scientist	4, 5, 6
5	Business Analyst	1 to 6
6	Data Engineer	1
7	Data Engineer	1, 4
8	Data Engineer	2
9	Data Engineer	3
10	Data Engineer	5, 6

NOTE: In addition to recruiting these roles, a Subject Matter Expert per functional area from the company will be required.

Note: You may choose to represent this information on slide 9 of the CEO Presentation Template

Assume that leadership will allocate fou   r new FTE's for your data science organization during the current fiscal year. How would you prioritize your organizational buildout?

Order of Hire	Position	Justification
1	Data Science Architect	The data science architect can serve as a consultant to the business. Initially, the architect would be involved from planning to analysis and can help identify the appropriate workflows, data models, and roles for the company's data science transformation journey.
2	Data Scientist	The next role that needs to be filled out are data scientists as they would be the specialists in applying data-driven techniques to develop insights and derive valuable business knowledge from complex datasets.
3	Data Engineer	After identifying the right models and analyzing data sources, the data engineers will essentially build and test programs which would make them the third next most important role to be filled out.
4	Business Analyst	A business analyst would be the least priority out of the four. The business analyst would be there to bridge gaps in communication between business and IT and would ensure that issues in the project would be addressed effectively.

Craft a "Data   -Driven Transformation Strategy" by identifying six specific initiatives that you would recommend the data science organization and/or the business undertake in order to promote a data   -driven culture across the business.

	Strategy
1	Promoting data-driven decisions is the use of data analytics first and foremost and have everyone buy in to the culture that the use of data analytics is the way to move forward.
2	Promoting data governance to set up frameworks to protect and control the access to, and usage of, data; to ensure that data is secure and compliant with relevant laws and regulations.
3	The use of machine learning algorithms to process large volumes of data and identify patterns and to detect and address system-wide anomalies in a timely manner to avert potential risks.
4	Implementing visual presentations of data to enable better understanding and analysis of data which would result in better decision making.
5	Promoting data storytelling will provide an effective way to communicate data driven decisions by the use of familiar words and images that bring data to life.
6	Last and certainly not the least is to have extreme support from management as they will be the main drivers and decision makers in promoting a data driven culture.

Note: You may choose to represent this information on slide 10 of the CEO Presentation Template

Step 4 - Establishing the Technical Infrastructure to Support the Data Science Organization

With a completed Data Science Roadmap and a Human Capital Plan for executing the data science strategy, we turn our attention to the technological   capabilities that must be built to support the new Data Science organization.

Complete the table on the next page by entering strategic aspects your business might consider to meet its Data and Data Architecture needs.

Dat a and Data Architecture Strategy for the business

Component		Strategy
Data Requirements	What data should be included in the Data Strategy?	● Customer preferences, needs, buying habits, purchase history, demographic data. ● Data security ● Reliable, up-to-date data storage.
Data Governance	How will we promote data availability? (provide at least two ideas)	● A clear plan to identify who is responsible for collecting, storing, and sharing the company's data. ● Data available for employees only to their functional area assignment, this will be made possible by implementing user access rights
	How will we promote usability? (provide at least two ideas)	● Structuring and organizing the data by adding labels, documents and other descriptive details eases its efficient retrieval. ● Making sure that the data being used is compatible and easily understandable by the business users.
	How will we guarantee integrity? (provide at least two ideas)	● Perform regular backups, establish authorization policies and access control protocols, and ensure data encryption measures. ● Develop a system for error-checking.
	How will we guarantee security? (provide at least two ideas)	● Establish and implement a reliable access control policy. ● Backup data to an external server or cloud-based storage system regularly.
Technology	Identify the components of your Data Architecture	● The database which is the foundation for the system ● Data modelling where data is decomposed into different entities and relationships and to provide data organization ● Data analytics for applying algorithms or machine learning techniques to analyze large data sets
Skills and Capacity	How will we promote development of data literacy skills and capacity throughout the organization (provide at least three ideas)	● The business should allow employees opportunities to learn and practice with real data ● Encourage an understanding of data-driven decision-making among staff to understand manipulated data ● Easy access to systems and tools
Support for Machine Learning	Give a brief description of the machine learning architecture and how it will interface with the data architecture	● Commercial Solutions An out-of-the-box solution that is the quickest solution to deploy and has tons of standard and customizable functionality that the business needs. Applications can interface with the MLA through API endpoints.

Note: You may choose to represent this information on slide 11 of the CEO Presentation Template