FINAL CAPSTONE

AI strategy memo to the CEO

From:	Devang Maniar
To:	CEO
Company/Business Unit:	Craft Beer Retailer & Wholesaler

In this memo, I present an AI Strategy that leverages the insights I have gained from the Kellogg program. I am confident that the AI initiative I propose can have a transformational impact on our company.

Part 1: AI opportunity assessment

AI initiatives can be created for many different areas of the enterprise, ranging from managing customers to managing operations and business support functions. The first step in AI strategy is to identify the most promising business use cases for AI/ML. To do this, I used the AI Radar framework to identify dimensions of the business where AI holds the most promise.

The AI Radar shows the data intensity of our company across four dimensions

- Customers
- Operations
- Support functions
- Risk

The AI Radar helps us to understand “where we should play” in AI strategy.

Next, we need to identify specific use cases for AI in our business. To do this, I created an Industry AI Blueprint for our business, where I mapped the customer experience, operations processes and enabling functions for our company. I used this blueprint to identify the most promising use cases for AI/ML for our business. My assessment of these opportunities is summarized on the next page.

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Answer the following questions:

1. What are the top 3 to 4 dimensions of the AI Radar that your company should focus on? Use the AI Radar and your assessment of data intensity to support your analysis. Attach the AI Radar for your company below.

   Response:

Vectors	Score
Customer Complexity	10
Channel Complexity	7
Interaction Complexity	9
Product Complexity	10
Asset Complexity	8
Ecosystem Complexity	7
People Complexity	8
System Complexity	6
Financial Complexity	6
Operational Risk	6
Market Risk	4
Compliance Risk	6

Data Intensity Score:
CI -26/30
OI - 25/30
AI - 20/30
RI - 16/30

Total: 87/120

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Input 9. Calculate vector intensities and describe rationale briefly.

Intensity Metric	Score	Rationale
Customer Intensity	_26_ / 30	See Below
Operational Intensity	_25_ / 30	See Below
Administrative Intensity	_20_ / 30	See Below
Risk Intensity	_16_ / 30	See Below
Total Intensity	**_87_ / 120**	See Below

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TOP DATA DIMENSIONS & VECTORS + RATIONALE DESCRIPTION:

1. **Customer Intensity:**
   - Customer Complexity - Because we are the wholesaler and retailer of craft beer package goods, we carry a diverse and large #customer base in different segments such as retail, hospitality, restaurants and even venues (Ex: retail grocery stores, individual liquor stores, restaurants, hotels, banquet venues, and gas stations)
   - Channel Complexity - We also carry a big sales department as we have to assign individual reps for different territories who are in charge of sales to the different market segments.
   - Interaction Complexity Our Customer Interaction complexity is also demanding as we have to do in-person visits with all our clients weekly, monthly, and sometimes even on weekends if you're a bar or a restaurant.
2. **Operational Intensity:**
   - Product Complexity - As a beer wholesaler we are working with multiple local craft beer breweries and manufactures across the state. Needless to say, we are working with hundreds of thousands of product SKUs across all these manufactures.

- Asset Complexity - Though the manufactures have their own operational $cost, there is still a big capital $overhead that we pay for picking up all these products from multiple locations in the entire state including packaging, cooling and warehousing storage costs.
- EcoSystem Complexity - We also have to partner up with other distributors to get the shipment from other states into ours and for that we are dealing with multiple different layers of Supply Chain

3. **Administrative Intensity:**

- People & Financial Complexity - Being a beer wholesaler across the state, we need manpower to for sales, driving trucks, warehouse and labor, and even an intuitive IT system department for online and ipad sales. So, we have 1000's of employees working for our company, and the turnover sometimes can be high, so we are constantly $spending money on employee recruitment and onboarding. In addition, we are dealing with multiple tax regulations and complexities when products are being shipped from different states, and even within different cities and counties.

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2. Create a verticalized AI Industry blueprint for your company. Use the AI Radar and the verticalized blueprint to identify 3 to 5 AI use cases that your company should pursue. Attach the Verticalized Blueprint below.

Response:

What is my objective?

- *Who are my Customers? Though my customers are in a wide variety of segments, for this exercise, we will target direct retail shoppers or end user consumers.*
- *Who do my Customers Want? Direct retail shoppers want to be informed on specific craft beer selections that are unique, small batch releases, and catered to their taste buds.*
- *How do I best assist them through this Journey? Identify best practices that can help drive sales for new and loyal customers through a variety of resources and channels.*

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Verticalized blueprint template

Part I - CxDNA

	Discover	Learn	Evaluate	Buy	Engage	Advocate
Customer Action	Direct Consumers want newly released and limited small batch beers that are hot items	Use 3rd Party Beer Rating App (*UnTappd*) that customers use to mark their favorites and must haves	Use competitive pricing and curated personalized selection and list beer brands manufactured near where they live	Create directly purchasing links online for products posted visually on the company's Instagram Website for easy purchase	Send weekly sales and hot item promotions displaying what they have purchased before and the newly arrivals that are similar to their sales history	Build a mobile app that allows customers to rate their beer purchases and share that with friends & family for self-promotion advertisement.
	Reach	**Acquire**	**Convert**	**Develop**	**Retain**	**Bond**
Organization Action	Advertise on digital and marketing platforms like *Instagram, Facebook & Mailchimp*, Generate awareness of newly arrival products	Offer FREE VIP membership for newly acquired customers along with a gift basket to entice them to shop with our company.	Offer guaranteed FREE delivery of products purchased over $50, along with FREE merchandise if they sign up to a member for the 1st year.	Give customers access to view other unique items like glassware, t-shirts, hats, and merchandise enhancing their craft beer experience.	Implement a loyalty program and competitive pricing to reduce churn but still maintain a steady growing customer base.	Provide Early exclusive access to limited beers and offer customers with free samples of featured beers and offer anniversary rewards for continuing to stay loyal to our services

Part II – Operations Ecosystem

	Source	Prep	Make	Route	Deliver
Operational Activities	Find right pricing on sell products Study new beer trends and breweries Gather competitor inputs	Training Sales Reps on new product knowledge Product Packaging & Pricing	Storage Management, Product Labeling, Quality Inspection, Packaging, Storage	Warehouse & Shipping Management, Liquor Licensing, Contracts, Fueling, cleaning and restocking Trucks	Delivery of products to customers Customer Feedback Improvement Customer Order Tracking Missed Orders/Errors

Part III – Enabling Support Functions

	People	Technology	Money	Risk
Key Entities / Capabilities	Create Online Certifications to train Sales reps on Beer Knowledge, Hire Delivery Drivers, Sales Reps, Warehouse Manager, Inventory Stocker, Tasting Event Specialists	CRM Systems, Inventory Management Systems for product SKUs, Accounting & Financial Systems, Payment Systems	Accounting Payable/Receivables, Invoicing, Collections, Debt Payments	Quality Risk on expired out of code beers Product Recalls from manufactures

AI Use Cases:

- Use AI to create Personalized Curated Promotions – Use AI to analyze what customer profiles are interested in what products. In turn, using actionable items to recommend the products based on the level of interests
- Use AI to create Dynamic Pricing – Optimizing your pricing on the products to stay competitive and suggest pricing recommendations, rank inventory as to which is the most in demand.
- Use Predictive Analytics to generate a recommendation engine to customers on the TOP 50 brands based on the previously purchased products that they liked.
- Use ML on customer feedback surveys to improve Customer Satisfaction for craft beer buyers. Parsing suggestions and offers and let ML decide what should we do with the customer to improve promotions.
- Performing Sentiment Analysis based on customer behaviors during beer tasting events to improve on product selections, what works and what does not.
- Improving online experience for customers using Virtual Agent/Bots on shipping and product questions.

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Part 2: AI strategy memo to the CEO

AI capability assessment

Once we know where to play, we need to define *how* to play in AI. We need to define the capabilities we will need to build and the journey we will need to take in progressively enhancing our AI capabilities. For this, I used the AI Capability Maturity Model to assess our capabilities and to recommend the path forward for enhancing our capabilities.

The AI Capability model consists of five stages:

1. Getting enterprise data in one place
2. Building agility into AI product development
3. Operationalizing and scaling AI products
4. Collaborating internally and externally
5. Automating processes to run at appropriate autonomy levels

In the next page, I have summarized our organization's current capabilities and I have provided recommendations to advance our capabilities to the next level.

Use the AI Capability Maturity model to assess the current level (from Level 1 to Level 5) of AI capabilities in your company.

1. List your observations on the capability gaps and what your company will need to do to advance the capabilities to the next level.
Note that some parts of your company may be more advanced than others, so you can comment on a specific department, function or business unit if you wish.

Response:

Currently, the organization is not invested in AI as we are still dealing with legacy systems and concentrating more on labor shortage and delivery drivers for our customers. Hence, we are at ***Level-0*** in the AI Capability Model State. Because we've always been occupied in creating relationships with breweries and vendors, we never looked into how Artificial Intelligence and Machine Learning can takes us to the next step.

Naturally, we want to get to ***Level-1*** of the Maturity Model stage. The great part about our business is that we already store the data in our system (structured and unstructured). We carry inventory, sales, product, and even financial data. We just have to work on housing all that data into one enterprise. Use the Data Refinery model to create a scalable data lake and ultimately convert raw data into process data. Once we have that that we can develop and apply ML algorithms to create predictive insights based on sales forecasting.

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Capability Gaps:

1. Data Storage and Management: We currently store raw data (mostly unstructured) in different systems. So, we do not have clean scalable processed data. We need to create a scalable data lake into one enterprise using data refinery and use that to build upon an AI model
2. AI specialists Roles: We also do not have enough people with the knowledge of AI so we need to hire people such as data scientist, data engineers, analyst, etc.
3. Security & Compliance: Implement security measures to protect data and AI systems, and ensure that our copany complies with any relevant laws and regulations

How can we close these Capability Gaps?

We can start small by first understanding business needs, and then work on adding staff and resources based on smaller increments and goals. Partner with a AI consulting company that can convert our raw data into process data and host all into a cloud platform. If we want to get to Level-1 of the Maturity Model Stage, we will need to gather and store all the data into one platform. We have to first create a foundation upon which AI Applications can then be built.

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Part 3: Framing AI initiatives

2. Once we have identified a few promising use cases for AI in our business, we need to develop a business case for each initiative. To do this, I applied the AI Canvas framework to build a business case for the highest priority initiative. The AI Canvas is shown below.

Response: Business AI Canvas

Business Problem	**Business Value**	**Customer Value**
How can AI/ML predict latest market trending craft beer products in the last 3-months	*The anticipated business value for this initiative would be new brewery and distribution partnerships, product diversity, market relevancy, & $revenue growth.*	*Generate customer engagement, positive brand recognition, customer referrals, customer loyalty,*

Data Strategy	**Objective Function**
Sources of Data: *Previous Historical Sales Data* *3rd party External Consumer Purchase Data* *Customer Feedback Surveys* *Types of Beer Hop Ingredients* *Beer Ratings posted on 3rd party Mobile Apps* *Social Media Comments* *Product Reviews* *Age Demographics* *Variables:* *Customer Behavioral Responses & Feedback* *Patterns of Beer Styles* *Frequency of Brand Usage* *Pricing*	*To predict market trending latest beers in the last three months, we need gather all the data sources with accuracy. We have to also be mindful on how far back in history we want to pull the data since we are looking for latest 3month trends. Input Data from Historical Sales, 3rd Party Purchasing Data, etc will be used to predict popular product demands through machine learning.*

Modeling Approach	**Model Training**
For this AI Use case, we are working Supervised Learning – Linear Regression Algorithm since we are predicting what are popular beer brands based on labeled dataset. *We will be identifying craft beer brands that sell the most based on frequency of usage, sales and behavioral patterns*	*To start our initial prediction, we will be using the existing historical sales data based on customers sales and reviews. After that, we will be continuously collecting data on different sources and when sufficient new data has been collected, train the model using both historical and recent data.*

3. Describe your highest-priority AI initiative in brief. Provide the detailed AI Canvas for the initiative below.

Response:

Craft Breweries are typically producing beers in small batches so the recipes of those beers are constantly changing hence the popular products are also changing over time. So, our highest priority initiative in this business is to always stay ahead in the market by identifying what are the latest trends in the beer community. Our company currently is storing both structured and unstructured data on various systems so we can at least start with using our own historical data to determine the trends set by consumers. In addition, we have to look outside of our internal dataset, and use external 3rd party and social media to discover customer patterns, behaviors, responses and likes on beer brands. Majority of younger demographics will use online platforms to express their responses so we also have used those data sources to build into our prediction model. We are working with Supervised Learning Regression Model since our goal to identify trending products based on frequency of usage along with customer feedback. Our prediction model will initially use historical dataset, but then use 3rd party and external dataset for continuous learning. We have to be also mindful not to go too far back with our data, since we already know that beer trends change quite frequently.

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