



JAGSoM
JAGDISH SHEETH SCHOOL OF MANAGEMENT



LEARNING BY SOLVING

- SELECT WHITE PAPERS, VOLUME 5

EDITOR: **PROF. POOJA GUPTA**

LEARNING BY SOLVING:
SELECT WHITE PAPERS VOLUME 5
2025

Editor:
Prof. Pooja Gupta

EDITOR

PROF. POOJA GUPTA

Assistant Professor &

Faculty In-charge – Research and Case Development

Jagdish Sheth School of Management (JAGSoM)

© JAGSoM, 2025

ISBN: 978-93-342-1065-1

All rights reserved. No part of this publication may be reproduced or transmitted, in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without prior written permission from the publisher.

Book Design: Design Studio, Vijaybhoomi School of Design

Contents

Editorial: Learning by Solving – Impacting Business through Experiential Learning..... vii

Utilizing Databricks Platform for Enhanced Transactional Data for Electronic Gadget Segment in E-commerce Using Query Optimization 13

Abhirvey Jana, Prajwal Patil, Sanjukta Raychaudhri, Yashdeep Singh

Building Brand Awareness for Kanuka Organic 34

Santanu Panigrahi, Shivani Ray, Aayush Dwivedi, Jeet Dutta, Dipayan Mondal

Analyzing Credit Rating Methodology 47

Aditi Kumari, Govind Singh

SmartQSR: Comprehensive Mobile Solutions for Quick Service Restaurants 84

Abhinit Kumar, Arunabh Bhattacharya, Sujata Burli, A Malavika, Kilari Teja, Arush Nandwani

Enhancing Employee Experience at Volvo: A Unified HR Approach for Engagement and Growth..... 97

Prachi Sodani, Vibhuti Chauhan, Dhritiman Nath, Shruti Yadav, Adya Rani, Netyam Jahanvi

Building Shorter Loop a robust community ecosystem..... 113

Avanish Chandra, Arghya Acharya, Praveena P, Rohitha B, Tatini Mandal

Editorial: Learning by Solving – Impacting Business through Experiential Learning

PROF. POOJA GUPTA

**Assistant Professor, Faculty Incharge - Research and
Case Development and Area Chair Finance (Interim)**

Engaging in problem-solving as a method of learning embodies the core principle of hands-on experience and active application. Rather than simply absorbing information passively, this approach encourages individuals to dive into challenges, confront obstacles directly, and navigate the intricate process of finding solutions.

One of the most powerful aspects of learning through problem-solving is its capacity to build resilience and adaptability. Every challenge presents an opportunity for growth, reinforcing perseverance and determination in the face of difficulties.

Moreover, this approach serves as a driving force for creativity and innovation. As individuals wrestle with complex problems, they are pushed to think beyond conventional frameworks, venturing into unexplored intellectual territory. In this dynamic space of exploration, creative ideas take root, leading to breakthroughs that redefine progress and push the boundaries of human achievement.

Beyond the academic setting, problem-solving is a skill that influences all aspects of life. From research institutions to corporate environments, the ability to analyze, adapt, and resolve challenges is essential for success in a rapidly evolving world. Whether addressing real-world problems or pioneering new discoveries, problem-solving remains at the core of human advancement.

Ultimately, the philosophy of learning through problem-solving stands as a testament to human ingenuity and perseverance. It embodies the endless pursuit of knowledge, the drive for excellence, and the belief in the transformative potential of the human intellect. As we navigate the journey of discovery, embracing challenges along the way, we shape our own destinies—empowered by the limitless possibilities of problem-solving as a means of learning.

We are pleased to present "Learning by Solving: Select White Papers Vol. 5". This Edited Volume is a compilation of select White Papers that have arisen from the Capstone Projects carried out by the PGDM Batch of 2023-25. The students worked on multiple projects across various areas like MarTech,, Capital Markets, Business Analytics, and HR with corporations to develop implementable solutions.

The White Papers were written by students under the guidance of faculty members. We would like to thank the corporates for providing projects to our students. We would also like to thank all the reviewers for their effort and time in reviewing the White Papers and giving valuable suggestions.

This volume contains six papers across different career tracks taken by students of JAGSoM.

The first white paper in the series talks about using Databricks cloud platform to effectively manage and analyze the growing volume of transactional data for e-commerce companies.

The second white paper talks about designing a comprehensive digital marketing strategy for Kanu Organics. The proposed solutions were checked for their viability, budget and the expected impact to be created.

The third white paper focuses on improving the rating methodology of the credit rating companies by using advanced analytic methods and inclusion of qualitative data.

The fourth white paper focuses on developing a comprehensive mobile application for Quick Service restaurants to streamline the management of product catalogs, custom promotions, delivery schedules and new store openings.

The fifth white paper aims to systematically map the employee journey at Volvo, focusing on key touchpoints with the different HR departments like Talent Management, Talent Retention and Learning and Development. The goal is to identify the areas for improvement for enhanced employee engagement.

The sixth white paper talks about building a robust community for Shorter Loop, a SaaS based product management platform. The focus is on developing a LinkedIn community as a hub for product managers, aspiring product managers and industry experts to share best practices, tools, and insights.

We hope you like the work done by our students. Please share your feedback and suggestions at: ri.academics@ifim.edu.in

ABOUT THE EDITOR



PROF. POOJA GUPTA

Faculty In-charge – Research

Prof. Pooja is an educator, case writer, and researcher with more than 18 years of teaching experience at the postgraduate level.

Her research interests are in Corporate Finance, Corporate Governance, Behavioural Finance, and Education. She has presented her research work at various National and International conferences. Prof Pooja is a prolific case writer and has received various national and international awards for her cases. Her cases have been published by Ivey Publishing and are available through Harvard Business Publishing. She is a reviewer of reputed national/international journals.

Prior to joining Jagdish Sheth School of Management, she was associated with Symbiosis Institute of Business Management – Bengaluru and Amity Global Business School.

Utilizing Databricks Platform for Enhanced Transactional Data for Electronic Gadget Segment in E-commerce Using Query Optimization

Abhirvey Jena

Prajwal Patil

Sanjukta Raychaudhuri

Yashdeep Singh

1. Background

1.1 Industry and Company Overview

Deloitte operates within the professional services industry, focusing on audit, consulting, tax, and advisory services. The company faces challenges in managing vast datasets, particularly in optimizing SQL queries for efficient data retrieval and analysis. By implementing advanced SQL query optimization techniques, Deloitte can enhance performance and scalability, ensuring timely insights for clients. This capability is crucial in a data-driven environment where speed and accuracy are paramount for decision-making and strategic planning. Through such optimizations, Deloitte maintains its competitive edge in delivering high-quality services to a diverse clientele.

1.2 Statement of Purpose (Scope of Work)

The purpose of this project is to create an optimized data platform using Databricks that enhances the analysis and processing of

transactional data specific to the electronics gadget segment in e-commerce (sample dataset). By implementing advanced query optimization techniques, we aim to reduce processing time, improve data accuracy, and provide actionable insights that benefit both operational teams and business strategists.

2. Problem Framing

2.1 Broader Description of the Problem

E-commerce platforms face the challenge of managing vast amounts of transactional data related to customer orders, product details, and return patterns. Traditional data processing systems struggle with the speed and complexity needed to generate timely insights, impacting business decision-making and customer satisfaction.

2.2 Visualization of the Situation (Situation Analysis)

The current e-commerce landscape includes data from:

Customer purchase history

Product search patterns

Electronics product performance and return data

Customer demographics

These datasets are often fragmented across different platforms, resulting in inefficiencies when analysing data holistically for trends in customer behaviour and sales.

2.3 Articulation of the Situation (with respect to the problem)

The fragmented nature of e-commerce data leads to several critical issues:

Delays in data processing

Inaccurate product recommendations

Limited ability to generate real-time insights on electronics product performance

2.4 Problem Definition

The core problem lies in the lack of an optimized, scalable system capable of processing large volumes of e-commerce data in real time, hindering the ability to improve customer experience through personalized electronics product offerings.

2.5 Project Objectives

Implement a Databricks platform for efficient data analysis of e-commerce transactions

Optimize SQL queries to reduce processing time

Enable real-time analysis of customer purchase behaviour and product performance

Enhance overall data quality to support improved decision-making

3. Project Execution

3.1 Conceptual Framework of the Study

The approach involves utilizing Databricks as the central platform for e-commerce transactional data management. Key elements include:

Data ingestion from various sources

Data transformation using advanced SQL optimization techniques

Query optimization to improve performance

Visualization of transaction trends and product behavior

3.2a Identification of Data Source

For the analysis of e-commerce transactional data in the electronics segment, we have identified the following primary data sources from the provided dataset:

Product Details: This includes comprehensive product information such as product IDs, brand names, and device types (e.g., home theaters, televisions).

Price Data: Key columns include max_price, min_price, and the currency used, which provides a range of product prices from different merchants.

Availability Information: The prices_availability column indicates whether the product is in stock or out of stock, while the on_sale column shows if the product is currently on discount.

Merchant Information: Data such as prices_merchant specifies the merchants (e.g., Walmart, Bestbuy) selling these products, allowing for comparative analysis across sellers.

Product Categories and ASINs: The categories and asins columns provide product categorization, aiding in segmenting data for specific product types.

Timestamps: The date_added and date_purchased columns offer insights into product lifecycle and purchasing patterns over time.

These data points offer a rich source for analyzing consumer behavior, product pricing trends, and inventory dynamics within the electronics segment of e-commerce. (Annexure 1)

3.2b Extract Relevant Information

From the identified data sources, the following key information will be extracted to support the analysis:

Product Pricing Trends: The dataset will help analyze the pricing patterns (max_price, min_price, on_sale), which will assist in understanding competitive pricing strategies across different merchants for electronic gadgets.

Stock Availability: By examining the prices_availability and on_sale columns, insights can be derived about the availability and discount patterns of popular products like home theaters and televisions, helping to predict supply chain trends.

Merchant and Brand Comparisons: The prices_merchant and brand columns enable comparisons of product offerings and prices across different retailers (e.g., Walmart, Bestbuy), which is critical for evaluating market positioning and customer choices.

Product Category Performance: The categories and asins data will be used to track the performance of specific categories like "Home Theater" and "Portable Bluetooth Speakers," highlighting consumer preferences and sales patterns.

Purchasing Patterns Over Time: By using the date_added and date_purchased columns, the timing of product purchases can be analyzed, revealing trends such as seasonality and the impact of promotional sales.

This extracted information will form the foundation for deeper insights into pricing optimization, inventory management, and customer purchasing behavior for electronic gadgets in the e-commerce market.

3.3 Analysis of Data

The analysis phase focuses on applying advanced SQL query optimization techniques to manage and extract meaningful insights from large volumes of e-commerce transactional data on the Databricks platform. By leveraging optimization strategies such as caching, bucketing, and predicate pushdown, we aim to significantly improve query performance and processing times, ensuring more efficient data retrieval and analysis.

Caching for Performance Improvement: In scenarios where we need to repeatedly query large datasets, such as fetching product information for electronics, caching plays a pivotal role. By caching the dataframe in Databricks, the data is loaded into memory, reducing the need for disk reads during subsequent queries. For example, when identifying the most popular electronics gadgets sold across multiple merchants, caching accelerates query execution, minimizing wait times and resource utilization. (Annexure 2)

Partitioning and Bucketing: To improve query performance, especially for filtering operations like finding products sold in specific categories or price ranges, partitioning the dataset by category or price is an effective strategy. By distributing data across partitions, the query engine narrows down the search space, reducing the number of rows processed. This optimization technique ensures that complex queries, such as retrieving electronics sold within a particular price band over the last year, are executed faster and more efficiently. (Annexure 3)

Predicate Pushdown: Predicate pushdown is employed to push filtering operations as close to the data source as possible. For example, when counting electronics available on sale by each brand, filtering the "on_sale" column early in the query execution minimizes the number of records read and processed. This approach not only reduces memory consumption but also enhances query speed by focusing on only the relevant data. (Annexure 4)

Window Functions and Predicate Pruning: When ranking products by price within each category and merchant, using window functions without optimization can lead to full table scans, significantly slowing down query performance. To address this, predicate pruning is applied by first filtering the dataset based on relevant conditions, such as availability status, and then applying the window function (e.g., RANK) on the pruned dataset. This reduces the computational and memory load, enabling faster ranking of products such as the top three most expensive electronic gadgets by category. (Annexure 5)

These optimizations ensure that the Databricks platform processes transactional data efficiently, supporting real-time analytics for decision-making. By focusing on SQL query optimization, this project delivers faster, more accurate insights into e-commerce trends, such as product performance, sales patterns, and customer preferences, within the electronics segment.

4. Results and Findings

4.1 Alternative Solutions Generated (Including Scenario Analysis)

Several approaches were considered to handle the vast amounts of transactional data in the e-commerce electronics segment:

On-Premises Data Warehouse: This solution involves setting up and managing infrastructure internally. While it provides full control over data and hardware, it is resource-intensive, costly, and lacks the flexibility to scale quickly with the growing volume of e-commerce data. Additionally, maintaining query optimization manually would require extensive tuning and dedicated teams.

Hybrid Cloud Architecture: A hybrid model would combine on-premises infrastructure with cloud services. This approach offers some scalability and control, but it introduces complexity in managing data across two environments. Query optimization becomes more

challenging as data must be synchronized between on-premises and cloud systems, adding latency and complicating maintenance.

Fully Cloud-Native Databricks Platform (Selected Solution): The fully cloud-native architecture, leveraging Databricks, emerged as the most viable solution. Its scalability, flexibility, and advanced query optimization features make it an ideal choice for the dynamic nature of e-commerce data. Databricks' integration with Spark allows for faster data processing and native support for caching, partitioning, and predicate pushdown, which enhance query performance. This option also supports real-time analytics and machine learning capabilities, enabling deeper insights into electronics product trends and customer behavior.

Each alternative was evaluated based on scalability, cost-effectiveness, performance, and alignment with the business's long-term data strategy. The fully cloud-native Databricks platform was chosen for its ability to optimize SQL queries, handle complex analytics tasks efficiently, and scale as data volumes grow.

4.2 Proposed Solution & Justification (Viability and Implementation)

The selected solution is a fully cloud-native architecture built on the Databricks platform, which excels in processing large-scale transactional data efficiently. The decision to adopt this platform is based on several key factors:

Scalability: Databricks provides automatic scaling, allowing the system to handle increasing amounts of data from the e-commerce electronics segment without significant infrastructure adjustments. This ensures future growth can be accommodated seamlessly.

Performance: By employing advanced SQL optimization techniques such as predicate pushdown, caching, and partitioning, the platform significantly reduces query execution times. This is especially critical when processing large datasets, such as analyzing sales trends and return patterns for electronic gadgets.

Cost-Effectiveness: The pay-as-you-go model in Databricks ensures efficient resource usage, making it cost-effective. Businesses only pay for the computational resources they use, optimizing overall investment, especially during peak sales periods in the e-commerce cycle.

Advanced Analytics: Databricks supports machine learning models and real-time analytics, allowing for predictive insights into customer preferences, product performance, and inventory needs. This enhances decision-making and provides a competitive edge in the fast-paced e-commerce environment.

Security and Compliance: Databricks offers strong security features, including encryption, role-based access control, and compliance with international data regulations, ensuring the protection of sensitive customer and transactional data.

The phased implementation of the Databricks solution will include:

Phase 1: Data migration to the cloud and setup of the Databricks environment.

Phase 2: Optimization of SQL queries and performance tuning.

Phase 3: Integration of advanced analytics tools, including machine learning models.

Phase 4: Training teams on the new system and full operational rollout.

5. Conclusion

5.1 Recommendations

Based on the analysis and findings, the following recommendations are proposed:

Proceed with the Databricks Cloud Platform: The cloud-native architecture should be implemented to manage and analyze the growing volume of transactional data effectively. Databricks provides the scalability and performance needed to optimize e-commerce data for the electronics segment.

Focus on Training for Analysts and Data Scientists: Data teams should receive comprehensive training on SQL query optimization techniques, Databricks features, and Spark operations. This will ensure they can fully leverage the platform's capabilities to derive actionable insights.

Establish a Data Analytics Center of Excellence (COE): A dedicated team or COE for data analytics should be set up to continuously improve query performance, explore new optimization techniques, and drive innovation in data-driven decision-making.

Implement a Data Governance Framework: To ensure data quality, consistency, and compliance, a robust data governance framework should be established. This framework will help manage data integrity, security, and privacy across the platform.

Regularly Review and Optimize Queries: As the volume and complexity of data grow, periodic reviews of query performance will be essential to maintain efficiency and ensure the system continues to meet business demands.

5.2 Limitations

While the proposed Databricks platform offers significant advantages, there are some limitations to consider:

Initial Setup and Migration Costs: Migrating existing transactional data to the cloud and setting up the Databricks environment may incur high initial costs. These costs include infrastructure setup, data migration efforts, and platform configuration.

Learning Curve for Staff: Adopting a new cloud-native system such as Databricks may require extensive training for current staff. The shift from traditional SQL-based queries to Spark and distributed computing may present challenges during the transition.

Dependence on Cloud Infrastructure: As a fully cloud-native solution, Databricks depends on stable internet connections and cloud service provider uptime. Any disruptions in connectivity could impact the availability of the platform and delay data processing.

Ongoing Maintenance and Optimization: As the volume of e-commerce data continues to grow, regular maintenance and performance tuning of queries will be necessary. Without proper oversight, performance could degrade over time, particularly during peak sales periods when data traffic is high.

Despite these limitations, the benefits of implementing the Databricks platform far outweigh the challenges, positioning the e-commerce

business to leverage transactional data for better decision-making and improved customer experiences.

Annexure: Tables and Figures

1. Data Dictionary

Column Name	Description	Data Type	Example
id	Unique identifier for each product.	String	"AVphzgbJLJeJML43fA0o"
max_price	Maximum price at which the product is being sold.	Float	104.99
min_price	Minimum price at which the product is being sold.	Float	104.99

Column Name	Description	Data Type	Example
prices_availability	Availability status of the product (e.g., In Stock or Out of Stock).	String	"In Stock"
prices_currency	Currency in which the prices are listed.	String	"USD"
on_sale	Indicates if the product is currently on sale (True or False).	Boolean	False

Column Name	Description	Data Type	Example
prices_merchant	Name of the merchant selling the product.	String	"Bestbuy.com"
url	URL to the product listing on the merchant's website.	String	"http://www.bestbuy.com/site/sanus-tv-wall-mount..."
asins	Amazon Standard Identification Numbers (ASINs) associated with the product.	String	"B00C78VIUE"

Column Name	Description	Data Type	Example
brand	Brand or manufacturer of the product.	String	"Sanus"
categories	Categories that the product belongs to, providing product segmentation (e.g., Electronics, TV).	String	"Audio & Video Accessories,TV Mounts,TV Accessories"
date_added	The date the product was added to	DateTime	"2015-04-13T12:00:51Z"

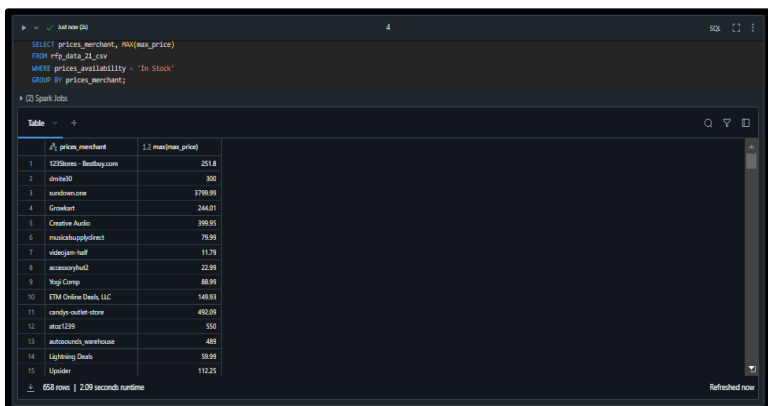
Column Name	Description	Data Type	Example
	the dataset.		
date_purchased	The date the product was purchased (if available).	DateTime	"03-03-2022"
manufacturer	Name of the company that manufactures the product.	String	"Sanus"
manufacturerNumber	Manufacturer's internal product identifier	String	"VLF410B1"

Column Name	Description	Data Type	Example
	tion number.		
name	Full name or title of the product.	String	"Sanus VLF410B1 10-Inch Super Slim Full-Motion Wall Mount"
device_type	Type or category of the device (e.g., Home Theater, Television).	String	"Television"
weight	Weight of the product (in pounds).	Float	32.8

2. Use Case 1: Find the Most Expensive Product for Each Merchant

Non-Optimized Query:

Issue: Full table scan due to lack of optimization



The screenshot shows a SQL query execution interface. The query is as follows:

```
SELECT prices_merchant, MAX(max_price)
FROM mp_data_2l_vw
WHERE prices_availability = 'In Stock'
GROUP BY prices_merchant;
```

The results are displayed in a table with 15 rows. The first column is 'prices_merchant' and the second column is '1.2 max(max_price)'. The data is as follows:

prices_merchant	1.2 max(max_price)
125Stores - BestBuy.com	251.8
dmsh20	300
handman.com	1796.98
Grookart	244.01
Creative Audio	396.95
musicalsupplydirect	76.99
videojam-hifi	11.79
accessoryhub2	22.99
Yogi Camp	66.99
ETM Online Deals, LLC	149.93
candys-outlet-store	462.09
atst1239	550
phonobunch_warehouse	460
Lynking Deals	59.99
Upstide	112.25

At the bottom of the interface, it shows '658 rows | 2.09 seconds runtime' and 'Refreshed now'.

Optimized Query:

The screenshot shows a Databricks SQL interface. At the top, a query is executed and cached into a table named `rpf_data_21_csv`. The query filters for items 'In Stock' and groups by merchant to find the maximum price. Below the query, the results are displayed in a table format with 15 rows and 3 columns: `prices_merchant`, `max(max_price)`, and an unnamed column.

```

CACHE TABLE rpf_data_21_csv;

SELECT prices_merchant, MAX(max_price)
FROM rpf_data_21_csv
WHERE prices_availability = 'In Stock'
GROUP BY prices_merchant;

```

	prices_merchant	max(max_price)	
1	123Stores - BestBuy.com	201.8	
2	JohnCh	300	
3	andersons	3789.00	
4	Grocery	244.01	
5	Creative Audio	999.95	
6	mainstaysupplydirect	79.99	
7	videogame-hall	117.8	
8	accessoryhut2	22.99	
9	Yogi Camp	86.99	
10	ETM Online Deals, LLC	149.83	
11	cardtys outlet store	492.09	
12	atcs1239	550	
13	autocardswarehouse	489	
14	Lightning Deals	59.99	
15	Upsider	112.25	

658 rows | 3.25 seconds runtime | Refreshed 8 minutes ago

Optimization: Caching the table improves performance by loading the data into memory. This reduces the time spent repeatedly reading from disk, especially for complex or repetitive queries.

3. Use Case 2: Fetch Products Purchased in the Last Year with Specific Categories

Non-optimized Query:

Issue: The LIKE and sorting without optimization can cause performance bottlenecks.

1 minute ago 2

```

SELECT *
FROM rfp_data_23_csv
WHERE date_purchased > '2023-01-01'
AND categories LIKE 'Home Theater*'
ORDER BY date_purchased DESC;

```

1 (1) Spark Jobs

	id	1.2 max_price	1.2 min_price	prices_availability	prices_currency	on_sale	prices_merchant	url
1	AviaMfjCmQpGIBQ=w	69.97	69.97	In Stock	USD	false	Tech For Less Inc	https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-Sp
2	AviaMfjCmQpGIBQ=w	47.99	47.99	In Stock	USD	false	outletsp3	> https://www.alday.com/itm/Logitech-UE-ROLL-2-W
3	AviaMfjCmQpGIBQ=w	48.99	48.99	In Stock	USD	false	poppyf780	> https://www.alday.com/itm/Logitech-Ultimate-Ears-UE-
4	AviaMfjCmQpGIBQ=w	69.99	69.99	In Stock	USD	false	Online King	> https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
5	AviaMfjCmQpGIBQ=w	81.14	81.14	In Stock	USD	false	Walmart.com	> https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
6	AviaMfjCmQpGIBQ=w	81.4	81.4	In Stock	USD	false	Walmart.com	> https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
7	AviaMfjCmQpGIBQ=w	39.99	39.99	In Stock	USD	false	outletsp3	> https://www.alday.com/itm/Logitech-UE-ROLL-2-W
8	AviaMfjCmQpGIBQ=w	44.95	44.95	In Stock	USD	false	ale	https://www.alday.com/itm/UE-Roll-2-Waterproof-Sho
9	AviaMfjCmQpGIBQ=w	69.95	69.95	In Stock	USD	false	TechDate	https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
10	AviaMfjCmQpGIBQ=w	99.99	99.99	In Stock	USD	false	Bestbuy.com	> https://www.alday.com/itm/Logitech-Ultimate-Ears-UE-
11	AviaMfjCmQpGIBQ=w	74.99	74.99	In Stock	USD	false	Deals Daily	https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
12	AviaMfjCmQpGIBQ=w	43.99	43.99	In Stock	USD	false	wineandalliance	> https://www.alday.com/itm/Logitech-UE-ROLL-2-W
13	AviaMfjCmQpGIBQ=w	69.99	69.99	In Stock	USD	false	Bestbuy.com	https://www.bestbuy.com/site/ue-roll-2-portable-head
14	AviaMfjCmQpGIBQ=w	81.61	81.61	In Stock	USD	false	Overstock	https://www.walmart.com/ip/KD-Homework-ATC-Du

492 rows | 2.26 seconds runtime Refreshed 1 minute ago

Optimized Query:

1 minute ago 3

```

CREATE OR REPLACE TEMPORARY VIEW rfp_data_buckets AS
SELECT *
FROM rfp_data_23_csv
WHERE categories LIKE 'Home Theater*';

-- Partition the data by date for faster retrieval
SELECT *
FROM rfp_data_buckets
WHERE date_purchased > '2023-01-01'
ORDER BY date_purchased DESC;

```

1 (1) Spark Jobs

	id	1.2 max_price	1.2 min_price	prices_availability	prices_currency	on_sale	prices_merchant	url
1	AviaMfjCmQpGIBQ=w	69.97	69.97	In Stock	USD	false	Tech For Less Inc	https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
2	AviaMfjCmQpGIBQ=w	47.99	47.99	In Stock	USD	false	outletsp3	> https://www.alday.com/itm/Logitech-UE-ROLL-2-W
3	AviaMfjCmQpGIBQ=w	48.99	48.99	In Stock	USD	false	poppyf780	> https://www.alday.com/itm/Logitech-Ultimate Ears-UE-
4	AviaMfjCmQpGIBQ=w	69.99	69.99	In Stock	USD	false	Online King	> https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
5	AviaMfjCmQpGIBQ=w	81.14	81.14	In Stock	USD	false	Walmart.com	> https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
6	AviaMfjCmQpGIBQ=w	81.4	81.4	In Stock	USD	false	Walmart.com	> https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
7	AviaMfjCmQpGIBQ=w	39.99	39.99	In Stock	USD	false	outletsp3	> https://www.alday.com/itm/Logitech-UE-ROLL-2-W
8	AviaMfjCmQpGIBQ=w	44.95	44.95	In Stock	USD	false	ale	https://www.alday.com/itm/UE-Roll-2-Waterproof-Sho
9	AviaMfjCmQpGIBQ=w	69.95	69.95	In Stock	USD	false	TechDate	https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
10	AviaMfjCmQpGIBQ=w	99.99	99.99	In Stock	USD	false	Bestbuy.com	> https://www.alday.com/itm/Logitech-Ultimate-Ears-UE-
11	AviaMfjCmQpGIBQ=w	74.99	74.99	In Stock	USD	false	Deals Daily	https://www.walmart.com/ip/UE-ROLL-2-Bluetooth-S
12	AviaMfjCmQpGIBQ=w	43.99	43.99	In Stock	USD	false	wineandalliance	> https://www.alday.com/itm/Logitech-UE-ROLL-2-W
13	AviaMfjCmQpGIBQ=w	69.99	69.99	In Stock	USD	false	Bestbuy.com	https://www.bestbuy.com/site/ue-roll-2-portable-head
14	AviaMfjCmQpGIBQ=w	81.61	81.61	In Stock	USD	false	Overstock	https://www.walmart.com/ip/KD-Homework-ATC-Du

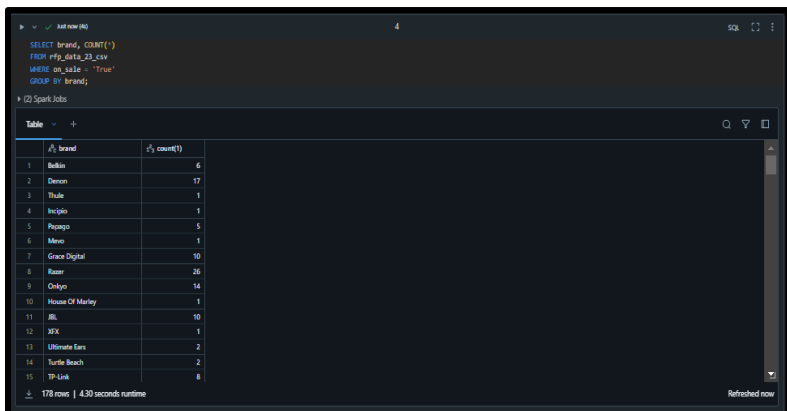
492 rows | 1.68 seconds runtime Refreshed 1 minute ago

Optimization: Use bucketing (or partitioning in Databricks) to split the data based on categories, reducing the search space for queries that filter by category. This partitions the data and speeds up processing by limiting the number of records examined.

4. Use Case 3: Count the Number of Products Available on Sale for Each Brand

Non-optimized Query:

Issue: Full scan on on_sale and brand columns without optimization.



The screenshot shows a SQL query execution interface. The query is as follows:

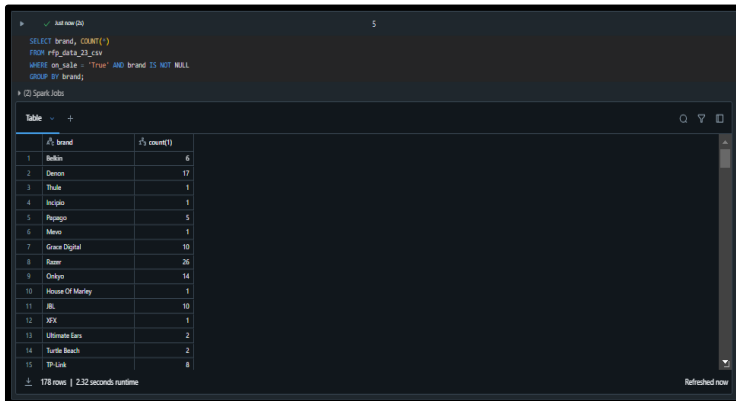
```
SELECT brand, COUNT(*)
FROM info_data_23_csv
WHERE on_sale = 'True'
GROUP BY brand;
```

The results are displayed in a table with 15 rows. The status bar at the bottom indicates 178 rows and 4.30 seconds runtime.

	brand	count(*)
1	Bellini	6
2	Demon	17
3	Thule	1
4	Inspiro	1
5	Papago	5
6	Mero	1
7	Grace Digital	10
8	Razer	26
9	Onlygo	14
10	House Of Marley	1
11	JBL	10
12	JBL	1
13	Ultimate Ears	2
14	Turtle Beach	2
15	TP-Link	8

178 rows | 4.30 seconds runtime

Optimized Query



The screenshot displays a Databricks SQL interface. At the top, a query is entered in the editor:

```
SELECT brand, COUNT(*)  
FROM rfp_data_23_csv  
WHERE on_sale = 'True' AND brand IS NOT NULL  
GROUP BY brand;
```

Below the query editor, the results are shown in a table format. The table has two columns: 'brand' and 'count(*)'. The results are as follows:

brand	count(*)
Belkin	6
Demon	17
Thule	1
Incipio	1
Peugeot	5
Moro	1
Grace Digital	10
Razer	26
Origen	14
House Of Marley	1
JBL	10
XFX	1
Ultimate Ears	2
Turtle Beach	2
TP-Link	8

At the bottom of the table, it indicates '178 rows | 2.32 seconds runtime'. The interface also shows '25 Spark Jobs' and a 'Refreshed now' button.

Optimization: Predicate pushdown allows pushing the filtering (i.e., `on_sale = 'True'`) as close to the data source as possible. This limits the data that needs to be scanned and processed, reducing the load on memory and improving query speed.

AUTHORS

			
Abhirvey Jena PGDM 2023-25	Prajwal Patil PGDM 2023-254	Sanjukta Raychaudhari PGDM 2023-25	Yashdeep Singh PGDM 2023-25
<i>This whitepaper is based on a capstone project undertaken by Abhirvey Jena, Prajwal Patil, Sanjukta Raychaudhari, and Yashdeep Singh as a requirement for the fulfillment of the Career Track Program in Business Analytics offered at Jagdish Sheth School of Management. The authors wish to thank Mr. Abhishek Mukherjee, Associate Director at Deloitte, and Dr. Supriyo Ghose for their constant guidance and assistance.</i>			

Building Brand Awareness for Kanuka Organic

Santanu Panigrahi

Shivani Ray

Aayush Dwivedi

Jeet Dutta

Dipayan Mondal

Background

Industry and company overview:

Kanuka Organics was founded in 2023 by Sriya Nerella, and the company comes under the Food and Beverage Manufacturing Industry. Headquartered in Dhanu, Maharashtra. The company specializes in palm Jaggery (Product).

The organic food and beverage industry has seen significant growth in recent years due to increasing consumer demand for healthier, more sustainable, and environmentally friendly products. The industry is highly competitive, with an increasing number of brands focusing on health-conscious consumers. This sector is characterized by strong demand for sustainable, organic, and non-GMO products. However, entering the market late poses significant challenges, as established brands already dominate consumer awareness.

Kanuka Organics is a new entrant offering organic products such as palm jaggery. Despite its potential, the brand struggles with visibility compared to key competitors, mainly due to its late market entry.

Statement of Purpose:

Being a late entrant in a crowded and competitive Organic market of food and beverage industry, Kanuka Organics has lower Brand Awareness than its key competitors.

How might we build 'Brand Awareness' for Kanuka Organics.

Scope and Key Objective:

The overall task is to develop a strategic blueprint to enhance 'Brand Awareness' to impact the top of the funnel-Awareness, Consideration.

Specifically:

- Analyse the POPs (Point of Parity) and PODs (Point of Differentiation) vs. key competitors
- Test alternative Brand Concepts, with 3 distinct 'Emotional Platforms' with the groups.
- Develop the Brand and Communication Strategy

Problem Framing:

Broader description of the Problem:

Since Kanuka Organics is relatively new to the market, its brand lacks visibility compared to its competitors. Consumers are more likely to gravitate towards brands they already know and trust, leaving Kanuka with minimal brand recognition. In the organic industry, trust plays a critical role in purchasing decisions as consumers are cautious about product authenticity, sustainability claims, and quality standards.

Situation Analysis:

Market Overview and Competitive Landscape: The organic food and beverage market is rapidly expanding due to increased consumer demand for health-conscious, eco-friendly, and sustainably sourced products. Globally, this market is dominated by well-established brands Rural Treasures, Two-Brothers, Divine Foods and By nature which have successfully carved out strong positions by building trust, brand loyalty, and widespread recognition over the years. In this

crowded landscape, Kanuka Organics, as a late entrant, faces significant barriers to gaining visibility and customer attention.

Consumer Preferences and Behaviour in the Organic Market: Organic consumers are typically well-informed, health-conscious individuals who care deeply about product quality, certifications (such as USDA Organic or EU Organic), environmental impact, and brand ethics. They also tend to develop loyalty toward brands that align with their values, such as sustainable farming practices, non-GMO ingredients, and transparent supply chains

Points of Parity (POPs) and Points of Difference (PODs): Kanuka Organics operates in a market where key competitors share several Points of Parity (POPs), such as offering certified organic products, non-GMO ingredients, and health benefits. These attributes are expected by consumers in this category, making it difficult for Kanuka to differentiate itself solely based on these factors. To stand out, Kanuka needs to emphasize its Points of Difference (PODs)— unique aspects of its brand, such as sourcing practices, product quality, or emotional branding strategies that competitors have not fully exploited.

Competitor Strategies: Established competitors in the organic food market have invested heavily in both digital and traditional marketing channels to maintain a strong presence. They utilize social media marketing, influencer collaborations, and sustainability-focused campaigns to engage with younger, health-conscious consumers. They also dominate retail shelf space in supermarkets and health stores, giving them an advantage in terms of physical visibility. These brands are frequently featured in organic-focused e-commerce platforms, reinforcing their dominance in both physical and digital spaces.

Kanuka Organics' Current Position: As a new entrant, Kanuka Organics currently has limited brand recognition. Its low brand awareness is partly due to its late entry into a market saturated with well-established players. Furthermore, the brand's digital presence and marketing efforts are not as developed as its competitors, which is crucial for reaching modern organic consumers who rely heavily on social media and online reviews for product recommendations.

Articulation of the Situation (with respect to the problem):

Late Market Entry: Kanuka Organics entered the market after many key players had already established their brands, leading to a significant disadvantage. Competitors have had years to build consumer trust, optimize their branding strategies, and secure premium shelf space in both physical stores and online platforms. As a latecomer, Kanuka faces the challenge of breaking through this established brand loyalty and visibility.

Crowded and Competitive Landscape: The organic food and beverage industry is saturated with brands that have successfully captured the market by promoting health, sustainability, and ethical values.

Lack of Brand Recognition: Due to its late entry, Kanuka has lower brand awareness compared to established brands that consumers recognize and trust. In the organic industry, brand recognition is closely tied to consumer trust, which takes time to build.

Consumer Trust and Loyalty: Organic consumers are typically highly selective about the brands they choose, often sticking with those they trust for product authenticity, quality, and sustainability claims.

Limited Digital Presence: Many successful organic brands maintain a strong presence on digital platforms, using social media, influencers, and e-commerce to engage with consumers. Kanuka's relatively underdeveloped digital marketing efforts further hinder its ability to build awareness.

Problem definition:

Kanuka Organics is facing a significant challenge in building brand awareness as a late entrant in the highly competitive and crowded organic food and beverage industry. The primary issue is that Kanuka's products are not sufficiently recognized or trusted by consumers when compared to established competitors, which hampers the brand's ability to grow its market share.

Project objectives:

Competition Analysis: a deep-dive analysis of competitor brands, both D2C and B2C, on key parameters, to benchmark the 'Points-of-Parity' (POPs) and 'Points-of Difference'(POPs)

Consumer Contact: qualitative personal interviews with 'First-Time Users' understand 'Triggers & Barriers' to towards Palm Jaggery and reactions to the alternative Brands.

Brand Strategy: based on the learnings from the Competition Analysis and Consumer Contact, a differentiated, distinctive and relevant Brand Strategy will be formulated using tools like The Brand Key.

Communication Strategy: aligned to the Brand Strategy, a Comms. Strategy will be developed covering the key 'Content Buckets'.

Project Execution:

Conceptual framework of the study:

Brand Strategy:

Brand Positioning

Target Audience: Identify and focus on health-conscious consumers, environmentally aware individuals, and those seeking premium organic products. This audience is typically made up of Millennials and Gen Z who prioritize sustainability and health in their purchasing decisions.

Unique Selling Proposition (USP): Kanuka Organics offers high-quality organic products that emphasize sustainability and health benefits, while also fostering a deep emotional connection with consumers through storytelling and community engagement.

Brand Identity

Brand Values: Highlight values such as sustainability, transparency, health, and community. Communicate these values consistently across all touchpoints.

Visual Identity: Develop a distinctive logo, colour palette, and packaging design that reflects the organic nature of the brand. Use earthy colours and natural imagery to evoke a sense of wellness and environmental consciousness.

Emotional Branding

Storytelling: Craft a compelling brand story that resonates with consumers. This could include the origin of the products, the journey of Kanuka Organics, and how the brand contributes to sustainable farming practices and community well-being.

Community Engagement: Foster a sense of community among consumers by encouraging feedback, sharing user-generated content, and participating in local events or sustainability initiatives.

Brand Personality

Friendly and Approachable: Use a conversational and warm tone to make the brand feel relatable and accessible to consumers. Avoid jargon and technical language to ensure clarity.

Authentic and Transparent: Emphasize honesty and openness in communication. Share information about sourcing, production processes, and sustainability efforts, reinforcing trust with consumers.

Inspirational and Empowering: Encourage consumers to make healthy choices and live sustainably. Use positive language that motivates consumers to take action and make informed decisions.

Communication Style

Engaging and Informative: Craft content that is both educational and entertaining. Share tips on healthy living, recipes using Kanuka's products, and insights into the benefits of organic foods.

Inclusive and Community-Focused: Try to engage with the community by highlighting stories of consumers, farmers, or local initiatives that align with the brand's values.

Integrated Marketing Communications (IMC)

Digital Marketing: Utilize social media platforms (Instagram, Facebook, Pinterest) to share visually appealing content, including product highlights, educational posts, and engaging stories. Employ influencer partnerships to reach a wider audience and enhance credibility.

Identification of data source:

To effectively build brand awareness and develop a strategic plan for Kanuka Organics, a variety of data sources will be essential. These sources will provide insights into consumer behaviour, market trends, competitive analysis, and brand perception. Below are the key categories of data sources to consider:

Primary Data Sources

Consumer Surveys and Questionnaires: Design and distribute surveys to gather quantitative data on consumer preferences, buying habits, and perceptions of Kanuka Organics versus competitors. This can include questions about brand familiarity, product attributes valued by consumers, and purchasing motivations.

Qualitative Interviews: Conduct in-depth interviews with first-time users of Kanuka products and other organic products to understand their triggers and barriers to purchase. This qualitative data can provide rich insights into consumer attitudes, perceptions, and experiences with organic brands (Kanunka Organics_M4).

Focus Groups: Organize focus group discussions with target audience segments (e.g., health-conscious consumers, environmentally aware individuals) to gather feedback on brand concepts, packaging designs, and marketing messages. This can help identify emotional drivers and preferences.

Market Experiments: Test various marketing strategies in small-scale campaigns to assess their effectiveness in driving brand awareness and engagement. This can include A/B testing for digital ads, social media posts, or promotional offers.

Secondary Data Sources

Industry Reports: Utilize market research reports from reputable organizations such as Nielsen, IBISWorld, or Euromonitor. These reports provide insights into market size, growth trends, consumer demographics, and competitive landscapes in the organic food and beverage industry.

Competitor Analysis: Conduct a thorough analysis of competitors' websites, social media channels, and marketing strategies. Identify their Points of Parity (POPs) and Points of Difference (PODs) to understand their brand positioning and communication strategies.

Academic Journals and Publications: Refer to academic literature related to consumer behaviour, branding strategies, and marketing in the organic food sector. Journals such as the Journal of Marketing or Journal of Consumer Research can provide valuable theoretical insights.

Analysis of data:

Consumer Insights Analysis Survey and Interview Data:

Brand Awareness Levels: Analyse survey responses to determine the percentage of consumers who are aware of Kanuka Organics compared to its key competitors. Create visual representations (e.g., bar charts) to highlight the awareness gap.

Purchasing Motivations and Barriers: Categorize responses to identify common motivations for purchasing organic products (e.g., health, taste, sustainability) and barriers (e.g., price, unfamiliarity, misconceptions about organic products).

Emotional Triggers: Use thematic analysis to identify recurring themes in qualitative interviews that indicate what emotional connections consumers have with organic brands. Highlight any specific emotions (e.g., nostalgia, empowerment) that Kanuka can leverage in its branding.

Competitive Analysis Benchmarking Competitors:

Strengths and Weaknesses: Create a SWOT analysis for Kanuka Organics relative to its main competitors. This will help identify areas

where Kanuka can capitalize on competitors' weaknesses or market gaps.

Marketing Strategies Review: Analyse successful marketing campaigns from competitors to identify effective messaging, channels, and target demographics. Consider creating a comparative table to highlight what works well for competitors versus Kanuka's current approach.

Market Trends Analysis

Market Size and Growth Projections: Analyse industry reports to understand overall market growth rates and project future trends. Identify specific segments (e.g., plant-based, gluten-free) within the organic food and beverage market that are experiencing significant growth.

Demographic Insights: Use data from industry reports to profile the primary consumer segments in the organic market. Understand the age, income, education, and lifestyle preferences of these segments to refine Kanuka's target audience.

Results and Findings:

Proposed solution & Justification (viability and implementation):

Based on the analysis of alternative solutions and the specific challenges faced by Kanuka Organics, the recommended approach is to implement a comprehensive digital marketing campaign combined with community engagement initiatives. This dual strategy will enhance brand awareness, build consumer trust, and foster loyalty among the target audience.

Enhanced Digital Marketing Campaign

Targeted Social Media Advertising: Utilize platforms such as Instagram, Facebook, and Pinterest to reach health-conscious consumers through targeted ads showcasing the benefits of Kanuka's products.

Influencer Collaborations: Partner with relevant health and wellness influencers who resonate with the target audience to promote Kanuka products authentically.

Content Marketing: Create engaging content that educates consumers on the health benefits of organic products, sustainability practices, and recipes using Kanuka's offerings.

Community Engagement Initiatives

Local Events and Workshops: Organize cooking classes, sustainability workshops, and product sampling at local farmers' markets to connect with the community and build relationships with potential customers.

Sustainability Initiatives: Launch programs such as tree planting or recycling campaigns that align with the brand's commitment to sustainability, reinforcing consumer loyalty.

Feedback Mechanisms: Create avenues for consumer feedback at events and online to continuously improve products and customer engagement strategies.

Justification for the Proposed Solution

Viability

Market Demand: The growing trend of health-consciousness and sustainability among consumers aligns with Kanuka's values, making this approach relevant and timely.

Resource Allocation: Leveraging digital platforms allows for cost-effective marketing, making it feasible for Kanuka to maximize its budget while reaching a broad audience.

Local Impact: Engaging with the community directly fosters relationships and builds brand loyalty, which is essential for a new entrant trying to establish itself in a crowded market.

Implementation Strategy

Timeline: Create a phased rollout plan, starting with the digital marketing campaign in the first quarter, followed by community engagement initiatives in the subsequent quarters.

Budgeting: Allocate a specific budget for digital advertising, influencer collaborations, and community events, ensuring resources are effectively distributed.

Team Responsibilities: Assign roles within the team for managing social media, content creation, community outreach, and data analysis to ensure efficient execution of the strategy.

Monitoring and Evaluation: Establish KPIs to measure the success of the campaign, such as increases in brand awareness (via surveys), social media engagement rates, attendance at events, and sales growth.

Conclusion:

Recommendation:

Develop a Comprehensive Digital Marketing Strategy:

Target Audience Identification: Clearly define and segment the target audience based on demographics, preferences, and purchasing behaviours to tailor marketing messages effectively.

Social Media Strategy: Create a detailed social media plan that includes.

Create High-Quality, Educational Content:

Content Development: Produce a variety of content formats, including blog posts, videos, and infographics.

Strengthen Community Engagement Efforts:

Local Events: Plan and execute community-focused events such as:

Cooking Workshops: Invite consumers to learn how to prepare healthy meals using Kanuka products.

Sustainability Initiatives: Engage the community in tree planting or clean-up drives, emphasizing Kanuka's commitment to the environment.

Limitations:

While the proposed strategies for enhancing brand awareness for Kanuka Organics present significant opportunities, several limitations and challenges may impact the effectiveness of these initiatives. Below are the key limitations to consider:

Resource Constraints

Budget Limitations: As a new entrant, Kanuka may face financial constraints that limit its ability to invest heavily in extensive marketing campaigns, influencer partnerships, and community events.

Human Resources: The team may lack sufficient personnel to manage all aspects of the marketing strategy, from content creation to event planning and digital marketing.

Market Competition

Intense Competition: The organic food and beverage market is highly competitive, with established brands having strong brand loyalty and recognition. Competing against these brands may be challenging, especially in gaining consumer attention and trust.

Brand Saturation: Consumers are often overwhelmed by the number of choices available in the organic market, making it difficult for a new brand like Kanuka to stand out without a strong differentiation strategy.

Consumer Perception and Trust

Building Trust: Establishing consumer trust is a slow process, particularly for new brands. Kanuka may encounter scepticism from consumers who are loyal to existing brands and wary of switching to a lesser-known alternative.

Brand Awareness Timeline: It may take time to see measurable improvements in brand awareness and consumer perception, which could impact short-term sales and growth.

Digital Marketing Challenges

Algorithm Changes: Social media platforms frequently update their algorithms, which can affect the visibility and effectiveness of paid

and organic posts. This unpredictability may hinder Kanuka's ability to maintain consistent engagement.

Content Saturation: The digital space is crowded with content, making it challenging for Kanuka to capture attention with marketing messages. High-quality content creation is necessary but can be resource intensive.

AUTHORS



**SANTANU
PANIGRAHI**



SHIVANI RAY



AAYUSH DWIVEDI



JEET DUTTA



DIPAYAN MONDAL

This Whitepaper is based on a capstone project undertaken by Santanu Panigrahi, Shivani Ray, Aayush Dwivedi, Jeet Dutta, Dipayan Mondal as a requirement for the fulfilment of the Career Track Program in Martech offered at Jagdish Sheth School of Management.

Analyzing Credit Rating Methodology

Aditi Kumari

Govind Singh

Background

1.1 Industry and Company Overview

Introduction to the Indian Credit Rating Industry

The Indian credit rating industry serves as a critical component of the financial markets by evaluating the creditworthiness of various entities, such as companies, banks, and financial institutions, as well as their debt instruments. The industry has matured over the years, contributing to the development of transparency, investor confidence, and overall market stability. Several agencies, including CRISIL, ICRA, and CARE are key players in this domain. These agencies provide independent assessments that influence the cost of borrowing and the terms on which companies raise funds.

CRISIL (Credit Rating Information Services of India Limited), established in 1987, is the pioneer and the largest credit rating agency in India. Over time, CRISIL has gained a solid reputation for its in-depth research, analytical capabilities, and objectivity. Its ratings cover a wide range of sectors, making it a key player in shaping the financial ecosystem. CRISIL's credibility and global presence, backed by its affiliation with S&P Global, make it a preferred choice for both investors and issuers seeking reliable credit opinions.

ICRA (Investment Information and Credit Rating Agency), established in 1991, is one of India's leading credit rating agencies, renowned for its robust analytical framework and comprehensive research. Over the years, ICRA has gained a strong reputation for providing accurate and transparent ratings across a diverse range of industries. Its services include ratings for various financial instruments, corporate entities, and government organizations. ICRA's credibility is further enhanced by its strategic partnership with Moody's Investors Service, a global leader in credit ratings, which strengthens its global outlook and methodologies, making it a significant player in the Indian financial market.

CARE (Credit Analysis and Research Limited), founded in 1993, is another prominent credit rating agency in India. Known for its specialized focus on providing detailed credit analyses, CARE has earned a reputation for its rigorous methodology and independent assessments. It covers an extensive range of sectors, including corporate, infrastructure, and financial institutions. CARE's ratings are valued for their clarity, reliability, and consistency, providing critical insights for investors and other stakeholders. Over time, CARE has played a pivotal role in the development of India's credit markets, enhancing transparency and contributing to the stability of the financial ecosystem.

Importance of Credit Ratings in Financial Markets and Decision-Making

Credit ratings play a pivotal role in financial markets by providing a standardized measure of the credit risk associated with a borrower or a debt instrument. Their importance extends across various stakeholders:

- For Investors: Credit ratings serve as an essential guide for evaluating the risk profile of bonds and other debt securities. This helps investors in making informed decisions and balancing their risk-return expectations.
- For Lenders and Banks: Banks and financial institutions rely on these ratings to assess the creditworthiness of borrowers, thereby influencing lending decisions, loan pricing, and portfolio management.
- For Issuers: Credit ratings affect the cost of borrowing. A higher rating usually translates to lower borrowing costs, as it reflects lower credit risk, while a lower rating can increase the cost of capital.
- For Regulators and Policymakers: Credit ratings help regulators in monitoring financial stability and systemic risks, making them crucial tools for risk assessment and management in the economy.

Overall, credit ratings enhance transparency, reduce information asymmetry, and promote efficient capital allocation, making them indispensable in financial decision-making processes.

1.2 Statement of Purpose (Scope of Work)

The primary aim of this project is to thoroughly analyse CRISIL's, CARE's and ICRA's credit rating framework, with an emphasis on understanding the role of various financial ratios in determining credit ratings. The project will cover the following areas:

Detailed Analysis of CRISIL's, CARE's and ICRA's Credit Rating Framework:

Evaluate the systematic approach CRISIL's, CARE's and ICRA's uses to assess the creditworthiness of entities, including corporations, financial institutions, and government bodies.

Examine both qualitative and quantitative factors, such as financial performance and industry conditions, that influence the rating process.

Application of Financial Ratios in Credit Assessment:

Investigate the importance of financial ratios like profitability, liquidity, leverage, and operational efficiency in CRISIL's, CARE's and ICRA's rating methodology.

Recompute these ratios using available financial data and align them with the metrics utilized by credit rating agencies to assess their impact on final ratings.

Assessment of CRISIL's, CARE's and ICRA's Methodology Effectiveness:

Compare recalculated financial ratios and expected ratings with CRISIL's, CARE's and ICRA's published ratings to evaluate the precision and consistency of its rating approach.

Identify any potential discrepancies or improvement areas in the current methodology, and suggest strategies for refining the credit evaluation process.

The project aims to provide a deeper understanding of how CRISIL's, CARE's and ICRA's credit rating system operates and the practical use of financial ratios in rating assessments.

Problem Framing

2.1 Broader Description of the Problem

Assessing creditworthiness in the Indian financial landscape presents numerous challenges and complexities due to the diverse nature of the economy and the unique characteristics of various industries. The Indian market is characterized by frequent changes in regulatory policies, varying levels of financial transparency among businesses, and significant sector-specific risks, making credit evaluation a multifaceted task. This is further complicated by macroeconomic factors such as fluctuating interest rates, inflation, and geopolitical influences, which can impact the financial stability and operational performance of entities.

Given this environment, credit rating agencies like CRISIL's, CARE's and ICRA's must adopt a comprehensive and dynamic approach to accurately gauge the credit risk of borrowers, ranging from large corporations to small and medium-sized enterprises. Inconsistent financial disclosures, varying accounting standards, and evolving governance practices also add to the complexity of credit assessment in India. Consequently, a thorough evaluation of an entity's creditworthiness requires not only financial analysis but also an

understanding of qualitative factors such as management integrity, business sustainability, and market positioning.

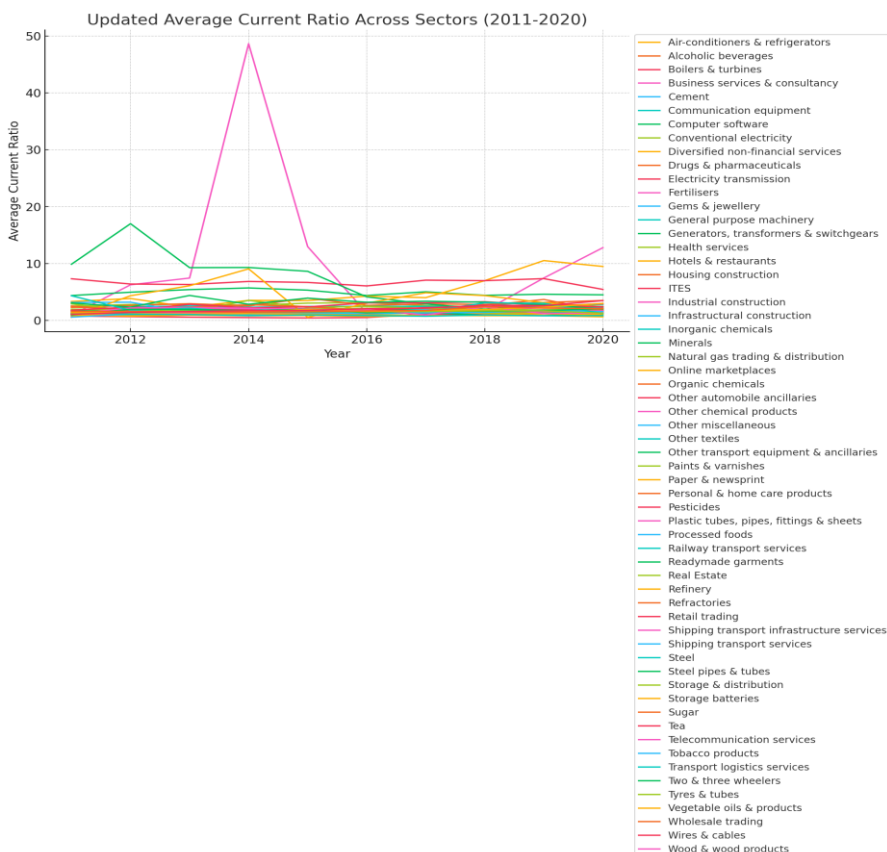
Accurate credit ratings are crucial for maintaining the health and stability of the financial markets. They provide a reliable benchmark for investors, enabling them to assess the risk and return of their investments. For lenders, precise ratings help determine lending terms, credit limits, and risk management strategies, thereby ensuring prudent credit allocation and minimizing defaults. Moreover, regulators rely on these ratings to monitor the financial system's stability and enforce regulatory compliance. Therefore, ensuring the accuracy and reliability of credit ratings is vital for fostering trust and efficiency in the broader financial ecosystem.

2.2 Comprehensive Visualization of the Financial Ratio Analysis Across various Sectors (2011- 2020)

The purpose of this report is to analyse financial health across various sectors using historical financial data from 2011 to 2020. The report focuses on key financial ratios that provide insights into companies' ability to manage their assets, liabilities, debt, and operational efficiency. Understanding these ratios helps stakeholders make informed decisions about investments, risk management, and strategic growth.

Current Ratio

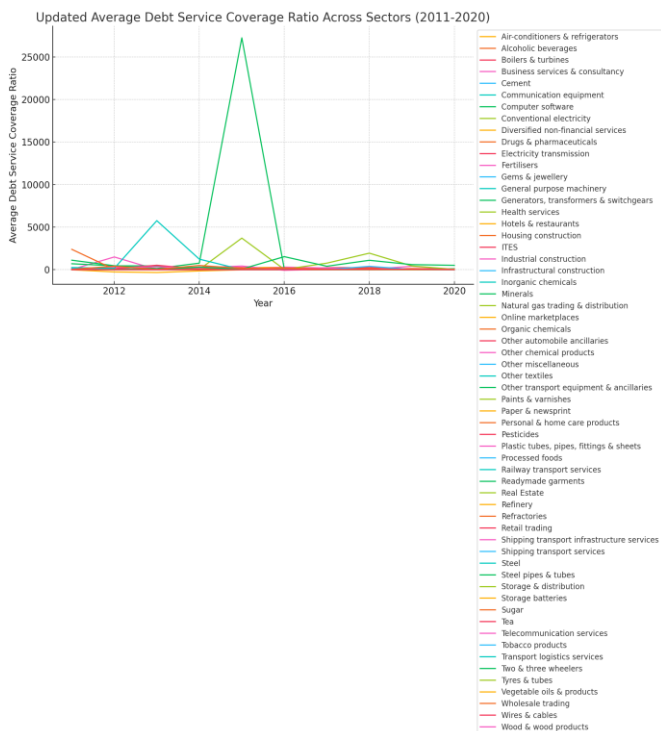
The Current Ratio measures a company's ability to pay off its short-term liabilities with its short-term assets.



Key Findings: The Current Ratio across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of current ratio.

Debt Service Coverage Ratio

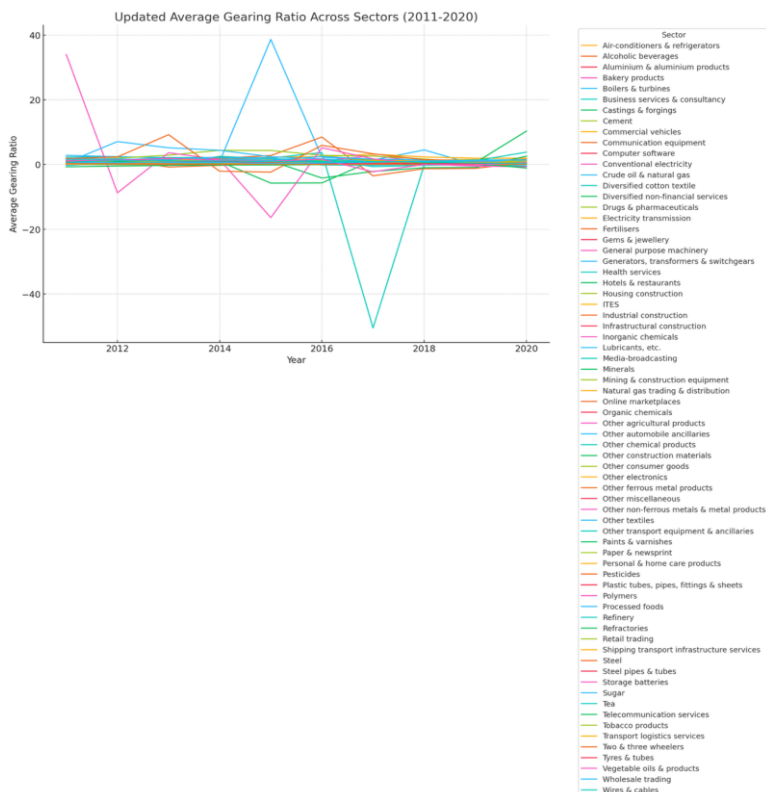
The Debt Service Coverage Ratio (DSCR) measures a company's ability to cover its debt obligations with its operating income.



Key Findings: The Debt Service Coverage Ratio across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of debt service coverage ratio.

Gearing Ratio

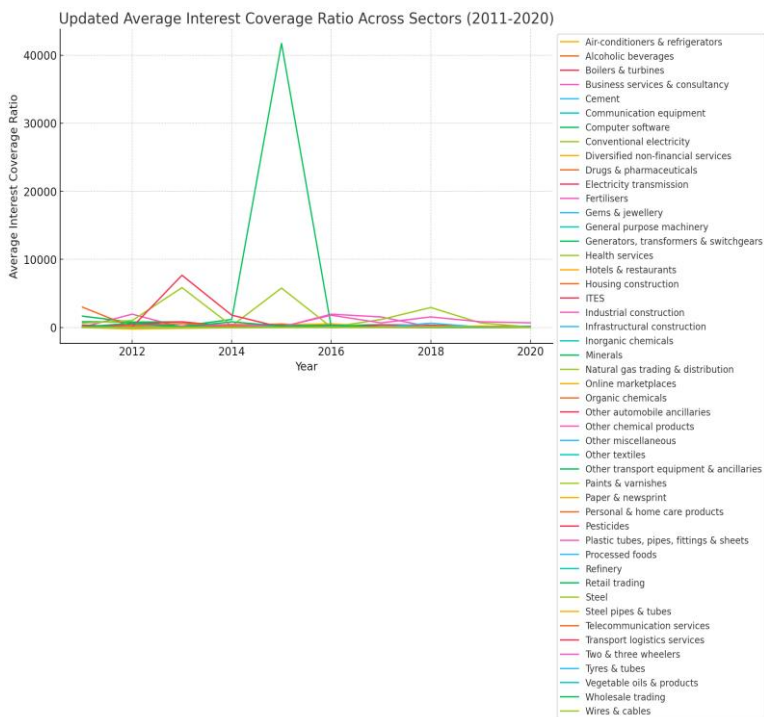
The Gearing Ratio reflects the proportion of a company's financing that comes from debt rather than equity.



Key Findings: The Gearing Ratio across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of gearing ratio.

Interest Coverage Ratio

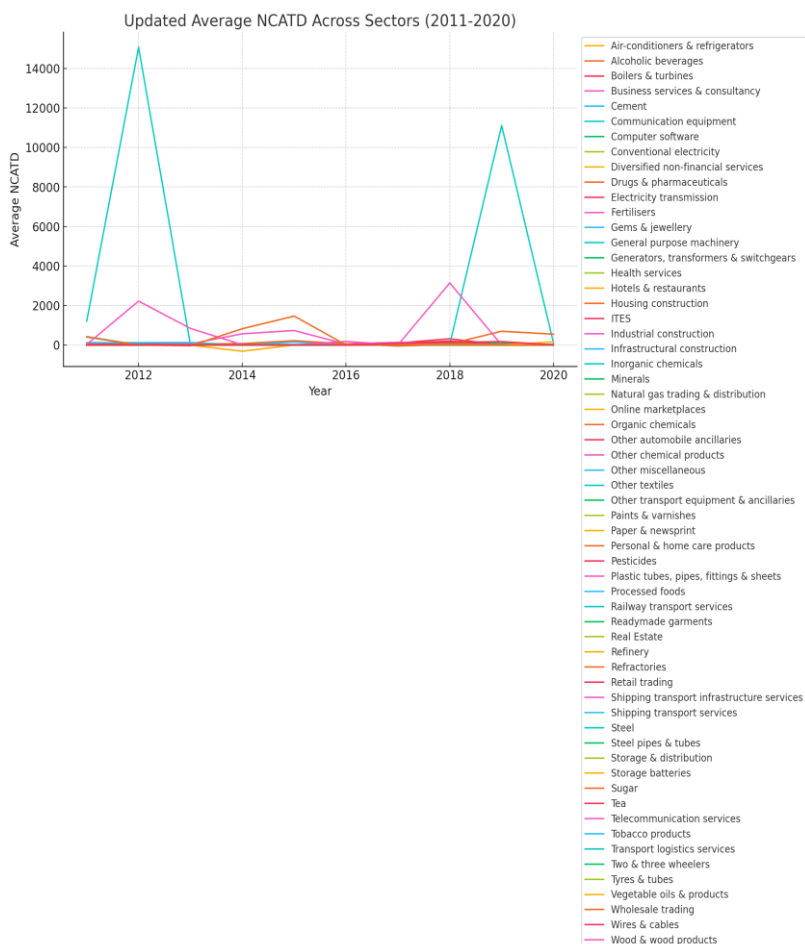
The Interest Coverage Ratio measures how easily a company can pay interest on its outstanding debt with its operating income.



Key Findings: The Interest Coverage Ratio across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of interest coverage ratio.

Net Cash Accruals to Total Debt (NCATD)

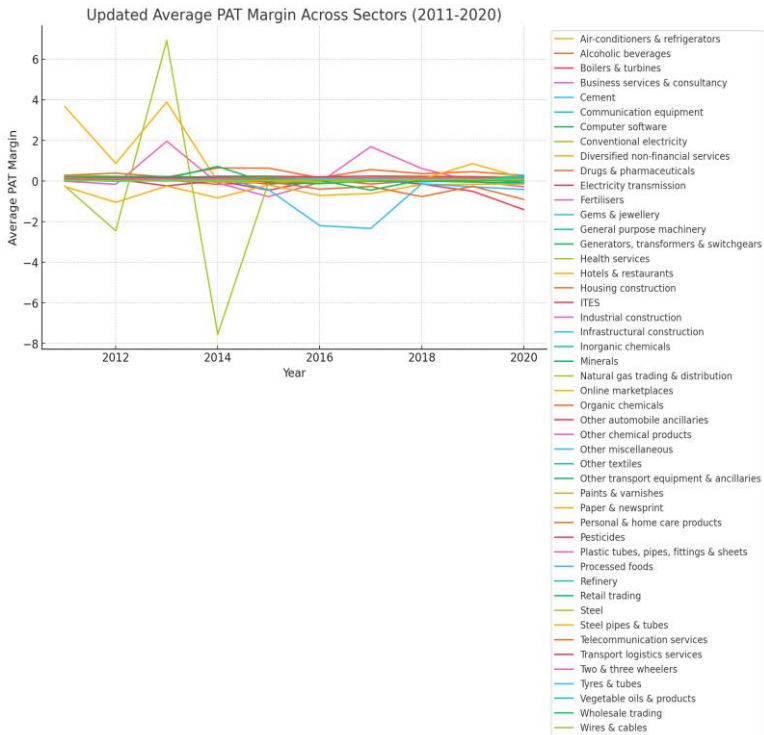
The NCATD ratio measures a company's ability to repay its debt from its net cash flows.



Key Findings: The Net Cash Accruals to Total Debt (NCATD) across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of net cash accruals to total debt (ncatd).

PAT Margin

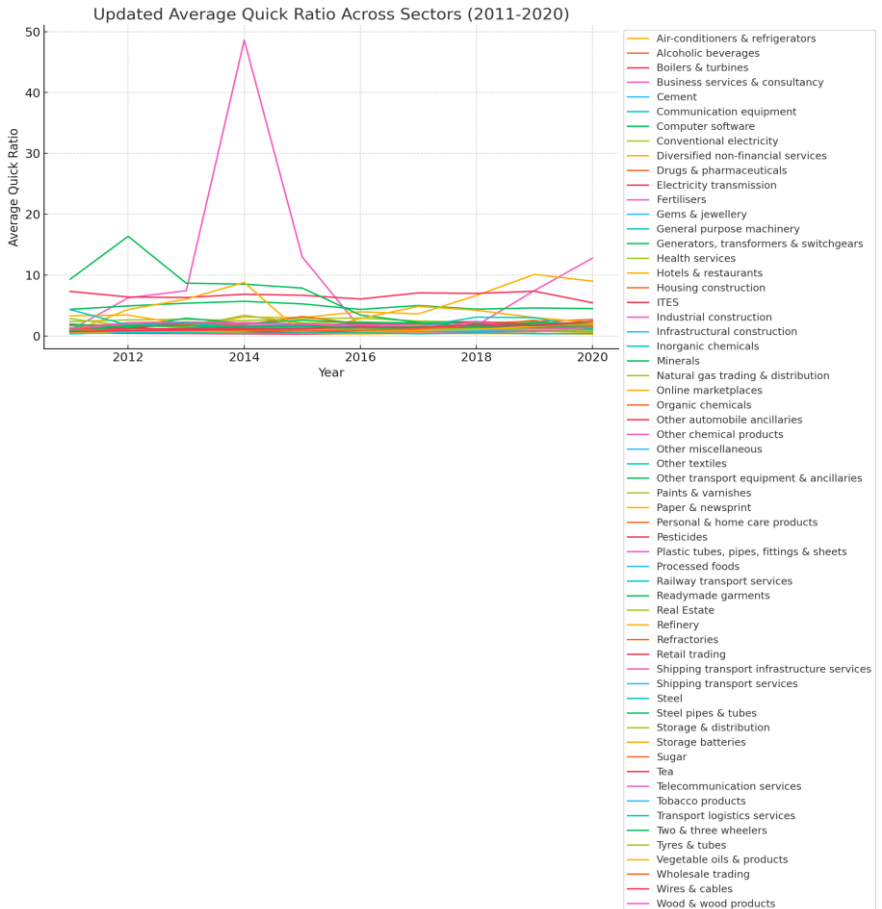
The PAT (Profit After Tax) Margin measures profitability after all expenses and taxes have been accounted for.



Key Findings: The PAT Margin across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of pat margin.

Quick Ratio

The Quick Ratio measures a company's ability to meet its short-term liabilities with its most liquid assets, excluding inventory.



Key Findings: The Quick Ratio across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of quick ratio.

Return on Capital Employed (ROCE)

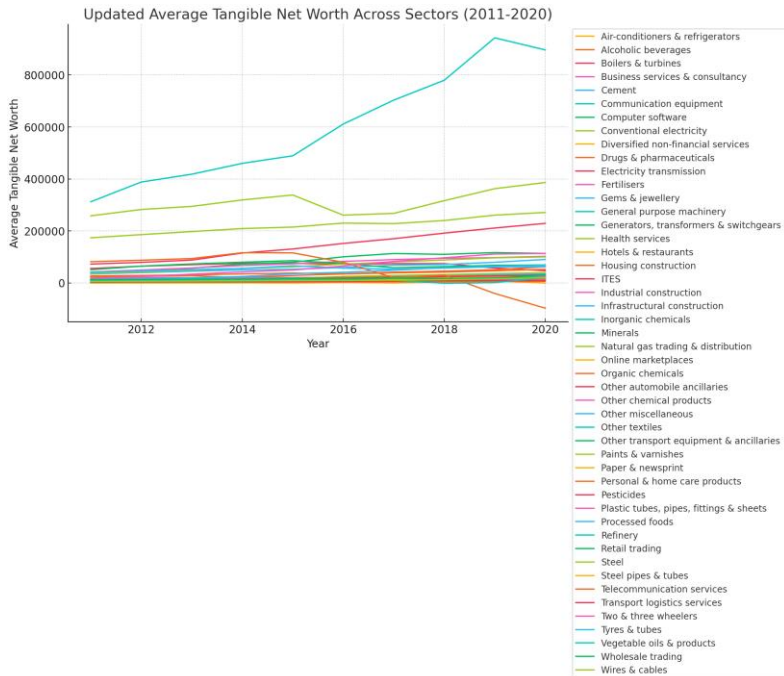
Return on Capital Employed (ROCE) measures a company's efficiency at generating profits from its capital.



Key Findings: The Return on Capital Employed (ROCE) across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of return on capital employed (roce).

Tangible Net Worth

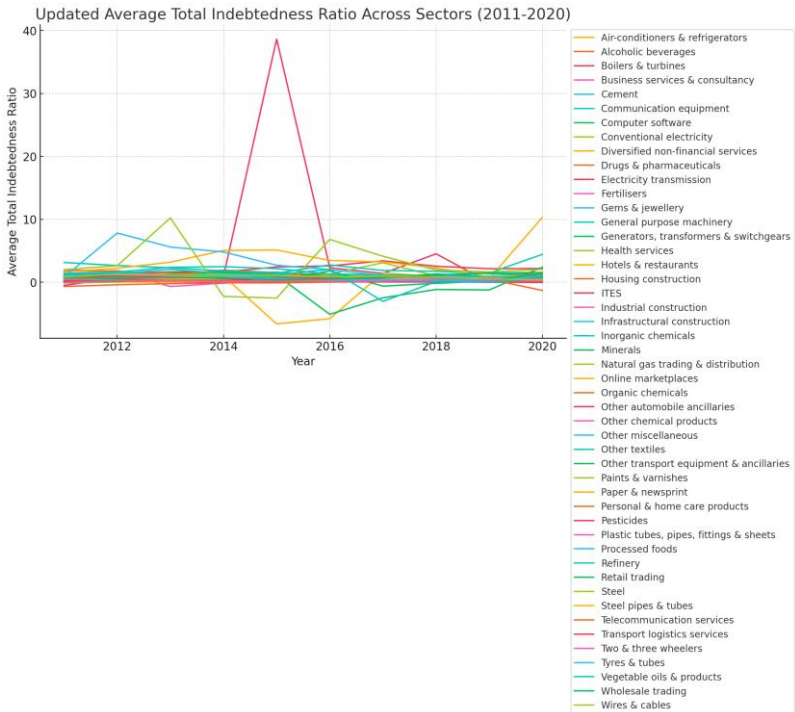
Tangible Net Worth measures the value of a company's physical assets minus liabilities.



Key Findings: The Tangible Net Worth across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of tangible net worth.

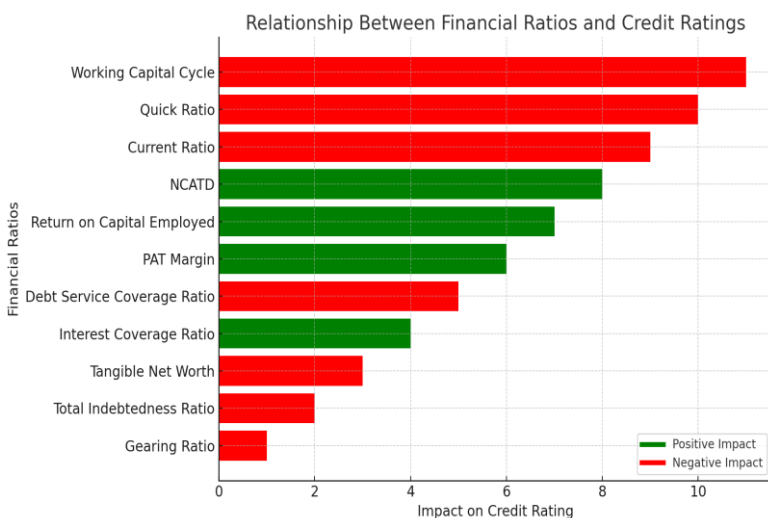
Total Indebtedness Ratio

The Total Indebtedness Ratio measures a company's total liabilities relative to its assets.



Key Findings: The Total Indebtedness Ratio across sectors showed varying trends, with significant changes in certain sectors such as Boilers & Turbines, Alcoholic Beverages, and Air-conditioners & Refrigerators. Most sectors remained stable, indicating consistent performance in terms of total indebtedness ratio.

Graphical representation of Relationship between financial ratios and cred ratings.



Each ratio's influence on credit ratings can be easily interpreted based on its position and color:

Red bars represent ratios that negatively impact credit ratings, such as high leverage or poor liquidity.

Green bars signify ratios that positively influence credit ratings, indicating better financial health and profitability.

S. No.	Ratio	Impact on Credit Rating	Interpretation
1	Gearing Ratio	Higher ratios indicate higher leverage, leading to lower credit ratings.	Indicates financial risk and the degree of leverage.

2	Total Indebtedness Ratio	High values suggest high liability burden, potentially lowering ratings.	Measures the company's total debt burden relative to its net worth.
3	Tangible Net Worth	A lower tangible net worth may adversely impact credit ratings.	Shows the true value of assets available for creditors.
4	Interest Coverage Ratio	Higher ratios signify better capacity to service debt, enhancing ratings.	Indicates a firm's ability to pay interest expenses.
5	Debt Service Coverage Ratio	Low DSCR indicates difficulty in meeting debt obligations, reducing ratings.	Measures a firm's capacity to cover debt payments.
6	PAT Margin	Higher margins are favorable for credit ratings as they indicate profitability.	Shows profitability relative to revenue.
7	Return on Capital Employed	Higher ROCE is indicative of effective use of capital, improving ratings.	Reflects the efficiency of capital utilization.

8	NCATD (Net Cash Accruals to Debt)	A higher NCATD ratio means more cash generation relative to debt, supporting better ratings.	Indicates cash availability to service debt.
9	Current Ratio	A lower ratio indicates liquidity issues, potentially lowering ratings.	Measures the firm's liquidity position.
10	Quick Ratio	A quick ratio below 1 is a negative indicator for short-term creditworthiness.	Similar to current ratio but more stringent on liquidity.
11	Working Capital Cycle	Longer cycles may lead to liquidity issues, adversely impacting ratings.	Reflects efficiency in managing working capital.

2.3 Articulation of the Situation (with respect to the problem)

CRISIL's credit rating methodology is strategically designed to tackle the challenges associated with evaluating creditworthiness in a complex and ever-evolving financial landscape like India. This methodology integrates both quantitative and qualitative assessments, ensuring a thorough evaluation of an entity's financial

condition and future prospects. Key components of the process include an analysis of critical financial ratios, such as profitability, liquidity, and leverage, alongside factors like business risk, management quality, market dynamics, and industry outlook.

Addressing the Challenges with CRISIL's Methodology:

Holistic Financial Evaluation:

CRISIL employs a comprehensive set of financial ratios to gauge the core financial stability of entities. By analyzing profitability (e.g., ROE and EBITDA margins), liquidity (e.g., current and quick ratios), and solvency (e.g., debt-to-equity and interest coverage ratios), the methodology provides a multifaceted view that helps mitigate the risks associated with variable financial performances across different sectors.

Inclusion of Qualitative Aspects:

Beyond numerical data, CRISIL's approach incorporates qualitative factors such as the caliber of management, standards of corporate governance, and strategic direction. This inclusion is particularly essential in the Indian context, where qualitative elements can significantly influence a business's stability and growth trajectory.

Adjustment for Industry and Macroeconomic Factors:

The framework allows for adjustments based on specific industry characteristics and the broader economic environment. For instance, sectors known for volatility or cyclical patterns are evaluated with tailored parameters, ensuring that the ratings accurately reflect the unique risks and opportunities associated with each sector.

Scenario Analysis and Stress Testing:

To address uncertainties in the business climate, CRISIL employs scenario analysis and stress testing methodologies. These techniques help forecast how an entity might perform under adverse conditions, such as sudden interest rate hikes or major regulatory changes, which are not uncommon in the Indian market.

Potential Limitations and Shortcomings:

Dependence on Historical Data:

While CRISIL's methodology incorporates elements aimed at future predictions, there is a notable reliance on historical financial data, which may not always be a reliable indicator of future performance—especially in rapidly changing industries or during unexpected economic events.

Subjectivity in Qualitative Evaluations:

The assessment of qualitative factors, including management capability and governance practices, involves a certain level of subjectivity, which can introduce inconsistencies. The weight assigned to these factors can differ based on the analyst's perspective, potentially leading to rating biases.

Limited Focus on Short-Term Volatility:

The methodology primarily emphasizes medium- to long-term creditworthiness, which may sometimes overlook short-term financial distress or liquidity challenges faced by companies, resulting in delays in rating adjustments.

Adaptability to Rapid Market Changes:

In the event of sudden economic downturns or sectoral shocks, the current methodology may not react quickly enough, resulting in a lag in rating adjustments. This can misrepresent an entity's immediate credit risk, particularly during crises.

Impact of External Influences:

External factors such as political instability, abrupt regulatory changes, or fluctuations in global markets can influence an entity's credit profile but may not always be fully integrated into the methodology, potentially leading to gaps in risk assessment.

In summary, while CRISIL's, CARE's and ICRA's credit rating methodology is comprehensive and well-structured, there is potential for improvement, particularly in enhancing its responsiveness to rapid changes in an entity's risk profile and reducing subjective biases. Addressing these limitations will further strengthen CRISIL's capacity to deliver accurate and dependable credit ratings in the market.

2.4 Problem Definition

Research Question:

The primary research question this project aims to address is: How effective is CRISIL's, CARE's and ICRA's credit rating methodology in accurately assessing creditworthiness in the Indian financial context, and what role do financial ratios play in influencing these ratings?

Specific Gaps in Existing Knowledge:

Limited Understanding of Methodology Impact:

While CRISIL's, CARE's and ICRA's credit rating methodology is widely recognized, there is insufficient empirical research analysing how effectively it captures the complexities of credit risk in the Indian market. A deeper understanding of the methodology's strengths and weaknesses is needed to assess its practical effectiveness.

Inadequate Exploration of Financial Ratios:

Existing literature often emphasizes qualitative factors in credit assessment but may overlook a detailed examination of the specific financial ratios that significantly influence CRISIL's, CARE's and ICRA's ratings. More focused research is needed to evaluate the relative importance of these ratios and how they interact within the broader methodology.

Lack of Dynamic Adaptability Analysis:

There is a gap in understanding how CRISIL's, CARE's and ICRA's methodology adapts to rapid changes in the economic environment or to sector-specific shocks. Research is needed to evaluate whether the current framework adequately addresses short-term volatility and evolving market conditions.

Subjectivity and Bias in Qualitative Assessments:

While qualitative factors are crucial, the potential for subjective bias in their evaluation has not been extensively studied. Identifying how this subjectivity affects the reliability of ratings remains an area needing further exploration.

Limited Empirical Validation:

The empirical validation of CRISIL's, CARE's and ICRA's ratings against actual credit events (defaults, downgrades, etc.) is limited. Researching historical rating accuracy and correlating it with subsequent market performance can provide valuable insights into the robustness of the methodology.

By addressing these gaps, the project seeks to enhance the understanding of CRISIL's, CARE's and ICRA's credit rating methodology, its effectiveness in the Indian context, and the crucial role financial ratios play in influencing credit assessments. This understanding will contribute to improving credit rating practices and informing stakeholders, including investors, lenders, and regulators, on the efficacy of existing rating frameworks.

2.5 Project Objectives

The primary objectives of this project are as follows:

Analyse CRISIL's, CARE's and ICRA's Credit Rating Methodology:

Conduct a comprehensive examination of CRISIL's, CARE's and ICRA's approach to credit ratings, focusing on the criteria and processes used to assess the creditworthiness of various entities in the Indian market.

Evaluate the Role of Financial Ratios:

Investigate the significance and impact of specific financial ratios—such as profitability, liquidity, and solvency—in shaping CRISIL's, CARE's and ICRA's credit ratings, and assess their interrelationships within the rating framework.

Assess the Methodology's Effectiveness:

Evaluate the accuracy and consistency of CRISIL's, CARE's and ICRA's ratings by comparing them against recalculated financial ratios and actual credit events, identifying areas where the methodology may fall short or require improvement.

Identify Limitations and Improvement Areas:

Highlight potential limitations, biases, and gaps in the current credit rating methodology, providing actionable recommendations for enhancing its reliability and adaptability to changing market conditions.

Contribute to Knowledge in Credit Assessment:

Fill existing knowledge gaps in the field of credit rating by offering insights into the practical application of CRISIL's, CARE's and ICRA's methodology and its implications for investors, lenders, and regulators in the Indian financial ecosystem.

These objectives aim to provide a comprehensive understanding of CRISIL's credit rating process and contribute to the enhancement of credit assessment practices in India.

Project Execution

3.1 Conceptual Framework of the Study

Theoretical Framework

The conceptual framework of this study illustrates the relationships between financial ratios and credit ratings, positing that various financial metrics influence the creditworthiness assessment performed by CRISIL, CARE and ICRA. The framework comprises two primary components:

Financial Ratios:

This component includes key financial ratios categorized into four domains:

Profitability Ratios: Metrics such as Return on Equity (ROE), Net Profit Margin, and EBITDA Margin that measure an entity's ability to generate profit relative to its revenue and equity.

Liquidity Ratios: Indicators like Current Ratio and Quick Ratio that assess an entity's capacity to meet short-term obligations.

Solvency Ratios: Metrics such as Debt-to-Equity Ratio and Interest Coverage Ratio that evaluate long-term financial stability and the ability to meet long-term debt obligations.

Efficiency Ratios: Ratios like Asset Turnover Ratio and Inventory Turnover Ratio that gauge how effectively a company utilizes its assets to generate revenue.

Credit Ratings:

This component represents the final assessment provided by CRISIL, CARE and ICRA, which categorizes entities based on their creditworthiness, often ranging from AAA (highest credit quality) to D (default).

Relationships:

Influence of Financial Ratios on Credit Ratings:

The framework hypothesizes that there is a direct correlation between the financial ratios and the credit ratings assigned by CRISIL, CARE and ICRA. Strong financial performance, indicated by favourable ratios, is expected to result in higher credit ratings, whereas poor financial metrics are likely to lead to lower ratings.

Qualitative Factors as Moderators:

While financial ratios play a critical role, the framework also acknowledges that qualitative factors (e.g., management quality, industry outlook) may moderate the relationship between financial ratios and credit ratings. For example, a company with strong financial ratios may still receive a lower rating if it operates in a highly volatile industry or has management concerns.

Underlying Assumptions:

Quantitative Assessment:

It is assumed that financial ratios provide a reliable quantitative basis for evaluating an entity's financial health and can be effectively used to assess credit risk.

Consistency of Rating Criteria:

The study assumes that CRISIL, CARE and ICRA applies its rating criteria consistently across different entities, ensuring that similar financial metrics yield comparable ratings.

Static Qualitative Assessment:

The framework assumes that qualitative factors, while influential, do not fluctuate dramatically within the assessment period, providing a stable backdrop for analysing financial ratios' impacts.

3.2 Data Collection

3.2a Identification of Data Sources

The data for this study has been sourced from multiple reliable channels to ensure comprehensive and accurate information:

Prowess Financial Database:

Prowess is a well-regarded financial database that provides extensive data on Indian companies. It offers detailed financial statements, and credit ratings, which are crucial for this analysis.

Annual Reports:

The annual reports of the selected companies serve as primary sources of verified financial information. These reports contain audited financial statements and management discussions, providing insights into the company's performance and strategies.

Credit Rating Reports:

Actual credit rating reports from CRISIL, CARE and ICRA have been reviewed to verify the ratings assigned to the companies. These reports offer a detailed rationale behind the ratings, including an assessment of financial metrics and qualitative factors.

Stock Exchanges:

Data from stock exchanges, such as the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE), have been utilized to

gather additional information about market performance and investor sentiment regarding the companies analysed.

3.2b Extract Relevant Information

The process of extracting relevant data involves several key steps:

Data Extraction from Prowess:

Financial data and credit ratings for the selected companies were extracted from the Prowess database. This includes both long-term and short-term credit ratings based on various types of debt instruments issued by the companies.

Identification of Relevant Financial Ratios:

Key financial ratios necessary for the analysis were identified and extracted from Prowess. These include profitability, liquidity, solvency, and efficiency ratios that will be used to evaluate each company's financial health.

Verification Against Annual Reports:

The extracted financial data and credit ratings from Prowess were cross-verified with the corresponding annual reports of the companies. This step ensures that the data used in the analysis is accurate and up-to-date, although discrepancies may exist between the two sources.

Re-Verification of Credit Ratings:

The credit ratings extracted from Prowess were re-verified against the actual rating reports provided by CRISIL, CARE and ICRA. Any discrepancies or updates found during this verification process were corrected to maintain the integrity of the analysis.

Acknowledgment of Limitations:

It is essential to note that slight variations may exist between the data obtained from Prowess and the information presented in the annual reports. This inconsistency represents a limitation of the research, as it could affect the accuracy of the financial metrics and credit ratings used in the study.

3.3 Data Analysis

The analysis of the data collected for this study will employ various statistical techniques and analytical methods to explore the relationships between financial ratios and credit ratings. The following outlines the methodologies that will be used:

Statistical Techniques and Analytical Methods

Descriptive Statistics:

Purpose: To summarize the data and provide insights into the general characteristics of the financial ratios and credit ratings.

Methods: Calculation of mean, median, standard deviation, and range for key financial ratios to understand their distribution and variability across the sample.

Correlation Analysis:

Purpose: To identify the strength and direction of relationships between individual financial ratios and credit ratings.

Methods: Pearson correlation coefficients will be calculated for each financial ratio in relation to credit ratings, allowing for the identification of significant correlations.

Regression Analysis:

Purpose: To assess the impact of financial ratios on credit ratings and determine how well these ratios explain the variation in ratings.

Methods:

Multiple Linear Regression: A regression model will be developed with credit ratings as the dependent variable and financial ratios as independent variables.

Model Evaluation: The model's goodness-of-fit will be evaluated using R-squared values and adjusted R-squared values.

Statistical Tests:

Purpose: To validate the results of the analysis and ascertain the significance of the relationships identified.

Methods:

T-tests: To compare the means of financial ratios between different credit rating categories.

ANOVA (Analysis of Variance): To assess differences in means among multiple groups (e.g., comparing financial ratios across different credit rating categories).

p-Values: To determine the statistical significance of the results, with a significance level set at $p < 0.05$.

Steps Involved in Data Analysis

Preparation of Data:

Data collected from Prowess and annual reports will be cleaned and organized. Missing or inconsistent data will be addressed to ensure accuracy before analysis.

Calculation of Correlations:

Step 1: Compute Pearson correlation coefficients for all financial ratios in relation to credit ratings.

Step 2: Generate a correlation matrix to visualize relationships and identify significant correlations.

Conducting Regression Analysis:

Step 1: Define the regression model by specifying credit ratings as the dependent variable and the identified financial ratios as independent variables.

Step 2: Fit the model using statistical software or programming languages (e.g., R, Python, or SPSS).

Step 3: Analyse the regression output, focusing on coefficients, R-squared values, and significance levels for each financial ratio.

Performing Statistical Tests:

Step 1: Conduct T-tests to compare financial ratios between different credit rating groups (e.g., AAA vs. BBB).

Step 2: Utilize ANOVA to assess the mean differences among multiple rating categories.

Step 3: Evaluate the p-values from the tests to determine the statistical significance of the findings.

Interpretation of Results:

Analyse the results of correlation, regression, and statistical tests to draw conclusions regarding the influence of financial ratios on credit ratings.

Discuss the implications of these findings in the context of CRISIL's, CARE's and ICRA's credit rating methodology.

By employing these statistical techniques and analytical methods, the study aims to provide robust insights into the effectiveness of CRISIL's, CARE's and ICRA's credit rating methodology and the role of financial ratios in assessing creditworthiness.

Results and Findings

4.1 Alternative Credit Rating Methodologies

Quantitative Credit Rating Models:

Overview: These models focus heavily on numerical data and financial ratios to assess creditworthiness. Approaches may include:

Z-Score Model: Developed by Edward Altman, this model uses multiple financial ratios to predict the likelihood of bankruptcy.

Hybrid Rating Models:

Overview: Combining quantitative and qualitative assessments, hybrid models could provide a more balanced view of credit risk. For instance:

Machine Learning Algorithms: Techniques such as decision trees and neural networks can analyze large datasets to identify patterns and correlations that may not be evident through traditional methods.

Multi-Criteria Decision Analysis (MCDA): This approach integrates various quantitative and qualitative factors, allowing for a more nuanced assessment of creditworthiness.

Peer Comparison Approaches:

Overview: This methodology evaluates a company's financial ratios and metrics against its peers in the industry. This relative approach can help contextualize a company's performance and creditworthiness, taking into account industry standards and averages.

Dynamic Credit Rating Models:

Overview: These models adapt over time based on real-time data and market conditions. For instance:

Continuous Monitoring Systems: Using technology to regularly update credit ratings based on ongoing financial performance, news, and market shifts.

Stress Testing Scenarios: Incorporating potential economic downturns or industry-specific challenges to assess how they would impact a company's credit rating.

Scenario Analysis

Scenario analysis will be conducted to evaluate the potential impact of various factors on credit ratings. This involves simulating different economic and market conditions to observe how they influence creditworthiness. Key scenarios to be analysed include:

Economic Downturn Scenario:

Assumption: A significant economic recession leads to a decline in consumer spending and business revenues.

Impact on Credit Ratings:

Liquidity Ratios: Expected deterioration as companies face cash flow challenges, potentially leading to lower credit ratings.

Profitability Ratios: Decreased revenues would likely lead to lower profitability, resulting in further rating downgrades.

Sector-Specific Crisis Scenario:

Assumption: A sudden crisis in a particular sector (e.g., real estate or oil and gas) adversely affects companies operating within that sector.

Impact on Credit Ratings:

Credit Quality: Companies within the affected sector may experience rapid downgrades due to increased default risk.

Market Perception: A loss of investor confidence may lead to higher borrowing costs, exacerbating financial challenges and further affecting credit ratings.

Regulatory Changes Scenario:

Assumption: Introduction of new regulations that increase compliance costs or alter market dynamics (e.g., environmental regulations in manufacturing).

Impact on Credit Ratings:

Cost Structure: Increased compliance costs may pressure profit margins, negatively impacting profitability ratios and credit ratings.

Investment Climate: Regulatory changes may lead to uncertainty in the market, affecting overall business stability and credit ratings.

Rapid Growth Scenario:

Assumption: A company experiences rapid growth due to favorable market conditions and strategic initiatives.

Impact on Credit Ratings:

Improved Ratios: Enhanced financial ratios, such as profitability and efficiency, could lead to upward adjustments in credit ratings.

Market Confidence: Positive market sentiment could further improve investor confidence, supporting better credit terms and ratings.

Conclusion

Exploring alternative credit rating methodologies provides a foundation for enhancing the robustness of credit assessments. Additionally, conducting scenario analysis helps identify the vulnerabilities and strengths of a company's credit profile under varying conditions, allowing for more informed decision-making in the financial markets. By considering these alternatives and scenarios, CRISIL's, CARE's and ICRA's and other rating agencies can refine their methodologies to better capture the complexities of credit risk in a dynamic environment.

4.2 Proposed Solution & Justification (viability and implementation)

Proposed Improvements to CRISIL's, CARE's and ICRA's Credit Rating Methodology

Incorporation of Machine Learning Algorithms:

Description: Integrate machine learning techniques to enhance the predictive capabilities of credit ratings by analysing historical data and identifying patterns that may not be apparent through traditional methods.

Implementation:

Develop a machine learning model that uses historical financial data, credit ratings, and macroeconomic indicators to predict future ratings.

Train the model using past data and continuously refine it with new data to improve accuracy.

Dynamic Rating Adjustments:

Description: Implement a dynamic rating model that allows for real-time updates to credit ratings based on ongoing financial performance and market conditions.

Implementation:

Establish a framework for continuous monitoring of companies' financial metrics, news, and market trends.

Set specific criteria for when ratings should be updated, ensuring timely responses to significant changes.

Enhanced Qualitative Assessment:

Description: Expand the qualitative assessment component to include factors such as management quality, corporate governance, and industry dynamics.

Implementation:

Develop structured qualitative scoring systems that can be incorporated alongside quantitative metrics in the rating process.

Train analysts to evaluate qualitative factors systematically, ensuring consistent application across ratings.

Peer Comparison Metrics:

Description: Introduce a peer comparison methodology that assesses a company's financial ratios against industry benchmarks and competitors.

Implementation:

Collect and analyse data on industry peers, establishing clear metrics for comparison.

Use peer performance as a contextual factor in credit ratings to provide a more comprehensive view of a company's creditworthiness.

Conclusion

5.1 Recommendations

Summary of Key Findings

Limitations of the Current Methodology:

While CRISIL, CARE and ICRA existing credit rating methodology is comprehensive, it predominantly relies on traditional quantitative financial metrics, which may miss important qualitative factors influencing creditworthiness.

There is a critical need for timely updates to credit ratings to accurately reflect real-time changes in companies' financial health and overall market conditions.

Role of Advanced Analytics:

Incorporating machine learning techniques can enhance the accuracy of credit ratings by analysing complex datasets and identifying underlying patterns that traditional methods may overlook.

Significance of Qualitative Factors:

Including qualitative assessments, such as the quality of management and corporate governance, can provide a more complete picture of credit risk.

Benefits of Peer Comparison:

Utilizing peer comparison metrics facilitates a contextual evaluation of a company's performance, allowing for better assessments of creditworthiness in relation to industry benchmarks.

Actionable Recommendations for CRISIL, CARE and ICRA and Other Credit Rating Agencies

Embrace Advanced Analytical Techniques:

Recommendation: Implement machine learning and artificial intelligence into the rating framework to analyse extensive datasets, improving predictive capabilities.

Action: Develop a dedicated team or collaborate with data science professionals to create machine learning models that can be updated continuously with new information.

Establish Dynamic Rating Updates:

Recommendation: Create a system for dynamic rating adjustments that responds to real-time financial performance and changing market conditions.

Action: Define specific criteria for rating updates and invest in technology that enables constant monitoring of relevant financial metrics.

Strengthen Qualitative Evaluation Processes:

Recommendation: Develop clear criteria for assessing qualitative factors that influence credit risk.

Action: Train analysts on these qualitative aspects and implement a structured scoring system to ensure uniformity in ratings.

Incorporate Peer Comparison Analysis:

Recommendation: Use peer comparison metrics within the credit rating process to provide context for a company's financial performance.

Action: Create a comprehensive database of relevant industry peers and benchmarks to facilitate this comparative analysis.

Prioritize Ongoing Training and Development:

Recommendation: Ensure that credit analysts engage in continuous training regarding emerging financial trends, machine learning tools, and qualitative assessment methods.

Action: Organize workshops, online courses, and certification programs to keep analysts informed about best practices and innovative methodologies in credit rating.

Foster Engagement with Stakeholders:

Recommendation: Cultivate open dialogue with stakeholders—including investors, companies, and regulators—to gather feedback on the credit rating process and its effectiveness.

Action: Set up regular forums or consultations with stakeholders to discuss rating methodologies and potential enhancements.

Implement Monitoring and Evaluation Measures:

Recommendation: Continuously assess the impact of implemented changes on rating accuracy and market perception.

Action: Establish metrics to evaluate the effectiveness of new methodologies and remain adaptable based on outcomes and stakeholder feedback.

5.2 Limitations

While this study provides valuable insights into CRISIL, CARE and ICRA credit rating methodology and its potential enhancements, several limitations should be acknowledged:

Data Availability:

The research relied on data from specific financial databases, such as Prowess, which may not encompass all relevant companies or industry sectors. This could lead to gaps in the analysis and limit the comprehensiveness of the findings.

Sample Size:

The sample size utilized in the study may not fully represent the diversity of the Indian credit market. A limited number of companies may restrict the validity of the conclusions drawn, particularly in assessing the applicability of the proposed improvements across various industries.

Generalizability of Findings:

The findings from this study may not be universally applicable to all credit rating agencies or markets outside of India. Differences in regulatory environments, market conditions, and industry practices may impact the effectiveness of the proposed methodologies in other contexts.

Dynamic Nature of Financial Markets:

Financial markets are inherently volatile and subject to rapid changes. The study's recommendations are based on current conditions, which may evolve over time, potentially affecting the relevance and applicability of the proposed improvements.

Potential Bias in Data Sources:

The study relied on publicly available financial data and credit ratings, which could be subject to biases or inaccuracies. Discrepancies between data sources, such as annual reports and financial databases, could lead to inconsistencies in the analysis.

Subjectivity in Qualitative Assessments:

The incorporation of qualitative factors into the credit rating methodology introduces an element of subjectivity. Variability in how analysts interpret qualitative criteria could result in inconsistencies in the credit ratings assigned.

Limited Focus on External Economic Factors:

The study primarily concentrates on internal financial metrics and qualitative assessments, potentially overlooking broader economic indicators and external factors that could significantly influence creditworthiness.

Implementation Challenges:

While the proposed enhancements are theoretically sound, practical implementation may face challenges such as resistance from stakeholders, resource constraints, and the need for extensive training and development.

Conclusion

Despite these limitations, the study contributes to the understanding of CRISIL, CARE and ICRA credit rating methodology and highlights areas for potential improvement. Future research could address these limitations by expanding the sample size, incorporating diverse data sources, and exploring the effects of external economic factors on credit ratings.

AUTHORS



Govind Singh



Aditi Kumari

This Whitepaper is based on a capstone project undertaken by Govind Singh, Aditi Kumari and other students as a requirement for the fulfilment of the Career Track Program in Capital Markets offered at Jagdish Sheth School of Management. The authors wish to thank Dr. S. Chandrashekhar, Prof. Pooja Gupta and Prof. Punita Rajpurohit for their constant guidance and assistance.

SmartQSR: Comprehensive Mobile Solutions for Quick Service Restaurants

Abhinav Kumar

Arunabh Bhattacharya

Sujata Burli

A Malavika

Kilari Teja

Arush Nandwani

Background

Industry Overview

The global fast-food market, valued at \$784.24 billion in 2023, is projected to grow at a 4.9% CAGR through 2030. The sector, dominated by Quick Service Restaurants (QSR) like McDonald's, KFC, and Burger King, is evolving with a shift toward health-conscious options and tech-driven delivery processes. Key growth drivers include urbanization, lifestyle changes, and rising incomes, especially in regions like North America and Asia Pacific. However, the industry faces challenges such as health concerns and competition from fast-casual dining, making adaptability crucial to maintaining its appeal for quick and affordable service.

Company Overview

A small QSR in Electronic City, Phase 1, aims to modernize its operations through a digital transformation by developing a mobile app. This app will streamline order management, integrate with delivery services, and provide real-time inventory tracking. Additionally, it will feature personalized promotions, loyalty programs, and store management tools to enhance customer engagement and operational efficiency. This digital shift is designed to boost customer satisfaction, drive sales, and improve the QSR's competitive position in the local market.

Statement of Purpose (Scope of Work)

The project aims to develop a comprehensive mobile application for Quick Service Restaurants (QSRs) that streamlines the management of product catalogs, custom promotions, delivery schedules, and new store openings. With a focus on user experience, the app will feature a dynamic product catalog that allows real-time updates and easy navigation for customers. Custom promotions will be tailored based on individual preferences, supported by loyalty programs to enhance

customer retention. Additionally, the app will incorporate geolocation features to notify users of new store openings and offer exclusive launch promotions.

On the back end, the application will utilize a centralized data system to collect insights from various customer interactions, providing an analytics dashboard for data-driven decision-making. Integration of AI and machine learning technologies will enable personalized recommendations and identify trends in customer behavior, allowing QSRs to refine their marketing strategies and optimize operational efficiency. Overall, this mobile app aims to empower QSRs by enhancing both operational management and customer engagement through advanced technological solutions.

Problem Solving

Broader description of the problem

The QSR faces challenges with digital integration, lacking a cohesive system for managing custom promotions and analyzing customer behavior. This hinders the ability to track interactions across touchpoints, leading to ineffective marketing, reduced brand loyalty, and missed revenue opportunities. Additionally, the absence of a digital interface limits customer engagement and risks alienating the customer base. To address these issues, implementing a Customer Data Platform (CDP) would unify data from various sources, enabling personalized promotions and improving the overall customer experience, driving growth and operational efficiency in a competitive market.

Visualization of the Situation (Situation Analysis)

The QSR sector faces intense competition from AI-driven dark kitchens and D2C food brands that excel in personalized recommendations and fast delivery, positioning themselves as digital leaders. In contrast, the QSR's lack of digital integration limits its ability to compete effectively. Additionally, the absence of third-party delivery platform integration further restricts reach, while high commission fees and loss of customer data impede profitability and personalization efforts. To regain a competitive edge, the QSR must adopt a Customer Data Platform (CDP) to centralize data, enhance

personalized marketing, and invest in scalable digital infrastructure for improved operations and growth in the digital marketplace.

Problem definition

The core problem is the lack of a comprehensive digital platform that combines customer-facing functionality with back-end operational tools. The current system does not allow for easy management of promotions, product catalogs, or third-party integrations. The absence of data-driven decision-making tools, such as AI/ML-powered insights, restricts the business's ability to optimize operations and enhance customer experience.

Project objectives

Objective: Enhance the user experience to increase customer engagement and retention.

KPIs:

Daily Active Users (DAU)

Monthly Active Users (MAU)

User Retention Rate

Average Session Duration

Boost Sales and Order Volume

Objective: Increase the number of orders and overall sales revenue through the app.

KPIs:

Number of Orders per Day

Total Sales Revenue

Average Order Value

Conversion Rate (from browsing to purchase)

Improve Operational Efficiency

Constraints:

Delivery within 10 KMs of radius and free delivery within 3 KM.

Available options: 10 - 20 items initially.

Handle up to 500 concurrent users initially to prevent performance issues.

Ensure compatibility with the last two major versions of Android to cover the majority of the user base without needing to support very old devices.

Use secure cloud storage solutions with 50GB capacity initially to store customer data, order history, and product details.

Project Execution

Conceptual framework of the study

Independent Variable: Lack of Digital Integration Key Issues:

No customized promotions

Absence of real-time order tracking

Non-scalable backend system

Mediating Variables: Technological Solutions

Customer Data Platform (CDP): Centralizes customer data for personalized promotions.

Real-Time Systems: Enables order tracking and product availability updates.

Scalable Backend: Supports growth and multi-store management.

Moderating Variables: Market Competition and Consumer Expectations

Digital-first competitors (dark kitchens, D2C brands)

Increasing customer demand for personalized and seamless experiences

Dependent Variables: Business Growth and Customer Experience

Outcomes

Improvement

Efficiency

This factor

affects

solutions

a Identifier

Survey

Store

No. of

Variables

	A	B	C	D	E	F	G
	Frequency of Ordering	Important Factors	Common Issues	Satisfaction Level	Desired Features	Importance of Real-time Updates	
1	Weekly	App ease of use	Poor app interface	Very satisfied	Personalized recommendations	Neutral	Yes
2	Daily	Restaurant variety	No issues	Neutral	Easy reorder from previous purchases	Somewhat important	Yes
3	Monthly	Price	No issues	Very satisfied	Better order tracking	Very important	Yes
4	Bi-weekly	App ease of use	High delivery fees	Very dissatisfied	Better order tracking	Very important	No
5	Rarely	Customer service	Poor customer service	Neutral	Easy reorder from previous purchases	Somewhat important	Som
6	Daily	Restaurant variety	Lack of customization options	Satisfied	More payment options	Very important	No
7	Bi-weekly	App ease of use	Poor customer service	Very dissatisfied	More discounts/offers	Very important	Som
8	Rarely	Food quality	Lack of customization options	Dissatisfied	More payment options	Neutral	Yes
9	Daily	Discounts/offers	No issues	Dissatisfied	Personalized recommendations	Not important	Som
10	Weekly	Customer service	High delivery fees	Dissatisfied	Personalized recommendations	Not important	No
11	Weekly	Restaurant variety	Lack of customization options	Neutral	More payment options	Neutral	No
12	Monthly	App ease of use	Poor app interface	Satisfied	More payment options	Somewhat important	Yes
13	Weekly	App ease of use	Poor app interface	Dissatisfied	More payment options	Not important	Som
14	Daily	Discounts/offers	Delayed deliveries	Very satisfied	More payment options	Very important	Som
15	Rarely	Customer service	Poor customer service	Very satisfied	Better order tracking	Neutral	Yes
16	Rarely	Customer service	Incorrect orders	Very dissatisfied	More discounts/offers	Neutral	No
17	Monthly	Price	Delayed deliveries	Neutral	More payment options	Very important	No
18	Weekly	Delivery speed	High delivery fees	Neutral	Personalized recommendations	Neutral	Som

Service delivery area

Other requirements (Non-functional)

3.2b Extract Relevant Information

No. of customers per day: Approx. 100 to 150

Variety of items available at store: 20

Service delivery area: 10 KM

Collected Survey Data – No. of Response -124

Table 1: Survey data snapshot

3.3 Analysis of the data

Row Labels	Count of Important Factors	Row Labels	Count of Common Issues	Row Labels	Count of Frequency of Ordering
App ease of use	26	Poor customer service	22	Monthly	31
Restaurant variety	23	Poor app interface	21	Bi-weekly	27
Delivery speed	17	High delivery fees	19	Daily	25
Price	15	No issues	17	Weekly	25
Food quality	15	Delayed deliveries	17	Rarely	16
Customer service	14	Lack of customization options	15	Grand Total	124
Discounts/offers	14	Incorrect orders	13		
Grand Total	124	Grand Total	124		
Row Labels	Count of Desired Features	Row Labels	Count of Device Used	Row Labels	Count of Importance of Real-time Updates
Better order tracking	26	Mobile phone	38	Somewhat important	36
More discounts/offers	22	Laptop/PC	34	Neutral	32
Faster delivery times	20	Tablet	28	Very important	29
Easy reorder from previous purchases	19	Other	24	Not important	27
Personalized recommendations	19	Grand Total	124	Grand Total	124
More payment options	18				
Grand Total	124				

Table 2: Important factors or issues faced by QSRs (Based on survey data collected)

Based on the analysis of the survey data the most important factors to look at are:

Easy usage of App

Variety of food item availability

Customer Service

Order tracking system

Mobile and laptop compatibility of the app

Real time updates

Results and Findings

Proposed solution & Justification

In-House Digital Platform (Mobile App):

Develop a mobile app that offers features such as real-time order tracking, personalized promotions, product availability updates, and loyalty programs.

Justification:

Full Control Over Customer Data: An in-house application allows the QSR to gather and manage customer data directly, enabling personalized promotions and customer engagement without reliance on third-party platforms.

Seamless Customer Experience: By offering features like real-time order tracking, loyalty programs, and personalized offers within the app, the QSR can provide a cohesive, branded experience that enhances customer satisfaction.

Cost Efficiency Over Time: Although the initial development may be costly, avoiding third-party commission fees and retaining control over the platform will lead to long-term cost savings.

Scalability and Flexibility: An in-house solution can be easily updated and scaled as the business grows, ensuring it adapts to new stores, customer demands, and changing market trends.

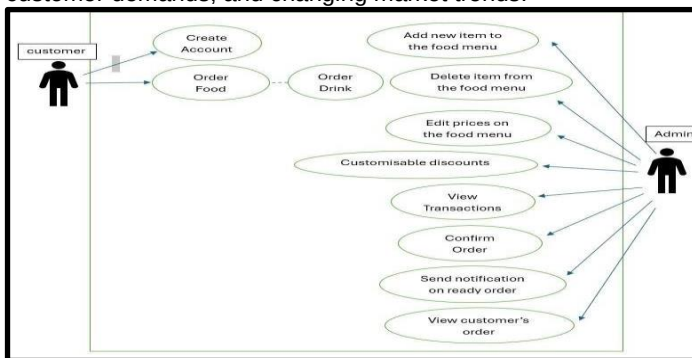


Fig 1: Use case diagram

ACTION	Get App	Choose from menu	Confirm order	Checkout	Receive order
TASK LIST	Tasks A. Download App B. Create Account	Tasks A. Browse Menu B. Choose dishes C. Customise order	Tasks A. View cart B. Confirm total cost C. Confirm order	Tasks A. Enter delivery address B. Complete checkout C. Get order confirmation.	Tasks A. Make payment B. Check content of delivered items C. Get order confirmation.
FEELING ADJECTIVE	Excited about ordering lunch online A bit stressed by the account creation process	Overwhelmed by the amount of dishes to chose from Frustrated by the use of words and not enough images	Excited about completing the ordering process Stressed about struggling to read order details	Relieved about completing the order process Worried about how long it would take to receive the order	Happy about receiving order
IMPROVEMENT OPPORTUNITIES	Make the onboarding process quick Make the account creation process quick and easy	Add a section with most popular dishes to the home page More images to accompany texts	Make the cart easily accessible at all times Make order details clear and legible	Make it possible to track order Add accurate estimated delivery time to confirmation message	Add in-app feature that notifies the restaurant if there is error in an order

Fig 2: Customer Journey Map

Conclusion

Recommendations

Focus on User Experience: Ensure the app design is intuitive, with easy navigation, real-time order tracking, and seamless integration of personalized offers and loyalty programs to enhance customer satisfaction.

Integrate Advanced Analytics: Implement tools within the app to track customer behavior, order patterns, and preferences, enabling data-driven decision-making for future promotions and business strategies.

Test and Optimize: Conduct thorough beta testing to identify any user experience issues or technical glitches. Continuously optimize based on customer feedback and market trends to ensure a smooth and evolving platform.

Marketing and Awareness: Launch a marketing campaign to promote the new app, highlighting its features like exclusive in-app

promotions, order tracking, and loyalty rewards to drive downloads and customer engagement.

Plan for Scalability: Ensure the application infrastructure can handle future growth, including support for multiple locations, increased user activity, and new features as the business expands.

Limitations

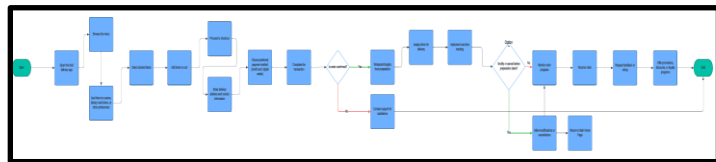
High Initial Development Cost: Developing an in-house app requires significant upfront investment in technology, design, and development resources.

Ongoing Maintenance and Updates: Continuous maintenance, updates, and bug fixes will require dedicated resources, increasing operational costs over time.

Time-Consuming Implementation: Building a custom solution may take more time to develop and deploy compared to using off-the-shelf third-party platforms.

Limited External Reach: Without integration with popular third-party aggregators, the app may have a narrower reach, limiting exposure to potential new customers who prefer using aggregator platforms.

Customer Adoption: Encouraging customers to download and regularly use the app could be challenging, especially in a competitive market where many options are available.



AUTHORS



Abhinit Kumar



Arunabh Bhattacharya



Sujata Burli



A Malavika



Kilari Teja



Arush Nandwani

This Whitepaper is based on a capstone project undertaken by Abhinit Kumar, Arunabh Bhattacharya, Sujata Burli, A Malavika, Kilari Teja and Arush Nandwani as a requirement for the fulfilment of the Career Track Program in Business Analytics offered at Jagdish Sheth School of Management. . The authors wish to thank Dr. Sundar Raj Vijayanagar for his constant guidance and assistance.

Enhancing Employee Experience at Volvo: A Unified HR Approach for Engagement and Growth

Prachi Sodani

Vibhuti Chauhan

Dhritiman Nath

Shruti Yadav

Adya Rani

Netyam Jahanvi

Background

Industry and Company Overview

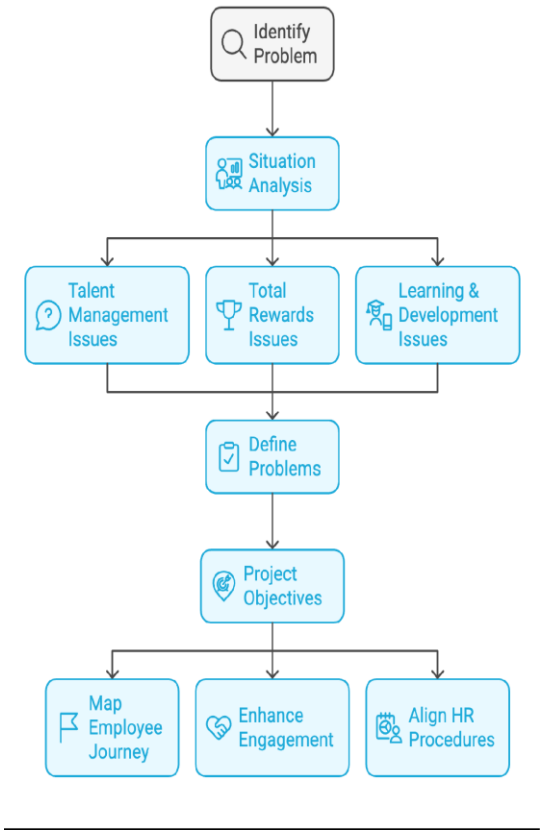
Volvo Group is a leading manufacturer of trucks, buses, construction equipment, and marine and industrial engines. The company operates in over 190 markets worldwide, providing advanced technology and sustainable solutions. As a global brand, Volvo's focus on innovation, safety, and employee engagement is critical to its long-term success. However, challenges remain in the integration of HR functions, particularly in Talent Management (TM), Total Rewards (TR), and Learning & Development (L&D). These departments play a crucial role in the employee experience, but their current operations lack a unified structure.

Statement of Purpose

This report aims to systematically map the employee journey at Volvo, focusing on key touchpoints with the HR departments (TM, TR, and L&D). The goal is to identify areas for improvement, propose actionable strategies for enhanced employee engagement, and align HR practices using the People Capability Maturity Model (PCMM).

Problem Framing

Enhancing Employee Experience at Volvo



Broader Description of the Problem

Employee disengagement and dissatisfaction are often caused by disjointed HR functions that do not provide a cohesive experience. At Volvo, ensuring an employee's journey is smooth and supportive across Talent Management, Total Rewards, and Learning & Development is key to sustaining high engagement. However, these functions may operate in silos, causing potential inconsistencies in the employee experience.

The employee experience is fragmented due to limited integration between key HR functions. There is no comprehensive map of the employee journey, which leads to missed opportunities in enhancing engagement and support. Employees interact with TM, TR, and L&D departments at various stages, but these touchpoints are not well-coordinated or tracked.

Situation Analysis

Talent Management (TM): Responsible for recruitment, career development, and succession planning. However, employees often face unclear communication and expectations regarding growth opportunities.

Total Rewards (TR): Oversees compensation, benefits, and recognition programs. Inconsistent application of policies leads to confusion and dissatisfaction.

Learning & Development (L&D): Provides training and development programs but lacks tailored strategies that cater to individual employee needs.

Problem Definition

Lack of Comprehensive Mapping: There is no existing framework that holistically views the employee journey across HR functions.

Inconsistent Procedures and Policies: Misalignment and inconsistent communication of HR policies create employee confusion.

Insufficient Employee Engagement: Without clear visibility into the journey, effective engagement strategies are not being fully utilized.

Project Objectives

To map the employee journey and identify key HR touchpoints at each stage.

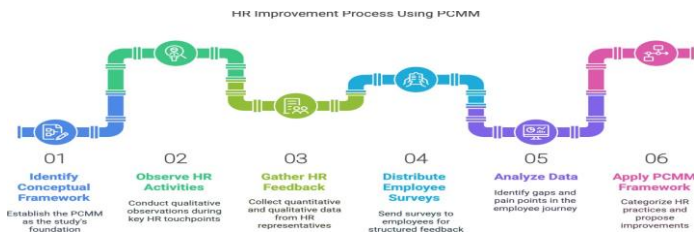
To enhance employee engagement through tailored strategies.

To align HR procedures and communication using the PCMM model for continuous improvement.

Project Execution

Conceptual Framework of the Study

The conceptual framework for this study is based on the People Capability Maturity Model (PCMM), a structured approach that helps organizations assess and improve HR practices.



The framework will be used to map HR touchpoints, identify gaps, and recommend improvements for better engagement.

Identification of Data Source and Data Collection

Observation (Qualitative Data Collection) - HR activities and employee interactions will be observed during key touchpoints, such as onboarding sessions, training workshops, and performance review meetings. Real-time observation of how HR procedures are executed and received by employees and notes on employee participation and engagement levels during key HR initiatives.

HR Department Feedback (Quantitative & Qualitative Data Collection) - HR representatives from TM, TR, and L&D will provide internal data, documentation, and feedback on current HR procedures and practices. Internal process documents, policy guidelines, and training materials. Reports on HR metrics such as employee turnover, promotion rates, and learning & development participation. Qualitative insights from HR personnel on the strengths and weaknesses of existing HR procedures.

Employee Surveys - Surveys will be distributed to employees across various departments to gather structured feedback regarding their experience with HR functions (TM, TR, and L&D). Likert-scale ratings on satisfaction with HR touchpoints (e.g., onboarding, rewards, career progression). Numerical feedback on clarity of HR policies and procedures. Employee perception of engagement at different stages of their employment.

Analysis of Data

This focuses on identifying gaps and pain points in the current employee journey at each touchpoint. For instance, onboarding may show a disconnect between expectations and actual support, or rewards might appear misaligned with employee performance. Trends like low engagement after one year of employment or limited participation in L&D programs will be highlighted. The PCMM framework will be applied to categorize maturity levels of current HR practices and propose a roadmap for improvement.

Results and Findings

Proposed Solutions and Justification Proposed Solution:

Develop a comprehensive employee journey map that includes all interactions with TM, TR, and L&D departments.

Introduce consistent communication channels to clarify HR policies and procedures.

Implement employee engagement strategies at identified touchpoints, such as personalized career development plans and enhanced recognition programs.

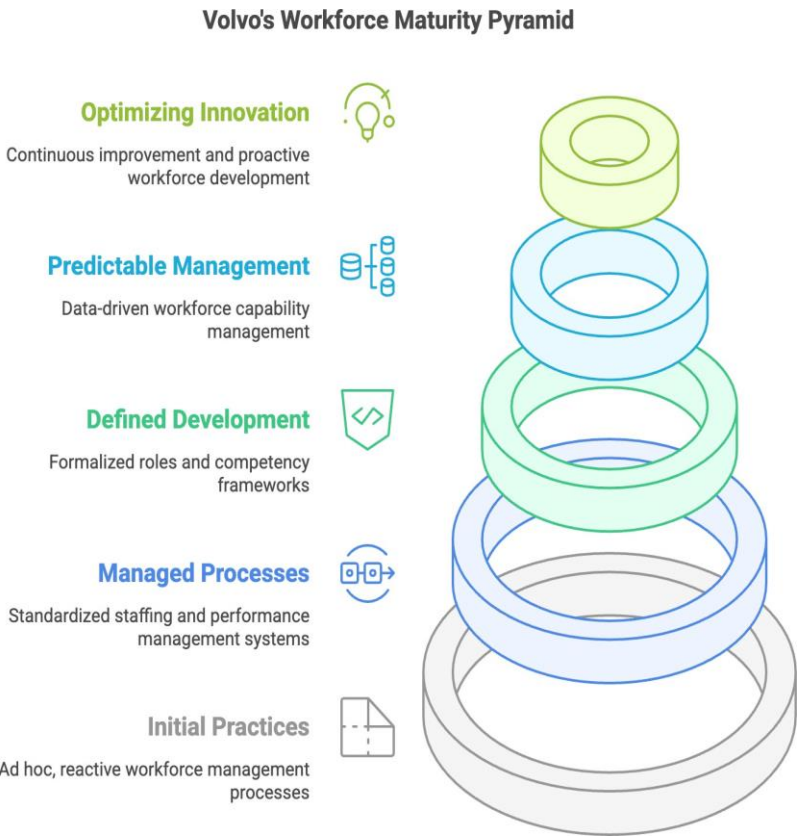
Justification:

A clear employee journey map will provide Volvo with better visibility into key interactions, allowing for targeted improvements.

Aligning HR procedures with the PCMM model will ensure consistent application across departments, leading to higher employee satisfaction and engagement.

The proposed strategies are viable because they leverage existing HR resources but align them more effectively with employee needs.

PCMM Detailed Breakdown for Each Maturity Level



Initial Level (Level 1: Initial)

Objective: Establish basic workforce management practices that support project execution and meet short-term business needs.

Characteristics:

Workforce processes are ad hoc, reactive, and inconsistent across divisions.

Individual managers control people management practices, leading to variability.

Workforce issues are not systematically addressed, leading to potential gaps in skills or capabilities.

Volvo Application:

Current State: Workforce practices differ significantly across regions (e.g., recruitment and talent management practices vary between the Gothenburg headquarters and international production plants).

Steps to Improve:

Establish consistent HR policies across all global locations.

Implement basic HR functions, including hiring, payroll, and compliance, ensuring adherence to labor laws.

Outcome: A unified foundation for workforce management across all Volvo divisions and regions.

KPIs:

High turnover rate.

Employee engagement scores.

Compliance with labor regulations.

Managed Level (Level 2: Managed)

Objective: Standardize workforce management processes, focusing on key operational areas like staffing, performance management, and work environment.

Key Focus Areas:

Staffing: Develop standardized recruitment processes across all Volvo offices and plants.

Performance Management: Create a performance management system aligning employee objectives with Volvo's strategic goals.

Work Environment: Foster a safe, inclusive work culture across all locations.

Compensation & Benefits: Establish equitable and transparent compensation systems.

Implement a global talent acquisition framework to ensure equal opportunities and standardized processes.

Roll out a unified performance management system with clear metrics and feedback mechanisms.

Maintain safety regulations and workplace inclusivity practices across Volvo's production facilities.

Outcome: Streamlined people management practices across Volvo's global locations, ensuring smoother operations and higher employee satisfaction.

KPIs:

Retention rate.

Percentage of employees trained.

Performance review completion rates.

Defined Level (Level 3: Defined)

Objective: Formalize workforce development processes, creating standardized roles and competency frameworks to support career development.

Key Focus Areas:

Competency Development: Define competencies for critical roles, especially in electric vehicle development and autonomous driving technologies.

Workforce Planning: Align workforce needs with business goals.

Career Development: Develop structured career paths for employee growth.

Training & Development: Launch global training programs tailored to both technical and leadership skills.

Volvo Application:

Action Plan:

Define role-specific competencies for key teams (engineers, designers, managers).

Introduce a structured training and career development program.

Invest in online learning platforms and in-house training on emerging technologies.

Outcome: A globally consistent, well-defined framework for employee competency and career development.

KPIs:

Competency gap analysis.

Internal promotion rates.

Employee satisfaction with career progression.

Predictable Level (Level 4: Predictable)

Objective: Use data and analytics to manage workforce capabilities, ensuring high performance and productivity.

Key Focus Areas:

Quantitative Performance Management: Develop KPIs to monitor workforce efficiency and growth.

Capability Management: Identify and develop key talent for high-priority initiatives.

Workforce Competency Metrics: Implement tools to measure and track competency levels across departments.

:

Leverage HR analytics to monitor employee progress.

Use predictive analytics for workforce needs in areas like EV battery design.

Implement capability dashboards for leadership decision-making.

Outcome: A data-driven workforce management system that supports decision-making and prepares employees for future challenges.

KPIs:

Performance improvement percentage.

Turnover reduction rate.

Time-to-hire for critical positions.

Optimizing Level (Level 5: Optimizing)

Objective: Continuously improve workforce practices through innovation and proactive workforce development.

Key Focus Areas:

Continuous Improvement: Establish a culture of ongoing feedback and improvement.

Innovation and Agility: Create internal programs that promote innovation, especially in sustainability and autonomous vehicles.

Empowered Workforce: Enable employees to take ownership of their development and engage in innovation projects.

Launch cross-functional innovation programs for collaboration on sustainable transportation.

Implement agile workforce management strategies for rapid adaptation to market changes.

Foster a culture of innovation through Volvo Innovation Labs for idea experimentation.

Outcome: A highly innovative and agile workforce capable of adapting to changing market demands.

KPIs:

Employee engagement scores.

Number of innovation projects initiated.

Process improvement rates.

Conclusion

The study highlights critical gaps in Volvo's HR processes across Talent Management (TM), Total Rewards (TR), and Learning & Development (L&D). The findings suggest that employee engagement and satisfaction suffer due to fragmented HR functions, inconsistent policy communication, and a lack of structured employee journey mapping. Implementing the People Capability Maturity Model (PCMM) can create a more structured and data-driven approach to HR strategy.

Key Takeaways & Strategic Insights:

Integrated Employee Journey Mapping:

Establish a centralized HR data repository to track all employee touchpoints across TM, TR, and L&D.

Use HR analytics and AI-driven insights to personalize employee experiences and identify high-risk attrition groups.

Standardization & Consistency in HR Policies:

Align global HR practices with localized needs by ensuring transparent and consistent policy application across all locations.

Implement an automated HR policy management system to communicate updates seamlessly.

Enhancing Employee Experience & Career Growth:

Early engagement interventions to improve post-probation retention.

Implement structured career pathing programs tied to Volvo's strategic growth areas, including EV technology, sustainability, and AI-driven automation.

Leveraging Data-Driven Decision-Making:

Adopt predictive workforce analytics to track employee sentiment and proactively address disengagement risks.

Use advanced KPIs such as Net Employee Score (NES) and Personalized Career Satisfaction Index (PCSI) to measure long-term engagement trends.

Continuous Workforce Upskilling & Development:

Create a dynamic learning ecosystem by integrating adaptive learning platforms that personalize training programs based on employee performance.

Strengthen mentorship and coaching programs, particularly at the mid-career and senior levels, where engagement dips.

Improved Reward & Recognition Systems:

Design a personalized and real-time rewards framework where employees are recognized through data-backed insights.

Introduce stock options or long-term incentive plans for high-potential employees to enhance retention.

Proactive Retention Strategies for Key Employee Segments:

Identify high-value talent pools and implement targeted retention programs.

Establish an internal mobility task force to facilitate career transitions across business units.

Recommendations

Based on the findings, the following recommendations are provided to enhance the employee experience at Volvo:

Standardize HR Communication: Ensure clear, consistent communication of policies across TM, TR, and L&D.

Create a Centralized HR Portal: A digital platform for employees to access HR information, policies, and procedures.

Focus on Employee Engagement: Regularly assess and update engagement strategies based on employee feedback and performance metrics.

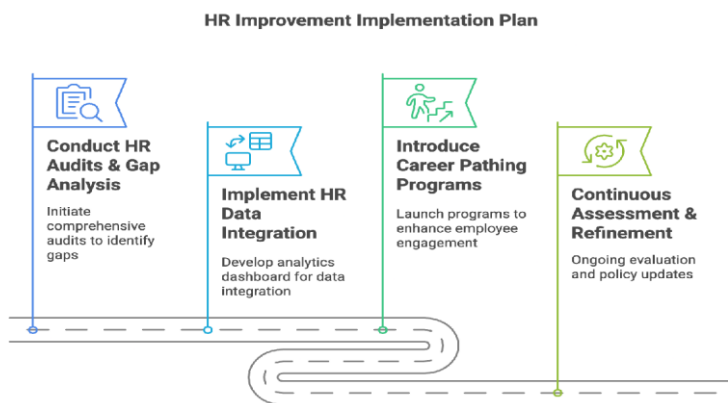
Adopt the PCMM Framework: Use the PCMM model to continually assess and improve HR practices and employee engagement strategies.

Limitations

The proposed solution is based on current data and feedback, which may evolve as the company grows.

The effectiveness of the recommendations will depend on the timely implementation and ongoing commitment from the HR team and senior management.

Implementation Roadmap:



AUTHORS



Prachi Sodani



Vibhuti Chauhan



Dhritiman Nath



SHRUTI YADAV



Adya Rani



Netyam Jahanvi

This Whitepaper is based on a capstone project undertaken by Prachi Sodani, Vibhuti Chauhan, Dhritiman Nath, Shruti Yadav, Adya Rani, and Netyam Jahanvi as a requirement for the fulfilment of the Career Track Program in HR offered at Jagdish Sheth School of Management. . The authors wish to thank Dr. Shaji Kurien for his constant guidance and assistance.

Building Shorter Loop a robust community ecosystem

AVANISH CHANDRA

ARGHYA ACHARYA

PRAVEENA P

ROHITHA B

TATINI MANDAL

Background

Industry and Company Overview

The product management industry has rapidly evolved in recent years, driven by the increasing complexity of digital products and the growing need for customer-centric solutions. Product managers play a crucial role in

aligning business goals with customer needs, leading cross-functional teams, and driving product development from conception to launch.

In this highly competitive space, continuous learning and staying updated on the latest tools, frameworks, and trends are essential. Industry professionals seek not only to enhance their skills but also to connect with peers, share best practices, and learn from the successes and challenges of others.

With the rise of Software as a Service (SaaS) platforms and product management tools, the demand for communities that foster collaboration, networking, and knowledge exchange has grown. Companies like

Productboard, Product School, and Airfocus have established themselves as leaders by building strong community ecosystems that offer education, mentorship, and real-world insights.

Despite the competitive landscape, there is a significant opportunity for newer platforms like Shorter Loop to

differentiate themselves by creating inclusive, diverse, and user-driven communities that provide value beyond just a product management tool—transforming into a hub for professional growth and innovation.

Statement of Purpose (Scope of Work)

This project aims to address the absence of a robust community at Shorter Loop, a SaaS-based product

management platform, which limits user engagement and thought leadership. The focus is on developing a LinkedIn community as a hub for product managers, aspiring PMs, and industry experts to share best practices, tools, and

insights.

Scope of Work:

Community Creation: Establish a LinkedIn platform to engage users with content on trends, real- world experiences, and product management tools.

Competitor Analysis: Study key competitors (Productboard, Product School, Airfocus) to identify community-building strategies and differentiation opportunities.

Content Strategy: Develop a content calendar featuring blog posts, webinars, interviews, and how-to guides to drive engagement.

Engagement Tactics: Utilize Q&A sessions, expert panels, and user-generated content to foster interaction and learning.

Data Metrics: Track community growth, engagement, and content reach to continuously refine strategies.

User Empowerment: Offer networking, mentorship, and knowledge-sharing opportunities to build a trusted professional resource.

Diversity & Inclusion: Ensure the community is inclusive, diverse, and promotes corporate social responsibility (CSR) discussions.

Problem Framing

Broader Description of the Problem

In the rapidly evolving product management industry, companies need more than just tools and software they require vibrant communities that facilitate knowledge sharing,

networking, and professional development. Shorter Loop, a SaaS-based product management platform, is currently lacking a strong community ecosystem. This gap limits its ability to engage users, retain customer loyalty, and promote thought leadership within the competitive product management landscape.

Product managers, aspiring PMs, and industry leaders are constantly seeking platforms where they can exchange ideas, discuss industry trends, and solve common challenges. Competitors such as Productboard and Product

School have successfully built communities that not only provide resources but also foster ongoing professional growth through collaboration and learning opportunities.

The absence of such a community at Shorter Loop reduces its visibility, restricts user engagement, and undermines its potential to grow as a trusted resource for product managers. To stay competitive, Shorter Loop must establish an inclusive and dynamic community that serves as a go-to hub for product management professionals to collaborate, share experiences, and develop industry knowledge.

Visualization of the Situation (Situation Analysis)

Shorter Loop is a growing SaaS platform focused on providing product management solutions, yet it faces a key challenge: the absence of a strong community ecosystem. This missing element impacts its ability to create lasting engagement and foster brand loyalty among users, compared to competitors who have successfully established thriving communities.

Current Situation:

Lack of Engagement: Without a dedicated community, users primarily interact with the platform for its tools, missing out on ongoing learning, discussions, and networking opportunities. This limits user interaction beyond the functional use of the platform.

Competitor Benchmarking: Competitors like Productboard, Product School, and Airfocus have well-established communities where users not only engage with the product but also with

peers. These communities serve as knowledge-sharing hubs, creating high levels of user involvement and loyalty.

Market Trends: The product management industry increasingly values community-based platforms, where professionals can stay updated on industry trends, share

challenges, and seek advice. These communities also provide brands an opportunity to solidify their position as thought leaders.

Shorter Loop's Opportunity: There is a clear opportunity for Shorter Loop to address this gap by building a LinkedIn-based community that caters to its target audience, including product managers, aspiring PMs, and industry experts. This platform could provide value by facilitating peer-to-peer knowledge sharing, mentoring, and interactive learning.

Articulation of the Situation (with Respect to the Problem)

The product management landscape is characterized by rapid technological advancements and an increasing demand for agile, customer-focused solutions. In this environment, the role of a product manager is evolving, necessitating ongoing collaboration and knowledge sharing among professionals in the field.

Current Challenges for Shorter Loop:

Absence of Community Engagement:

Users are isolated and rely only on the product.

Lack of interaction limits sharing of insights and collaborative problem-solving.

Competitive Disadvantage:

Competitors like Productboard and Product School have thriving community ecosystems.

Shorter Loop's lack of community restricts growth potential and visibility.

Evolving User Expectations:

Professionals seek more than tools; they want access to networks, learning opportunities, and professional development.

Without a community, Shorter Loop risks falling behind in meeting these expectations.

Limited Thought Leadership:

Lack of community reduces the ability to position Shorter Loop as a thought leader.

Engaging discussions around best practices and trends can enhance brand recognition.

Problem Definition

Shorter Loop faces a significant challenge due to the lack of a robust community ecosystem, which hinders user engagement, knowledge sharing, and professional development in product management.

Key Points:

Isolation of Users: Users depend solely on the product, leading to a lack of peer support and shared learning.

Limited Brand Visibility: The absence of a community reduces market visibility, making it difficult to attract and retain users.

Inability to Meet Evolving Expectations: Product management professionals seek integrated experiences that include networking, education, and collaboration.

Underdeveloped Thought Leadership: The lack of community limits engagement in industry discussions, hindering Shorter Loop's position as a thought leader.

Project Objectives

The objectives of this white paper are:

Establish a Community Platform:

Create a vibrant LinkedIn community for product managers, aspiring PMs, and industry experts to connect and collaborate.

Foster User Engagement:

Implement strategies to enhance user interaction through discussions, knowledge sharing, and collaborative problem-solving.

Provide Valuable Content:

Develop a content strategy with blog posts, webinars, user testimonials, and industry reports to meet user needs.

Enhance Brand Visibility:

Position Shorter Loop as a go-to resource for product management insights, increasing brand awareness and attracting new users.

Meet Evolving User Expectations:

Deliver an integrated experience combining tools, networking, and continuous learning for added value beyond the product.

Encourage Thought Leadership:

Facilitate discussions on industry trends and challenges to establish Shorter Loop as a thought leader.

Measure and Refine Community Impact:

Track metrics related to user engagement and community growth, refining strategies to enhance member value.

Problem Execution

Conceptual Framework of the Study

The conceptual framework for this study outlines the strategic approach to establishing a robust community ecosystem for Shorter Loop, integrating various elements that contribute to community development, user engagement, and brand positioning within the product management industry.

Key Components:

Community Building:

Platform Selection: Utilize LinkedIn as the primary platform for community engagement, leveraging its professional focus to attract product managers and industry experts.

Community Structure: Define roles within the community (e.g., moderators, contributors, learners) to facilitate interactions and maintain a collaborative environment.

Engagement Strategies:

Interactive Formats: Implement discussions, Q&A sessions, and live webinars to encourage real-time interaction among members.

User-Generated Content: Promote sharing of user experiences, challenges, and solutions to foster a sense of belonging and ownership within the community.

Content Development:

Diverse Content Types: Create a mix of content, including educational blog posts, video tutorials, industry reports, and user testimonials, tailored to address the needs and interests of community members.

Content Calendar: Establish a comprehensive content calendar to ensure regular and relevant updates, keeping the community engaged and informed.

Metrics and Evaluation:

Engagement Metrics: Identify key performance indicators (KPIs) such as user participation rates, content engagement, and community growth to assess the effectiveness of strategies.

Feedback Mechanisms: Implement surveys and feedback forms to gather insights from community members, allowing for continuous improvement and adaptation of the community strategy.

Thought Leadership and Networking:

Expert Involvement: Invite industry leaders to participate in discussions, webinars, and panel sessions, enhancing the credibility of the community and providing valuable insights to members.

Networking Opportunities: Facilitate connections between community members through virtual meetups and discussion threads, promoting professional relationships and collaboration.

Inclusivity and Diversity:

Diverse Representation: Ensure the community encourages participation from individuals across various industries, backgrounds, and roles, promoting a rich exchange of ideas and perspectives.

CSR Initiatives: Integrate discussions around corporate social responsibility (CSR) and ethical practices in product management to foster a socially conscious community.

3.2(a) Identification of Data Source

Competitor Analysis:

SWOT Analysis: Conducted SWOT analyses of competitor brands and their products to understand their strengths, weaknesses, opportunities, and threats.

Negative Reviews: Collected negative reviews about competitors to identify areas where Shorter Loop can improve and differentiate itself.

Post-Frequency Breakdown:

Social Media Engagement: Analyzed the frequency of social media posts from competitors to gauge their engagement strategies and the types of content that resonate with their audiences.

Community Analysis:

User Engagement Metrics: Reviewed existing communities and their engagement levels to identify successful practices and potential gaps in the market for Shorter Loop to address.

Content Calendar:

Content Strategy Development: Developed a content calendar for the community page based on user interests and competitor content performance to ensure relevant and timely updates.

User Testimonials:

Feedback from Current Users: Gathered user testimonials about Shorter Loop to highlight positive experiences and areas for improvement in the community context.

Industry Trends and Best Practices:

Research on Product Management Trends: Sourced industry reports and best practices related to product management to inform content creation and community engagement strategies.

3.2(b) Extract Relevant Information

To develop the community ecosystem for Shorter Loop, the following key insights were extracted from various data sources:

Competitor Insights:

SWOT Analysis:

Strengths: Established brands with loyal user bases.

Weaknesses: Gaps in personalized content and community support.

Opportunities: Trends in remote work and digital transformation.

Threats: Rapid tech changes and evolving user expectations.

User Feedback:

Negative Reviews: Highlighted issues like poor support and insufficient engagement, indicating a need for strong user support and educational resources in Shorter Loop's community.

Social Media Engagement:

Post Frequency: Regular posting (daily or weekly) enhances user interaction, informing Shorter Loop's content schedule.

Content Preferences:

User Testimonials: Users value educational content and community interactions, suggesting a focus on valuable resources.

Industry Trends:

Networking and Learning: Emphasizes the importance of fostering networking and mentorship within the community.

Engagement Strategies:

Successful communities utilize diverse content formats and encourage user-generated content to boost engagement.

3.3 Analysis of Data

The analysis of data extracted from the PowerPoint presentation provides crucial insights into the development of a community ecosystem for Shorter Loop. The findings focus on competitor performance, user engagement metrics, content effectiveness, and overall community potential.

Key Areas of Data Analysis:

Competitor Analysis:

SWOT Analysis:

Competitors such as Productboard, Product School, and Airfocus demonstrate established strengths in user engagement and brand loyalty.

Weaknesses in competitors include limited community interaction and inadequate educational resources, indicating opportunities for Shorter Loop to offer superior community support and engagement.

Social Media Post Frequency:

Engagement Trends:

The post-frequency breakdown reveals that competitors who maintain a consistent posting schedule see higher engagement rates. This highlights the importance of a regular content calendar for Shorter Loop to sustain user interest and participation.

User Testimonials:

Feedback Insights:

User testimonials collected highlight the desire for educational resources, community interaction, and mentorship opportunities. This feedback underscores the necessity for Shorter Loop to focus on delivering valuable content and fostering a collaborative environment.

Negative Reviews About Competitors:

Common Themes:

An analysis of negative reviews indicates that users are dissatisfied with the lack of community engagement and support from competitors. Shorter Loop can capitalize on these gaps by prioritizing user support and creating a vibrant community atmosphere.

Community Analysis:

Engagement Metrics:

The analysis of community engagement metrics demonstrates that successful communities actively promote user-generated content and facilitate discussions. Implementing similar strategies can enhance engagement within Shorter Loop's community.

Content Calendar Development:

Strategic Planning:

The content calendar created for the community page is designed to include diverse content types—such as blog posts, webinars, and user testimonials—that address the needs and interests of the target audience, ensuring relevance and engagement.

Results and Findings

Alternative Solutions Generated

In developing a robust community ecosystem for Shorter Loop, several alternative solutions were considered to address the challenges identified. Each solution presents unique strategies to enhance user engagement, foster knowledge sharing, and position Shorter Loop effectively in the product management space.

Standalone Community Platform: Create an independent online forum dedicated to product management discussions and resources.

Enhanced LinkedIn Community: Build a vibrant community on LinkedIn to leverage its existing user base and professional networking features.

Webinar and Workshop Series: Organize regular webinars and workshops featuring industry experts on relevant product management topics.

Mentorship Program: Establish a mentorship initiative pairing experienced product managers with newcomers for guidance and support.

User-Generated Content Initiatives: Encourage users to contribute content, such as articles and case studies, sharing their experiences and insights.

Interactive Challenges and Case Studies: Create interactive challenges or case studies for community members to collaboratively solve real-world product management scenarios.

Proposed Solution & Justification

Proposed Solution: Develop a LinkedIn Community Page for Shorter Loop **Justification:**

Alignment with Objectives:

There is a clear need for a community to educate users and share best practices in product management. A LinkedIn community page provides a platform where users can engage, learn, and share insights.

Existing Community Engagement:

User engagement is crucial and can be enhanced through direct interaction via discussions, comments, and content sharing, fostering a collaborative environment.

Competitor Analysis Insights:

Competitors with established communities, such as Productboard and Product School, enjoy higher user loyalty and engagement. Creating a LinkedIn community allows Shorter Loop to capitalize on this model and strengthen its competitive positioning.

Content Strategy Implementation:

A content calendar for community engagement supports the implementation of diverse content types (such as blog posts, webinars, and user testimonials), catering to the varied interests of product managers.

User-Generated Content Opportunities:

The potential for user-generated content can significantly enhance engagement. A LinkedIn community page encourages members to share their experiences, fostering a sense of ownership and increasing interaction.

Visibility and Networking:

Enhancing brand visibility is essential. A LinkedIn community leverages the platform's professional network, making it easier to attract new users and boost Shorter Loop's visibility in the product management space.

Measurable Engagement Metrics:

Tracking user engagement is necessary for success. LinkedIn provides analytics tools to measure community performance, allowing Shorter Loop to refine strategies based on user interaction and feedback.

Conclusion

Recommendations

Establish a Regular Content Schedule:

Create and maintain a consistent posting schedule on the LinkedIn community page, including various content types such as articles, webinars, polls, and user testimonials to keep users engaged and informed.

Encourage Active Participation:

Foster a culture of engagement by encouraging community members to share their experiences, ask questions, and contribute content. This could include setting up discussion threads or challenges that prompt interaction.

Utilize Industry Experts:

Invite industry leaders and product management experts to participate in live Q&A sessions or webinars. Their involvement can provide valuable insights and enhance the credibility of the community.

Implement Feedback Mechanisms:

Regularly solicit feedback from community members to understand their needs and preferences. This can be done through surveys, polls, or feedback forms, allowing for continuous improvement of community offerings.

Highlight User Success Stories:

Feature success stories and case studies from community members to inspire others and showcase the value of the community. This can help build trust and encourage more users to engage.

Create Specialized Sub-Groups:

Consider forming sub-groups within the LinkedIn community for specific areas of interest (e.g., product marketing, user research). This allows for more targeted discussions and networking opportunities.

Promote Networking Opportunities:

Organize virtual meetups or networking events to help community members connect with each other. This can enhance relationships and promote collaboration among product management professionals.

Monitor and Analyze Engagement Metrics:

Use LinkedIn's analytics tools to monitor community engagement metrics, such as post interactions and member growth. Regularly analyze this data to identify trends and areas for improvement.

Integrate Educational Resources:

Provide access to valuable educational resources, such as e-books, articles, and online courses related to product management, to enhance the learning experience for community members.

Foster Inclusivity and Diversity:

Ensure that the community is welcoming and inclusive by promoting diversity in discussions and encouraging participation from individuals across different backgrounds and experiences. This enriches the community and fosters a broader exchange of ideas.

Limitations

Dependence on External Platforms:

The plan relies on LinkedIn as the primary platform for community engagement. Any changes to LinkedIn's policies or algorithms could impact the community's visibility and engagement.

User Engagement Variability:

User engagement may vary widely among community members, with some being highly active and others remaining passive. This disparity can lead to uneven participation and a less dynamic community.

Content Moderation Requirements:

Effective content moderation is essential to maintain quality discussions. As the community grows, managing and moderating content can become increasingly challenging, requiring additional resources.

Limited Customization Options:

Utilizing LinkedIn may limit the ability to customize the community experience. Shorter Loop may not have full control over community features and functionality, impacting user experience.

Competition with Established Communities:

The presence of established competitors with active communities poses a challenge. Attracting users to Shorter Loop's community may require significant marketing efforts to differentiate itself.

Resistance to Change:

Existing users might be resistant to adopting the community approach, particularly if they are accustomed to traditional methods of interaction with Shorter Loop's products and services.

Resource Allocation:

Building and maintaining an active community requires dedicated resources, including time, personnel, and budget. Limited resources could hinder the execution of community initiatives and content creation.

Complexity in Measuring Success:

While tracking user engagement is important, analyzing and interpreting metrics effectively can be complex. Identifying the most effective strategies may require more detailed analytics.

Cultural and Global Considerations:

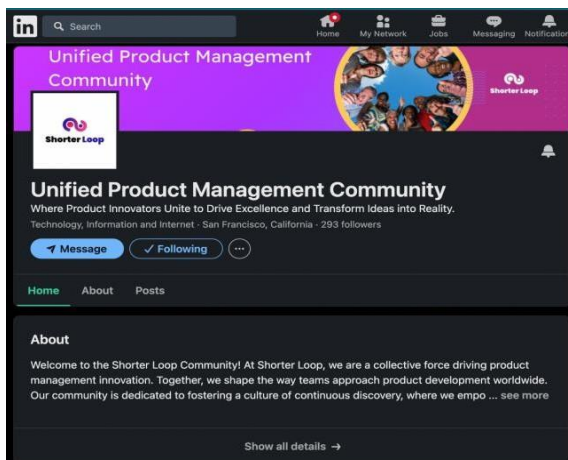
Engaging a diverse, global audience may present challenges related to cultural differences and time zone variances, potentially impacting participation and interaction.

Risk of Content Saturation:

The community could face the risk of content saturation, where users may feel overwhelmed by the volume of posts and discussions, leading to decreased engagement and interest over time.

Annexure

Community Pages Screenshot



Competitor Analysis

ShorterLoop Competitors						
File Edit View Insert Format Data Tools Extensions Help						
100% 123 Default... 11						
All Competitors						
A	B	C	D	E	F	G
1	Competitors	Website	Founded in	Funding	Company Size	LinkedIn Followers
2	Perisic	https://www.perisic.io/	2013	\$100 Million	501-1K	80K
3	AHA	https://www.aha.io/	2013	Bootstrapped	51-200	100K
4	Productplan	https://www.productplan.com/	2013	1 round of private equity	51-200	31K
5	Dragonboat	https://dragonboat.ai/	2018	Series A \$12M	11-50	9K
6	Zeda	https://zedai.io/	2020	\$1.6 Million	11-50	17K
7	Alana	https://alana.com/	2008	\$403 Million - 5 Rounds of Funding	1K-5K	425K
8	Atlassian	https://www.atlassian.com/	2002	\$210 Million - 2 Rounds	5K-10K	2M
9	Prodpad	https://www.prodpad.com/	2012	\$6.94 Billion	11-50	6K
10	Miro	https://miro.com/	2011	\$420 Million	1K-5K	407K
11	Productboard	https://www.productboard.com/	2014	\$125M	201-500	88K
12	Clickup	https://clickup.com/?utm_source=google&utm_medium=cpc	2017	\$400 Million	501-1000	125K
13	Craft	https://craft.ai/	2017	Series B 12 Million	11-50	3K
14	Uservoice	https://www.uservoice.com/	2008	\$7.5M	11-50	14K
15	Arttable	https://www.arttable.com/solutions/product	2012	\$730M	501-1000	141K
16	Product Alliance	https://www.productalliance.com/	2019	Data not found	11-50	1K
17	Product fish	https://www.theproductfish.com/	2019	N/A	2-10	1K
18	Productspec	https://productspec.co.nz/	2006	\$41 Million	11-50	427
19	IBM Targetprocess	https://www.ibm.com/targetprocess/	2004	IBM-owned product	500-1000	59K

SWOT Analysis



Social Media Post Frequency Breakdown

SM Frequency of Competitors:

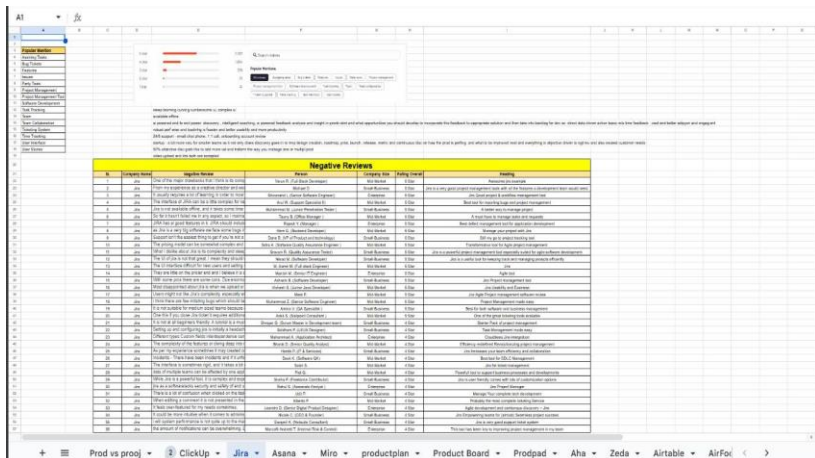
Company: Pendo

Founded in-2013

Post Frequency

LinkedIn	Instagram	Facebook
Quite frequently (once a day; sporadically on other days)	Once in 7 weeks more (sporadic, but frequent at times)	At least 1 post per day, but not consistent
Services offered by Pendo (post with caption & image).	Events held (pre- and post coverage; carousel post with caption & images).	Services offered by Pendo (post with caption & image).
Courses they teach (post with caption & image).	Reets on significant days and Pendo's services.	General industry trends, issues and relevant data (post with caption & image).
Events held by Pendo (pre- and post coverage; post with caption & image).	Anniversary & significant days (carousel posts with caption and images).	Events held by Pendo (pre- and post coverage; post with caption & image).
General industry trends, issues and relevant data (post with caption & image).		Courses they teach (post with caption & image).
Blogs on various relevant topics (post with caption & image).		Blogs on various relevant topics (post with caption & image).
Success stories (post with caption & image).		Videos on significant days and Pendo's services (as a video with caption).
Industry rankings and performance metrics.		

Negative Reviews about Competitors Breakdown



AUTHORS



Avanish Chandra



Arghya Acharya



Praveena P



Rohitha B



Tatini Mandal

*This Whitepaper is based on a capstone project undertaken by **Avanish Chandra, Arghya Acharya, Praveena P, Rohitha B, And Tatini Mandal** as a requirement for the fulfilment of the Career Track Program in Martech offered at Jagdish Sheth School of Management.*

