

GUIDE TO FEW BUSINESS ANALYSIS TECHNIQUES WITH SOLVED CASE STUDY

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SIPOC ANALYSIS

SIPOC analysis is a tool used in process improvement methodologies, particularly in Six Sigma, Lean Management, and Total Quality Management. SIPOC is an acronym that stands for Suppliers, Inputs, Process, Outputs, and Customers. This tool helps in understanding a process by defining a clear scope and identifying key elements of a process before it is improved or analyzed in detail.

CASE STUDY:

"Delightful Bites," a popular restaurant chain, is experiencing challenges in maintaining consistent food quality and customer service across its various locations. The management has noticed discrepancies in customer satisfaction and operational efficiency among different branches.

Objective:

To standardize operations, ensure consistent food quality, and enhance overall customer satisfaction across all branches.

Task for Business Analysts:

Conduct a SIPOC (Suppliers, Inputs, Process, Outputs, and Customers) analysis to identify key areas for improvement in Delightful Bites' operational processes.

SIPOC Analysis of Delightful Bites

1. Suppliers:

Food Suppliers: Provide raw ingredients.

Beverage Suppliers: Offer a range of beverages.

Equipment Suppliers: Supply kitchen and service equipment.

Cleaning Service Providers: Ensure hygiene and cleanliness.

2. Inputs:

Raw Ingredients: Essential for meal preparation.

Customer Orders: Specific food and beverage orders from customers.

Staff Skills: The abilities and training of the kitchen and service staff.

Operational Guidelines: Standard operating procedures for food preparation and service.

3. Process:

Order Taking: Receiving orders from customers.

Meal Preparation: Cooking and preparing meals as per order.

Quality Check: Ensuring the meal meets the standard quality.

Service: Serving the meal to the customer.

Feedback Collection: Gathering customer feedback post-meal.

4. Outputs:

Prepared Meals: Food that is served to customers.

Customer Service Experience: The overall dining experience of the customer.

Feedback Reports: Compiled customer feedback for analysis.

Waste Management: Handling of food and material waste.

5. Customers:

Diners: Individuals or groups dining at the restaurant.

Online Customers: Customers ordering food online for delivery or pickup.

ROOT CAUSE ANALYSIS

Root cause analysis (RCA) is a systematic process used to identify the underlying or fundamental causes of a problem or issue. The primary goal of RCA is to determine not just what and how an event occurred, but why it happened. By understanding the root cause, steps can be taken to prevent recurrence of similar issues in the future.

CASE STUDY:

GreenTech Manufacturing, a company specializing in renewable energy equipment, has recently experienced a noticeable drop in productivity. This decline is affecting their ability to meet customer orders on time and is starting to harm their reputation in the industry. The company's leadership has asked the business analysis team to conduct a root cause analysis to understand and address this issue.

Scenario:

In the past three months, GreenTech Manufacturing's productivity has decreased by 20%. This change is unexpected as there have been no major shifts in company operations, employee structure, or management. The decrease in productivity is leading to delayed order fulfillment and increased operational costs.

Data Available:

Employee Reports: Indicating low morale and motivation.

Production Data: Showing increased machine downtime and maintenance issues.

Financial Reports: Recent budget cuts in equipment upgrades and training programs.

Customer Feedback: Complaints about delayed order fulfillment and product quality.

HR Reports: No significant changes in employee turnover or absenteeism.

Task for Business Analysts:

Using the 5 Whys technique, perform a root cause analysis to determine why GreenTech Manufacturing is experiencing a drop in productivity. Visualize the same using Fish Bone Diagram.

5 Whys Analysis:

1st Why: Why has GreenTech Manufacturing's productivity decreased?

There is increased machine downtime and maintenance issues, along with low employee morale.

2nd Why: Why is there increased machine downtime and maintenance issues?

The machinery is not being maintained properly and is becoming less efficient.

3rd Why: Why is the machinery not being maintained properly?

The company has recently cut budgets for equipment maintenance and upgrades.

4th Why: Why were budgets for equipment maintenance and upgrades cut?

The company was trying to reduce operational costs due to financial constraints.

5th Why: Why is the company facing financial constraints leading to cost-cutting?

There seems to be a lack of effective financial planning and market strategy to balance costs with necessary investments in equipment and employee well-being.

Root Cause:

The root cause of the productivity drop at GreenTech Manufacturing is inadequate financial planning and market strategy, leading to budget cuts in critical areas such as equipment maintenance and employee support, which in turn affects machine efficiency and employee morale.

Recommendations:

Reassess Financial Strategy: Conduct a thorough review of the financial strategy, focusing on balancing cost-cutting measures with necessary investments in equipment and workforce.

Invest in Equipment Maintenance: Reallocate or secure funds to ensure regular and adequate maintenance of machinery to reduce downtime.

Employee Engagement Programs: Develop programs to boost employee morale and motivation, possibly including training opportunities, recognition programs, and feedback mechanisms.

Market Analysis and Adaptation: Conduct a comprehensive market analysis to understand current challenges and opportunities, adapting the business strategy accordingly.

Continuous Improvement Process: Implement a continuous improvement process to regularly assess and address issues in production, maintenance, and workforce management.

Fishbone Diagram for Productivity Drop at GreenTech Manufacturing:

The fishbone diagram starts with the problem statement at the "head" of the fish. In this case, the problem is the "Productivity Drop." From the head, a horizontal line is drawn, representing the "spine" of the fish. Branching off the spine are several

"bones," each representing a category of potential causes. Common categories include Methods, Machines, People, Materials, Measurements, and Environment, but these can be adapted to fit the specific scenario.

For GreenTech Manufacturing, we might categorize the causes as follows:

Processes and Workflow (Methods):

Inefficient Production Processes: Outdated or inefficient manufacturing processes.

Maintenance Procedures: Inadequate maintenance procedures leading to increased machine downtime.

Equipment and Technology (Machines):

Machinery Age and Condition: Older or poorly maintained equipment leading to inefficiencies.

Technological Upgrades: Lack of investment in modern technology that could improve productivity.

Human Resources (People):

Employee Morale: Low morale and motivation among employees.

Staffing Levels: Insufficient staffing to handle the workload effectively.

Materials and Resources:

Quality of Raw Materials: Subpar quality of materials affecting the production process.

Supply Chain Issues: Delays or inconsistencies in the supply chain impacting production.

Policies and Management (Measurements):

Workforce Management: Inadequate workforce planning and management.

Performance Metrics: Lack of effective performance measurement and feedback systems.

External Factors (Environment):

Market Demand: Fluctuations in market demand affecting production planning.

Economic Conditions: Economic factors that may impact operational costs and investments.

Each "bone" of the fishbone diagram represents a different potential cause of the productivity drop at GreenTech Manufacturing. By exploring each category, the company can identify multiple contributing factors.

GAP ANALYSIS

Gap Analysis is a methodical approach used to compare the current state of a business or process with its desired or potential state. By identifying the gaps — the areas where the business is falling short of its objectives — this analysis helps in understanding the necessary steps to move from the present condition to the envisioned future state.

CASE STUDY:

Project: "Optimizing Fleet Equipment Utilization"

Background: The company, "Alpha Logistics," is a large-scale logistics and transport organization with a diverse fleet of equipment ranging from trucks, vans, forklifts, and cranes. Over the past two years, there has been a noticeable decrease in the overall utilization of the fleet, leading to increased operational costs and stagnant assets.

Objective: To conduct Gap Analysis

GAP Analysis

Conducting a gap analysis for the "Optimizing Fleet Equipment Utilization" project involves assessing the current state of fleet management operations at Alpha Logistics and comparing it against the desired, optimal state. The purpose of this analysis

is to identify the gaps or deficiencies that are hindering the efficient utilization of fleet equipment.

1. Define the Desired State:

The desired state in this project is a situation where fleet equipment is maximally utilized, operational costs are minimized, maintenance is efficiently scheduled, and idle time is significantly reduced. This also includes an agile and responsive scheduling system capable of adapting to dynamic business needs.

2. Analyze the Current State:

Fleet Utilization Rates: Utilization rates are lower than the industry average, indicating inefficient use of assets.

Maintenance Scheduling: The current maintenance scheduling is reactive rather than predictive, leading to increased downtimes.

Scheduling System: The existing scheduling system is manual, leading to delays and suboptimal allocation of fleet resources.

Data Analysis Capability: Limited analytics capacity to predict trends or optimize fleet deployment strategies.

Stakeholder Communication: Fragmented communication channels between the operations team, maintenance team, and fleet managers.

3. Identify the Gaps:

Utilization Gap: There's a significant gap between the current and desired utilization rates.

Maintenance Approach: Lack of a predictive maintenance system leading to unplanned downtimes and inefficient use of resources.

Technology Gap: The absence of an AI-driven scheduling tool is a major gap in achieving optimized fleet allocation.

Data Utilization: Inefficient use of available data for strategic decision-making.

Communication Inefficiency: Poor communication channels affecting the rapid deployment and reassignment of fleet resources.

4. Determine the Reasons for the Gaps:

Technological Limitations: The existing manual processes and lack of advanced tools are primary reasons for inefficiencies.

Process Inefficiencies: Current processes are not streamlined for maximum efficiency.

Skill Gaps: Staff may lack training in utilizing modern fleet management practices.

Resource Constraints: Limited resources allocated for predictive maintenance and data analytics.

5. Develop Recommendations to Bridge the Gaps:

Implement an AI-Driven Scheduling System: To optimize fleet allocation and reduce manual intervention.

Adopt Predictive Maintenance: Using machine learning models to predict and schedule maintenance, thus reducing downtime.

Enhance Data Analytics Capabilities: Utilize tools like Power BI for deeper insights into fleet operations and to make data-driven decisions.

Improve Communication Channels: Implement a centralized communication platform for better coordination among different teams.

Staff Training: Conduct regular training sessions for staff to familiarize them with new technologies and processes.

6. Create an Action Plan:

Develop a detailed plan to implement these recommendations, including timelines, resource allocation, and milestones.

7. Monitor and Review:

Continuously monitor the progress post-implementation and compare it with the set goals. Adjust strategies as needed based on feedback and performance metrics.

CATWOE ANALYSIS

David Smyth invented the CATWOE method in 1975. He defined six problem-solving elements, which he integrated into the acronym CATWOE. In the words of Peter Checkland, CATWOE is an essential checklist that can be used to encourage problem-solving thinking.

The CATWOE Analysis is a robust problem-solving method that analyzes the larger view of the business to help professionals make decisions and define strategies. CATWOE is the acronym for Clients, Actors, World view, Owners, and Environment.

CASE STUDY:

Implementation of CRM System in a Retail Company

1. Customers

Who are they? The customers in this case are the retail company's shoppers.

Impact on them: The new CRM system aims to improve customer experience by personalizing marketing, enhancing customer service, and streamlining the shopping process.

2. Actors

Who are they? Actors are the employees of the retail company, including sales staff, marketing teams, and IT support.

Role: They are responsible for using the CRM system to manage customer interactions, analyze data, and implement marketing strategies.

3. Transformation Process

What is it? The transformation process is the change from the current state of customer relationship management to a more advanced, system-driven approach.

How it's achieved: By integrating customer data, automating marketing processes, and providing better analytics for decision-making.

4. Worldview

What is it? The underlying belief or understanding that makes the CRM system meaningful and necessary.

In this case: The belief is that a more data-driven, customer-centric approach will lead to increased customer satisfaction, loyalty, and sales.

5. Owner

Who is it? The owner is the retail company's management or the stakeholders who have the authority and responsibility for the CRM system.

Their role: To ensure the system meets business objectives, allocate resources, and oversee implementation.

6. Environmental Constraints

What are they? These are external factors that can affect the implementation and performance of the CRM system.

Examples: Market trends, data privacy laws, technological advancements, and competitive landscape.

SWOT ANALYSIS

SWOT (strengths, weaknesses, opportunities, and threats) analysis is a framework used to evaluate a company's competitive position and to develop strategic planning. SWOT analysis assesses internal and external factors, as well as current and future potential.

A SWOT analysis is designed to facilitate a realistic, fact-based, data-driven look at the strengths and weaknesses of an organization, initiatives, or within its industry. The organization needs to keep the analysis accurate by avoiding pre-conceived beliefs or gray areas and instead focusing on real-life contexts. Companies should use it as a guide and not necessarily as a prescription.

CASE STUDY:

TechGenius Inc., founded in 2010, is a leading software development company based in Silicon Valley. The company focuses on creating cutting-edge business solutions, including cloud services, AI-driven analytics, and customized enterprise software.

Current Situation

TechGenius has recently developed "SmartBiz Suite," a comprehensive software package designed to streamline business operations. The suite includes tools for project management, customer relationship management (CRM), and predictive analytics.

Objective

TechGenius aims to become the go-to provider of business software solutions for medium to large enterprises globally.

Challenges

Increasing competition from both established players and new startups.

Rapid technological changes requiring constant innovation.

Scaling customer support as the user base grows.

SWOT Analysis for TechGenius Inc.

Strengths (Internal, Positive Factors)

Innovation: Strong focus on R&D, leading to cutting-edge products.

Brand Reputation: Known for quality and reliability in the tech industry.

Skilled Workforce: Talented pool of engineers and developers.

Weaknesses (Internal, Negative Factors)

Resource Allocation: High R&D costs impacting profitability.

Limited Global Presence: Predominantly focused on the North American market.

Dependency on a Few Large Clients: Revenue is heavily reliant on key clients.

Opportunities (External, Positive Factors)

Market Expansion: Potential to expand into emerging markets.

Strategic Partnerships: Collaborations with other tech firms could open new avenues.


Diversification: Opportunity to develop new products for different sectors.

Threats (External, Negative Factors)

Competitive Market: Intense competition from both established firms and agile startups.

Technological Advancements: Need to continuously adapt to new tech trends.

Economic Fluctuations: Global economic uncertainties can impact investment in new tech solutions.



PESTLE ANALYSIS

PESTLE is a mnemonic which, in its expanded form, denotes P for Political, E for Economic, S for Social, T for Technological, L for Legal, and E for Environmental. It gives a bird's eye view of the whole environment from many different angles that one wants to check and keep track of while contemplating a certain idea/plan.

CASE STUDY:

Aloha Solar Energy, Inc. is a fictional company based in Hawaii, specializing in solar energy solutions. They've been operational for 10 years and are considering expanding their business to the mainland United States.

Objective

To explore the feasibility and potential strategies for Aloha Solar Energy's expansion to the mainland U.S. market.

PESTLE Analysis

PESTLE analysis is a tool used to analyze the macro-environmental factors that may impact an organization. It stands for Political, Economic, Social, Technological, Legal, and Environmental factors.

Political:

Federal and State Policies: Analyze the impact of renewable energy policies, subsidies, and tax incentives.

Trade Policies: Consider the effect of import tariffs on solar panels and international trade agreements.

Economic:

Market Growth: Assess the growth potential of the solar energy market in the mainland U.S.

Economic Stability: Consider the impact of economic cycles on investment and consumer spending.

Social:

Public Awareness: Evaluate the level of public awareness and acceptance of renewable energy.

Demographic Trends: Analyze population growth in potential market areas.

Technological:

Innovations in Solar Technology: Stay abreast of new technologies that could impact product offerings.

Digital Transformation: Assess the role of digital marketing and online sales platforms.

Legal:

Regulatory Compliance: Ensure compliance with federal and state regulations regarding solar installations.

Intellectual Property: Protect patents and trademarks, especially in a new market.

Environmental:

Sustainability Practices: Emphasize eco-friendly practices in operations and marketing.

Climate Change: Consider how changing weather patterns could affect solar energy production.

RAID ANALYSIS

RAID analysis is a project planning technique for identifying key project Risks (R), Assumptions (A), Issues (I), and Dependencies (D). Project teams should complete an initial analysis at the beginning of the project and then monitor the issues via a RAID Log.

CASE STUDY:

Aloha Tech Innovations, a mid-sized tech company in Honolulu, specializes in developing innovative software solutions for the tourism industry. Their latest project is a mobile app, "Island Navigator," designed to enhance the travel experience for tourists in Hawaii.

Objective

To create a user-friendly app that provides real-time information on local attractions, weather, cultural events, and navigation assistance, thereby improving the overall tourist experience in Hawaii.

Approach

Research: Conducted surveys and focus groups with tourists and local businesses to understand their needs.

Development: Agile methodology was used for rapid development and iterative testing.

Partnership: Collaborated with local businesses and tourism boards for content and promotion.

Technology: Integrated AI for personalized recommendations and AR for interactive experiences.

Results

Launched successfully with 50,000 downloads in the first month.

Positive feedback from 85% of users for enhancing their travel experience.

Increased engagement with local businesses by 40%.

Awarded "Best Travel App of the Year" by Hawaii Tech Awards.

Challenges

Navigating diverse user requirements.

Ensuring real-time data accuracy.

Balancing commercial interests with user experience.

Future Plans

Expand to other tourist destinations.

Introduce multi-language support.

Integrate sustainable tourism practices into the app.

RAID Analysis of Aloha Tech Innovations

Risks

Market Competition: Other travel apps could offer similar features.

Technological Changes: Rapid changes in tech could make the app obsolete.

Data Privacy Concerns: Handling user data securely and ethically.

Assumptions

User Engagement: Assuming tourists will prefer using an app for travel information.

Local Business Support: Assuming continued collaboration with local businesses.

Stable Internet Connectivity: Essential for real-time updates and app functionality.

Issues

Resource Limitations: Limited staff and budget could affect app development and updates.

Cultural Sensitivity: Ensuring the app respects and accurately represents local cultures.

Dependencies

Tourist Flow: The app's success is highly dependent on the number of tourists visiting Hawaii.

Tech Partnerships: Dependence on third-party services for AR and AI features.

Regulatory Compliance: Adherence to local and international data protection laws.

PARETO ANALYSIS

Pareto analysis is premised on the idea that 80% of a project's benefit can be achieved by doing 20% of the work—or, conversely, 80% of problems can be traced to 20% of the causes. Pareto analysis is a powerful quality and decision-making tool. In the most general sense, it is a technique for getting the necessary facts needed for setting priorities.

CASE STUDY:

A manufacturing plant specializing in automotive parts has been facing challenges in meeting its production targets. The management is concerned about the increasing number of defective parts and overall inefficiency in the production process.

Objective

To identify the major causes of inefficiency and defects in the production process and implement solutions to improve overall productivity and quality.

Methodology: Pareto Analysis

Pareto Analysis, also known as the 80/20 rule, is a technique used to identify the most significant factors contributing to a particular issue. It's based on the principle that roughly 80% of effects come from 20% of the causes.

Data Collection

Data was collected over a period of three months, focusing on:

Number of defective parts produced.

Time delays in production.

Machine breakdowns.

Worker absenteeism.

Pareto Analysis

Categorization: The problems were categorized into four major groups: Defective Parts, Time Delays, Machine Breakdowns, and Worker Absenteeism.

Frequency Count: The frequency of each issue was recorded.

Analysis: The data was then analyzed to determine which categories were responsible for most of the production issues.

Findings

The Pareto Analysis revealed that:

70% of defects were due to machine breakdowns.

15% were due to worker absenteeism.

10% were due to time delays.

5% were due to other miscellaneous factors.

Conclusion

The analysis indicated that focusing on reducing machine breakdowns could significantly improve the production efficiency and quality of the automotive parts.

Action Plan

Implement a regular maintenance schedule for machines.

Train staff on machine operation and maintenance.
Develop a backup plan for machine breakdowns.

Expected Outcome

By addressing the primary cause of defects and inefficiencies, the plant expects to see a 50% reduction in defective parts and a 20% increase in overall production efficiency within six months.