817 ASIGNMENT 3

NAME: OLADIMEJI EMMANUEL ALADEROKUN

MATRIC NO: 219047012

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1.

By analyzing this CLD, we can see that improving Quality and Functionality can positively impact Product Attractiveness, while increasing Price and Delivery Delay can negatively impact it. This understanding can help a company make strategic decisions to improve their product's overall attractiveness to customers.

The link polarities indicate the direction of the relationship between each pair of variables. For example, quality has a positive polarity with product attractiveness, indicating that higher quality products will increase the attractiveness of the product. On the other hand, price premium has a negative polarity with product attractiveness, indicating that higher prices will decrease the attractiveness of the product.

The feedback loops that might be created are:

Quality Loop (Positive Feedback Loop): Higher quality products lead to higher product attractiveness, which leads to increased demand for the firm's product. Increased demand leads to higher sales, which can be used to invest in improving the quality of the product. This loop reinforces the positive impact of quality on product attractiveness and demand.

Price Loop (Negative Feedback Loop): Higher prices decrease product attractiveness, which leads to decreased demand for the firm's product. Decreased demand leads to lower sales, which can force the firm to lower its prices to maintain its market share. This loop creates a balancing effect on the negative impact of price on product attractiveness and demand.

Delivery Loop (Negative Feedback Loop): Longer delivery delays decrease product attractiveness, which leads to decreased demand for the firm's product. Decreased demand leads to lower sales, which can force the firm to invest in improving its delivery system to maintain its market share. This loop creates a balancing effect on the negative impact of delivery delay on product attractiveness and demand.

Functionality Loop (Positive Feedback Loop): Higher functionality leads to higher product attractiveness, which leads to increased demand for the firm's product. Increased demand leads to higher sales, which can be used to invest in improving the functionality of the product. This loop reinforces the positive impact of functionality on product attractiveness and demand.

2.

A.

The link polarities indicate the direction of the relationship between each pair of variables. Here are the polarities for the links:

Market Attractiveness and Number of Competitors: Negative polarity. As the number of competitors increases, market attractiveness decreases because customers have more options to choose from.

Number of Competitors and Price Sensitivity: Positive polarity. As the number of competitors increases, price sensitivity also increases because customers have more options to compare prices.

Price Sensitivity and Price: Negative polarity. As price sensitivity increases, the impact of price on customer demand also increases. Higher prices lead to lower demand, while lower prices lead to higher demand.

Price and Profits: Positive polarity. As prices increase, profits also increase (assuming costs remain constant), because each unit sold generates more revenue.

The feedback loops that might be created are:

Market Attractiveness Loop (Positive Feedback Loop): Higher market attractiveness leads to increased demand for the firm's product, which leads to higher profits. Higher profits can then be reinvested to improve the firm's products, marketing, or distribution, which increases market attractiveness further. This loop reinforces the positive impact of market attractiveness on profits.

Competition Loop (Negative Feedback Loop): As the number of competitors increases, market attractiveness decreases, leading to lower profits. Lower profits can lead to some competitors leaving the market, which decreases the number of competitors, increasing market attractiveness and profits. This loop creates a balancing effect on the negative impact of the number of competitors on market attractiveness and profits.

Price Loop (Negative Feedback Loop): As prices increase, profits increase, but higher prices also lead to lower demand, which can decrease profits. Lower profits can then lead to lower prices, which increases demand and profits again. This loop creates a balancing effect on the negative impact of price on demand and profits.

Attractiveness of market → Number of competitors (-)

Number of competitors → Price (-)

Price → Profits (+)

Profits → Number of competitors (+)

Number of competitors → Attractiveness of market (+)

B.

The link polarities indicate the direction of the relationship between each pair of variables. Here are the polarities for the links:

Cumulative Production and Unit Costs: Negative polarity. As cumulative production increases, unit costs decrease due to economies of scale.

Unit Costs and Price: Positive polarity. As unit costs increase, the price must also increase to maintain profit margins.

Price and Market Share: Negative polarity. As the price increases, market share decreases because fewer customers are willing to buy the product.

The feedback loops that might be created are:

Cost Loop (Negative Feedback Loop): As cumulative production increases, unit costs decrease, which allows for a lower price. Lower prices can lead to increased market share, which leads to higher cumulative production. This loop creates a balancing effect on the negative impact of unit costs on price and market share.

Price Loop (Positive Feedback Loop): As the price increases, the profit margin increases, which can be used to invest in marketing and advertising to increase market share. Increased market share leads to higher cumulative production, which decreases unit costs, allowing for a lower price. This loop

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There is a loop between cumulative production, unit costs, price, and market share. The loop works as follows:

As cumulative production increases, unit costs decrease (negative link).

Decreased unit costs allow for a lower price (positive link).

As price decreases, market share increases (positive link).

As market share increases, cumulative production also increases (positive link).

As cumulative production increases, unit costs decrease even further (negative link), which completes the loop.

So we can label the loop as follows:

Cumulative production → Unit costs (-)

Unit costs → Price (+)

Price → Market share (+)

Market share → Cumulative production (+)

Cumulative production → Unit costs (-)

C

The pressure to clean up the environment and cleanup efforts are typically positively correlated. This means that as the pressure to clean up the environment increases, more cleanup efforts are typically made. So we can label the link between pressure to clean up the environment and cleanup efforts as positive (+).

Cleanup efforts and environmental quality are also typically positively correlated. This means that as more cleanup efforts are made, the environmental quality usually improves. So we can label the link between cleanup efforts and environmental quality as positive (+).

There is a loop between pressure to clean up the environment, cleanup efforts, and environmental quality. The loop works as follows:

As the pressure to clean up the environment increases, more cleanup efforts are typically made (positive link).

As more cleanup efforts are made, the environmental quality usually improves (positive link).

As the environmental quality improves, the pressure to clean up the environment usually decreases (negative link), which completes the loop.

So we can label the loop as follows:

Pressure to clean up environment → Cleanup efforts (+)

Cleanup efforts → Environmental quality (+)

Environmental quality → Pressure to clean up environment (-)

Overall, we can say that there is a positive link between pressure to clean up the environment and cleanup efforts, a positive link between cleanup efforts and environmental quality, and a loop connecting all three variables.

D.

Bank cash reserves and perceived solvency of the bank are typically positively correlated. This means that as the bank cash reserves increase, the perceived solvency of the bank usually increases as well. So we can label the link between bank cash reserves and perceived solvency of the bank as positive (+).

Perceived solvency of the bank and net withdrawals are typically negatively correlated. This means that if the perceived solvency of the bank decreases, customers may start withdrawing their money, resulting in net withdrawals. So we can label the link between perceived solvency of the bank and net withdrawals as negative (-).

There is a loop between bank cash reserves, perceived solvency of the bank, and net withdrawals. The loop works as follows:

As the bank cash reserves increase, the perceived solvency of the bank usually increases as well (positive link).

As the perceived solvency of the bank increases, net withdrawals usually decrease (negative link).

As net withdrawals decrease, the bank cash reserves usually increase (positive link), which completes the loop.

So we can label the loop as follows:

Bank cash reserves → Perceived solvency of bank (+)

Perceived solvency of bank → Net withdrawals (-)

Net withdrawals → Bank cash reserves (+)

Overall, we can say that there is a positive link between bank cash reserves and perceived solvency of the bank, a negative link between perceived solvency of the bank and net withdrawals, and a loop connecting all three variables.

3.

Theory 1: The greater the performance shortfall, the greater the motivation of employees will be. This theory suggests a positive link between performance shortfall and employee motivation

Theory 2: Too big a performance shortfall causes frustration and a decrease in employee motivation. This theory suggests a negative link between performance shortfall and employee motivation.

To incorporate both theories, we can add a balancing loop that limits the negative effects of a large performance shortfall:

In this diagram, the positive link between performance shortfall and employee motivation is represented by the arrow pointing upwards, while the negative link is represented by the arrow pointing downwards. The balancing loop is represented by the loop formed by the actual performance, required performance, and performance shortfall.

The dominance of each link and loop will depend on the specific circumstances of the organization and the employees. For example, if employees are highly motivated and enjoy challenge, then theory 1 may dominate, and stretch goals may increase motivation. However, if employees are already feeling overwhelmed or stressed, then theory 2 may dominate, and too high of performance shortfall may lead to decreased motivation and increased frustration.

In my own experience, I have seen both pathways dominant in different situations. In some cases, stretch goals motivated employees to work harder and achieve more than they thought possible. In other cases, overly aggressive goals caused frustration and decreased motivation.

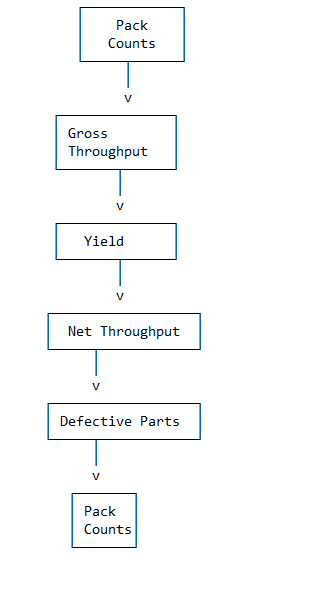
A manager can tell which pathway is likely to dominate in any situation by understanding their employees' personalities, motivations, and goals, and by communicating with them to understand how they feel about the goals set. It may also be helpful to experiment with different types of goals and performance shortfall levels to see what works best for the team.

The implications for goal setting in organizations are that stretch goals can be effective in motivating employees, but they need to be balanced with achievable goals to avoid frustration and decreased motivation. Feedback on actual performance is also critical, as it can provide information to adjust goals and performance expectations.

The loops in the diagram represent how motivation and performance are interconnected. As motivation increases, employee performance can improve, which can lead to a smaller performance shortfall or even surpassing the required performance. On the other hand, low motivation can lead to decreased performance, which can increase the performance shortfall and lead to frustration.

Overall, effective goal setting and motivation in organizations require understanding the balance between stretch goals and achievable goals and monitoring feedback on actual performance to adjust goals and performance expectations accordingly.

4.



The main feedback loop in this diagram is the reinforcing loop that connects Pack Counts to Gross Throughput and Yield, and then back to Pack Counts. This loop is labeled as the "Pack Counts Reinforcing Loop" in the diagram. This loop captures the dynamics described by the Manager at Plant A: the pressure to meet daily quotas (Pack Counts) leads to running the line at a high speed to achieve Gross Throughput, which in turn reduces Yield and generates more Defective Parts. The Defective Parts require more time and resources to be reworked or scrapped, reducing the available time for preventive maintenance and process improvement, and leading to even lower Yield and more Defective Parts in the future.

The other feedback loop in the diagram is the balancing loop that connects Gross Throughput and Yield to Net Throughput and Defective Parts, and then back to Gross Throughput and Yield. This loop is labeled as the "Yield Balancing Loop" in the diagram. This loop captures the dynamics described by the Supervisor at Plant B: the low Yield leads to a high rate of Defective Parts, which reduces Net Throughput and increases the workload for supervisors and operators, who have to spend more time dealing with defects and less time

on preventive maintenance and process improvement. The low Net Throughput reduces Gross Throughput, which in turn can improve Yield (by reducing the speed of the line) and reduce Defective Parts (by reducing the workload and allowing more time for preventive maintenance and process improvement).

In summary, the two feedback loops in the diagram capture the trade-offs and conflicts between short-term and long-term goals in manufacturing operations. The Pack Counts Reinforcing Loop represents the pressure to meet daily quotas and achieve high Gross Throughput, which can lead to low Yield and high Defective Parts in the short term, but can also reduce the available time and resources for preventive maintenance and process improvement in the long term. The Yield Balancing Loop represents the need to maintain a reasonable level of Yield and Net Throughput to avoid excessive defects and workload, which can reduce Gross Throughput in the short term, but can also lead to higher Yield and Net Throughput, and lower Defective Parts and workload, in the long term. Depending on the specific circumstances of each plant, different factors may dominate, and managers may need to adjust their goals and strategies accordingly.