The Impact of COVID-19 in Service Operations. Reacting Strategies

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Dimensions of Service Quality: the Secret in Service Operations

• Reliability
• Responsiveness
• Assurance
• Empathy
• Tangibles
Industry in China fell 13.5%
Issues Affecting Service Operations Brought by COVID-19

- Transparency
- Estimate available inventory relative to services
- Demand Forecast
- Response to shortage-buying behavior of customers
- Optimize of capacities
- Management of cash
COVID-19 is especially threatening for several sectors.

Quantifying the Risk

• The Standard Deviation of Return Method:

\[ \sqrt{(E[R^2] - [E(R)]^2)} \]

Where:
R is the return per year.
E is the expected value
E(R) is the expected return per year
• Investments can be characterized by their expected return and standard deviation of return

• Expected Return = \( \sum (\text{Probability} \times \text{Return}) \)

• Quantify risk through Standard Deviation of Return over one year

• Standard Deviation = \( \sqrt{E[R^2] - [E(R)]^2} \)
Example

There is an investment of $100,000 in equities:

<table>
<thead>
<tr>
<th>Probability</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>+50%</td>
</tr>
<tr>
<td>0.25</td>
<td>+30%</td>
</tr>
<tr>
<td>0.40</td>
<td>+10%</td>
</tr>
<tr>
<td>0.25</td>
<td>−10%</td>
</tr>
<tr>
<td>0.05</td>
<td>−30%</td>
</tr>
</tbody>
</table>

- **Calculation of E(R):**
  
  \[
  E(R) = 0.05 \times 0.50 + 0.25 \times 0.30 + 0.40 \times 0.10 + 0.25 \times (-0.10) + 0.05 \times (-0.30)
  \]
  
  \[
  E(R) = 0.10
  \]

- **Calculation of E(R^2):**
  
  \[
  E(R^2) = 0.05 \times 0.50^2 + 0.25 \times 0.30^2 + 0.40 \times 0.10^2 + 0.25 \times (-0.10)^2 + 0.05 \times (-0.30)^2
  \]
  
  \[
  E(R^2) = 0.046
  \]
Example continued

- \( E(R) = 0.10 \)
- \( E(R^2) = 0.046 \)

The standard deviation of returns is therefore:

\[
\sqrt{(E[R^2] - [E(R)]^2)}
\]

\[
\sqrt{0.046 - 0.1^2} = 0.1897 = \text{standard deviation}
\]

- The risk is 18.97%
Efficient Frontier of Risky Investments

- Expected Return
- Efficient Frontier
- Investments
- S.D. of Return
Efficient Frontier of All Investments

- **Expected Return**
- **S.D. of Return**

**E(R_M)**

**R_F**

New Efficient Frontier

Previous Efficient Frontier

M

J

I

F

Risk Management and Financial Institutions 3e, Chapter 1, Copyright © John C. Hull 2012
**Financial Lessons:**

- When the risk-free investment is considered, the efficient frontier must be a straight line.
- There should be a linear trade-off between the expected return and the standard deviation of returns.
- All investors should choose the same portfolio of risky assets (point M).
- Risky investments should be combined with borrowing or lending at the risk-free rate.
- To ensure a balance between the supply and demand of each investment, the price of each risky investment must adjust so that the amount of that investment in portfolio M is proportionate to the amount of that investment available in the economy.
Morale for Service Businesses:

- Emulate the risk management performed by the finance and insurance service companies.

- Apply V.O.C. (complaints are welcome)
Complaint Handling Policy - Example

- Every complaint is treated as a gift.
- We welcome complaints.
- We encourage customers to complain.
- We make it easy to complain.
- We handle complaints fast.
- We treat complaints in a fair manner.
- We empower our employees to handle complaints.
- We have customer- and employee-friendly systems to handle complaints.
- We reward employees who handle complaints well.
- We keep records of complaints and learn from them.
DIGITAL TRANSFORMATION REFERS TO CONVERTING PROCESSES, ACTIVITIES AND MODELS TO MEET DIGITAL ECONOMY REQUIREMENTS UNTIL THE COMPANY IS A FULLY NETWORKED DIGITAL ORGANIZATION.
Why is Digitization important in Services?

When companies decide to migrate to digital, it is important to its survival.

Connectivity between employees

Agility (remote working)

Competitive advantage over other companies especially in a fast pace environment

Rebecca Al Sharif, Guerrier, and Remond Steel, 2019
Trends that drive digital transformation

- Employee engagement
- Workforce generational diversity
- Work flexibility
- Internet

The CORONA VIRUS!!!!!
Advantages of Digitization

- Elimination of transcription errors
- No physical limits for storage
- Integration of business systems
- Improved accessibility to information
- Increased safety of any critical data
- Integrated online resource sharing
- Reduced chances of missing data
- Many users can access a digital file at the same time
- Compatibility with all modes of digital data transfer

Al Sharif, Guerrier, and Remond Steel, 2019
Disadvantages of Digitization

- Data Security
- Crime and Terrorism
- Complexity
- Privacy Concerns
- Social Disconnect
- Work Overload
- Digital Media Manipulation
- Job Insecurity
- Plagiarism and Copyright
- Anonymity and Fake Personas
- Over-reliance on Gadgets

Al Sharif, Guerrier, and Remond Steel, 2019
Adopt MRP/Intranet

Create a QR tag for each employee and link it to a database, which is connected to PowerBI.

Employee will scan his/her tag when starting to work on a task - (timer starts)

Management will know the quantity that was done for that day.

Management visually checks quality of work done.

Once the employee is done, he/she scans the tag again and the timer ends.

At the end of the week management checks the database and analyzes it.

Each employee rotates to a different station every day for a week.

Al Sharif, Guerrier, and Remond Steel, 2019
IQMS ERP may be the most beneficial as it offers a lot of reporting and monitoring functionalities including financial reporting, shop floor monitoring, production planning and scheduling, shipping management etc. Everything would be all in one – no need for multiple software. However, current systems should remain for a while to track historical data if necessary.

Benefits include:

· Lean thinking

· Tracking customers served per operator/sales in real-time

· Tracking the service process, thus measuring overall performance

· Real-time floor management may help eliminate waste & reassign workers to positions that best fit their skills. This could help companies to focus on R&D rather than administrative tasks.

Al Sharif, Guerrier, and Remond Steel, 2019
Service Operations Strategies during COVID-19

Survival during COVID-19 and even Competitive Advantage

J.I.T. + HOLONIC MANUFACTURING

Share sales capacity
Reduce price discount
Share inventory data
Every-day low pricing

EDI
POS

Making demand data available at downstream site to an upstream
Information sharing, channel alignment and operational efficiency
An Innovative Suggestion: The Global Holonic Structure

Internal architecture of a holon (Babiceanu, 2005, p.37)
Gracias!

Questions?