



BUSINESS PROCESS MANAGEMENT

(ISIT9332)

IT HELP DESK

SURBHI SINGH | 7355038
MOHAMMAD AL AMIN | 8261520
MOSHIN Ali | 8062717

Table of Contents

Executive Summary.....	2
Introduction	2
Process Discovery.....	4
Document Analysis	4
Observation	5
Interview.....	5
Identify business process:.....	6
As-Is Model Description	6
Important Business Process	7
Process Analysis	9
Qualitative Analysis	9
Quantitative Analysis.....	16
Process Redesign.....	21
To-Be Process Model.....	21
Heuristic Process Redesign Methodology.....	24
Process Implementation and Control	34
Assumptions.....	37
Conclusion.....	39
References	40

Executive Summary

This report adopts a service-oriented strategy aimed at improving the IT helpdesk support delivered by Birlasoft to the Swiss RE Group for the Global Room Reservation System (GRRS) application. This application features a "Schedule Now" add-in within each Swiss Re employee's Outlook, facilitating the booking of meeting rooms for various purposes such as board meetings, client meetings, and team meetings depending on the availability of the meeting rooms. The Workspace Management Squad (Governance Team) of CEDD Operations Vendor 2 of Birlasoft Company work as helpdesk employee to provide the support to the customers. The analysis methods employed encompass Qualitative and Quantitative analysis, the Heuristic Process Redesign methodology, Internet Research, insights from previous case studies, and various calculations detailed in the Process Analysis section. The outcomes indicate that implementing the newly designed process model will yield a significant enhancement in both external and internal quality. Further advantages arising from the redesign are elaborated in the Process Redesign section. In conclusion, the report identifies the potential for the company to significantly boost efficiency, reduce ticket resolution time, lower costs, and enhance customer satisfaction through the implementation of the to-be process model. The report also provides recommendations, including the improvement of External Quality (Customer Satisfaction), enhancement of internal quality through knowledge building and increased experience for junior/level-1 staff, and cost reduction coupled with improved cycle time efficiency. It is important to note that the report acknowledges certain limitations, all of which are outlined in the commentary section.

Introduction

Business Process Management serves as a potent instrument for organizations to assess and govern their methodologies, thereby gaining a comprehensive understanding of how their business operates. Moreover, it facilitates process mapping, making it simpler for executives to make informed decisions without relying on specialized expertise. Additionally, BPM can achieve the following benefits: align IT operations and software development with business strategies, enhance operational efficiency while reducing wastage, enable swift adaptability in response to evolving business needs, and enhance process communication and overall perspective (Source: Good e-Learning, 2019).

Birlasoft combines the power of domain, enterprise, and digital technologies to reimagine business processes for customers and their ecosystem. It's consultative and design thinking approach makes societies more productive by helping customers run businesses. Birlasoft's Microsoft CRM consulting experience is aimed at enabling organizations to gain a competitive advantage by using the capabilities of Microsoft Dynamics.

A highly qualified and skilled safety net can make the difference between seamless transition and catastrophic meltdown. Birlasoft offers packages that give you flexible support, 5 days a week, including periodic health checks on new implementations and application releases and performance monitoring. Their Certified Salesforce Consultants and Engagement Managers are available on a daily basis to work onsite or remotely to provide post-project support, help define and scope new projects, or as a qualified resource to be used as needed. Their support services pay for themselves by saving time, adding best practices and eliminating error.

Birlasoft has 4 key goal markets where they are focus on creating value and growing their business. BFSI is one of them. BFSI contributes to just under 20% of Birlasoft's revenue. BFSI is a very large and wide industry segment. Within banking, insurance and financial segment given our scale and where the industry is headed, we are focused on different micro segments within that to be able create more differentiated values for their customers.

Birlasoft leverage design thinking approach to tie in relevant technologies to help and deliver exceptional experiences and innovations to the stakeholders – employees, customers, and partners. Highly focused user-centered approach towards creation of applications, portals, software implementation methodologies that blend user goals and business objectives integrated Analytics.

The IT helpdesk support provided by Birlasoft to the Swiss RE Group for the Global Room Reservation System (GRRS) application is a vital component of efficient workspace management. This application, equipped with a user-friendly "Schedule Now" add-in integrated into the Outlook of each Swiss Re employee, streamlines the process of booking meeting rooms. This not only simplifies the reservation process but also optimizes room utilization, making it a valuable asset for the organization. Behind this seamless support system is the Workspace Management Squad, a part of the Governance Team within CEDD Operations Vendor 2 at Birlasoft. These dedicated professionals serve as the frontline helpdesk employees as level-1 and level-2 staff members, addressing and resolving the queries, issues, and requests of Swiss Re employees. Their role is crucial in ensuring the smooth functioning of the GRRS application and, in turn, enhancing the productivity of Swiss Re by enabling efficient room bookings for a range of purposes, including board meetings, client interactions, and team gatherings.

An IT helpdesk, CEDD Operations Vendor 2 of a Birlasoft company, handles requests from client/employee of Swiss Re Group | Swiss Re (client) with more than 500 employees for an application GRRS (global room reservation system). Enquiries can be IT-related problems or access requests, such as requesting rights to book VIP meeting rooms, want to know the organizer detail of reserved meeting rooms etc.,.

The Swiss Re Group is the client of Birlasoft BFSI industry, The Swiss Re Group is one of the world's leading providers of reinsurance, insurance and other forms of insurance-based risk transfer, working to

make the world more resilient. The aim of the Swiss Re Group is to enable society to thrive and progress, creating new opportunities and solutions for its clients.

Process Discovery

Process discovery is the vital first step in comprehending and enhancing the inner workings of any operation. The Process discovery for the IT helpdesk operation involves a multi-faceted approach to understand and analyze the workflow. It begins with uncovering the key elements that drive the process, such as the sequence of tasks, roles and responsibilities, as well as adherence to operational level agreements (OLAs) and service-level agreements (SLAs). The process also encompasses various document types, like issue tickets, customer and service databases, support team records, work notes, and email notifications. In addition, it involves observation, where we get a firsthand look at how requests are managed, and problems are solved by the support teams. This provides insights highlight critical aspects, including the time-sensitive nature of OLA breach time, automatic email triggers, and communication with customers. Talking with the stakeholder and asking question for gaining deeper insights, particularly by engaging directly with support teams and clients to explore challenges, feedback, and suggestions for process enhancement Process discovery provides the foundation for refining and optimizing the IT helpdesk operation.

Document Analysis

Document analysis is a critical part of understanding how things work within an organization. It's akin to reading an instruction manual for a complex machine. In the context of our IT helpdesk operation, document analysis involves examining written materials like issue tickets, databases, and emails to uncover essential information. For the IT helpdesk, this means understanding how support requests are received, how they are assigned to the right teams, and what the response times should be.

Process documentation: This document has provided a high-level overview of the process, including the steps involved, the roles and responsibilities of different team members, and the tools and systems that were used.

Work instructions: These instructions documents have provided more detailed information on how to perform each step in the process.

System screenshots: Screenshots of the systems that were used to handle requests have helped us to understand how the process is implemented in practice.

Email templates: Email templates that were used to communicate with customers have given us an idea of the types of information that were exchanged and the tone of the communication.

Incident tickets: A sample of incident tickets has allowed us to see the types of requests that were typically handled by the IT helpdesk.

Observation

Observations are a fundamental tool for gaining real-time insights into how a process unfolds in practice. It's like being a silent spectator, watching the process in action and taking note of what happens. In business processes, observation involves carefully monitoring and documenting the sequence of events, the actions of individuals involved, and the interactions between various components. It provides a firsthand view of how things are done, rather than relying solely on documented procedures.

We Observed the Level-1 and Level-2 support staff handling requests. We paid attention to the following:

- The steps that they have taken to handle each request.
- The tools and systems that they have used.
- The interactions that they have with each other and with customers.
- We also looked for bottlenecks in the process. Identified any steps that are taking longer than expected or that are causing delays.
- Note any areas where the process could be more efficient or more effective.

Interview

Interviews play a pivotal role in unraveling the intricacies of a business process. Much like having a candid conversation with key individuals who are involved in or affected by the process, interviews offer a direct line to valuable insights.

We have taken some interviews of the staff. Here are some questions we have asked for Process discovery.

Level-1 and Level-2 support staff:

- What are your responsibilities in the process for handling requests?
- What challenges do you face in your role?
- What suggestions do you have for improving the process?

Managers of the IT helpdesk:

- What are the goals of the IT helpdesk?

- How do you measure the performance of the IT helpdesk?
- What are the biggest challenges that the IT helpdesk faces?

Customers who have used the IT helpdesk:

- What was your experience with the IT helpdesk?
- What were your expectations for the process?
- How could the process be improved?

Identify business process:

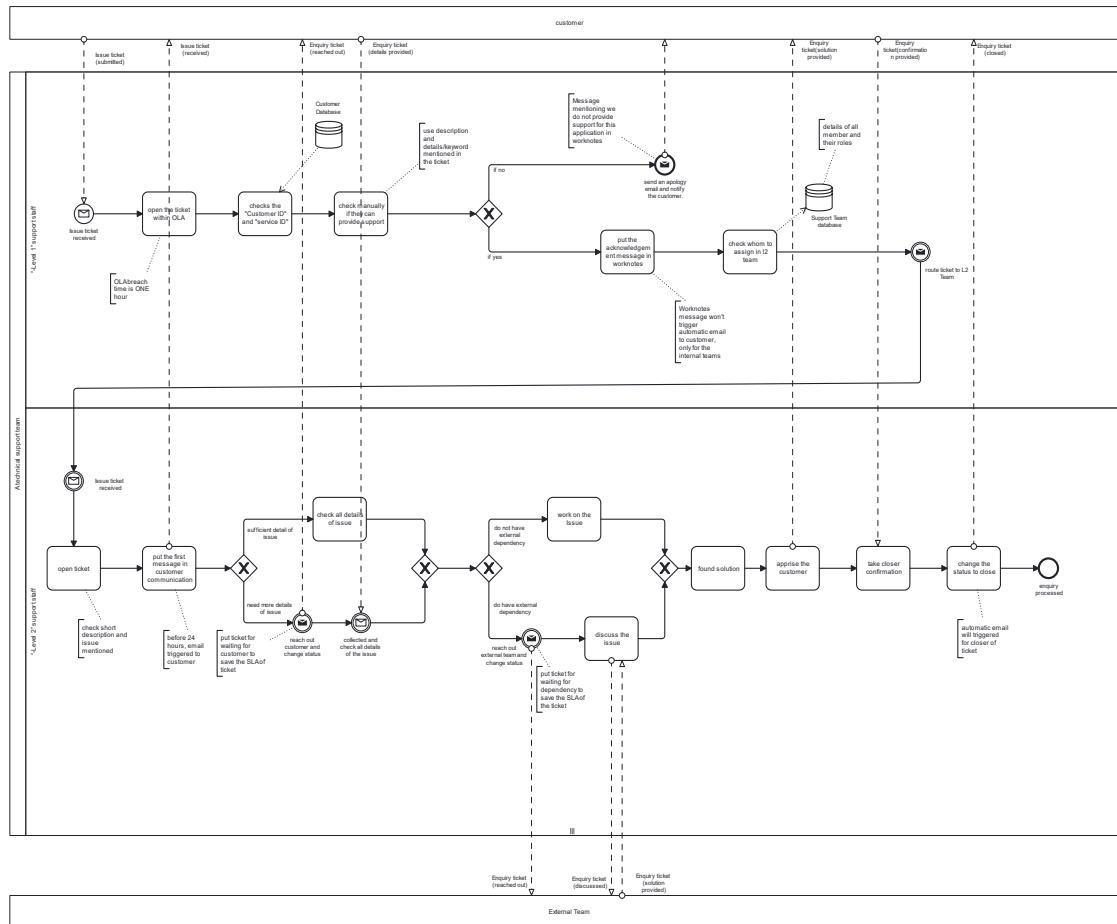
As-Is Model Description

The process begins when a customer sends an email to open a ticket for an issue. "Level-1" support staff receives the ticket in their queue. They open the ticket within OLA (Operational Level Agreement) where OLA breach time is one hour. They check the "Customer ID" and "service ID" from the customer database. After that they check manually whether they can provide support for that issue or not. They use description and details/keyword mentioned in the ticket to evaluate that. If they can't they will send an apology email and notify the customer mentioning we do not provide support for this application in worknotes and the process ends. If they can provide support level 1 support time put the acknowledgement message in worknotes. The Worknotes message won't trigger automatic email to customer, only for the internal teams. After that they will check whom to assign in level 2 support team. They can get details of all member and their roles from support team database. After that Level-1 team routes the ticket to Level-2 Support team based on that.

The member of the assigned Level-2 support team receives the ticket. Level-2 support staff open the ticket and check short description and issue mentioned. As per the service level agreement (SLA), in 24 hours, Level-2 team put the first message in customer communication. The message of customer communication will triggered an automatic mail to customers/ an employee's of Swiss Re Group.

If Level-2 team has sufficient detail of issue, they check all details of issue. But if they need more details of issue, they reach out customer and change status to "for customer" to save the SLA (Service-Level Agreement) of ticket. After L2 team has collected all the information from the customer, they check all details of the issue based on those information. After completing this part they check if the issue has external dependency. If they do not have external dependency they start working on the Issue. But if they do have external dependency they reach out external team and change status to "waiting for dependency" to

save the SLA (Service-Level Agreement) of the ticket. After reaching out they discuss the issue with the external team and the external team provide solution for the issue. After all this the Level-2 finds the solution and apprise the customer. After that they take closer confirmation from the customer and change the status of the ticket to close. An automatic email will triggered for closer of ticket and the process end.



Important Business Process

Ticket Initiation:

- A customer sends an email to open a ticket for an issue.

Level-1 support staff:

- Level-1 support staff receives the ticket and opens it within the Operational Level Agreement (OLA), which has a breach time of one hour.
- They check the "Customer ID" and "service ID" from the customer database.

- Level-1 support staff manually assess whether they can provide support for the issue, using the description and keywords from the ticket.
- If support cannot be provided, they will send email and notify the customer, mentioning that for this particular issue and/or application their team won't support.
- If support can be provided, Level-1 support staff records an acknowledgment message in the worknotes, which is for internal teams only.
- They then determine which Level-2 support team member to assign the ticket to, using details from the Support Team database.
- Level-1 support staff routes the ticket to the Level-2 support team.

Level-2 support staff:

- The assigned Level-2 support staff opens the ticket and reviews the short description and issue details.
- They initiate the first message in customer communication within 24 hours.
- An email is triggered automatically to the customer.
- If Level-2 has sufficient details about the issue, they proceed to check for the resolution.
- If more information is required, they reach out to the customer and change the ticket status to "waiting for customer" to adhere to the Service-Level Agreement (SLA).
- Once all necessary information is collected from the customer, Level-2 support staff examines the issue thoroughly.
- If the issue has no external dependencies, they proceed to check for the resolution.
- If there are external dependencies, they contact the external team and change the status to "waiting for dependency" to maintain SLA compliance.
- After discussing the issue with the external team, a solution is provided.
- Level-2 support staff informs the customer about the solution.
- They will then seek closure confirmation from the customer.
- After Customer closer confirmation the ticket status will changed to "closed."

- An automatic email is triggered to notify the customer of the ticket closer, marking the end of the process.

Process Analysis

Business process analysis (BPA) is a powerful tool that can be used to improve any type of business process, from simple tasks to complex workflows. It is a valuable investment for organizations of all sizes and industries, as it can lead to a wide range of benefits, including:

- Increased efficiency and productivity
- Reduced costs
- Improved quality of products and services
- Increased customer satisfaction
- Reduced risk
- Improved compliance

Qualitative Analysis

Value-Added Analysis

In this part, the existing business process will be analyzed to identify and eliminate unnecessary steps. This could involve eliminating a task, a part of a task, or a handover between two tasks. Also help to understand the customer's needs and positive outcomes they seek, to ensure that processes are designed to meet those needs.

Value Classification

Value classification is a key component of value-added analysis (VAA). VAA is a technique used to identify and eliminate unnecessary steps in a business process. It involves analyzing each step in the process to determine whether it adds value to the customer, the business, or neither.

Value classification can be used to classify each step in a process into one of three categories:

- **Customer value-adding (CVA):** Steps that directly contribute to the positive outcomes that the customer seeks.

- **Business value-adding (BVA):** Steps that are necessary or useful for the company that performs the process, but do not directly add value to the customer.
- **Non-value-adding (NVA):** Steps that do not add value to either the customer or the business.

Table 1: Value-added analysis

STEP	PERFORMER	CLASSIFICATION
receiving the customer ticket	Level-1 staff	CVA
opening the ticket within OLA	Level-1 staff	CVA
checking customer id and service id	Level-1 staff	BVA
checking manually if they provide support	Level-1 staff	NVA
Sends email to notify customer that they don't provide support	Level-1 staff	BVA
puts acknowledgement message in the ticket	Level-1 staff	NVA
Assigning the customer's request to the appropriate level-2 staff member	Level-1 staff	CVA
receiving the customer's ticket from level-1 staff member	Level-2 staff	CVA
open the ticket, assessing the issue	Level-2 staff	CVA
initiate first communication in customer communication	Level-2 staff	CVA
do have sufficient details about the issue, proceed to check for the resolution	Level-2 staff	CVA
Do not have sufficient details, reach out to customer and gather all the information of issue, meanwhile change status of ticket to "waiting for customer"	Level-2 staff	NVA

If the issue has no external dependencies, proceed to check for the resolution	Level-2 staff	BVA
Has external dependency, discuss the scenario and change status of ticket to “waiting for dependency”	Level-2 staff	NVA
After discussing the issue with external team, proceed to check the resolution	Level-2 staff	BVA
Solution found, inform the customer about the solution	Level-2 staff	CVA
Seek and wait for closer confirmation of ticket	Level-2 staff	NVA
Confirm for the closer of ticket	client	BVA
Change status to “close”, an email will be triggered to customer to notify ticket closer, marking end of the process.	Level-2 staff	BVA

Waste Elimination

By eliminating the NVA steps and streamlining the BVA steps, we could improve the efficiency and effectiveness of Birlasoft IT helpdesk. For example, Birla soft could implement a self-service portal and create Knowledge base articles, where clients could answer their own questions and resolve their own issues using those KB articles. This would reduce the number of tickets that need to be handled by Level-1 support staff members.

We could also improve the communication between Level-1 and Level-2 support staff members. This would reduce the number of times that tickets need to be escalated and would help to ensure that clients receive timely and accurate support.

Overall, by carefully considering the value classification of its IT helpdesk process, we can identify opportunities to improve the efficiency, effectiveness, and customer satisfaction of Birlasoft support services.

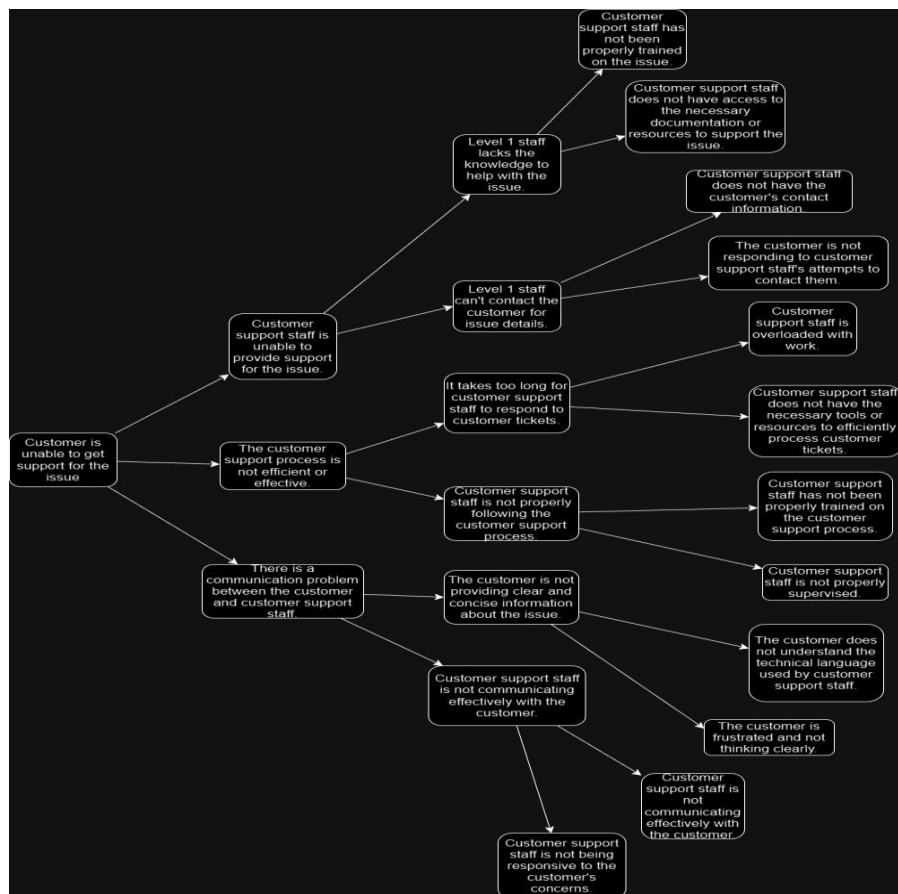
Root Cause Analysis

Root cause analysis (RCA) is a process of identifying the root cause of a problem or event. It is a systematic approach to understanding the underlying factors that contributed to a problem, so that corrective actions can be taken to prevent it from happening again.

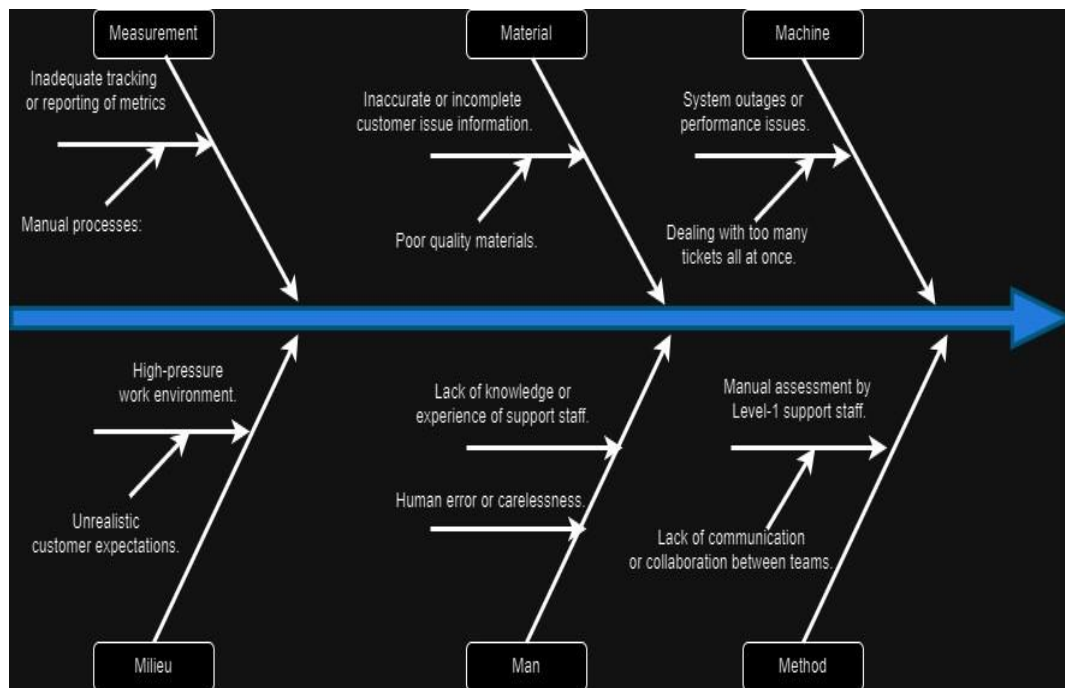
Why-Why diagram

The root causes of the issues are listed below, now we can develop corrective actions to address them.

Why-Why Diagram for Clients/Customers is unable to get support for the issue/request submitted



Fishbone diagram



By addressing the root causes of the issue, businesses can reduce the amount of time that clients have to wait for a Level-1 support staff member to respond to their request.

Issue Register

It tracks and manages issues that arise during the execution of a process. It includes information on how and to what extent each issue is impacting the performance of the process, both quantitatively (e.g., time loss, money loss) and qualitatively (e.g., nuisance to the customer).

Table 2: Issue register

<p>Issue 1: Clients having to wait for a Level-1 support staff member to respond to their request.</p> <p>Priority: 1</p> <p>Description: Clients having to wait for level-1 support staff member to respond to their request is common problem that can be caused by a number of factors, including High volume of support requests, and lack of resources, complex support requests, inefficient support processes</p>

and Level-1 support staff members not having the necessary skills or knowledge to resolve client issues.

Assumption:

There are a number of things that businesses can do to reduce the amount of time that clients have to wait for a level-1 support staff member to respond to their requests, including:

- Increase the number of level-1 support staff members
- Invest in self-service options
- Provide additional training for Level-1 support staff members and plan a KT session for level-1 members from level-2 members. By providing additional training for Level-1 support staff members, Birlasoft can reduce the number of tickets that need to be escalated to Level-2 support staff members. This will lead to faster resolution times for client issues.

Qualitative impact:

- Improved Client Satisfaction
- Reduced Escalations
- Cost Savings
- Enhanced Team Collaboration
- Reduced Workload for Level-2 Staff
- Operational Efficiency
- Client Retention

It's important to note that while these are the potential qualitative impacts, the actual impact will depend on various factors, including the scale of the implementation, the quality of the training, the effectiveness of self-service options, and the organization's ability to adapt to changes. Regular monitoring and evaluation of the support process will be necessary to gauge the real impact of these improvements.

Quantitative impact:

- Reduced Response Time
- Decreased Escalation Rate
- Increased Ticket Closure Rate
- Reduction in Wait Times
- Client Satisfaction Scores

Quantitative impacts will depend on the specific metrics you choose to measure and the baseline data you have before implementing these changes. Regular monitoring and reporting on these

metrics will help assess the effectiveness of the improvements and allow for ongoing adjustments to optimize the IT help desk operations.

Issue 2: Lack of communication between Level-1 and Level-2 support staff members

Priority: 2

Description: The issue at hand pertains to a noticeable lack of effective communication and collaboration between Level-1 and Level-2 support staff members within the IT Help Desk department. This breakdown in communication has the potential to impact the overall efficiency and effectiveness of support operations. This will impact the process in many ways:

- Increased ticket escalations from Level-1 to Level-2
- Slower issue resolution times
- Duplication of effort as Level-2 staff may readdress issues already attempted by Level-1 staff
- Potential client dissatisfaction due to extended response and resolution times

Assumption:

- **Establish Communication Channels:** Create formal communication channels such as email lists, chat groups, or collaboration tools where Level-1 and Level-2 staff can exchange information and seek assistance when needed
- **Implement Knowledge Transfer (KT) Sessions:** Organize regular sessions where Level-2 staff can share their expertise, insights, and best practices with Level-1 staff. This can help bridge the knowledge gap and empower Level-1 staff to handle a wider range of issues
- **Training and Skills Development:** Consider offering additional training to Level-1 staff to enhance their capabilities and confidence in handling a broader range of issues
- **Develop Knowledge Repositories:** Build a centralized knowledge repository where common issues and solutions are documented, making it easily accessible to both levels of support

Qualitative impact:

- Improve Collaboration
 - Enhance Knowledge Sharing
 - Increase Staff Confidence
 - Faster Issue Resolution
 - Reduce Duplication of Effort
 - Client Satisfaction
-

Quantitative impact: Reduction in Ticket Escalations, Decreased Response and Resolution Times, Reduction in Backlog.

Quantitative Analysis

Cycle Time Calculations

The cycle time efficiency and the cost-per-execution of the processes assuming that:

- Submitting and registering a request takes 5 minutes on average.
- Requests spend on average 30 minutes waiting for a Level-1 staff to check them. This applies both to new requests and to re-opened requests.
- Checking if a new request takes on average 10 minutes. In 20 % of cases the request is “not known”, i.e. they know whether they provide support or not. In this case, it takes between 2 and 10 minutes (average 5 minutes) for the Level-1 staff to communicate that they don’t provide support to the client. Once this is done, the request is marked as “closed”. On the other hand, if the request is “known”, they put the Acknowledgement message and assign ticket to level-2 staff members by checking manually, and it will take on average 10 min.
- New requests spend on average 3 hours waiting for a Level-2 staff to evaluate them. Level-2 staff take on average 30 minutes to evaluate a new request.
- The time between the moment a request has been evaluated, and the moment the request is picked up by a Level-2 staff member is 5 hours.
- In 20% cases, they required help from external team, which take on average 3 hours waiting and 2 hours for the resolution.
- On the other hand, the time required to research and resolve a request is on average 2 hours.
- The time to write the resolution to a request is on average 20 minutes.
- It takes on average 5 minutes for a Level-2 staff to send to the client a problem resolutions.
- It takes on average 10 hours between the moment a resolution is sent by the Level-2 staff, and the moment the resolution is tested by the client.

- It takes the client around 10 minutes to e-mail the test results to the Level-2 staff.
- It takes 5 minutes after the customer confirmation to mark the ticket closed.
- There are no other costs besides the resource costs

Cycle Time:

The cycle time is the total amount of time it takes for a request to go from being submitted to being resolved.

To calculate the average time, we need to add up the average time spent at each step of the process, assuming that the request is resolved on the first attempt:

Submitting and registering a request: 5 minutes

Waiting for a level-1 staff to check the request: 30 minutes

Checking if the request is unknown or known: 10 minutes (20% of cases) or 5 minutes (80% of cases)

Level-1 staff assigning the request to a level-2 staff member: 10 minutes

Waiting for a level-2 staff to evaluate the request: 3 hours

Level-2 evaluating, if they need help from external team: 30 minutes

If need help: waiting 3 hours and resolution 2 hours (20% of cases) or 2 hours resolution (80% cases)

Writing the resolution to the request: 20 minutes

Sending the resolution to the client: 5 minutes

Waiting for the client to test the resolution: 10 hours

Waiting for the client to email the test results to the level-2 staff: 10 minutes

Marking the ticket to closed: 5 minutes

$CT = 5 \text{ minutes} + 30 \text{ minutes} + (10 \text{ minutes} * 0.2 + 5 \text{ minutes} * 0.8) + 10 \text{ minutes} + 3 \text{ hours} + 30 \text{ minutes} + ((3 \text{ hours} + 2 \text{ hours}) * 0.2 + 2 \text{ hours} * 0.8) + 20 \text{ minutes} + 5 \text{ minutes} + 10 \text{ hours} + 10 \text{ minutes} + 5 \text{ minutes}$

$CT = 0.0833 + 0.5 + (0.1666 * 0.2 + 0.0833 * 0.8) + 0.1666 + 3 + 0.5 + (1 + 1.6) + 0.3333 + 0.0833 + 10 + 0.1666 + 0.0833$

$CT = 0.0833 + 0.5 + (0.09996) + 0.1666 + 3 + 0.5 + (2.6) + 0.3333 + 0.0833 + 10 + 0.1666 + 0.0833$

CT = 17.61636 hours

Theoretical Cycle Time:

The Theoretical time is the minimum amount of time it would take to resolve if there was no waiting time.

To calculate the theoretical cycle time, we need to add up the processing time for each step of the process:

Submitting and registering a request: 5 minutes

Checking if the request is unknown or known: 10 minutes (20% of cases) or 5 minutes (80% of cases)

Level-1 staff assigning the request to a level-2 staff member: 10 minutes

Level-2 evaluating, if they need help from external team: 30 minutes

If need help for resolution will take 2 hours (20% of cases) or else 2 hours resolution (80% cases).

Writing the resolution to the request: 20 minutes

Sending the resolution to the client: 5 minutes

Marking the ticket to closed: 5 minutes

$TCT = 5 \text{ minutes} + (10 \text{ minutes} * 0.2 + 5 \text{ minutes} * 0.8) + 10 \text{ minutes} + 30 \text{ minutes} + (2 \text{ hours} * 0.2 + 2 \text{ hours} * 0.8) + 20 \text{ minutes} + 5 \text{ minutes} + 5 \text{ minutes}$

$TCT = 0.0833 + (0.1666 * 0.2 + 0.0833 * 0.8) + 0.1666 + 0.5 + (2 * 0.2 + 2 * 0.8) + 0.3333 + 0.0833 + 0.0833$

$TCT = 0.0833 + (0.09996) + 0.1666 + 0.5 + (2) + 0.3333 + 0.0833 + 0.0833$

TCT = 3.34976 hours

Cycle Time Efficiency:

The cycle time efficiency is the ratio of the theoretical cycle time to the actual cycle time. To calculate the cycle time efficiency, we need to divide the theoretical cycle time by the actual cycle time.

$CTE = TCT / CT$

$CTE = 3.34976 / 17.61636$

CTE = 22.80 %

This means that the cycle time efficiency is low, and there is a room for improvement

Queuing Analysis (M/M/1)

- M: Inter-arrival times of customers follow an exponential distribution.
- M: Processing times follow an exponential distribution.
- 1: there is a single server.

An IT helpdesk, CEDD Operations Vendor 2 of a Birla soft company, handles requests from client/employee of Swiss Re Group | Swiss Re with more than 500 employees for an application GRRS (global room reservation system). Enquiries can be IT-related problems or access requests, such as requesting rights to book VIP meeting rooms, want to know the organizer detail of reserved meeting rooms etc.,. In the Birlasoft, the IT help desk processes assumed to be independent of each other.

The inter arrival times and processing times follows an exponential distribution. Consider the support staff receive request on average 06 requests per hour.

λ : average arrival rate(average how many request receive per unit time)

μ : mean number of customers that can be serve per unit time

c: number of server

ρ (occupation rate): $\rho = \lambda / c \mu$

$\lambda = 06$ & $\mu = 7.5$

$\rho = \lambda / c * \mu = 6 / 1 * 7.5$

$\rho = 0.8$

L_q (average number of request in the queue) = $\rho^2 / (1 - \rho)$

$L_q = (0.8)^2 / (1 - 0.8)$

$L_q = 3.2$ (Average request in queue)

W_q (the average time one request spends in the queue) = L_q / λ

$W_q = (3.2 / 6)$ hours

$W_q = 32$ minutes

$$W \text{ (average time one request spends in the system)} = Wq + (1/\mu)$$

$$W = 32 + (1/7.5)$$

$$W = 40 \text{ minutes}$$

$$L \text{ (the average number of request in the system)} = \lambda * W$$

$$L = 6 * 40$$

$$L = 240$$

In queuing theory and process analysis, "L" typically represents the average number of entities (e.g., clients or requests) in the system, including both those being serviced and those waiting in the queue. If the value of "L" is higher in the IT help desk support process, it suggests that there is a greater number of requests in the system at any given time. This can have several implications and would warrant specific recommendations and anticipate certain impacts on the system:

Impacts:

- **Client Satisfaction:** With a higher "L," clients may experience longer wait times. This can lead to decreased client satisfaction, especially if issues are not resolved promptly.
- **Client Retention:** Long wait times and unresolved issues can lead to client dissatisfaction and potential client attrition. Improvements in response times and issue resolution can help retain clients.
- **Response and Resolution Times:** Higher "L" is often associated with longer response and resolution times. This can affect the organization's ability to meet service level agreements (SLAs) and client expectations.
- **Staff Morale:** Overburdened staff may experience decreased morale and job satisfaction. Addressing the issue with additional staffing or process improvements can positively impact staff morale.

Recommendation:

- **Increase Staffing Levels:** If the value of "L" is consistently high, it may indicate that the IT help desk does not have sufficient staff to handle the incoming requests. The recommendation would be to consider hiring more support staff or reallocating resources to address the increased workload. Or provide training to level-1 staff, so that they will be able to handle the repetitive requests and or simple request.

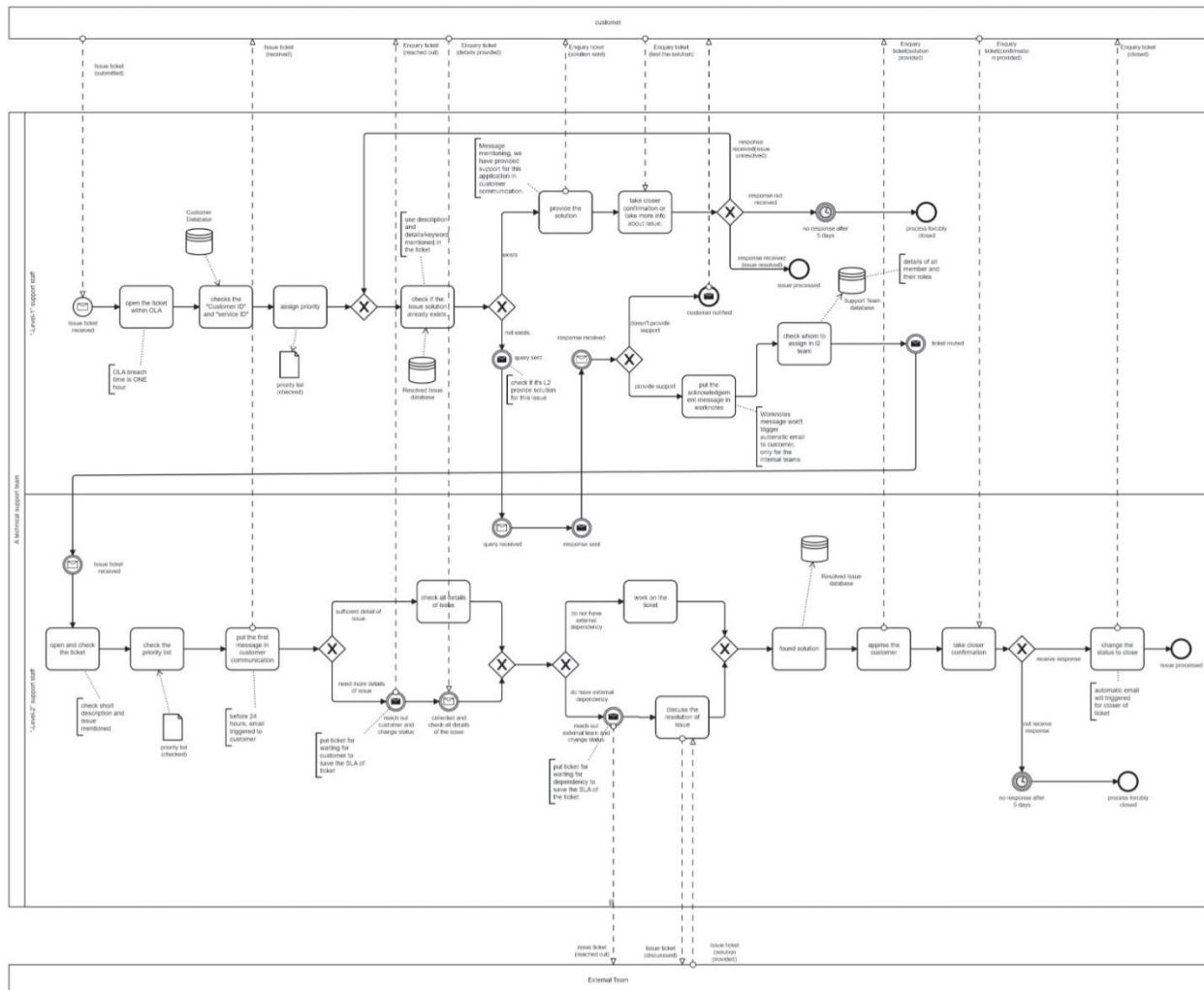
- **Implement Prioritization:** When "L" is high, it's important to prioritize support requests based on urgency and impact on the business. Implement a clear prioritization system to ensure that critical issues are addressed promptly, while less urgent ones may wait.
- **Streamline Processes:** Review and optimize your support processes to reduce the time it takes to resolve each request. Identify bottlenecks and streamline workflows to increase efficiency.
- **Self-Service Options:** Encourage clients to use self-service options for common issues. This can help reduce the number of requests in the system by enabling clients to find solutions independently.
- **Knowledge Management:** Invest in knowledge management systems to empower Level-1 support staff with quick access to solutions. This can reduce the time they spend researching issues, leading to faster resolutions and a reduction in "L."
- **Expand Communication Channels:** Offer multiple communication channels for level-1 support staff to contact the level-2 staff members, such as email, chat, and phone. This will reduce the manual task of checking whether they will provide the help for that particular issue or not and we can save a lot of time over here this will add value to both customer and business.

Process Redesign

To-Be Process Model

As an IT help desk process model, the workflow initiates when a client submits an email to create a support ticket for an issue. The "Level-1" support team receives this ticket in their queue on CEDD Operations Vendor 2 dashboard and opens it while adhering to the Operational Level Agreement (OLA) timeframe, which allows one hour. Within this hour, they verify the "Customer ID" and "service ID" by referencing the customer database. Furthermore, they determine the ticket's priority level (Standard, Medium, High, or Critical) based on the customer's requests. Following this, they assess whether a solution already exists by cross-referencing the description and specific keywords provided in the ticket with the Resolved Issue database and Knowledge base documents. If a match is found, they respond to the client requests and provide the resolutions for the same. Subsequently, they await for the testing and confirmation of closer from the client or the provision of additional issue-related information if required. If the issue is resolved and customer gave the closer confirmation, the process concludes at this stage. However, if the issue is new and complex, the Level-1 team checks once more for a solution in the Resolved Issue database and Knowledge base articles, taking into account any new details furnished. If the Level-1 team doesn't receive a response of closer confirmation in the ticket from the customer within five days of providing a solution,

the ticket is forcibly closed. Conversely, if no solution for the issue is found in the Resolved Issue database and Knowledge base articles, the Level-1 team consults with the Level-2 team to ascertain if they can address the issue based on the provided description. The Level-2 team reviews the message and evaluates the description and specific keywords outlined in the ticket. After their evaluation, the Level-2 team sends an acknowledgment to the Level-1 team regarding their ability to provide support for the particular ticket. If the Level-2 team cannot provide support for the ticket, the Level-1 team sends an email to inform the customer, concluding the process. If the Level-2 team can offer support, the Level-1 support time logs the acknowledgment message in worknotes, which doesn't trigger an automatic email to the customer but is intended for internal use. Afterward, the Level-1 team determines which member of the Level-2 support team should handle the ticket. They retrieve member details and their roles from the Support Team database, and subsequently route the ticket to the appropriate member on the Level-2 support team. Upon receiving the ticket, the assigned Level-2 support team member opens it, reviews the short description and the reported issue. The Level-2 team also evaluates the priority level of the ticket. Following this assessment, the Level-2 team initiates communication with the client by sending the first message within 24 hours. If the Level-2 team possesses sufficient issue-related details, they proceed to examine all aspects of the issue. However, if additional information is required, they reach out to the client and update the status to "waiting for customer" in order to maintain compliance with the Service-Level Agreement (SLA) of the ticket. Once all necessary information is gathered from the client, the Level-2 team conducts a comprehensive analysis of the issue based on the provided information. Subsequently, they determine whether the issue has external dependencies. If no external dependencies exist, they commence work on resolving the issue. In cases where external dependencies are identified, the Level-2 team contacts the external team and updates the status to "waiting for dependency" to ensure SLA adherence. After establishing contact, the Level-2 team collaborates with the external team to devise a solution for the issue. Following these steps, the Level-2 team identifies a solution and records it along with the issue description in the Resolved Issue database and if required they maintain the Knowledge base articles as well for future reference. They then notify the client and seek confirmation for closure. If no confirmation or response is received within 5 days, the ticket is forcibly closed, thus concluding the process. In the event that confirmation is received, the ticket status is updated to "closed," triggering an automatic email for closure notification, and the process reaches its conclusion.



Recommendations for To-be model and their Impacts:

- Consider offering additional training to Level-1 staff to enhance their capabilities and confidence in handling a broader range of issues, the level-2 staff will train the level-1 staff for simple request resolutions on regular basis, and maintain the Knowledge base and also perform the recertification process on KB articles regularly for any processes changes and or procedural changes. Knowledge base management systems empowers Level-1 support staff with quick access to solutions. This can reduce the time they spend researching issues, leading to faster resolutions

- Invest in self-service portal this will increase the cost, but it is one time investment and Encourage clients to use self-service options for common issues. This can help reduce the number of requests in the system by enabling clients to find solutions independently
- Build a centralized knowledge repository where common issues and solutions are documented, making it easily accessible to both levels of support
- External Quality: the self-service portal will contribute in the external quality of the process. In Kb Articles, the solution for general issue and the procedural issue will decrease the number the request on the dashboard, which directly reduce the load of level-1 staff and level-2 staff. It will also increase the customer satisfaction, they don't have to wait for longer time in the queue for their simpler issues
- Internal Quality: Organize regular sessions where Level-2 staff can share their expertise, insights, and best practices with Level-1 staff. This can help bridge the knowledge gap and empower Level-1 staff to handle a wider range of issues. Training Level-1 members, will expertise their skills, add technical skills to their skill sets. It will lower the training cost of company when they need a level-2 staff, if by any chance level-2 plans to leave the company

Heuristic Process Redesign Methodology

Customer Heuristics

	TIME	Cost	Quality	Flexibility
Control relocation	+	.	.	+
Contact reduction	-	+	.	-
Integration	.	+	+	.

Customer Heuristics Impact Analysis:**Control Relocation:**

- Impact on Time: Positive (+)
 - Explanation: Focuses on improving customer interaction by moving controls towards the customer, which enhances process efficiency and responsiveness
- Impact on Cost: Neutral (.)
 - Explanation: Doesn't directly address cost aspects
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Positive (+)
 - Explanation: Improves flexibility by making processes more adaptable and customer-centric

Contact Reduction:

- Impact on Time: Negative (-)
 - Explanation: Aims to reduce the number of customer contacts, which may slow down response times
- Impact on Cost: Positive (+)
 - Explanation: Reducing customer contacts can lead to cost savings
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Negative (-)
 - Explanation: Reducing customer contacts can reduce process flexibility

- **Integration:**
- **Impact on Time: Neutral (.)**
 - Explanation: The impact on time may vary depending on the specifics of integration.
- **Impact on Cost: Positive (+)**
 - Explanation: Integration can lead to cost efficiencies through better coordination.
- **Impact on Quality: Positive (+)**
 - Explanation: Improved process alignment and coordination enhance quality.
- **Impact on Flexibility: Neutral (.)**
 - Explanation: The effect on flexibility can vary depending on the integration approach.

Business Process Operation Heuristics

	TIME	Cost	Quality	Flexibility
Case types	+	.	.	.
Activity elimination	-	+	.	+
Case-based work	-	+	.	-
Triage	.	.	.	+
Activity composition	-	+	.	+

Business process operation Heuristics Impact Analysis:

Case Types:

- Impact on Time: Positive (+)
 - Explanation: Case types streamline and categorize similar activities, which can lead to faster process execution
- Impact on Cost: Neutral (.)
 - Explanation: Doesn't directly address cost aspects
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Neutral (.)
 - Explanation: Doesn't directly impact process flexibility

Activity Elimination:

- Impact on Time: Negative (-)
 - Explanation: Removing activities can slow down the process
- Impact on Cost: Positive (+)
 - Explanation: Eliminating unnecessary activities reduces resource usage and cost
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Positive (+)
 - Explanation: Streamlining the process can make it more flexible

Case-Based Work:

- Impact on Time: Negative (-)
 - Explanation: Removing batch-processing and periodic activities can reduce process speed
- Impact on Cost: Positive (+)

- Explanation: Reducing resource usage and cost
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Negative (-)
 - Explanation: Removing periodic activities can reduce flexibility

Triage:

- Impact on Time: Neutral (.)
 - Explanation: Doesn't directly impact time
- Impact on Cost: Neutral (.)
 - Explanation: Doesn't directly address cost aspects
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly impact quality
- Impact on Flexibility: Positive (+)
 - Explanation: Streamlining activities can improve flexibility

Activity Composition:

- Impact on Time: Negative (-)
 - Explanation: Breaking down large activities can increase processing time
- Impact on Cost: Positive (+)
 - Explanation: Making activities more manageable and streamlined can reduce cost
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Positive (+)
 - Explanation: Streamlining activities can improve flexibility

Organization Heuristics

	TIME	Cost	Quality	Flexibility
Case assignment
Flexible assignment	+	+	.	+
Split responsibilities	+	.	.	.
Customer teams	+	.	.	+
Numerical involvement	+	+	+	+
Case manager	+	+	+	+

Organization Heuristics Impact Analysis:

Case Assignment:

- Impact on Time: Neutral (.)
 - Explanation: Doesn't directly affect time
- Impact on Cost: Neutral (.)
 - Explanation: Doesn't directly address cost aspects
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly affect quality
- Impact on Flexibility: Neutral (.)

- Explanation: Doesn't directly affect flexibility

Flexible Assignment:

- Impact on Time: Positive (+)
 - Explanation: Maximizes flexibility and efficiency by assigning work adaptably
- Impact on Cost: Positive (+)
 - Explanation: Optimizes resource usage and can lead to cost savings
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Positive (+)
 - Explanation: Enhances process adaptability and responsiveness

Split Responsibilities:

- Impact on Time: Positive (+)
 - Explanation: Reduces shared responsibilities that might lead to delays
- Impact on Cost: Neutral (.)
 - Explanation: Doesn't directly address cost aspects
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly address quality aspects
- Impact on Flexibility: Neutral (.)
 - Explanation: Doesn't directly affect flexibility

Customer Teams:

- Impact on Time: Positive (+)
 - Explanation: Cross-functional teams can enhance collaboration and responsiveness.
- Impact on Cost: Neutral (.)

- Explanation: Doesn't directly address cost aspects.
- Impact on Quality: Neutral (.)
 - Explanation: Doesn't directly affect quality.
- Impact on Flexibility: Positive (+)
 - Explanation: Improves adaptability by involving different departments.

Numerical Involvement:

- Impact on Time: Positive (+)
 - Explanation: Streamlines processes and can lead to time savings
- Impact on Cost: Positive (+)
 - Explanation: Optimizes resource usage and can lead to cost savings
- Impact on Quality: Positive (+)
 - Explanation: Process optimization and alignment can enhance quality
- Impact on Flexibility: Positive (+)
 - Explanation: Enhances process adaptability and responsiveness

Case Manager:

- Impact on Time: Positive (+)
 - Explanation: Clear responsibility and accountability can lead to faster decision-making
- Impact on Cost: Positive (+)
 - Explanation: Efficient handling and decision-making can lead to cost savings
- Impact on Quality: Positive (+)
 - Explanation: Improved accountability and management can enhance quality
- Impact on Flexibility: Positive (+)
 - Explanation: Enhances flexibility by assigning clear responsibility for each case

Information Heuristics

	TIME	Cost	Quality	Flexibility
Control addition	-	-	+	.
Buffering	+	-	.	+

Information Heuristics Impact Analysis:**Control Addition:**

- Impact on Time: Negative (-)
 - Explanation: Involves additional checks and verification steps, potentially slowing down the process
- Impact on Cost: Negative (-)
 - Explanation: Adding cost due to the need for completeness and correctness checks
- Impact on Quality: Positive (+)
 - Explanation: Ensures completeness and correctness of materials, enhancing quality
- Impact on Flexibility: Neutral (.)
 - Explanation: Doesn't directly affect flexibility

Buffering:

- Impact on Time: Positive (+)
 - Explanation: Reduces the need for frequent external information requests, potentially speeding up the process
- Impact on Cost: Negative (-)
 - Explanation: Adding cost due to buffering and storage requirements

- Impact on Quality: Neutral (.)
 - Explanation: Its effect on quality may vary depending on the context
- Impact on Flexibility: Positive (+)
 - Explanation: Enhances flexibility by reducing the dependence on real-time external information

Technology Heuristics

	TIME	Cost	Quality	Flexibility
Activity automation	+	-	.	+
Integral technology	+	-	.	+

Technology Heuristics Impact Analysis:

Activity Automation:

- Impact on Time: Positive (+)
 - Explanation: Automating activities can reduce processing time and speed up the process
- Impact on Cost: Negative (-)
 - Explanation: Initial investment in automation may increase costs
- Impact on Quality: Neutral (.)
 - Explanation: The impact on quality may vary depending on the quality of the automation
- Impact on Flexibility: Positive (+)
 - Explanation: Automation makes processes more adaptable and efficient

Integral Technology:

- Impact on Time: Positive (+)
 - Explanation: Elevating physical constraints can make processes more efficient and reduce time.
- Impact on Cost: Negative (-)
 - Explanation: Initial investment in new technology may increase costs.
- Impact on Quality: Neutral (.)
 - Explanation: The impact on quality may vary depending on the quality of the technology implementation.
- Impact on Flexibility: Positive (+)
 - Explanation: Reducing physical constraints makes processes more adaptable.

Process Implementation and Control

A well-structured approach is required to handle customer enquiries successfully while managing technical support for the Global Room Reservation System. The goal of the process implementation and control for managing customer requests and technical support is provided below.

Goal	<ul style="list-style-type: none"> • Client enquiries are handled and resolved efficiently. • Customers must be communicated with clearly. • Resolved tickets are closed on time. • Compliance with the Operational Level Agreement (OLA)
-------------	---

PROCESS	PEOPLE RESPONSIBLE	TIMELINE	DESCRIPTION	PERFORMANCE

Customer request	Customer	-	A customer emails to request that a ticket be opened for an issue.	-
Acceptance of Tickets	Level-1 support	Within 1 hour	The ticket is received and acknowledged.	Within the OLA'S Time frame
Checks the customer data	Level-1 support	-	Validates both the "customer ID" and the "service ID."	Handling tickets efficiently
Assigning the priority	Level-1 support	-	The ticket is prioritized depending on the service ID.	Resolving streamline issues
Searching solution	Level-1 support	-	Checks the Resolved Issue database for existing solutions.	Optimization of problem resolution.
Provide solution	Level-1 support	-	Provides assistance if a solution is available.	The problem has been handled and communicated.
Closing conformation	Level-1 support	-	Awaiting a response or confirmation from the customer.	Timely customer engagement
Unresolved Ticket Closure	Level-1 support	5 days	If no response is received, the ticket is forced closed.	Customer follow-up that is proactive.
Level-2 consultation	Level-1 support	-	Consult Level-2 if needed	Approaching challenging issues together
Level-2 Support	Level-2 support	-	Level-2 acknowledges support availability	Communication between teams

Ticket assignment	Level-1 support	-	The ticket is assigned to the appropriate Level-2 member.	Team member assignment that works.
Level-2 ticket handling	Level-2 support	Within 24 hours	Level-2 opens the ticket and speaks with the consumer.	Prompt ticket handling.
Information gathering	Level-2 support	-	Gathers the necessary issue information.	Collecting efficient information
Issue resolution	Level-2 support	-	Analyses and solves the problem.	In-depth problem solving
External Dependency Check	Level-2 support	-	Manages external dependencies effectively.	Efficient handling of dependencies
External Team Coordination	Level-2 support	-	Solutions are developed in collaboration with external teams.	Complex issue resolution.
Resolution storage	Level-2 support	-	Stores solution for future reference.	Documentation for future use.
Closer conformation	Level-2 support	-	Notifies the consumer and requests confirmation.	Customer participation in closing.
Unconfirmed closer	Level-2 support	5 days	Forcibly closes the issue if no confirmation.	Timely resolution closure.
Issue closer	Level-2 support	-	Changes the status of the ticket to "closed," which sends an automatic email.	Process of closure that is efficient.

Assumptions

Assumptions regarding AS-IS:

- The method is outlined with the assumption that the IT helpdesk has defined responsibilities (Level-1 and Level-2 assistance).
- For ticket creation and customer communication, the system relies on email.
- The assumption is that operational level agreements (OLAs) are already in existence.
- The procedure presupposes that the one-hour SLA breach time for Level-1 assistance is a reasonable and agreed-upon deadline inside the organization.
- It is believed that there is an effective framework in place for tracking and managing ticket lifecycles, assuring proper assignment, resolution, and closure within set schedules and criteria.

Assumptions regarding To-Be Model:

- The "To-Be" model presupposes a clear separation of Level-1 and Level-2 staff responsibilities, as well as the time required for each work. This distinction may exist in the "As-Is" approach, but it may not be as explicit or structured.
- The "To-Be" model presupposes a well-defined and efficient process for resolving issues and communicating with clients. The effectiveness and speed of issue resolution and customer communication may vary in the "As-Is" paradigm.
- The "To-Be" concept is based on a consistent and trustworthy job monitoring system. There may be periodic system downtimes or inefficiencies under the "As-Is" approach, influencing process flow and timelines.
- The "To-Be" framework indicates a streamlined and optimized procedure. There may be areas of improvement and inefficiencies in the "As-Is" model that effect the total cycle time and cost per execution.

Assumptions for the process:

- The approach presupposes that the client is going to provide sufficient information in the initial email in order to open a ticket.
- The procedure involves the formation of an organized support team with well-defined roles and responsibilities.

- Taking into account the description and keywords provided, it is anticipated that Level-1 support can manually determine their capacity to handle an issue.
- It is assumed that the procedure has been established and optimized to efficiently balance the workload among Level-1 and Level-2 support employees.
- It is anticipated that the classification of enquiries into critical, high, medium, and standard categories is well-defined and consistent, allowing for appropriate ticket prioritization.
- The procedure presumes that the Level-2 support team has been educated to handle customer dissatisfaction efficiently, with the goal of providing alternate and satisfactory resolutions during the rework process.
- It is expected that a feedback system or regular reviews are in place to assess the process's efficacy and efficiency, allowing for continual changes based on feedback and performance metrics.

Assumptions, Observations, Findings about IT Helpdesk Handling Requests from Swiss Re group:

- The helpdesk handles Swiss Re Group's "Global Room Reservation System" enquiries.
- To ensure fast response and resolution of client enquiries, the system operates on set SLAs.
- To ensure smooth ticket handling and resolution, the procedure emphasizes efficient communication, both internally and with customers.
- An organized ticketing system with levels of support and explicit resolution methods is used in the process.
- The findings of the process reveal a heavy emphasis on continuous improvement, obtaining client input through closure confirmation and rework procedures to improve service quality.
- The ticket status updates ("waiting for customer" and "waiting for dependency") have been discovered to be critical in monitoring SLAs and ensuring customer expectations are satisfied during the resolution process.
- Overall, the process is determined to be effective in managing and resolving enquiries about the Global Room Reservation System, with the goal of providing satisfying solutions and maintaining a high level of customer satisfaction within stated operating framework.

Conclusion

The present method for managing enquiries and requests at the IT helpdesk for Swiss Re Group's Global Room Reservation System, CEDD Operations Vendor 2, is structured and aimed for efficient handling, clear communication, and fast resolution of client difficulties. The procedure begins with the creation of a ticket by email from the customer, followed by assessment and assignment by Level-1 support. The concerns are then extensively evaluated and resolved by Level 2 assistance, taking into account both internal and external variables. To ensure timely responses, the system follows Operational Level Agreements (OLAs) and maintains a strong focus on client satisfaction through clear communication and closure confirmations. There is, nevertheless, opportunity for development in terms of automation, process optimization, and even incorporating a more comprehensive ticketing system to boost efficiency and streamline the workflow. The IT helpdesk can strive for even better levels of service quality and customer satisfaction by using technology and refining processes.

References

- [1] James Evans, William Lindsay, An Introduction to Six Sigma & Process Improvement, Cengage, 2015.
- [2] Wil Van Der Aalst, Kees Van Hee - Business & Economics, Workflow Management: Models, Methods, and Systems, MIT press, 2005.
- [3] Birlasoft focuses on Digital Services for BFSI (no date) Birlasoft. Available at: <https://www.birlasoft.com/articles/birlasoft-focuses-on-digital-services-for-bfsi> (Accessed: 21 October 2023).
- [4] Microsoft Strategic Cloud Alliance Partnership (no date) Birlasoft. Available at: <https://www.birlasoft.com/services/enterprise-products/microsoft> (Accessed: 21 October 2023).
- [5] Corporate governance: Swiss re (no date) [ALT + 2]. Available at: <https://www.swissre.com/about-us/our-approach/corporate-governance.html> (Accessed: 21 October 2023).