Fall 2019

MIS710 A
Process Innovation and Management
Individual Final Assignment
Reengineering the Helpdesk Process

I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. I further pledge that I have not copied any material from a book, article, the Internet or any other source except where I have expressly cited the source.

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Assignment

1. **Read and Assess IS system**
   - Functional specification
   - PROCESS constituents
   - Relationship map
   - Process map

2. **Develop SHOULD system**
   - Narrative
   - Change levers - PROCESS constituents

3. **Develop the following (Rummler)**
   - SHOULD Organizational goals
   - SHOULD Process goals
   - SHOULD Process map
   - SHOULD Relationship map
   - SHOULD Process Map /Sub-Goals
   - SHOULD Activity Inputs/Outputs + input screens, output reports
   - SHOULD Functional Goal Summary
   - SHOULD Job/Responsibility Matrix
   - SHOULD Job Model (Design)

4. **Develop a high-level conceptual data model + RDBMS** for the business process

5. **Costs & Benefits**
   - (Not necessarily in dollar terms)

6. **Extend the Vision**
   - Other Processes Impacted
   - Reengineering principles used
   - Future evolution of the System

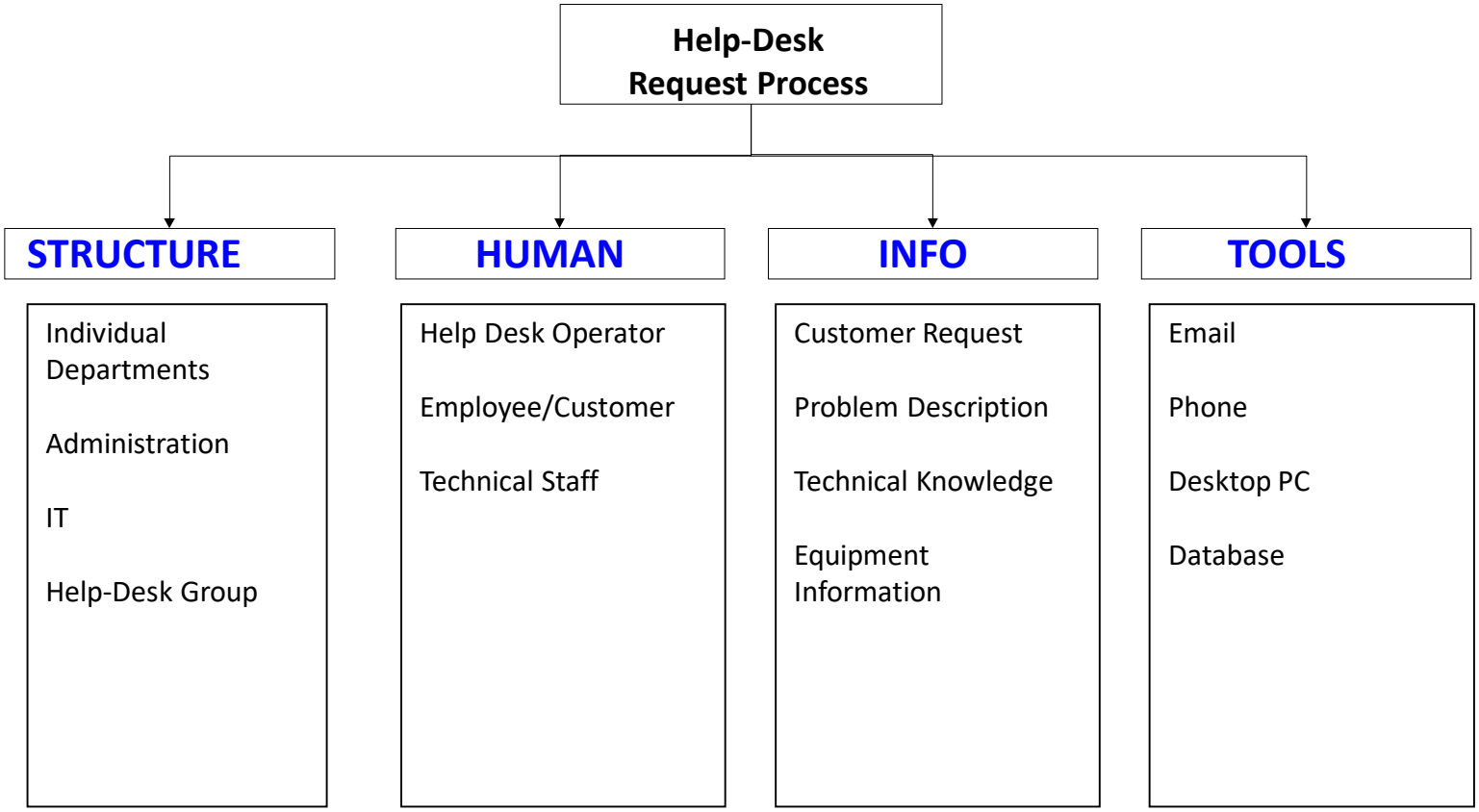
High Level
Overview of the Current Process (IS)

- Customer contacts the helpdesk regarding the issue they are experiencing
- HELPDESK works towards the resolution if the issue on first come first serve basis
- Once resolved, the customer is notified
- Customer confirms resolution
- Trouble Request is then closed
- Regular turn around time for the resolution is anywhere from 48 to 72 hours

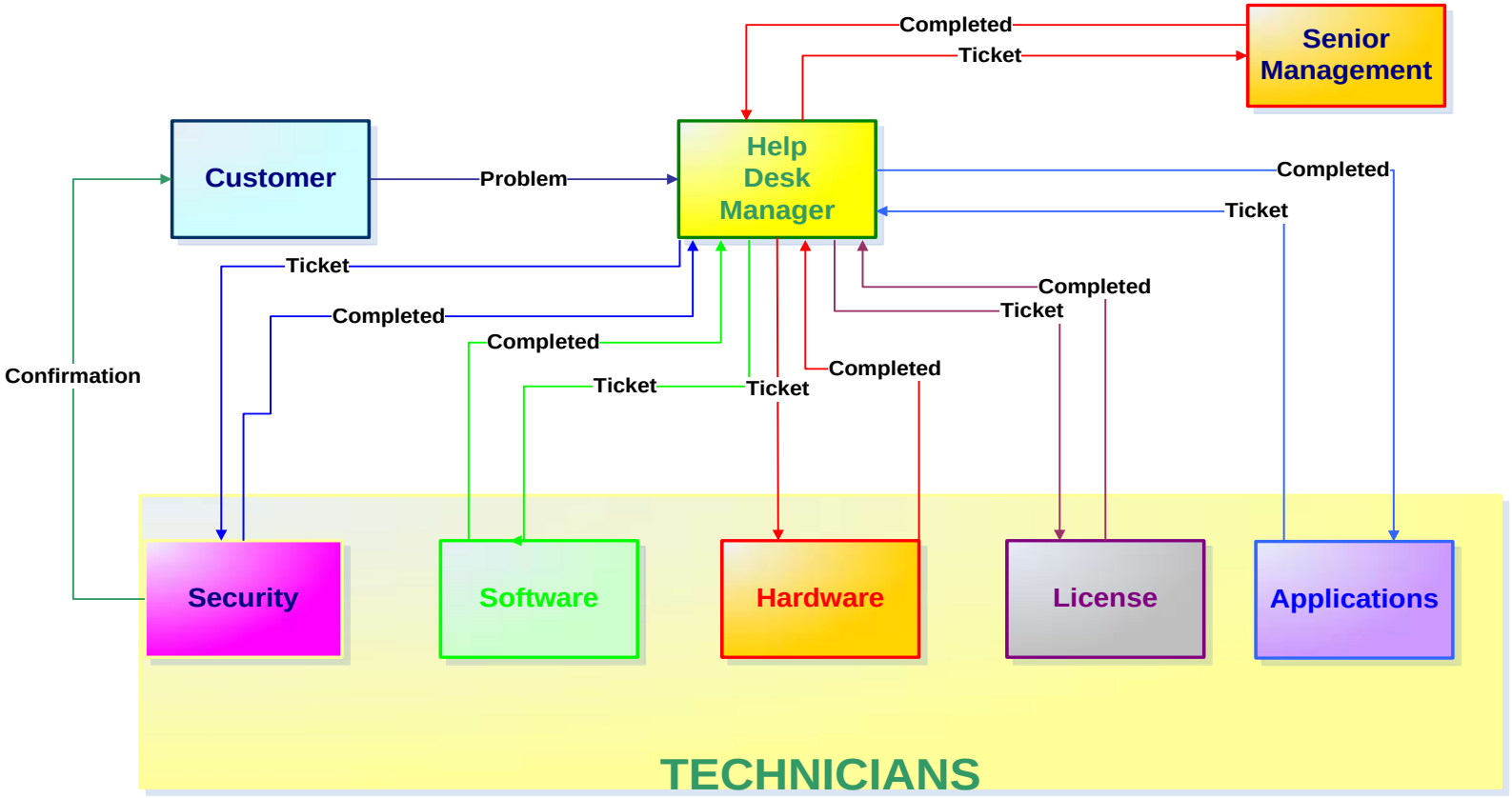
Functional Narrative/Spec (IS Process)

- Customer reports an issue that the helpdesk receives
- Helpdesk forwards request & assigns the task to the appropriate technician
- Technician contacts customer for further details
- Customer provides feedback
- Technician troubleshoots the problem
- If the technician is unable to resolve the issue, it is forwarded back to the Helpdesk Manager
- Help Desk Manager & the technician together work on resolving the issue
- If unable to fix, the issue is escalated to Headquarters for further assistance
- Once resolved, the helpdesk contacts the customer to notify resolution
- Customer confirms resolution via email
- Help desk receives notification and the trouble request is closed

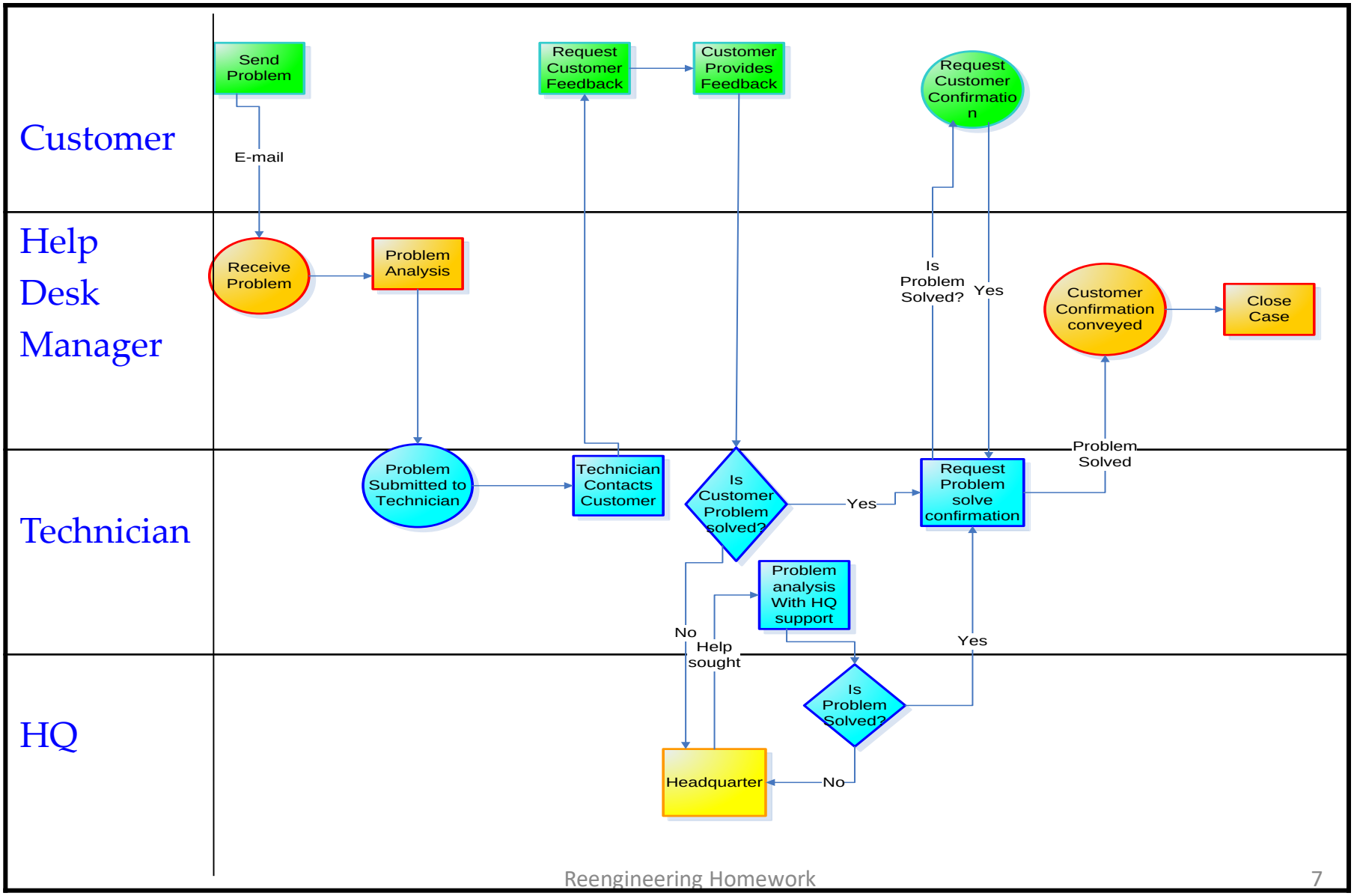
Process Constituents (IS Process)



Relationship Map (IS Process)



Process Map (IS Process)



Critique of the IS Process

- No evident documentation procedure in place
- Inability of the customer to track status of their reported issue
- No existence of a “Knowledge Base Database” that documents past issue and “fixes”
- Increased duplication & redundancy of work
- High time-delay gap
- Increased turn around time that results in dissatisfied customers

Help Desk Process

Proposed New Design (To-Be)

Helpdesk Process

1.1 Organizational Goals

- Incorporate a **database** to **document** and **track** all the tickets and resolution provided to address future issues and implement performance measure initiatives
- Design a **platform** to incorporate "**automation"** and "**chatbot"** facility to get the issue details from the customer and analyze the problem statement from existing database and provide immediate solution if any from the documented solutions or create new ticket
- Implement **Ticket priority status** update to resolve priority tickets on time
- Reduce **time delay gap** and turn around time involved in the existing process
- Provide **customer tracking facility** to keep the customer involved in each iterations

Helpdesk Process

1.2 Process Design Goals

Org. Goal 1 = "**Established an effective database to document end-to-end helpdesk process activities and resolutions provided**"

Supporting Process Design Goals:

The current help desk process is too analog and carried out in traditional manner in which a user directly contacts the help desk manager to report an issue and help desk manager will prioritize the issue on first come first serve basis, where there is **no documentation or database** is in existence to **track** all and any **information** / activities carried out during the entire process

Org. Goal 2 = "**Automation solutions using emerging technologies like Auto ticket resolution / Chat Bots etc.**"

Supporting Process Design Goals:

In current process the tickets are handled by individual person (Help Desk Manager), who manually receive the problem details and assign into a ticket and analyze the problem then forward it over to the corresponding technician for resolution. This process can be automated using various existing technologies such as RPA tools to handle repetitive issues and provide solution or use a chat bot to interact with user on the issue and check in data base for any existing solutions and help the user.

Helpdesk Process

1.2 Process Design Goals

Org. Goal 3 = "**Implement Priority status for each tickets created to process give more importance to high priority tickets**"

Supporting Process Design Goals:

In existing process the help desk managers work on the issues on first come first serve basis and doesn't care about the urgency of the issue resolution. Implementing priority status for each ticket could potentially help the users to get resolution for high priority requests also if any high priority request is raised it should be responded in ad-hoc basis.

Org. Goal 4 = "**Customer dashboard to provide better UX to customers to keep track of all tickets they have raised and directly lookout for solutions**"

Supporting Process Design Goals:

The users in current process contact the helpdesk using only one source through email and no proper guidelines to fill out the issue is established in the email process. This experience can be enhanced through providing a user dashboard like (Service Now) to raise ticket, track ticket, interact with user or to find out the solutions by themselves.

Helpdesk Process

1.3 Quantitative Operational Goals

- The new system should **reduce ticket creating and ticket logging time** through user dashboards, chatbots, and automation tools by **90%**
- Through establishing knowledge database to document the repetitive issues and tickets, **ticket resolution efficiency** will be increased by **60%**
- Through establishing dashboard for users to access the knowledge database to figure out the solutions by their own the **ticket counts** could be **reduced by 30%**
- Establishing priority status will help address the major customer resolution and help **increase** the **reliability** of the helpdesk process to the customers

Helpdesk Process:

2.1 Functional View: Narrative (SHOULD)

- In new process the customer uses the **dashboard** provided or the chat bot to report the issue to the help desk.
- The customer is also provided with the options to directly **search for the resolutions** using dashboard for the issue and if the solutions is found, the customer has no need to contact and create ticket in helpdesk
- **Chat Bot**: If the customer is logging the issue using chatbot, the chat bot will prompt for the user with pre established questions to figure out the problem and in backend it searches for the already existing solution from the knowledge database and if the solution is available it will prompt the user with possible resolutions or the chatbot will create ticket for the user

Helpdesk Process:

2.1 Functional View: Narrative (SHOULD) ctd.

- **Dashboard:** if the user is using dashboard to log in the issue, the dashboard provides the user with predefined questions and create the ticket by their own
- User can then **track the status** of the ticket, respond to the technician's query in the dashboard and provide feedback.
- The Automation tool automatically figures out the ticket domain and assign it to the technician based on the description provided in the problem definition
- If the tool cannot figure out the ticket domain then it forwards the ticket to help desk manager for approval and the manager will assign it to concerned team
- The technicians will access the tickets through the dashboard and start working on the issue and will contact the users for any feedback on the problem

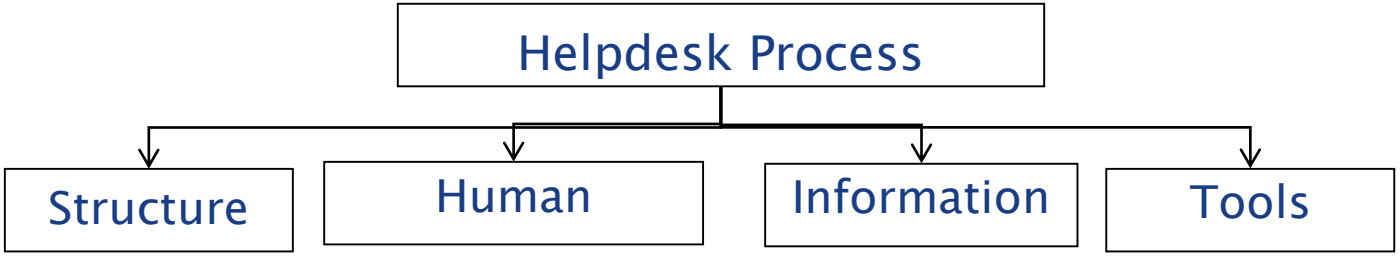
Helpdesk Process:

2.1 Functional View: Narrative (SHOULD) ctd.

- The dashboard and chatbot will also prompts for the ticket priority status number and if the ticket is found out to be high priority then the technicians will be intimated and will prompt them to prioritize the high priority ticket
- Once the ticket is resolved the technicians will update the dashboard with status and the user will be intimated through dashboard and other means
- Once the customer confirms the ticket is resolved the ticket is closed in the dashboard
- The dashboard also provides option to reopen the ticket

Helpdesk Process:

2.2 Change Levers/Process Constituents (SHOULD)



Organization Structure (Department changes, etc.):

The organization structure is unaffected, thought he new process predominantly implies the use of automation techniques to address the issues in help desk process the structure remain the same and involves same departments and no new role is involved

Human (managers, operators, role changes, etc.):

In this new process over the period, once the enough data is collected the need for human gets decreased and the automation process will take over the resolution model, though the human involvement gets decreased it doesn't come to the point where human involvement is not needed

Helpdesk Process:

2.2 Change Levers/Process Constituents (SHOULD)

Information Structure (data bases, reports, etc.)

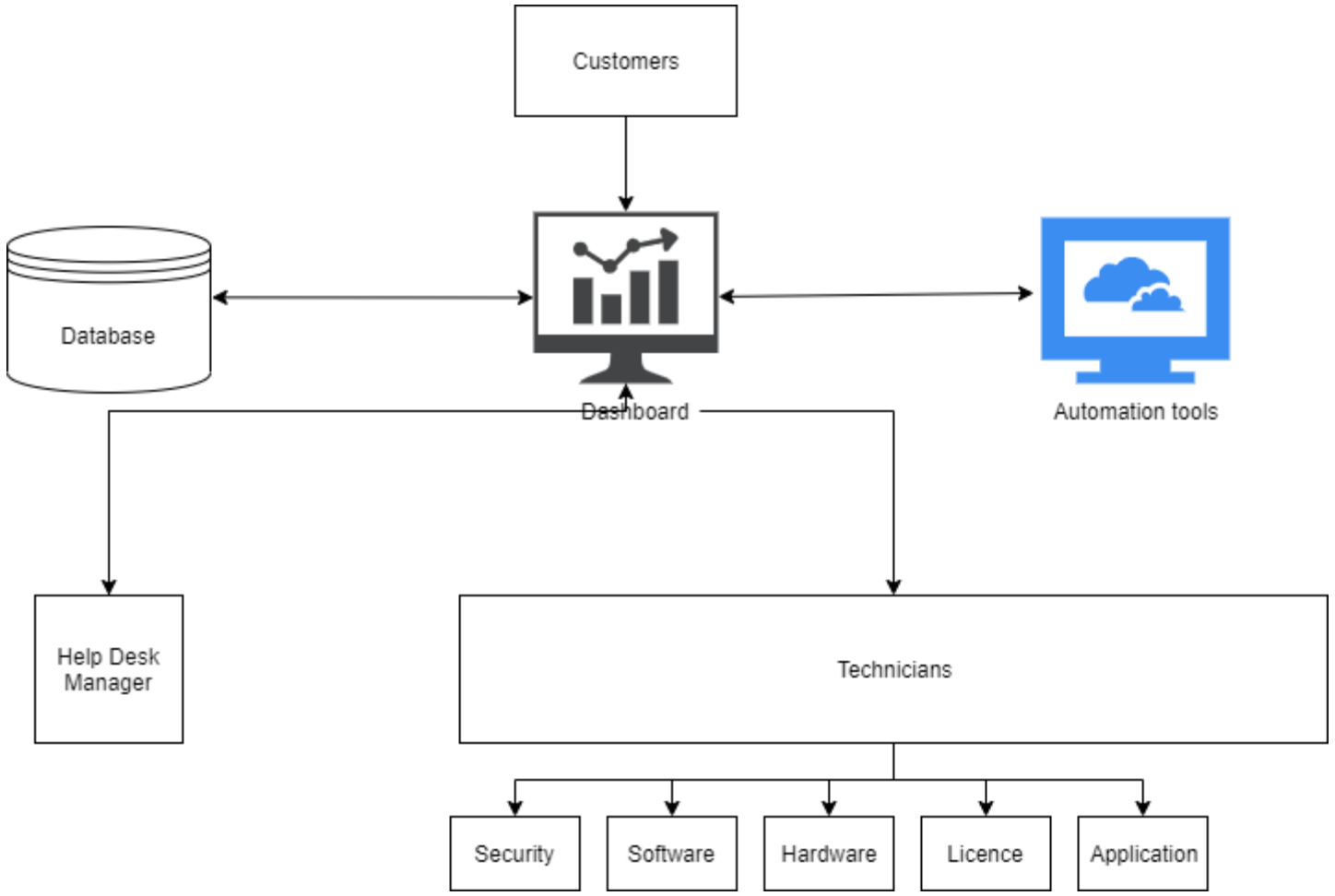
The existing process doesn't have any type of **database** to document the knowledge base like problem definitions and their corresponding solutions. Here a detailed **database is established** to track the ticket process from end-to-end and use also these database can be used to track the progress like monthly resolution progress, yearly **progress using reports**

Tools (equipment, software systems, etc.)

In the new process various next generation tools like **Chatbot,** mobile device supported **Dashboard** (like ServiceNow), **ML - Automation tools** are involved in the process to track the ticket, provide resolutions from knowledge database and useful in generating reports to track the progress, other than that existing tools are also used like email, mobile, computers – laptops/desktops.

Helpdesk Process:

3. Organizational View: Relationship Map



Consistency Checks to Date - 1

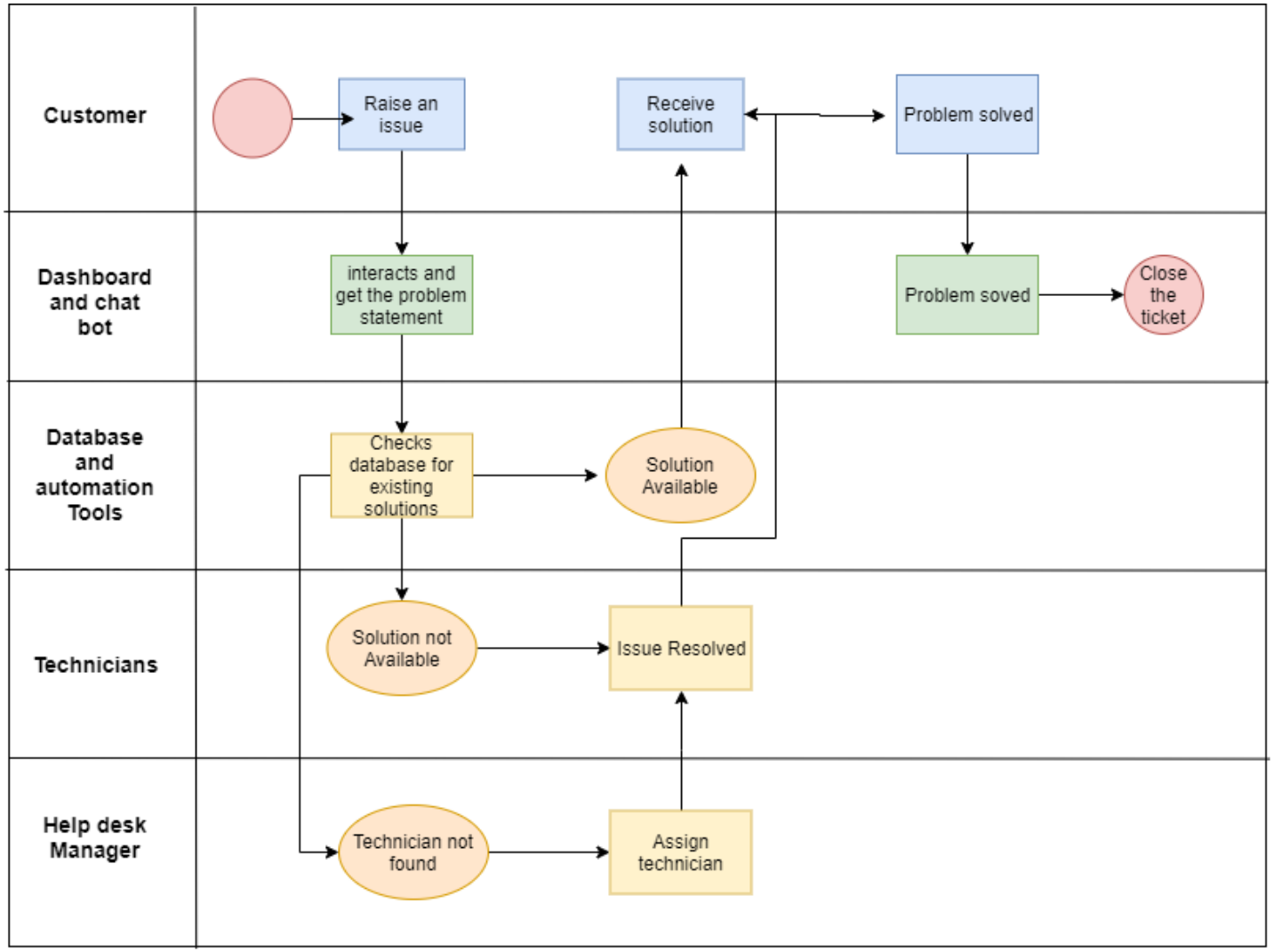
Organizational Entities mentioned in the *Narrative* should be represented in the *Change Levers* and the *Relationship Map*

Human entities/roles in the narrative should be represented in the *Change Levers*

Information flows mentioned in the *Narrative* should be represented in the *Relationship Map*

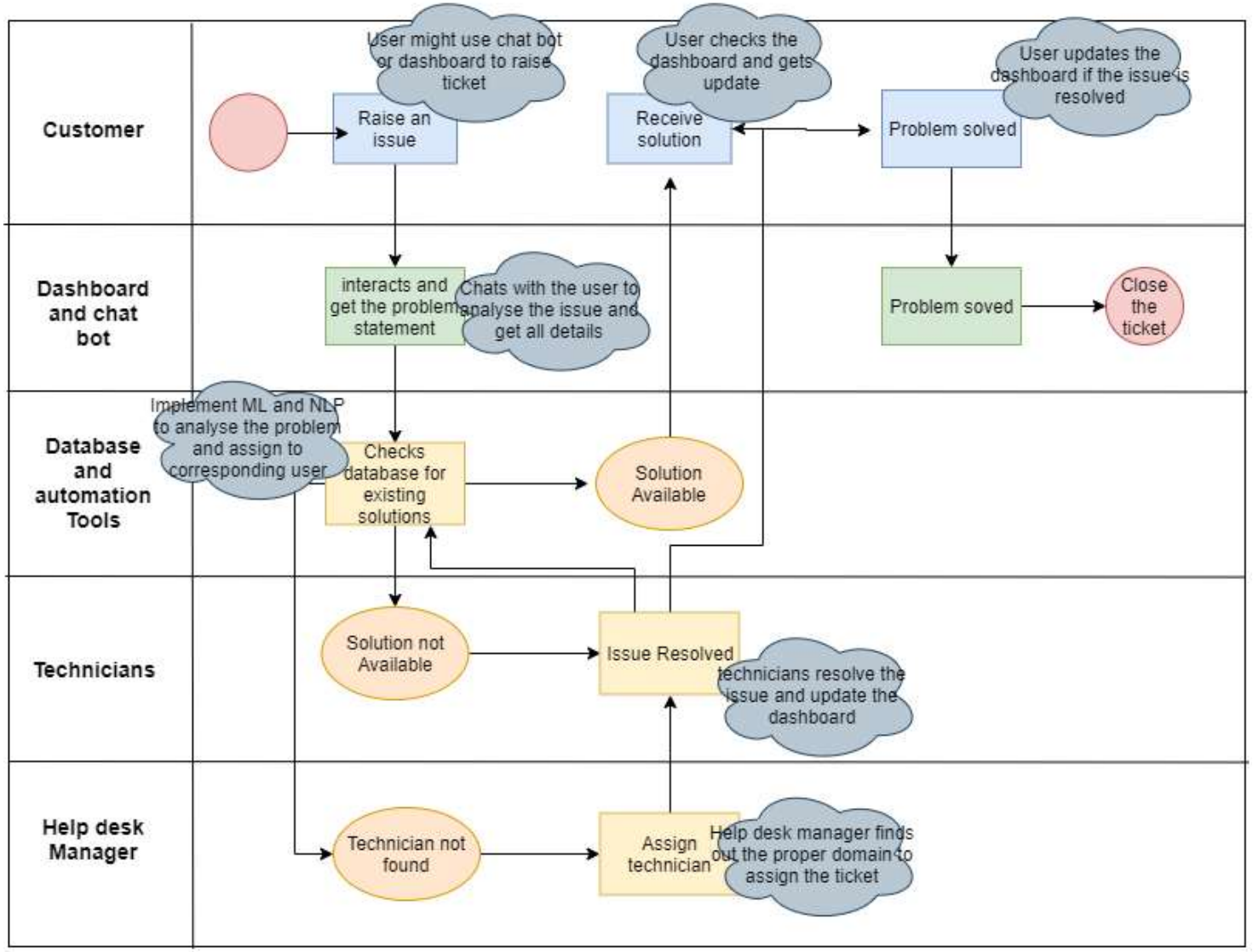
Helpdesk Process

5. Behavioral View: Process Map (SHOULD)



Helpdesk Process

5. Behavioral View: Process Map with Task Sub-Goals



Consistency Checks to Date - 2

Organizational Entities & Roles mentioned in the *Relationship Map* should be represented in the Process Map

Activities mentioned in the Narrative should be represented in the *Process Map*

Information flows mentioned in the *Relationship Map* should be represented in the *Process Map*

Consistency Checks to Date - 3

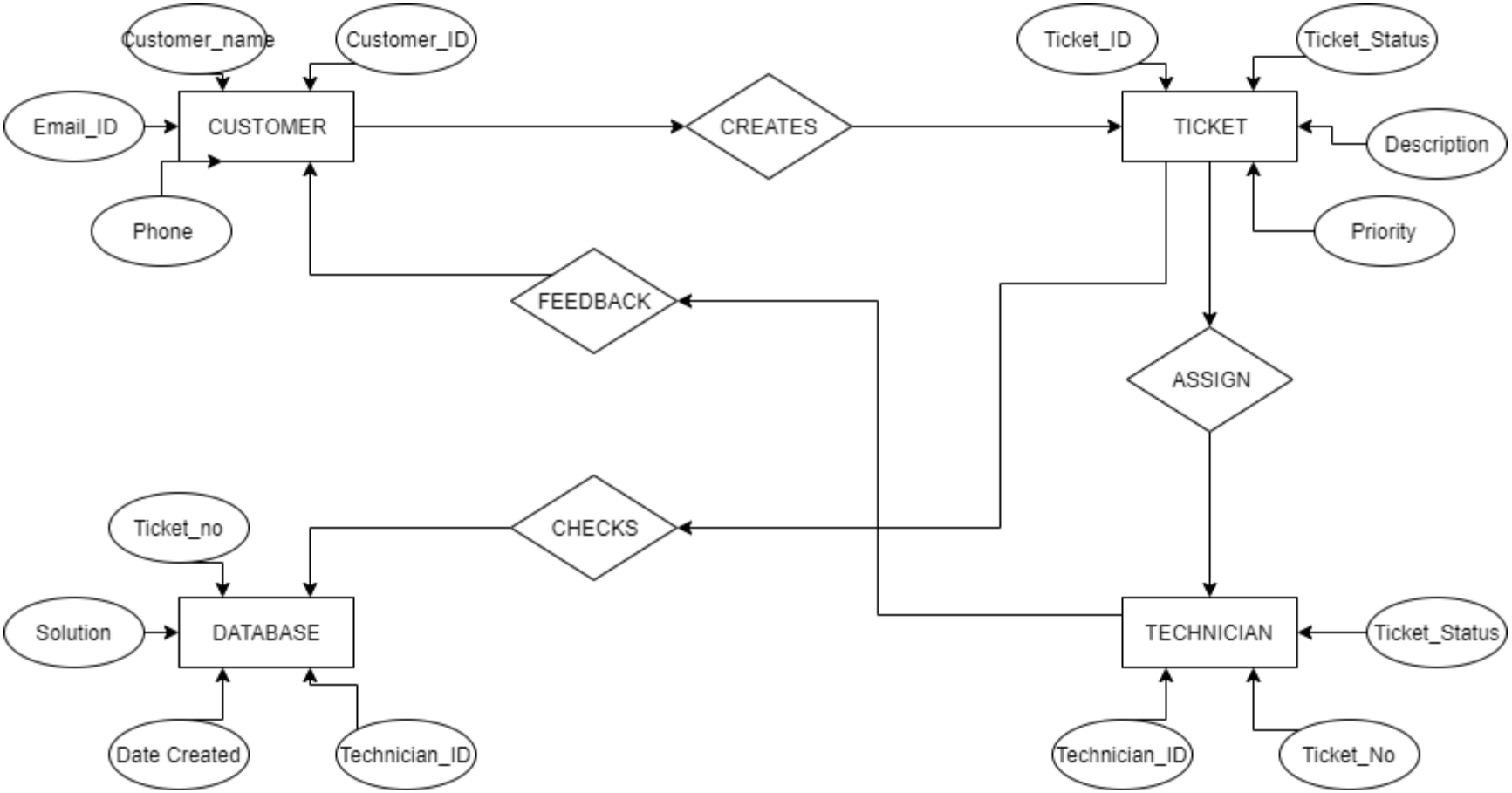
Process Goals mentioned earlier should be realized by the Process Map Design

The sub-task goals for all the Activities in the Process Map should realize the overall Process Goal

Helpdesk Process

6. Information View: Conceptual Data Model (1)

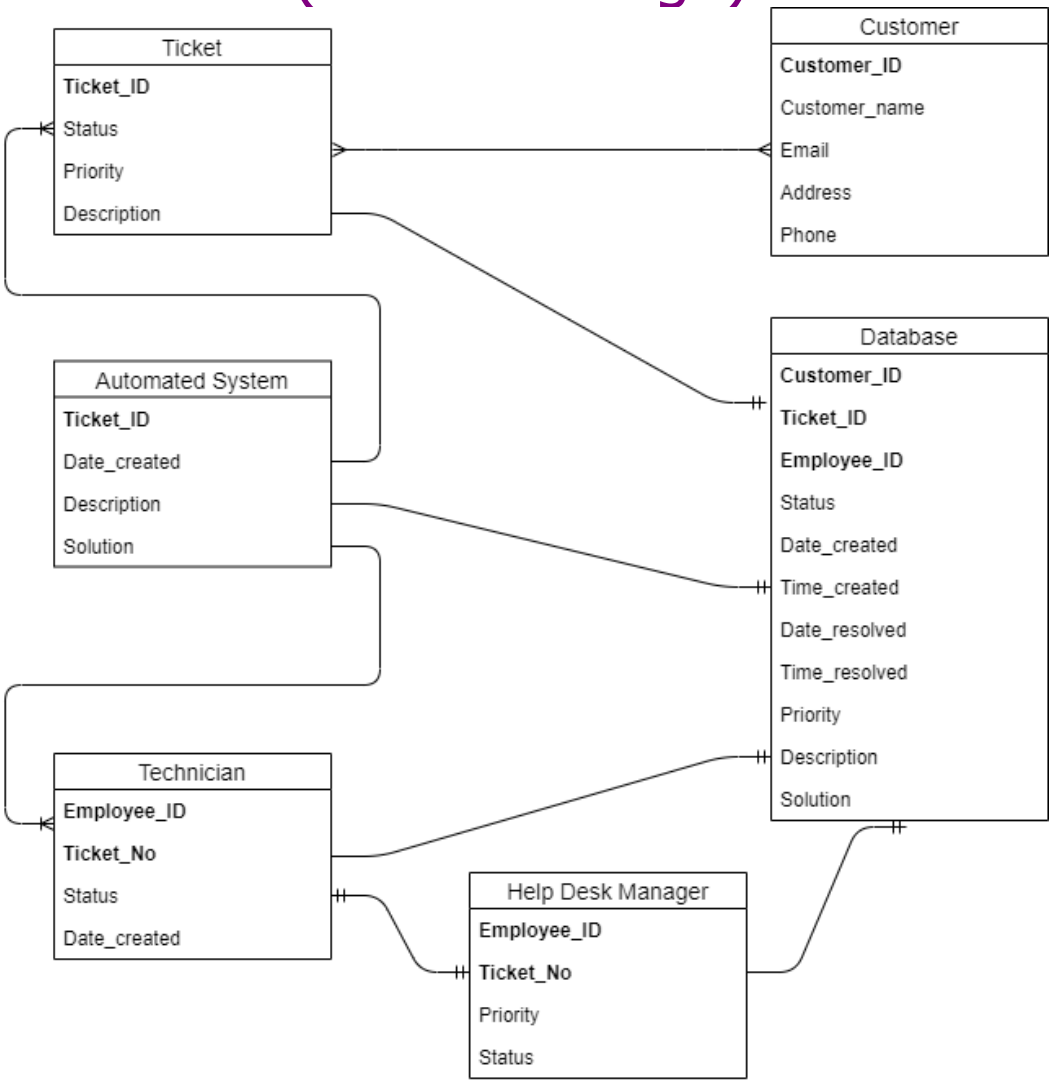
(E-R Diagram)



Helpdesk Process

6. Information View: Conceptual Data Model (2)

(RDBMS design)



Helpdesk Process

6. Information View: Activity **DATA** Inputs/Outputs for two activities

Activity Name – create tickets	
Inputs: • Issue Details and description • Check status and track • Set priority	Outputs: • Instant solution or create ticket number • Dashboard provides status and tracking options • Assign task to technician based on priority

Activity Name – Provide solution	
Inputs: • Ticket/issue details • Technician Assigned	Outputs: • Automation tools checks for existing solutions and make suggestions • Technician analyze the issue and provide solution to the issue also get feedback from user if required

Consistency Checks to Date - 4

The *Entities and Relationships* in the Conceptual (E-R) diagram should be represented adequately in the *Tables and Attributes* in the RDBMS and *Primary and Foreign keys* should be identified

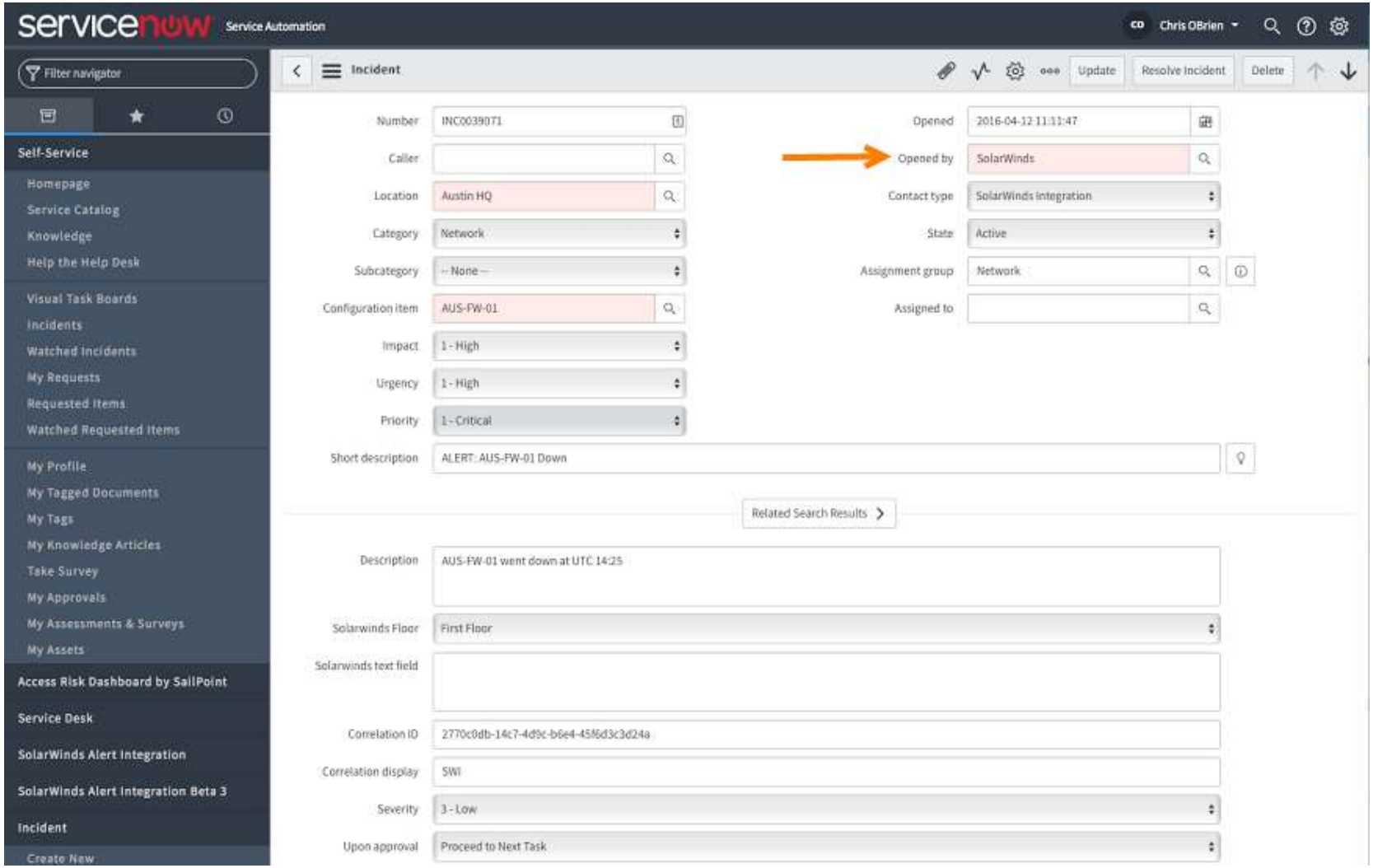
Each *Activity* should have the necessary *Data Inputs* and *Data Outputs* identified.

The *Data Inputs* should have *Data Entry Screens* or other sources identified *(Database Tables)* other *Activities, etc.*

The *Data Outputs* should be inputs to *Reports* or other destinations such as *(Database Tables)* other *Activities, etc.*

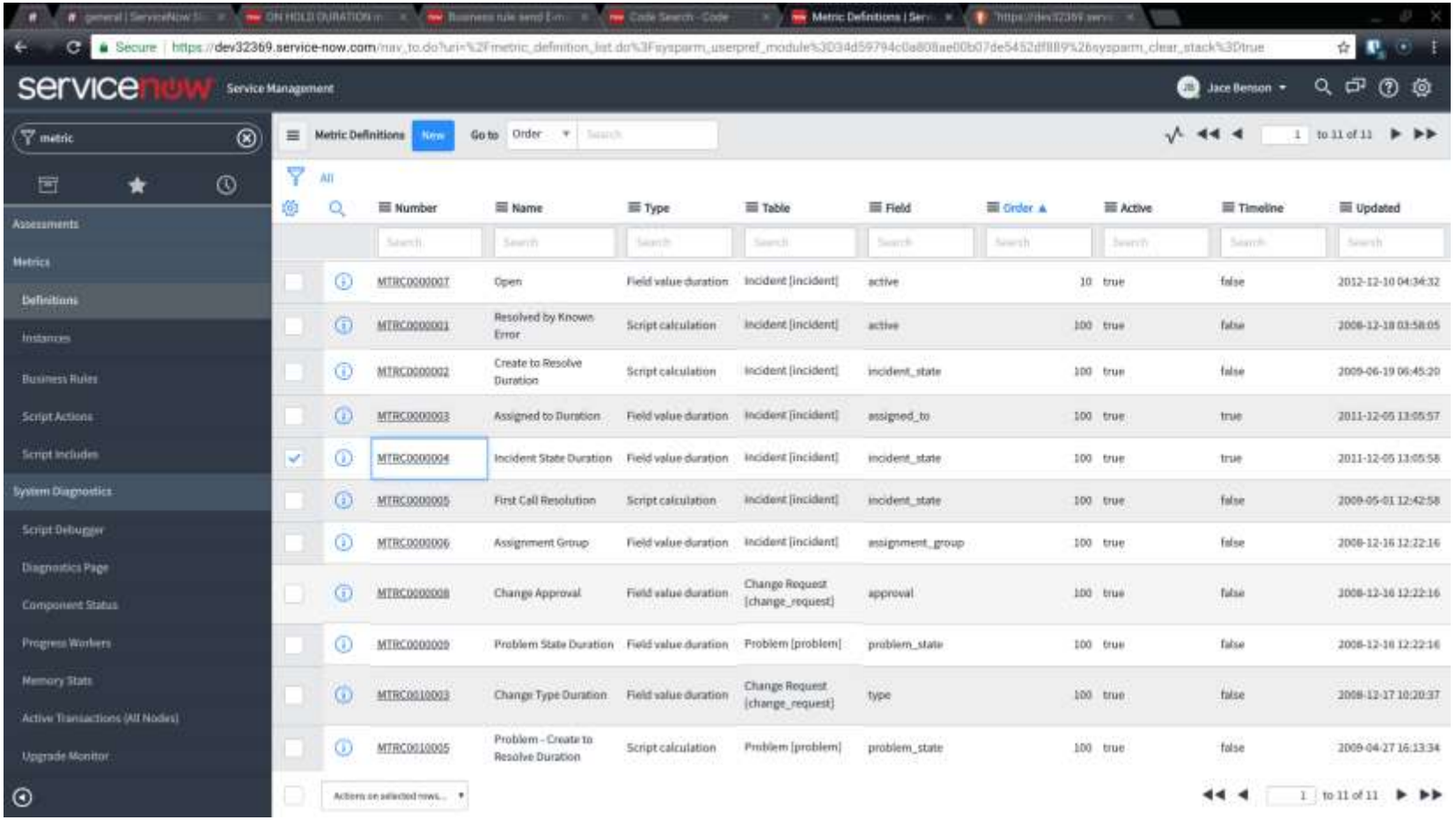
Helpdesk Process

6. Information View: Input (Data Entry) Screen(s)/Form(s)



Helpdesk Process

6. Information View: Output Screen(s) / Report(S)



Helpdesk Process

7. Operational View: Functional Goal Summary

	Department		Jobs & Responsibilities		
Major Process Steps	**Outputs**	**Goals**	**Customers**	**Automation Dashboard**	**Employee**
1. Raise an issue	Issue getting resolved	Provide and resolve solution in faster manner using automated solutions	Provide proper detailed issue statement	Find for any available solution and propose it or assign to technician	Resolve the issue and report
2. Resolve the issue	User getting proper resolution for query	Provide efficient solution	Provide feedback if necessary	Find for existing solution	Work on resolution
3. Document the solution	Proper documentation need to be established	Use the documentation for future solution recommendation	Not Applicable	Keep track of documentation	Document all process
4. Help desk management	Assign tickets to technician properly	Resolution of issue	Not Applicable	Not Applicable	Assign the ticket to the proper domain based on problem definition

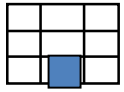
Helpdesk Process

7. Operational View: Job/Responsibility Matrix

Job Responsibility Matrix						
Process Steps	**Employee**		**Manager**		**Customer**	
	Accomplishments	**Goals**	**Accomplishments**	**Goals**	**Accomplishments**	**Goals**
Raise an issue	Receive and provide solutions to the issue	Provide and document solution to the user	Develop and track reports	Oversee the process and provide assist if there is an issue with the process flow	Provide proper definitions and provide feedback and update the dashboard periodically	Get the solution and verify its credibility
Documentation	Properly document the end-to-end process	Use the documentation for the betterment of future reference	Data collection is major accomplishment	use the collected data to provide efficient future solution	Use the documentation to find solution for the existing problem	Get solution without ticket
Automation	Train the system to provide better solution	Training the model for companies benefit	get better customer satisfaction rating	Make the process faster and efficient and less erroneous	Quickly use the solutions to get better result	Get solutions faster

Helpdesk Process

7. Operational View: Job Model (Design)



JOB: Help Desk Process

PROCESS: Automation and chatbot process

ACCOMPLISHMENTS SUBACCOMPLISHMENTS	CRITICAL DIMENSIONS	MEASURES	STANDARDS
Automate, enhance and simplify the Ticket creation process (issue mapping process)	Accuracy	Provide chatbot facility to quick respond the user issues. Use database to efficiently provide solutions	Increase efficiency by 70% post automation techniques implementation
Real-time solution generation to customers	Timeliness	Reduce the manual efforts by implementing back-end automation solutions to provide quick and efficient solutions	Increase customer satisfaction and increase turnaround time

Helpdesk Process

8. Costs & Benefits

Costs:

Implementation Costs:

- Cost for implementing database
- Cost for buying automation solution, dashboard tools, and chatbot tools from 3rd party vendor
- Hardware implementation

Operational Costs:

- Database Maintenance
- Hiring IT team for developing solutions
- Training existing employees and customers for the new system

Benefits:

Tangible Benefits

- Acquiring user data for future benefits
- Tracking and reporting solutions
- Faster response time using latest technologies

Intangible Benefits:

- Customer and employee satisfaction
- Make company future proof using data
- Reduce workloads of employee

Helpdesk Process:

9. Other Processes Impacted

- The role of dedicated helpdesk manager will get extremely diminished post implementing the automation solutions to the process
- The role of IT- infrastructure managers and software developers would become essential and crucial for the process
- Employee satisfaction will multiply post implementation
- Customer approval and satisfaction will also get improved after implementing the process
- Would need more financial support for initial setup and maintanance

Helpdesk Process:

4. Key Principles of Reengineering Used/How Use Hammer principles to reflect on what you did

1) Organize around outcomes not tasks.

With the new implementation with technologies like ML - automation tools, chatbot and dashboard will combine several monotonous jobs into single dashboard for the users to access.

2) Identify all the processes in an organization and prioritize them in order of redesign urgency.

The existing process for helpdesk had didn't include to prioritize the tickets received, with new process the tickets are prioritized and resolved in ad-hoc manner.

3) Integrate information processing work into the real work that produces the information.

In the new process the middle layer of connection which is helpdesk manger is eliminated and the data is completely transferred from user to the technician directly who has the complete control over the information

Helpdesk Process:

4. Key Principles of Reengineering Used/How Use Hammer principles to reflect on what you did

4) Treat geographically dispersed resources as though they were centralized.

Automation solutions implementation would be rolled out as a centralized system rather than stand alone system and the data collected all around the office around various geographic location can be useful for future data analytics and prediction

5) Link parallel activities in the workflow instead of just integrating their results.

An automated technology to link parallel activities is in place to concurrently process multiple iterations into single operations

6) Put the decision point where the work is performed and build control into the process.

Decision making is made possible using automation and by making use of existing knowledge database and the user is provided with solutions based on already available solutions from database

7) Capture information once and at the source.

Measures are considered and will be made into effect to make sure the information from customers is collected once and from source

Helpdesk Process

10. Future Evolution of the System

- This system would be implemented using automation and ML techniques and the machine learning process requires data at various stages and over the period of time it **self learns** when the system acquires sufficient data the process can be implemented more efficiently where the need for human employees can be reduced and more accurate solutions are possible **reducing human errors.**
- Emerging technologies like AI and chatbots helps **improving the user experience** and improve the reliability of helpdesk and improve the credibility of the firm
- Technologies can be implemented to provide users with **faster response time** in resolving the issues
- **Workload** of the users are immensely **reduced** through implementing various automation solutions