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QSO 360
DMAIC Exercise

IT Asset Management Process Improvement

Anthony Manderichio

Final Project

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CONTROL – Final Project

Project Charter – IT Asset Management Process

Problem Statement (Revised)	Business Justification / Expected Benefits
In August of 2021, there were roughly 419 hours of lead time in the IT asset management process ticketing queues. Internal customers expressed frustration over the downtime experienced, and they want it eliminated. Lead time is increasing at a rate of four hours per day, and as a result lead time will increase by 238% in the upcoming year.	IT asset management process inefficiencies are leading to extended periods of downtime for our internal customers. This leads to a delay for our internal customers providing deliverables to our external customers. We need this process improved so that our external customer deliverables can be delivered on time 100% of the time
Project Scope	**Out of Scope**
Process Begins: Receipt of the IT asset request ticket Process Ends: Ticket is closed	IT asset management process requests made within the ServiceNow ticket portal are within scope; any requests made outside of the ServiceNow ticket portal are outside of scope.
Project Sponsor and Team	**High-Level Schedule**
Sponsor: IT Manager Black Belt: Anthony Manderichio Champion: Asset Management Supervisor	Define: 09/19/21 Measure: 09/26/21 Analyze: 10/03/21 Improve: 10/10/21 Control: 10/17/21

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DEFINE – Milestone One

SIPOC

Suppliers	Input	Process	Output	Customer
Internal Customers	Computer requests	Check for approval	Reduction in asset physical damage	
	Peripheral requests	Order asset	Reduction in asset loss	
	Onboarding requests	Distribute asset	Ticket notes updated	
	Offboarding requests	Receive asset	Return shipping materials deployed	
		Verify receipt	Assets collected	
		Assign asset	External deliverables generated and delivered	
		Recover old asset(s)	Assets redistributed	Internal Customers
		Close ticket	Lead time reduction	External Customers

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DEFINE – Milestone One

Voice of the Customer

Part 1 – Generic Requirements

Customer	Business
New working asset(s) received < 7 days	Old asset(s) received < 7 days
Ticket notes updated upon status changes	Zero asset loss or physical damage
Shipping materials & prepaid return labels	External customer deliverables arrive on time

Part 2 – Translation to Measurements and Goals

Customer and Business Req	Measurements	Goals
Asset received < 7 days	% Assets received < 7 days	100%
Timely updates of asset request notes	Average cycle time to update ticket notes	< 24 hrs
Current lead time in queue	Current lead time in queue	0 hrs
Physical damage rate of return	% Damaged assets received	0%
Asset loss rate	% Asset loss	0%
External customer delivery rate	% On time customer deliverables	100%

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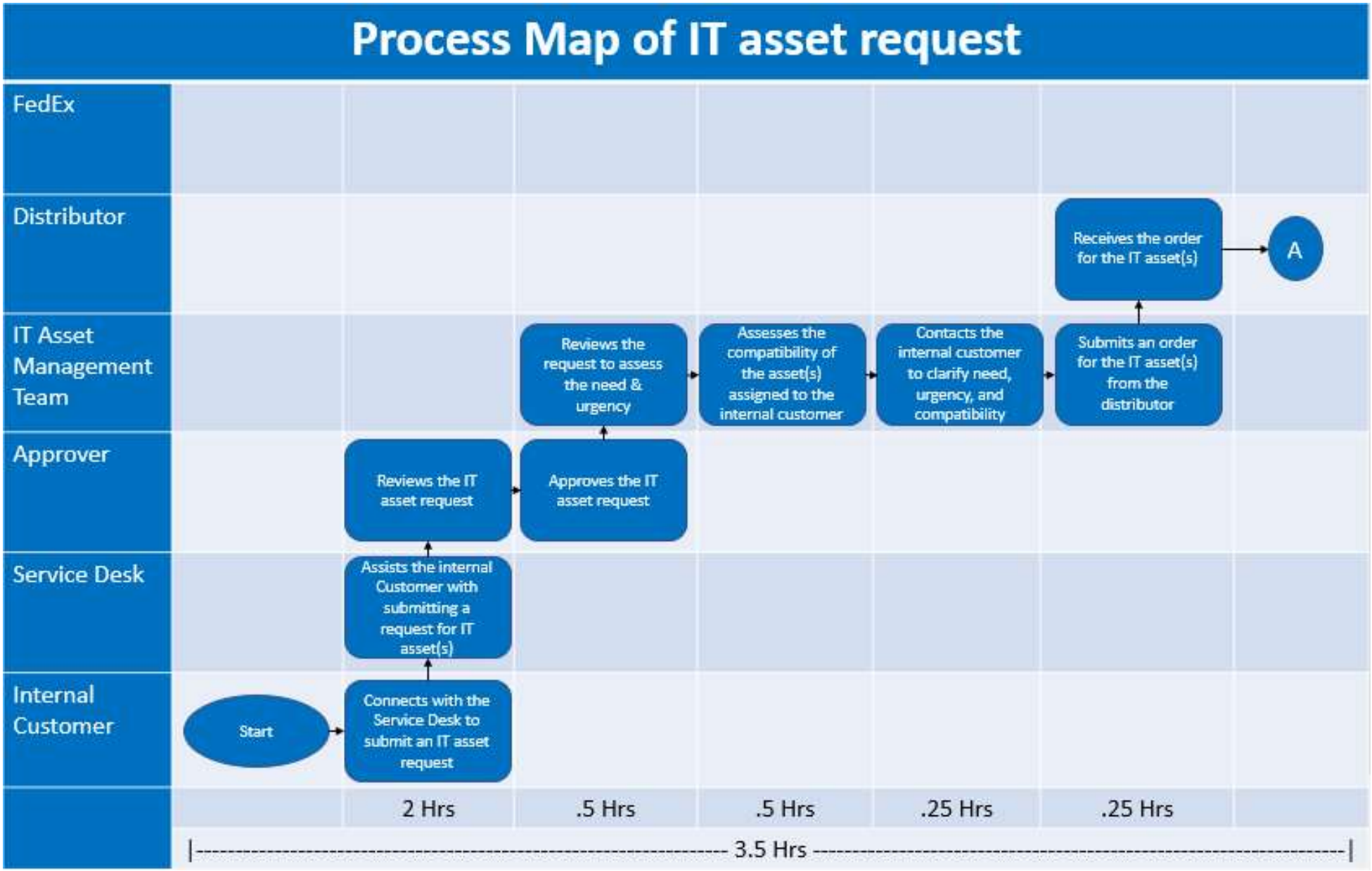
MEASURE – Milestone Two

Process Map – Multiple Pages



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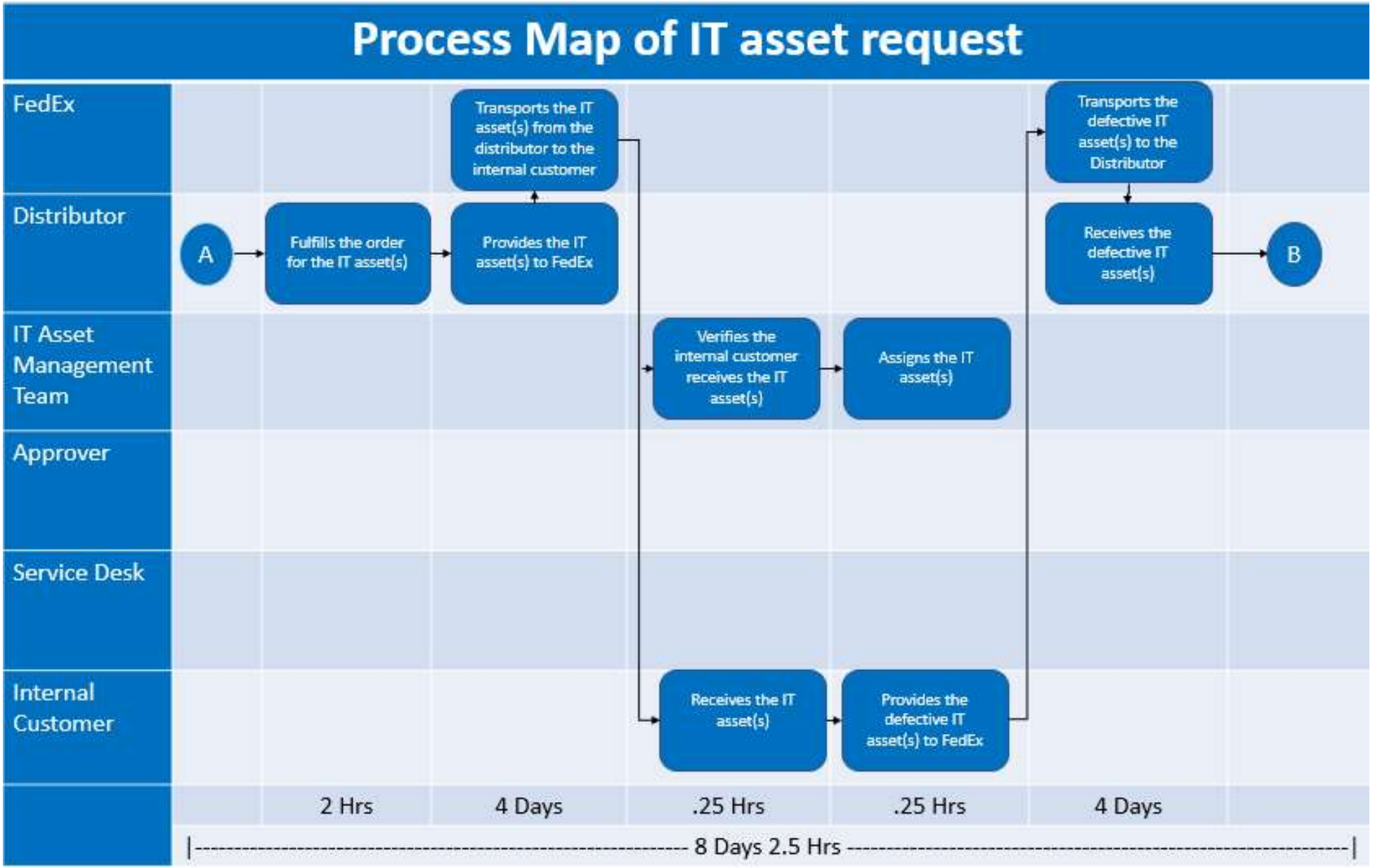
MEASURE – Milestone Two

Process Map – Multiple Pages



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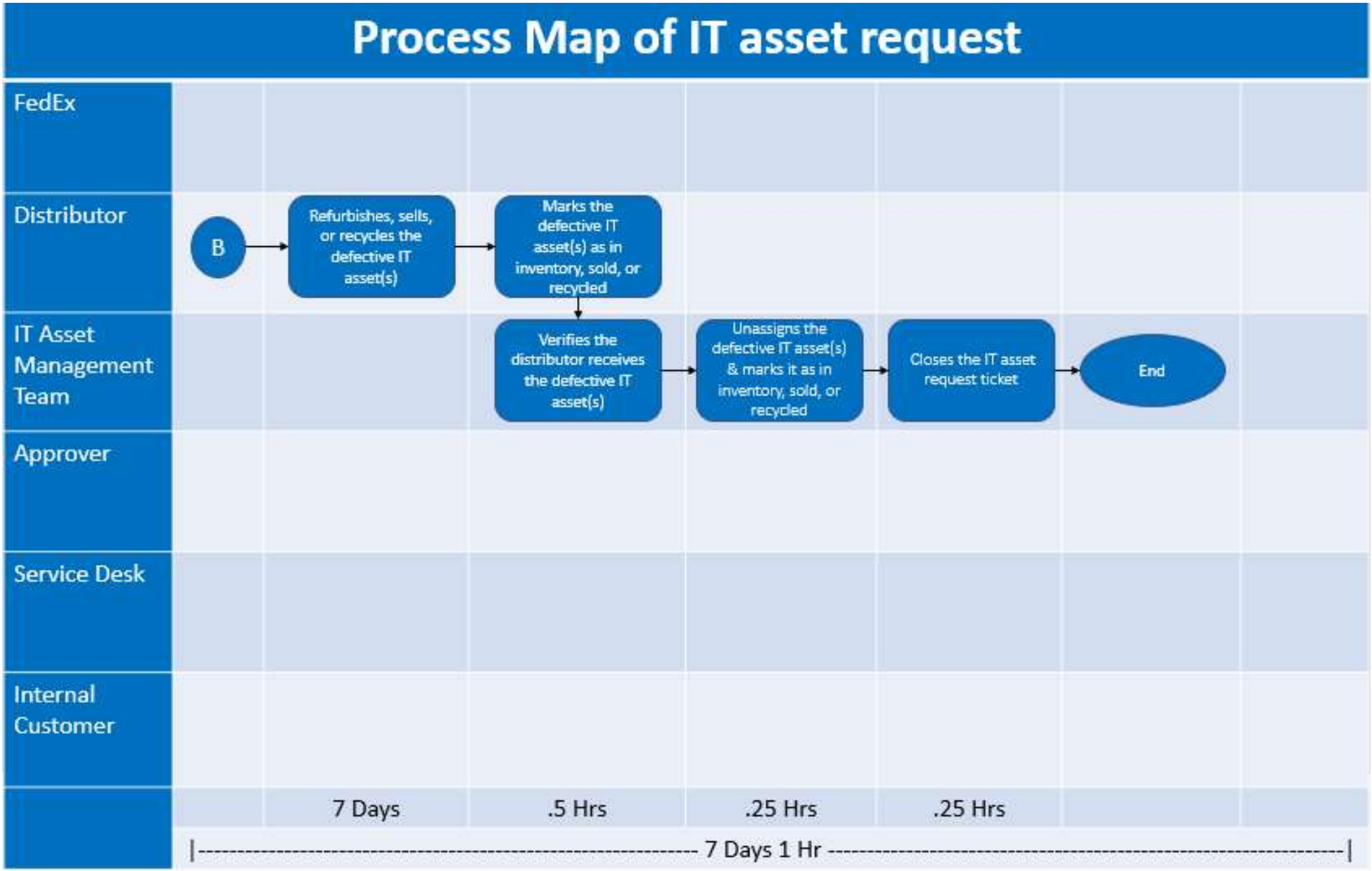
MEASURE – Milestone Two

Process Map – Multiple Pages



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MEASURE – Milestone Two

Value-Added Flow Analysis – Multiple Pages

Step	Value-Added	Waste	Required
1. The internal customer connects with the Service Desk to submit a ServiceNow ticket for IT asset(s)	x		
2. The IT asset request ticket is routed to an approver for approval(s)		x	
3. The approver reviews and approves the IT asset request		x	
4. The IT asset request ticket is routed to the IT Asset Management team		x	
5. The IT Asset Management team reviews the IT asset request to assess the need and urgency		x	
6. The IT Asset Management team reviews the current IT assets assigned to the internal customer to assess compatibility		x	
7. The IT Asset Management team contacts the internal customer to clarify the need, urgency, and compatibility	x		
8. The IT Asset Management team submits an order for the IT asset(s) from the distributor			x
9. The distributor receives the order			x
10 The distributor fulfills the order			x
11. The distributor provides the IT asset(s) to FedEx			x
12. FedEx transports the IT asset(s) from the distributor to the internal customer			x

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MEASURE – Milestone Two

Value-Added Flow Analysis – Multiple Pages

Step	Value-Added	Waste	Required
13. The internal customer receives the IT asset(s)	x		
14. The IT Asset Management team verifies the receipt of the IT asset(s)			x
15. The IT Asset Management team assigns the IT asset(s)			x
16. The internal customer provides the defective IT asset(s) to FedEx			x
17. FedEx transports the defective IT asset(s) from the internal customer to the distributor			x
18. The distributor receives the defective IT asset			x
19. The distributor refurbishes, sells, or recycles the defective IT asset(s)			x
20. The distributor marks the defective IT asset(s) as in inventory, sold, or recycled			x
21. The IT Asset Management team verifies the distributor received the defective IT asset(s)		x	
22. The IT Asset Management team unassigns the defective IT asset(s) and marks the defective IT asset(s) as in inventory, sold, or recycled			x
23. The IT Asset Management team closes the IT asset request ticket			x

Data Collection Plan – Quantify the Problem

Metric	Output	Sample Size	Duration
% Assets received in less than 7 days	X	100%	Biweekly
Average cycle time to update ticket notes	X	100%	Biweekly
Current lead time in queue	X	100%	Weekly
% Damaged assets received	X	100%	Weekly
% Asset loss	X	100%	Weekly
% On time customer deliverables	X	100%	Weekly

Summary of Data Collection – Multiple pages

- Metric
  - % Assets received in less than 7 days
    - How many assets were received in less than 7 days?
    - How many total assets were received?
    - Divide the number of assets received in less than 7 days by total number of assets received
    - Use historical trend graph to track progress
  - Average cycle time to update ticket notes
    - How many hours was each ticket open for?
    - How many updates were made for each ticket?
    - Divide the hours open by the number of updates
    - Use historical trend graph to track progress
  - Current lead time in queue
    - How many tickets are pending in the ServiceNow queue
    - Estimate how long will each pending ticket will take to resolve based on the four types of tickets: computer requests (45 min), peripheral requests (30 min), onboarding requests (1 hour), and offboarding requests (45 min)
    - Add up the total time estimate for all ticket requests to be completed in the queue
    - Use histogram graph to track progress
  - % Damaged assets received
    - How many assets were received damaged?
    - Were any assets received in total?
    - Divide the damaged assets by total assets received
    - Use historical trend graph to track progress

Summary of Data Collection – Multiple pages

- Metric
  - % Asset loss
    - How many assets were lost?
    - How many total assets were sent back?
    - Divide the number of assets lost by total number of assets sent back
    - Use historical trend graph to track progress
  - % On time customer deliverables
    - How many customer deliverables were on time?
    - How many total customer deliverables were there?
    - Divide the number of customer deliverables that were ontime by the total number of customer deliverables
    - Use historical trend graph to track progress
- Defect Types
  - % Assets received in less than 7 days is fewer than 100%
  - Average cycle time to update ticket notes is greater than 24 hours
  - Current lead time in queue is greater than 0 hours
  - % Damaged assets received is greater than 0%
  - % Asset loss is greater than 0%
  - % On time customer deliverables is fewer than 100%

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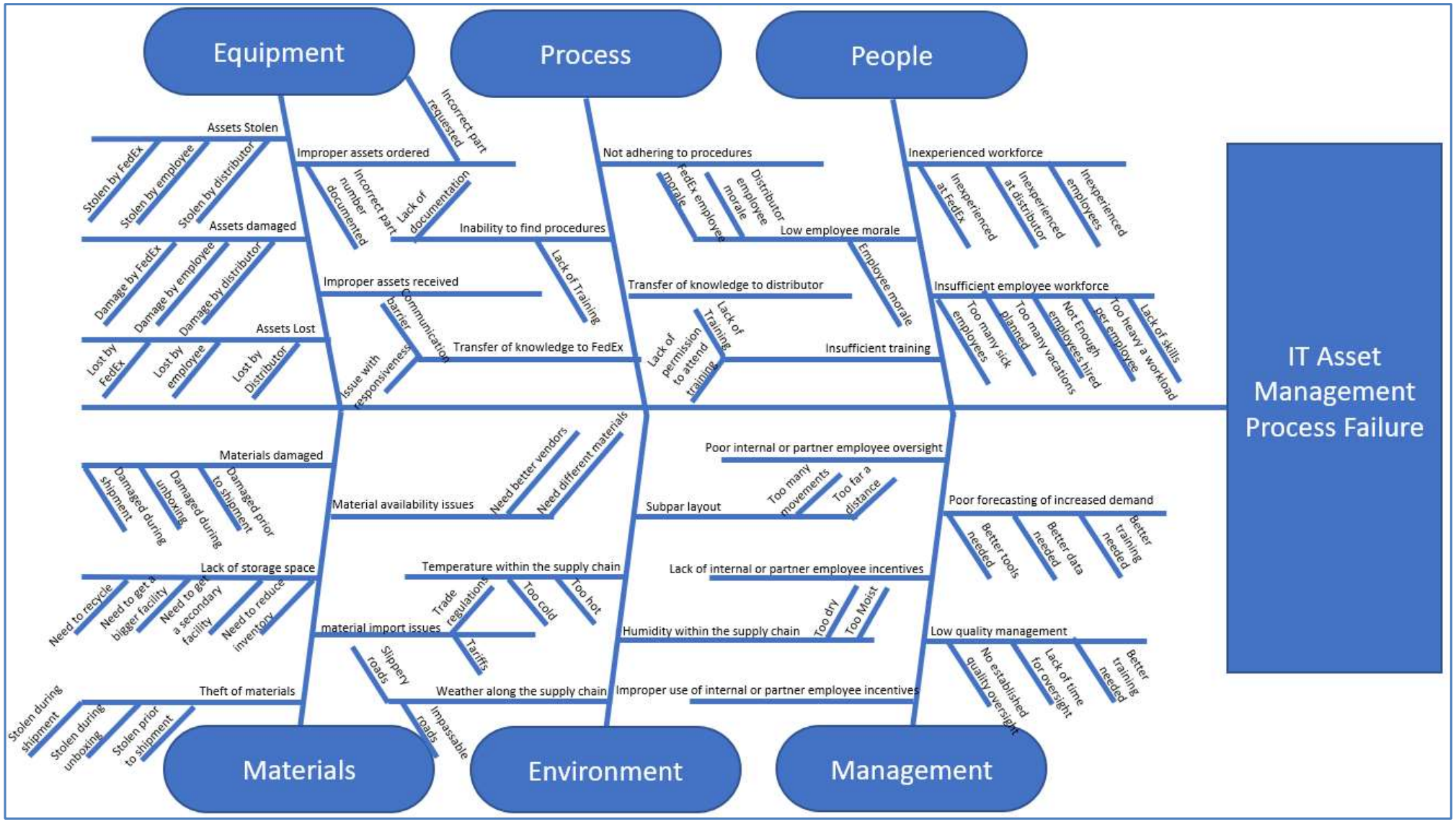
ANALYZE – Milestone Three

Cause – Effect Diagram



Potential Root Cause Identification

Potential Root Causes
Assets stolen by FedEx, employees, and distributor
Assets damaged by FedEx, employees, and distributor
Assets lost by FedEx, employees, and distributor
Improper assets ordered due to incorrect part requested or part number documented
Improper assets received by internal customers
Subpar layout located at FedEx or the Distributors locations
Weather delays along the supply chain
Poor forecasting of increased demand due to lack of tools, data, or training
Low quality management due to lack of oversight, management availability, or training

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IMPROVE – Milestone Four

Solution Selection

Criteria	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
Feasibility	> 16 weeks	12 to 16 weeks	4 to 12 weeks	2 to 4 weeks	2 weeks
Effectiveness	Not effective	25% to 50%	50% to 75%	75% to 100%	100%
Cost	Requires Capital	$1000 to $5000 Expenses	< $1000 Expenses	Only Time & Labor	No Cost

Proposed Solution	Feasibility	Effect	Cost	FxExC
Visit the distributor's worksite, map the physical work flow utilizing a spaghetti chart, and require lean layout adjustments based on findings	5	2	4	40
Update the ServiceNow Hardware Catalog and create an Order Guide to automate part orders	3	3	4	36
Procure and deploy Absolute Resilience to enable missing IT assets to be remotely monitored, investigated, and wiped	2	4	1	8
Link the Distributor, FedEx, and the internal ServiceNow instance via API(s) to reduce the amount of redundant data entry and improve overall knowledge transfer	1	3	1	3

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IMPROVE – Milestone Four

Risk Assessment – FMEA (ref page 576) – Multiple Pages

Process Step	What Can Go Wrong	Severity	Occ	Detect	RPN	Action
The internal customer connects with the Service Desk to submit a ServiceNow ticket for IT asset(s)	The Service Desk is unavailable, or otherwise unable to assist	10	1	1	10	
The IT asset request ticket is routed to an approver for approval(s)	The approval request goes to junk mail	10	1	7	70	
The approver reviews and approves the IT asset request	The approver doesn't approve the request	10	1	1	10	
The IT asset request ticket is routed to the IT Asset Management team	A misfire in the routing of the ServiceNow ticket	10	1	1	10	
The IT Asset Management team reviews the IT asset request to assess the need and urgency	The IT Asset management team member is unavailable, or otherwise unable to assist	10	1	1	10	

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IMPROVE – Milestone Four

Risk Assessment – FMEA (ref page 576) – Multiple Pages

Process Step	What Can Go Wrong	Severity	Occ	Detect	RPN	Action
The IT Asset Management team reviews the current IT assets assigned to the internal customer to assess compatibility	The incorrect user's assets are reviewed due to human error	10	2	10	200	Implement proposed solution
The IT Asset Management team contacts the internal customer to clarify the need, urgency, and compatibility	A miscommunication regarding need, urgency, or compatibility	10	6	10	600	Implement proposed solution
The IT Asset Management team submits an order for the IT asset(s) from the distributor	The wrong part is ordered	10	6	10	600	Implement proposed solution
The distributor receives the order	The distributor is unavailable	10	2	1	20	
The distributor fulfills the order	The distributor ships the wrong part	10	3	10	300	Consider API(s)

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IMPROVE – Milestone Four

Risk Assessment – FMEA (ref page 576) – Multiple Pages

Process Step	What Can Go Wrong	Severity	Occ	Detect	RPN	Action
The distributor provides the IT asset(s) to FedEx	The IT asset is not handed off to FedEx	10	2	2	40	
FedEx transports the IT asset(s) from the distributor to the internal customer	Weather delays, traffic, and collisions	10	1	2	20	
The internal customer receives the IT asset(s)	Signature is required and the internal customer is not home on the delivery date	10	3	2	60	
The IT Asset Management team verifies the receipt of the IT asset(s)	FedEx tracking is not updated	8	3	2	48	
The IT Asset Management team assigns the IT asset(s)	The incorrect asset number is assigned due to human error	8	2	10	160	Consider API(s)
The internal customer provides the defective IT asset(s) to FedEx	The internal customer doesn’t provide the defective asset to FedEx	10	3	2	60	

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IMPROVE – Milestone Four

Risk Assessment – FMEA (ref page 576) – Multiple Pages

Process Step	What Can Go Wrong	Severity	Occ	Detect	RPN	Action
FedEx transports the defective IT asset(s) from the internal customer to the distributor	Weather delays, traffic, and collisions	10	1	2	20	
The distributor receives the defective IT asset	The defective part is damaged prior to or during transport	10	2	1	20	
The distributor refurbishes, sells, or recycles the defective IT asset(s)	The distributor sells or recycles a non-defective unit	10	2	4	80	
The distributor marks the defective IT asset(s) as in inventory, sold, or recycled	The distributor mismarks or doesn't mark the asset as in inventory, sold, or recycled	10	4	1	40	

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IMPROVE – Milestone Four

Risk Assessment – FMEA (ref page 576) – Multiple Pages

Process Step	What Can Go Wrong	Severity	Occ	Detect	RPN	Action
The IT Asset Management team verifies the distributor received the defective IT asset(s)	The incorrect user's assets are reviewed due to human error	10	2	10	200	Consider API(s)
The IT Asset Management team unassigns the defective IT asset(s) and marks the defective IT asset(s) as in inventory, sold, or recycled	The incorrect user's assets are unassigned due to human error	10	2	10	200	Consider API(s)
The IT Asset Management team closes the IT asset request ticket	The incorrect ticket is closed due to human error	10	2	4	80	

Implementation Plan – Multiple Pages

Task	Resp	Due Date
Project Kick-Off Meeting	Six Sigma Project Team, Six Sigma Project resource(s)	10/10/2021
Acquire quotes for the work to be performed by vendors	Black Belt	10/11/2021
Compare acquired quotes to the cost of doing the work in house using existing resources	Black Belt, Finance	10/11/2021
Acquire approvals for procuring or performing the work	Six Sigma Project Team	10/11/2021
Assign resources for the work to be performed	Management	10/12/2021
Update the ServiceNow Hardware Catalog	Six Sigma Project resource(s)	10/13/2021

Implementation Plan – Multiple Pages

Task	Resp	Due Date
Create an Order Guide to automate part orders	Six Sigma Project resource(s)	10/13/2021
Knowledge transfer and documentation	Six Sigma Project resource(s), Six Sigma Project Team	10/14/2021
Generate and post messaging for the Six Sigma Project	Six Sigma Project Team, MarCom	10/15/2021
Training on changes resulting from the Six Sigma Project	Six Sigma Project resource(s), Six Sigma Project Team	10/15/2021

Implementation Plan – Multiple Pages

Task	Resp	Due Date
User Acceptance Testing	Six Sigma Project resource(s)	10/16/2021
Project Close Meeting	Six Sigma Project resource(s), Six Sigma Project Team	10/16/2021

Monitoring Plan

What is Monitored	Resp	Target	Frequency	Escalation
Current lead time in queue	Asset Management Supervisor	0 hours	Weekly	Meet with IT Manager
% Assets received in less than 7 days	Asset Management Supervisor	100%	Biweekly	Meet with IT Manager
Average cycle time to update ticket notes	Asset Management Supervisor	< 24 hours	Biweekly	Meet with IT Manager
% Damaged assets received	Asset Management Supervisor	0%	Weekly	Meet with IT Manager
% Asset loss	Asset Management Supervisor	0%	Weekly	Meet with IT Manager
% On time customer deliverables	Asset Management Supervisor	100%	Weekly	Meet with IT Manager

Project Sign-Off

Six Sigma Black Belt	Anthony Manderichio	Process Owner	IT Manager
Champion	Asset Management Supervisor	Finance	Finance Manager

Appendix

Current Lead Time Calculation – August 2021

Process	Process Time (hrs)	Follow-up work (hrs)	Processes in Queue	Lead Time (hrs)
Offboarding	0.25	0.17	642	267.50
Onboarding	0.17	0.17	18	3.00
Equipment Reqs	0.17	0.17	290	48.33
Computer Reqs	0.17	0.17	600	100.00

Total Lead Time (hrs)	418.83
Resources available	2.00
Lead Time per resource (hrs)	209.42