



Customer Strategy & Planning

V0.1 - December 2020



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Message from the chairman

It is vividly evident that the world witnessed the worst public health and economic crisis due to COVID-19 pandemic. This inevitably mobilized the international community to act seriously and swiftly. However, the mortalities and morbidities induced by healthcare-acquired infections (HAI) are equally fatal, but the international community did not act similarly. Consequently, we are continuously and chronically suffering from HAI.

The current intervention for HAI is merely based on passively-set standards and enforcing these standards via regulatory agencies such as the centre for disease control and prevention (CDC), joint commission international (JCI), ministries of health, and other regulatory agencies. To efficiently address HAI, we inevitably need to mobilize the international community because HAI traverses a multitude of epistemological dimensions, requiring multidisciplinary tacit knowledge, and mandates active international collaboration. Besides, we believe that we can efficiently traverse deeply into the root-causes and solution landscapes by automating the entire healthcare environmental services and infection control within healthcare institutions using the latest advancements in computational epistemology, computational infection control models, computational epidemiological models, artificial intelligence, machine learning, distributed ledger technology, collective intelligence, cognitive technologies, internet of things, ubiquitous technologies, intelligent micro-measurement frameworks, artificial life, evidence-based program implementation, patient-centric care, strategy anchored execution, and symbiotic healthcare ecosystem services. Consequently, we developed these open standards that were tailored from diverse international standards to promote the automation of healthcare environmental services and infection control processes and best practices.

The Healthcare Environmental Services Operational Map (HESOM) and other standards were developed to efficiently leverage multidisciplinary experts and practitioners to contribute towards the eradication of HAI-induced mortalities and morbidities. Using ReXcels research and innovation environment, we cultivate collective intelligence by bringing together these multidisciplinary experts to iteratively develop these standards and adaptively support the innovation of computational technology that automates the execution and enforcement of these standards. As such, we cordially invite you to use these documents and participate actively in the further development of these standards to significantly reduce HAI-induced mortalities, morbidities, and their enormous negative economic externalities.

Hamid Adem

Interim Chairman, and Chief R&D Officer

Change Control

Change Control

Version:	Date:	Changes:

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Customer Strategy & Planning

Purpose



1 Purpose

1. PURPOSE

The purpose of this document is to establish a Customer Strategy plan for the organization's environmental Services department

- To establish the overall aims of the department in placing the customer first
- To set out a specific direction for the development of customer access channels
- To provide a framework for customer service improvement based upon clear and agreed principles.

This process is based on international well acclaimed standards like:

- *NHS- National Health Services Standard*
- *OSHA- Occupational Safety and Health Administration standard*
- *CDC- Centers for Disease Control and Prevention standard*
- *Lean six sigma- Quality Standard*
- *JCI- Journal of Clinical Investigation standard*
- *JCAHO- Joint Commission on Accreditation of Healthcare Organizations (JCAHO)*
- *EPA- US Environmental Protection Agency*
- *HCAHPS - Hospital Consumer Assessment of Healthcare Providers and Systems*
- *HIPA- Health Information Privacy Act standard.*

*P.S: This process is a derivation from **ESM (Environmental Service Map)**, which is a holistic and a comprehensive model for Environmental Services Management.*

Structure of the Document



2. STRUCTURE OF THE DOCUMENT

The Customer Strategy & Planning process document comprises the following chapters:

Chapter–3: Scope: This chapter describes the scope of the document and the Customer Strategy & Planning.

Chapter–4: General Assumptions: This chapter describes the underlined assumptions made for both the document and Customer Strategy & Planningprocess.

Chapter–5: Customer Strategy & Planning Framework: This chapter exhibits the interaction of Customer Strategy & Planningprocess with other related processes.

Chapter–6: Customer Strategy & Planning Process: In this chapter Customer Strategy & Planningprocess and sub processes (if any) will be depicted and specified using rigorous BPMN and process specification templates.

Chapter–7: References: This chapter serves as a prime reference to Customer Strategy & Planningprocess and presents the details supporting it in tabular formats. The chapter describes relevant Business Rules, Risks, Quality Attributes, Data Quality Dimensions, Operation Policies, KPIs, CTQs, Abstract Time-scales and SLAs terms specific to Customer Strategy & Planning process.

Scope



3 Scope

3. SCOPE

This process is applicable to Environmental services department.

General Assumptions



4. GENERAL ASSUMPTIONS

Following are the general assumptions made for this process:

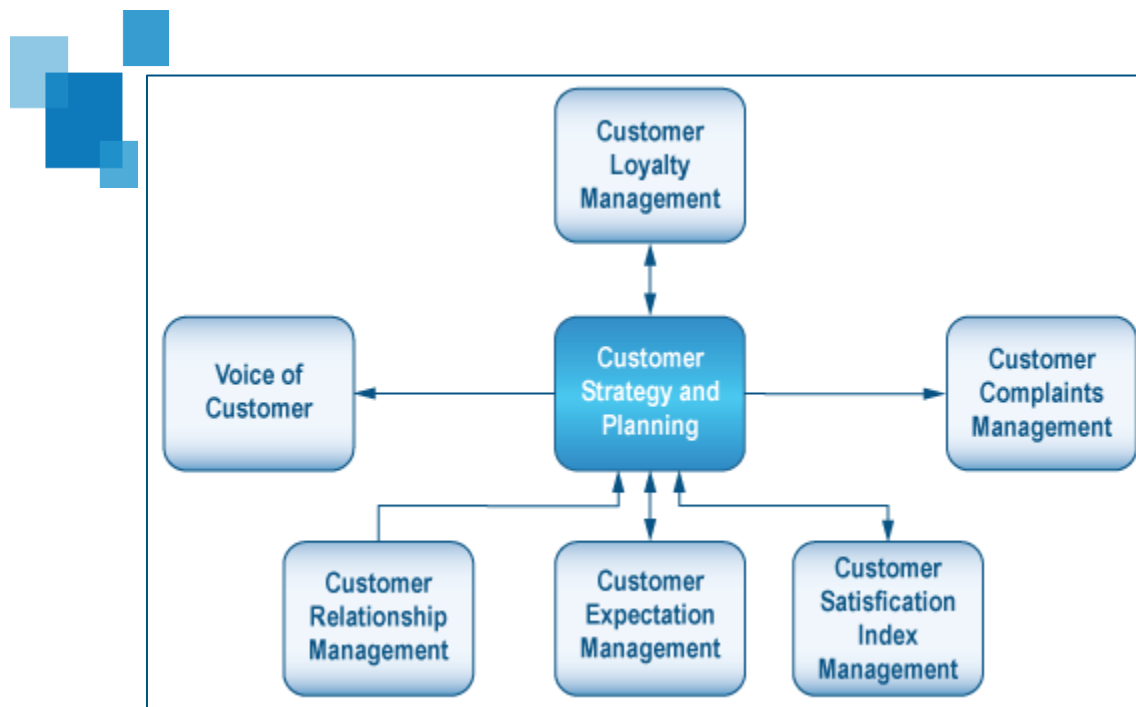
- All the Customer Strategy decisions are carefully and meticulously analyzed by the senior management.
- Organization has a very sound and automated R & D and forecasting capability.
- The roles defined in all processes within this document can be attached to the existing position
- Any activity related assumptions are explicitly identified in related Process Specification table in Chapter 6.

Customer Strategy & Planning Framework



5.1 Customer Strategy & Planning Interactions

The following depiction shows the points of interaction of organization's environmental Services Customer Strategy & Planning process with other related processes. The arrows moving into Customer Strategy & Planning process signifies the inputs from the other processes to Customer Strategy & Planning Process, and the arrows moving out of the Customer Strategy & Planning process signify the inputs from Customer Strategy & Planning process to other related processes.



5.2 Customer Strategy & Planning Process Sequence

The Customer Strategy & Planning process comprises of following high level sequence of activities:

1. Establish Customer insight
2. Develop and articulate customer strategy
3. Gain commitment to strategy

4. Enable Strategy

Organization's environmental Services department's Customer Strategy & Planning process follows sequential steps mentioned below (Section 5.2.1-5.2.3). Section 6.1 Process Model sheds more light on the flow of this process.

5.2.1 Establish Customer Insight

This process is responsible for following:

- **Understanding Customer Value.** This involves identification of following:
 - Cost to serve. The cost that is required to maintain the customer.
 - Profitability. The expected profit.
 - Life time value. The value that a customer can bring to the organization.
- **Understanding of Market Segment.** This involves understanding:
 - Value Proposition. What is the current valued proposition to the customer (merits as well as demerits) of it.
 - Customer expectations. Identification of what are the various expectations that a customer has.
 - Service requirement. Identification of the services requirement for each segment.
 - Loyalty Mechanism. The current desired loyalty mechanism.
- **Understanding Competitive dynamics.** Identification of following:
 - Market Position. How is the current position of the organizational as compared to its competitive environment.
 - Differentiation. How are the services differentiated from others.
- **Understanding service performance.** This involves identification of current service performance merits as well as shortcomings.
- **Current Strategy level.** This involves understanding of the current strategy of the organization in terms of following:
 - Product Innovation
 - Distribution
 - Brand Management
 - Customer Culture
 - Customer knowledge management
 - Service.

5.2.2 Develop and articulate customer strategy

This involves following:

- **Clear description.** Precise explanation of what is the strategy about and what it is not.
- **Identification of Changes.** The points of improvements and difference between old and new strategy.
- **Identification Customer segment.** The target segments.
- **Establishment of Timeline.** The time frame for putting the strategy into practice.
- **Methodology.** How the strategy would be put into practice. This would take into consideration :
 - Pricing
 - Promotions
 - Sales.
 - Customer service.
- **Metrics Alignment with Key success factors.** This involves alignment of performance metrics with the identified strategy success factor.

5.2.3 Gain Commitment to Strategy

This process is responsible for seeking shareholders' approval for Service strategy. This process is responsible for identification of stakeholders and gaining commitment from them.

5.2.4 Enable the Strategy

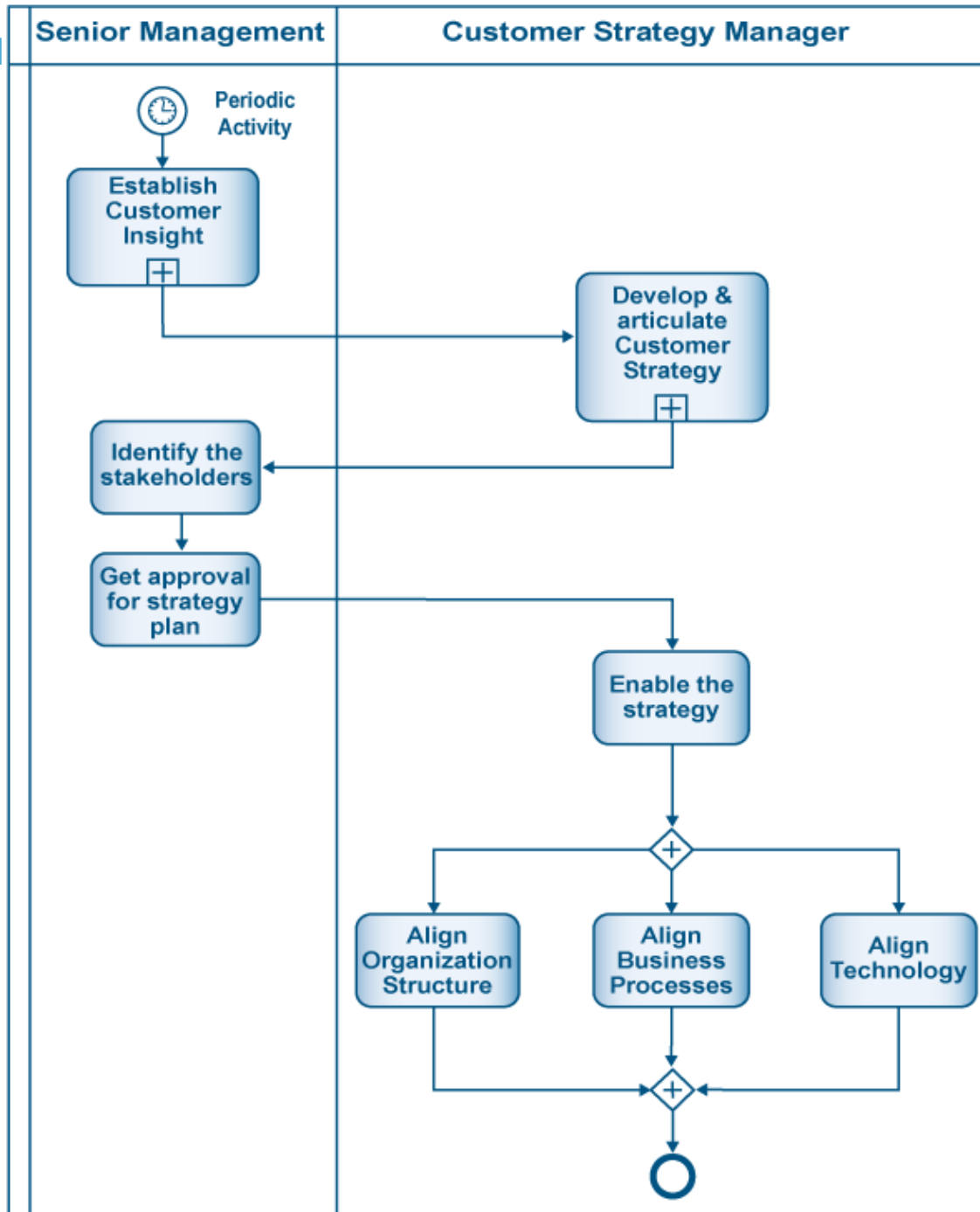
This refers to making change in the organization so as to ensure that the environment facilitates the new strategy. This comprises of making changes in:

- Organization structure.
- Business processes.
- Technology.

Customer Strategy & Planning Process



6.1 Customer Strategy & Planning – Process



6.2 Customer Strategy & Planning- Specification

Specification	Description
Summary/Purpose	This process is responsible for creation of Customer Strategy and plan for organization's Environmental Services department
Scope	This is a level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> • NHS- National Health Services Standard • OSHA- Occupational Safety and Health Administration standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard • JCAHO- Joint Commission on Accreditation of Healthcare Organizations (JCAHO).
Related ESM Practices	Voice of customer, customer relationship management, customer expectation management, customer satisfaction index management, customer complaints management, customer loyalty management.
Related Business Driver	Better services to customers.
Related Operational Policies	OP-001, OP-002 (Ref. 7.5)
Assumptions	Senior management is committed to this process.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None

Equipment & Accessories	Automated System for Customer strategy management.						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	Periodic activity						
Basic Course of Event	Customer Strategy & Planning <ol style="list-style-type: none"> 1. Senior Management establishes customer insight 2. Customer strategy Manager develop and articulate customer strategy 3. Senior Management identifies the stakeholders 4. Senior Management gets approvals for strategy plan 5. Customer strategy Manager enables the strategy (align organization structure, Align business processes, Align technology) 6. End 						
Alternative Path	None						
Exception Path	System Down <ol style="list-style-type: none"> 1. Keep paper track until system is up and running 2. Update the System and clear all logs. 3. End. 						
Extension points	Voice of customer, customer relationship management, customer expectation management, customer satisfaction index management, customer complaints management, customer loyalty management.						
Preconditions	Organization's environmental services department has a very sound R & D capability.						

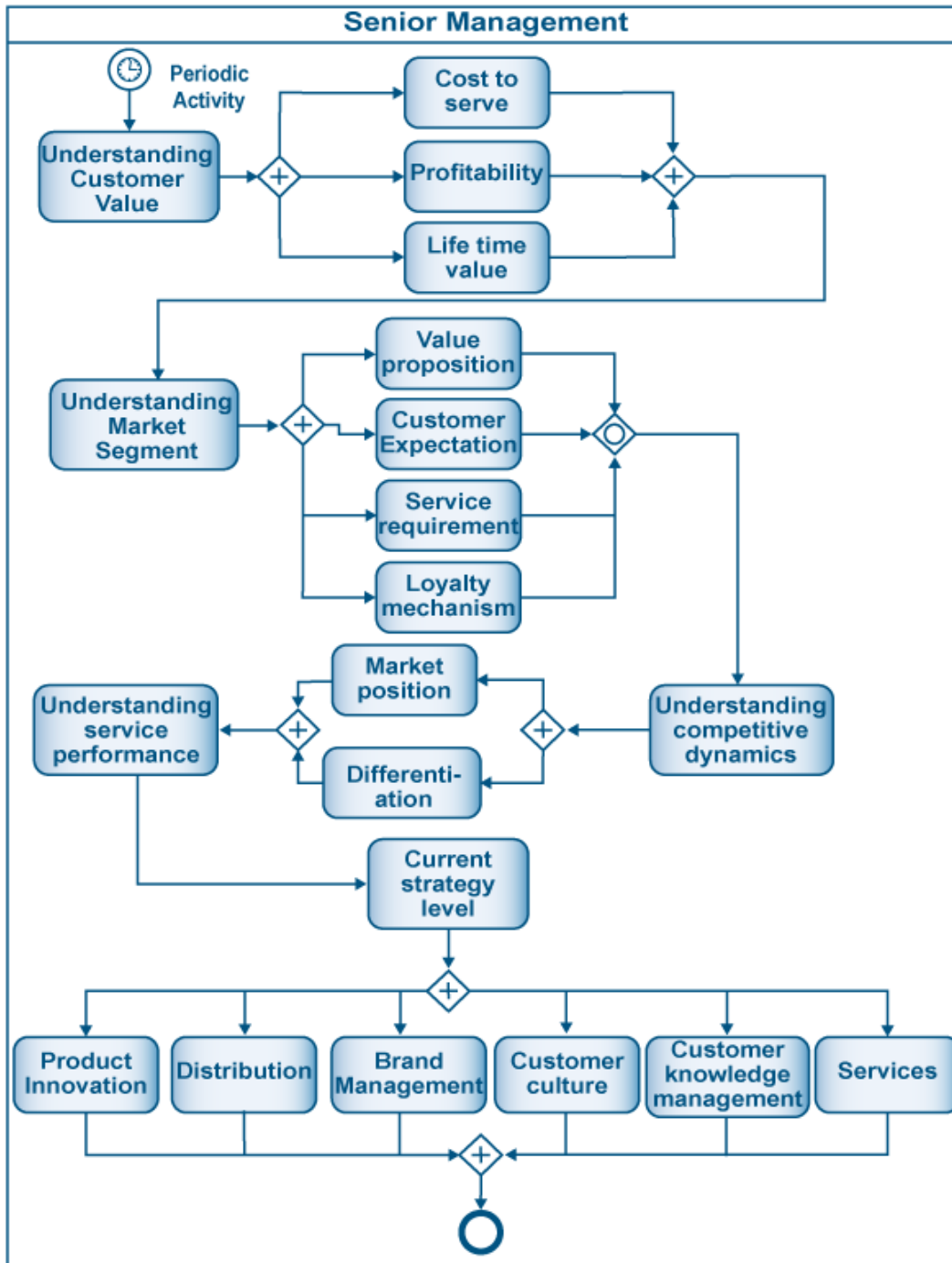
Post -conditions	Customer Strategy planning process. is established
Related Business Rules	BR-001 , BR-002(Ref 7.1)
Related Risks	RR-001, RR-002 (Ref. 7.2)
Related Quality Attributes	Reliability, Availability, Usability, Confidentiality, Authenticity, Data Integrity, Non-repudiation, Accountability, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Value Added, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	CICR, CSPRR (Ref 7.6)
Related CTQs	CICRV, CSPRRV, NSRV, SPRV, MOM, PWOM, CTQ, IOM, TOM, WRM, DRM (Ref 7.7)
Actors/Agents	Senior Management, Customer Strategy Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance, operational legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation

Process Map	5.1
Process Model	6.1
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.3 Customer Strategy & Planning Management – Roles & Responsibilities

Roles	Responsibilities
Senior Manager	<ul style="list-style-type: none"> Senior Management establishes customer insight Senior Management identifies the stakeholders Senior Management gets approvals for strategy plan
Customer Strategy Manager	<ul style="list-style-type: none"> Customer strategy Manager develop and articulate customer strategy Customer strategy Manager enables the strategy (align organization structure, Align business processes, Align technology)

6.4 Sub Process – Establish Customer Insight



6.5 Sub Process – Establish Customer Insight Specification

Specification	Description
Summary/Purpose	This process is responsible for establishing customer insight.
Scope	This is a level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> • NHS- National Health Services Standard • OSHA- Occupational Safety and Health Administration standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard • JCAHO- Joint Commission on Accreditation of Healthcare Organizations (JCAHO).
Related ESM Practices	Voice of customer, customer relationship management, customer expectation management, customer satisfaction index management, customer complaints management, customer loyalty management.
Related Business Driver	Better customer strategy
Related Operational Policies	OP-001 (Ref 7.5)
Assumptions	Senior management is supportive of this process.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None

Equipment & Accessories	Automated System for Customer strategy management.						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	Periodic activity						
Basic Course of Event	<p>Customer Insight</p> <ol style="list-style-type: none"> 1. Senior Management establishes understanding of customer value (cost to serve, profitability, life time value) 2. Senior Management establishes understanding of market segment (value proposition, customer expectation, service requirement, loyalty mechanism) 3. Senior Management establishes understanding of competitive dynamics (market position and differentiation) 4. Senior Management establishes understanding of service performances 5. Senior Management establishes current strategy level (product innovation, distribution, brand management, customer culture, customer knowledge management, services) 6. End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> 1. Keep paper track until system is up and running 2. Update the System and clear all logs. 3. End. 						

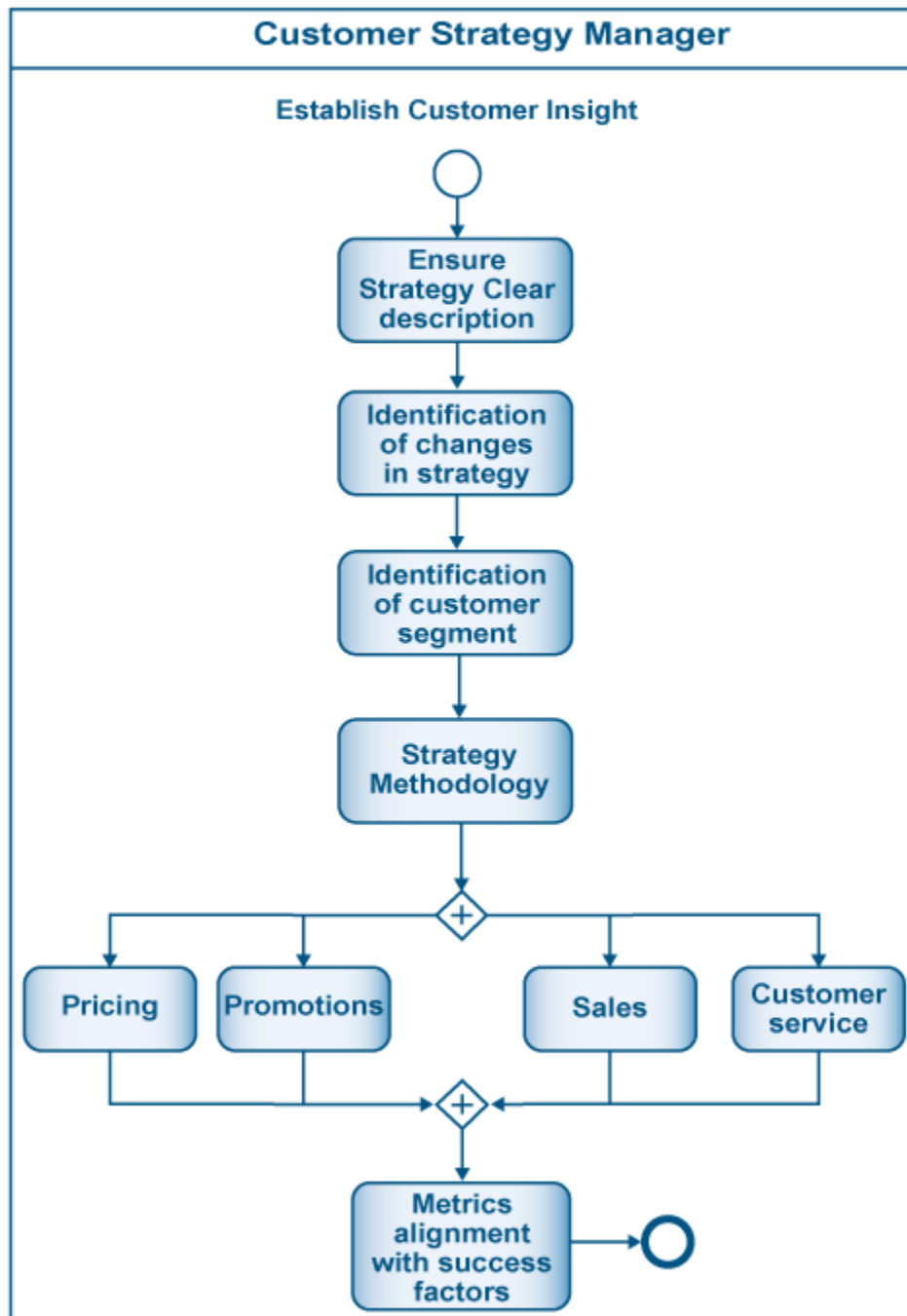
Extension points	Develop and articulate customer strategy
Preconditions	Organization's environmental services department has a very sound R & D capability.
Post -conditions	Customer insight is established.
Related Business Rules	BR-001 (Ref 7.1)
Related Risks	RR-001(Ref. 7.2)
Related Quality Attributes	Reliability, Availability, Usability, Confidentiality, Authenticity, Data Integrity, Non-repudiation, Accountability, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Value Added, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	CICR (Ref 7.6)
Related CTQs	CICRV (Ref 7.7)
Actors/Agents	Senior Management
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation

Escalation	<u>Rule 1: Performance, operational legal Issues</u> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	5.1
Process Model	6.4
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.6 Sub process – Establish Customer insight Roles & Responsibilities

Roles	Responsibilities
Senior Management	<ul style="list-style-type: none"> • Senior Management establishes understanding of customer value (cost to serve, profitability, life time value) • Senior Management establishes understanding of market segment (value proposition, customer expectation, service requirement, loyalty mechanism) • Senior Management establishes understanding of competitive dynamics (market position and differentiation) • Senior Management establishes understanding of service performances • Senior Management establishes current strategy level (product innovation, distribution, brand management, customer culture, customer knowledge management, services)

6.7 Sub process – Develop and articulate customer strategy



6.8 Sub process – Develop and articulate customer strategy Specifications

Specification	Description
Summary/Purpose	This process is responsible for establishing customer strategy
Scope	This is a level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> • NHS- National Health Services Standard • OSHA- Occupational Safety and Health Administration standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard • JCAHO- Joint Commission on Accreditation of Healthcare Organizations (JCAHO).
Related ESM Practices	Voice of customer, customer relationship management, customer expectation management, customer satisfaction index management, customer complaints management, customer loyalty management.
Related Business Driver	Effective customer strategy and realistic service goals
Related Operational Policies	OP-002 (Ref. 7.5)
Assumptions	<ul style="list-style-type: none"> • Organization's environmental services department has a very sound R & D capability. • Organization's environmental services department has done proper analysis to identify current shortcomings.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)

Customer Satisfaction Measure	Customer satisfaction index						
COI Correlation	None						
Raw Materials	None						
Equipment & Accessories	Automated System for Customer strategy management.						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	Customer insight						
Basic Course of Event	<p>Establish Customer Strategy & goals</p> <ol style="list-style-type: none"> 1. Customer strategy manager ensures clear description of strategy 2. Customer strategy manager ensures identification of changes in strategy. 3. Customer strategy manager performs identification of customer segment. 4. Customer strategy manager identifies strategy methodology (pricing, promotion, sales, customer services) 5. Customer strategy manager metrics alignment with success factors. 6. End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> 1. Keep paper track until system is up and running 2. Update the System and clear all logs. 						

	3. End.
Extension points	Identify stakeholders.
Preconditions	Information is gathered and analyzed accurately
Post -conditions	Customer strategy is established.
Related Business Rules	BR-002 (Ref 7.1)
Related Risks	RR-002 (Ref. 7.2)
Related Quality Attributes	Reliability, Availability, Usability, Confidentiality, Authenticity, Data Integrity, Accountability, Performance, Scalability, Extensibility, Adaptability(Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Value Added, Relevance, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	CSPRR (Ref 7.6)
Related CTQs	CSPRRV (Ref 7.7)
Actors/Agents	Customer strategy Manager
Delegation	<u>Delegation Rule -1: Agent Not Available</u> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <u>Delegation Rule -2: Agent Overloaded</u> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<u>Rule 1: Performance, operational legal Issues</u>

	<ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	5.1
Process Model	6.7
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.9 Sub process – Develop and articulate customer strategy Roles & Responsibilities

Roles	Responsibilities
Customer Strategy manager	<ul style="list-style-type: none"> • Customer strategy manager ensures clear description of strategy • Customer strategy manager ensures identification of changes in strategy. • Customer strategy manager performs identification of customer segment. • Customer strategy manager identifies strategy methodology (pricing, promotion, sales, customer services) • Customer strategy manager metrics alignment with success factors.

Reference



7 Reference

This chapter serves as a prime reference to Chapter 6 and presents the details supporting Chapter 6 in tabular formats. This chapter consists of various variable values which would frequently evolve or change as organization's environmental Services department's Customer Strategy & Planning process matures or changes.

7.1 Business Rules

BR ID	Description	Context	Rule	Source
BR-001	Customer strategy would be only approved by stakeholders	Business	TBD	TBD
BR-002	Market research should involve automated tools wherever possible to ensure accuracy of data	Business	TBD	TBD

7.2 Risk

Risk ID	Description	Source	Severity Level	Status	Resolution
RR-001	The customer insight establishment process is not effective.	TBD	High	TBD	Ensure that process utilizes automated means for gathering and analyzing information, which would be error free and reliable.
RR-002	The customer strategies are not comprehensive.	TBD	High	TBD	The Service strategies should be a well thought process and should include various strategic dimensions such that the end result is tailored and focused.

7.3 Quality Attribute

QA ID	Description	Threshold
QA-001	Interoperability	TBD
QA-002	Reliability	TBD
QA-003	Service Reliability	TBD
QA-004	Availability	TBD
QA-005	Usability	TBD
QA-006	Normal Usability Operations	TBD
QA-007	Confidentiality	TBD
QA-008	Authenticity	TBD
QA-009	Data Integrity	TBD
QA-010	Availability	TBD
QA-011	Non-repudiation	TBD
QA-012	Accountability	TBD
QA-013	Security Integration	TBD
QA-014	Performance	TBD
QA-015	Scalability	TBD
QA-016	Extensibility	TBD

QA-017	Adaptability	TBD
QA-018	Testability	TBD
QA-019	Auditability	TBD
QA-020	Operability and Deployability	TBD

7.4 Data Quality Dimension

DQ ID	Description	Threshold
DQ-001	Accuracy	TBD
DQ-002	Believability	TBD
DQ-003	Reputation	TBD
DQ-004	Objectivity	TBD
DQ-005	Free-of-Error	TBD
DQ-006	Value Added	TBD
DQ-007	Relevance	TBD
DQ-008	Completeness	TBD
DQ-009	Timeliness	TBD
DQ-010	Appropriate Amount	TBD
DQ-011	Understandability	TBD

DQ-012	Interpretability	TBD
DQ-013	Concise Representation	TBD

7.5 Operation Policy

Policy ID	Description	Context	Importance (1-5)
OP-001	Internal as well as external sources can be employed for establishing customer insight.	TBD	TBD
OP-002	Strategies would not be implemented unless approved.	TBD	TBD

7.6 KPI

Name	Acronym	Description	Context	Importance	Soft Threshold	Hard Threshold
Customer insight Change rate	CICR	Change in customer insight per year	NA	TBD	TBD	TBD
Customer Strategy Plan review rate	CSPRR	The number of reviews done to customer service plan	NA	TBD	TBD	TBD

7.7 CTQ

Name	Acronym	Description	Context	Importance	Soft Threshold	Hard Threshold
Customer insight Change rate variation	CICRV	Standard Deviation of CICR	NA	TBD	TBD	TBD
Customer Strategy Plan review rate variation	CSPRRV	Standard Deviation of CSPRR	NA	TBD	TBD	TBD
Motion Optimization Measure	MOM	Management of motion optimization measure	NA	TBD	TBD	TBD
Paper work Optimization Measure	PWOM	Management of Paper work Optimization Measure	NA	TBD	TBD	TBD
Correction reduction measure	CRM	Management of Correction reduction measure	NA	TBD	TBD	TBD
Inventory Optimization Measure	IOM	Management of Inventory Optimization Measure	NA	TBD	TBD	TBD
Transportation Optimization Measure	TOM	Management of Transportation Optimization Measure	NA	TBD	TBD	TBD

7 Reference

Waiting Reduction Measure	WRM	Management of Waiting reduction Measure	NA	TBD	TBD	TBD
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7.8 Abstract Time – Scale

Name	Acronym	Description	Quantification
TBD	TBD	TBD	TBD

7.9 SLA Terms

SLA ID	Description	Context	KPI	CTQ
TBD	TBD	TBD	TBD	TBD

7.10 Voice of Customer

VOC	Customer	Description	Perceived Value
Hygiene	Doctors, Patients, Nurses, Housekeeping Supervisors, Housekeepers, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker,	The environment should be attributing with great hygiene level.	<ul style="list-style-type: none"> • High quality healthcare services • Safe environment • Low infection rate • Low risk

	Waste management worker.		
High and Consistent Quality of standards	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	High and Consistent Quality of standards.	<ul style="list-style-type: none"> • Reputation of organization or hospital • Professionalism • Trust • Positive psychological bias
Free of Infections	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	Infections free and healthy environment.	<ul style="list-style-type: none"> • Safe environment • Reputation of hospital or organization • Trust • Quick healing • Positive psychological bias • Low risk
Timely Services	Doctors, Patients, Nurses, Housekeeping Supervisors, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The response time for any request should be very short.	<ul style="list-style-type: none"> • Professionalism • Trust • Positive psychological bias • Reputation of hospital or organization • Safe environment

High Coordinating	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	There should be high level of coordination between hospital employees and departments.	<ul style="list-style-type: none"> • Professionalism • Trust • Low risk • Excellent Ergonomic
Remove Waste	Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	Wastes should be either removed or minimized.	<ul style="list-style-type: none"> • Safe environment • Low infection rate • Low risk • Reputation of hospital or organization • Low cost • Timely response • High quality
Excellent Ergonomic	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The hospital environment and policy should comply with physical, organization and cognitive ergonomics.	<ul style="list-style-type: none"> • Professionalism • Trust • Job accuracy • Excellent communication • Low risk • Reputation of hospital or organization
Safety	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks,	Hospital environment should comply with occupational health and safety procedures.	<ul style="list-style-type: none"> • Safe environment • Professionalism • Low risk

	Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers		
Appearance	Housekeeping Supervisors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The appearance of the workers, supervisors and manager should induce positive biases.	<ul style="list-style-type: none"> • Professionalism • Reputation of hospital or organization • Trust • Positive psychological bias
Excellent Worker Attitude	Housekeeping Supervisors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The environment service employee should be free from negative attitudes.	<ul style="list-style-type: none"> • Professionalism • Reputation of hospital or organization • Trust • Positive psychological bias • Minimum disputes • Less employee turn over

7.11 Customer Context Matrix

Name of Customer	Acronym	Context of Customer	Coordination Process Area
Doctors	DOC	Direct	HIS Coordination

Patients	PAT	Direct	HIS Coordination
Nurses	NUR	Direct	HIS Coordination, Nurse Coordination
Housekeeping Supervisors	HKS	Direct	Quality Coordination, Nurse Coordination, infection control coordination
Clerks	CLR	Direct	HIS Coordination
Visitors	VIS	Indirect	HIS Coordination
Environmental Services Management	ESM	Direct	Nurse Coordination, infection control coordination
Other hospital workers	OHW	Indirect	Security coordination
Laundry worker	LDW	Direct	Nurse Coordination, HIS Coordination
Transportation worker	TRW	Direct	Quality Coordination, HIS Coordination
Maintenance worker	MAW	Direct	Quality Coordination, HIS Coordination
Waste management worker	WMW	Direct	Quality Coordination, HIS Coordination
Infection control professional	ICP	Indirect	infection control coordination
Housekeepers	HK	Direct	HIS Coordination, Nurse Coordination

7.12 MSD Attributes

MSD Attribute	Description
Lifting/carrying	Large vertical movements, long carry distances.
Disability	Pose a risk to those with a health problem or a physical or learning disability.
Force	High initial forces to get the load moving.
Loaded motion	High forces to keep the load in motion.
Physical ergonomics	Constraints on body posture/positioning, confined spaces/narrow doorways.
Posture change	Strong force and awkward movement/posture. E.g. bent wrists.
Excessive force	Excessive force to grip raw materials, product or tools
Scarceness	Inadequate tools for repetitive use screwdrivers, pliers, hammers.
Noise	Noise which cause stress and muscle tension.
Concentration	Tasks require high levels of attention/concentration especially where the worker has little control over allocation of effort to the task.
Floor hazards	Remove slip and trip hazards through provision of appropriate floor surfaces and good keeping.
Clothing	Clothing/PPE may prevent sufficient movement for the task or reduce capability. E.g. to grip consider handling needs when selecting work wear/gloves.
Psychosocial factors	Adverse psychosocial factors can increase the potential for manual handling injuries. A workers psychosocial response to work and the workplace conditions can affect their health in general and MSDs in particular. The factors include the content, design, organization and management of the work

Glossary / Acronyms



Terminology	Description
Abstract Time Scale	Time Scale that will be quantified both during operations and continuous process improvement. These time identifiers are correlated with the soft thresholds that are dynamically specified during life span of the process.
BPMN	Business Process Modelling Notation Business Process Modelling Notation is the practice of documenting an organisation's key business processes in a graphical format.
Business Rules	Business Rules are intended to assert business structure or to control or influence the behaviour of the Business. Business rules describe the operations, definitions and constraints that apply to an organization
CTQ	Critical to Quality Critical To Quality (CTQ) is continuous measuring and monitoring tool agreed between the internal processes to achieve greater customer satisfaction.
COI	Chain of Infection
Data Quality Dimensions	The totality of features and characteristics of data that bears on their ability to satisfy a given purpose
ESM	Environmental Services Map
EBC	Evidence based cleaning
KPI	Key Performance Indicator A metric that is used to help manage a process, IT service or activity. Many metrics may be measured, but only the most important of these are defined as KPIs and used to actively manage and report on the process, IT service or activity. KPIs should be selected to ensure that efficiency, effectiveness, and cost effectiveness are all managed.
MSD	Macro skeleton disorder.
Operational Policy	Rules defined to operate the process.
Quality Attributes	Quality attributes are non-functional requirements used to evaluate the performance of a process.

Risk	A possible event that could cause harm or loss, or affect the ability to achieve Objectives. A risk is measured by the probability of a threat, the vulnerability of the asset to that threat, and the impact it would have if it occurred.
SLA	Service Level Agreement An Agreement between an IT Service Provider and a Customer. The SLA describes the IT Service, documents Service Level Targets, and specifies the responsibilities of the IT Service Provider and the Customer
VOC	Voice of Customer



Appendix A: Business Process Modeling Notation Reference



APPENDIX.
A









INTRODUCTION

Business Process Modelling (“BPM”) is the practice of documenting an organisation’s key business processes in a manner which:




- Is highly graphical
- Focuses on business terminology rather than technical
- Allows all business steps/tasks to be included, not just those which involve a computer system

Mentioned below are the various core concepts of BPMN with the relevant definition and graphic notation.







PROCESS START

All processes have to start somehow, general notation for a process models commence with the START event, is a circle.	
One can use simply the <i>basic unmarked</i> start event as above, or one of the different types of start event, to provide more detail as described below.	
If a process starts when some sort of message arrives, mail, email, text. Following notation can be used	Message start 
If a process starts by virtue of the passage of time – e.g. 1st Jan review or 4 days after the purchase order is sent, following notation can be used	TIMER Start 
If the process starts when a rule/condition is met – e.g. when Incident Impact is more than 100,000.	RULE Start 
If a process starts when another process finishes. Following notation can be used	LINK Start 
If there is more than one ‘trigger’ for a process to start. Following notation can be used	MULTIPLE Start 



TASK AND SUB PROCESS



Task	Task is a lowest level activity in a process map. A task is used when the work is not broken down to a finer level of detail	
Sub Process	A Sub-process is a compound activity which can be broken down into finer details.	
Loops	Loops task or sub process continues to iterate until the loop condition is true.	

INTERMEDIATE EVENTS



Following notation can be used to display the intermediate event, similar to start and end events.						
	BASIC	MESSAGE	TIMER	RULE	LINK	MULTIPLE
						

PROCESS END



All processes have to end somehow, general notation for a process models end will be a circle with a solid line.	
One can use simply use the <i>basic</i> end event as above, or you can use one of the different types of end event, to provide more detail, as described below:	
If a process ends by something being sent via a message of some sort e.g., mail, email, document, following notation can be used.	MESSAGE End 

If the end of this process causes the start of another, following notation can be used.	LINK End 
If more than one consequence of the process ending, following notation can be used.	MULTIPLE End 

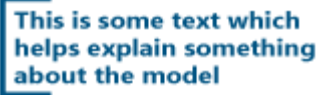


SWIMLANES

Pool	A <i>Pool</i> represents a participant in a Process. It is also acts as a “swimlane” and a graphical container for partitioning a set of activities from other Pools	
Lane	A <i>Lane</i> is a sub-partition within a Pool and will extend the entire length of the Pool, either vertically or horizontally. Lanes are used to organize and categorize activities.	

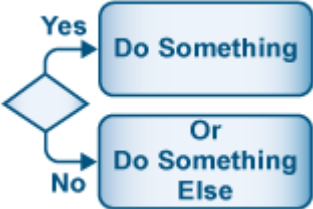
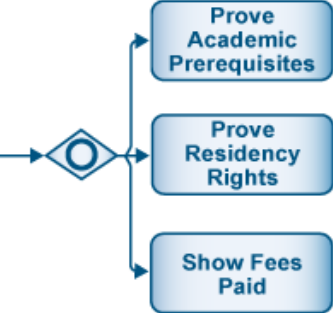
CONNECTORS


Sequence Flow	A <i>Sequence Flow</i> is represented by a solid line with a solid arrowhead (see the figure to the right) and is used to show the order (the sequence) that activities will be performed in a Process.	
Message Flow	A <i>Message Flow</i> is represented by a dashed line with an open arrowhead (see the figure to the right) and is used to show the flow of messages between two separate Process Participants. In BPMN, two separate Pools in the Diagram will represent the two Participants.	

ARTIFACTS

Annotation	The ANNOTATION shape is used to add comments to a process model. It consists of text in a square left bracket	
Data Object	A data object represents a piece of data which is required or produced by the process eg. Customer details, output.	
Group	A grouping is purely for documentation or explanatory purposes. It has no impact on the model. It consists of a rectangle with dashed lines and rounded corners, usually enclosing other objects.	

GATEWAYS

Exclusive	The values of the process are examined to determine which path to take	
Inclusive	Each branch will be evaluated and will not stop when one branch condition becomes true.	

Parallel	Provides a mechanism to synchronise parallel flow and to create parallel flow.	 A diamond-shaped gateway symbol containing a plus sign (+). Two arrows originate from the right side of the diamond, pointing to two rounded rectangular task boxes. The top box is labeled "Do Something" and the bottom box is labeled "And Also Do This".
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Appendix B: Chain of Infection



APPENDIX.
B

10 Appendix B: Chain of Infection

In order to control or prevent infection it is essential to understand that transmission stages of a pathogen resulting in infection requires the six vital links (Refer to the table below).

Each link mentioned below must be present for infection or colonization to proceed, and breaking any of the links can prevent the infection.

The section below details out the six stages:

Stage	Link	Description
1	Infectious Agent	Any disease-causing microorganism (pathogen)
2	The Reservoir Host	The organism in which the infectious microbes reside
3	The Portal of Exit	Route of escape of the pathogen from the reservoir.
4	The Route of Transmission	Method by which the pathogen gets from the reservoir to the new host
5	The Portal of Entry	Route through which the pathogen enters its new host
6	The Susceptible Host	The organism that accepts the pathogen

Link 1: Infectious Agent

The causative agent for infection is any microorganism capable of producing disease. Microorganisms responsible for infectious diseases include bacteria, viruses, rickettsiae, fungi, and protozoa. Sometimes, microorganisms are part of patient's own body flora and can cause infection in the immunocompromised host. These infections are called endogenous infections. Infections which are acquired from external sources are called exogenous infections.

Link 2: Reservoir Host

The second link in the chain of infection is the reservoir, i.e. the environment or object in or on which a microorganism can survive and, in some cases, multiply. Inanimate objects, human beings, and animals can all serve as reservoirs, providing the essential requirements for a microorganism to survive at specific stages in its life cycle.

Infectious reservoirs abound in health care settings, and may include everything from patients, visitors, and staff members to furniture, medical equipment, medications, food, water, and blood.

10 Appendix B: Chain of Infection

Link 3: Portal of Exit

The portal of exit is the path by which an infectious agent leaves its reservoir. Usually, this portal is the site where the microorganism grows. Common portals of exit associated with human reservoirs include the respiratory, genitourinary, and gastrointestinal tracts, the skin and mucous membranes and the placenta (transmission from mother to fetus)

Link 4: Route of Transmission

The microorganism can be acquired by inhalation (through respiratory tract), ingestion (through gastrointestinal tract), inoculation (through accidental sharp injury or bites), contact (during sexual intercourse) and transplacental transmission (microbes may cross placenta from the mother to fetus). It is important to remember that some microorganisms use more than one transmission route to get from the reservoir to a new host.

Of the six links in the chain of infection, the mode of transmission is the easiest link to break and is key to control of cross-infection in hospitals.

Link 5: The Portal of Entry

The portal of entry is the path by which an infectious agent invades a susceptible host. Usually, this path is the same as the portal of exit. For example, the portal of entry for tuberculosis and diphtheria is through the respiratory tract, hepatitis B and Human Immunodeficiency Virus enter through the bloodstream or body fluids and Salmonella enters through the gastrointestinal tract. In addition, each invasive device, e.g. intravenous line, creates an additional portal of entry into a patient's body thus increasing the chance of developing an infection.

Link 6: The Susceptible host

The final link in the chain of infection is the susceptible host. The human body has many defense mechanisms for resisting the entry and multiplication of pathogens. When these mechanisms function normally, infection does not occur. However, in immunocompromised patients, where the body defenses are weakened, infectious agents are more likely to invade the body and cause an infectious disease. In addition, the very young and the very old are at higher risk for infection because in the very young the immune system does not fully develop until about age 6 months, while old age is associated with declining immune system function as well as with chronic diseases that weaken host defenses.