



Draft



December 2020

Finance Management Integration Process



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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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Purpose



1 Purpose

1. PURPOSE

The purpose of this document is to establish an integration process that integrates environmental service financial management process with the existing organizational Finance Management process.

The main purpose of this document is to enable environmental services finance management process:

- Aligning with organization's finance and budgeting strategy
- Enhancing overall organizational financial decisions
- Reducing financial surprises and losses
- Identifying and managing multiple and cross-enterprise budgets and cash flows.
- Optimizing integration with lesser errors.

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.*
- *Activity based Accounting.*

*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 Environmental services Financial Management Integration process document comprises the following chapters:

Chapter–3: Scope: This chapter describes the scope of the document and the Financial Management process.

Chapter–4: General Assumptions: This chapter describes the underlined assumptions made for both the document and Financial Integration process.

Chapter–5: Financial Management Integration Framework: This chapter exhibits the interaction of financial process with other related processes and also describes the process sequence for financial integration process.

Chapter–6: financial integration Management Process: In this chapter financial integration process 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 financial integration process 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 cleaning process.

This financial integration process is supposed to be a living document and consists of various variable values which would frequently evolve or change as organization's financial integration process matures or changes

Scope



3 Scope

3. SCOPE

This process is applicable to all financial activities pertaining to environmental services.

General Assumptions



4. GENERAL ASSUMPTIONS

Following are general assumption made for the Financial Management Integration process.

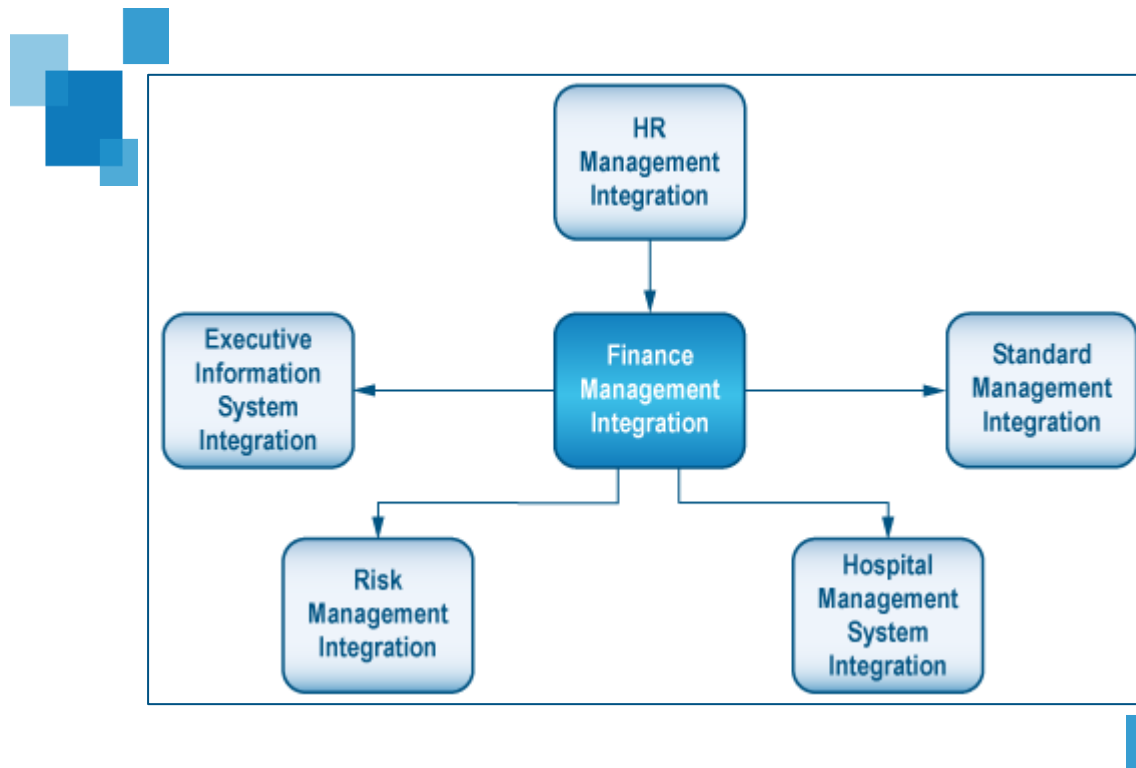
- Senior Management Support is available throughout for integration with the current financial management process.
- Current organizational finance management process is matured.
- This process uses automated tools to ensure smooth and efficient integration with the current process.
- Any activity related assumptions are explicitly identified in related Process Specification table in Chapter 6.

Financial Management Integration Framework



5.1 Financial Process Interactions

The following depiction shows the points of interaction of organization's Financial Management Integration process with other related enterprise processes. All the processes depicted below are defined in their own respective dedicated documents.



5.2 Financial Process

The Financial process comprises of following sequence of activities:

1. Identification of Finance Management Integration Goals
2. Enterprise Financial Management Framework Integration
3. Finance Management Process re-Engineering
4. Perform HL 7 integration with Finance system
5. Data and Records Integration
6. Financial Management Process Integration

7. Integrated Reporting

Section 5.2.1 -5.2.7 describes the flow of high level process sequence for organization Financial Management. Section 6.1 Process Model sheds more light on the entire flow of financial process.

5.2.1 Identification of Finance Management Integration Goals

This comprises of identification of following goals:

- **ES Finance Management Performance Optimization.** This focuses on streamlining and improving existing environmental services finance management processes to align with the organizational finance management to ensure better, comprehensive and greater operational efficiency.
- **Efficient ES Finance Management decision making.** This ensures the smooth and seamless information flow between organizational and environmental services' financial management processes, for effective decision.
- **Better Finance Management Coordination.** This ensures better coordination between the two processes, to enable comprehensive and easy retrieval of information and data when required, which would facilitate the harmonization between environmental services finance management process and organizational finance management process.

5.2.2 Enterprise Financial Management Framework Integration

- **Finance Management standard Integration**

The purpose of this sub process is to ensure that the organization finance management standards are comprehensive and also covers finance management of environmental services. This sub process comprises of integrating the environmental services finance management framework with the defined and documented organizational finance Management framework. This comprises of integrating at following levels:

- **Finance Management Policies integration.** This involves Integration of ES finance management policies with the current established policies of finance management.
 - **Finance Management Procedure integration.** This involves Integration of ES finance management procedure with the current established procedure of finance management.
 - **Risk Management Guidelines integration.** This involves Integration of ES finance management guidelines with the current established guidelines of finance management.
- **Ensure Compliance with Organizational Finance Management.**
This addresses the following:

- **Addressing Integration risks.** This involves identification of integration risk which might be encountered during integration process, and taking appropriate steps to address them.
- **Removing discrepancies.** This step involves removing of any discrepancies arising out of integration to financial management framework.
- **Harmonization activities.** The integration identifies financial roles and responsibilities clearly, thus removing any room for inconsistency.
- **Establishing Responsibility and authority**
This comprises of establishing environmental services roles and responsibility for risk management that would coordinate and facilitate overall risk management process.
- **Integration plan**
This comprise of establishing integration plan to integrate ES finance management with organization finance Management implementation plan.

5.2.3 Finance Management Process re-Engineering

This comprises of re-engineering the existing finance management process of organization as well as environment services to streamline and optimize information flow between the two processes.

This comprises of following steps:

- **Identify Integration goals.** This comprises of identification of strategic and informative goals between the processes.
- **Analyze “as is” Processes.** This comprises of analyzing the current processes, to identify points of failure, disconnections, and current values of the processes.
- **Design “to be” process.** The objective of this phase is to produce one or more alternatives to the current situation, which satisfy the strategic goals of the integration. This comprises of using innovative methods and practices and identifying the desired state of processes.
- **Implement Change.** This comprise of planning a transition from “As is” to the desired process. This plan must align the organizational structure, information systems, and the business policies and procedures with the redesigned processes

5.2.4 Perform HL 7 Integration with Finance system

5.2.4.1 Establish implementation goals

Following are goals of HL 7 Integration:

- A full and accurate view of a patient's health history and situation (via application integration within an Electronic Health Record),
- The smooth function and cost-effective management of hospitals and clinics (via application integration of a Hospital or Clinic's Information System),
- The provision of high quality care for patients situated away from their usual physicians, healthcare providers, or in different regions or countries (via application integration within a National Electronic Patient Record).

5.2.4.2 Message Selection

Prior to starting integration, the system to be integrated must select the messages that it will use to send and receive HL7 information. After the message types have been selected, the next step is to verify what messages need to be exchanged. Once the sample messages are exchanged, the interface planning should be performed.

5.2.4.3 HL7 Interface Planning

HL7 planning encompasses the major activity for a typical health integration project. HL7 planning includes following:

- **Business requirements analysis**

This comprises of the review of the overall project's business requirements and the role that HL7 interfacing will play in the realization of those requirements.

HL7 interface analysis includes:

- Review of (and potential input to) documented business requirements
- Participation in stakeholder reference groups used to validate and refine business requirements. These groups allow the interface analyst to better understand the objectives and business rules that apply to any required HL7 interfaces
- Working with project business analysis to exchange ideas on how front-end functional requirements will align with HL7 interface requirements

- **Application analysis**

This comprise of review of the applications required to be integrated (using HL7 interfaces) in order to achieve the project's business requirements.

The applications that underpin the business workflows and business requirements influence the HL7 interface analysis process. In the HL7 interface analysis process, for a set of identified applications, the application analysis will include:

- Review of the business processes practiced by the users of a particular application. For example the business processes performed by the pathology staff whose activities contribute an electronic health record.

Various tools that can be utilized for this review are as:

- **Sequence Diagrams**

These diagrams are intended to provide an overview so the transactions can be seen in the context of the organizations workflows. These diagrams are not intended to present the only possible scenario, just those required to accomplish the goals of communicating between information systems

- **Activity Diagrams**

These diagrams include “swim-lanes”, which separate the tasks of cooperating systems. The purpose of the activity diagram is to illustrate the components of an activity diagram, not to design a system.

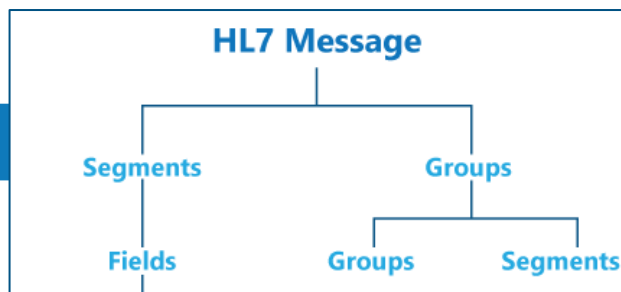
This stage comprises of describing the actors (entities) that may be involved in sending or receiving related messages. it also comprises of identifying related messaging goals for the actors. Give below is an example:

Actor	Responsibility	Messaging Goals
Immunization Information System	<ul style="list-style-type: none"> • Provide access to a complete, consolidated immunization record for each person in its catchment area • Supply individual immunization records to authorized users and systems • Support aggregate reporting and analysis • Evaluate immunization history and make recommendations for next doses 	<ul style="list-style-type: none"> • Receive immunization histories and updates • Receive demographic updates • Receive requests for individual records • Receive observations about a person • Send observations about a person • Send immunization records to other systems • Send demographic data

	<ul style="list-style-type: none"> • Store medical conditions that affect what vaccines are recommended 	<ul style="list-style-type: none"> • Request immunization record Request person id • Acknowledge receipt of message
--	--	---

- Review of the actual application used by a particular group of users. For example the X application used by pathology staff, Y used by hospital radiology department staff, etc.
- Review of existing HL7 interfaces used (or potentially available) by those identified systems. For example the existing HL7 interface supported by the ABC emergency department application.
- **HL7 interface requirements**
HL7 interface requirements forms the basis of the HL7 interface specification and typically includes:
 - HL7 interface business requirements - based previously in business requirements analysis and application analysis.
 - HL7 messages to support business requirements (e.g. Order new pathology test, Update patient demographics)
 - Data items required for each transaction and particular business rules required for a particular data item (e.g. business rules when updating a patient next of kins name)

The depiction on the next page shows the HL 7 hierarchy.



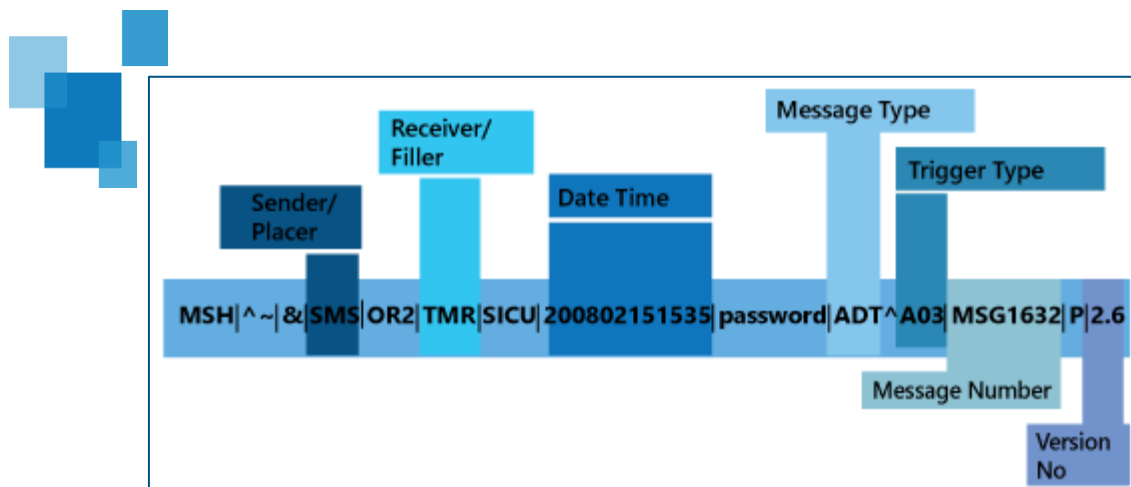
Appendix C gives more information about this.

- **HL7 interface specification**

HL7 interface specification describes how the HL7 requirements will be realized in actual interface software components. This typically includes:

- Technical description of the HL7 messages supported, the HL7 segments and HL7 fields.
- How the HL7 messages relate to the application front-end functionality, data base and code tables
- Specific technical business rules required and/or applied by the interface

The depiction shows HL7 message header



Appendix D highlights Encoding and decoding rules.

5.2.4.4 Using Integration Engine

Interface Engines are useful tools for formatting messages and routing them between messaging partners. Following needs to be considered:

- The number of applications being interfaced and how likely that is to grow
- The robustness required of your interface
- Whether the interface is real time or batch
- Ability to support an interface engine

The integration engine should be able to provide following:

- **HL7 Mapping.**

Integration Engine should offers the flexibility to handle non-standard HL7 messages in an efficient and accurate manner.

- **HL7 Message Testing**

Integration Engine should provides robust HL7 testing features by loading test message files and providing the capability to test. Additionally, it should provide ability to conduct HL7 conformance checks, getting immediate validation of HL7 messages against the selected HL7 Standard.

- **HL7 Messaging**

High volumes of HL7 message traffic or large numbers of connections should be robustly handled within Integration Engine. For healthcare IT environments that require high availability options, Integration Engine should ensure HL7 message flow is continuous.

- **HL7 Connections**

Integration engine should be able to provide all type of connection - bi-directional, receiver, or sender – as well as the communication method - TCP/IP, File, FTP, and HTTP - required to exchange patient between applications and providers.

- **HL7 Interface Monitoring**

Integration Engine should enable real-time monitoring of HL7 interfaces, notify the users in case of failures

5.2.4.5 HL7 interface testing

This includes test planning, actual interface testing (such as HL7 interface unit testing, HL7 interface system testing and HL7 integration testing).

HL7 interface testing typically includes:

- **HL7 interface unit testing** .Typically interface specification based aiming to confirm that HL7 messages sent and/or received from each application conform to the HL7 interface specification.

- **HL7 interface integration testing.** Testing of business scenarios to ensure that information is able to flow correctly between applications.
- **HL7 interface system testing.** End-to-end scenario testing focused on ensuring all relevant modules of all relevant applications are able to integrate correctly.

After the testing period has completed the integrated system is placed in production mode. If a problem occurs during the go live phase, an action plan should be quickly developed and the necessary changes should be made

5.2.5 Data and Records Integration

This process ensures that the finance record and data pertaining to the environmental services record are well integrated with the organizational finance management. This integration ensures that the integrated data remains true and pure with the following attributes:

- Authenticity
- Integrity
- Accuracy
- Reliability
- Free from error.

5.2.6 Financial Management Process Integration

This comprises of following:

- **Integration with Financial Planning**
This process ensures that the environmental services requirements are taken into consideration while formulating the financial plan for the enterprise. Financial planning should ensure a continuous process for directing and allocating financial resources to environmental service and meeting overall environmental services' strategic goals and objectives. Financial Planning should use following tools and technique to perform environments services planning.
- **Financial Data analysis.** Data analysis tools and techniques are used to control and provide consistent data required as input to developing planning models. This comprises of performing:
 - **Growth rate analysis.** Simple or yearly growth rate computation is the percentage rate of increase from one value to the next successive value in a time series of data.
 - **Moving Average.** This involves using Data-smoothing techniques are used to reduce the effect of random fluctuations in time series data

- **Marginal Analysis.** In marginal analysis scaled ratios of the differences between successive values of two time series of data are calculated. Thus it provides a measure of relationships between the variation of one variable to the variation in another variable Analysis.
- **Correlation Analysis.** Correlation analysis is a way of screening statistical data in the form of successive observations on a set of variables. It is a summary coefficient for expressing the degree of relationship between variable.
- **Capital investment Analysis.** Capital investment planning techniques provide a capability for evaluating the financial consequences of proposed capital expenditures. Some of the more common techniques for analyzing return on investments are:
 - **Payback method.** The measure of payback period-that is, the number of years required for the earnings on the investment to pay back the original outlay with no allowance for capital wastage.
 - **duPont method.** The duPont method relies on gross profit on sales and turnover as a return criteria
 - **Net Present-Value method (NPV).** The Net Present-Value (NPV) method consists of the calculation of the present worth of the different projects in relation to the rate-of-return given as input.

The organizational financial plan should take into consideration:

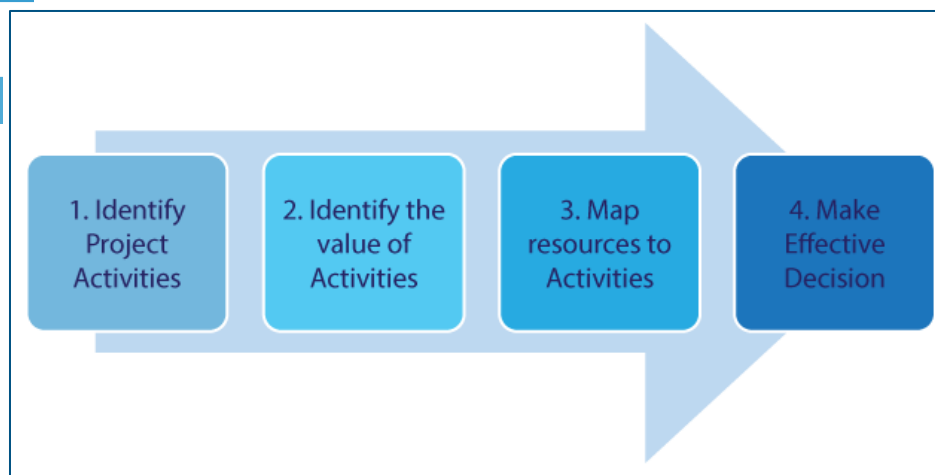
- Environmental Services financial goals.
- Environmental Services current financial position
- Environmental Service Financial Forecasts.
- Environmental Services implementation process
- Environmental Services investment details and risk assessment.
- **Integration with Financial Budgeting**

Budget is a forecast or plan of an organization's income and/or expenses for a period of time into the future. This process ensures integration with the current budgeting process to ensure that for converting the environmental services operating needs into monetary terms. Environmental Services budgets can be used as a control standard against which financial performance can be measured. Following approaches can be integrated with for establishing environmental services Budgeting:
- **Determine the budgeting approach:**
 - **Bottom Up- Top Down.** This involves identifying whether the budgeting would be done centrally by top management only based on companies priorities and projections (top down), or it would involve environmental services (bottom up). Irrespective of top down or bottom up approach following steps apply to this process:
 - **Define Business goals:** Identifying and then prioritizing business needs and objectives for the forthcoming budgeting period

- **Identify expenses:** This process is responsible for identifying future expenses based on historical trends, future needs.
- **Approval:** This would involve thorough review of the budget and final approval by the stakeholders.
- **Activity value stream.** Activity value stream is a model used for identifying and evaluating activities that a business performs so as to enable effective and efficient strategic and operational decision making in an organization. This model is grounded to Activity based Management, and provides means to:
 - Improve resource utilization and allocation
 - Enable process efficiencies
 - Enable higher ROI
 - Reduce operation cost and overheads

AVS comprises of following steps:

- Identify project 's Activities
- Identify the value of Activities
- Map Resources to Activities
- Make Effective Decision.



- **Integration with Financial Accounting**

Financial Accounting is concerned with the collection, recording, classification and presentation of financial data to serve the purposes of the management, and stakeholders. This includes production of environmental services:

- Balance sheets
- Income statement
- Cash flows.

This process is responsible for monitoring, analyzing, and adjusting organizations business' cash flows to ensure that the organization always has positive cash inflow.

- **Financial Analysis**
- **Financial Audit**

This process is responsible for conducting environmental services financial audits, and identifying any deviations. The ultimate purpose of financial auditing is to present an accurate account of financial business transactions to stakeholders.

5.2.7 Integrated Reporting

This process is responsible for provision of various comprehensive reports which takes into account ES finance management results for example

- Financial management deviations Reports
- Finance performance reports
- Financial Risks compliance Reports

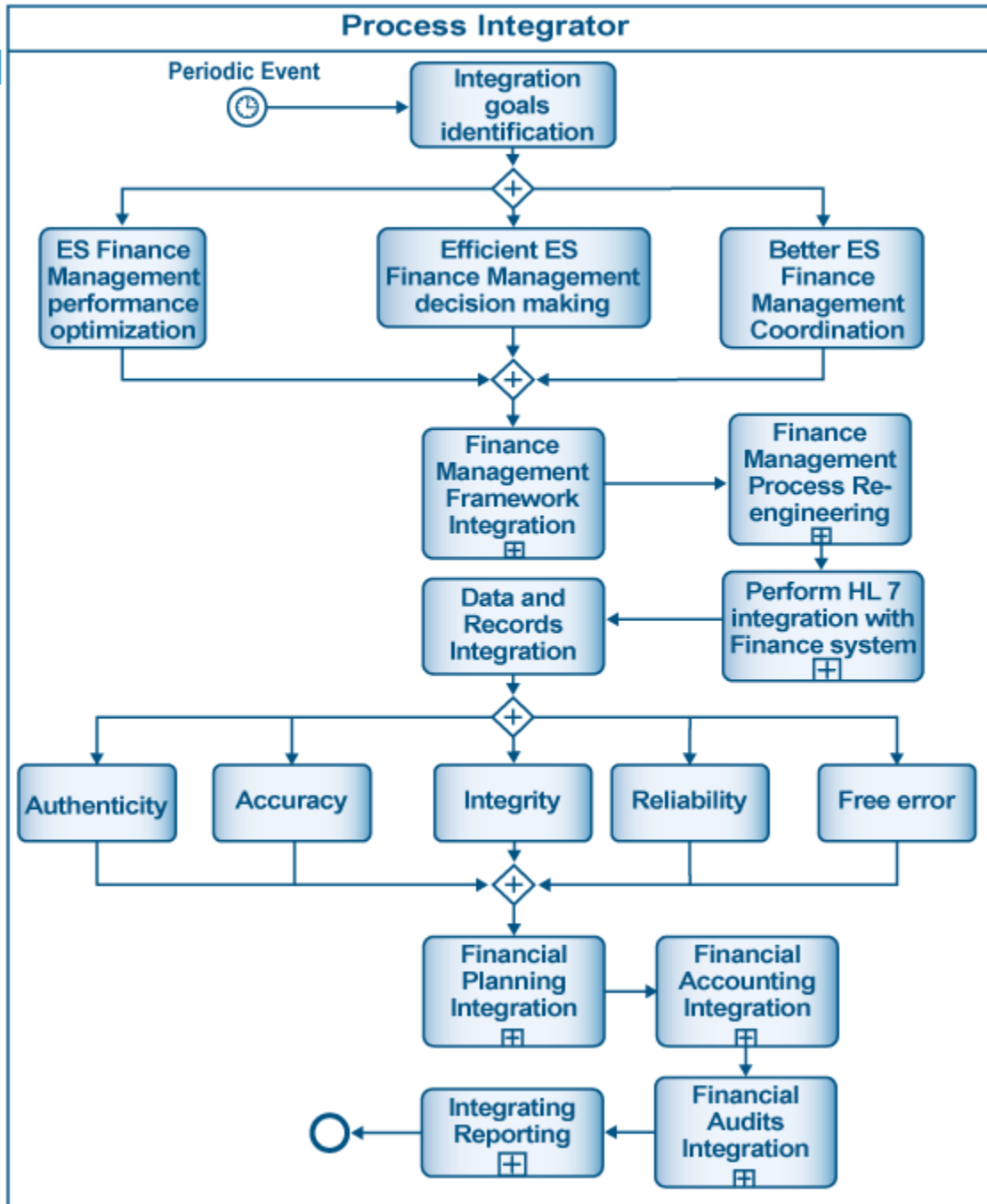
Financial Management Integration Process



6

Financial Management Integration Process

6.1 Process Model



6.2 Process Specification

Specification	Description
Summary/Purpose	To integrate with organization's financial Management Integration process.
Scope	This is a Level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> AS-NZ Risk 4360- Risk Management. Lean six sigma- Quality Standard JCI- Journal of Clinical Investigation standard ABC –Activity Based Costing
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> Integration with the finance management
Related Operational Policies	OP-001, OP-002, OP-003, OP-004, OP-005, OP-006, OP-007, OP-008, OP-009, OP-010, OP-011 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Finance 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	<ul style="list-style-type: none"> Periodic review 						
Basic Course of Event	<p>Finance Management Integration Process</p> <ol style="list-style-type: none"> 1. Process integrator identifies integration goals (ES finance management performance optimization, efficient ES finance management decision making, better ES finance management coordination) 2. Process Integrator performs finance management framework integration 3. Process integrator performs finance management process re-engineering 4. Process integrator performs HL7 integration 5. Process integrator performs data and records integration (authenticity, accuracy, integrity, reliability, free error) 6. Process integrator performs finance planning integration. 7. Process integrator performs budget integration 8. Process integrator performs financial accounting integration. 9. Process integrator performs financial audits integration. 10. Process integrator provides integrator reporting. 11. 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 						

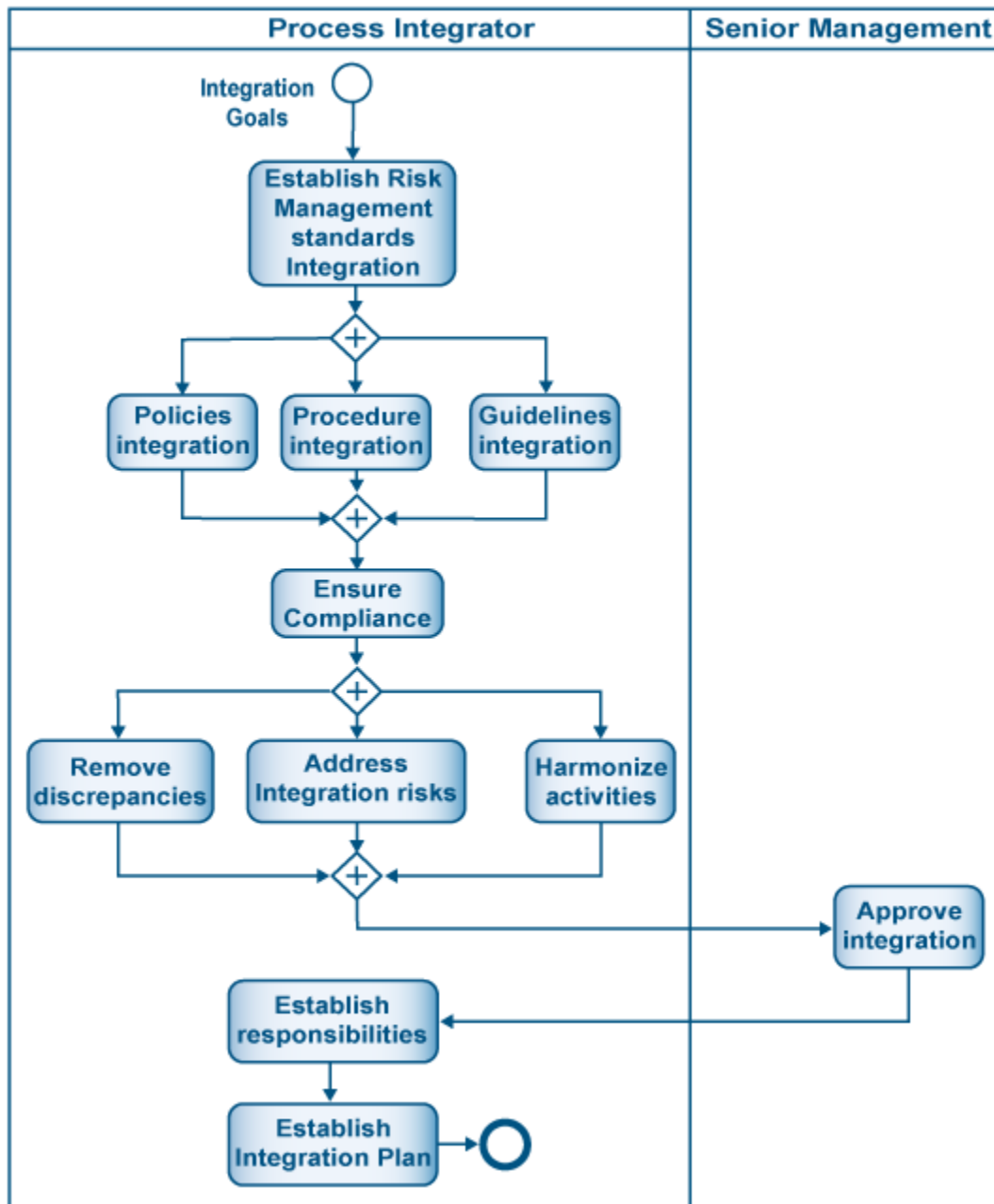
	<ol style="list-style-type: none"> 2. Update the System and clear all logs. 3. End.
Extension points	Enterprise Information system integration, Hospital Management System integration, HR Management integration, Standard Management integration, Finance Management Integration.
Preconditions	This process utilizes automation wherever necessary.
Post –conditions	Financial integration process gets established.
Related Business Rules	BR-001, BR-002, BR-003, BR-004, BR-005, BR-006, BR-007, BR-008, BR-009, BR-010 (Ref 7.1)
Related Risks	RR-001, RR-002, RR-003, RR-004, RR-005, RR-006, RR-007, RR-008, RR-009 (Ref 7.2)
Related Quality Attributes	Reliability, Usability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability. (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Believability, 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	EFPRR, EBPRR, EDIBSR, EFCR, FNCR, SBP, CES, IDR, RPR (Ref 7.6)
Related CTQs	EFPRRV, EBPRRV, EDIBSRV, EFCRV, FNCRV, SBPV, CESV, IDRV, RPRV, MOM, PWOM, CTQ, IOM, TOM, WRM, DRM (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<u>Delegation Rule -1: Agent Not Available</u> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task

	<p>3. Log the delegation</p> <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.1
Other References	<p>APPENDIX A: BUSINESS PROCESS MODELING NOTATION REFERENCE</p> <p>APPENDIX B: CHAIN OF INFECTION</p> <p>APPENDIX C: HL 7 PROTOCOL</p> <p>APPENDIX D: HL 7 ENCODING AND DECODING RULES</p>

6.3 Roles & Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none">▪ Process integrator identifies integration goals (ES finance management performance optimization, efficient ES finance management decision making, better ES finance management coordination)▪ Process integrator performs HL7 integration▪ Process Integrator performs finance management framework integration▪ Process integrator performs finance management process re-engineering▪ Process integrator performs data and records integration (authenticity, accuracy, integrity, reliability, free error)▪ Process integrator performs finance planning integration.▪ Process integrator performs budget integration▪ Process integrator performs financial accounting integration.▪ Process integrator performs financial audits integration.▪ Process integrator provides integrator reporting.

6.4 Sub process – Finance Management framework Integration



6.5 Sub process – Finance Management framework Integration Specification

Specification	Description
Summary/Purpose	To integrate environmental service finance management processes with the organizations finance Management framework process.
Scope	This is a Level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> • AS-NZ Risk 4360- Risk Management. • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard • SEI –Risk Management Integration framework. • ABC- Activity based costing
Related ESM Practices	Enterprise Information system integration, Hospital Management System integration, HR Management integration, Standard Management integration, Risk Management Integration.
Related Business Driver	<ul style="list-style-type: none"> • Comprehensive finance management
Related Operational Policies	OP-007 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 finance 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	<ul style="list-style-type: none"> Integration goals 						
Basic Course of Event	<p>Finance Management Framework Integration Process</p> <ol style="list-style-type: none"> Process integrator establishes finance management standard integration (policies, procedures and guidelines integration) Process integrator ensures compliance (removes discrepancies, harmonizes activities, address integration goals) Senior Management approves integration Process integrator establishes integration roles and responsibility End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Finance management re-engineering process						

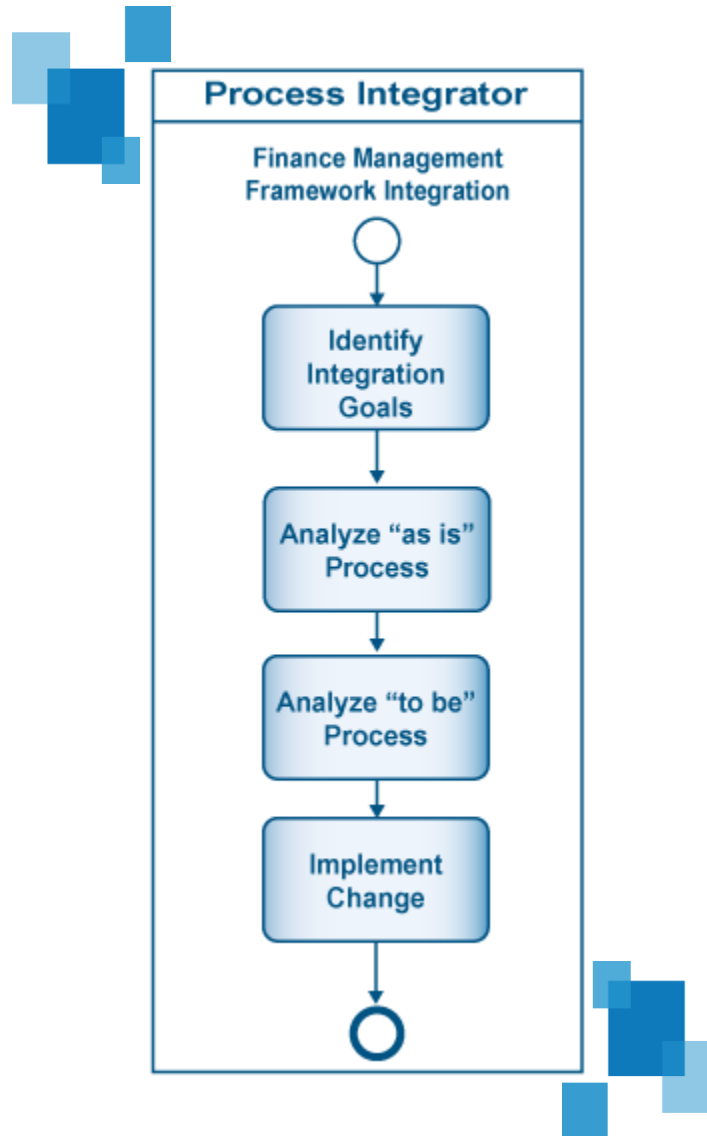
Preconditions	This process utilizes automation wherever necessary.
Post –conditions	Organization finance framework integration happens.
Related Business Rules	BR-006 (Ref 7.1)
Related Risks	RR-001 (Ref 7.2)
Related Quality Attributes	Reliability, Usability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability. (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Believability, 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	IDR(Ref 7.6)
Related CTQs	IDRV(Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.4
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain Of Infection

6.6 Sub process – Finance Management framework Integration Roles & Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none"> ▪ Process integrator establishes finance management standard integration (policies, procedures and guidelines integration) ▪ Process integrator ensures compliance (removes discrepancies, harmonizes activities, address integration goals) ▪ Senior Management approves integration ▪ Process integrator establishes integration roles and responsibility

6.7 Sub-Process – Business Process Re-engineering



6.8 Sub Process – Business Process Re-engineering Specification

Specification	Description
Summary/Purpose	To establish the process of business process re-engineering.
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 • CDC- Centers for Disease Control and Prevention standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	Streamline coordination between processes.
Related Operational Policies	OP-008 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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

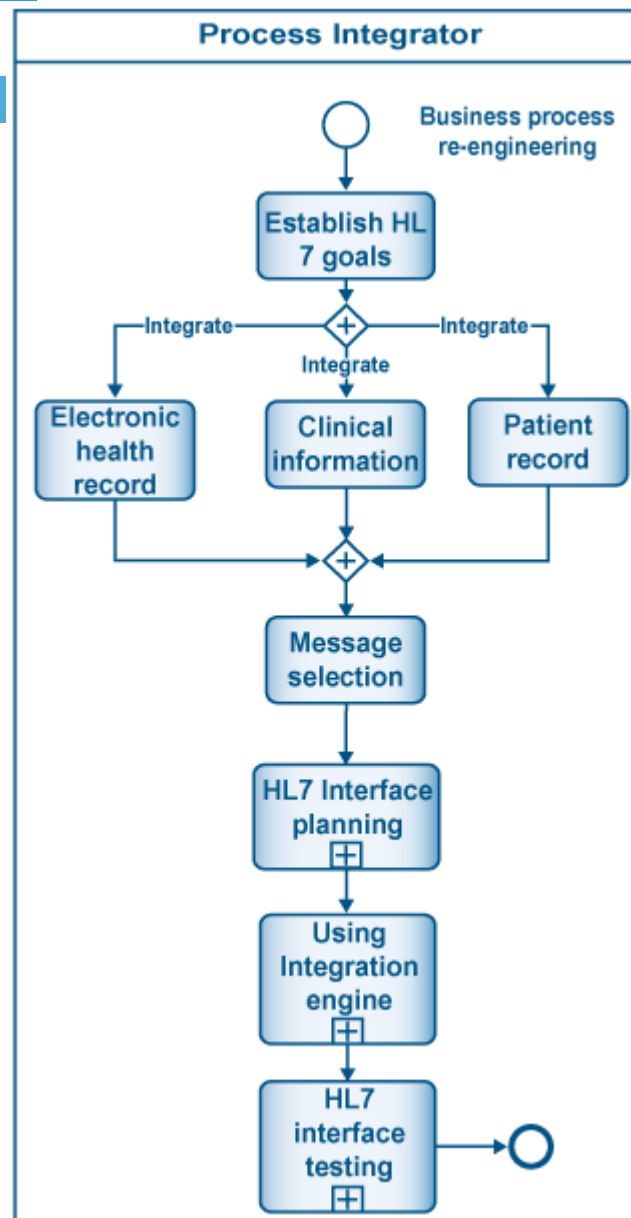
Equipment & Accessories	Automated System for risk management.						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion , Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	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	Finance management framework integration						
Basic Course of Event	Finance Management Business Process Re-engineering <ol style="list-style-type: none"> 1. Process integrator identify integration goals 2. Process integrator analyze “as in” process 3. Process integrator analyze “to be” process 4. Process integrator implements change. 5. 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	Data and record integration						
Preconditions	The management is supportive of changes in the processes.						
Post –conditions	Business process –re-engineering process is established.						
Related Business Rules	BR-007 (Ref 7.1)						

Related Risks	RR-004 (Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	RPR (Ref 7.6)
Related CTQs	RPRV (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.7
Other References	Appendix A: Business Process Notation Reference

6.9 Sub Process – Business Process Re-engineering Roles & Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none">• Process integrator identify integration goals, analyze “as in” process, analyze “to be” process and implements change.

6.10 Sub process – Perform HL 7 integration with Finance System



6.11 Sub process – Perform HL 7 integration with Finance System Specifications

Specification	Description
Summary/Purpose	To establish process for HL7 integration with Finance System
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 • CDC- Centers for Disease Control and Prevention standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> • Compatibility and interoperability
Related Operational Policies	OP-009(Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Executive Information System						
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	Business process re-engineering						
Basic Course of Event	<p>Perform HL 7 integration</p> <ol style="list-style-type: none"> 1. Process integrator establishes HL 7 goals for integration with electronic health record, clinic information of hospital, patient record 2. Process integrator perform data model planning 3. Process integrator performs Message selection and specification validation. 4. Process integrator performs HL7 interface planning 5. Process integrator uses integration engine 6. Process integrator interface testing. 7. 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	Financial planning Integration						
Preconditions	All the requirements have been taken accurately.						

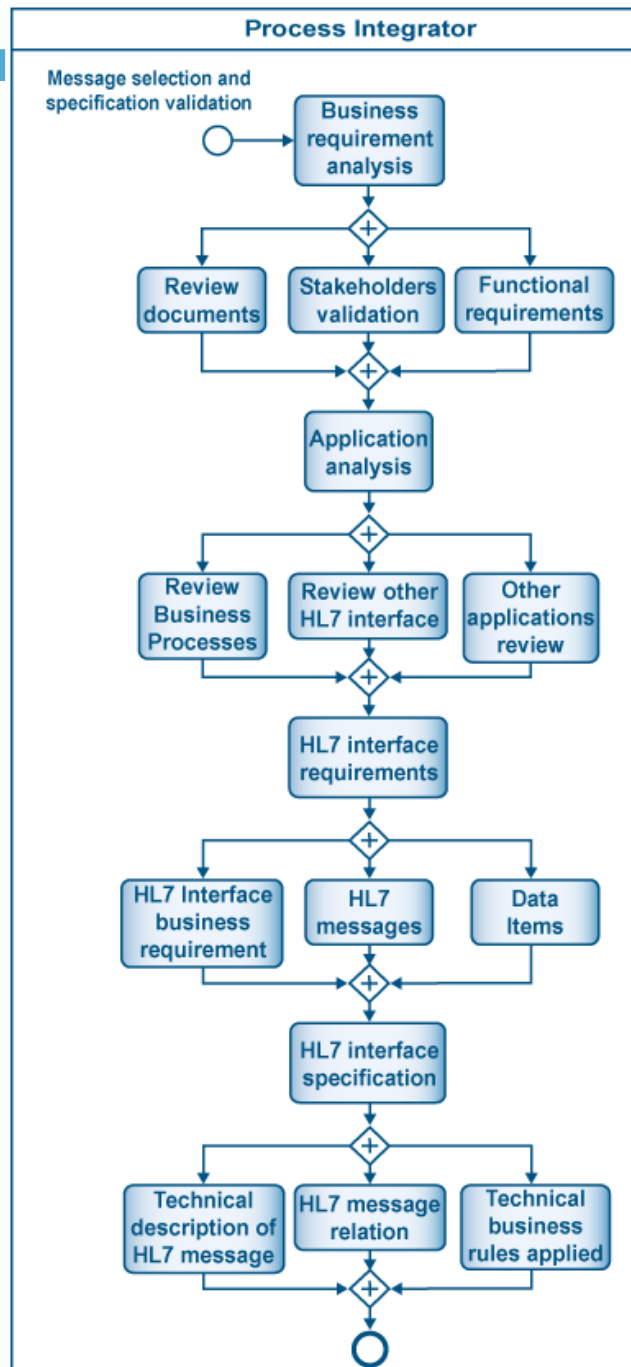
Post –conditions	HL7 integration is completed.
Related Business Rules	BR -008 (Ref 7.1)
Related Risks	RR-007 (Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	HIE (Ref 7.6)
Related CTQs	HIEV (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1

Process Model	Section 6.10
Other References	APPENDIX A: BUSINESS PROCESS MODELING NOTATION REFERENCE APPENDIX B: CHAIN OF INFECTION APPENDIX C: HL 7 PROTOCOL APPENDIX D: HL 7 ENCODING AND DECODING RULES

6.12 Sub process – Perform HL 7 integration with Finance System Roles and Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none"> • Process integrator establishes HL 7 goals for integration with electronic health record, clinic information of hospital, patient record • Process integrator perform data model planning • Process integrator performs Message selection and specification validation • Process integrator performs HL7 interface planning • Process integrator uses integration engine • Process integrator interface testing.

6.13 Sub process – HL7 interface planning



6.14 Sub process – HL 7 interface planning Specifications

Specification	Description
Summary/Purpose	To establish process for HL7 interface planning.
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 • CDC- Centers for Disease Control and Prevention standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> • Compatibility and interoperability
Related Operational Policies	OP-002 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Executive Information System						
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	Message selection and specification validation						
Basic Course of Event	<p>HL7 interface planning</p> <ol style="list-style-type: none"> 1. Process integrator performs a business requirement analysis which comprises of review of documented business requirements, participation of stakeholders to validate and refine business requirement, and working with project business analysis to align with HL7 interface requirements. 2. Process integrator performs application analysis which comprises of review of business processes of applications, review of applications, review of existing HL7 interfaces used 3. Process integrator perform interface specification which comprises of technical description of HL7 messages (HL7 segment and HL7 field), relationship between application front end, database and code tables, and technical business rules required by interface. 4. 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. 						

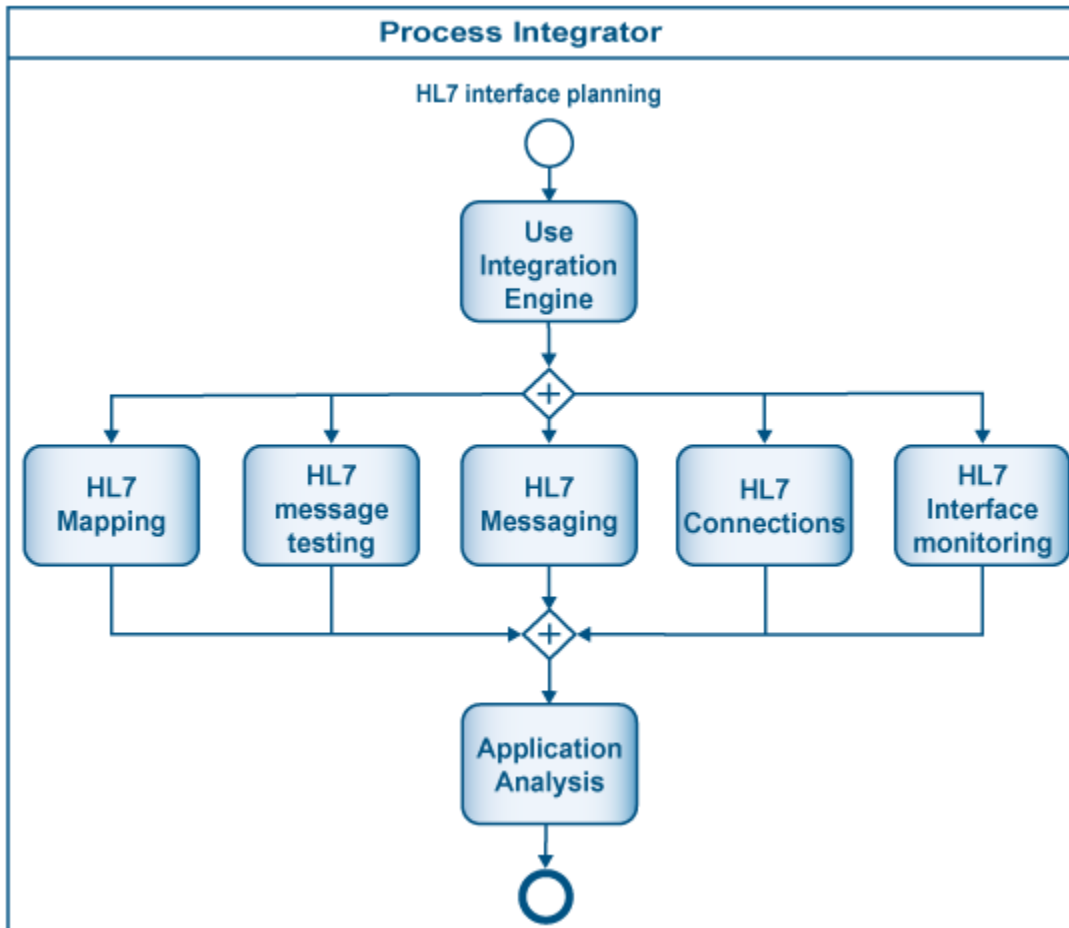
Extension points	Using integration engine
Preconditions	All the requirements have been taken accurately.
Post –conditions	HL7 interface planning is completed.
Related Business Rules	BR -001, (Ref 7.1)
Related Risks	RR- 001 (Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	IGAR (Ref 7.6)
Related CTQs	IGARV (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.13
Other References	Appendix A: Business Process Notation Reference

6.15 Sub process – HL 7 interface planning Roles and Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none"> • Process integrator performs a business requirement analysis which comprises of review of documented business requirements, participation of stakeholders to validate and refine business requirement, and working with project business analysis to align with HL7 interface requirements. • Process integrator performs application analysis which comprises of review of business processes of applications, review of applications, review of existing HL7 interfaces used • Process integrator perform interface specification which comprises of technical description of HL7 messages (HL7 segment and HL7 field), relationship between application front end, database and code tables, and technical business rules required by interface.

6.16 Sub process – Using Integration Engine



6.17 Sub process – Using Integration Engine Specifications

Specification	Description
Summary/Purpose	To establish process for integration engine use.
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 • CDC- Centers for Disease Control and Prevention standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> • Compatibility and interoperability
Related Operational Policies	OP-010 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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

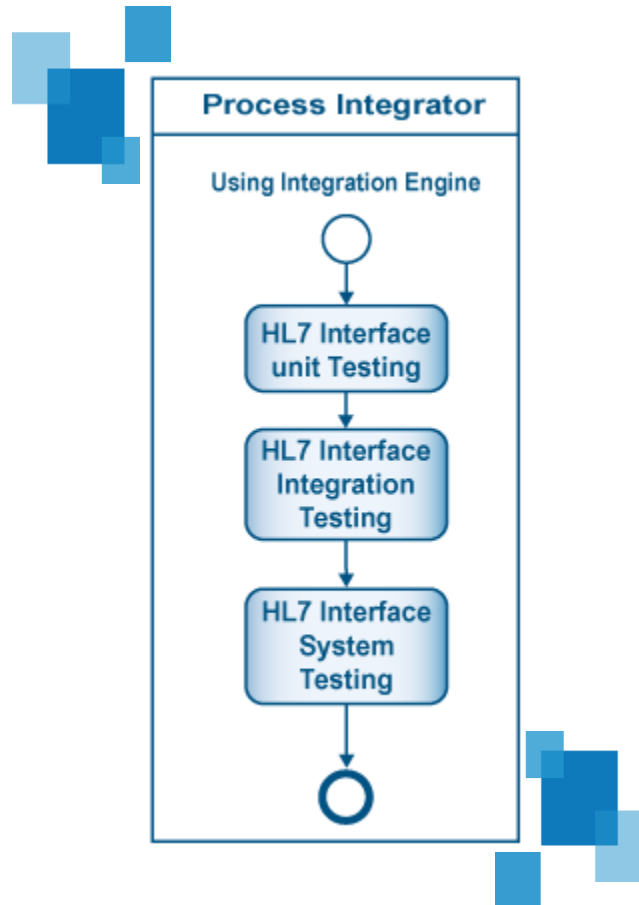
Equipment & Accessories	Automated System for Executive Information System						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion , Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC 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	HL7 interface planning						
Basic Course of Event	Using Integration Engine <ol style="list-style-type: none"> 1. Process integrator uses integration engine to perform HL7 mapping, HL7 message testing, HL 7 messaging, HL 7 connections, HL 7 interface monitoring. 2. 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	Testing integration.						
Preconditions	All the requirements have been taken accurately.						
Post –conditions	Integration engine is used for integration.						
Related Business Rules	BR -009(Ref 7.1)						
Related Risks	RR-008 (Ref 7.2)						

Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	HIE(Ref 7.6)
Related CTQs	HIEV (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.16
Other References	Appendix A: Business Process Notation Reference

6.18 Sub process – Using Integration Engine Roles and Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none">• Process integrator uses integration engine to perform HL7 mapping, HL7 message testing, HL 7 messaging, HL 7 connections, HL 7 interface monitoring.

6.19 Sub process – Interface testing



6.20 Sub process – Interface Testing Specifications

Specification	Description
Summary/Purpose	To establish process for interface testing.
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 • CDC- Centers for Disease Control and Prevention standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> • Compatibility and interoperability
Related Operational Policies	OP-011(Ref 7.5)
Assumptions	Senior Management support is available throughout 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

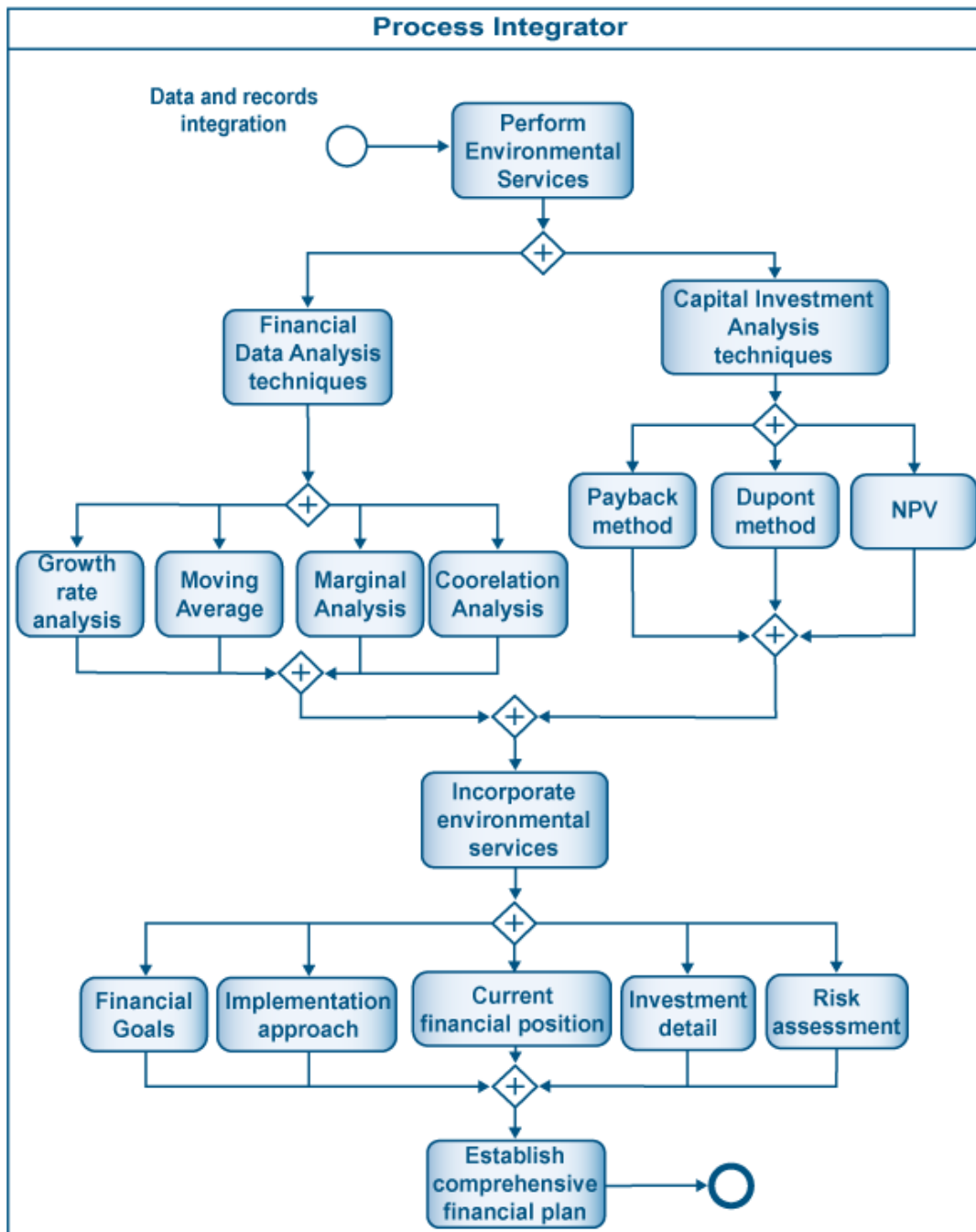
Equipment & Accessories	Automated System for Executive Information System						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion , Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC 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	HL7 interface planning						
Basic Course of Event	HL7 interface testing <ol style="list-style-type: none"> 1. Process integrator performs interface unit testing 2. Process integrator performs HL7 interface integration testing 3. Process integrator performs HL7 interface system testing. 4. 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	Tracking and managing integration.						
Preconditions	All the requirements have been taken accurately.						
Post –conditions	Interfaces are tested.						
Related Business Rules	BR 010-(Ref 7.1)						
Related Risks	RR-009 Ref 7.2)						

Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	HIE (Ref 7.6)
Related CTQs	HIEV (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.19
Other References	Appendix A: Business Process Notation Reference

6.21 Sub process – Interface Testing Roles and Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none">• Process integrator performs interface unit testing• Process integrator performs HL7 interface integration testing• Process integrator performs HL7 interface system testing.

6.22 Sub – Process – Financial Planning Integration



6.23 Sub Process – Financial Planning Integration Specification

Specification	Description
Summary/Purpose	To establish the process of financial Planning integration
Scope	This is a Level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> AS-NZ Risk 4360- Risk Management. Lean six sigma- Quality Standard JCI- Journal of Clinical Investigation standard ABC –Activity Based Costing
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	Better Financial Management Integration and control.
Related Operational Policies	OP-001 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Finance 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	Annual Activity, data and record integration						
Basic Course of Event	<p>Financial Planning Integration</p> <ul style="list-style-type: none"> • Process Integrator performs ES financial data analysis techniques (growth rate, moving average, marginal analysis, correlation analysis) and capital investment analysis techniques (payback method, DuPont method, NPV) • Process Integrator incorporates ES plan components (financial goals, implementation approach, current financial position, investment details, risk assessment) • Process integrator establish financial plan. • 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	Establish Budget integration						
Preconditions	Financial Plan process utilizes automated tool to ensure that process is smoother and accurate.						

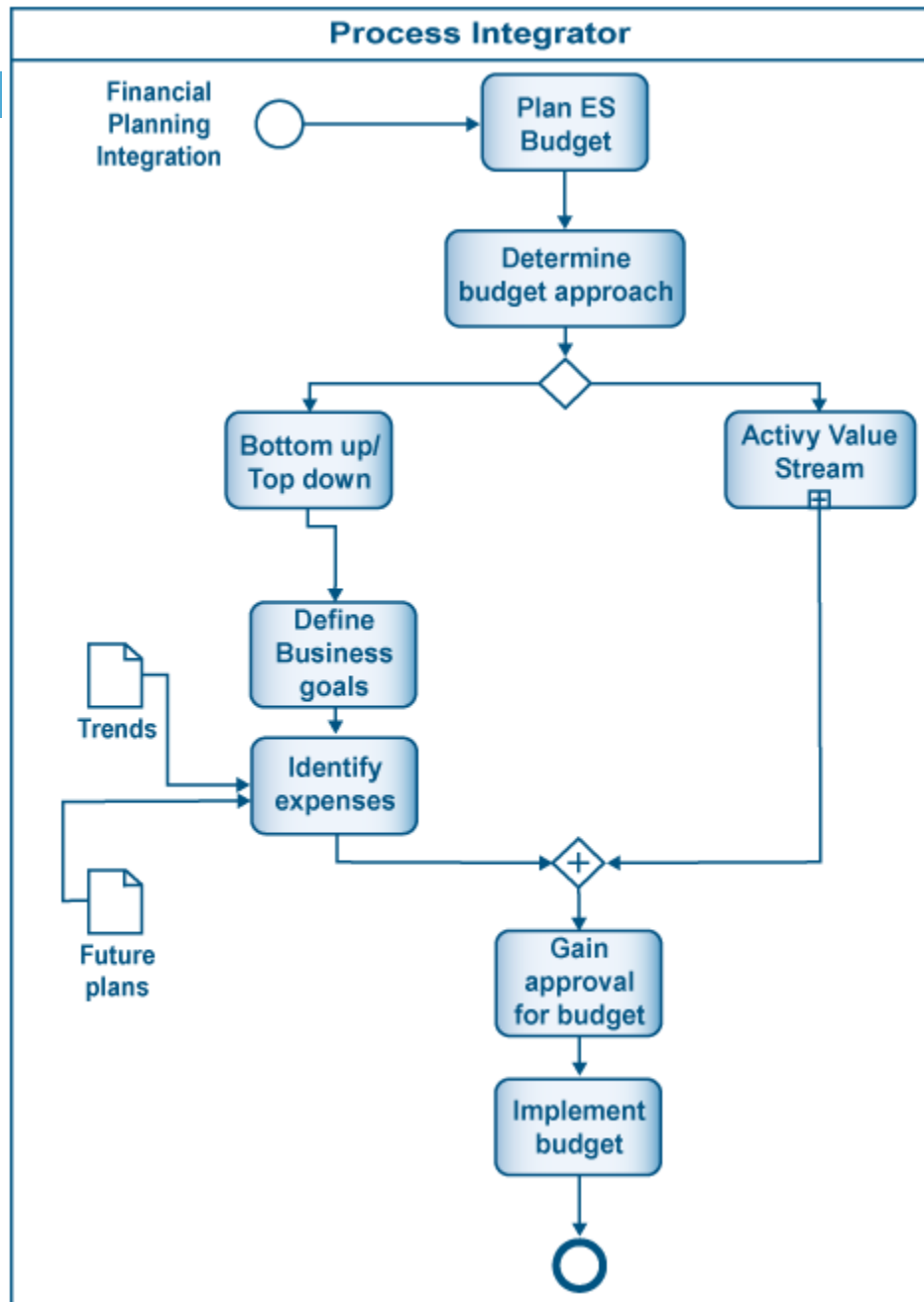
Post –conditions	Financial plan gets integrated.
Related Business Rules	BR-001 (Ref 7.1)
Related Risks	RR-001 (Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability. (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	EFPRR (Ref 7.6)
Related CTQs	EFPRRV (Ref 7.7)
Actors/Agents	Process Integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.22
Other References	Appendix A: Business Process Notation Reference

6.24 Roles & Responsibilities – Financial Planning Integration

Roles	Responsibilities
Process Integrator	<ul style="list-style-type: none"> • Process Integrator performs ES financial data analysis techniques (growth rate, moving average, marginal analysis, correlation analysis) and capital investment analysis techniques (payback method, DuPont method, NPV) • Process Integrator incorporates ES plan components (financial goals, implementation approach, current financial position, investment details, risk assessment) • Process integrator establish financial plan.

6.25 Sub – Process – Establish Budget Integration



6.26 Sub – Process – Establish Budget Integration Specifications

Specification	Description
Summary/Purpose	To integrate with organizational budgeting process.
Scope	This is a Level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> AS-NZ Risk 4360- Risk Management. Lean six sigma- Quality Standard JCI- Journal of Clinical Investigation standard ABC –Activity Based Costing
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration.
Related Business Driver	<ul style="list-style-type: none"> Better financial management
Related Operational Policies	OP-002 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Finance 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	Financial Planning Integration						
Basic Course of Event	<p>Establish Budget Process Integration (top down/ bottom up)</p> <ol style="list-style-type: none"> 1. Process integrator plans ES budget 2. Process integrator determines budget approach (bottom up /op down or activity value stream) 3. Process integrator defines business goals 4. Process integrator identifies expenses 5. Process integrator gains approval for budget 6. Process integrator implements budget 7. End 						
Alternative Path	<p>Establish Budget Process (activity value stream)</p> <ol style="list-style-type: none"> 1. Process integrator plan ES budget 2. Process integrator determines budget approach (bottom up /op down or activity value stream) 3. Process integrator uses activity value stream 4. Process integrator gains approval for budget 5. Process integrator implements budget 6. End 						
Exception Path	System Down						

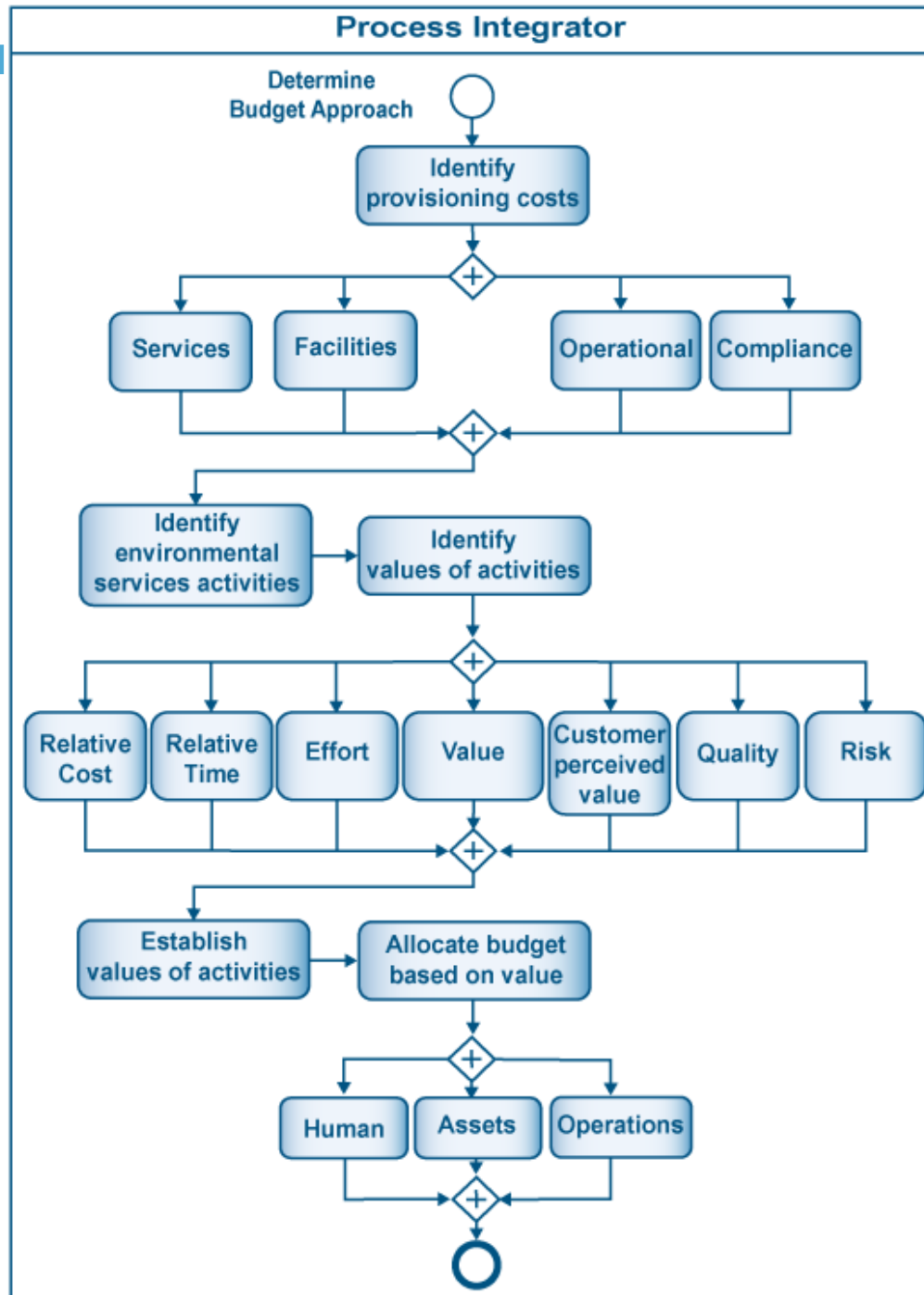
	<ol style="list-style-type: none"> 1. Keep paper track until system is up and running 2. Update the System and clear all logs. 3. End.
Extension points	Financial Accounting integration, Activity value stream
Preconditions	Financial planning integration has been undertaken.
Post –conditions	Financial Budget integration gets established.
Related Business Rules	BR-002 (Ref 7.1)
Related Risks	RR-001, RR-002 (Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	EBPRR (Ref 7.6)
Related CTQs	EBPRRV (Ref 7.7)
Actors/Agents	Process integrator.
Delegation	<u>Delegation Rule -1: Agent Not Available</u> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <u>Delegation Rule -2: Agent Overloaded</u> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role

	<ol style="list-style-type: none"> 2. Update the task 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	Section 5.1
Process Model	Section 6.25
Other References	Appendix A: Business Process Notation Reference

6.27 Roles and Responsibilities – Establish Budget Integration

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none"> • Process integrator plan ES budget • Process integrator determines budget approach Financial Director defines business goals • Process integrator identifies expenses • Process integrator gains approval for budget • Process integrator implements budget

6.28 Sub process – Activity Value stream



6.29 Sub process – Activity Value stream Specifications

Specification	Description
Summary/Purpose	To establish activity value stream process.
Scope	This is a Level 3 Process Specification.
Primary Reference	Activity based costing.
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> Better financial management
Related Operational Policies	OP-003 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Finance 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	Budget Approach						
Basic Course of Event	<p>Activity Value Stream</p> <ol style="list-style-type: none"> 1. Process integrator identifies provisioning costs (services, facilities, operational cost and compliance costs) 2. Process integrator identifies activities for each environmental services 3. Process integrator identifies values of each activity (relative cost, relative time, effort, value, customer perceived value , quality and risk) 4. Process integrator establishes value of activities 5. Process integrator allocates budget based on value (human resource, assets and operations) 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	Establish Budget process						
Preconditions	Process integrator is well versed with Activity value stream discipline.						
Post –conditions	Budget gets allocation						

Related Business Rules	BR-002 (Ref 7.1)
Related Risks	RR-002 (Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	CES (Ref 7.6)
Related CTQs	CESV (Ref 7.7)
Actors/Agents	Process integrator.
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.28

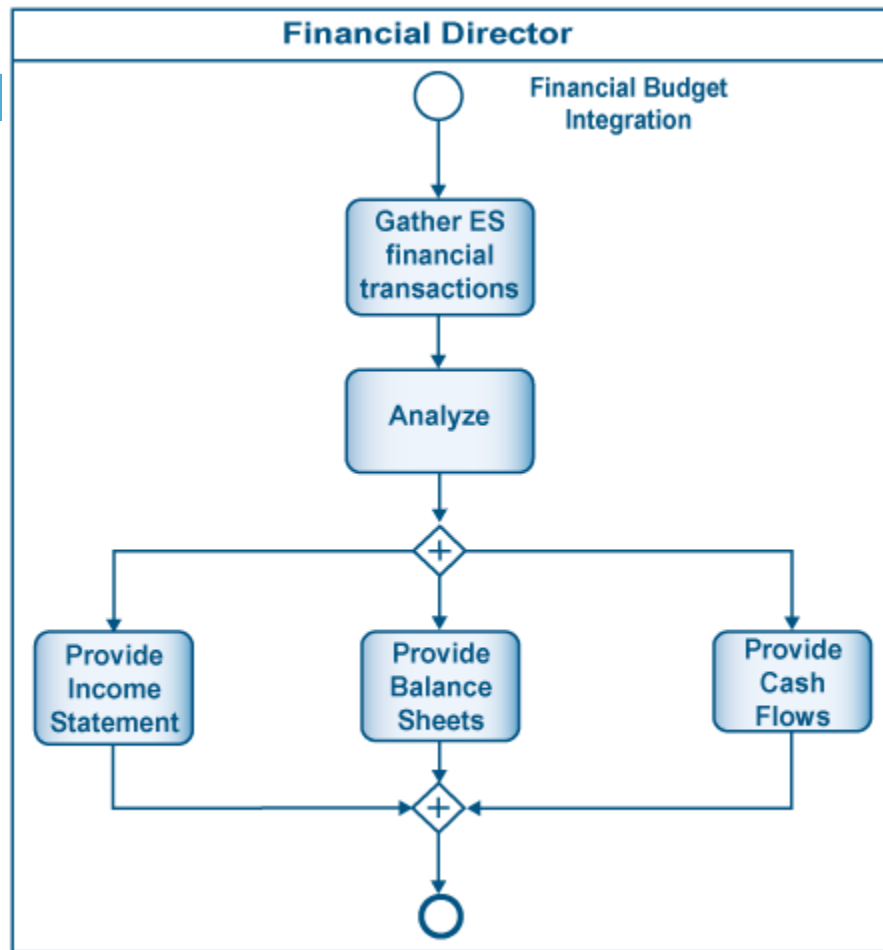
Other References

Appendix A: Business Process Notation Reference

6.30 Roles and Responsibilities – Activity Value Stream

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none"> • Process integrator identifies provisioning costs (services, facilities, operational cost and compliance costs) • Process integrator identifies activities for each environmental services • Process integrator identifies values of each activity (relative cost, relative time, effort, value, customer perceived value , quality and risk) • Process integrator establishes value of activities • Process integrator allocates budget based on value (human resource, assets and operations)

6.31 Sub process – Financial Accounting Integration



6.32 Sub process – Financial Accounting Integration Specifications

Specification	Description
Summary/Purpose	To establish financial accounting integration
Scope	This is a Level 2 Process Specification.
Primary Reference	Activity based costing.
Related ESM Practices	Enterprise Information system, Hospital Management, System, HR Management, Standard Management, Risk Management.
Related Business Driver	<ul style="list-style-type: none"> AS-NZ Risk 4360- Risk Management. Lean six sigma- Quality Standard JCI- Journal of Clinical Investigation standard ABC –Activity Based Costing
Related Operational Policies	OP-005 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Finance management.

6

Financial Management Integration Process

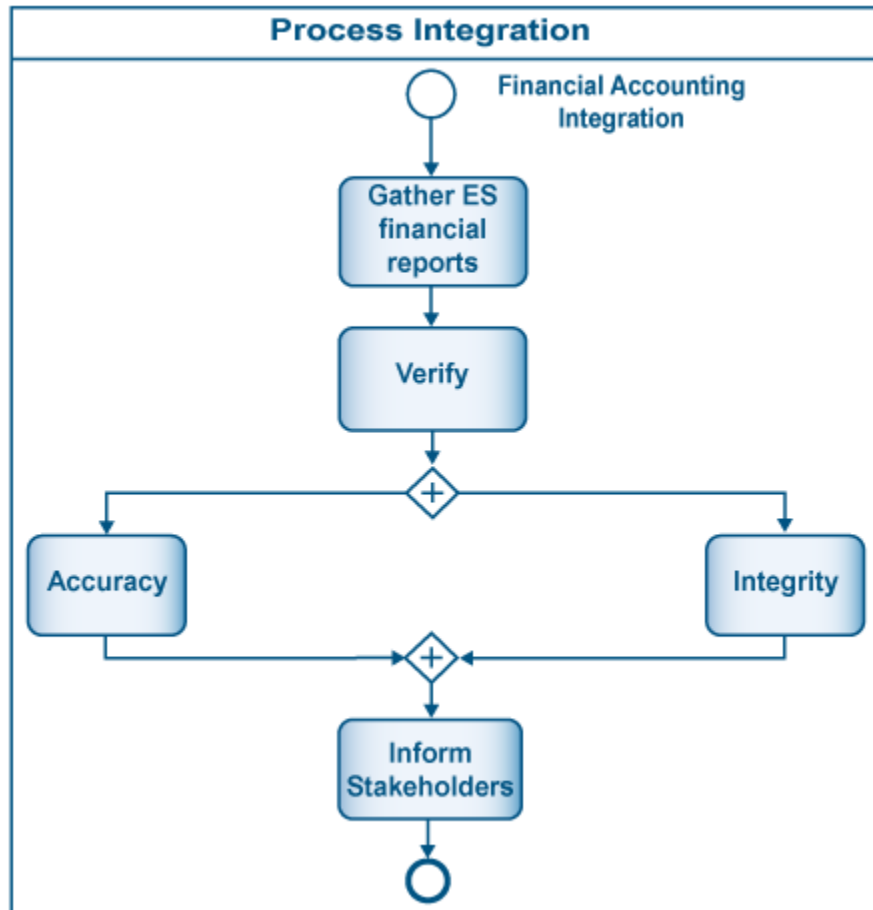
MSD Management	Lifting/carrying, Disability, Force, Loaded motion , Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</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	Financial Budget integration						
Basic Course of Event	<p>Financial Accounting Integration Process</p> <ol style="list-style-type: none"> 1. Process integrator gathers ES financial transactions. 2. Process integrator analyzes provide income statement, balance sheets and cash flows. 3. 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	Financial Audit process integration.						
Preconditions	Financial budget integration has happened.						
Post –conditions	Finance accounting is established.						
Related Business Rules	BR-003 (Ref 7.1)						
Related Risks	RR-003 (Ref 7.2)						

Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, , Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.5)
Related KPIs	EDIBSR (Ref 7.6)
Related CTQs	EDIBSRV(Ref 7.7)
Actors/Agents	Process integrator.
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.31
Other References	Appendix A: Business Process Notation Reference

6.33 Sub process – Financial Accounting Integration Roles and Responsibilities

Roles	Responsibilities
Process Integrator	<ul style="list-style-type: none">• Process integrator gathers ES financial transactions.• Process integrator analyzes provide income statement, balance sheets and cash flows.

6.34 Sub process – Financial Audit Integrity



6.35 Sub process – Financial Audit Integration Specifications

Specification	Description
Summary/Purpose	To perform financial auditing integration.
Scope	This is a Level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> AS-NZ Risk 4360- Risk Management. Lean six sigma- Quality Standard JCI- Journal of Clinical Investigation standard ABC –Activity Based Costing
Related ESM Practices	Enterprise Information system integration, Hospital Management system integration, HR Management integration, Standard Management integration, risk management integration
Related Business Driver	<ul style="list-style-type: none"> Better financial management
Related Operational Policies	OP-005 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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

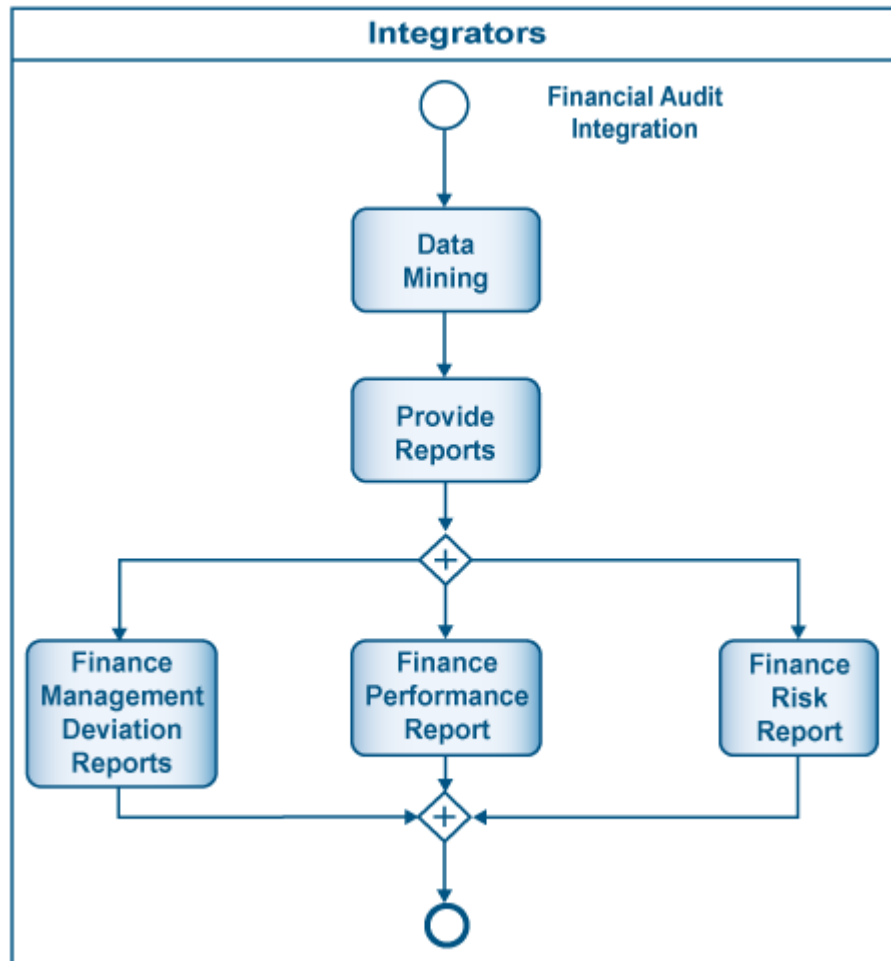
Equipment & Accessories	Automated System for Finance management.						
MSD Management	Lifting/carrying, Disability, Force, Loaded motion , Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	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	Financial Accounting integration						
Basic Course of Event	Financial Audit integration <ol style="list-style-type: none"> 1. Process integrator gathers ES financial reports. 2. Process integrator verifies accuracy and integrity of reports. 3. Process integrator informs the result to stakeholders. 4. 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	Integrated reporting						
Preconditions	Financial accounting integration is mature.						
Post –conditions	Financial auditing happens.						
Related Business Rules	BR-004 (Ref 7.1)						
Related Risks	RR-004 (Ref 7.2)						

Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, Operability and Deployability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	EDIBSR (ref 7.6)
Related CTQs	EDIBSR (ref 7.7)
Actors/Agents	Process Integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 3. Log the delegation
Escalation	<p><u>Rule 1: Performance, operational legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to Board of Directors 2. Log Escalation
Process Map	Section 5.1
Process Model	Section 6.34
Other References	Appendix A: Business Process Notation Reference

6.36 Sub process – Financial Audit Integration Roles and Responsibilities

Roles	Responsibilities
Process Integrator	<ul style="list-style-type: none">• Process integrator gathers ES financial reports.• Process integrator verifies accuracy and integrity of reports.• Process integrator informs the result to stakeholders.

6.37 Sub process – Integrated Reporting



6.38 Sub process – Integrated Reporting Specifications

Specification	Description
Summary/Purpose	To establish finance management integrated reports
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 • CDC- Centers for Disease Control and Prevention standard • Lean six sigma- Quality Standard • JCI- Journal of Clinical Investigation standard
Related ESM Practices	Enterprise Information system integration, Finance Management integration, HR Management integration, Standard Management integration, Risk Management integration.
Related Business Driver	<ul style="list-style-type: none"> • Better and comprehensive reporting
Related Operational Policies	OP-006 (Ref 7.5)
Assumptions	Senior Management support is available throughout 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 Hospital 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	Monitoring						
Basic Course of Event	Integrated report Reporting Process <ol style="list-style-type: none"> 1. Process integrator performs data mining 2. Process integrator provides finance management deviation reports, finance performance report, Finance risk report, 3. 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	Enterprise Information system integration, Finance Management integration, HR Management integration, Standard Management integration, Risk Management integration.						
Preconditions	The data stored in system is accurate and free from error.						
Post –conditions	Reports are established.						

Related Business Rules	BR-005(Ref 7.1)
Related Risks	RR-005(Ref 7.2)
Related Quality Attributes	Reliability, Confidentiality, Authenticity, Data Integrity, Availability, Non-repudiation, Accountability, , Performance, Scalability, Extensibility, Adaptability, Testability, Auditability, (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Reputation, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.5)
Related KPIs	EFCR, EFNCR, SBP, CES (Ref 7.6)
Related CTQs	EFCRV, EFNCRV, SBPV, CESV (Ref 7.7)
Actors/Agents	Process integrator
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same role 2. Update the task 3. Log the delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the task to the agent with same Role 2. Update the task 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	Section 5.1
Process Model	Section 6.37

Other References

Appendix A: Business Process Notation Reference

6.39 Sub Process – Reporting Roles and Responsibilities

Roles	Responsibilities
Process integrator	<ul style="list-style-type: none">• Process integrator performs data mining• Process integrator provides finance management deviation reports, finance performance report, Finance risk report

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 financial process matures or changes.

At minimal this document should be updated biannually. However, if need arises this document may be updated earlier than its prescribed revision period

7.1 Business Rules

BR ID	Description	Context	Rule	Source
BR-001	Organizational Finance plan would incorporate all the environmental services financial details.	NA	NA	NA
BR-002	Organizational Budgeting process would incorporate all the environmental service expenses.	NA	NA	NA
BR-003	All the data required for financial accounting purposes should be provided to the process and retained for future use.	NA	NA	NA
BR-004	Environmental services Financial Accounting should be audited annually by external auditors as per financial policy of the organization	NA	NA	NA
BR-005	All the critical reports would be escalated to the senior management of the organization	NA	NA	NA
BR-006	All environmental services core financial related results would undergo the financial Management Integration process	NA	NA	NA

BR-007	All changes done to business processes of risk management would be thoroughly considered.	NA	NA	NA
BR-008	All integration activities should be approved by senior management	NA	NA	NA
BR-009	Integration engine should be robust enough to handle the entire HL7 integration	NA	NA	NA
BR-010	All integration activities would be thoroughly tested	NA	NA	NA

7.2 Risk

Risk ID	Description	Source	Severity Level	Status	Resolution
RR-001	The financial forecasting is not accurate	TBD	High	TBD	Use of automated tools to forecast financial trends.
RR-002	Lack of awareness for Activity value stream	TBD	High	TBD	Please should be training to understand the process of activity value stream
RR-003	ES Financial accounting integration results might has errors	TBD	High	TBD	Use of automated tools and multiple reviews would reduce financial errors
RR-004	ES Financial targets identified cannot be measured	TBD	High	TBD	Facility/ technology to measure Financial targets should be provided by the management.

RR-005	The reports are not comprehensive and focused	TBD	High	TBD	The reports should be customized to meet the intended audience.
RR-006	Strong resistance from staff for changes	TBD	High	TBD	Have a plan for organizational culture change which would start before re-engineering process
RR-007	The integrators are not well trained in HL7	TBD	High	TBD	The integrators should be trained prior implementation.
RR-008	Integration engine is not compatible	TBD	High	TBD	Requirements which the integration engine should be able to match, should be identified prior its use.
RR-009	The entire integration process is not properly tested.	TBD	High	TBD	Comprehensive testing methodology should be adopted.

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	ES Financial planning would be done using same approved methodology as organizational financial management process.	TBD	TBD
OP-002	ES Budget would be approved by the senior management.	TBD	TBD
OP-003	All the environment service costs should be calculated.	TBD	TBD
OP-004	Senior Management should be involved in Financial reviews	TBD	TBD
OP-005	Financial processes should be automated wherever required	TBD	TBD

OP-006	The reports should comprise of the process performance results as compared to overall organization.	TBD	TBD
OP-007	In case of discrepancies organizational financial management process would always be followed.	TBD	TBD
OP-008	All changes to the business processes would be approved by senior management	TBD	TBD
OP-009	Latest HL7 version 3 would be used for integration	TBD	TBD
OP-010	Integration engine should be vetted before its use.	TBD	TBD
OP-011	Interface testing should comprise of unit testing, interface integration and interface system testing	TBD	TBD

7.6 KPI

Name	Acronym	Description	Context	Importance	Soft Threshold	Hard Threshold
Environmental services Financial Plan review rate	EFPRR	Environmental services Financial Plans review per year	NA	TBD	TBD	TBD
ES Budget plan review rate	EBPRR	Environmental services Budget plan reviews per year	NA	TBD	TBD	TBD
ES deviation in balance sheet rate	EDIBSR	The percentage of ES deviation in balance sheet per month	NA	TBD	TBD	TBD

ES Financial compliance rate	EFCR	The degree of ES compliance to financial targets per month	NA	TBD	TBD	TBD
Financial Non conformance rate	FNCR	Number of Financial non conformance rate per audit	NA	TBD	TBD	TBD
Surplus budget percentage	SBP	Standard deviation of SBP	NA	TBD	TBD	TBD
Cost per environmental service	CES	Cost per environmental service	NA	TBD	TBD	TBD
Integration discrepancies rate	IDR	Number of integration discrepancies per process	NA	TBD	TBD	TBD
Re-engineering performance rate	RPR	The time consumed for re-engineering the process	NA	TBD	TBD	TBD
HL7 integration errors	HIE	Number of errors per integration	NA	TBD	TBD	TBD

7 Reference

7.7 CTQ

Name	Acronym	Description	Context	Importance	Soft Threshold	Hard threshold
Environmental services Financial Plan review rate	EFPRRV	Standard deviation of EFPRR	NA	TBD	TBD	TBD
ES Budget plan review rate	EBPRRV	Standard deviation of EBPRR	NA	TBD	TBD	TBD
ES deviation in balance sheet rate	EDIBSRV	Standard deviation of EDIBSR	NA	TBD	TBD	TBD
ES Financial compliance rate	EFCRV	Standard deviation of EFCR	NA	TBD	TBD	TBD
Financial Non conformance rate	FNCRV	Standard deviation of FNCR	NA	TBD	TBD	TBD
Surplus budget percentage	SBPV	Standard deviation of SBP	NA	TBD	TBD	TBD
Cost per environmental service	CESV	Standard deviation of CES	NA	TBD	TBD	TBD
Integration discrepancies rate	IDRV	Standard deviation of IDR	NA	TBD	TBD	TBD

Re-engineering performance rate	RPRV	Standard deviation of RPR	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
Waiting Reduction Measure	WRM	Management of Waiting reduction Measure	NA	TBD	TBD	TBD
HL7 integration	HIEV	Standard deviation of HIE	NA	TBD	TBD	TBD

errors						
variance						

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	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

	management worker, Housekeepers		
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,	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

	Waste management worker, Housekeepers		
Safety	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	Hospital environment should comply with occupational health and safety procedures.	<ul style="list-style-type: none"> • Safe environment • Professionalism • Low risk
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



GLOSSARY

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
CRR	Contract Review Rate
CRRV	Contract Review rate Variation.
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
EBC	Evidence Based Cleaning
ESM	Environmental services Map
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

OLA	Organization level Agreement An Agreement between an IT Service Provider and another part of the same Organization
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.	

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.

Appendix C: HL 7 Protocol



APPENDIX.
C

11 Appendix C: HL 7 Protocol

PROTOCOL DESCRIPTION

HL7 is a structured, message-oriented protocol framework for computer communication between healthcare application systems. The protocol architecture is hierarchical, moving from high-level groupings and structures to a set of several hundred data fields. Each level of the hierarchy serves a different organizing purpose.

Functional Group	Areas of the protocol are grouped according to common application function; for example, ADT, Order Entry, Finance, Control, and Ancillary Reporting all represent groups described in the standard. Different functional groups are typically given individual chapters in the HL7 specification document.
Message Type	Within a functional group are defined one or more message types that can be implemented in various combinations to support high-level business rules for the applications involved. For example, ADT only specifies one message type while Order Entry describes more than a dozen.
Message Definition	Within each message type, one or more message definitions describe the specific set or combination of segments that make up a properly formed message. For example, ADT distinguishes among more than thirty separate message definitions based on "trigger events" or more detailed business rules. Each message definition includes one or more segments.
Segment Definition	Segments provide a logical grouping for data elements. For example, the Patient Identification segment (PID) includes fields for such identifying information as patient name, Social Security number, medical record number, account number, and miscellaneous demographic details. How fields are grouped in segments forms part of the HL7 implied data model. Segments can be required or optional, can be nested, and can repeat. A parsed message, then, can take on a relatively arbitrary yet unambiguous form. This is an important characteristic in the context of decoding and encoding messages.
Field	The standard identifies several hundred data elements for communicating patient demographic, clinical, and financial information. HL7 uses more than a dozen abstract data types to define the nature of the fields. (A consequence is that some fields may hold more than one data element.) For example, a field that holds a time stamp (TS) follows a prescribed

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format. In addition many fields are (or can be) coded, and the standard includes a variety of code tables to define acceptable contents. While each field is defined with a maximum length, the standard really doesn't intend to prescribe format to that level of detail. It merely includes lengths "because it helps readers understand the purpose of the field and it may have pragmatic importance in specific implementations."



Appendix D: HL 7 Encoding and Decoding Rules



APPENDIX.
D



12 Appendix D: HL 7 Encoding and Decoding Rules

ENCODING RULES FOR SENDING

1. Encode each segment in the order specified in the abstract message format.
2. Place the Segment ID first in the segment.
3. Precede each data field with the field separator.
4. Encode the data fields in the order and data type specified in the segment definition table.
5. End each segment with the segment terminator.
6. Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. The data fields below, for example, are equivalent:
|^XXX&YYY&&^| is equal to|^XXX&YYY^|
|^ABC^DEF^^| is equal to|^ABC^DEF|
7. Components, subcomponents, or repetitions that are not valued, but precede components, subcomponents or repetitions that are valued must be represented by appropriate separators. For example, the following CE data type element has the first triplicate empty and a populated second triplicate:
|^^^ABC^Text^Codesystem|
8. If a field allows repetition (Cardinality maximum > 1), then the length of the field applies to EACH repetition.

ENCODING RULES FOR RECEIVING

- If a data segment that is expected is not included, treat it as if all data fields within were not present.
- If a data segment is included that is not expected, ignore it; this is not an error.

If data fields are found at the end of a data segment that are not expected, ignore them;