The Business Requirements

TOPIC # 4
Chapter 5 – Karl Wiegers
Chapter 4 - Reference

Need for Product Vision & Scope

- A project that lacks a clearly defined and well-communicated direction invites disaster.
- The stakeholders will never agree on the requirements if they lack a common understanding of the business objectives for the product.
- Vision and scope issues must be resolved before the detailed functional requirements can be fully specified.
- The project team should always evaluate if the proposed change is in or out of scope and if it aligns with the vision of the system.

Business Requirements

- Business requirements refer to the set of information that, in the total, describes a need that lead to one or more projects to deliver a solution and the desired business outcomes.
- Might come from funding sponsors, corporate executives, marketing managers and product visionaries.

Problem Analysis

- Goal: gain a better understanding of the problem being solved before development begins
  - Identify root cause
  - Identify stakeholders and their needs (or problems)
  - Identify solution boundary
- Uses business requirements obtained from stakeholders
- Results in Product Vision and Project Scope

Business Requirements

- Business requirements comprise of:
  - Business opportunities
  - Business objectives
  - Success Metrics & risks
  - Vision Statement
- **Business Opportunity**
  - Description of market opportunity, competing market and problems
- **Business Objective and Success Criteria**
  - Important business benefits in a quantitative way and success measurement
- **Customer or Market Needs**
- **Business Risks**
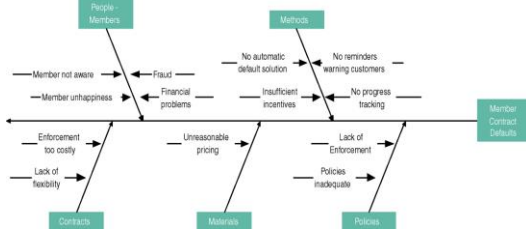 - Major risks associated with developing or not developing the product

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Problem Analysis – Gain Agreement

Document the problem and seek agreement

- Ask stakeholders to write a problem statement in an agreed format
- Statement should include
  - What the problem is
  - Who is affected by it?
  - What is the impact?
  - Is there a proposed solution?
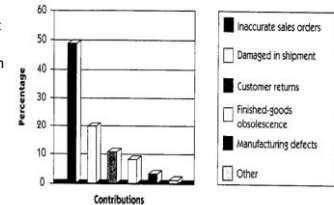 - What are key benefits?

Problem Analysis – Understand root cause

- Root cause analysis can be used to understand root causes.
- The Ishikawa diagram is a graphical tool used to identify, explore, and depict problems.
- Helps to analyze the causes and effects of those problems or in other words problems and their root causes.
- It is often referred to as a cause-and-effect diagram or a fishbone diagram.

Problem Analysis – Understand Root Causes

- Estimate relative impact of root causes (e.g., with the help of a Pareto (bar) chart)
- Create problem statement for root cause problem identified as worth solving
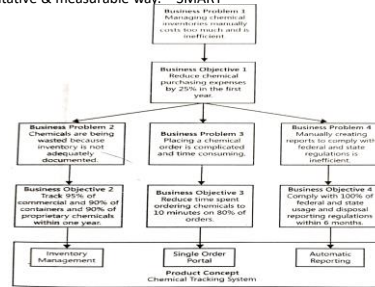

Pareto chart of root causes

Problem Statement

Sales Order Problem Statement

Element	Description
The problem of …	Inaccuracies in sales orders.
Affects …	Sales order personnel, customers, manufacturing, shipping, and customer service.
And results in …	Increased scrap, excessive handling costs, customer dissatisfaction, and decreased profitability.
Benefits of a solution …	That creates a new system to address the problem include • Increased accuracy of sales orders at point of entry • Improved reporting of sales data to management • Ultimately, higher profitability

Business Objectives

- Summarize the important business benefits the product will provide in a quantitative & measurable way. – SMART

Examples of Business Objectives

- Save $X per year currently spent on high maintenance legacy system.
- Increase gross margin on existing business from x% to y% within 1 year.
- Achieve a customer satisfaction measure of at least X within Y months of release.
- Reduce data error rate with no more than Y.

Business Objectives & Success Criteria

BO-1: Reduce the cost of cafeteria food wastage by 40% within 6 months following initial release.
[This example shows the use of Planguage to precisely state a business objective.]
  Scale: Cost of food thrown away each week by cafeteria staff
  Meter: Examination of Cafeteria Inventory System logs
  Past: 33% (2013, initial study)
  Goal: Less than 20%
  Stretch: Less than 15%
BO-2: Reduce cafeteria operating costs by 15% within 12 months following initial release.
BO-3: Increase average effective work time by 15 minutes per cafeteria-using employee per day within 6 months following initial release.

Success Metrics
SM-1: 75% of employees who used the cafeteria at least 3 times per week during Q3 2013 use the COS at least once a week within 6 months following initial release.
SM-2: The average rating on the quarterly cafeteria satisfaction survey increases by 0.5 on a scale of 1 to 6 from the Q3 2013 rating within 3 months following initial release and by 1.0 within 12 months.
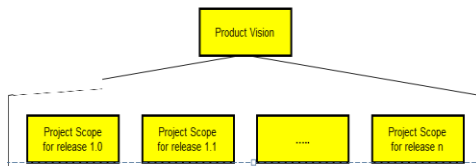
Problem Analysis – Stakeholder Profiles

- How to identify Stakeholders?
- Elicitation would ask questions such as
  - Who uses the system?
  - Who is the customer?
  - Who is affected by outputs?
  - Who evaluates/approves system?
  - Other external/internal users?
  - Who maintains the system?
  - Anyone who cares? (e.g., legal/regulatory, etc.)

Product Vision & Project Scope

- The product vision concisely describes the ultimate product that will achieve the business objectives.
- The vision describes what the product is about and what it ultimately could become.
- The statement of scope draws the boundary b/w what is in the what is out of the project.

Vision & Scope

- The vision applies to the product as a whole. It will change relatively slowly as a product's strategic positioning or an information.
- Scope is more dynamic than vision because the project manager adjusts the contents of each release within its schedule, budget, resource, and quality constraints.

Product Vision

Project Scope for release 1.0 | Project Scope for release 1.1 | ...... | Project Scope for release n

Vision Statement

Vision Statement template (according to Moore)
  - For [target customer]
  - Who [statement of the need or opportunity]
  - The [product name]
  - Is [a product category]
  - That [key benefit, compelling reason to buy or use]
  - Unlike [primary competitive alternative, current system, or current business process],
  - Our product [statement of primary differentiation and advantages of new product]

Vision Statement – Example

- For employees who want to order meals from the company cafeteria or from local restaurants online, the Cafeteria Ordering System is an internet based and smartphone enabled application that will accept individual or group meal orders, process payments, and trigger delivery of the prepared meals to a designated location on the Axis campus. Unlike the current telephone and manual ordering processes, employees who use the Cafeteria Ordering System (COS) will not have to go to the cafeteria to get their meals and will increase the food choices available to them under one roof from multiple restaurants including the campus café and can choose their preferred time for delivery.

Business Risks Examples

Too few employees might use the system, reducing the return on investment from the system development and the changes in cafeteria operating procedures. (Probability = 0.3; Impact = 9)

Local restaurants might not agree to offer delivery, which would reduce employee satisfaction with the system and possibly their usage of it. (Probability = 0.3; Impact = 3)

Sufficient delivery capacity might not be available, which means that employees might not always receive their meals on time and could not always request delivery for the desired times. (Probability = 0.5; Impact = 6)

Scope Statement

- Should be concise & clear.
- Vary with project types.
- The scope statement should include:
  - **A project Justification:** The business need that sparked the creation of the project
  - **Brief Description of Project's Products:** It summarizes the characteristics of products or services that the project will produce.
  - **Summary of Project Deliverables**
  - **Statement of Project Success Criteria:** A quantifiable criteria that must be met for project success.
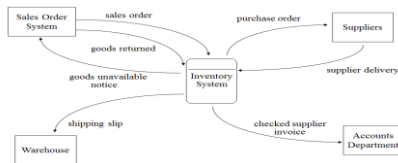
Scope Statement

- **Project exclusion:** Explicitly stating what is out of scope for the project.
- **Constraints:** A limiting factor that affects the execution of a project or process. For example: a predefined budget or any imposed dates or schedule milestones, contractual provisions
  - Information on constraints may be listed in the project scope statement or in a separate log.
- **Assumptions:** A factor in the planning process that is considered to be true, real, or certain, without proof or demonstration.
  - Also describes the potential impact of those factors if they prove to be false.

Scope Representation

Context Diagram
- Toplevel view of a system that shows the system's boundaries and scope
  - Identifies terminators outside the system
  - Data, control, and material flow between terminators and the system

Vision and Scope Document Template

Vision and Scope Document

- Owner of this document – Project Sponsor/ funding authority or similar
- Input to this document should come up from people who have a clear sense so as to why they are taking this project - *marketing department, subject matter expert, product manager, senior management etc

Contents:
- Business requirements
- Vision of the solution
  - Vision statement
  - Major features (numbered list of major features or user capabilities unique to the new product)
  - Assumptions (made while developing vision and scope)
  - Major dependencies to external factors outside of the project's control (e.g., pending industry standards, government regulations, other projects, third party suppliers, development partners)
- Scope and limitation (for initial and subsequent releases)
- Business context

Vision and Scope Document

Contents – Scope and limitations:
- Concept and range of proposed solution
  - What the system is
- Limitations
  - Capabilities that the product won't include (what the system is not)
  - Record rejected requirements with the reason for rejecting them
- Scope of initial release
  - Major features planned for initial release
  - Acceptable quality characteristics of initial release
- Scope of subsequent releases

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Vision and Scope Document

Contents – Business context:

- Stakeholder profiles
  - Should include major value or benefit that the stakeholder will receive from the product. Value could be in terms of improved productivity, cost saving, reduced rework or waste, automation of previous tasks, streamlined business processes, ability to perform new tasks, improved usability, compliance to regulations & standards
  - Features & characteristics of interest
  - Known constraints that must be accommodated
  - Their likely attitude towards product
- Project Priorities
  - Stakeholders must agree on the project priorities
  - Help effective decision making
- Operating Environment /Deployment considerations
  - Environment in which system will be used (e.g., distributed environment)
  - Vital availability, reliability, performance and integrity requirements linked to operating environment

Scope & other examples

Scope of Initial and Subsequent Releases

Feature	Release 1	Release 2	Release 3
FE-1, Order from cafeteria	Standard meals from lunch menu only; meal orders for delivery can be paid for by payroll deduction only	Accept credit and debit card payments	Accept meal orders for breakfasts and suppers
FE-2, Order from restaurants	Not implemented	Delivery to campus locations only	Fully implemented
FE-3, Meal subscriptions	Not implemented	Implemented if time permits	Fully implemented
FE-4, Menus	Create and view menus	Modify, delete, and archive menus	
FE-5, Ingredient lists	Not implemented	Fully implemented	
FE-6, System access	Intranet and outside Internet access	iOS and Android phone and tablet apps	Windows Phone and tablet apps

Project Scope

The COS will permit Process Impact employees to order meals from the company cafeteria online to be delivered to specified campus locations. A detailed description is available in the *Cafeteria Ordering System Vision and Scope Document* [1], along with the features that are scheduled for full or partial implementation in this release.

Scope Examples continued

Operating Environment

OE-1: The COS shall operate correctly with the following web browsers: Windows Internet Explorer versions 7, 8, and 9; Firefox versions 12 through 26; Google Chrome (all versions); and Apple Safari versions 4.0 through 8.0.

OE-2: The COS shall operate on a server running the current corporate-approved versions of Red Hat Linux and Apache HTTP Server.

OE-3: The COS shall permit user access from the corporate intranet; from a VPN Internet connection; and by Android, iOS, and Windows smartphones and tablets.
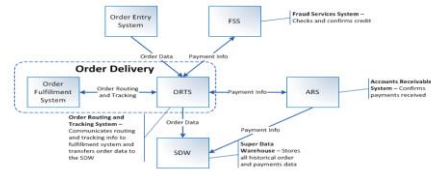
Design and Implementation Constraints

CO-1: The system's design, code, and maintenance documentation shall conform to the *Process Impact Intranet Development Standard, Version 1.3* [2].

CO-2: The system shall use the current corporate standard Oracle database engine.

CO-3: All HTML code shall conform to the HTML 5.0 standard.

Assumptions and Dependencies

AS-1: The cafeteria is open for breakfast, lunch, and supper every company business day in which employees are expected to be on site.

DE-1: The operation of the COS depends on changes being made in the Payroll System to accept payment requests for meals ordered with the COS.

DE-2: The operation of the COS depends on changes being made in the Cafeteria Inventory System to update the availability of food items as COS accepts meal orders.
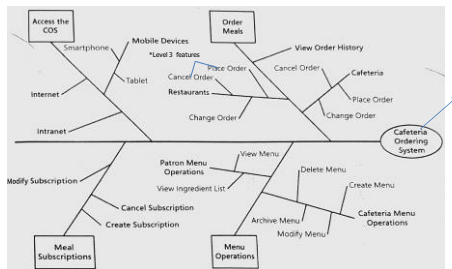
Scope Representation Techniques

- **Context Diagram, Ecosystem map, feature tree, event list**
- **Ecosystem Map**
  - Shows all of the system related to one another & the nature of those interactions

Feature Tree

- A feature tree is a visual representation of the product's features organized in logical groups, hierarchically subdividing each feature into further levels of details.

Event List

- An event list identifies external events that could trigger behavior in the system.
- **Example:**
  - **Chemist places a chemical request**
  - **Vendor issues new chemical record**
  - **Chemical container is received from the vendor.**

Managing Scope in Agile projects

- In agile, the scope of each iteration consists of user stories selected from a dynamic product backlog, based on their relative priority & estimated delivery capacity of team for each time box.
- Instead of trying to fight the scope creep, the team prioritizes new requirements against existing items in the backlog and allocates them to future iterations.
- Some agile projects fix the overall project duration, yet are willing to modify scope.

END OF TOPIC # 4

-**COMING UP!!!!!!**
-**Midterm Examination 1**
-**Stakeholder Analysis**
-**User Requirements**
-**Requirements Elicitation**

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