SharePoint - A Detailed Analysis with respect to Requirement Engineering

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Abstract - SharePoint is a powerful tool and can also serves as an all-in-one solution. One can use it as a secure and protected place to share, organize, store, and access information from almost any device and from anywhere. Although SharePoint is remarkable success but there are few organization that fail to realize the true value of it. There are some factors of SharePoint failures that are collated and highlighted in this paper. Within these factors, Requirement Developments plays a pivotal role SharePoint success. This paper focuses on developing SharePoint requirements using Spiral Model, in order to make SharePoint a success story.

Keywords - SharePoint, Requirement Development, Elicitation, Analysis, Documentation, Validation.

1 Introduction

Requirements gathering is a preliminary step in any Software development life cycle. An unambiguous and clear process is needed to establish realistic requirements; however it is a cumbersome process to gather these requirements and extract useful information out of these. Software Requirements can be divided into manifold categories, such as Functional requirements, performance requirements, Non-Functional requirements, Business requirements and Security requirements etc.

A Functional Requirement tells what a system must do, whereas Non-Functional Requirements tells how a system must do. Any confusion in functional or non-functional requirement will adversely effect on SharePoint functionality, therefore any inconsistency between the two should be removed at initial stage.

A common challenge that is being faced when organization initiates implements of SharePoint is to clearly define why the prevalent technology is being moved out in the first place. On asking ten people what SharePoint is, you are likely to receive ten different answers and all of them might be correct. In order to be successful, it’s important that from the beginning of the project all stakeholders of SharePoint are on the same page. With SharePoint being such a powerful and flexible platform, it’s important to get stakeholders on the same page. In order to minimize inconsistent expectations, a pragmatic approach is required to be adopted for requirement development of SharePoint applications.

1.1. An Insight to SharePoint

Organizations use SharePoint to create websites according to their needs. One can use it as a secure and protected place to share, organize, store, and access information from almost any device and from anywhere. All that you need is to have a web browser such as Firefox, Internet Explorer or Chrome.

SharePoint integrates a complete development stack based on web technologies and Application Programming Interfaces (APIs) based on standards. SharePoint platform is integrated with Microsoft Internet Information Services (IIS) that enables scaling, management of large data and provisioning of servers, as enterprise organizations and cloud computing providers often need.

1.2. SharePoint dominant features:

The reason behind SharePoint being so popular is because of its following features:

1.2.1 File Sharing

SharePoint initially became popular because it was an easy way to share documents online. Many organizations have implemented SharePoint capitalized on the ability to
upload documents to the document library, and share these documents with others.

1.2.2 Company Extranets

One great example of this sharing documents on the web technologies, is a company extranet, where users are not located at one location or the authentication domain in not same. Using form based authentication, user accounts can be created for people that are across company’s physical boundaries. Through this way it allows one place for sharing documents around a task rather than organization entity, SharePoint goes beyond ordinary sharing of file.

1.2.3 Content Management

There are many other Content Management Systems (CMS), but MOSS (Microsoft Office SharePoint Server) has incorporated the functionality of formerly known Microsoft’s Content Management System, which itself is often more expensive than MOSS alone.

1.2.4 Search

SharePoint provides the functionality of enterprise searching which lets you search the main information form bulk of data. SharePoint Search results are relevant, security trimmed, and more efficient.

2 Factors That Leads To SharePoint Failure

As SharePoint is a remarkable success:

- It is the fastest selling, server based product of Microsoft.
- After the release of SharePoint, there has been over one hundred million licenses sold globally.
- After SQL Server and Exchange server, SharePoint is the only Microsoft server product that has generated one billion dollar in sales revenue.

However there are many organizations striving hard to realize the true value of SharePoint. For example a semi-government organization reported that, “SharePoint do exists in our organization but no one uses it.”

Few causes of SharePoint failure that have been experienced are:

1. Not knowing what SharePoint is
2. Lack of information/knowledge management skills
3. Vision, the business case, and measuring success
4. Executive support
5. User adoption
6. Information Management
7. Technical skills
8. Defining requirements

Now the above mentioned factors and their consequences on SharePoint projects will be discuss briefly.

2.1. Not Having Enough Knowledge of SharePoint

If you are unaware of something, and you don’t know what something is, then it’s pretty sure that you are going to struggle to use it successfully. So, the major reason why organization suffer is because most of the people are unable to describe what SharePoint is.

2.2. Lack of SharePoint Information/Knowledge Management Skills

SharePoint revolves around three things; information, processes and people. In order to design, build and maintain the technical solution an experienced IT professional is needed, but in order to design the business solution first, an information knowledge management professional is required. Organization will suffer if the above mentioned personals didn’t exist in any organization.


Many organizations start their journey with SharePoint without clear understanding of what they want to achieve. If organization can’t answer the questions:

- What exactly we want to achieve?
- When and How will we get to know whether we have done it or not?

Then simply you are not ready to start yet.

2.4. Executive Support

In an organization, Executives are the ones that are capable to bring change in an enterprise. Executive are the ones, whose support gives credibility to an initiative or programme. Without such support initiatives based on SharePoint can lead to failure, either because the
suggested projects don’t gain funding or approval, or because the solutions are delivered. Nevertheless, due to some reasons, they aren’t adopted or used by the business.

2.5. User Adoption

Long lasting changes in behavior of workers is required by SharePoint in order to achieve success. People will always prefer to continue working with old processes. In order to adopt SharePoint completely we had to stop workers from following the old process of sharing files or manual work. For example a semi government organization invested in developing and maintaining a SharePoint based portal for exchanging correspondence. One year after launch the I.T function estimated that out of the 100 potential users of the system only 11 regularly used it. Others preferred to continue working the way they were working previously.

2.6. Information Management

Inappropriate levels of controls and training can leads to hectic SharePoint implementations. Thousands SharePoint sites can emerge making it complex for the people to find the right information. Most of the times people don’t know which version of document is the authoritative version. As a result of this people start working on duplicate and un-coordinated developments. Hence, they end up wasting their money and time. As SharePoint sites are deleted in an uncontrolled manner, vital information can be lost.

Content within SharePoint must be accurate, up-to-date and easy to find so that user can’t lose confidence in the system. Content quality relies on the user instead of I.T. department.

2.7. Technical Skills

SharePoint is vast technology platform that comprises of many enterprise class products. It has the ability to incorporate with an almost countless number of external systems and data stores. SharePoint requires data storage, high security, database administration, infrastructure and data stores and technical skills of end users. Technical issues such as system failure, down time and poor performance, will results in great impact upon user satisfaction, confidence and can reduce adoption rates.

2.8. Defining Requirements

Common factors of failed SharePoint (failure not essentially from a technical point of view; it could be lack of adoption, or not realizing the business value of SharePoint, etc.) projects could be of either poor requirement gathering or having no requirements defined. Merely asking the business what their requirements are, or what they want doesn’t seem to work in SharePoint scenario. Not investing real time in requirement development for SharePoint project maximizes inconsistent expectations.

3 Good Requirements are Key To SharePoint Success

Properly managed requirements and investing pragmatic approach, in requirement development for SharePoint project, minimizes inconsistent expectations early on.

Requirements are defined as:

1. Constraints on the service, product, or system
2. Conditions of a delivered service, product, or system
3. Capabilities needed to solve a problem
4. Formally written and documented statements.

3.1. Business, Users and System Requirements

The high-level business functionality needed is described and justified by the business requirement. This is sometimes known as business case.

Needs as per user’s perspectives are identified by user requirement. These requirement tells what a system or product must do.

System requirements express desired characteristics of the system and properties that the product or system must have.

3.2. Focus On Business Requirements First

These three categories of requirement i.e. 1) Business 2) Users and 3) System Requirements map to each other such that System requirement address the user requirements, that addresses the business requirements identified. So, the one that lay the foundation for the resulting solution is business requirements.

3.3. Requirements Traceability

A business “pain point” or need should be identified at an early stage, before defining a business requirement. Ideally, a skilled business analyst should work closely with customer and should be responsible for identifying what the business requirements are. If business analyst is
well versed in the capabilities of SharePoint than it would be great. Once the business requirements are identified by the business analyst, then he/she can start thinking about the high level solutions that can be provided by SharePoint in order to meet the business needs. Out of many ways one way to fulfill user productivity is to allow user to look for information on a single location.

4 Requirement Development for SharePoint Projects

One can develop SharePoint requirements using Spiral Model for Requirements Engineering Process, it involves following steps

- Requirements Elicitation
- Requirement Analysis and negotiations
- Requirements Documentation
- Requirement Validation

4.1. Requirement Elicitation

It is the process of understanding and gathering the user’s and stakeholders needs. Requirement Elicitation is not only performed at an organizational level but also at detailed user level. Basically elicitation is a human-based activity, which involves the interaction between SharePoint Business Analyst and a customer.

SharePoint Business analyst not only take orders from customer, but he/she also needs to discover pain points of business’s operational collaboration, i.e. sharing files, meeting management, etc., reporting, i.e. Reports of monthly sales, and business processes, i.e. onboarding employees. Main goal is to help customer to perform their jobs more efficiently by identifying customers' wants/needs and by detecting what are the existing pain points that are need to be addressed using SharePoint. During this whole process, following will be the responsibilities of an analyst:

- To determine sources of requirements – focusing on groups, specific people.
- To decide how to gather information – focusing on groups, interviews, surveys.
- To understand the frame work and context of business-level
- To investigate the end user’s jobs

In order to gather user requirement correctly, you must have right people to help you in architecting the right solution. These personal must have expertise of SharePoint and must be fluent in SharePoint technologies from business perspective. They will help to ensure the right process and will make SharePoint site a success. Following are the few questions that the Business Analyst asks from key users. These users are those people who work with the content. They don’t necessarily need to know the product and its details, but they need to have two attributes – First, knowing how currently the content is being managed, second, being a lead person who should be responsible for making decision on that content.

4.1.1. User Objectives

This section throws light on the questions for gathering the key deliverables, the SharePoint site will deliver to the business.

Questions:

a) What are the major goals for the SharePoint Site (s)?

b) What are the Deadlines of Project?

c) Who will be the Audience?

d) Does your content will be available globally?

e) Who are the particular individuals that are likely to have contribution to the site?

f) What are the key features that you want your visitors to get impressed with?

4.1.2. Structure

Questions given below must be asked, in order to make sure that the SharePoint site/sites are located correctly. So that people can easily understand that the site/sites are mapped back to the organization and the information on the SharePoint site/sites can be located.

Questions:

a) What will be the organizational structure?

b) How many people can collaborate in creating or managing content?

c) Who are the individuals that will be involved with managing the SharePoint site?

d) Who are the individual that will be responsible for final SharePoint site?

e) Name the individuals that will be having final approval of SharePoint site?

f) What are the major reasons that you are going to use SharePoint?

4.1.3. Content

Once you have the user objective and structure of the SharePoint site then you need to understand the level of SP content, and what is the best possible way of
structuring and providing this content to the site visitors. The content would be updated and posted into repositories i.e. in SharePoint terms SharePoint Document Libraries.

Every time when there is a need for creating new SharePoint Site Collection this section should be repeated.

**Questions:**

a) What specific service/services (such as Technology Based, Human Resource or Financial) you will be offering?

b) What is the process to communicate or how you communicate your content with reviewers?

c) Where is the electronic information storage?

d) Which is the specific portal content that you have to make it available to other employees?

e) Is there a need of specific collaboration areas for employees to work collectively, for projects or meetings, on documents?

f) Will the documents required versioning?

g) Will the document need approval?

h) Will the document require unique permission?

Following questions should be essentially addressed by the analyst during requirement elicitation process:

- What else do we need to know
- From where do we get the right information
- Is this information is enough
- Is gathered information that we have is making sense

The goal is not to show case whiz-bang features of SharePoint but to identify business solutions. Analyst has to consider the ways to promote better adoption once the solution is in place.

4.2. Requirement Analysis and negotiations

The goal of Analyzing Requirements is to identify the real requirements. SharePoint Requirements Analysis from user point of view is vital; it is the corner stone to develop, deploy and provide a properly managed environment for SharePoint Projects.

Requirement analysis phase is generally ignored because people don’t see SharePoint as an Enterprise solution, rather they think SharePoint can be implemented as a technological feature that can be typically defined as a product that is meant to fulfill wants/needs from a business unit, or to full fill a particular function such as “Managing Documents”. It is essential to know in advance what the user content pains are, one has to make sure in advance that SharePoint is a centralized platform that meets management and information challenges for the organization.

In Requirement Analysis phase business analyst analyze following potential problems that exists in elicited requirements.

- Is it inaccurate?
- Is it incomplete?
- Is it ambiguous?
- It is unnecessary?
- Is it untestable?
- Is it Infeasible?
- Is it inconsistent?

Problems identified with elicited requirements are then negotiated with customers or stakeholders that results in a draft document.

4.3. Requirement Documentation

Draft document of SharePoint requirement created after analysis and negotiation can be best documented via Dux Raymond pragmatic approach [1] or via Planguage [2].

According to Dux Raymond there are six guide lines for documenting SharePoint Requirements that are as follows:

a) **Requirement should specify a subject, capability and a criterion.**

Every requirement that we capture specifies subject, capability of a customer and a criterion. Each requirement consists of three parts that are:

a. Subject : The one who performs action it could be person, place or thing

b. Capability: It describes an action taken by the subject and consists of a single verb

c. Criterion: It is an optional qualitative or quantitative limit, boundary or range condition.

An example of a user requirement for the capability of search result can be written as: “User shall be able to retrieve SharePoint search results within, the time limit of, three seconds of submitting search request.”

**Subject** : User  
**Capability**: shall be able to retrieve search results  
**Criterion** : within three seconds of submitting search request.
b) Requirement should have standardized format

Standardized template/format for writing requirement can provide readability and consistency. Standard format can be as simple as:

a. [Subject] shall be able to [capability] within [criterion]

b. [Subject] shall be able to [capability] (in this format criterion is assumed to have 100% of stated capability)

Following are the example of above mentioned format:

a. User (subject) shall be able to trace SharePoint Human Resource Site (capability) within two clicks (criterion).
b. Executives (subject) shall be able to take content of SharePoint site offline (capability).

c) Use of appropriate words during requirement documentation:

Following are six common words we have to focus on:

a. Shall: Specifies a mandatory requirement to be met. Indicates “is required to.”
b. May: Specifies a permissible course of action. Indicates “is permitted.”
c. Should: Specifies the ideal possibility of several suggested options. Indicates “is recommended that.”
d. Can: Used for possibility and capability statements. Indicates “is able to.”
e. Must: Used only to describe situations that are unavoidable like legal compliance.

d) Requirement is written in active voice:

The subject of sentences does the action (verb), with active voice. It will focus on the performer of the action within the sentence

For example: “Customer shall provide shipping address and current billing as part of their customer records.”

It is used to:

• Give emphasis to the performer of the action
• Express the content of the sentence with greater impact

On the other hand, requirements can be written with passive voice where the action is received by subject. The focus is not on performer of the action. For example:

“Shipping address and current billing shall be provided by the customer as part of their customer records.”

It is used to:

• Give emphasis to the receiver of the action
• Importance of performer of the action is minimized

e) Requirement does not contain spelling or grammar errors.

Typographical or grammatical errors should be removed during requirements review.

f) Requirements should not use ambiguous words.

If your requirement can be interpreted as different meaning then it is said to be ambiguous. Selecting the right word is not always easy. For Example, the word bug can have different meanings like I could be

• A concealed microphone
• Any small insect
• A faulted piece of software

For words or terms having multiple meanings must be define according to the scenario, context, document audience and purpose. Standard way of including these definition is adding glossary in your requirement document.

When documenting SharePoint requirement clear definition of keywords is very important. The terms such as content types, lists, site collection, term store and web application are usually misunderstood.

4.4. Requirement Validation

Once the requirements has been analyzed and documented, you will more likely to have a long list of unrealistic requirements that don’t seem realistic to deliver at the same time. This is the phase where you cross check your requirements with the customer.

Validating requirement is an essential phase in order to identify the resources needed to implement the SharePoint solutions. This covers the ways to identify a schedule, high-level, realistic budget and SharePoint skill-sets.

Once the requirements have been validated it will be easier to modify the requirement document as per new amendments.
5 Conclusion

In this paper I have focused on SharePoint platform that is used to create websites according to user needs. One can use it as a secure and protected place to share, organize, store, and access information from almost any device and from anywhere. It is discusses that why SharePoint is so popular among other Content management systems. This paper highlights the factors that lead to failure of SharePoint projects and focuses on how well developed requirement, that includes proper Requirement Elicitation, Requirement Analysis, Requirement Documentation and Requirement Validation, results in SharePoint success.

References


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