

Jyri Puranen

Modifying SharePoint collaboration tool for globally de-centralized product management at company X

Helsinki Metropolia University of Applied Sciences

Bachelor of Engineering

Industrial Management

Bachelor's Thesis

21st of May 2014

Author(s) Title Number of Pages Date	Jyri Puranen Modifying SharePoint collaboration tool for globally decentralized product management at company X 32 pages + 8 appendices 21 st of May 2014
Degree	Engineer
Degree Programme	Industrial Management
Specialisation option	Global ICT
Instructor(s)	Thomas Rohweder, DSc (Econ). Principal Lecturer
<p>The objective of this thesis is to propose modifications to the SharePoint collaboration tool to better meet the requirements of globally decentralized product management at company X. Due to practical reasons the developed platform was chosen to be Microsoft SharePoint.</p> <p>Originally the goal was to turn in a functioning SharePoint site, in the end the deliverable was a proposal for the SharePoint site. This was done because of lack of time.</p> <p>This thesis was conducted as a qualitative case study. Research data was gathered from literature, online documents, internal documents and interviews with users. In addition some of the conclusions are based on my own findings about Microsoft SharePoint's features.</p>	
Keywords	Microsoft SharePoint, global, information sharing, product management, collaboration

Tekijä(t) Otsikko Sivumäärä Aika	Jyri Puranen SharePoint sivuston muokkaamisedotus globaalisti hajautetulle tuotehallintatiimille yrityksessä X 32 sivua + 8 liitettä 21.5.2014
Tutkinto	Insinööri (AMK)
Koulutusohjelma	Tuotantotalous
Suuntautumisvaihtoehto	Kansainvälinen ICT-liiketoiminta
Ohjaaja(t)	Yliopettaja Thomas Rohweder
<p>Tämän insinööriyön tavoitteena oli tehdä parannusehdotus eri maissa toimivien tuotepäälliköiden väliseen viestintään. Käytännön syistä kehitettäväksi alustaksi valittiin Microsoft SharePoint.</p> <p>Työn alkuperäinen tavoite oli kehittää toimiva ratkaisu joka otettaisiin käyttöön sellaisenaan. Tätä tavoitetta jouduttiin muokkaamaan lopulta malliratkaisuun toimivan sivuston sijaan ajanpuutteen takia.</p> <p>Insinööriyön tutkimusmenetelmänä käytettiin kvalitatiivista tapaustutkimusta. Tutkimusaineistoa kerättiin kirjallisuudesta, Internet julkaisuista, yrityksen sisäisistä dokumenteista sekä haastatteluista käyttäjien kanssa. Lisäksi osa päätelmistä perustuu omiin havaintoihini Microsoft SharePointista.</p>	
Avainsanat	Microsoft SharePoint, globaali, tiedon hallinta, tuotehallinta

Contents

Contents

1	Introduction	1
1.1	Company X and SharePoint	1
1.2	Business problem and objective of the thesis	7
1.3	Research design	8
2	Analysis of current state	10
2.1	Description of current situation	10
2.2	Product Management SharePoint site original setup	13
3	Literature review	14
3.1	Conceptual framework	14
3.2	Best practices of using SharePoint 2013	17
3.3	What is a virtual team?	19
3.4	Pros and cons of virtual team	19
4	Testing different features	23
5	Proposal	25
6	Conclusions	29
6.1	Summary	29
6.2	What I learned	29
6.3	Evaluation	30
	References	31

Appendices

Appendix 1. Screenshot from settings at the SharePoint site

Appendix 2. Questionnaire for SharePoint users

Appendix 3. Meeting 1 notes

Appendix 4. Meeting 2 notes

Appendix 5. Meeting 3 notes

Appendix 6. Meeting 4 notes

Appendix 7. Screenshot of the questionnaire answer from a user 1

Appendix 8. Screenshot of the questionnaire answer from a user 2

Abbreviations

CFT	Cross-functional team.
Collaboration	Multilateral, iterative interaction resulting in discovery of new knowledge through generating shared frames of reference.
Hierarchy	Arrangement of items where items are set above, below or at the same level as one another
Metadata	Data about data, information used to label the content
SW	Software
Q&A	Questions and Answers

1 Introduction

1.1 Company X and SharePoint

I have been working at this company for many years now and when I found out that there was a need for an IT-related thesis it seemed obvious choice for me. The collaboration tool was supposed to be based on previously existing software's inside the target company; therefore this thesis concentrates only on finding solution from already available software at company X.

Company X is a globally operating company which has thousands of workers in dozens of different countries. It is the market leader in its field. All its products require highly developed manufacturing process. Controlling all of them need in addition to skill good communication across different units and countries.

This thesis' solution will be used for improved communication between other product managers in multiple different countries. All of those product managers work with the same device types.

Originally the goal of this thesis was to make a working solution for information sharing and collaboration for product managers distributed around the globe. One of the demands was that the solutions wouldn't require any new software and it would be done using already existing solutions. Since this group already had created a SharePoint site, after a quick evaluation it seemed that the most natural way to improve sharing information and "enabling ongoing conversation between the product managers" was to improve the said site. Due to the complicated nature of the shared information the goal of this thesis was changed to offer a model for the SharePoint site. I learned a lot about using SharePoint as a place for storing information. I only had experience about SharePoint as a user with rights to add my own files to already existing libraries, not creating new ones. I was given owner's rights to the already existing site where I created my own sub site for testing possible solutions for the site. I was given lots of responsibility when handling the current site.

SharePoint is a “global knowledge storage platform”. (Skok 2013.) It is a site which consists of multiple sites, libraries, lists and blogs. Its multiple content types enable broad spectrum of choices for collaboration.

Users can upload, edit and delete files from their own computers. The site that was which is being analysed in this thesis can't be used with smartphones or tablets. The fact that it can only be accessed through intranet adds security to the knowledge management. SharePoint site can be also created so that it can be accessed with regular internet connection.

SharePoint is a typical solution of putting information to a cloud. Collection of SharePoint sites is called a farm. My thesis focuses on the product management teams SharePoint site which is a sub site in the entire company's SharePoint site collection.

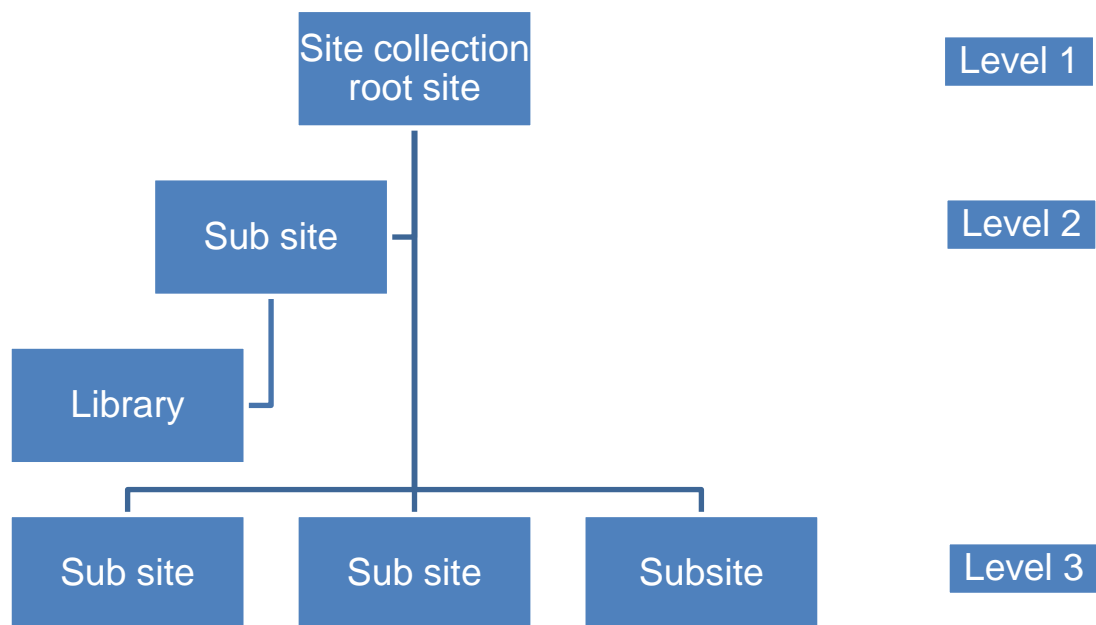


Figure 1. Hierarchical structure of SharePoint site collection

This figure displays the tree view structure of a SharePoint site collection. Once a root site is created, additional sub sites can be created under the root site. Furthermore, sub sites can be created under sub sites depending on how the documents have to be organized.

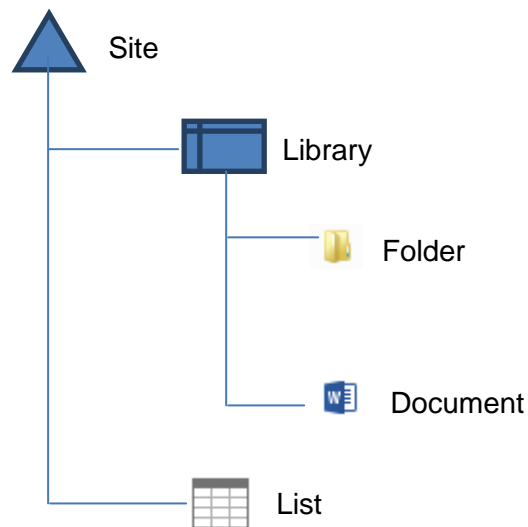


Figure 2. SharePoint site content

This is where the rights have to be explained. SharePoint shows only the documents which the user has sufficient rights. If the user doesn't have sufficient rights for example sub sites on level 3, the user can't see them in the crumb path. Typically these rights are owner, contributor and reader. Owners can modify all the documents the way they want, including deleting the documents. Contributors can add new files and make new versions of older files. Readers can only open files. Rights can be given uniquely per user or by groups if the amount of users makes the maintenance overwhelming.

It is a platform which is designed to be used in a broad variety of ways to create collaboration sites. It is a decent tool for many tasks and in many cases the further modifications will make it more useful.

SharePoint uses SQL databases. "SharePoint 2010 helps people add multiple instances of the crawler, indexing, and query components. This level of flexibility means that people can scale SharePoint farms. (Previous versions of SharePoint Server did not allow companies to scale the indexing components). By scaling components of the search architecture with SharePoint 2010, companies can gain sub-second query times for all queries, regardless of the size of the farm. SharePoint 2010 can also remove bottlenecks that were present in previous versions of SharePoint Server." (SharePoint 2010 Evaluation Guide 2010: 28)

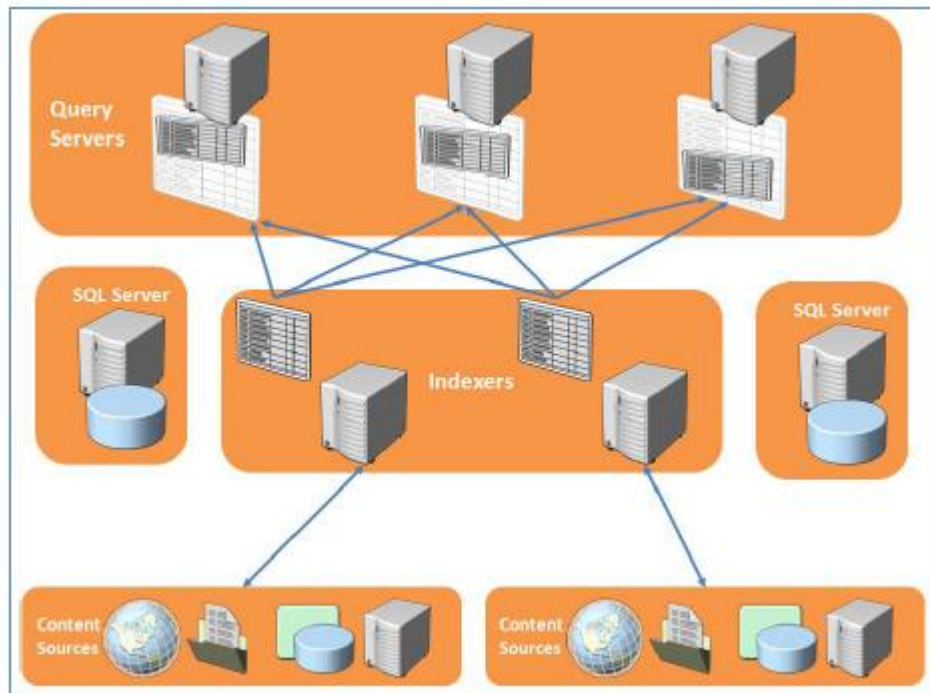


Figure 3. Scaled architecture for query servers and indexers

The following diagram shows the deployment scenario used to configure SharePoint Server 2010 business intelligence in the sections. As noted earlier in the discussion about subsystems, the front-end service authenticates and authorizes the client and then authenticates with additional back-end services, without passing the client identity to the back end system. The back-end system "trusts" the front-end service to perform authentication and authorization on its behalf. This is displayed on figure 4. (<http://technet.microsoft.com/en-us/library/gg266385%28v=office.14%29.aspx>)

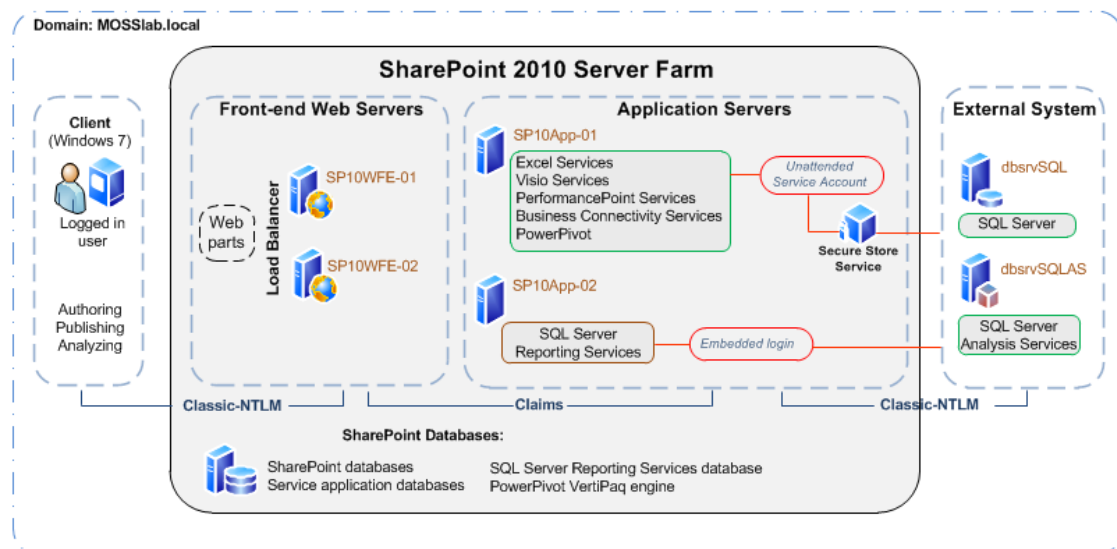


Figure 4. SharePoint farm server wireframe

Here's the front page view of the Product Management SharePoint site.

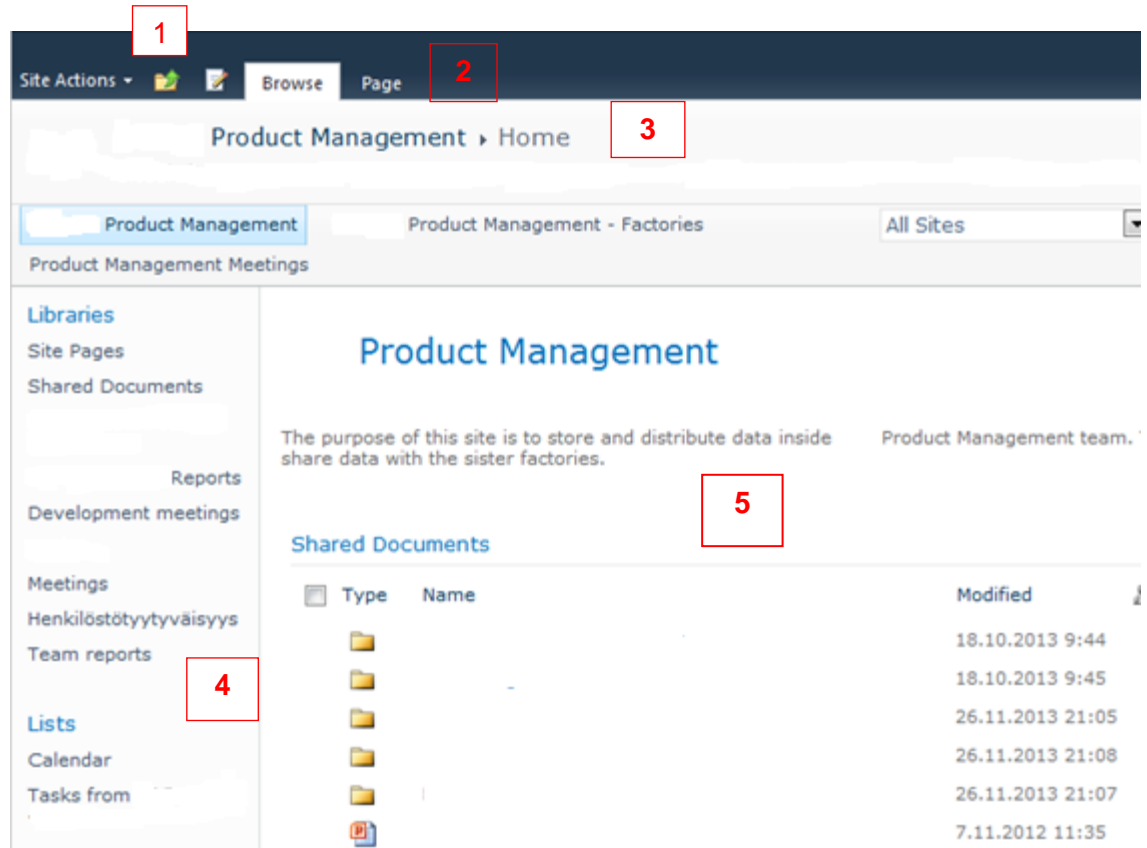


Figure 5. Screenshot of a SharePoint site view

The number 1 is used when moving up in the site collection. It is also the fastest way to see where the current library or list is located in the site hierarchy. The figure below shows an example of the view when looking at Product Management site's location.

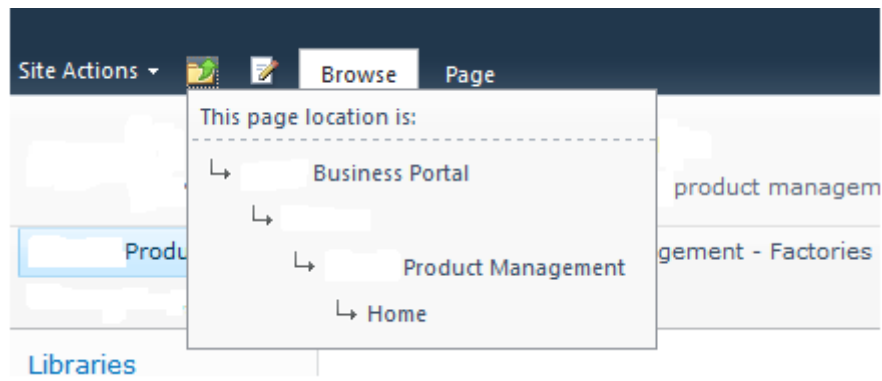


Figure 6. Page location drop down list

The number 2 on the figure horizontal options enable the user to move inside the site's paths.

When moving in a library, the hierarchy is seen as a bread crumb path.



Figure 7. Bread crumb path

The number 3) is called the Top-link Bar which shows the links to the sub sites and other targets such as libraries.

The number 4) is called quick launch. These links enable the user to move inside the site's libraries, lists, calendars and so on.

The number 5) is the area reserved for web parts. The web parts are pieces of the SharePoint site which can be "lifted" to the main page.

When searching in documents, the search can be optimized with most common search operators such as Something1 AND Something2, Something1 OR Something2 and Something1 NOT Something2.

When creating columns, the sub site can never have more columns than the parent site. Columns are inherited to the sub site.






	Site columns	Available site columns
	A, B, C, D	A,B,C,D
	D,E,F	A,B,C,D,E,F
	-	A,B,C,D,E,F
	G,H,I	A,B,C,D,E,F,G,H,I
	J,K	A,B,C,D,J,K

Figure 8. Site column inheritance hierarchy

1.2 Business problem and objective of the thesis

Because company X has distributed its production of same products all around the globe, each product manager has some information that the other's don't. Furthermore, the customers have a different response to the same products in different countries. The product management responsibility for sold frequency converters have been appointed to the same country that manufactures the product. Currently the decisions are made based on the information at a single plant. Vision is that the product management would be based on summarized information based on collected feedback from different countries. Goal was that the decision making process should become less dependent of a single unit and become more equal. The other plants will have more responsibility collecting information about their products and uploading it to common use. They would be responsible for the adjustments made to their own products so

they will be ideal for local markets. The same modifications could be made for the products in other countries too if they are seen useful.

The objective for this thesis is to propose modifications to the SharePoint collaboration tool to better meet the requirements of globally centralized product management at company X. Because Microsoft SharePoint 2010 was chosen to be used as a tool to solve this problem, the focus will be how to use the collaboration platform as effective as possible to store and organize the needed information. As it later turned out, the site has to be designed so that the uploaded information should be located carefully in certain format and marked with tags. These requirements will affect to the structure and visual outlook of the site.

1.3 Research design

As stated earlier, the focus of this thesis is how to use Microsoft SharePoint. The practical part was to explore what qualities Microsoft SharePoint has and how they can be used in the most suitable way for this specific task. The results are repeatable to some extent, yet there is most likely more viable solutions for collaboration. This is due to the fact that SharePoint is meant to be customized by the site owners to suit their needs.

Most of the theory behind this thesis is about how to fully utilize different qualities of Microsoft SharePoint.

Some of the case studies that are referenced in this thesis serve as an example how other companies have solved similar types of problems.

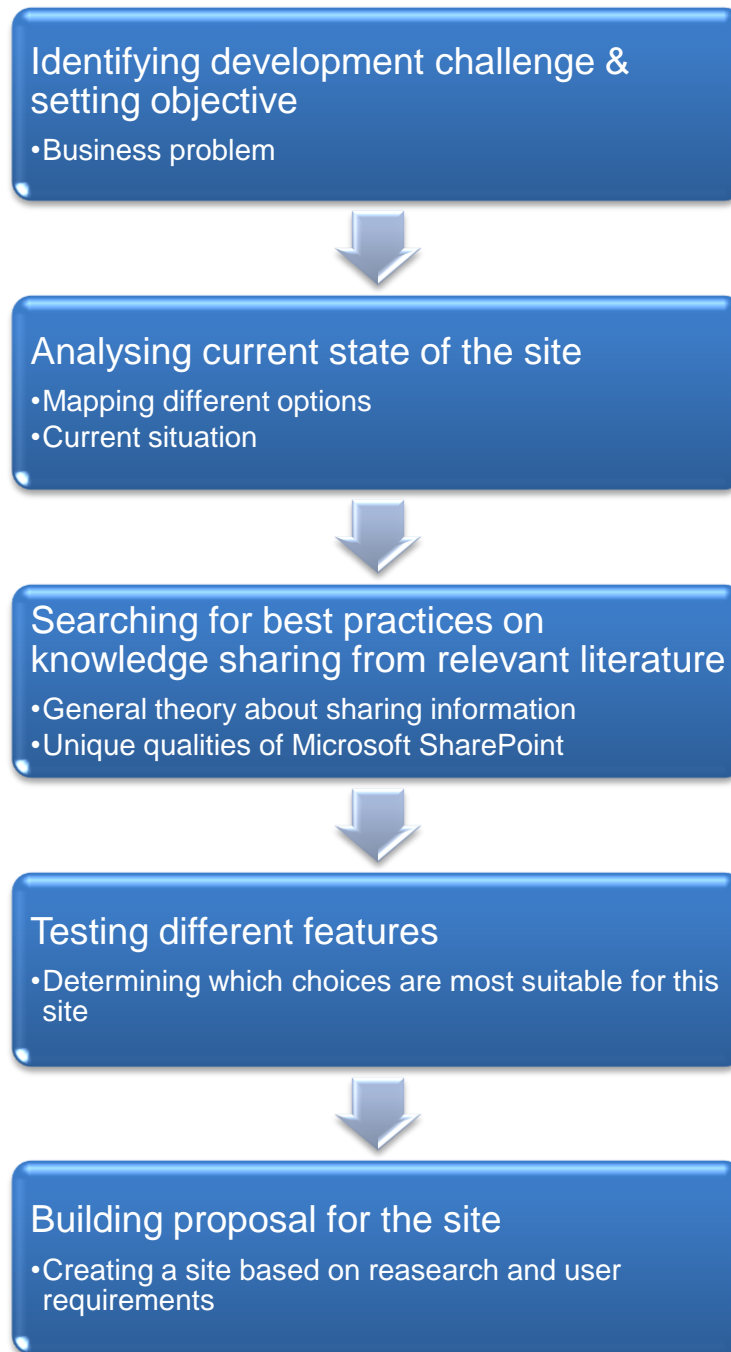


Figure 9. Workflow of this thesis

Identifying development challenge comes from the fact that all methods of communication have their upsides and downsides. Goal here is to find which qualities are vital for improving collaboration between the product managers. The business problem is strictly tied with this; all these product managers have unique information that need to be shared more efficiently.

Analyzing the current site is the practical starting point for this thesis. Before any theories how information should be shared in general are studied or before SharePoint is examined in further detail the current situation needs to be explored. What kind of content is being discussed and how.

When the goal is set and starting point is known, the features of SharePoint need to be mapped. SharePoint itself has vast amount of different possibilities how it can be modified to suit different purposes. It has been around long enough that the most common qualities have been picked out. These customs are examined with the general theory about sharing information.

The most practical part of this thesis is when I will test the best practices and theories in the actual SharePoint environment and see for myself if they are working and useful enough to be used.

The final part is the proposal where I will make suggestions based on steps above which modifications needs to done to the already existing site so that it will be a better collaboration tool for its users.

2 Analysis of current state

2.1 Description of current situation

Currently most of the decisions are based on information of the product managers in a single plant, which is not ideal model when the product is being manufactured and sold by different units around the globe. The reason, mission, for this project is to ease up the communication between product managers spread around the globe, making the whole process of managing product more autonomic for each country.

Currently product managers are emailing and having video conferences. Emails are saved, but not organized in any way thus being unavailable for other product managers. Naturally all of the product managers had their own mobile phones in addition to other means of exchange of information.

Ask yourself, why do we rely so heavily on phones and e-mail — technologies that haven't fundamentally changed much since they were introduced? We rely on them day in and day out because they provide the communication trifecta: simplicity, reliability, and accessibility.

- **Simplicity:** neither require complex setup time or a steep learning curve — as soon as we have dialled a number or entered an address, we are able to focus on the message, not on the medium. Remember, rich interactions don't require rich media.
- **Reliability:** despite the occasional service interruption, we spend very little time worrying about whether our messages will get through to their intended targets.
- **Accessibility:** phones and email both work just about everywhere we might want to use them — meeting rooms, field offices, airports, even our favourite coffee shops.

(Mortensen etc. 2012)

Table 1. Comparison of different communication methods

	Advantages	Disadvantages
Phone	<ul style="list-style-type: none"> • Fast • Personal • Enables unofficial interaction 	<ul style="list-style-type: none"> • Information is not getting automatically recorded • Expensive • Dependent of the daytime
Email	<ul style="list-style-type: none"> • Fast • Easy to use • Useful for short strings of conversations 	<ul style="list-style-type: none"> • Varying response times • Selecting receivers can be troublesome when replied multiple times
Videoconference	<ul style="list-style-type: none"> • As close as it gets to a face to face meeting • Very personal • Gains trust 	<ul style="list-style-type: none"> • Time consuming • Set up requires effort • Information isn't recorded, topics are limited • Dependent of the daytime
SharePoint	<ul style="list-style-type: none"> • Views are personal for each user • Content is organized • Can store vast amounts of recorded information 	<ul style="list-style-type: none"> • High set up cost • The more rights the user has, the more skills he needs

Obviously all four methods of communication are used overlapping each other.

The product managers do have a SharePoint site where there are few documents. All those documents are on the same page, not organized in any way.

The reason why such platform is needed is based on the conditions and requirements of today's business environment.

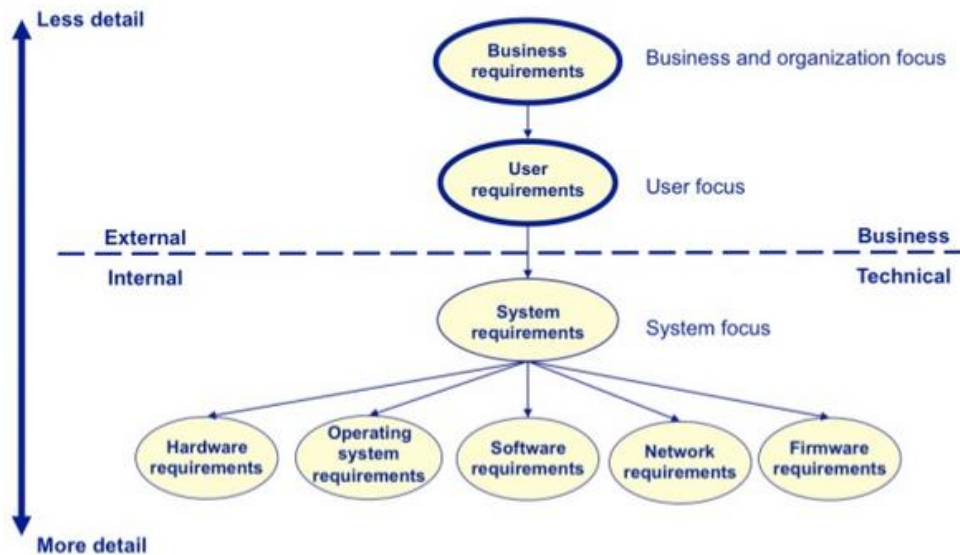


Figure 10. Business and technical requirements for SharePoint (Raymond 2010)

2.2 Product Management SharePoint site original setup

Because there was an already existing site, system requirements weren't an issue. The changes made would not have significant impact on the cloud space or on the server structure.

The current site has it as a setting that the sub sites have the same rights as the parent site (appendix 1).

Current state:

- Hosted internally
- Most of the sites are made by high customization
- Most of the libraries have only four metadata fields
 - Type

- Name
- Modified [Date]
- Modified By
- Users and Permissions
 - Most of the users are Product managers around the globe
- Owner's rights
 - Some of the users are team leaders working for product managers
- Contributor's rights
 - Rest of the site's users are sales personnel working with products
- Reader's rights
- Create major versions: Minor versions are not published i.e. Document 2.1. The number of versions can be controlled more easily if only major versions are used. The major versions are always visible to users with at least read permissions.
- Currently uses folders

3 Literature review

3.1 Conceptual framework

Modern expertise comes at the expense of the narrowness, and hence the capability to collaborate adds great value to expertise by making relevant to other domains. Conceptualizing such capability as practice implies that it improves with execution. "(Bruns 2012)

The sheer information that wasn't utilized in other countries was good enough reason to set up the previous site. The salesman in these countries had very valuable information about customers' preferences, opinions and needs about the products and it was not shared fast enough. As the original vision states, the goal was to create synergy between other countries and other divisions. The goal was that the future changes would have been based on customer feedback (mostly gained via salesmen) and so enabling them to prepare promoting these features.

“Managers concerned with improving the effectiveness of work conducted across departmental divisions should keep in mind that exposure to work in other domains is particularly important whenever integration of diverse contributions is desired.”

(Bruns 2012)

“Experts should discuss their efforts to align domain-specific practice with their peers before negotiating with collaborators. Inversely, a valuable starting point in addressing dysfunctional collaboration is shared practice. Efforts targeted at coordination and collaboration will fail if they are insufficiently shared. Cross-domain collaboration becomes critical to leveraging diverse specializations and avoiding conflict in practices, loss of productivity, and a lack of a shared strategic direction.” (Bruns 2012)

This is why the meta-information columns are needed. They exist so that the information is shaped to a certain format before uploaded to common SharePoint site. It forces the person who uploads it to process that information so that it is usable for other users. This can mean both content and file format.

Enterprises that use these tools to simply capture knowledge for a given ontological structure face the following problems: isolated software solution requiring its own user management; the user interface often does not provide a look-and-feel that is familiar to users; additional security issues; hard to integrate into existing electronic work flows; and additional deployment and training costs. (Fenz 2012)

This is the biggest problem of SharePoint. It takes a lot of effort setting up a functioning SharePoint site. The information about information is vital for later usage when the size of the site has increased and the site has multiple layers and hundreds or thousands of documents.

This study examined an extreme case of cross-functional collaboration in which contributors were highly and diversely specialized and the task was novel and complex. It advances understanding of how experts coordinate domain-specific work when they conduct specialized work apart from each other. Coordination is an ensemble of practices that drives collaboration by linking emerging contributions across domain differences and over time. The collaborative practices of counter projection and alignment transcend temporal and domain differences by importing insights from prior cross-domain exchange into individual domains where these insights effect changes to expert

practice. The quality of coordination—how well it is executed—emerged as important because alternating phases and highly refined practices made coordination more precarious. Sharing collaborative practice not only enables experts to gain and apply insights across domains, but moreover allows them to progressively synthesize emerging contributions. It also initiates changes in domain-specific work that usher in innovation. These observations matter because an increase in specialized and complex work implies both more work in isolation and more cross-functional collaboration.

(Bruns 2012)

This is very common situation in the modern field of any industry. Since everything is so well connected, smaller and smaller teams have different specialists in them. I for once have been told to get a deep knowledge from one area of expertise so that I will always something unique to give to every group where I will work. That knowledge needs to be backed up with a very broad spectrum of general information about the field where I am working. Not only to understand how things work, but to stay on a closer level with my co-workers.

One of the most common problems of CFTs is that different functions end up seeing the same information through different lenses, leading to misunderstandings and conflict, and ultimately undermining process performance by reducing group cohesiveness and increasing job stress. The difference between successful and unsuccessful CFTs is not however whether these communication problems occur or not, but in the way in which they are overcome. In successful CFTs, the team members combine their perspectives in a highly interactive, iterative fashion, which increases information content ultimately leading to effective intra-team communication.

(Bunduchi 2009)

Using an enterprise portal such as Microsoft SharePoint for the user interface supported the fast deployment and acceptance of the knowledge management solution. The shortcoming of this solution is its lack of flexibility, as it was designed and implemented for a specific use case. (Fenz 2012)

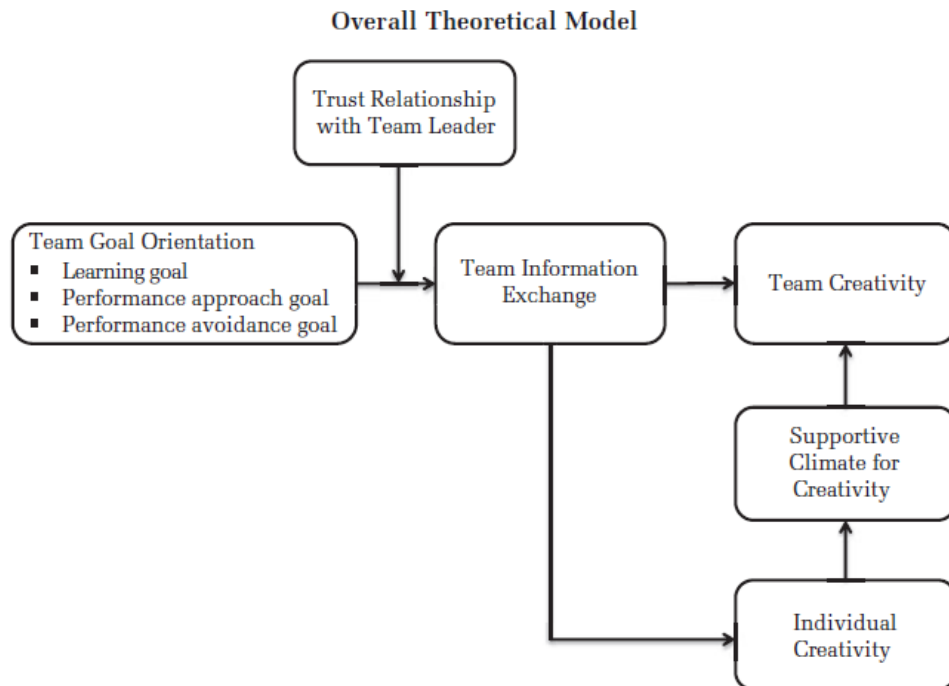


Figure 11. Overall theoretical model of sharing information (Gong etc. 2013)

3.2 Best practices of using SharePoint 2013

A new feature in SharePoint 2010 is called Document Sets. Using this feature, documents can be organized into a collection of related documents that can be managed as one. In effect, document sets are folders with which you can:

- Share metadata across documents.
- Version the document set itself (in addition to the individual documents).
- Initiate workflows for the whole document set.
- Set permissions on the document set.
- Create a welcome page for the document set.

Document sets are implemented as Content Types. ...Mainly you want to use document sets when you want to treat a number of documents as a single item with common metadata, permissions, and workflow. For example, you might be creating a proposal for a customer. This proposal itself might be a Word document, while you'll also deliver a PowerPoint presentation, a video presentation, and an Excel spreadsheet for

financial analysis. In this scenario, you would probably want all of the items to share the same metadata (customer name, opportunity ID, and so on).

Another example of a document set is when you have a presentation that is associated with supporting materials in spreadsheets. Document sets allow you to keep all the related content together and ensure that users can find documents in the context of their “family”. When you navigate to a document set, you will see information about the document set and can view and upload documents associated with the set. In addition, there is a special tab in the ribbon that appears when a user enters a document set. This ribbon selection enables the user to create a version of the set, start a workflow on the set, and manage permissions on the set as a whole.

Managed metadata is a hierarchical group of enterprise-wide or centrally managed terms that you can first define and then use in columns in content types or lists and libraries. Managed Metadata is a new type of column in SharePoint 2010 that you can use to assign metadata to an item.

Best way to control content is to tag files with metadata for later use. That way users can see quickly in the future what the file is about, who has written it, etc. Metadata can be also made into columns. That way searches come quick even for large amount of files.

The Draft Item Security setting enables you to control which groups of people can read drafts. As discussed in the previous section, drafts are the minor versions of a file and are created in one of two ways: either when a minor version of a file is created or updated in a library that tracks major and minor versions, or when a list item or file is created or updated but is not yet approved in a list or library in which content approval is required.

If you plan to use minor versions and content approval, then we recommend configuring the Draft Item Security in such a way that only editors and/or approvers see draft items. This ensures that general site users don't see unapproved versions of documents

(SharePoint 2010 Usage Best Practices)

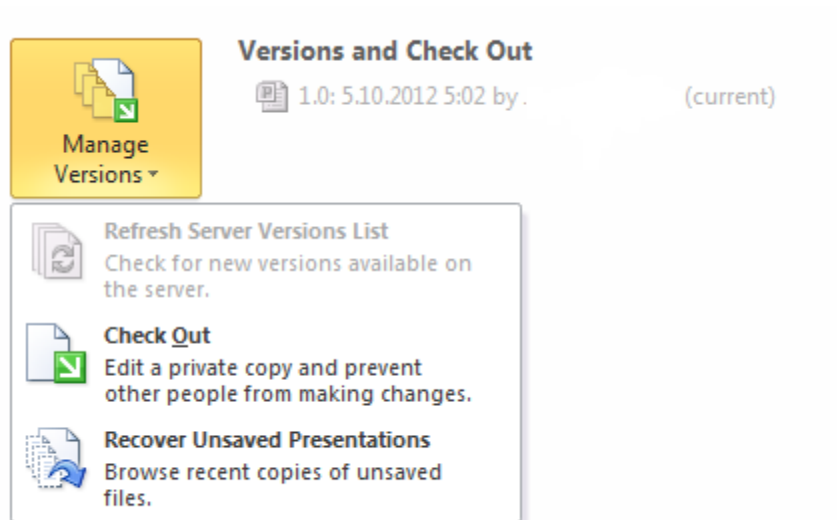


Figure 12. Screenshot for file version management settings.

3.3 What is a virtual team?

Due to the fact that the product managers are spread around the globe and they use cloud collaboration tools for exchanging information, some of the virtual team's qualities apply to them as well. Although everyone of this site's user's daily work revolves around their local tasks.

"It is worth mentioning that virtual teams are often formed to overcome geographical or temporal separations [9]. Virtual teams work across boundaries of time and space by utilizing modern computer-driven technologies. The term "virtual team" is used to cover a wide range of activities and forms of technology-supported working [10]. Virtual teams are comprised of members who are located in more than one physical location" (Ebrahim etc. 2009)

3.4 Pros and cons of virtual team

The availability of a flexible and configurable base infrastructure is one of the main advantages of agile virtual teams. Virtual R&D teams which members do not work at the same time or place often face tight schedules and a need to start quickly and perform instantly. On the other hand, virtual teams reduce time-to-market. Lead Time or Time to market has been generally admitted to be one of 3 the most important keys for success

in manufacturing companies. Table 1 summarizes some of the main advantages and Table 2 some of the main disadvantages associated with virtual teaming. A number of potential drawbacks associated with virtual teams have been reported. These include ineffective communication in the absence of nonverbal components of messages, lack of leisure time for team members because they tend to be overloaded with work, resistance to the unstructured nature of the team, loss of vision, security concerns in the online environment, lack of permanent records, too many members on some teams, and added pressure due to overemphasis on speed. Other reported obstacles that can hinder the performance of virtual teams are multiple time zones, different languages, and different approaches to conflict resolution. Regarding conflict resolution, group members have face-to-face opportunities to immediately and directly discuss conflicts and problems with each other, but virtual teams do not possess such opportunities. Furthermore, in virtual teams, lack of intimacy and the possibility of having site-specific cultures could lead to some conflicts. However, a carefully designed and implemented virtual team can offer benefits. These benefits include improved productivity, reduced cost, increased competitive advantage, and improved customer service and improved business process, flexible working hours for employees, elimination of time-consuming travel to a central office, support of cross-functional and cross-divisional interactions, potential for expanding labor force, flexibility in work scheduling, speedy dissemination of information, and enhanced knowledge sharing within organizations. Stevenson and McGrath (2004) presented evidence to confirm that major companies in the United States—Hewlett Packard, General Electric, IBM, and US West—have benefited through substantial productivity increases by using virtual teams. Other benefits are the possibility to recruit talented employees, stimulate creativity and originality among team members, create equal opportunity in the workplace, and discourage age and race discrimination. In particular, for software projects, advantages of virtual teams include the possibility of having a qualified labor force, speed in the product development cycle, having more flexibility in resource allocations, and taking advantage of the availability of a pool of expertise regardless of location. The Human Resource Management International Digest presented a similar set of benefits—phenomenal cost savings from not having face-to-face meetings, speedy dissemination of information, enhanced knowledge sharing within the agency, good customer relationships, flexibility on recruitment, talented workforce regardless of distance, and flexible scheduling. A summary of the benefits of virtual teams discussed here is presented in Table 2. Note that some of the benefits may have some negative effects, while some of the drawbacks may have some positive effects. For example, too many virtual team members

may be a drawback for communication, but at the same time it could be a benefit to speed up product development. Similarly, diversity of the workforce facilitates creativity, while also having a negative effect on communication.

Furthermore, this classification (advantages and disadvantages) is subjective. For example, “virtual teams can create equal opportunity in the workplace” is debatable, and “flexibility in work schedules” may be dependent upon the situation. Teams in General Design and support of teams are vital in leading any team. Three key considerations to decrease the adverse effects of teams are (1) the team has to be a clearly bounded group of people with a shared collective responsibility for the outcome, (2) the team leader has to establish basic norms of conduct and make these explicit, and (3) the reward systems of the organization have to recognize collective performance of the team. Other considerations are that team members need to have the required diversity of knowledge, skills, and experience; the team has to have the right mix of personalities or behavioral styles; and the team size is limited to less than 10. In a team, an individual who is not fit for the team could hinder the performance of the team.

Furthermore, in contradiction to the normal belief, harmonious relationships are often not a facilitator of team performance. Some literature on self-managed teams (SMTs) is also worth mentioning. Albert and Fetzer (2005) have considered team theories and summarized essential factors for team effectiveness:

- Skills, accountability, and commitment;
- Vision, creation of clear mission, development of goals, objectives, and action plans;
- Roles and goals, feedback, structure, problem solving, and relationships; and
- Team environment, team design, teaming process, and work process.

(Kuruppuarachchi 2009)

Table 1: Some of the main advantages associated with virtual teaming.

Advantages	References
Reducing relocation time and costs, reduced travel costs	[1, 19-29]
Reducing time-to-market [Time also has an almost 1:1 correlation with cost, so cost will likewise be reduced if the time-to market is quicker [30]]	[17, 18, 23, 24, 29, 31-38]
Able to tap selectively into center of excellence, using the best talent regardless of location	[1, 22, 24, 26, 39-43]
Greater productivity, shorter development times	[19, 35]
Greater degree of freedom to individuals involved with the development project	[44]
Higher degree of cohesion (Teams can be organized whether or not members are in proximity to one another)	[1, 45, 46]
Producing better outcomes and attract better employees	[6, 20]
Provide organizations with unprecedented level of flexibility and responsiveness	[13, 24, 28, 31, 36, 47-49]
Respond quickly to changing business environments	[21, 35]
Sharing knowledge, experiences	[50, 51]
Enable organizations to respond faster to increased competition	[47, 52]
Better team outcomes (quality, productivity, and satisfaction)	[46, 53]
Most effective in making decisions	[54]
Higher team effectiveness and efficiency	[17, 55]
Self-assessed performance and high performance.	[8, 56]
Cultivating and managing creativity	[12]
Improve the detail and precision of design activities	[57]
Provide a vehicle for global collaboration and coordination of R&D-related activities	[58]

Table 2: Some of the main disadvantages associated with virtual teaming.

Disadvantages	References
lack of physical interaction	[1, 20, 23, 54]
everything to be reinforced in a much more structured, formal process	[59].
Challenges of project management are more related to the distance between team members than to their cultural or language differences	[60].
Challenges of determining the appropriate task technology fit	[61, 62]
Cultural and functional diversity in virtual teams lead to differences in the members' thought processes. Develop trust among the members are challenging	[23, 56, 58]
Will create challenges and obstacles like technophobia (employees who are uncomfortable with computer and other telecommunications technologies)	[7]
Variety of practices (cultural and work process diversity) and employee mobility negatively impacted performance in virtual teams.	[8]
Team members need special training and encouragement	[63]

Figure 13. Advantages and disadvantages of virtual teams. (Ebrahim etc. 2009)

The main principle was to look for best practices about using SharePoint.

“Much of the value of virtual teams derived from members' ability to be in two places at once.”

“Each team member had areas of competence that were uniquely his or her own, and, inevitably, disagreements arose over matters within one person's area of expertise that had repercussions for other team members. But the clash of perspectives produced solutions instead of acrimony.”

“Trying to do the main work of the team through one to-one exchanges between members can cause those not included to feel left out, diminishing trusting the group and leading ultimately to dysfunction”

Emails cannot be copied to everyone because too many emails will cause that they will be deleted without reading and making controlling of them nearly impossible. (Majchrzak 2004)

4 Testing different features

For testing different features in SharePoint I was given owner’s rights to the Product Management site. I made my own sub site called Test for this purpose.

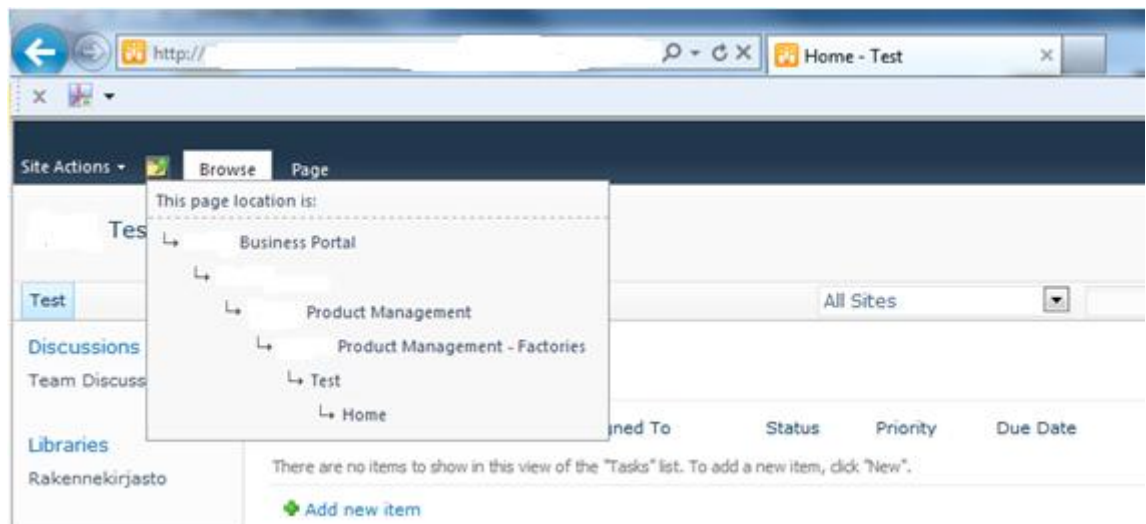


Figure 14. Screenshot of the test site.

I didn't make the address visible in the crumb path, so there was no link for this site. I wanted to make it practically invisible for other users due to its experimental nature.

Due to my broad rights at the parent site and years of work experience in the company X I had good understanding what kind of data would be hosted on the site. I browsed through the already existing information and interviewed my instructor for further vision.

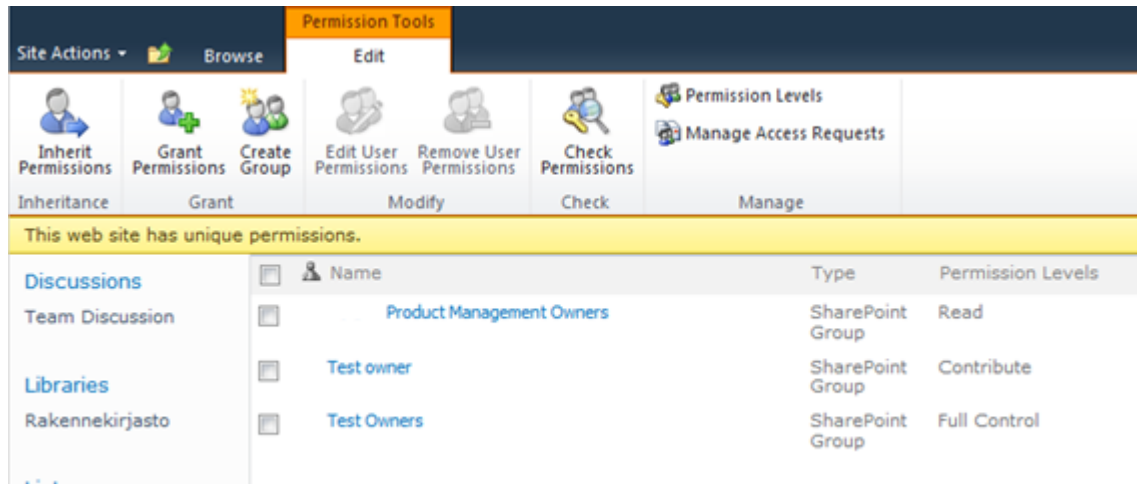


Figure 15. Permissions for the Test site.

All the screenshots in this thesis are either from the Product Management site or the Test site.

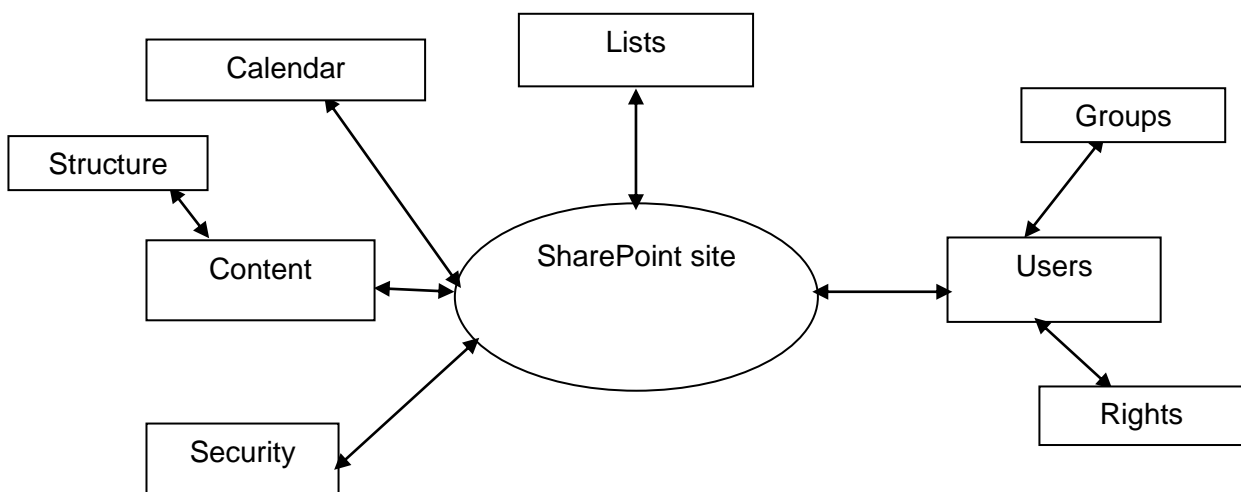


Figure 16. Idea map about the future site

Figure 16 represents the idea map of the things I would have to take in consideration when planning the future SharePoint site. On the left the boxes content and structure could be overlapping each other. When designing the layout, the structure of a library is based so strictly to the content what will be stored on that library.

5 Proposal

This proposal has been made based on the discussions with the users (Appendix 3. , Appendix 4 and Appendix 5.), literary review, theory about best practises of using SharePoint and answers to the questionnaire (Appendix 2. , Appendix 7. and Appendix 8.) The most important guidelines came from the users and best practises of using SharePoint.

Answers to questionnaire gave some insight about what content the site will have in the future, but the structural modifications would not fit to this thesis' scope. If the changes suggested in those answers would have been made, the entire way how to site operates would have changed completely.

The site already has some of the content the users are asking and rest of it will be added later on. The structural changes suggested will be suitable for hosting the future content as well.

My proposal is that the basic structure of the site would remain somewhat the same. The upper level (Product Management) would still remain only for people with owners' rights. Below that would be Product Management – Factories sub site which would be meant for content which can be handed to people with readers or visitor's rights.

Currently the site has a setting that documents can't be checked in and checked out. Since this option still enables the user to lock the latest version of the document for himself there is no need for changing that setting.

One of the most important features that need to be added is a web part to the main site so that users can see the documents which have been edited or created most recently.

<p>Name</p> <p>Type a name for this view of the document library. Make the name descriptive, such as "Sorted by Author", so that site visitors will know what to expect when they click this link.</p>	<p>View Name:</p> <p>Recently modified</p> <p><input type="checkbox"/> Make this the default view (Applies to public views only)</p>																		
<p>Audience</p> <p>Select the option that represents the intended audience for this view.</p>	<p>View Audience:</p> <p><input type="radio"/> Create a Personal View Personal views are intended for your use only.</p> <p><input checked="" type="radio"/> Create a Public View Public views can be visited by anyone using the site.</p>																		
<p><input checked="" type="checkbox"/> Columns</p> <p>Select or clear the check box next to each column you want to show or hide in this view of this page. To specify the order of the columns, select a number in the Position from left box.</p>	<table border="1"> <thead> <tr> <th>Display</th> <th>Column Name</th> <th>Position from</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td>Type (icon linked to document)</td> <td>2</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Name (linked to document)</td> <td>5</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Edit (link to edit item)</td> <td>6</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Name (linked to document with edit menu)</td> <td>7</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Modified</td> <td>8</td> </tr> </tbody> </table>	Display	Column Name	Position from	<input checked="" type="checkbox"/>	Type (icon linked to document)	2	<input checked="" type="checkbox"/>	Name (linked to document)	5	<input checked="" type="checkbox"/>	Edit (link to edit item)	6	<input checked="" type="checkbox"/>	Name (linked to document with edit menu)	7	<input checked="" type="checkbox"/>	Modified	8
Display	Column Name	Position from																	
<input checked="" type="checkbox"/>	Type (icon linked to document)	2																	
<input checked="" type="checkbox"/>	Name (linked to document)	5																	
<input checked="" type="checkbox"/>	Edit (link to edit item)	6																	
<input checked="" type="checkbox"/>	Name (linked to document with edit menu)	7																	
<input checked="" type="checkbox"/>	Modified	8																	

Figure 17. Screenshot from the settings of creating a view

When this view is added to the main page the users can see which documents have been updated most recently and can quickly catch up with the latest changes.

The current assumption is that the amount of documents will increase the site substantially. This is why more metadata columns should be added so that in the future searching documents based on the metadata information the search times would be short.

At the moment current site utilizes folders for organizing documents. When there are enough columns for organizing documents there is no need for folder structure. Besides, the SharePoint site collection itself is constructed by adding more levels under existing ones. Folders can make controlling rights much easier, yet my suggestion is that all the folders will be removed and files are tagged with additional info so the searching is still fast and easy.

In the figure 18 is the view when the document is being saved and the user needs to add a tag to the document. Drop down list is the fastest and easiest way to make the user label their documents.

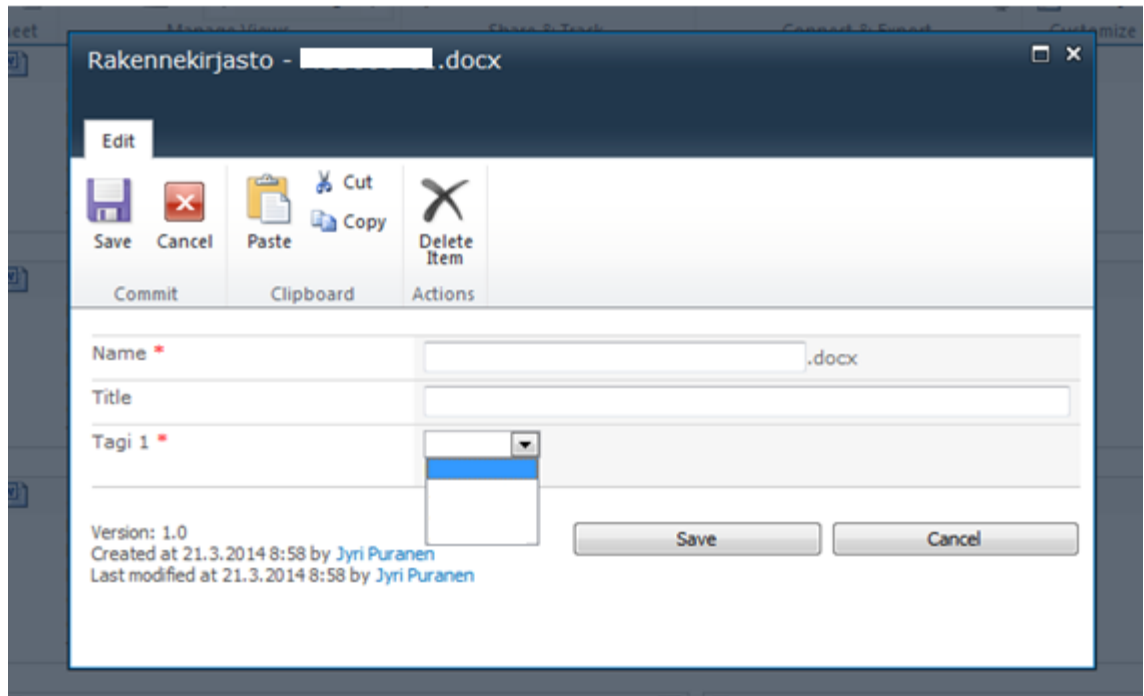


Figure 18. Screenshot selecting a tag for the document

In the figure 19 are the settings for Rakennekirjasto library. Tagi 1 has been set as mandatory tag to the document.

Column (click to edit)	Type	Required
Title	Single line of text	
Tagi 1	Choice	✓
Created By	Person or Group	
Modified By	Person or Group	
Checked Out To	Person or Group	

[Create column](#)

Figure 19. Screenshot of the columns

In the figure 20 is the view in the library main page, this is how the users see the documents and the columns.

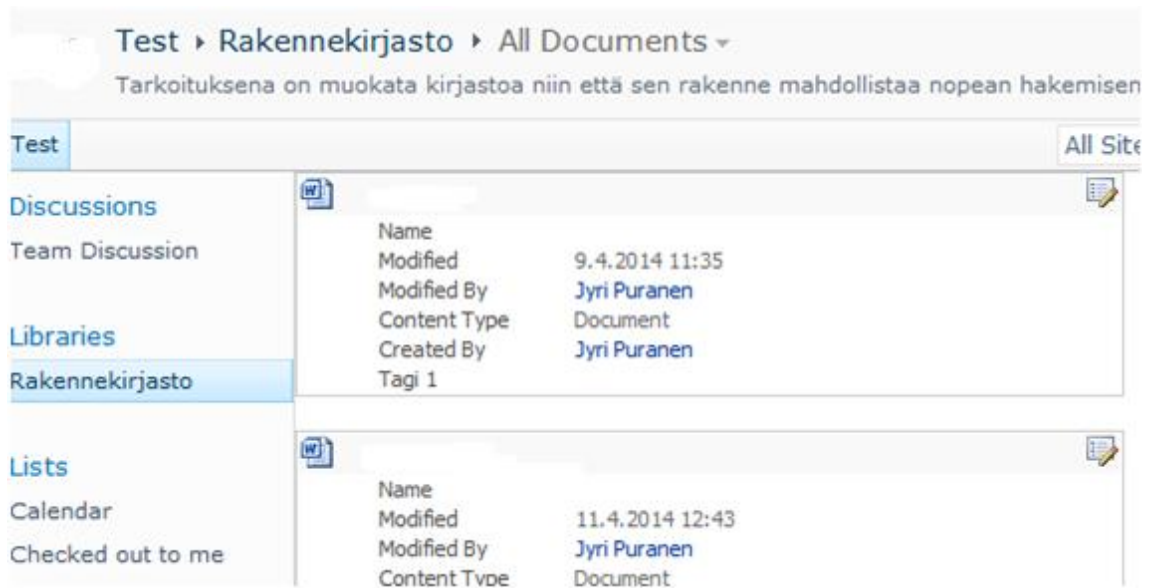


Figure 20. Screenshot from the Rakennekirjasto

The proposal has been made by using the Test site for visual examples how the modifications would look on the Product Management site. Only administrator of that site has enough rights to make these modifications to that site.

Here's the list for the proposed suggestions:

- Sub site Product Management – Factories will have content only for users with reader's or visitor's rights
- Keep the setting that disables document check-in and check-out
- Creating a web part which shows the documents which have been modified most recently
- More columns need to be added on documents
- Folders need to be removed from the site and rely on metadata columns on searching files
- When saving documents, users have to tag their documents before they can be saved to the SharePoint site

6 Conclusions

6.1 Summary

Overall the whole process of thesis turned out more theoretical than planned. The original goal of a fully functional SharePoint site wasn't achieved, I was only able to turn in an example of how the future site should look. This was due to the fact that I was not experienced enough using SharePoint. Because the entire software is based on modifications on already existing basis, making a functional SharePoint site would have required much more experience using the software itself and a lot deeper understanding about the content which the site will be hosting in the future. I would have needed more information about having owners or even administrators rights to a SharePoint site. In addition the information that is hosted on those sites requires comprehensive knowledge before it can be determined who can access to which documents and files.

Looking back I wouldn't choose this topic for my thesis again. Then again, doing a thesis for my current and hopefully a longtime employer skipping an opportunity like this would seem stupid. I was looking for something new to learn, this topic turned out to be too challenging. There are still many things I don't know about using SharePoint. I found it very interesting to learn what kind of solutions there are for sharing information for professional usage. SharePoint itself is very potent tool for collaboration and it is constantly developing. I am pretty sure I will use SharePoint in my future career at least as a contributor so I am thankful that I got this possibility to get to learn this software.

6.2 What I learned

I learned some very important principles which are always useful when sharing information. Even though some of the lessons in the literature sound very simple, they might need lots of work before they will actually work in practice.

SharePoint is a very versatile platform. The heaviest part of this thesis was about learning how to use the SharePoint's functions. There are very good tutorials found in books, online courses and in videos yet before anyone can plan how to organize content with those features, the user has to have discovered the features by themselves.

Seeing an already existing solution does not prepare the designer as well as traditional trial and error method.

If there's one lesson I will take from all of this, it will be setting a scope. When the deadline has been set far to the future without actual need, setting a scope will eventually define the projects natural end date. If I had planned the content more carefully, my deliverables would have been much more meaningful.

6.3 Evaluation

This thesis falls short of the original goal. The first goal was too high to be achieved when considering it was meant to be done as an engineer's thesis. I didn't realize it soon enough and wasn't able to adjust the thesis to the new scope. This thesis isn't nearly as useful as fully functional SharePoint site would have been. This was one of the fundamental errors made in the process of this thesis.

The proposal required dual input; skills in using SharePoint in general and in depth knowledge about content and users. The proposal itself can be used effectively to improve the existing site. In order to produce more practical proposal I would have needed more experience about product management. Even as it is, this thesis required lots of effort. Execution was done moderately, a very high skill level is needed for creating an optimal SharePoint site for a customized need.

This thesis can be used as basis when building a fully functional SharePoint site.

References

Antonovich, Michael P. 2010. Office and SharePoint 2010 User's Guide: Integrating SharePoint with Excel, Outlook, Access and Word. Apress ®.

Bruns, Hille C. 2012. Working Alone Together: Coordination In Collaboration Across Domains Of Expertise. Academy Of Management Journal.

Bunduchi, Raluca. 2009. IMPLEMENTING BEST PRACTICES TO SUPPORT CREATIVITY IN NPD CROSS-FUNCTIONAL TEAMS. Internal Journal of Innovation Management.

Configure SharePoint server. Microsoft corporation.

<http://technet.microsoft.com/en-us/library/gg266385%28v=office.14%29.aspx>

[Accessed 12th of April 2014]

Ebrahim, Nader Ale. Ahmed, Shamsuddin. Taha, Zahari. 2009. Virtual Teams and Management Challenges. Research Gate.

Fenz, Stefan. 2012. Increasing knowledge capturing efficiency by enterprise portals. Emerald Insight.

Gong, Yaping. Kim, Tae-Yeol. Lee, Deog-Ro. Zhu, Jing. 2013.

A Multilevel Model of Team Goal Orientation, Information Exchange, and Creativity. Academy Of Management Journal

Kuruppuarachchi, P. R. 2009. Virtual Team Concepts in Projects: A Case Study. Project Management Journal

Majchrzak, Ann. Malhotra, Arvind. Stamps, Jeffrey. Lipnack, Jessica. 2004. Can Absence Make a Team Grow Stronger? Harvard Business Review.

Mortensen, Mark & O'Leary, Michael. 2012. Web document. Managing a Virtual Team

<http://blogs.hbr.org/2012/04/how-to-manage-a-virtual-team/>

[Accessed 15th of January 2014]

SharePoint 2010 Evaluation Guide. Microsoft Corporation.

http://www.gowi.rs/download/SharePoint_2010_Evaluation_Guide.pdf

[Accessed 7th of May 2014]

SharePoint 2010 Usage Best Practices. 2010. Microsoft Corporation.

<http://www.simplsharepoint.com/ResourceFiles/SharePoint%202010%20Usage%20Best%20Practices%20WhitePaper.pdf>

Skok Walter. Clarke, Kevin. Krishnappa, Sandeep. 2013. Managing Organisational Knowledge: A Case Study of a Global Energy Consulting Group. John Wiley & Sons, Ltd.

Raymond, Dux. 2009. Best Practices in Gathering Requirements for SharePoint Projects. Web document.

<http://www.slideshare.net/meetdux/best-practices-in-gathering-requirements-for-sharepoint-projects>.

[Accessed 7th of January 2014]

Raymond, Dux. 2010. Web document. How to Define Measurable and Traceable Requirements for SharePoint Projects.

<http://www.cmswire.com/cms/enterprise-cms/how-to-define-measurable-and-traceable-requirements-for-sharepoint-projects-008223.php> [Accessed 24th of March 2014]

Users Guide Microsoft Office and SharePoint. Microsoft Corporation.

<http://www.slideshare.net/aiyarin/microsoft-office-and-share-point-2010-users-guide>

[Accessed 5th of March 2014]

Screenshot from settings at the SharePoint site

Permissions

You can give permission to access your new site to the same users who have access to this parent site, or you can give permission to a unique set of users.

Note: If you select **Use same permissions as parent site**, one set of user permissions is shared by both sites. Consequently, you cannot change user permissions on your new site unless you are an administrator of this parent site.

User Permissions:

- Use same permissions as parent site
- Use unique permissions

Questionnaire for SharePoint users

Dear All,

One of the themes to improve is collaboration with factory product management teams and local sales unit product management. One concrete example of this is our Sharepoint site that we want to develop further, give access to selected Product Managers in factory units and that way share more information as well as improve transparency.

In order to ensure that the Sharepoint will be easy to use and relevant information or documents are available we would ask you to spend couple of minutes and give your opinion to following questions.

What kind of information you wish to be stored in this site?

What kind of properties you think this site should have?

Are there requirements for specific search scopes? Such as Documents, Projects?

Are there requirements for people search?

Any other idea or proposal that we should consider?

Please reply to jyri.puranen@metropolia.fi by Friday April 11th.

In case you would like to have more information about this topic, please give me a call or send an e-mail.

Thank you in advance!

Meeting 1

Date..... 30.1.2014

Attendees..... Product manager

Topic..... Briefing

Content discussed

- Chosen platform is Microsoft SharePoint
- Amount of users ~50
 - Located in many different countries
- Site will host any kind of content about product management
- Underlying problem is how the information should be more spread through these countries
- I will be given access to current SharePoint site

Meeting 2

Date 11.3.2014

Attendees Product manager

Topic Current SharePoint site content

Content discussed

- Currently the rights to the site are given individually
- No existing groups for assigning rights
- Vacations should be seen in the site
- Calendar should contain as much information as possible
- Yearly clock
 - Data about quarterly actions
 - Data about monthly actions

Meeting 3

Date 17.3.2014

Attendees Product Manager

Topic Current SharePoint site content

Content discussed

- Sites are mostly created without already existing template
 - Requires lots of modifications later on
- Libraries should have columns in them
 - Mandatory metadata makes searching easier
- Any kind of content about product management

Meeting 4

Date 26.3.2014

Attendees Product manager

Topic Goal of the thesis

Content discussed

- The deliverable will be a proposal instead of fully functioning site

Screenshot of the questionnaire answer from a user 1

Dear

Some suggestion from our IT side, the idea is create a forum base share point, for each product we should have a different page, with 2 main categories, forum base and share point base.

As forum, below each prouduct, there should be a technical discussion between see the answeres if they like they can comment, must answer to each topic in any case, should categorize the topics in the way that can easilly select the topic needed in a specific moment. In this way we avoid that each make same quetion to , we loose much less time compare now and we are able to be more fast to solve our matters on the products

As share point, below each product we should have the latest informations: product commercial presentation (last version), product technical presentation for training new customers, latest FW release with clear info about the changed issues, latest version of HW, FW latest version of catalogues, tricks founded in some specific case or country that other can use and copy, latest news on work in progress about the product, latest bugs founded and clear plant and forecast to solve it, tables, list of official succes cases, technical template list for basic use (example how to do a setting, ecc), video tutorial for ecc..

What do you think about this idea?

Tks, BR

Screenshot of the questionnaire answer from a user 2

Dear

During new generation product launching period in the next future year, the most important thing I care about is the new product information.

I think the new Sharepoint site should be organized by product in very detailed way including all portfolio such as:

- roadmap
- ramp-up&ramp-down plan
- release note
- order information/Catalogue
- product/sales presentations
- Marketing promotion documents
- Compatibility of sw
- Certificates and Standards
- application case
- reference list
- Internal instruction(hints,.....)
- Q&A(local feedback vs. answer in time)
- People responsibility list(who responsible provide support to local)
-

BR\