SCRUM and OFFICE365 Applied in Enterprise Knowledge Management

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Abstract. With the rapid development of information and mobile technology, the way people acquire and use knowledge in their daily work and life is undergoing tremendous changes. The manufacturing enterprises are facing many knowledge management issues: people retention; information island; inefficient knowledge sharing. This paper aims to give enterprise managers a guide on how to implement knowledge management system based on the OFFICE365 platform and the SCRUM approach.

Introduction

The enterprises can only achieve higher product quality and more efficient production operations to survive and fight in the long run by continuous innovation, and effective knowledge management is a necessary condition for it [1,2]. The traditional knowledge management research is more focused on the underlying principles and methods of knowledge management. On one hand, it has a great distance from the actual application for the enterprise daily management. On the other hand, it relies heavily on the IT staff to build a knowledge management system. The development of Internet technology has made people's access to knowledge and the carrier of knowledge are undergoing earth-shaking changes. Knowledge can come from files, web pages, or emails, as well as information from WeChat, APP, and more. How companies use the knowledge to gain above to meet the needs of the company's current and future operations and growth is a growing concern for companies. By analyzing the studies from China and abroad, it is found that most researches focused on the basic technology or on the knowledge management theory itself [3-5]. however, it's more important for managers to recognize a good knowledge management system and how he/she will implement it in the company together with some new management changes. This paper will help enterprise managers to understand the knowledge management functionalities of OFFICE365 platform and how it works together with SCRUM methodology to implement the knowledge system in a manufacturing company.

What Is Enterprise Knowledge Management

Knowledge Management Definition

In 2015 made analysis based on more than 100 different kinds of knowledge management definitions from different domains[6]. If considering the key words that appear at least 14 times then following definition is given: Knowledge Management is the process of creating, capturing, sharing, using and managing the knowledge and information of an organization.

The SECI Model for Enterprise Knowledge Management

The SECI model was originally developed by Ikujiro Nonaka[7].The model distinguishes four knowledge dimensions—socialization, externalization, combination, and internalization. Tacit to Tacit (Socialization)—This dimension explains Social interaction as tacit to tacit knowledge transfer, sharing tacit knowledge face-to-face or through experiences. For example, meetings and brainstorm can support this kind of interaction. Tacit to Explicit (Externalization)—Between tacit and explicit
knowledge by Externalization (publishing, articulating knowledge), developing factors, which embed the combined tacit knowledge which enable its communication. For example, concepts, images, and written documents can support this kind of interaction. Explicit to Explicit (Combination)—Explicit to explicit by Combination (organizing, integrating knowledge), combining different types of explicit knowledge, for example building prototypes. The creative use of computerized communication networks and large-scale databases can support this mode of knowledge conversion. Explicit to Tacit (Internalization)—Explicit to tacit by Internalization (knowledge receiving and application by an individual), enclosed by learning by doing; on the other hand, explicit knowledge becomes part of an individual's knowledge and will be assets for an organization.

**SCRUM Applied in Knowledge Management**

**SCRUM Introduction**

SCRUM is based on the principles formulated in 1986 by Takeuchi and Nonaka. Many successful companies adopted Scrum and started to build Scrum teams including Yahoo!, Google, Microsoft, Motorola, Cisco and many others [8]. In SCRUM all the responsibility is taken from the project manager. There is no centric organization present and all goal settings, motivation and output delivery responsibility is transferred on the shoulders of the whole team. This situation allows team members to be creative, responsible and finding solutions to emerging problems and knowledge gaps. The main principles of SCRUM is this list: 1) the team is given clear goals; 2) the team organizes itself around the work; 3) the team regularly delivers the most valuable features; 4) the team receives feedback from people outside it; 5) the team reflects on its way of working in order to improve; 6) the entire organization has visibility into the team’s progress; 7) the team and management honestly communicate about progress and risks.

**SCRUM and SPRINT Management**

Some important practices are the Daily SCRUM meeting and SPRINT management. Daily SCRUM normally organized by project manager or team leader, and it is often standup meeting. SPRINT review includes the product owner and relevant stakeholders, it’s important to recognize the knowledge gaps and set the target for the coming sprint.

![SCRUM management process](image)

**Office 365 Applied in Knowledge Management**

**Office365 Introduction**

Office 365 is a new-generation office collaboration platform that can help customers quickly build system that encourages employee’s innovation [9]. The new generation of collaborative technologies uses a unified technical architecture and standardized infrastructure components to provide common communication and collaboration capabilities, enterprise content management capabilities, and business analysis capabilities to help companies reduce the complexity of building, managing, and maintaining office collaboration platforms. At the same time, help enterprise to achieve knowledge accumulation, stimulate the potential of employees, and enhance the ability of enterprises to innovate.
A new generation of collaboration platforms helps companies enhance employee communication and collaboration, optimize business processes, enhance business insight, and provide employees with an innovative work environment.

Table 1. Office365 applications and their knowledge management features.

<table>
<thead>
<tr>
<th>Application</th>
<th>Features</th>
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</thead>
<tbody>
<tr>
<td>Outlook</td>
<td>Besides the email function, users can create GROUP in outlook. GROUP members can share a mail and can share a discussion, there is SharePoint site automatically created for the team member to share documents and manage tasks</td>
</tr>
<tr>
<td>Skype</td>
<td>It is a tool for instant chatting, screen sharing, remote audio/video meeting. It makes remote team communication much easier, the mobile APP allow user to share screen or document during Skype meeting.</td>
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<tr>
<td>OneNote</td>
<td>It provides comprehensive information collection function. User can make simple drawings, write text, make simple calculation, create simple table in the same page. The OneNote APP allow user to record ideas anywhere anytime. OneNote is also linked to outlook, SharePoint and Wechat.</td>
</tr>
<tr>
<td>OneDrive</td>
<td>It is personal document management tool, both in cloud and mobile APP. It allows user to upload document or pictures easily. And the search function allow user to search the very detail content, not just the titles. This will increase the knowledge reuse very much. Users can search contents from 10G files in 1S, and</td>
</tr>
<tr>
<td>SharePoint</td>
<td>It provides the powerful team document and list management. The knowledge search function can cover document contents, list items and so on. There are imbedded document revision and approve management process. The access right management allows user to share data with people outside of the organization. It has many other useful APP(e.g. Calendar, Event, Activities, News etc) which can help use to create a team knowledge management site easily</td>
</tr>
<tr>
<td>Delve</td>
<td>It connects all OFFICE365 applications (e.g. outlook, OneDrive, SharePoint, OneNote) so that user can easily find who is working on what. And which files is most popular. User can also create tag for any documents. User can also find the expert in the organization who has the certain knowledge.</td>
</tr>
<tr>
<td>Yammer</td>
<td>It creates enterprise social network by many online group discussions. Colleagues can create a Yammer group for a project, a department. It makes support work more transparent, and make employee more willing to contribute knowledge in a transparent environment. Yammer has tag function for documents and for conversations. If some colleague leaves the company, the discussions can still be found.</td>
</tr>
</tbody>
</table>

Office365 Applied in Knowledge Management

For the mentioned components, they can work together to form a system for knowledge management. Based on the definition of knowledge, the critical factors are knowledge creation, capturing, sharing and using, Fig. 2 shows how the OFFICE365 can map the need.

![Figure 2. OFFICE365 APPs and knowledge management steps.](image-url)
Fig. 3 shows that from SECI point of view, the tools that can be used how company can set up and speed up the “socialization” “Externalization” “Combination” and “Internalization”.

Knowledge Management System Design and Implementation

Requirement

EM company is an international company which has many branches over the world. The project management model in EM is following the Gate model which takes long time to release a huge complete product, knowledge sharing is inefficient. The basic need of knowledge management is: 1) Team members are self-organized and recognize knowledge gaps by themselves; 2) Team members are willing to share knowledge in a transparent way; 3) Team members organize their own knowledge in a way that is easy to share; 4) Easy for searching knowledge for everyone; 5) Easy to know Faster for getting project/team updates; 6) Team members be more willing to share knowledge.

System Design and Management Practices

Personal Knowledge Management. All team members are trained with OFFICE365 basic functions, and got clear guideline how to use OneNote and OneDrive to manage personal documents and knowledge. Team leaders encourage team member to share knowledge in Daily SCRUM and in Yammer. Team leaders hold SCRUM meeting every morning. Employee gets motivated if there is feedback about their knowledge contribution.

Team Knowledge Management. For most teams, the basic function of sharepoint is to realize the document sharing. This can be achieved by adding “document library” APP inside sharepoint, it looks like a sharefolder which users are used to. The ACTIVITY APP can be added and configured to the home page, so that every team member can see the updates of the site knowledge, who has uploaded a new file, who updated certain file. (Fig. 4)

Daily SCRUM. By following the SCRUM approach, there is daily SCRUM arranged for team. Every team member needs to answer: 1) what was the achievement yesterday? 2) what’s the target today? 3) what are the obstacles in the way? Everybody spends 2-3 minutes to answer the questions, no comments allowed during speech. After the self-speech, the team can have short discussion. Team leader should recognize the knowledge gaps. The KANBAN is designed as below: the left side is the most important target for the current Sprint, including the knowledge gaps. The remaining two columns records the key points during every morning’s SCRUM meeting. (Fig. 5)
**SPRINT Management.** According to SCRUM approach, the sprint management allows team to plan the tasks and complete them on a regular basis. Sharepoint has the standard APP called Planner (Fig. 5). User can make configuration to use it as a sprint management tool. The knowledge gaps recognized are listed in the sprint Backlog. After product owner filter them, the team member can work on it and write it on the Daily KANBAN and then review the status every day. For remote teams, the skype remote video call and SharePoint is used to share project progress and knowledge gaps or achievement every day.

**Cross Team Corporation.** Sharepoint custom list APP can realize the technical support across teams, and the knowledge gaps can be recognized by the automatic report. Yammer is good tool for successful story sharing, general question asking, and global team cooperation. To encourage the whole team to use Yammer and get benefit from it, the product owner and main designers should update info and ask feedbacks regularly. All the discussions are archived automatically and the transparent communication will further increase the trust between each other, which is critical for international corporation.

**General Recommendations for Knowledge Management Implementation**

This chapter puts forward the general steps for enterprises to implement the knowledge management system for those manufacturing enterprises, with OFFICE365 platform as a knowledge management platform, and with SCRUM as daily management approach.

**Office 365 Basic training and Personal Knowledge Management**

To break the stereotypes of employees on the "new system", we need to start with the most basic and practical functions of Office365. Training is combined with actual cases, and you can also invite external OFFICE experts. The purpose of the training is to answer questions that people often encounter daily, and to give tips that can improve work efficiency. In this way, employees can be attracted to their attention and interest, they will feel valuable by learning more about OFFICE365 and make improve for his own and his colleagues.

**SCRUM and SharePoint Training for and Team Knowledge Management**

Company management can decide that all new projects and new teams must manage information and knowledge through the OFFICE365 platform, especially in SharePoint. So project managers are required to have basic capabilities to set up a project SharePoint site, where he/she can make the SPRINT management, document management, knowledge sharing. He can also set up a Yammer group for team members to discuss and update.

**Rolling out Knowledge Management for Departments and Teams**

New projects and new teams are good start to influence more other teams and give management confidence to leverage the good practice in a company level. The systematic knowledge management platform is recommended to start from the technology department. Since it consists of big volume of
information and knowledge, and normally engineers can feel the benefit of knowledge management. Socialization tools and remote SCRUM can be implemented for sales teams, especially the sales training and product updates. It is recommended that sales use mobile OneNote, OneDrive, etc. to manage personal knowledge, team information through SharePoint, seamless communication through Yammer and colleagues around the world.

**Enterprise Level Knowledge Management**

With the experience from 6.1 to 6.3, company can recognize the knowledge management pioneers in each team, and the good practices are also collected. Then managers can think of setting up company level knowledge management team and build up the system together with culture changes.

**Summary**

This paper starts with the analysis of the actual needs of knowledge management in manufacturing enterprises and is combined with several components and functions that can be used for knowledge management in the Office365 platform, such as SharePoint, OneDrive, OneNote, Yammer, etc. The article also shows how to use the OFFICE365 platform and the SCRUM method to build a project team's knowledge management system through practical case. The paper also provides with practical steps to implement knowledge management for manufacturing enterprises.

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**References**


