

A Computer Supported Collaborative Work Tools Review

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Abstract. Computer Supported Collaborative Work is made of Collaborative Work and Communication Technologies, this concept affects the way that a group of connected people work and organize in such a way that some tools are needed to make the process flow easily. This kind of knowledge becomes necessary to achieve better results of the teamwork. Our purpose is focused in presenting different kinds of CSCW tools to make a clear distinction of each one.

Keywords: CSCW · Tools · Communication Technologies · Software

1 Introduction

Some functions like, video conferencing, shared documents, message exchange and others, are examples of Computer Supported Collaborative Work (CSCW). Those functions are part of a large group of successful platforms, being used from basic situations to medicine. Also, the CSCW allows users to work in a synchronous and asynchronous ways. [1][2].

The article will be presented CSCW concepts and a short review about five tools, to know, Zoho Projects, Slack, Adobe Connect, Trello and Pipefy.

This article is organized in four sections, the introduction contextualizes the use of CSCW (Section I), then it talks about the fundamentals of computer supported collaborative work and also explain the difference between collaborative work and communication technologies (Section II). After this, it explains the main functions and features of chosen CSCW tools (Section III). Finally, the conclusion talks about how effective the CSCW tools could be.

2 Fundamentals of Computer Supported Collaborative Work

For a better understanding of the topic, we can separately define collaborative work and communication technologies.

2.1 Collaborative Work

According to [3], collaborative work systems are strategies applied in groups of people, for them to work together in a more efficient way, where anyone can cooperate in several organization's subjects. Using this kind of system, organizations are able to solve problems more effectively because of the interaction among different libraries of employee's knowledge and their unique perspective.

2.2 Communication Technologies

According to [4], communication technology exists for people to communicate in an asynchronous way, so anyone is able to send and receive a message in a convenient time and in a convenient device. This fact leads people to work anywhere they want.

The technology has changed the way communication works, it brings the possibility of a human interacting with some device and the device to interact with the human, like a two-person communication. This technology can potentially reach many more people than face-to-face interaction.

3 Communication and Collaborative Work Tools

This section presents the use of five different tools, their main features and advantages and disadvantages.

3.1 Zoho Project

Zoho Projects is a suite with about 40 integrated tools to run several common business processes, like sales, marketing, finances, mail and collaboration, help desk, human resources and other managements. Which includes mobile, desktop and web apps.

The sales and marketing apps include CRM, survey, forms, sites, mail marketing and contact managements. It claims to help to close more business deals in less time [5].

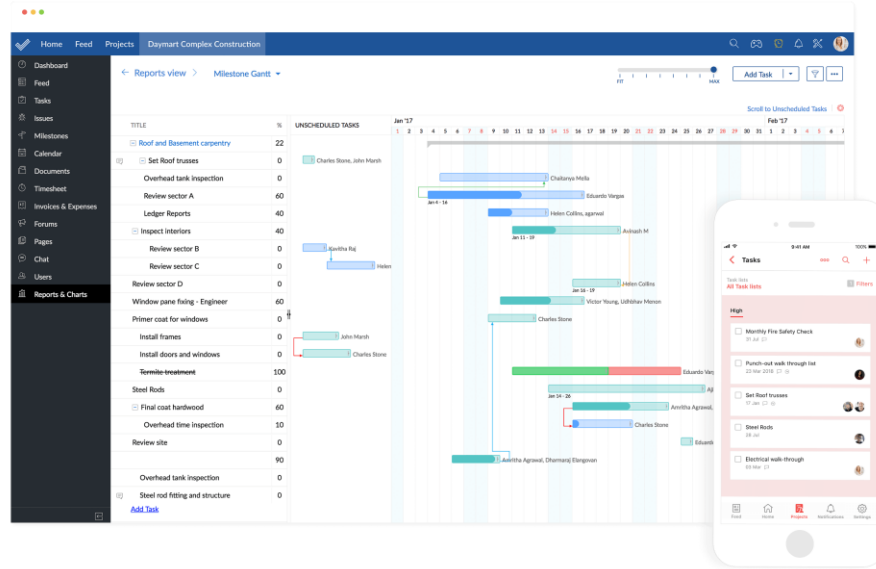
The finance has accounting apps, like: Zoho Books, a accounting tool; Paypal and others payment tools integration; Zoho expense, which is a easier way for employee to report their expenses; Zoho Inventory, for companies to stay on top of their stock flow; Zoho Subscriptions, a customer subscriptions manager.

Email and collaboration apps aims to empower the collaborative way of work. It includes mail server, cloud storage, document app, spreadsheet app, presentation app, wiki management, project planner, notes app, team chat, agile methods app, bug manager and others.

Those are the main Zoho apps, but there is also: the help desk, which is an app to talk and solve the customers problems; the human resources app takes care of employee's database, travel management, recruitment and others.

Zoho seems to be a very resourceful tool, which includes several apps for integrated work through the main company's departments. Follows Figura 1 which is a Zoho's snapshot app.

Fig. 1. Zoho Projects main window



3.2 Adobe Connect

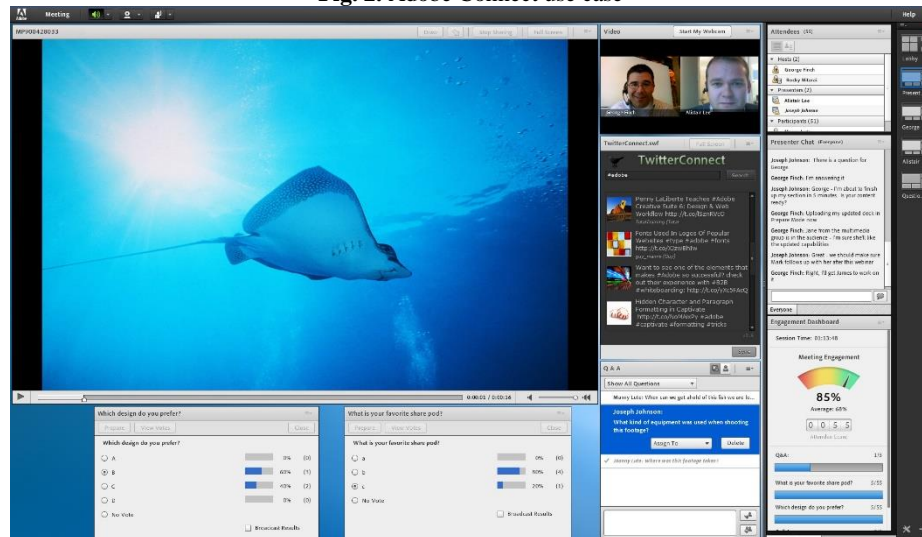
Adobe Connect is software for video conversations, as we see in Figure 2. Through web conference, the program offers the possibility of web meetings, classes or even webinars, facilitating the understanding of the users [6].

The software is divided into three versions: meetings, webinars and learning, available in variable prices.

- Meetings - Adobe Connect Meeting includes a possibility of access through different devices, as well as video editing and recording tools, always with security and privacy guarantee.
- Webinars - This service guarantees all the tools of its previous version besides delivering a more immersive experience and guarantee a complete events personalization.

- Learning - It also has all the advantages of its previous version, as well as an efficient way of managing classes. This version also has mobile compatibility.

Fig. 2. Adobe Connect use case



3.3 Slack

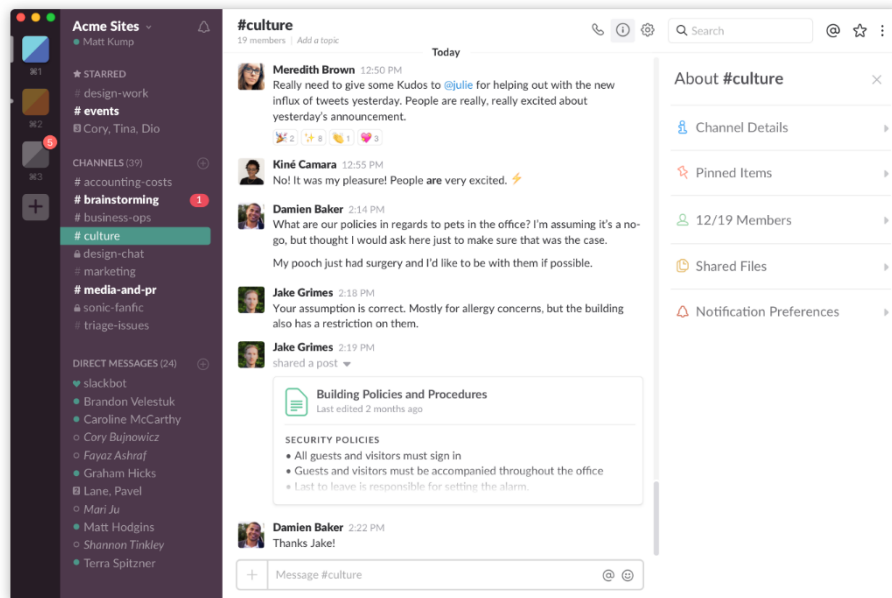
As [7] shows, Slack's main purpose is group work, connecting teams through applications, services and resources. With the Slack Workspace, the owner of the workspace can recruit an administrator to organize and lead a team, in this way both can invite more members to the team.

In order to facilitate the explanation, we can split Slack into five parts, “teams and workspaces”, “channels”, “messages”, “search” and “notifications”.

- Teams and workspaces – These areas are for people who work on a project every day. In Slack workspace the team makes the communication between its members with the purpose of finishing a certain work. In big companies there are several Slack Workspaces, being connected to each other, but worked independently.
- Channels – Slack Workspace is composed of several channels. It is in this channels that conversation takes place in an organized way. They can be private or public, making confidentiality easy for certain subject.
- Messages – All communication in Slack works with the use of messages, they also can be “direct messages”, facilitating communication with a particular person on your team.
- Search – Everything in Slack is searchable, messages and files.
- Notifications - Slack warns you of something that deserves your attention, as well as the possibility of notifications on your desktop. They can be customized, making channel priorities easier.

The Figure 3 shows the main window of Slack's page.

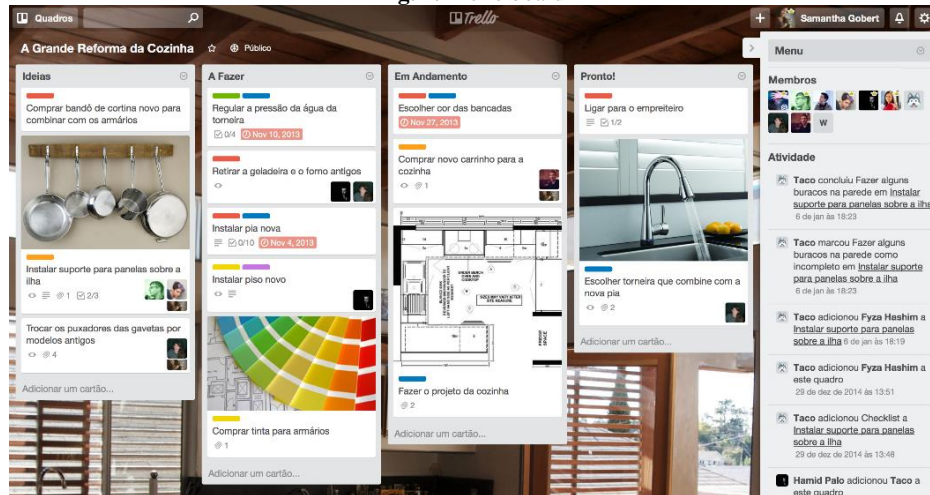
Fig. 3. Slack's main window



3.4 Trello

Trello works as a tool for organizing work in companies [8]. Through their main panel, the boards contain cards that are organized in the form of tasks, and these can be divided among the specific members of a team, as we can see in Figure 4.

Fig. 4. Trello board



Initially, the tool indicates that we can choose a team. This means that we can invite other users to join the boards that will be made.

After the team is chosen, it becomes possible to develop different boards, which can represent different processes, departments, projects or anything else that the user wants. At this point it is possible to assign specific members to different boards. Within each board are added the lists, which in turn can mean different steps or stages for the process of the board. The lists are organized horizontally and grow vertically.

Finally, within each list can be added cards. Cards represent the tasks that each list has and they can be transferred to other lists using drag and drop.

The cards have several important functions like:

- Description
- Attachments
- Check list
- Comments
- Labels
- Dates
- Team members

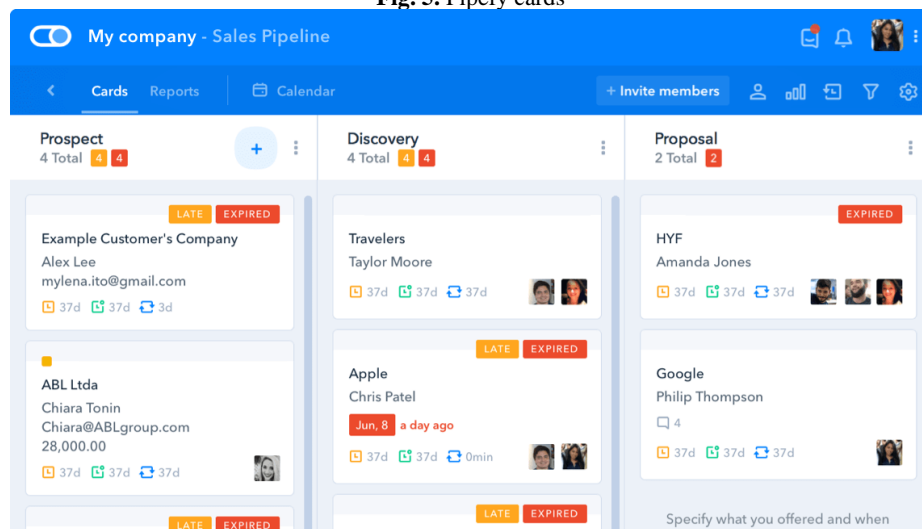
Finally, the notification system allows the user to know all the modifications made to the cards, which makes Trello an easy tool to be used by any user

3.5 Pipefy

Pipefy is a cloud-based process management platform. It allows to build and execute any type of workflow. It offers users to use the Kanban and Scrum methodologies for agile software development [9]. Pipefy connects with over 400 apps through Zapier.

Pipefy is organized with boards and cards as we see in Figure 5, it has a predefined for the Kanban methodology and also generate reports of the existing cards. It is used with teams. It also has a feature which allows to make databases made by custom tables and custom records. It has a personalized way to see the cards, where each user is able to see the cards attached to it.

Fig. 5. Pipefy cards



4 Conclusion

It is noticed that the use of CSCW could be made in several ways, making possible the usability of it in any kind of work area. This paper showed some examples of CSCW tools and its different purposes, prices and customers.

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