

Groupware

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Collaborative software (also referred to as groupware or workgroup support systems) is software designed to help people involved in a common task achieve their goals. Collaborative software is the basis for computer supported cooperative work.

Such software systems as email, calendaring, text chat, wiki belong in this category. It has been suggested that Metcalfe's law — the more people who use something, the more valuable it becomes — applies to such software.

The more general term social software applies to systems used outside the workplace, for example, online dating services and social networks like Friendster and Facebook. The study of computer-supported collaboration includes the study of this software and social phenomena associated with it.

Overview

Collaboration, with respect to information technology, seems to have several definitions. Some are defensible but others are so broad they lose any meaningful application. Understanding the differences in human interactions is necessary to ensure the appropriate technologies are employed to meet interaction needs.

There are three primary ways in which humans interact: conversations, transactions, and collaborations.

Conversational interaction is an exchange of information between two or more participants where the primary purpose of the interaction is discovery or relationship building. There is no central entity around which the interaction revolves but is a free exchange of information with no defined constraints. Communication technology such as telephones, instant messaging, and e-mail are generally sufficient for conversational interactions.

Transactional interaction involves the exchange of transaction entities where a major function of the transaction entity is to alter the relationship between participants. The transaction entity is in a relatively stable form and constrains or defines the new relationship. One participant exchanges money for goods and becomes a customer. Transactional interactions are most effectively handled by transactional systems that manage state and commit records for persistent storage.

In collaborative interactions the main function of the participants' relationship is to alter a collaboration entity (i.e., the converse of transactional). The collaboration entity is in a relatively unstable form. Examples include the development of an idea, the creation of a design, and the achievement of a shared goal. Therefore, real collaboration technologies deliver the functionality for many participants to augment a common deliverable. Record or document management, threaded discussions, audit history, and other mechanisms designed to capture the efforts of many into a managed content environment are typical of collaboration technologies.

An emerging category of computer software, a collaboration platform is a unified electronic platform that supports synchronous and asynchronous communication through a variety of devices and channels.

An extension of groupware is collaborative media, software that allows several concurrent users to create and manage information in a website. Collaborative media models include wiki (Comparison of wiki software) and Slashdot models. Some sites with publicly accessible content based on collaborative software are: WikiWikiWeb, Wikipedia and Everything2. By method used we can divide them into:

- Web-based collaborative tools
- Software collaborative tools

By area served we can divide them into:

- Knowledge management tools

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- Knowledge creation tools
- Information sharing tools
- Collaborative project management tools

The Three levels of collaboration

Groupware can be divided into three categories depending on the level of collaboration—communication tools, conferencing tools and collaborative management (Co-ordination) tools.

Communication can be thought of as unstructured interchange of information. A phone call or an IM Chat discussion are examples of this. Conferencing (or collaboration level, as it is called in the academic papers that discuss these levels) refers to interactive work toward a shared goal. Brainstorming or voting are examples of this. Co-ordination refers to complex interdependent work toward a shared goal. A good metaphor for understanding this is to think about a sports team; everyone has to contribute the right play at the right time as well as adjust their play to the unfolding situation - but everyone is doing something different - in order for the team to win. That is complex interdependent work toward a shared goal: co-ordination.

Electronic communication tools

Electronic communication tools send messages, files, data, or documents between people and hence facilitate the sharing of information. Examples include:

- synchronous conferencing
- e-mail
- faxing
- voice mail
- Wikis
- Web publishing
- revision control

Electronic conferencing tools

Electronic conferencing tools facilitate the sharing of information, but in a more interactive way. Examples include:

- Internet forums (also known as message boards or discussion boards) — a virtual discussion platform to facilitate and manage online text messages.
- Online chat — a virtual discussion platform to facilitate and manage real-time text messages
- Instant Messaging
- Telephony — telephones allow users to interact
- Video conferencing — networked PCs share video and audio signals
- Data conferencing — networked PCs share a common whiteboard that each user can modify
- Application sharing — users can access a shared document or application from their respective computers simultaneously in real time
- Electronic meeting systems (EMS) — a conferencing system built into a room. The special purpose room will usually contain a large video projector interlinked with numerous PCs.

Collaborative management tools

Collaborative management tools facilitate and manage group activities. Examples include:

- electronic calendars (also called time management software) — schedule events and automatically notify and remind group members

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- project management systems — schedule, track, and chart the steps in a project as it is being completed
- workflow systems — collaborative management of tasks and documents within a knowledge-based business process
- knowledge management systems — collect, organize, manage, and share various forms of information
- prediction markets — let a group of people predict together the outcome of future events
- extranet systems (sometimes also known as 'project extranets') — collect, organize, manage and share information associated with the delivery of a project (e.g.: the construction of a building)
- social software systems — organize social relations of groups
- Online spreadsheets — collaborate and share structured data and information.

Implementation

The biggest hurdle in implementing groupware is convincing people to use it. Training is required to make people comfortable using it, and if people don't feel comfortable with the software, they won't use it. Employees should be given incentives to contribute: the rewards could be either financial or psychological.

In many cases collaboration is at odds with the company's corporate culture so implementation will be disruptive. Shifting a corporate culture from being competitive to being cooperative is no small undertaking. It will require changes at all levels of the organization, including the CEO.

One of the biggest hurdles is the typical large enterprise desire to standardise knowledge practice across that enterprise and to implement tools and processes which support that aim. Much greater value and quicker implementation can be achieved by avoidance of the "one size fits all" meme. Driving people to adopt the same active role (for example: contribution measured by number of uploads) only produces the behaviour driven by the metric - "the game exists of the rules by which it is played". Cultivate the practice of collaboration where it flourishes of its own volition to gain the quickest return.

Voting methods

Voting has many uses in collaboration software. Condorcet voting offers input from multiple experts or perspectives and may reduce intransitivity problems in decision making. In recommendation systems, rating or voting on many items can be used to formulate profiles for highly successful recommendations; and in document collaboration, such as Wikipedia, voting methods help to guide the creation of new pages.

Use of voting to order lists of sections such as this one remains largely unexplored. This also pertains to collective intelligence.