GROUPWARE APPLICATIONS AS A TOOL FOR ORGANIZATIONAL DEVELOPMENT

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Abstract
Collaborative software (Groupware) is a term that was originally coined in the mid-1980s to describe computer applications that were explicitly designed to support group/team work (Wilson, 1991). The coining of a special term to describe such software was justified by the claim that, previously, business software applications largely took the form of personal productivity tools, which did not provide explicit support for the collaborative nature of most work tasks (ibid). Groupware, then, encompassed a family of technologies that could be used to support communication and collaboration amongst members of a workgroup in an organization.Apart from personal use, groupware applications have become an important constituent in the business field. This research introduces the evolution of groupware application in relation to organizational development. Furthermore, it investigates multiple aspects and linkages between collaborative software and organization. This is in terms of creating a collaborative and a knowledge sharing social networks to produce more productive organizations. The research recommends any organization that wants to progress or develop should employ the use of groupware applications in its processes.

Keywords: *Organizational Development (OD), Groupware and Applications*

Background to the Study

Today, we are living in a world where Information Communication Technology (ICT) is being integrated almost in all human and organizational activities at an unprecedented rate. Alongside this development, is an intense debate on the contribution of this technology towards productivity and growth in organizational and human welfare in both developed and developing countries. Internationally, the spread and appropriation of ICTs has been a key dimension of globalization, urging organizations to build communications systems, manage them well; develop infrastructure and capacity to use it; and implement good policy and regulation. The World Economic Forum acknowledges the role of Information and Communications Technologies (ICTs) as a critical enabler to sustainable socio-economic growth and also a vital ingredient for effective regional co-ordination in the creation of larger markets. Efforts to build infrastructure in the developing world, both by governments and development agencies, have predominantly focused on providing computer hardware, satellite connections and fibre-optic cabling. The solicitation and exchange of the world's most valuable resource: information. Defined as the new social morphology of our society, groupware application is both a structure and a process that enables the exchange, the

redirection, and the reception of information, on a global scale, without restraints of space or time. Distance is rendered irrelevant, allowing direct, simultaneous, decentralized, and expanding relations of collaboration, advocacy, trade, production, and innovation, generating new forms of power constellation and distribution.

Castells, (2000), as tools that allow immense exchanges of information, groupware impact many realms. The use of groupware in the quest to promote and defend human rights, international law, and democratic governance, is well documented and is perhaps the strongest asset for civil society struggles around the world today and one of the most positive examples of the space of flows. (Centre for Promoting Ideas, USA www.ijhssnet.com).

Expressed both locally and internationally through ICTs, peoples' senses of self are increasingly generating a shared sense of experience, beyond the confines of geographic space. Through groupware, we are experiencing increased exposure to external influences which have deep impacts on culture and identity (Greig, 2002). We can now experience timeless time - the capacity to function in real-time across the world without delay and at our convenience, with blurred distinction between physical and digital experiences (Castells, 2000). The Information Age also affects us through its media and images, which alter our lives, communities, nations and states, and have tremendous impacts on our identities and our imagination (Appadurai, 1996). Cultural flows are travelling in all directions, to and from both developed and developing countries. Because of the digital divide, the use and benefits of ICTs(groupware) are a reality and a strategy that still remain out of the reach of many people in the world (Shields, 2003), but we can imagine that few are truly sheltered from the impacts of ICTs. The communications that occur through these channels do spread beyond their initial medium through other means and therefore tend to reach much wider audiences. The contents of online communications have the ability of travelling between the physical and virtual worlds, and back again, both in developed and developing countries. (Lim, 2003) therefore the aim of this paper is to identify the roles of groupware towards organizational development.

Literature Review
Groupware
In the early 1990s the first commercial groupware products were delivered, and big companies such as Boeing and IBM started using electronic meeting systems for key internal projects. Lotus Notes appeared as a major example of that product category, allowing remote group collaboration when the internet was still in its infancy (Kirkpatrick and Losee, 1992)

According to Carstensen and Schmidt (1999) groupware is part of Computer-supported Cooperative Work (CSCW). The authors claim that CSCW and groupware addresses how collaborative activities and their coordination can be supported by means of information and communication technologies. Groupware can be viewed as collaboration software that helps teams and workgroups work together in a variety of ways to accomplish joint projects and group assignments. Groupware is designed to make communication and coordination of workgroup activities and cooperation among end users significantly easier, no matter where the members of a team are located. Groupware helps the members of a team collaborate on

group projects, at the same or different times, and at the same place, or at different locations (i.e. synchronous or asynchronous groupware).

Groupware is a technology which provides support for work in a group. This technology is referred to as collaborative technology. The technology facilitates communication, cooperation, coordination, problem-solving and in negotiations among internal as well as with the external work group members. Compared to earlier telephony systems, modern information systems use computer networks such as the internet, email, etc. to achieve collaboration. Groupware is primarily divided into two sub systems synchronous and asynchronous. In synchronous groupware; interaction between users is at real time whereas in asynchronous groupware interaction between users is at a different time.

The use of collaborative software in a work place creates a collaborative working environment (CWE) which supports people in both their individual and cooperative work thus evolving into a new class of professionals, e-professionals that can work together irrespective of their geographical location.

Groupware and Organization Development

Organization Development is a body of knowledge and practice that enhances organizational performance and individual development, by increasing alignment among the various systems within the overall system. OD interventions are inclusive methodologies and approaches to strategic planning, organization design, leadership development, change management, performance management, coaching, diversity, team building and work/ life balance."

Matt Minahan, MM & Associates, Silver Spring, Maryland OD is a deliberately planned, organization-wide effort to increase an organization's effectiveness and/or efficiency and/or to enable the organization to achieve its strategic goals. OD theorists and practitioners define it in various ways. Its multiplicity of definition reflects the complexity of the discipline and is responsible for its lack of understanding. For example, Vasudevan has referred to OD being about promoting organizational readiness to meet change and it has been said that OD is a systemic learning and development strategy intended to change the basics of beliefs, attitudes and relevance of values, and structure of the current organization to better absorb disruptive technologies, shrinking or exploding market opportunities and ensuing challenges and chaos. It is worth understanding what OD is not. It is not training, personal development, team development or team building, human resource development (HRD), learning and development (L&D) or a part of HR although it is often mistakenly understood as some or all of these. OD interventions are about change so involve people - but OD also develops processes, systems and structures. The primary purpose of OD is to develop the organization, not to train or develop the staff.

Groupware is designed to make communication and coordination of organization activities and cooperation among end users significantly easier, no matter where the members of a team are located. Groupware helps the members of a team collaborate on group projects, at the same or different times, and at the same place, or at different locations.

Groupware provides software tools for:
1   Electronic communication
2   Electronic conferencing
3   Collaborative work management

Groupware serve as a tool for electronic communication in organization which include electronic mail, voice mail, bulletin board systems, and faxing. This make organization to electronically send documents and files in data, text, voice, or multimedia form over computer networks from one unit of an organization to another. It helps organizations share everything from short voice and text messages to copies of project documents and data files within team members. E-mail has become a vital, fast, and convenient way to communicate and build strategic relationships with each other within organization.   E-mail has also become an important medium for transporting electronic copies of documents, data files, and multimedia content within an organization.

Electronic Conference Tools
Electronic conferencing tools helps people communicate and collaborate while working together within and outside an organization. A variety of conferencing methods enable the members of teams and workgroups at different locations to exchange ideas interactively at the same time, or at different times at their convenience. You can use the Internet for telephone, voice mail, faxing, and paging services. All you need is a suitably equipped PC and software such as Internet Phone by Vocal Tech, or Netscape Conference or Microsoft Net Meeting, to share document and pass information across the members of a team in an organization. Electronic conferencing options also include electronic meeting systems, where team members can meet at the same time and place in a decision room setting. Electronic conferencing tools include:
1   Data and voice conferencing
2   Videoconferencing
3   Chat systems
4   Discussion forums
5   Electronic meeting systems

Voice conferencing can be accomplished with Internet telephone software and groupware that supports telephone conversations over the Internet or intranets on PCS. Video conferencing is also popularly called white boarding. In this method, a groupware package connects two or more PCS over the Internet or intranets so a team can share, mark up, and review a whiteboard of drawings, documents, and other material displayed on their screens within and outside organization. Videoconferencing is an enterprise collaboration tool that enables real-time video/audio conferences among members of a group to share and or discuss issues without having wasting time to collaborate physically within and outside organization. Discussion forum is another category of collaboration tools that includes Internet and intranet newsgroups, discussion groups, and discussion databases. It's an extension of the earlier concept of online bulletin board systems (BBS) which allowed users to post messages and download data and program files from the online services, businesses, and individual BBS

operators. Discussion forum groupware can keep track of the discussion contributions of each participant, organize them by a variety of key word discussion topics, and store them in a discussion database (threaded discussions, virtual discussion groups, discussion tracking, and discussion databases). This creates threads of discussion contributions on each topic over a period of time that can be tracked and retrieved from the discussion database for analysis.

Chat Systems
Chat enables two or more people to carry on online real time text conversations.
Characteristics of chat systems:
1   Organization personal can converse and share ideas interactively by typing in your comments and seeing the responses on your display screen.
2   Chat is an important tool for enterprise collaboration on corporate intranets, especially where voice and videoconferencing have not been implemented. One advantage of chat is that it records and stores the dialogues of all participants, so that other team members can review them later.
3   Chat rooms are also being added to Internet and intranet web sites as another way to encourage participation and collaboration by members of a particular organization.

Electronic Meeting Systems
Organizations frequently schedule meetings as decision-making situations that require interaction among groups of people Information technology can provide a variety of tools to increase the effectiveness of group decision making. Known generally as group support systems (GSS), these technologies include a category of groupware known as electronic meeting systems (EMS).
Research studies indicate that electronic meeting systems produce several important benefits.
1   Group communications easier
2   Protects the anonymity of participants
3   Provides a public recording of group communications (group memory).
This significantly improves the efficiency, creativity, and quality of communication, collaboration, and group decision making in organizations meetings.

Collaborative Work Management Tools
Collaborative work management tools help people accomplish or manage group work activities. This category of groupware includes:
1   Calendaring and scheduling tools
2   Task and project management
3   Workflow systems
4   Knowledge repositories

Calendaring and scheduling tools are a groupware extension of many of the capabilities provided by desktop accessory packages and personal information managers, and mainframe office automation systems. These packages enable you to use electronic versions of a variety of office tools such as calendar, appointment book, address book, contact list, and task to-do list. Project management and personal information packages can be used to do task and project

management on your PC. Workflow systems are related to task and project management, as well as a type of electronic document processing called document image management. Workflow system is characterized
Characteristics of workflow systems:

1. Workflow systems involve helping knowledge workers collaborate to accomplish and manage structured work tasks within a knowledge-based business process of an organization.

2. Workflow systems are typically based on rules that govern the flow of tasks and task information contained in business forms and other documents.

Methodology

One approach or methods for addressing groupware is through the use of design patterns. The patterns identify recurring groupware design issues and discuss design choices in a way that all stakeholders can participate in the groupware development process. This can be achieved through choosing the right CPM software as stated below:

Dimensions	Descriptions / Examples
Resources Requirements	• Human • Equipment • Time • Cost
System Requirements	• Platform: The operating system that the system can perform on (example Windows, Mac, Linux). Platform type single and multiple. • Hardware: physical requirements such as hard drive space and amount of memory. • Installation/access: How and where the software is installed. • Types of installations stand alone, server based, web portal.
Support Requirements	• Email • 24/7 or restricted schedules • Online or web help • Built -in Help i.e. MS Office • On location assistance • Training on-site/off-site
Collaboration Requirements	• Group Size: The number of users that software supports • Email list • Revision Control • Charting • Document versioning • Document retention • Document sharing • Document repository

Discussion and Human Interaction in Groupware Technologies

The design intent of collaborative software (groupware) is to transform the way documents and rich media are shared in order to enable more effective team collaboration. 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.

1   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 generally focused on personal experiences. Communication technology such as telephones, instant messaging, and e-mail are generally sufficient for conversational interactions.

2   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.

3   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.

Collaboration in Education- two or more co-equal individuals voluntarily bring their knowledge and experiences together by interacting toward a common goal in the best interest of students' needs for the betterment of their educational success.

Collaboration requires individuals working together in a coordinated fashion, towards a common goal. Accomplishing the goal is the primary purpose for bringing the team together. Collaborative software helps facilitate the action-oriented team working together over geographic distances by providing tools that help communication, collaboration and the process of problem solving by providing the team with a common means for communicating ideas and brainstorming. Additionally, collaborative software may support project management functions, such as task assignments, time-management with deadlines and shared calendars. The artifacts, the tangible evidence of the problem solving process, including the final outcome of the collaborative effort, typically require documentation and archiving of the process itself, and may involve archiving project plans, deadlines and deliverables.

Collaborative software should support the individuals that make up the team and the interactions between them during the group decision making process. Many of today's teams are composed of members from around the globe, with some members using their second or third language in communicating with the group. This situation provides cultural as well as linguistic challenges for any software that supports the collaborative effort. The software may

also support team membership, roles and responsibilities. Additionally, collaborative support systems may offer the ability to support ancillary systems, such as budgets and physical resources.

Brainstorming is considered to be a tenet of collaboration, with the rapid exchange of ideas facilitating the group decision making process. Collaborative software provides areas that support multi-user editing, such as virtual whiteboards and chat or other forms of communication. Better solutions record the process and provide revision history. 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 andEverything2. By method used we can divide them into Web-based collaborative tools and Software collaborative tools.

Along with these, already traditional, methods recent expansion of corporate use of Second Life and other virtual worlds led to development of a newer generation of software that takes advantage of a 3D data presentation. Some of this software (3D Topicscape) works independently from virtual worlds and simply uses 3D to support user "in concept creation, planning, organization, development and actualization". Other [3] designed specifically to assist in collaboration when using virtual worlds as a business platform, while yet another type of software, Collaborative Knowledge Management (cKM), bridges the gap and can be used simultaneously in Second Life and on the web.

Conclusion and Recommendation
Based on the interview with staff of some organizations in Nigeria, the following objectives have been deduced as a result of ICT integration to organizational process.
1   It makes employee of an organization align with the vision of the organization through collaborative process.
2   It makes employees to solve problems instead of avoiding them through discussion forums of the members of the organization.
3   It makes inter-personnel trust, cooperation, and communication for the successful achievement of organizational goals through chart systems e.g. Face book.
4   It makes every employee in an organization to participate in the process of planning, thus making them feel responsible for the implementation of the plan since everything is done collaboratively.
5   It makes work atmosphere in which employees are encouraged to work and participate enthusiastically as a result of the collaborative nature in the organization.
6   It makes environment of trust so that employees willingly accept change.

Based on the objectives deduced above as a result of groupware integration to organizational processes, now it can be seen that groupware is designed to make communication and coordination of workgroup activities and cooperation among members of a group in an organization easier, no matter where the members of a team are located. Groupware helps the members of a team collaborate on group projects, at the same or different times, and at the same place, or at different locations there by making that organization to developed or progress.

The paper recommends that organizations should employ the use of groupware technologies in their day-to-day organizational processes. This will help them realize their objectives rapidly by sharing ideas with other team members from various locations synchronously or asynchronously.

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