Virtual Team Collaboration Glossary

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Introduction

Most NASA projects and work activities are accomplished by teams of people. These teams are often geographically distributed across NASA centers and NASA external partners - they are virtual teams. NASA virtual teams are stressed by the challenge of getting team work done across these geographic and time zone boundaries. To get distributed work done, teams rely on established methods - travel, telephones, Video Teleconferencing (NASA VITS), and email. Time is our most critical resource – and team members are hindered by the overhead of travel and the difficulties of coordinating work across their virtual teams. Modern, Internet based virtual team collaboration tools offer the potential to dramatically improve the ability of virtual teams to get distributed work done.

Benefits from virtual team collaboration technology accrue as teams increase their familiarity with tools and use them across multiple projects. It is therefore desirable for NASA to move towards a corporate approach to virtual team collaboration. On the other hand, it is very challenging to corporately apply collaborative technology in a large diverse organization such as NASA. One step that can assist NASA to move towards a corporate approach for virtual team collaboration is an agreement on a common set of terms. To that end, this glossary will define terms for virtual team collaboration at NASA.

It is widely recognized that successful deployments of virtual team collaboration systems depend not only on technology but even more importantly, on attention to virtual team adoption issues such as discovering the team mission, defining team success, and addressing team pain points. Recognizing this, the glossary is divided into two major sections, the first addressing virtual teams and the second addressing collaborative tools technology. Also note that this glossary is arranged hierarchically, since positioning the terms in their proper context assists in term definition.

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I. Virtual Teams

A. ***Team*** = a group of people working together on a joint effort

B. ***Virtual team*** = a group of people working together on a joint effort, where members are separated by location and often time zone

C. Team types

1. Work group = a small (typically 5-10) group of people focused on a specific task or deliverable

2. Project = a team focused on the implementation of a NASA project with defined work break down structure and milestones; projects often include participants from various disciplines; typical project teams range in size from 10 to 50 participants with large projects exceeding 50 members

3. Functional = a group focused on a specific functional area such as an engineering discipline

4. Community = a group that is formed to share and learn around a common interest or practice

D. Team roles

1. Team leader = the formal leader of the team, for example the project manager in the case of a project team

2. Team coordinator = a team member that is responsible for coordinating team work processes including the adoption of collaborative technology; example tasks include facilitating the use of a virtual team meeting system and establishing team guidelines for the contents of the virtual team space

3. Team member = a contributor on the team

4. Team facilitator = an external facilitator that has knowledge of team facilitation techniques and collaborative technology who assists the team coordinator and team leader in an effort to increase team efficiency through the adoption of collaborative technology

5. Team sponsor = for some teams, an executive who supports and/or charters the team to meet its stated objectives and serves as an advocate to higher level authorities.

E. Team adoption process

1. **Discovery** = the initial phase of the adoption process where the team facilitator works with the team leader and coordinator to discover: team mission and deliverables, critical team processes, current pain points, and possible methods of improving team work

2. **Solution Design** = the team facilitator and team coordinator map team work processes to collaborative technology and define roles and responsibilities of team members

3. **Roll out** = new work processes, roles and responsibilities, and collaborative technology are introduced to the team including training and coaching

4. **Measurement and support** = ongoing assessment of benefits and evolution of approach

F. Common team collaborative processes

1. **Brainstorming** = the process of all team members contributing ideas in an open forum. Ideas are not assessed or critiqued during brainstorming – the goal is to build a large pool of ideas

2. **Decision making** = the process by which team decisions are made; the team leader ideally considers team member inputs and renders a decision or in some cases puts the decision up for a team vote

3. **Ad hoc discussions** = the process of having informal discussions among team members

4. **Meetings** = a time for all team members to come together to discuss team goals, objectives, and activities; normally includes an agenda and meeting minutes; in some cases, a workshop or conference will be held to allow a group of teams to exchange ideas in a broader forum

5. **Action item management** = the process of defining, assigning responsibility, tracking, and completing team actions

G. Virtual team maturity levels

1. **Communicate** = occurs in teams where the work is done largely independently and collaboration consists of sharing progress and deliverables; tasks are often routine; these teams

typically rely on file sharing mechanisms (via email or a team space) to collaborate

2. **Connect** = occurs when team members require occasional interactions to complete tasks; tasks are less routine resulting in the need for coordinated efforts including team roles, reciprocal communication, and feedback to facilitate work; these teams typically require collaborative functions such as action item management, ad hoc discussions, and application sharing

3. **Collaborate** = occurs in teams where work is highly interdependent and addressing challenging tasks; these teams can be enabled by higher order collaborative functions such as the full capabilities of a virtual team meeting system (e.g. voting and object sharing) and facilitated use of a team space where all team work is coordinated

II. Collaborative Tools Technology

A. ***Asynchronous Functions*** = functions to enable collaboration when people are not together at the same time

1. email = electronic mail; enables text communication with attachments over the Internet to individuals or lists.

2. Calendar (personal and team) = personal calendars contain an individual person's private schedule in a calendar format. Team calendars are calendars shared across a team of people.

3. Task list (personal and team) = personal task list enables an individual person's private task list (e.g. task name, description, status, & due date). Team task list enables a task list shared across a team of people.

4. Directory/address book = a list of contacts including information such as name, telephone number, and email address. Can be personal or shared in the context of a team space.

5. Threaded discussion forum = an online text-based discussion where topics can be posted and replied to in a threaded fashion (e.g topic, reply to topic, reply to reply to topic, etc…). Forums typically identify participants, allow for attachments, are time-stamped and are searchable.

6. Bulletin board = an online text-based capability to post news items, much like physical bulletin boards.

7. Document/file/content management = the ability to post (or publish), share, and manage access to documents, files and information objects.

a) **File sharing (documents, etc)** = the ability to post documents and make them available to others. Typically supported by access control lists, so that the poster can assign a list of who can read or update the file.

b) **File check out/in** = the ability for authorized people to obtain a write lock on a document to enable coordinated updates to a document (e.g. only one person can make changes to the document at a time).

c) **File versioning** = the ability to keep multiple copies (e.g. versions) of a document. Each time the document is updated, a new version is created.

d) **File Meta data** = information about files which typically would include author, title, keywords, and abstract. Specific meta data can aid in complex searching and linkage into external taxonomies.

8. Workflow = the ability to electronically model and execute a work process that involves multiple steps and participants.

a) **Serial process** = a workflow process that flows one step at a time with no conditions (e.g. Step 1, Step 2, Step 3…)

b) **Complex process** = a workflow process with conditional flow (if/then/else).

9. Alerts and Notification = a mechanism to notify team participants of updated information or to take action.

10. Search = a mechanism by which collections of information content are indexed for rapid retrieval; key criteria are entered to extract specific results

11. Project Management = Traditional project planning capability including work breakdown structure, schedule, and resources. Tools often include graphical representations of information such as a Gant chart for schedule data.

12. Asynchronous Functional Aggregations

a) **Virtual Team Space** = includes document management, workflow, calendar, task lists, and threaded discussion forums all within the context of a team work space.

b) **Email systems** = includes email, personal calendars, personal task lists, and personal contact lists.

c) **Portal** = a collection of objects with a specific relevance to a particular topic or theme; commonly includes hyperlinks to additional related information, search mechanism, information highlights and access to related tools

d) **Dashboard =** provides visibility into a project's key performance indicators through simple visual graphics such as gauges, charts and tables typically within a single web browser window.

B. ***Synchronous Functions*** = functions to enable collaboration when people are together at the same time

1. Conferencing

a) **Voice conferencing** = the ability to communicate via voice in a virtual meeting setting

(1) ***POTS*** = Plain Old Telephone Service; POTS is used to enable a traditional "teleconference"

(2) ***VOIP*** = Voice Over Internet Protocol; enables digitized voice to be communicated over the Internet

b) Video conferencing = the ability to communicate video information in a virtual meeting setting

c) **Data conferencing** = the ability to communicate via the sharing of electronic information in a virtual meeting setting

(1) ***Application sharing*** = the ability to share desktop applications

(2) ***Presentation sharing*** = the ability to share presentation information (e.g. PowerPoint) with presentation controls

(3) ***Object*** sharing = the ability to share other electronic objects (e.g multimedia) with presentation controls

(4) ***Whiteboard*** = the ability to share a writable electronic white board

(5) Annotation = the ability to mark up shared objects to emphasize or update content being presented

2. Voting = the ability to conduct a team vote or poll in a virtual team meeting setting

3. Chat = the ability to exchange text messages with another person or group of people

4. Captioning = the ability to have all audio information transcribed and displayed on a screen as written words

5. File transfer = the ability to transfer a file to another person or group of people

6. Online awareness (presence) = the ability to view the status of virtual team members (e.g. available to chat, busy, away, etc.)

7. Recording = ability to permanently store meeting content for later asynchronous playback

8. Group/meeting facilitation = the ability to facilitate the group meeting process including defining the problem, brainstorming ideas, categories options, and selecting a way forward

9. Synchronous Functional Aggregations

a) **Virtual Team meeting system** = a set of functions that together increase the productivity of a virtual team meeting

(1) Conferencing

(2) Voting

(3) Chat

(4) Captioning

(5) Recording

(6) File transfer

b) **Instant messaging** = a set of functions that enhance the day to day interaction of virtual team members, by providing presence information (are you at your desk?) and providing the ability for quick communication. Similar to office walk arounds in the co-located world.

(1) Online awareness (presence)

(2) Chat

(3) File transfer

C. Architectures

1. **Client server** = typically a web browser client to a web server based application server; client plug-ins sometimes used to enhance client functionality beyond what standard protocols offer

2. **Three tier** = similar to client server, but a database server is added for data management, establishing a third component

3. **P2P =** Peer to peer; an architecture where clients communicate directly with each other

D. Applicable Standards

1. **HTTP** = HyperText Transfer Protocol; a protocol for moving documents and data across the Web

2. **SSL** = Secure Sockets Layer; a protocol for moving documents and data across the Web where data is encrypted using public and private keys

3. **WebDAV** = Web Distributed Authoring and Versioning; an extension of the HTTP protocol that enables clients to publish, edit, and lock documents

4. **SMTP** = Simple Mail Transfer Protocol; a protocol for delivering email over the Internet

5. **IMAP** = Internet Message Access Protocol; a protocol allowing a client to access and manipulate electronic mail messages on a server.

6. **POP =** Post Office Protocol; POP is an Internet mail server protocol that provides an incoming message storage system. It works in conjunction with the SMTP (Simple Mail Transfer Protocol), which provides the message transport services required to move mail from one system to another

7. **MIME** = Multi-Purpose Internet Mail Extensions; a standard for multi-part, multimedia electronic mail and hypertext documents on the Internet

8. **T.120** = International Telecommunications Union (ITU) standard that describes data conferencing

9. **H.323** = ITU standard for sending voice (audio) and video using IP on the Internet and within intranets

10. **SIMPLE** = Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions; The IETF standard for instant messaging

11. **XML** = Extensible Markup Language; a standard format for structured documents

12. **IRC** = Internet Relay Chat; a real-time group messaging system that allows two or more people at remote locations to hold an ongoing conversation over the Internet. IRC was originally defined in RFC 1459 which describes IRC as a teleconferencing system.