Project Communication Planning

Communication in its nature is expressing thoughts, emotions, opinions and ideas and carrying these over to other people. The goal of project communication is to effectively transfer the right amount of information, to the right people, in the right format, and at the right time

Team communication is important for the following reasons:

- project-related information needs to be shared
- each member of the team needs to be with the team goal and his/her role in the team
- each team member has specific skills and knowledge that must be utilized and imparted to other members in the course of the work
- any questions or issues about the project must be broached and shared in order to resolve them
- any decisions taken must be imparted to all the members

Effective and open communication lines create feelings of trust and of belonging to the team. The more the members feels valued the more dedicated they are likely to be, and this in turn makes it easier for the team as a whole to achieve its goals

Results of poor communication between team members

- the members may not understand what is needed and may waste time and energy in doing what is not required
- the members may misunderstand one another and develop personal - this can affect their desire to work together and thereby the quality of the work.
- the members may not be clear of the sequence of the things to be done and this can either hold up the project or play havoc with the deadlines.
- the members may not know what to change or how to change to make themselves more efficient

Presumptions of effective communication

- Information sender’s ability to make itself possibly clear to the receiver
- Constant feedback to understand each other on needed extent

Pictorially expressing:

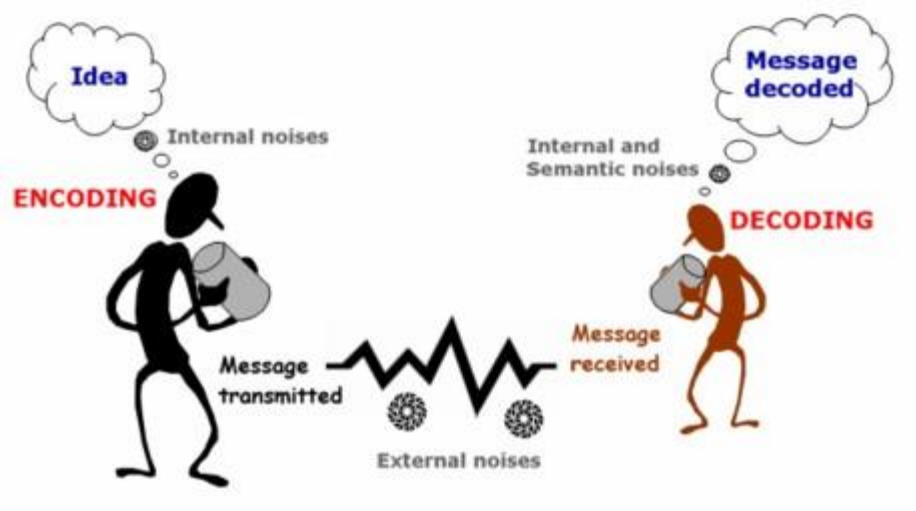


Figure 1. Example of communication model

Communication management processes in PMBOK

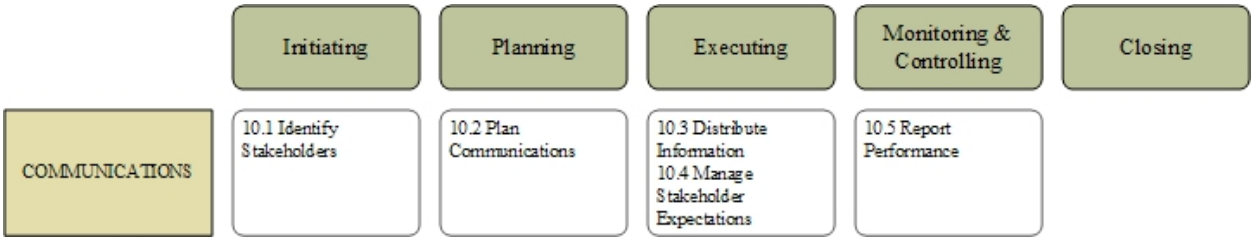


Figure 2. Communication management processes in PMBOK

Establishing project communication

Goals:

- raise effectiveness and quality of teamwork
- share mutual competency in solving problems

Steps:

- Determination of information and communication needs of various stakeholders
    - who, what kind, and how much information in what format needs
    - when it is needs
    - how is this information made available and by whom
- Establishing communication process (model) and tools to execute it

Communication is established bidirectional:

- Horizontally, that means inside the team or between teams. This kind of communication is concerned with main work, in given context system development

- Vertically, that means between system owner or customer. This kind of communication handles management of system development, more specifically resource usage and issues concerning expected deliverables.

The task of project manager is to coordinate bidirectional information exchange "traffic" to confirm that all stakeholders' information needs are fulfilled

Pictorially:

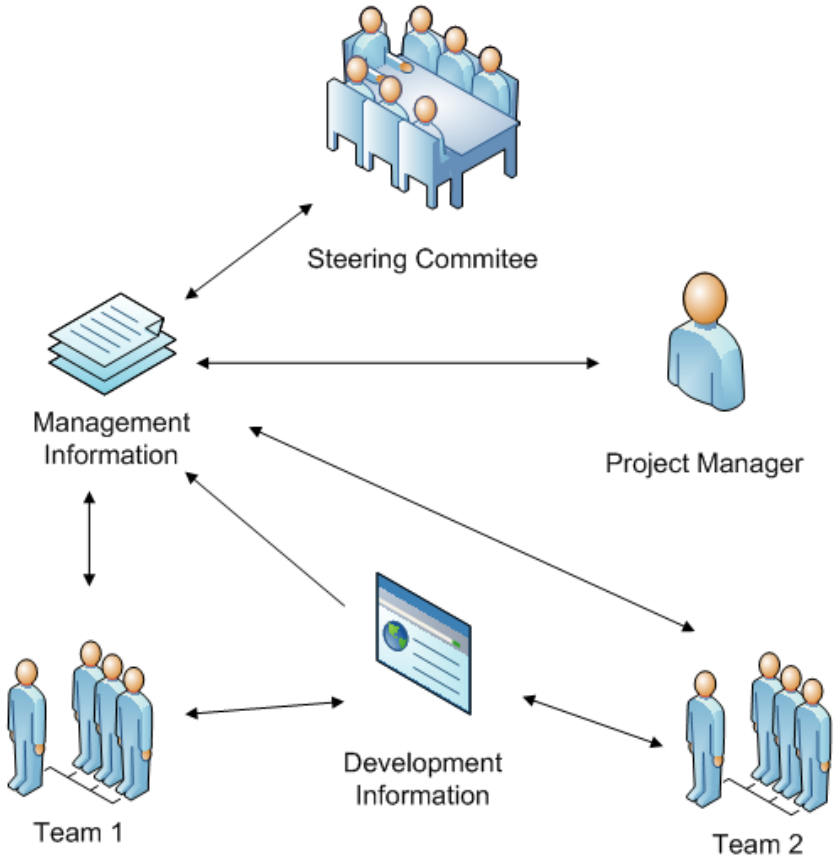


Figure 3. General information exchange in a project

Information and communication regards system development functions:

- system specification
- system design
- implementation
- test
- user documentation and training
- maintenance
- configuration management

Management information by PMBOK is expressed in following table showing different kind of project documentation:

Table 1. Project documentation in PMBOK

Process	Documentation	Subdocumentation
Initiating	Project charter	
	Stakeholder register	
Planning	Scope management plan	
	Schedule management plan	
	Cost management plan	
	Quality management plan	
		Process Improvement plan
	Human resource management plan	
		Staffing management plan
	Communications management plan	
	Risk management plan	
	Procurement management plan	
Executing	Lessons learned	
	Project staff assignments	
	Resource calendars	
	Ground rules	
	Qualified seller list	
	Bidder conferences	
	Selected sellers	
	Procurement contracts	
Monitoring & Controlling	Change log	
		Change requests
		Change dispositions
	Issue log	
		Issue dispositions
	Forecasts	
	Performance reports	
	Work performance information	
	Work performance measurements	
Closing	Administrative closure	
	Contract closures	

Communication tools and techniques

- 1. communications requirements analysis - is based on
    - project organization structure and responsibility assignment matrix
    - information needs of stakeholders associated with project

  Number of communications channels
    - N * (N-1)/2, where N = number of people
    - communications complexity rises with increase of channels and therefor rises probability of misunderstanding between project members
- 2. communication models setup
- 3. communication methods implementation
- 4. communication technology usage

Communication planning result is a communication plan containing

- determination of what kind of information must be exchanged
- frequency of information exchange
- methods and format of information transmitting
- availability of information
- responsible person for transmitting of information

2. Team communication models

Project manager can use 3 communication models:

- Functional communication model
- Unstructured communication model
- Product team communication model

Functional communication model

Each of the program functions is assigned to a single team: Analysis team, Design team, Implementation team, and so on

This sort of organization is common in construction project management and many try to manage software n a similar manner. It is highly structured and formal; each team consists of a separate set of functional specialists. One team completes its work and hands off the project to the next

The teams communicate by passing formal documents and other artifacts, such as code and test reports, to the team on the next functional level. The work is managed by controlling the document flow. Each specialist works in isolation and focuses on what he or she does best. Each person in the chain is said to “throw” his or her part of the problem “over the wall” to the next person

Functional communications results in too little communication. The lack of communication results in:

- Less than optimal solutions
- No shared responsibility – everyone did his or her job well, yet the result is disappointing
- The product is less than the sum of parts
- Products are not built as designed
- The software is hard to maintain or extend
- Intellectual property is lost

Pictorially expressed:

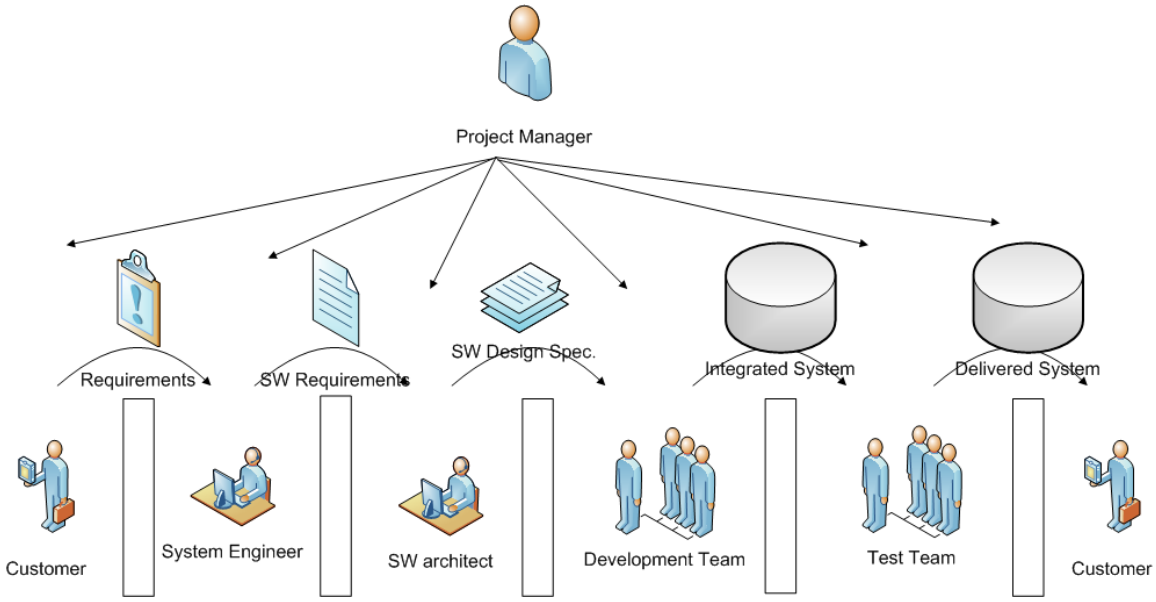


Figure 4. Functional communications model

Unstructured communication model

No defined team structure - everyone is supposed to work together to get the job done

It may develop when a team grows from 3 or 4 programmers to a team of 8 or more without anyone addressing the alterations necessary to maintain viable communications or occur when a manager decides to leave the developers alone to do their work.

Results in too much communication:

- the more people on a project, the less overall productivity (Fred Brooks)
- inability to predict or meet schedules
- products not designed, resulting in a system that is expensive to maintain or extend

Inexperienced, immature development organizations often adopt an unstructured approach. They adopt the idealistic view that a bunch of smart developers “don´t need

no stinkin´management". In previous jobs, they may have been victims of a rigid functional project. In any case, they do not know how else to proceed

Pictorially

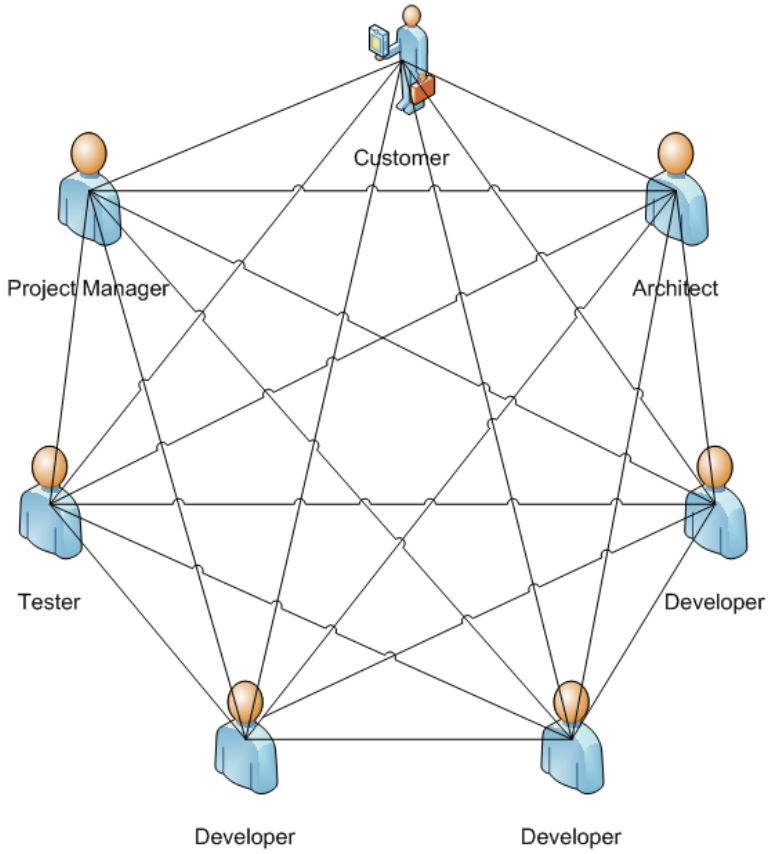


Figure 5. Unstructured communications model

Product team communications model

The product team consists of overlapping teams that own the various processes. The product team model has its origins in manufacturing development, particularly the Quality Functional Deployment (QFD) movement. These product teams are called Integrated Product Teams or Integrated Process Teams (IPTs). Each team is responsible for a major activity of the development process: one team might be responsible for system design, one for the low-level design and implementation of the subsystems, another for system testing and product delivery. A program team might coordinate all of the project´s activities. Ad hoc teams may be organized to focus on special problems that arise during development. These teams will maintain their membership throughout the project

Most project members belong to more than one team - the system architect might lead the design, but also be a member of the system test team

IPTs consist of the stakeholders, those who have an interest in the activity, not just the activity owner. The activity owner leads his or her IPT

Communication is enhanced by the overlapping membership - the system architect could speak for the intent of the requirements team to the design team. He or she could also bring the concerns of the implementation team to the attention of the requirements team.

Pictorially:

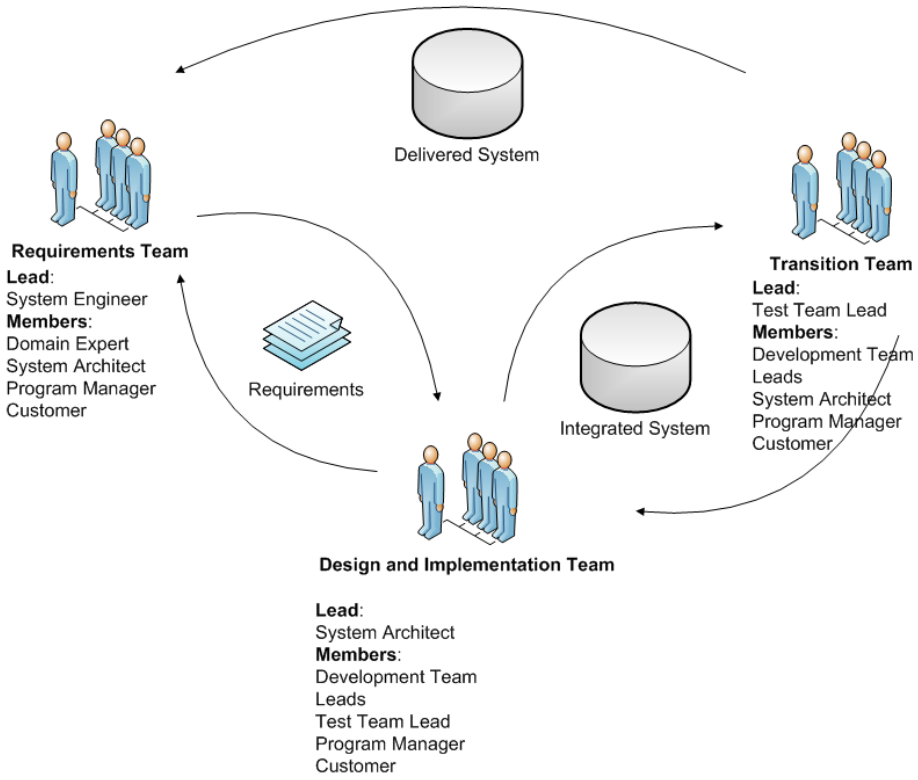
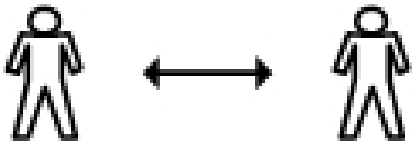
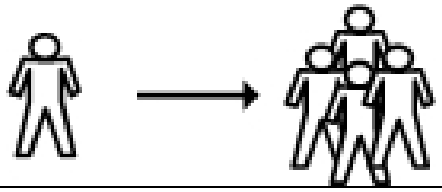
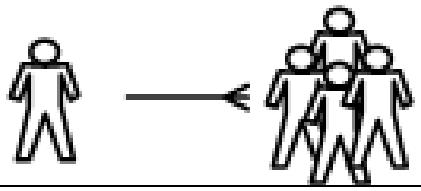


Figure 6. Product team communications model

3. Communication methods

Table 2. Communication methods

Method	Pictorially
1. Interactive communication - synchronous or multidirectional method, for example meetings, instant chats, electronical social messaging, telephone calls, forums, conferences	
2. Push communication - no way of immediately giving feedback or seeking clarification, for example e-mails, voice mails, newsletters, memos, reports	

3. Pull communication - sender must seek out the information at his or her discretion, for example web sites, intranet repositories, podcasts, project libraries, e-learning materials	

4. Communication technology

Choice is determined by

- Temporal requirements of information
- Availability of technology
- Technological competency of project members
- Project duration and environment

Project costs are depending on the choice

Affects of physical environment to project costs

Saying that software development is a cooperative game of communication implies … that a project's rate of progress is linked to how long it takes information to get from one person's mind to another's...

If X knows something that Y needs, the project's progress depends on: how long it takes Y to discover that X knows something useful and how much energy it costs Y and X together to get the knowledge transferred to Y

Cost of information flow

Units are erg-seconds. An erg is a unit of work (such as walking up the stairs). A second is a unit of time (such as time spent on the telephone). The term erg-seconds capture the cost in both labor and time to get a question answered

Example: a programmer these days costs a company about $2.10 per minute, so that adding one minute to getting a question answered adds $2.10 to the cost of the project. Standing up and walking to another table can add that minute. Suppose that people who program in pairs ask and get answers to 100 questions per week. Adding that minute's delay costs the project $210 per programmer per week. On a 12-person team, this is about $2,500 per week for the team, which adds up to $50,000 for a 20-week project. The project gets delayed almost a full week and costs an extra $50,000 for each minute of delay in getting questions answered, not assuming any other damage to the project for the questions taking longer to answer!

Additionally the delay is more on the order of five minutes if a person has to walk down the hall. If X is not there, it is likely that when Y returns to his office, he has lost the train of thought he was working on and has to spend more time and energy recovering it. Even worse, the next time Y has a question, he may decide against walking upstairs, because X might not be there. For not asking the question, he makes an assumption. Some percentage of his assumptions will be wrong, and each wrong assumption results

in Y introducing an error into the programm. Finding and fixing that error costs the project anything from multiple minutes to multiple days. Thus, Y's not asking his question and getting it answered represents a large lost opportunity cost. Over the course of the project, the lost opportunity cost is far greater than the cost of walking upstairs.

Development costs are rising in the following situations

- X and Y pair-program on the same workstation
- X and Y at separate workstations, but right next to each other (side-by-side programming)
- X and Y work on opposite sides of a room, facing away from each other
- X and Y sit in adjacent offices, separated by a wall
- X and Y sit on different floors or in adjacent buildings
- X and Y sit in different cities, possibly with several time zones between them

The main question is, if you were funding this project, which working configuration would you like X and Y to use? What we see is that even minor differences have an impact on the rate of information flow. Project communication costs appear in the lost opportunity cost of not asking questions and the overall cost of detecting and transferring information (erg-seconds). The reduction in cost when people discover information in background sounds (osmotic communication)

The solution - obviously, put them into open and shared workspaces, but … 3 more issues affect the answer in any one particular setting:

- The sort of information being shared
- People's personal preferences
- Drafts or information publication methods

Modalities in communication

- Physical proximity
- Three-dimensionality
- Smell
- Sensation of movement
- Touch
- Sound
- Visuals

The impact or removing modalities

- Remove only physical proximity – video-based communication

- Remove the visuals (use a telephone) – losing of drawings, gestures, facial expressions, sight and the muscle tone, proximity cues, ability to link speech with action
- Remove voice (use e-mail) – losing vocal inflection, ability to pose for effect, to check for interruptions, to speed up or slow down t make a point, to raise tone or volume to indicate surprise, boredom, or the obviousness of the transmitted idea
- Remove the ability to ask questions (but possibly reinstate one of the above modalities) – the sender must guess what the receiver knows, doesn´t know, would like to ask, and what an appropriate answer to the guessed question might be – all without feedback
- Remove visuals, sound, timing, kinesthetic, cross-modality timing, question-and-answer, and you get … paper

Making use of modalities (cold and hot communication channels) pictorially:

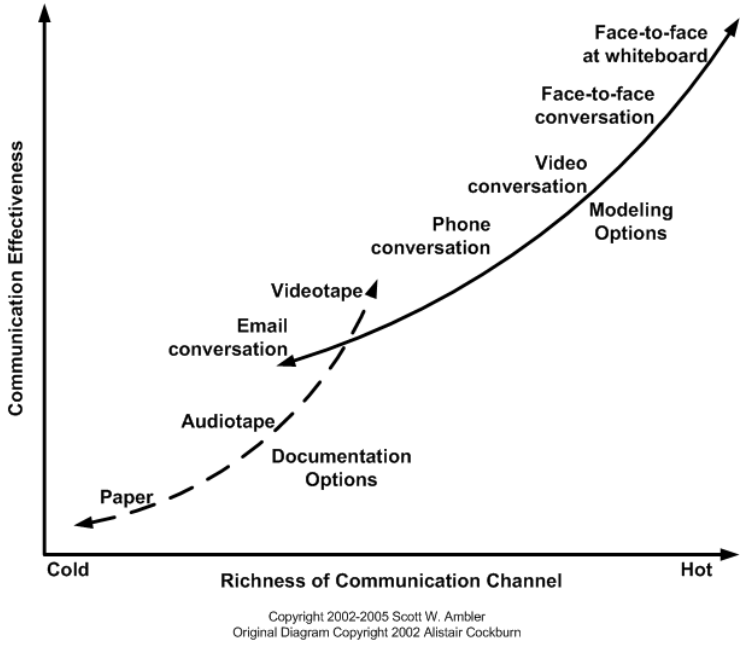


Figure 7. Cold and hot communication channels

Communication tools enabling collaboration pictorially:

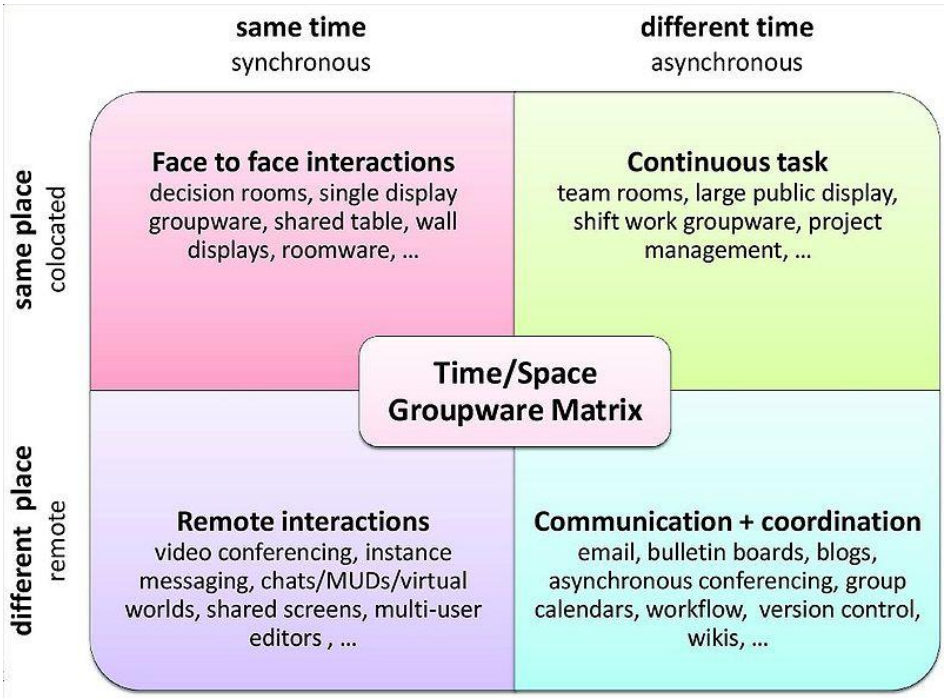


Figure 8. Example of communication tools

Example of communication tools using in agile approaches pictorially expressed:

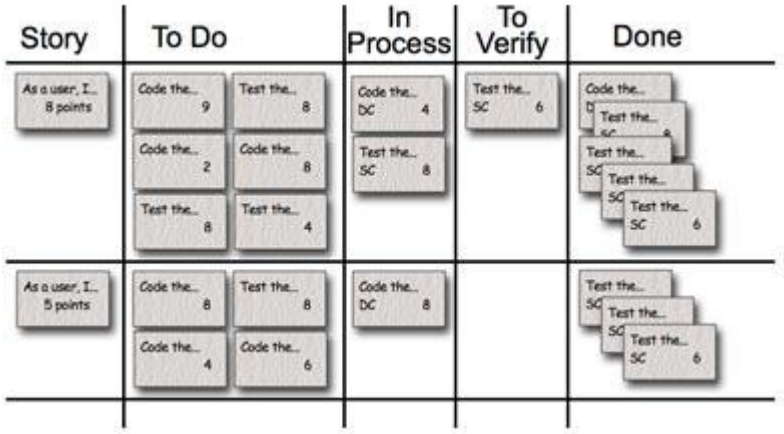


Figure 9. Example of agile communication tool

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