

# Software Project Management

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Fifth Edition

*Trabajo en equipo*

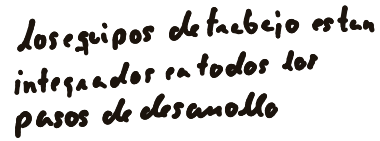
# Working in Teams

## Chapter Twelve

# Introduction

- Human effort shared between individual software developers within *teams* and between groups of developers
- **Teams** - groups of people who working together
  - *co-located*
- **Project team** - *All* the people working on a project
- Individual and group tasks
- **Communication genres** refers to methods of communication

# Steps Influenced by Collaborative Working



# Becoming a Team

Five basic stages of development:

- Forming *formación... presentación.*
  - Storming *alguien quiere ser un líder en el equipo... situaciones de conflicto*
  - Norming *↪ por eso se establecen Normas*
  - Performing *↙ el equipo desarrolla su función*
  - Adjourning *y cuando acaba / a medias los integrantes salen.*
- minimizar este tiempo.  
lo importante  
abajo...*

Classification associated with Tuckman and Jensen

# Balanced Teams

*¿A quien metemos en el equipo...? Ser eficiente en la elección.*

- Meredith Belbin studied the performance of top executives carrying out group work at the Hendon Management Centre
- Tried putting the **best** people together in teams
  - Almost invariably did badly
- Identified the need for a balance of skills and management roles in a successful team

*→ cose a la gente mejor de cada equipo y no mezclado con mediocres.  
No funciona tan bien  
cada por su función.*

# Management Team Roles

→ equilibrados  
Perfiles que encontramos  
en nuestro equipo.

ninguno es mejor que los  
demás.

- The **coordinator** *Se encarga de liderar.  
moderar en reuniones... etc.*
  - Good at chairing meetings
- The **'plant'** *El que establece  
que se puede hacer.*
  - An idea generator
- The **monitor-evaluator** *Es no...  
Es si...  
Se encarga de la evaluación.*
  - Good at evaluating ideas
- The **shaper** *El que da...  
objetivo... persiguiendo.*
  - Helps direct team's efforts
- The **team worker**
  - Skilled at creating a good working environment

<https://www.belbin.com/about/belbin-team-roles>

# Management Team Roles (ii)

- The **resource investigator** *el que conoce, tiene acceso a...*
  - Adept at finding resources, including information
- The **completer-finisher** *el que remata.*
  - Concerned with getting tasks completed
- The **implementer** *implementa el proyecto.*
  - A good team player who is willing to undertake less attractive tasks if they are needed for team success
- The **specialist** *el /a ki.*
  - The 'techie' who likes to acquire knowledge for its own sake



# Group Performance

*Todo lo que hay que hacer se hace mejor en grupo...?  
Algunas circunstancias solo y otras acompañado.*

Some tasks are better carried out collectively while other tasks are better delegated to individuals

- **Additive tasks** *Todos los individuos participan en el desarrollo / objetivo.*
  - The effort of each participant is summed
- **Compensatory tasks** *Compensación... Aponta opinión... los errores de uno compensan los del otro...  
→ Planni poket*
  - The judgements of individual group members are summed
  - Errors of some compensated for by judgements of others

# Group Performance (ii)

- **Disjunctive tasks**

- There is only one correct answer
- Someone must
  - Come up with right answer
  - Persuade the other that they are right

- **Conjunctive** *la tarea finaliza cuando cada uno de los miembros acaba su parte. Éxito determinado por el más lento.*

- The task is only finished when all components have been completed

# 'Social Loafing'

*muchas veces no se muestra quien no hace... pero tampoco quien si lo hace.*

*Personas en el grupo que no hacen nada. - lo de los nombres en trabajos (como se dan en) - igual son tímidos.*

- Tendency for some team participants to 'coast' [pasar desapercibidos] and let others do the work  
*- Orden de nombres.*
- Also tendency not to assist other team members who have problems
- Suggested counter-measures:
  - Make individual contributions identifiable
  - Consciously involve group members ('loafer' could in fact just be shy!)
  - Reward 'team players'

# Barriers to Good Team Decisions

los objetivos es mejor elegidos en equipo porque se sienten más implicados en el proyecto.

- Time-consuming
- Inter-personal conflicts – see earlier section on team formation  
*las decisiones estan marcadas por conflictos interpersonales.  
la decision es mala pq le dices tu... → Conflictos suavizados por las normas de grupo.*
- Conflicts tend to be dampened by emergence of *group norms* – shared group opinions and attitudes
- *Risky shift* – people in groups are more likely to make risky decisions than they would as individuals  
*→ las decisiones que se toman en grupo son mucho más arriesgado.*

# Delphi Approach

*Como abordan la toma de decisiones en equipo...*

To avoid dominant personalities intruding the following approach is adopted *El moderador manda la propuesta*

1. Enlist cooperation of experts *buscamos expertos en el tema. y a ver que dicen ellos. los expertos no suelen hablar entre ellos para no influenciarse.*  
*y establecen un consenso.*
2. Moderator presents experts with problem
3. Experts send in their recommendations to the moderator
4. Recommendations are collated and circulated to all experts
5. Experts comment on ideas of others and modify their own recommendation if so moved
6. If moderator detects a consensus, stop; else back to 4

# Team 'Heedfulness'

*la consciencia del equipo...*

*donde están cada uno de los demás. (mucha coordinación)*

*Como un equipo de fútbol... Conduce a la consciencia de equipo.*

- Where group members are aware of the activities of other members that contribute to overall group success
- Impression of a 'collective mind'
- Some attempts to promote this:
  - Egoless programming
  - Chief programmer teams
  - XP
  - Scrum

# Egoless Programming

*Programación sin ego...  
El código se piensa a que es propiedad de alguien... No como la X cosa mía...  
Entonces a hora el código es una cosa colectiva sino de todo.*

*Lo revisan y comision todos... así el código ya no es solo del autor,*

- Gerry Weinberg noted a tendency for programmers to be protective of their code and to resist perceived criticisms by others of the code
- Encouraged programmers to read each others code
- Argued that software should become communal, not personal – hence 'egoless programming'

# Chief Programmer Teams

*Proyecto software grandes → muchas personas...  
equipo propone equipos pequeños... con un líder.  
mini-equipos jefes guiados, coordinados. El desarrollo en equipo liderado por el Chief Programmer.*

- Fred Brooks was concerned about the need to maintain 'design consistency' in large software systems
- Appointment of key programmers, **Chief Programmers**, with responsibilities for defining requirements, designing, writing and test software code
- Assisted by a support team: **co-pilot** – shared coding, editor who made typed in new or changed code, program clerk who wrote and maintained documentation and tester
- Problem – finding staff capable of the chief programmer role



Todos soluciones eso...

# Extreme Programming

intenta resolver los problemas de estructura de comunicacion etc... de la manera:  
documentando, realizando estandar... interaccion continua... se hacen equipos de 2 personas... lo que no ve uno lo ve otro... Como el chief pue de 2...

XP can be seen as an attempt to improve team heedfulness and reduce the length of communication paths (the time between something being recorded and it being used)

- Software code enhanced to be self-documenting
- Software regularly refactored to clarify its structure
- Test cases/expected results created *before* coding – acts as a supplementary specification
- Pair programming – a development of the co-pilot concept

# Scrum

*Una vez que se hace  
un sprint se termina...  
lo que hemos visto...  
Todos son conscientes de lo que están  
haciendo los demás.*

- Named as an analogy to a rugby scrum – all pushing together
- Originally designed for new product development where 'time-to-market' is important
- 'Sprints' increments of typically one to four weeks
- Daily 'scrums' – daily stand-up meetings of about 15 minutes

## Scrum (ii)

- Unlike XP, requirements are frozen during a sprint
- At the beginning of the sprint there is a sprint planning meeting where requirements are prioritized
- At end of sprint, a review meeting where work is reviewed and requirements may be changed or added to

# Coordination of Dependencies

*Antes hemos hablado de ello de equipo...*

*y ahora entre diferentes equipos...*

*Existen diferentes tipos de dependencias entre equipos...*

- The previous discussion on team heedfulness focused (mainly) in communication inside the team
- What sort of communications are needed between teams and other units
- Coordination theory has identified the following types of coordination dependencies
  - **Shared resources.** e.g. where several projects need the services of scarce technical experts for certain parts of the project
  - **Producer-customer** ('*right time*') relationships. A project activity may depend on a product being delivered first

*Comparten recursos... quizás personal...*

*Uno hace algo...  
→ otro lo consume...*

# Coordination of Dependencies (ii)

*Casi igual que P-C.*

*→ Tarea-Subtarea tienen un orden concreto...*

- Types of coordination (cont.)

*Tarea-Subtarea...*

- **Task-subtask dependencies.** In order to complete a task a sequence of subtasks have to be carried out
- **Accessibility ('right place') dependencies.** This type of dependency is of more relevance to activities that require movement over a large geographical area, but arranging the delivery and installation of IT equipment might be identified as such

# Coordination of Dependencies (iii)

- Types of coordination (cont.)
  - **Usability** (*'right thing'*) **dependencies**. Broader concern than the design of user interfaces: relates to the general question of fitness for purpose, e.g. the satisfaction of business requirements
  - **Fit requirements**. This is ensuring that different system components work together effectively

los requisitos se cumplen? dependencia... Una vez que este hecho... cumple con lo que espera ...?

funciona... ya... cumple con los requisitos?.

# Why 'Virtual Projects'?

*Todos los miembros necesitamos que  
Trabajen juntos... en el mismo sitio...*

- The physical needs of software developers (according to an IBM report) *medidas de tu puesto de trabajo...*
  - 100 square feet of floor space ( $9,3\ m^2$ )
  - 30 square feet of work surface ( $2,8\ m^2$ )
  - Dividers at least 6 feet high to muffle noise ( $1,8\ m$ )
- Demarco and Lister found clear statistical links between noise and coding error rates
- One answer: send the developers home!

# Possible Advantages

*Contacten donde sea más barato...*

- Can use staff from developing countries – lower costs
- Can use short term contracts:
  - Reduction in overheads related to use of premises
  - Reduction in staff costs, training, holidays, pensions etc.
- Can use specialist staff for specific jobs



# Further Advantages

- Productivity of home workers can be higher – fewer distractions
- Can take advantage of time zone differences e.g. overnight system testing

# Some Challenges

*muy bien especificado...*

- Work requirements have to be carefully specified

*bien documentado...*

- Procedures need to be formally documented
- Coordination can be difficult
- Payment methods need to be modified
  - piece-rates or fixed price, rather than day-rates

# More Challenges

- Possible lack of trust when there is no face-to-face contact
- Assessment of quality of delivered products needs to be rigorous
- Different time zones can cause communication and co-ordination problems

# Time/Place Constraints on Communication

	Same Place	Different Place
Same Time	Meetings, interviews	Telephone, Instant messaging
Different Time	Notice boards, Pigeon-holes	Email, Voicemail, Documents

# Other Factors Influencing Communication Genres

- Size and complexity of information
  - Favours documents
- Familiarity of context e.g. terminology
  - Where low, two-way communication favoured
- Personally sensitive
  - It has to be face-to-face communication here

# Best Method of Communication Depends on Stage of Project

dependiendo de la etapa del proyecto la  
forma de comunicación será una u otra...

↳ No es lo mismo si  
te conoces como si no te  
conoces.

- Early stages
  - Need to build trust
  - Establishing context
  - Making important 'global' decisions
  - *Favours same time/same place*
- Intermediate stages
  - Often involves the parallel detailed design of components
  - Need for clarification of interfaces etc
  - *Favours same time/different place*

# Best Method of Communication Depends on Stage of Project (ii)

*(Cuando ya estas implementandolo... por mandas un correo...)*

- Implementation stages
  - Design is relatively clear
  - Domain and context familiar
  - Small amounts of operational data need to be exchanged
  - *Favours different time/different place communications e.g. e-mail*
- Face to face coordination meetings – the 'heartbeat' of the project

# Communications Plans

*Establecer un plan de comunicación... Primero ver los interesados... planificación y comunicar el avance del proyecto.*

- As we have seen choosing the right communication methods is crucial in a project
- Therefore, a good idea to create a **communication plan**
- **Stages** of creating a communication plan
  - Identify all the major stakeholders for the project – see chapter 1
  - Create a plan for the project – see chapter 3
  - Identify stakeholder and communication needs for each stage of the project
  - Document in a communication plan



# Content of a Communication Plan

*quienes el destinatario  
el proposito... de la comunicación.  
/secuencia de un informe por ejemplo.*

For each communication event and channel, identify:

- *What.* This contains the name of a particular communication event, e.g, 'kick-off meeting', or channel, e.g. 'project intranet site'
- *Who/target.* The target audience for the communication
- *Purpose.* What the communication is to achieve

# Content of a Communication Plan (ii)

For each communication event and channel, identify (cont.):

*Cuando cuanto...*

- *When/frequency*. If the communication is by means of a single event, then a date can be supplied. If the event is a recurring one, such as a progress meeting then the frequency should be indicated

*Como...*

- *Type/method*. The nature of the communication, e.g., a meeting or a distributed document

*Responsabilidad...*

- *Responsibility*. The person who initiates the communication

# Leadership: Types of Authority

## Position power

- Coercive power – able to threaten punishment
- Connection power – have access to those who do have power
- Legitimate power – based on a person's title conferring a special status
- Reward power – able to reward those who comply

# Leadership: Types of Power

## Personal power

- Expert power: holder can carry out specialist tasks that are in demand
- Information power: holder has access to needed information
- Referent power: based on personal attractiveness or charisma

# Leadership Styles

## Decision making vs Implementation

	<b>Autocrat</b>	<b>Democrat</b>
<b>Directive</b>	makes decisions alone, close supervision of implementation	makes decisions participatively, close supervision of implementation
<b>Permissive</b>	makes decisions alone, gives latitude in implementation	makes decisions participatively, gives latitude in implementation

# Leadership Styles

*ponte técnico | líderes que se  
ponte de equipe | continuam...*

- **Task orientation** – focus on the work in hand
- **People orientation** – focus on relationships
- Where there is uncertainty about the way job is to be done or staff are inexperienced they welcome task oriented supervision
- Uncertainty is reduced – people orientation more important
- Risk that with reduction of uncertainty, managers have time on their hands and become more task oriented (interfering)

# Conclusion

- Consideration should be given, when forming a new project team, to getting the right mix of people and to planning activities which promote team building
- Group working is more effective with some types of activity than others
- The people who need to communicate most with each other should be grouped together organizationally
- Different styles of leadership are needed in different situations
- Care should be taken to identify the most effective way of communication with project participants at key points in the project