

Module Human Side

by *Gerrit Muller* University of South-Eastern Norway-NISE

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Abstract

The module Human Side addresses the psycho-social aspects of systems architecting.

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version: 1.6



The Human Side of Systems Architecting

by *Gerrit Muller* University of South-Eastern Norway-NISE

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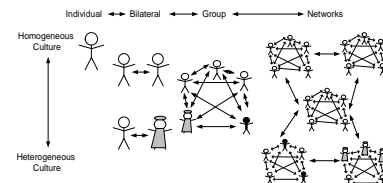
Abstract

Systems architects interact quite often with many humans, and create products that must satisfy human needs. Insight in human aspects is crucial. However, human aspects span a very broad field, the human sciences, that differs quite significantly from the technical background of most architects.

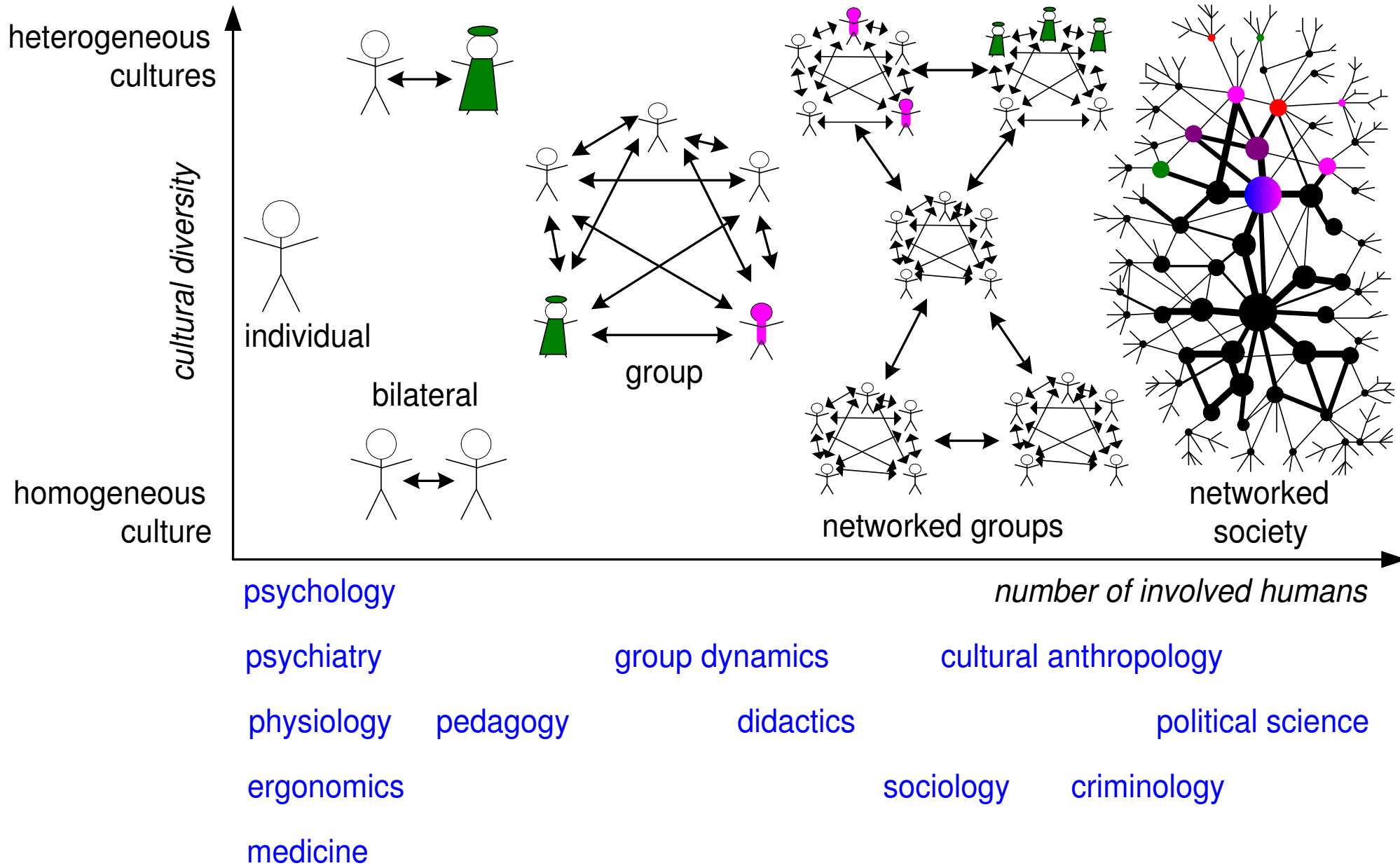
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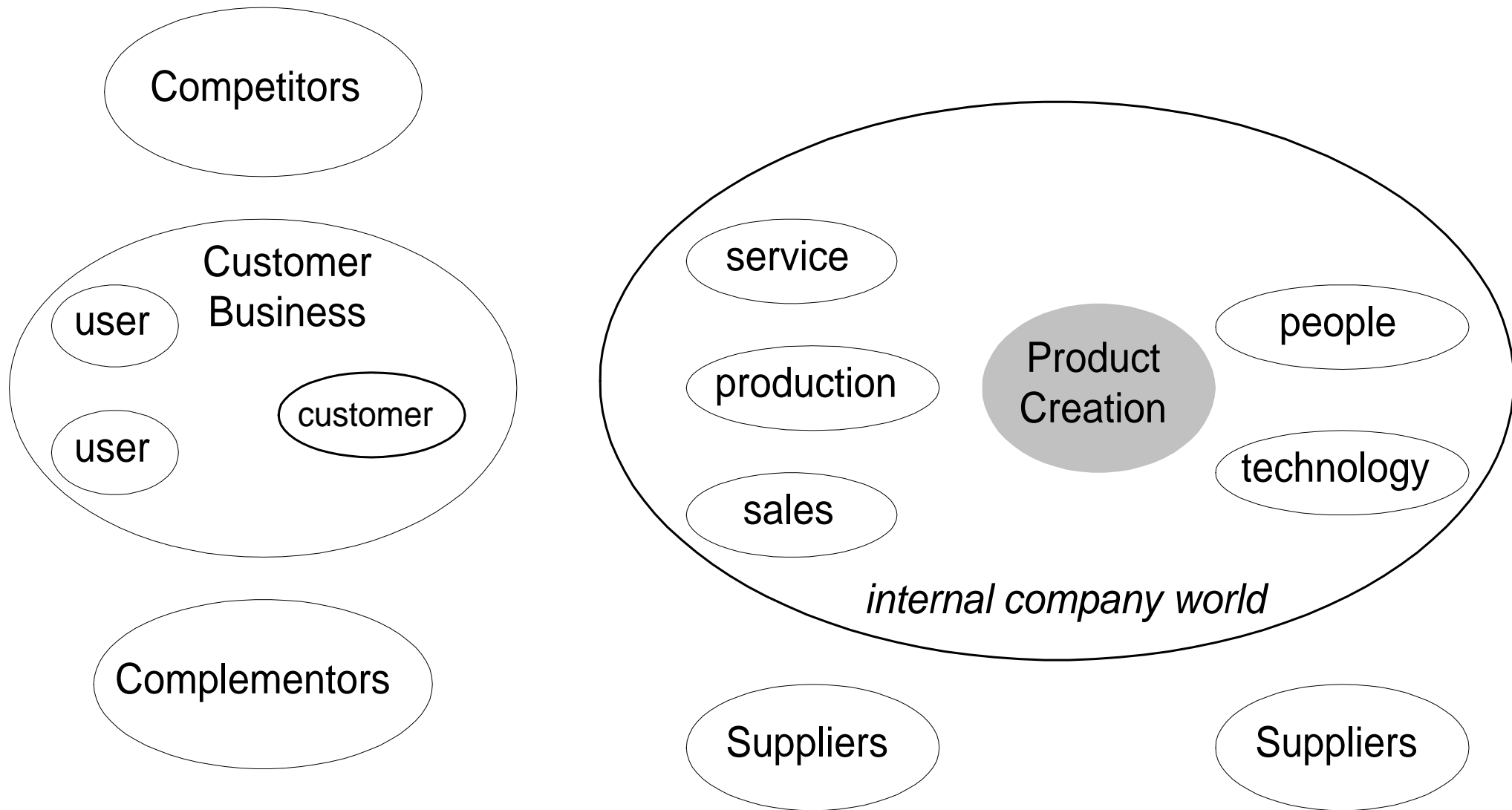
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Overview of Human Aspects



Context and Stakeholders of Product Creation



Human Measure and Information Technology

A working group, consisting of

- Dieter Hammer (Technical University Eindhoven),
- Jaap van Rees (Van Rees adviesbureau),
- Jeroen van Hoven (Erasmus University Rotterdam),
- Kees van Overveld (Philips Research/TUE),
- Daan Rijsenbrij (Cap Gemini),
- Nathalie Masseur (Cap Gemini),
- and Gerrit Muller (Philips Research)

wants to increase the awareness in the ICT-architecture community of the human aspects.

Human Side: Interpersonal Skills

by *Gerrit Muller* University of South-Eastern Norway-NISE

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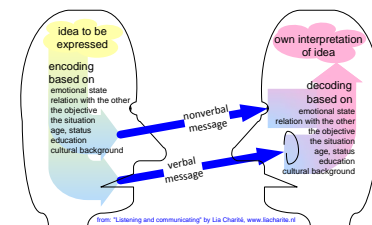
Abstract

We discuss in this paper a set of skills and techniques to cooperate effectively between two individuals. We show the wonders of communication and then we address techniques such as investigation and acknowledgement, constructive feedback, conflict management, appraisal, good practices in a conversation, searching for ideas.

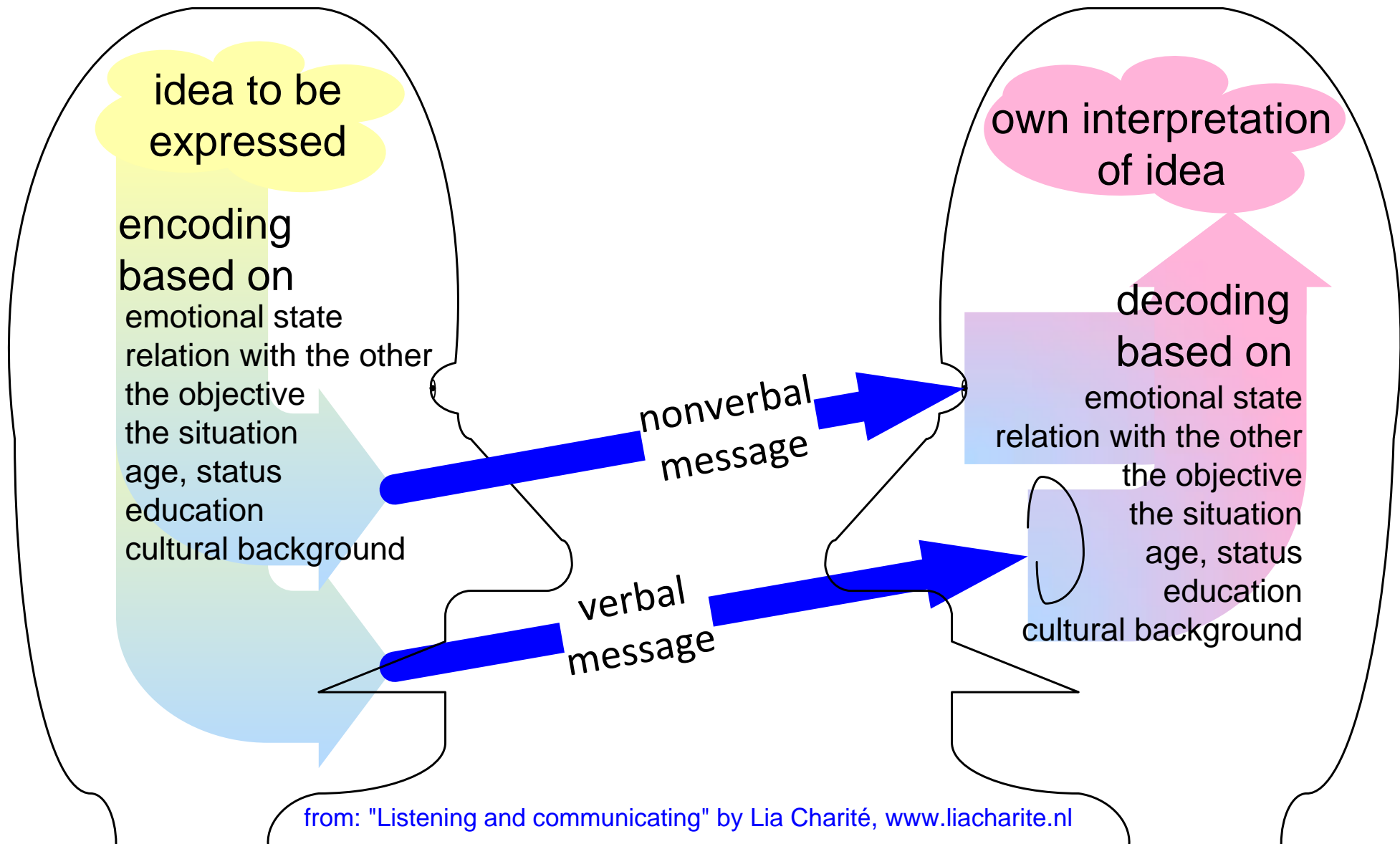
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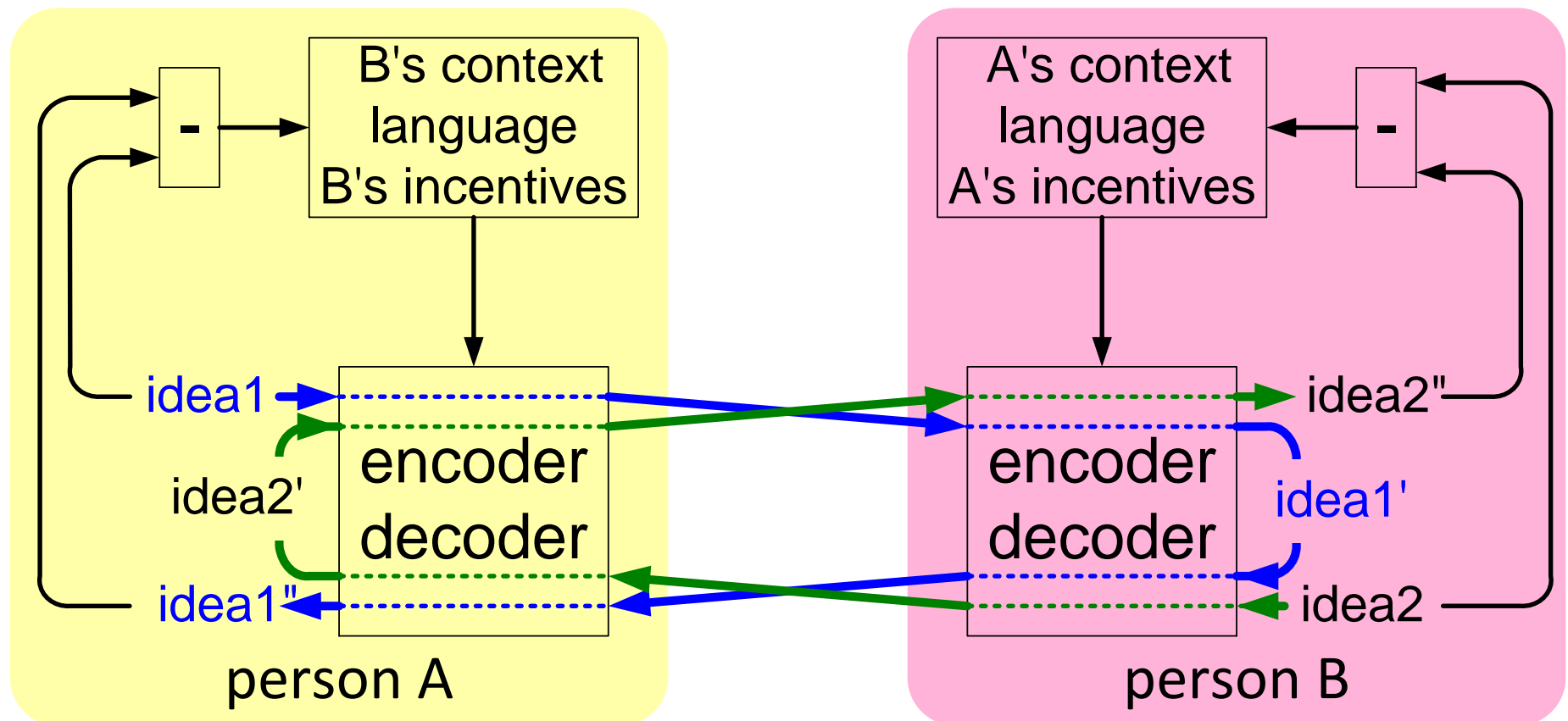


Active listening: the art of the receiver to decode the message

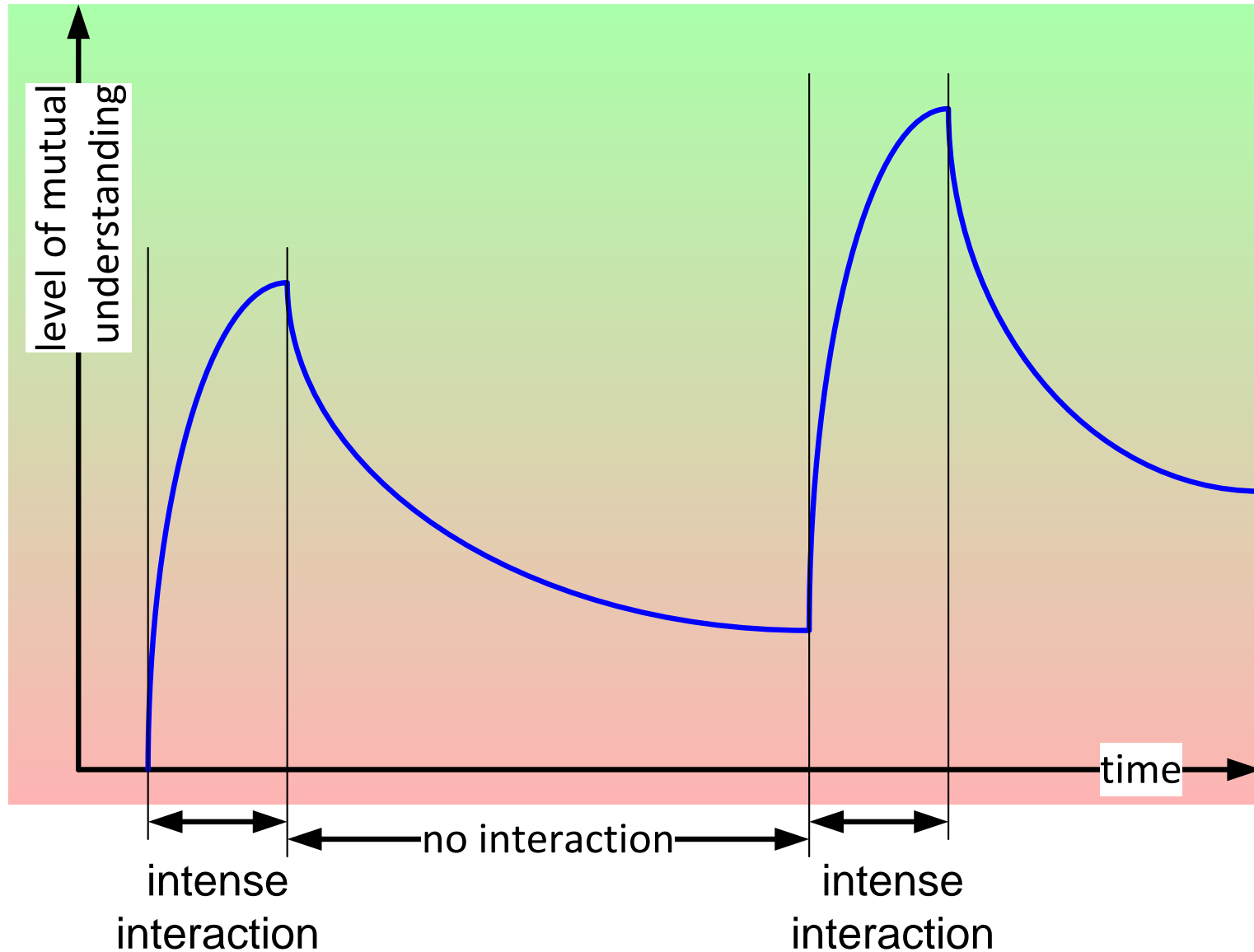


Intense interaction needed for mutual understanding

to calibrate:
repeat many times with different
examples, illustrations, and explanations

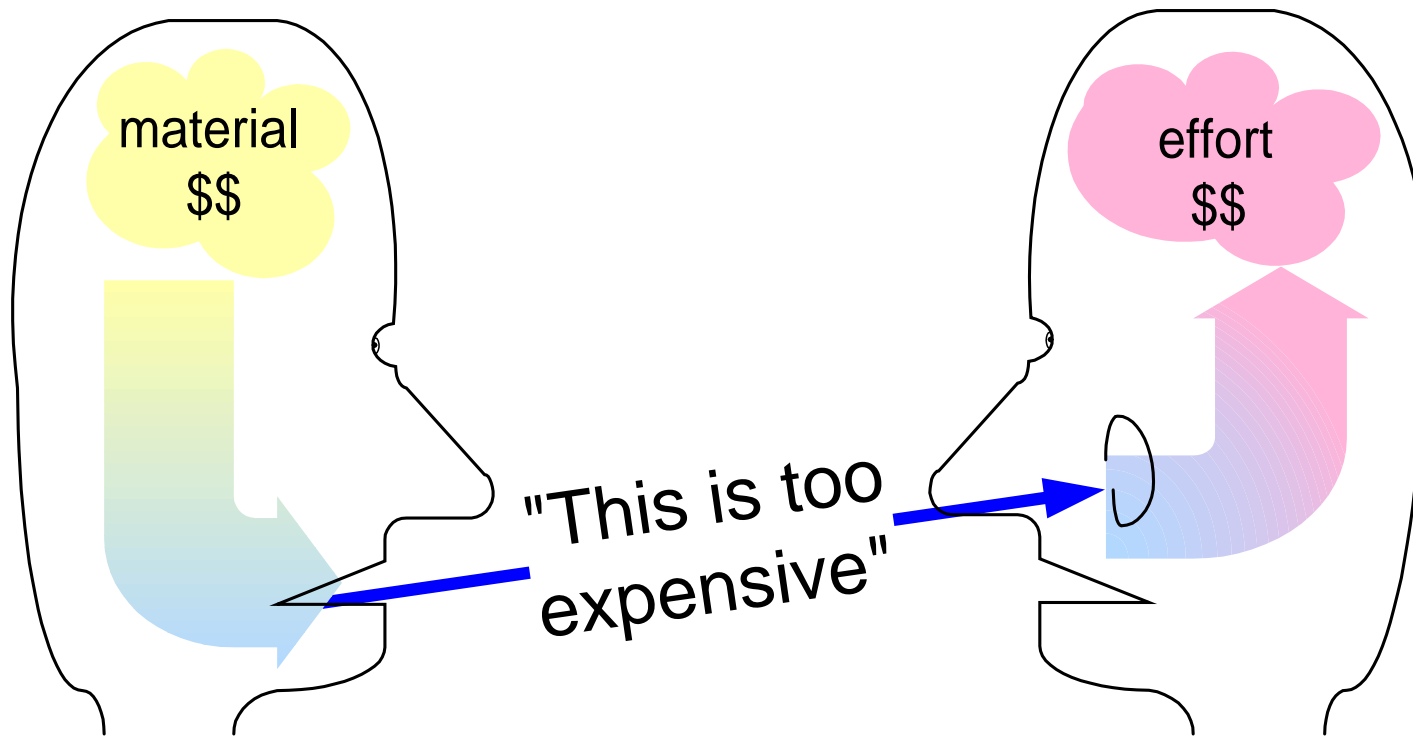


Mutual understanding as function of time



The material for interpersonal skills
is based on a set of techniques
from a course
"Interpersonal Management Skills"
by
Hay Management Consultants
in 1998

Investigate and Acknowledge



investigate:

What has been said and why?

acknowledge:

Paraphrase what has been said and why?

i.e. use your own words

When a decision will be taken or an action will be started on the basis of exchanged information, opinions or suggestions
or
when the first reaction is to reject, ignore or contradict what you just heard.

Constructive Feedback

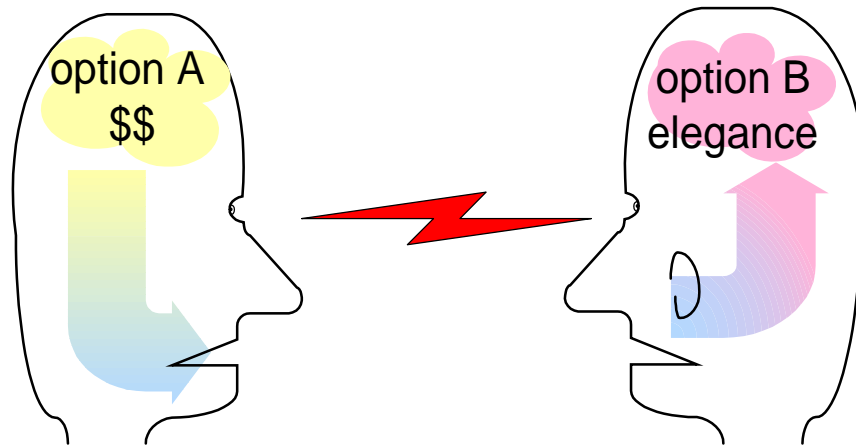
How

- + Indicate the strong points to be kept
- + Indicate the points to be improved
- + Search for solutions which build upon the strong points and improve the weak points

When

You want to facilitate someone to improve his/her performance

Conflict Management



When
in case of conflict

How?
define the positions:
* indicate what is important for you and why
* investigate and acknowledge what is important for the other and why

If you are willing and able to consider alternatives:

IF

If you are not willing and able to consider alternatives, or no acceptable solution for both parties can be found:

Search for alternative solutions

Finish the conversation:
* acknowledge the right to have a different opinion
* indicate your decision and why

Appraisal

When

Someone's performance is important for you

- * exceeding the expectations
- * meets expectations continuously
- * meets expectations, which exceed the normal performance level of this person

Appraise only when authentic!

How

- + Mention the performance very specific.
- + Mention the personal qualities which lead to this performance.
- + Describe which advantages arise for you, the department or the organization.

When you open a conversation

formulate the purpose

When you finish the conversation

summarize the agreements and the actionplan

Searching for Ideas

When asking for a suggestion



give a reaction

When supplying a suggestion



ask for a reaction

When you use or build
upon ideas of others



mention the source of the
ideas

When you need new or
more creative ideas



remove limitations temporarily
or add limitations

Human Side: Team Work

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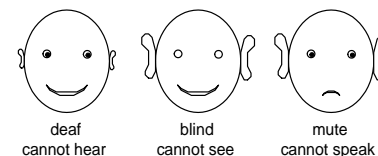
Abstract

The creation of products requires many different people to cooperate. The work is often organized in teams. The team members have complimentary skills and knowledge. In many management courses the need to design teams is emphasized. Unfortunately, often these recommendations are ignored. We re-iterate in this paper the rationale for teams and the recommendations for designing the team itself.

Distribution

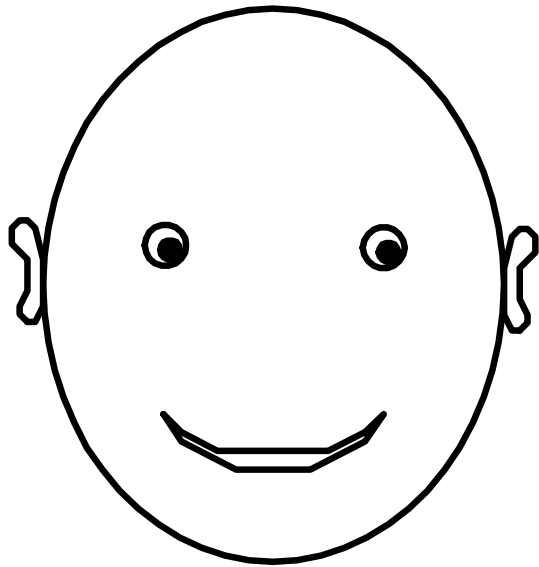
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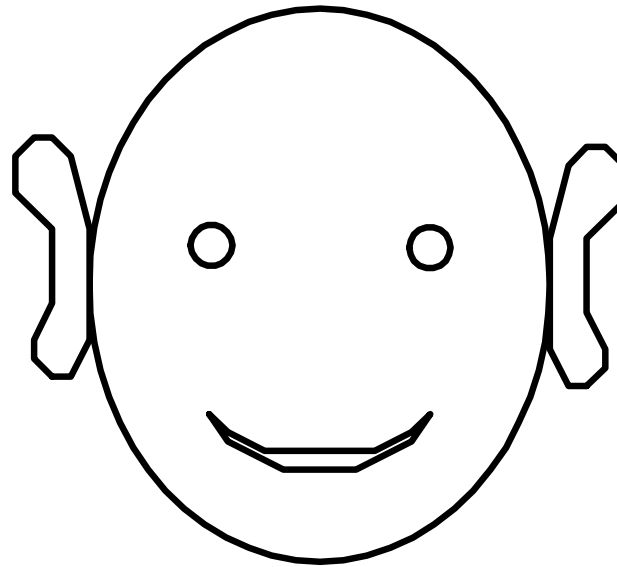


*but in the team two can hear,
two can see, and two can speak*

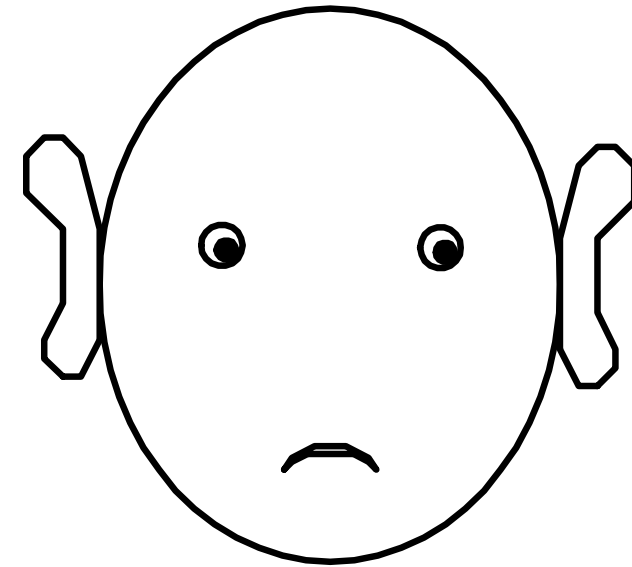
Teams consist of complementary people



deaf
cannot hear



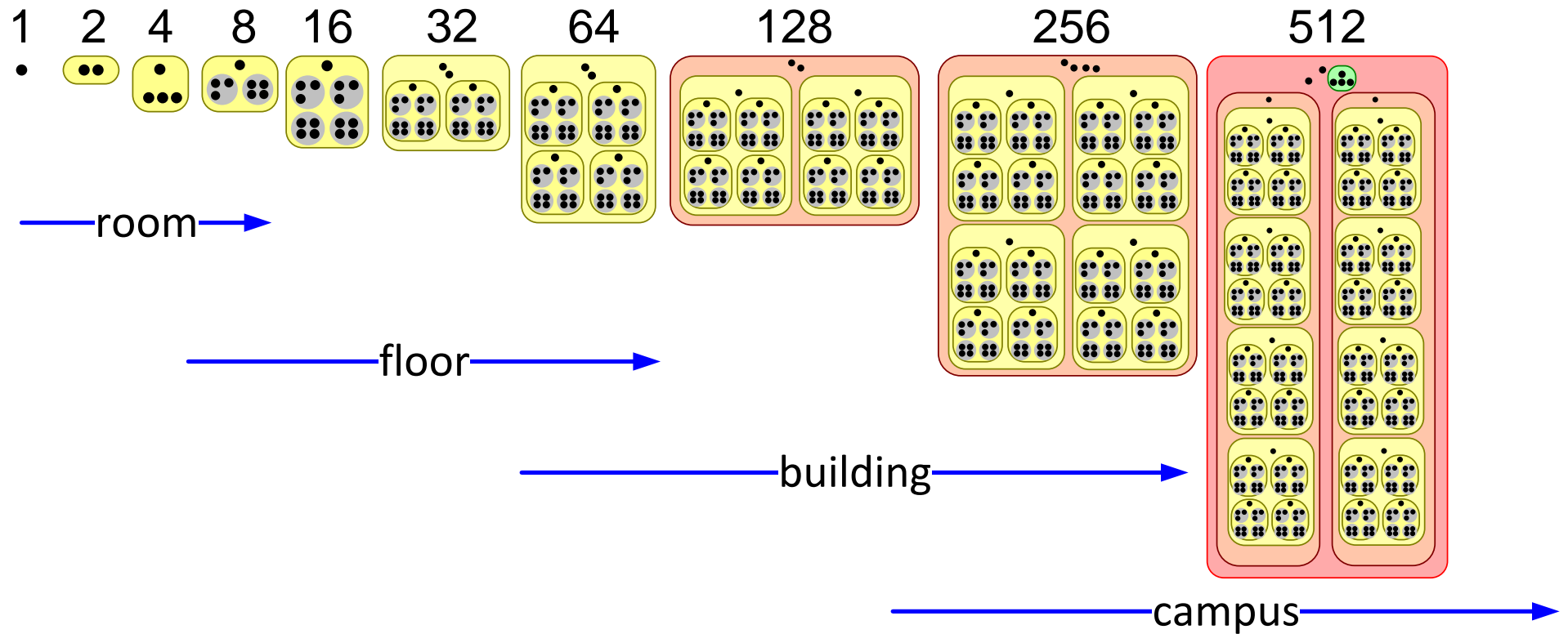
blind
cannot see



mute
cannot speak

*but in the team two can hear,
two can see, and two can speak*

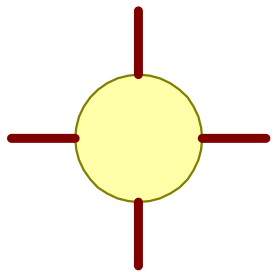
Organization size and teams



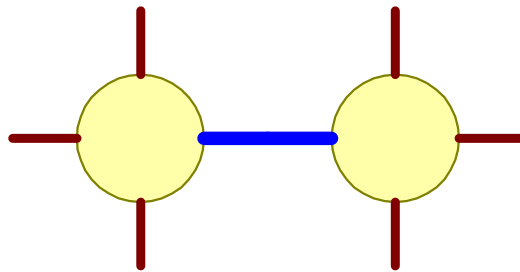
Very simplistic team model

legend

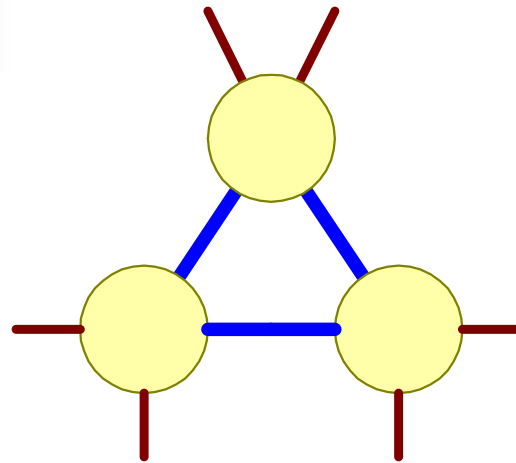
— productive work
— communication



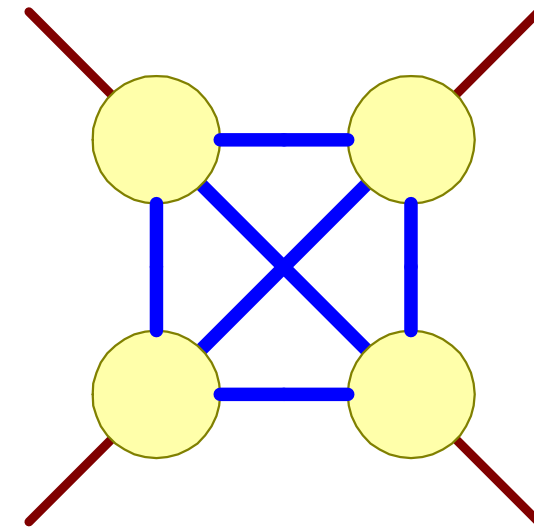
1-person
team
eff = 100%



2-person
team
eff = 75%



3-person
team
eff = 50%



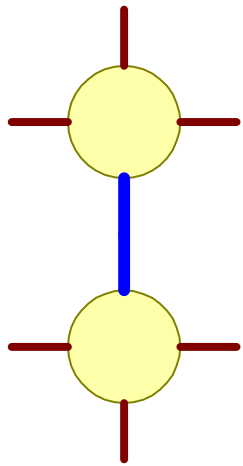
4-person
team
eff = 25%

Hierarchical simplistic team model

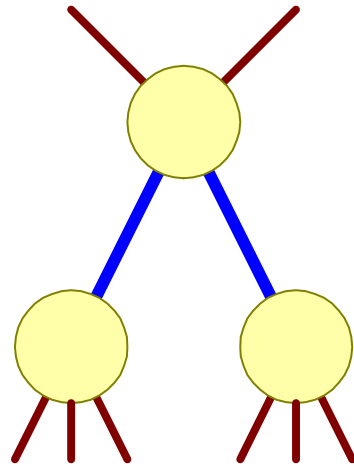
legend

— productive work

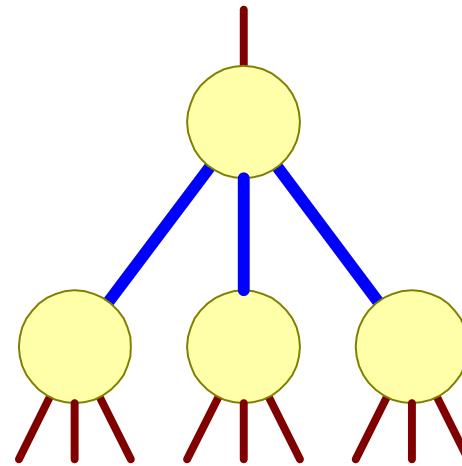
— communication



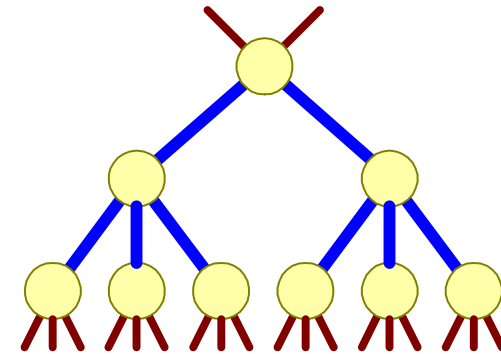
2-person
team
eff = 75%



3-person
team
eff = 66%

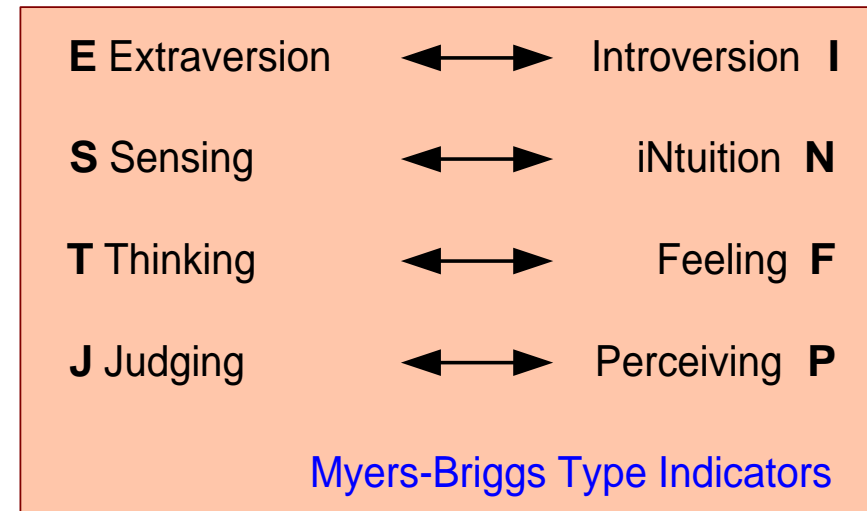
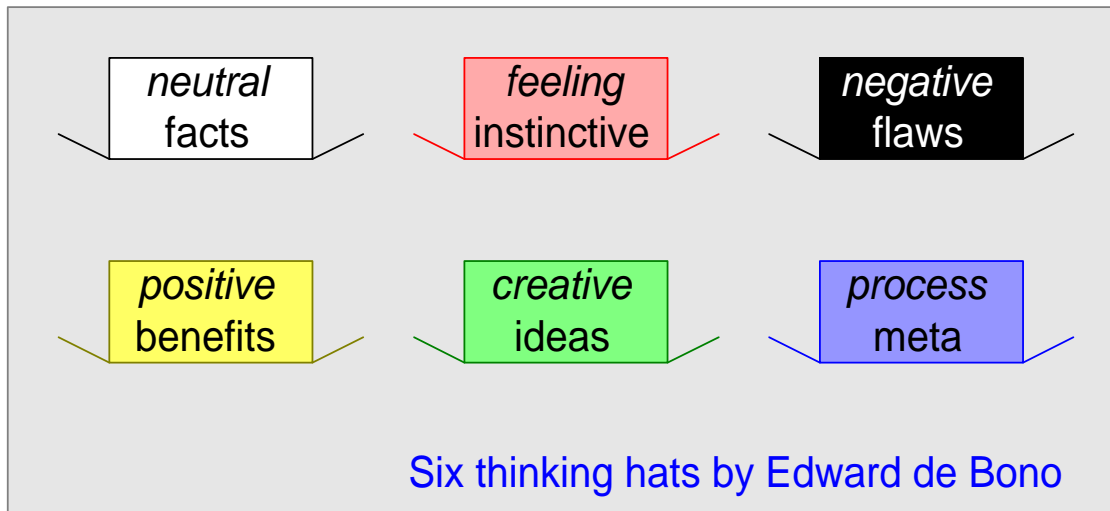


4-person
team
eff = 62.5%



9-person
team
eff ~ = 56%

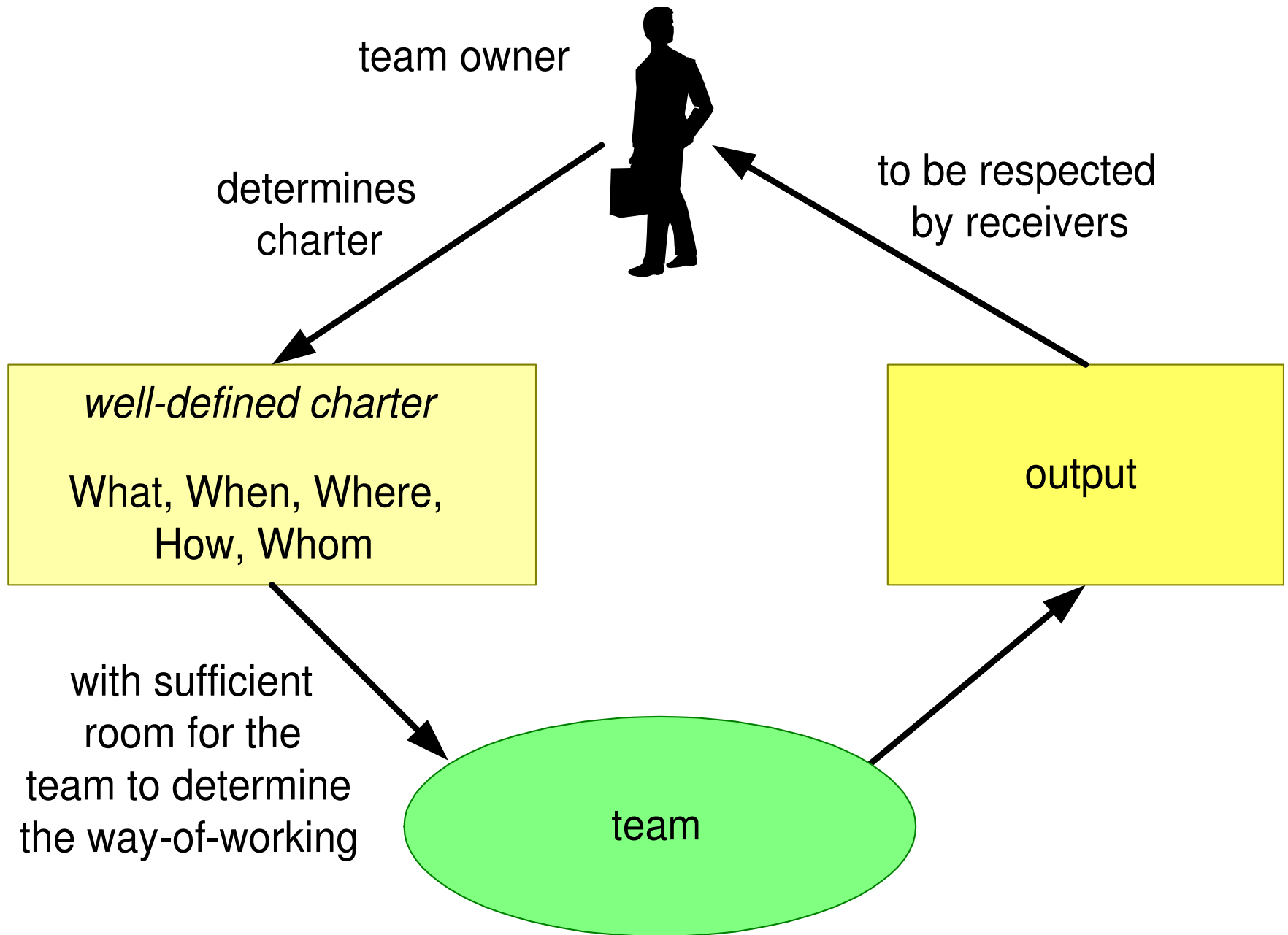
Many personality and role models are available



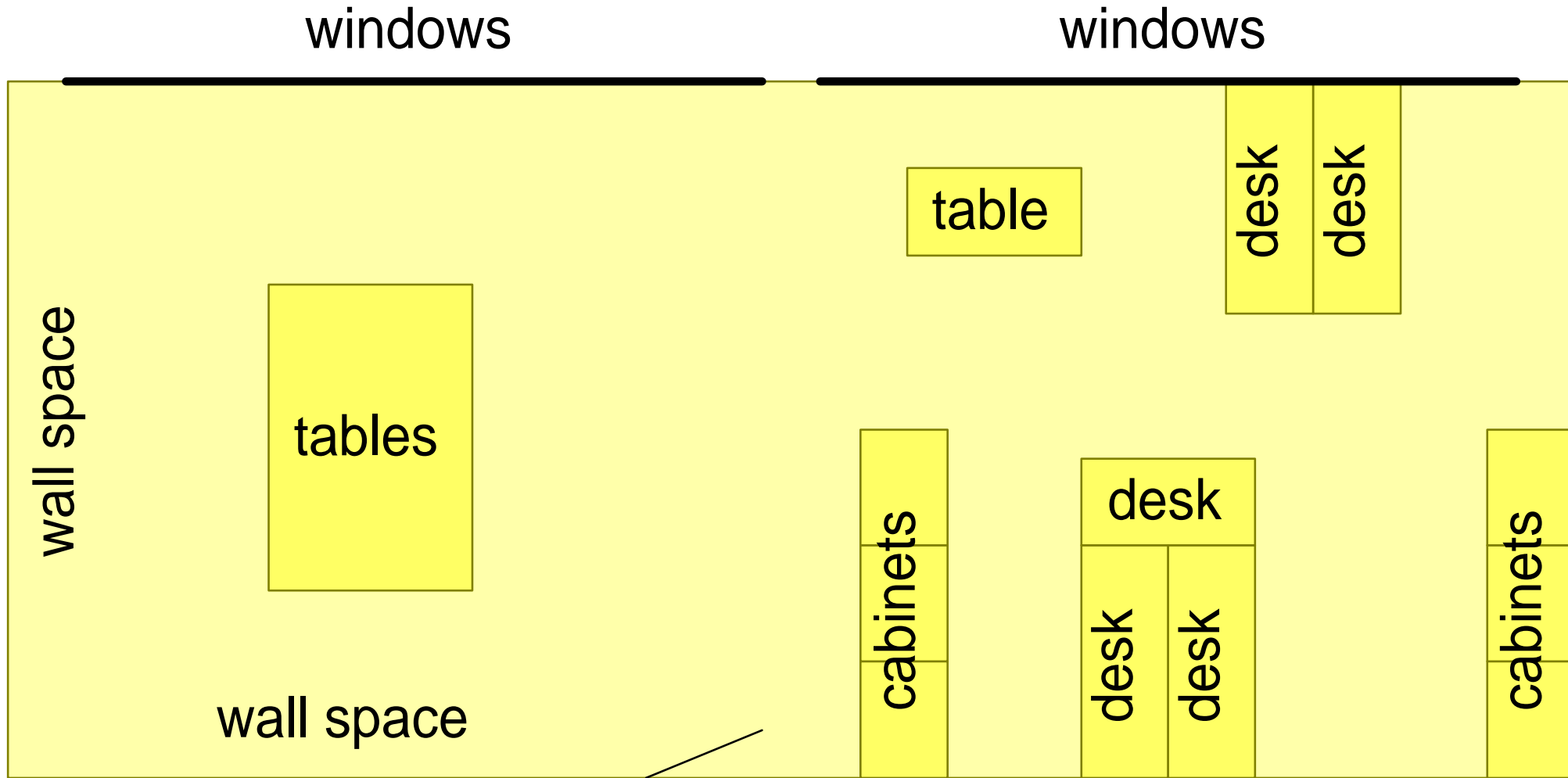
<i>plant</i> creative	<i>team worker</i> co-operative, averts friction	<i>implementer</i> disciplined, conservative, do-er
<i>resource investigator</i> enthusiatic communicator	<i>shaper</i> driver, dynamic	<i>completer finisher</i> conscientious, painstaking
<i>co-ordinator</i> mature, chairman	<i>monitor evaluator</i> sober, analytical	<i>specialist</i> single-minded, rare skills

Belbin's team roles

Process of creating and using a team



“War Room” is very effective

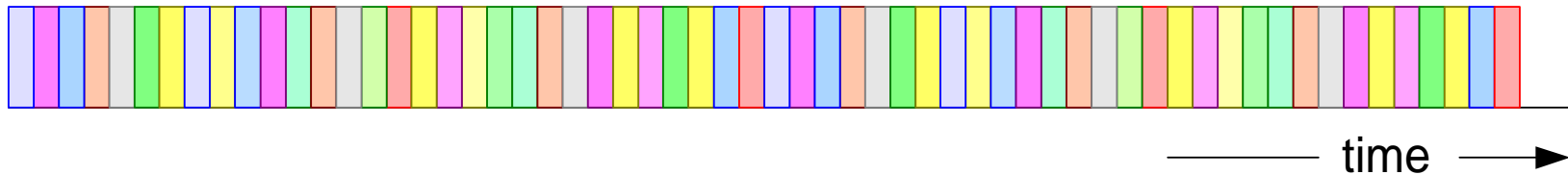


Concurrency and Fragmentation lower efficiency

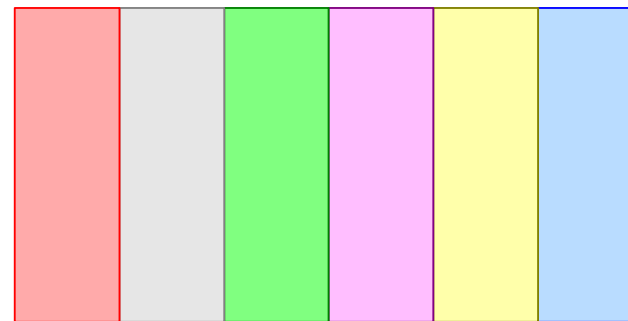
How many (semi-)concurrent tasks can a person handle?
Working in burst-mode (concentrating on one task for one day, week or month) can increase efficiency.



or

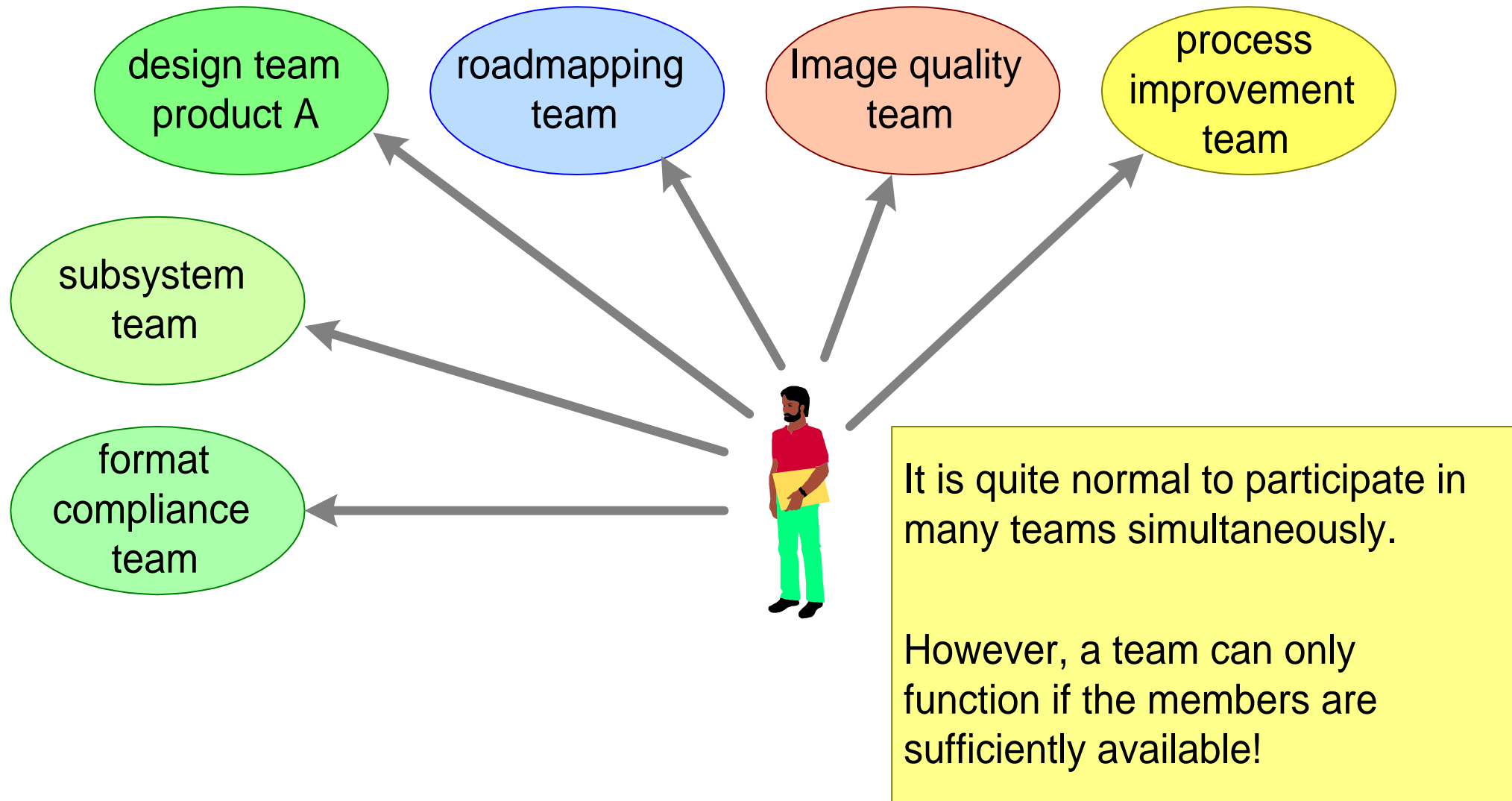


six tasks in parallel:
all results are late



six tasks sequential
first result in 1/6 of time!

One person will be member of multiple teams



Critical Success Factors for teams

well defined charter

clear owner of the result

respect for the output of the team

freedom of way-of-working

housing and location

availability of team members

complementary roles

diversity, pluriformity

Function Profiles; The Sheep with Seven Legs

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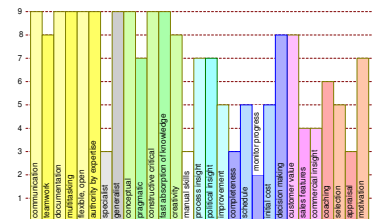
Abstract

The profile of a system architect is quantified for a large list of system architect related characteristics. For comparison the function profiles of related functions are given as well. This profile is based on personal observations and experience.

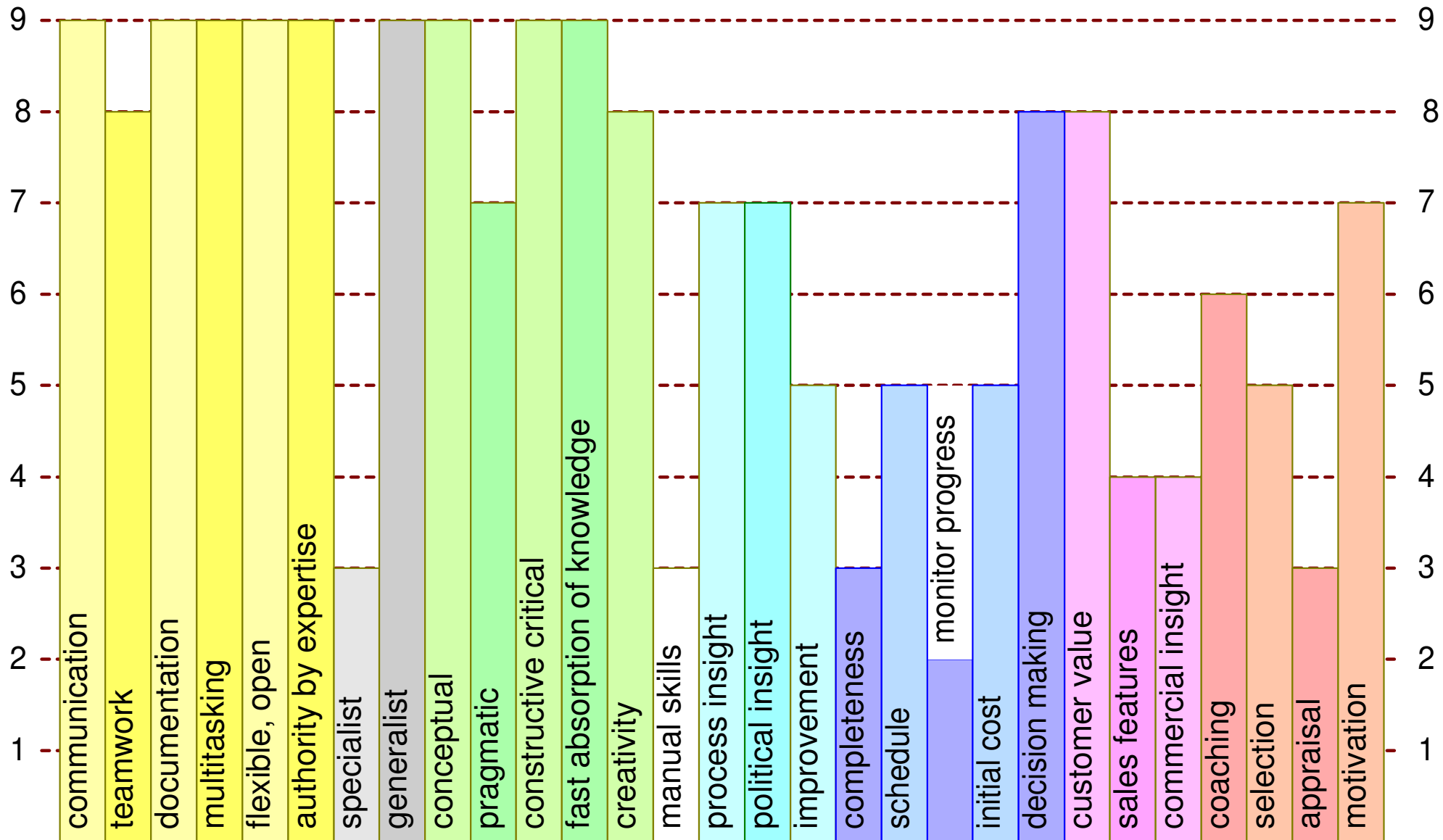
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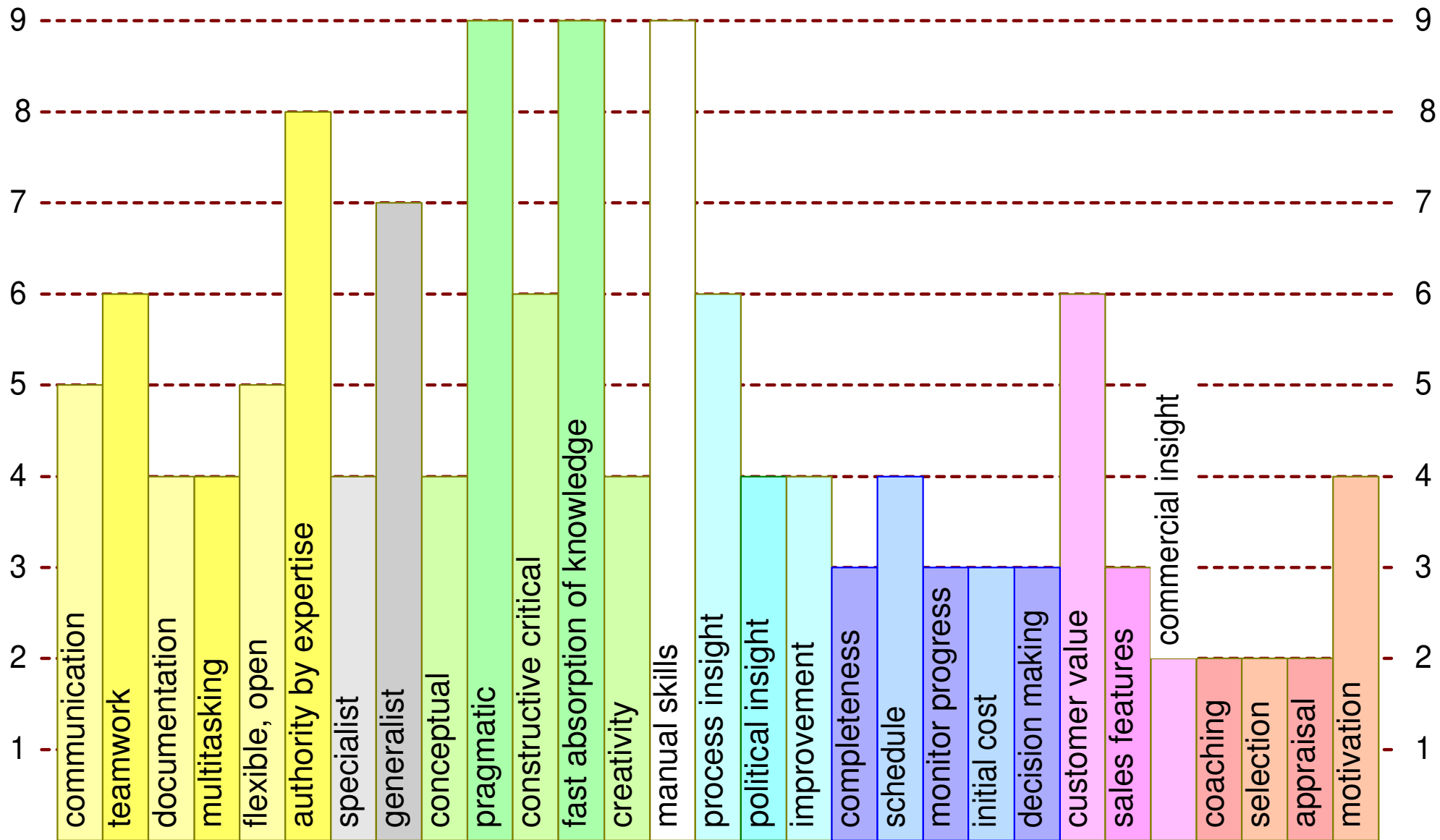
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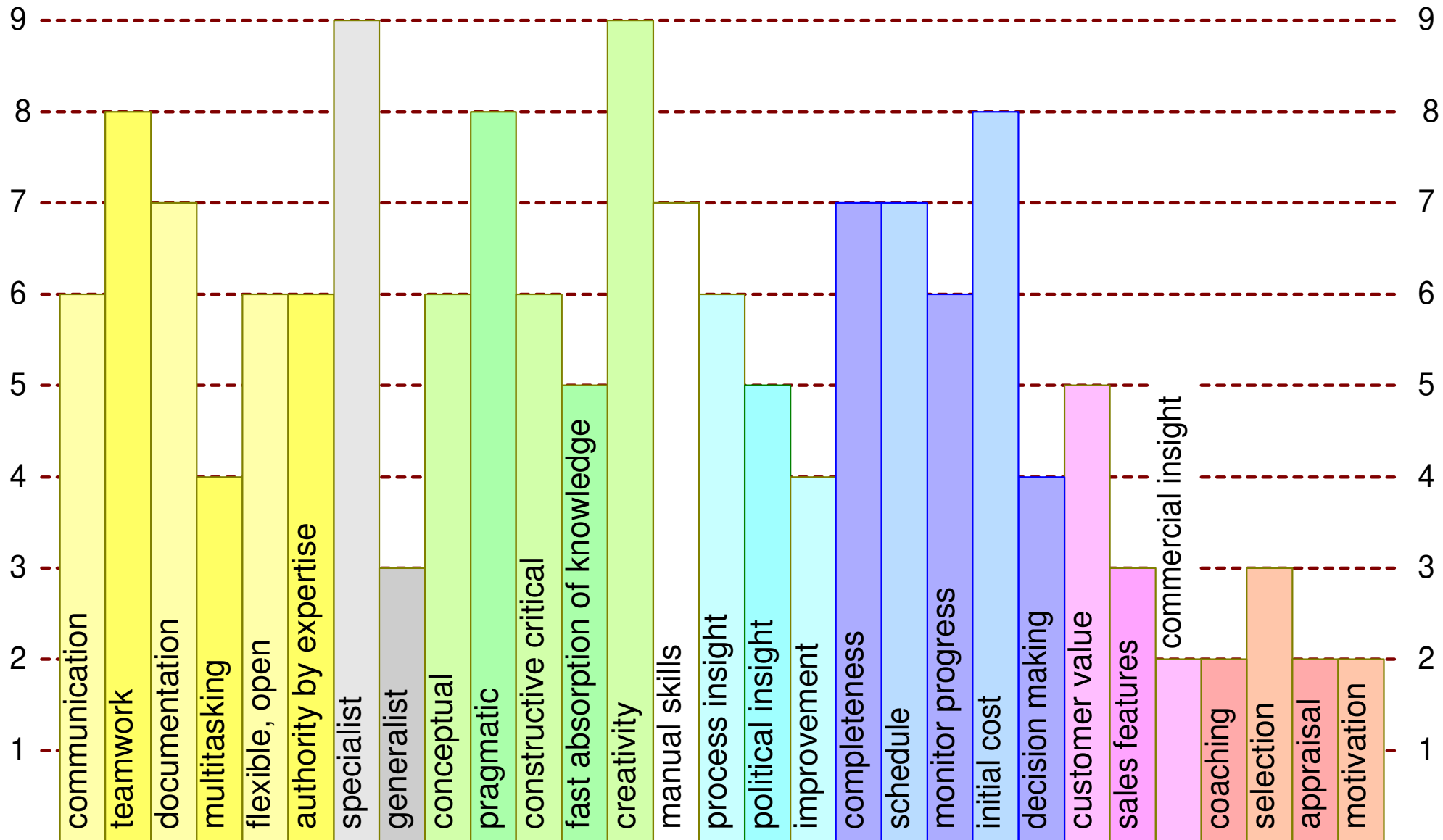
System Architect



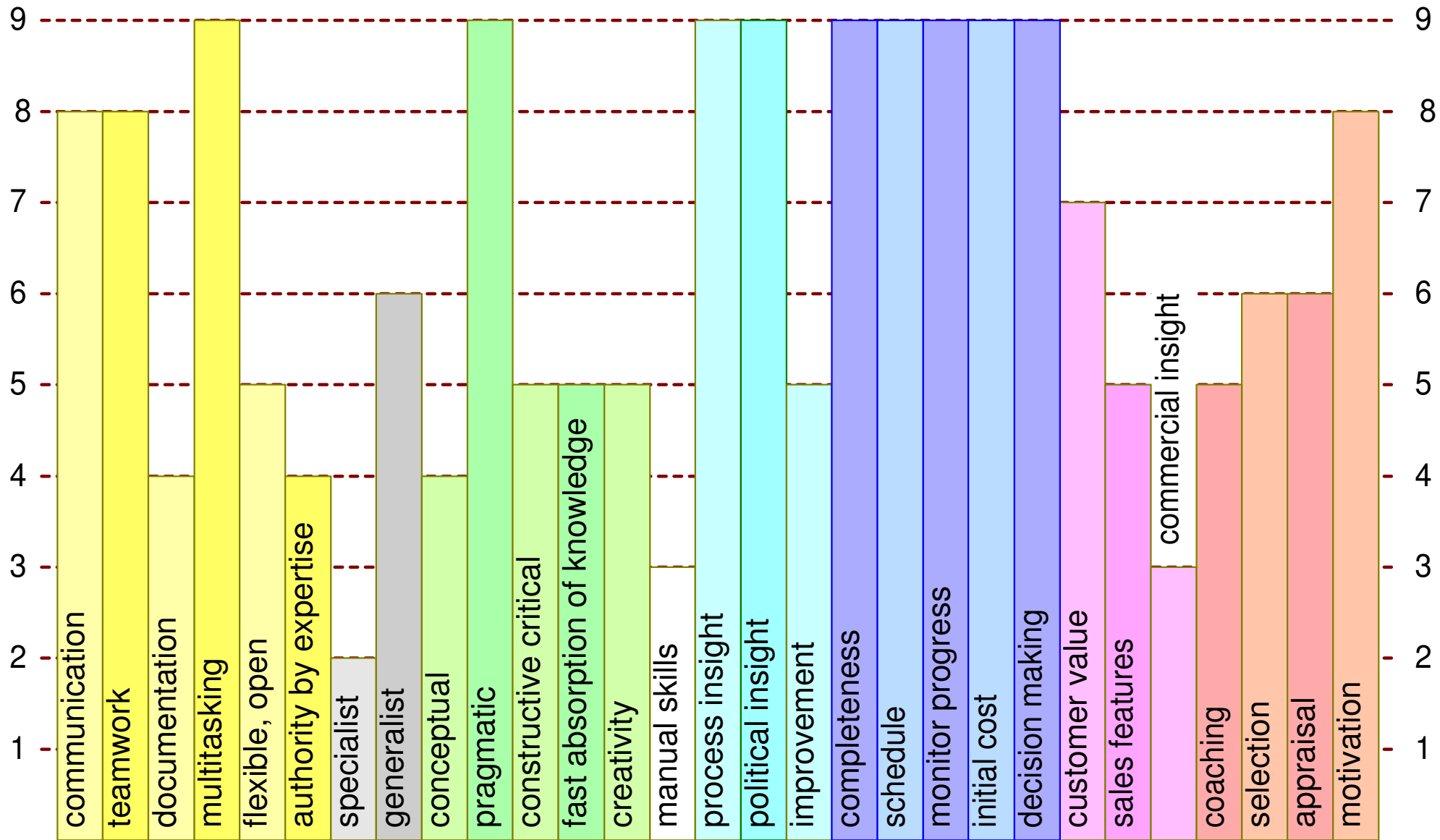
Test Engineer



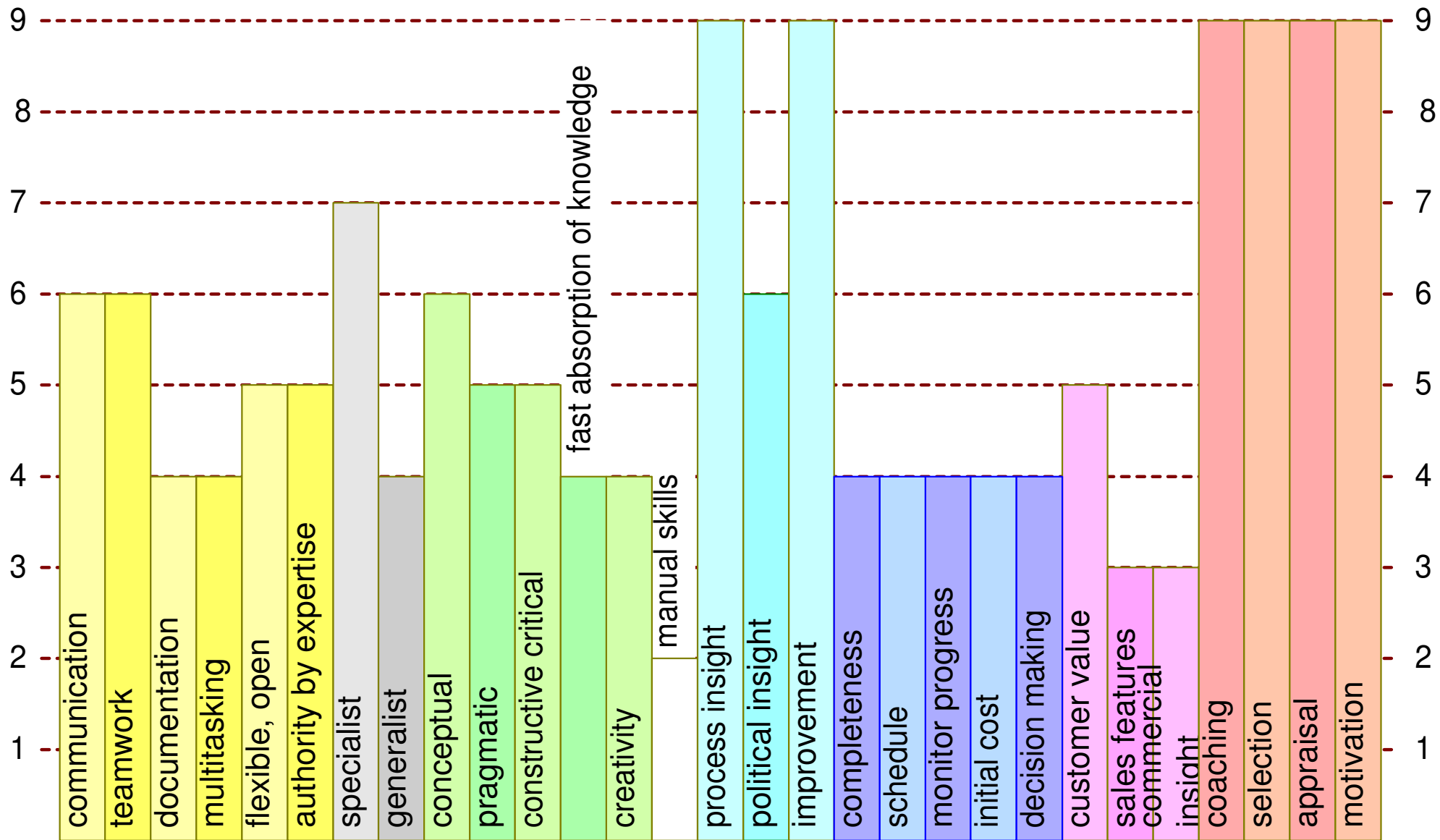
Developer



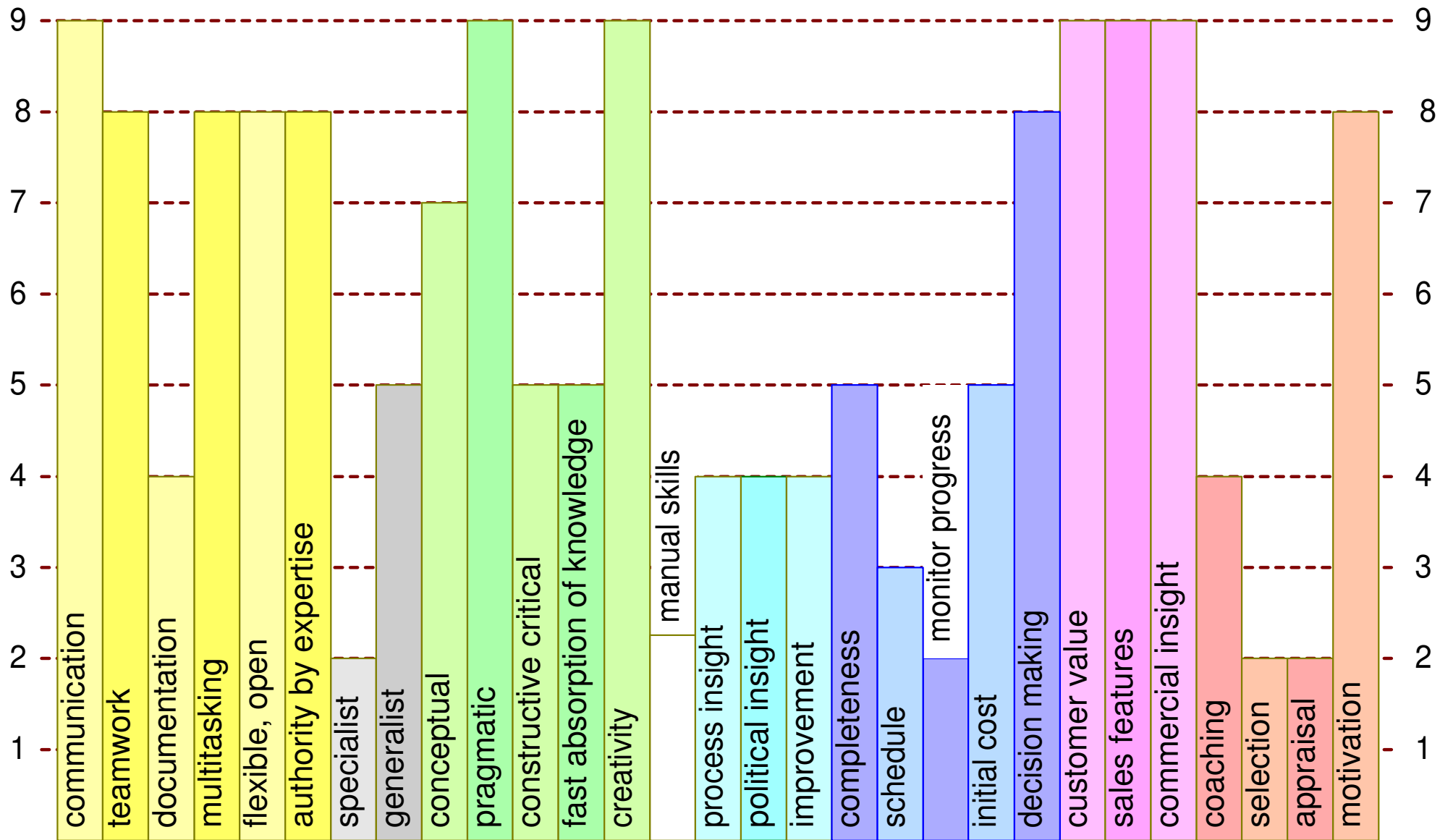
Operational Leader



Line Manager



Commercial Manager



The numbers behind the bars

	communication	teamwork	documentation	multitasking	flexible, open	authority by expertise	specialist	generalist	conceptual	pragmatic	constructive critical	fast absorption of knowledge	creativity	manual skills	process insight	political insight	improvement	completeness	schedule	monitor progress	initial cost	decision making	customer value	sales features	commercial insight	coaching	selection	appraisal	motivation
systems architect	9	8	9	9	9	9	3	9	9	7	9	9	8	3	7	7	5	3	5	2	5	8	8	4	4	6	5	3	7
test engineer	5	6	4	4	5	8	4	7	4	9	6	9	4	9	6	4	4	3	4	3	3	3	6	3	2	2	2	2	4
developer	6	8	7	4	6	6	9	3	6	8	6	5	9	7	6	5	4	7	7	6	8	4	5	3	2	2	3	2	2
operational leader	8	8	4	9	5	4	2	6	4	9	5	5	5	3	9	9	5	9	9	9	9	9	7	5	3	5	6	6	8
line manager	6	6	4	4	5	5	7	4	6	5	5	4	4	2	9	6	9	4	4	4	4	4	5	3	3	9	9	9	9
commercial manager	9	8	4	8	8	8	2	5	7	9	5	5	9	2	4	4	4	5	5	2	5	8	9	9	9	4	2	2	8

Exercise Psycho-Social Side

Make a (critical and honest) profile of yourself and of the operational or the line manager, who thinks he is managing you.

Select 2 characteristics which you find difficult to assess or where you expect that other people will have a totally different perception. Discuss these 2 characteristics in the group.

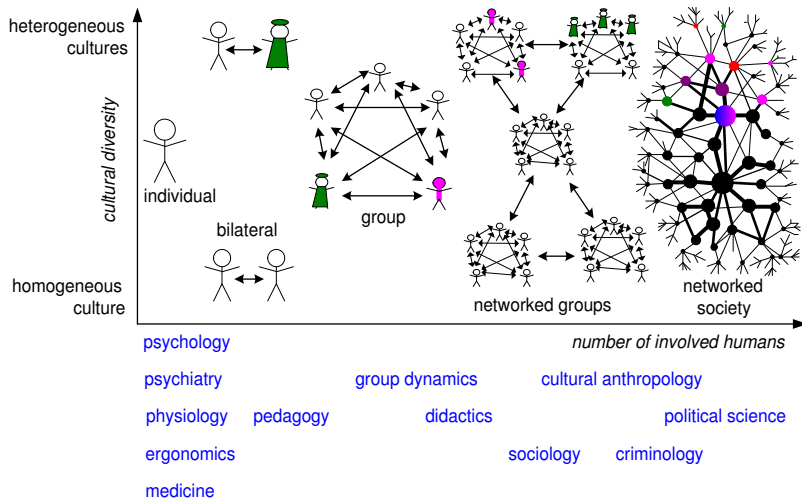
Present (max 1 flip) the highlights.

Characteristics

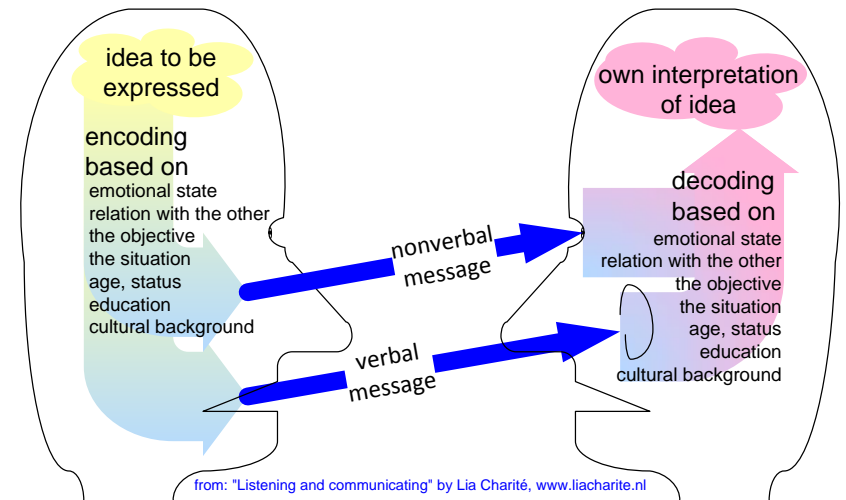
	communication	
	teamwork	
	documentation	
	multitasking	
	flexible, open	
	authority by expertise	
	specialist	
	generalist	
	conceptual	
	pragmatic	
	constructive critical	
	fast absorption of knowledge	
	creativity	
	manual skills	
	process insight	
	political insight	
	improvement	
	completeness	
	schedule	
	monitor progress	
	initial cost	
	decision making	
	customer value	
	sales features	
	commercial insight	
	coaching	
	selection	
	appraisal	
	motivation	

Human Side

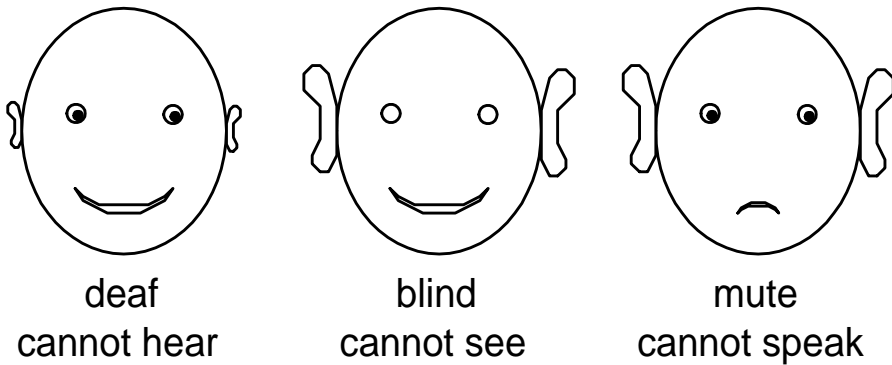
From Individual to Society



The Wonder of Bilateral Communication

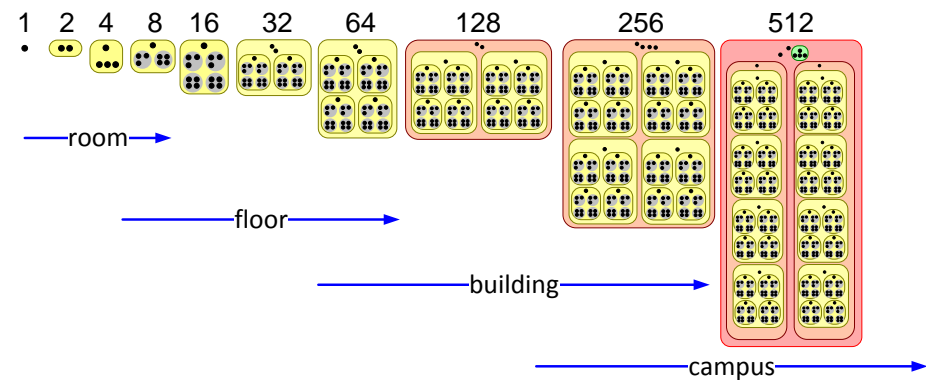


Team work



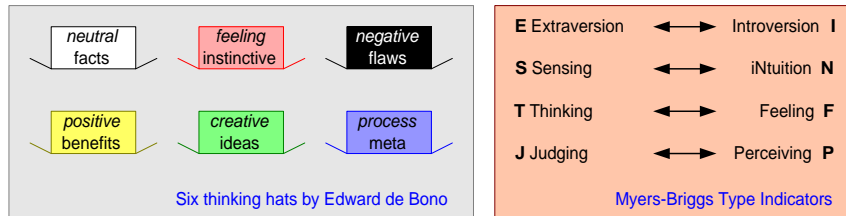
*but in the team two can hear,
two can see, and two can speak*

Impact of Size



Teams

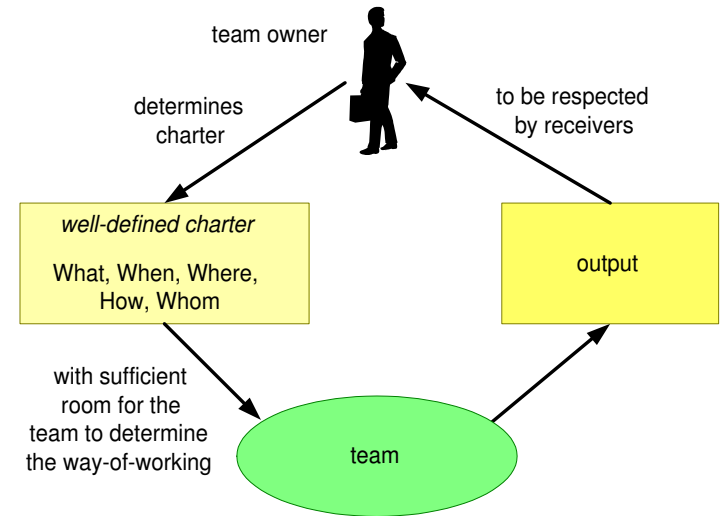
Role variations



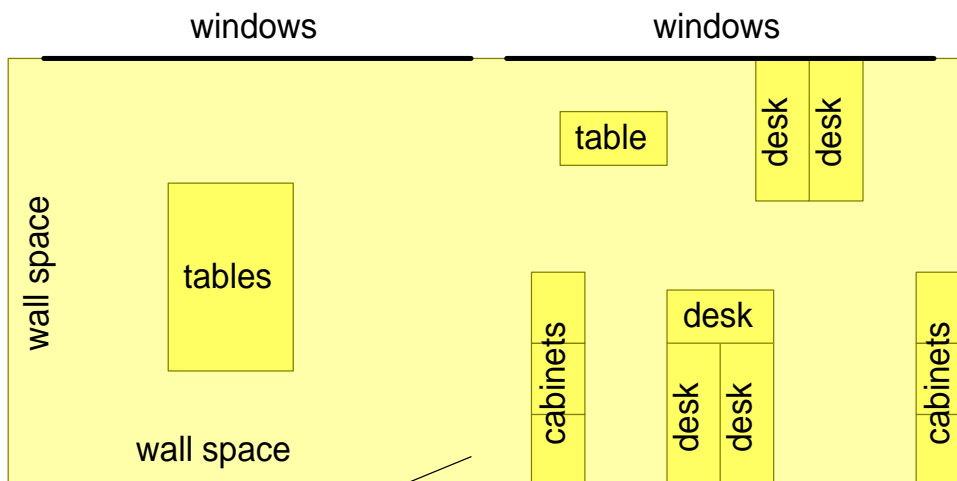
<i>plant</i> creative	<i>team worker</i> co-operative, averts friction	<i>implementer</i> disciplined, conservative, do-er
<i>resource investigator</i> enthusiastic communicator	<i>shaper</i> driver, dynamic	<i>completer finisher</i> conscientious, painstaking
<i>co-ordinator</i> mature, chairman	<i>monitor evaluator</i> sober, analytical	<i>specialist</i> single-minded, rare skills

Belbin's team roles

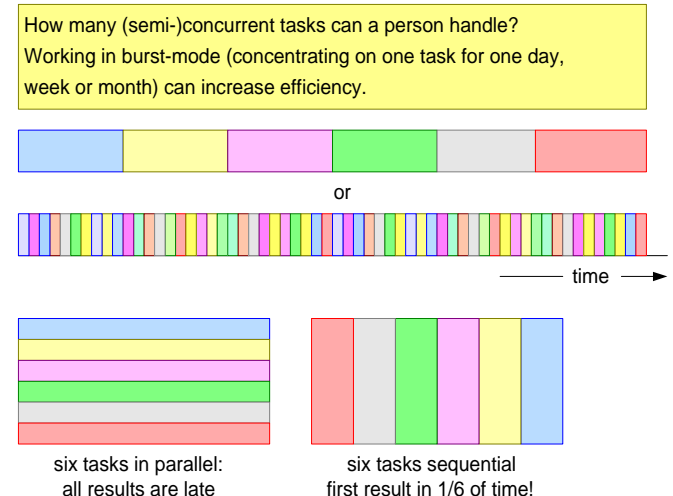
Design the team!



Design team environment

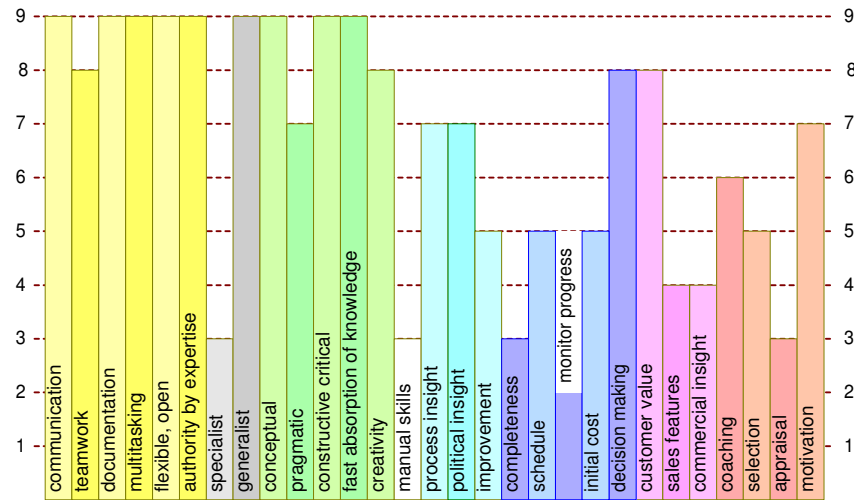


Focus, avoid fragmentation



Function Profiles

Sheep with 7 Legs?



intentionally left blank

intentionally left blank

intentionally left blank