Module Human Side

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Abstract

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

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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.
Overview of Human Aspects

heterogeneous cultures

individual

bilateral

group

networked groups

networked society

psychology

psychiatry
group dynamics
cultural anthropology

physiology
pedagogy
didactics

medical

ergonomics
didactics

medicine

number of involved humans

cultural diversity

individual

bilateral

group

networked groups

cultural anthropology

physiology
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 Masseus (Cap Gemini),
- and Gerrit Muller (Philips Research)

wants to increase the awareness in the ICT-architecture community of the human aspects.
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.
Active listening: the art of the receiver to decode the message

idea to be expressed
encoding based on emotional state relation with the other
the objective
the situation
age, status
education
cultural background

verbal message
nonverbal message

own interpretation of idea

decoding based on emotional state relation with the other
the objective
the situation
age, status
education
cultural background

from: "Listening and communicating" by Lia Charité, www.liacharite.nl
Intense interaction needed for mutual understanding

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

Human Side: Interpersonal Skills

version: 0.1
January 19, 2015
CVCcodingCalibration
Mutual understanding as function of time

![Graph showing the relationship between time and level of mutual understanding. The graph indicates periods of intense interaction and no interaction over time.](image)
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:
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**

**How?**

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

**When**

in case of conflict

**IF**

If you are willing and able to consider alternatives:

Search for alternative solutions

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

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

**Human Side: Interpersonal Skills**

13 Gerrit Muller
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
When supplying a suggestion
When you use or build
  upon ideas of others
When you need new or
  more creative ideas

give a reaction
ask for a reaction
mention the source of the ideas
remove limitations temporarily or add limitations
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.
Teams consist of complementary people

but in the team two can hear,
two can see, and two can speak
Organization size and teams

- Room
- Floor
- Building
- Campus
Very simplistic team model

1-person team  
\text{eff} = 100\%

2-person team  
\text{eff} = 75\%

3-person team  
\text{eff} = 50\%

4-person team  
\text{eff} = 25\%

**legend**

- red: productive work
- blue: communication

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**Human Side: Team Work**
20  
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**version:** 0.2
**January 19, 2015**

HSTWsimpleTeamModel
Hierarchical simplistic team model

2-person team
eff = 75%

3-person team
eff = 66%

4-person team
eff = 62.5%

9-person team
eff ~= 56%

Legend:
- **productive work**
- **communication**
Many personality and role models are available

### Six thinking hats by Edward de Bono

- neutral facts
- feeling instinctive
- negative flaws
- positive benefits
- creative ideas
- process meta

### Myers-Briggs Type Indicators

- E Extraversion <-> Introversion I
- S Sensing <-> iNtuition N
- T Thinking <-> Feeling F
- J Judging <-> Perceiving P

### Belbin's team roles

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

Human Side: Team Work
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January 19, 2015
HSTWroles
Process of creating and using a team

Well-defined charter

What, When, Where, How, Whom

team owner
determines charter
to be respected by receivers

well-defined charter

team
determines charter with sufficient room for the team to determine the way-of-working

output

with sufficient room for the team to determine the way-of-working

Human Side: Team Work

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HSTWcharter
“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.

- 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

It is quite normal to participate in many teams simultaneously.

However, a team can only function if the members are sufficiently available!
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
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.
System Architect

Function Profiles; The Sheep with Seven Legs

Gerrit Muller
Operational Leader

- 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
- Coaching
- Selection
- Appraisal
- Motivation

Function Profiles; The Sheep with Seven Legs
32 Gerrit Muller
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FPOperationalLeader
Line Manager

Function Profiles; The Sheep with Seven Legs
Gerrit Muller

version: 1.0
January 19, 2015
FPLineManager
## The numbers behind the bars

<table>
<thead>
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<th>version: 1.0</th>
<th>January 19, 2015</th>
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<td><strong>commercial manager</strong></td>
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</table>
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

|---------------|---------|---------------|--------------|----------------|---------------------|------------|------------|------------|-----------|---------------------|-----------------------------|-----------|---------------|---------------|----------------|-------------|-------------|----------|----------------|--------------|---------------|----------------|-------------|----------------|-----------|----------|---------|-----------|

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**Exercise Psycho-Social Side**  
*Gerrit Muller*

*version: 1.0*  
*January 19, 2015*  
*FPtableExercise*
The Wonder of Bilateral Communication

**idea to be expressed**

- encoding based on emotional state, relation with the other, the objective, the situation, age, status, education, cultural background

**own interpretation of idea**

- decoding based on emotional state, relation with the other, the objective, the situation, age, status, education, cultural background

**message**

- nonverbal message
  - based on emotional state, relation with the other, the objective, the situation, age, status, education, cultural background
- verbal message

**message**

- based on emotional state, relation with the other, the objective, the situation, age, status, education, cultural background

**from:** "Listening and communicating" by Lia Charité, www.liacharite.nl

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**Team work**

- deaf cannot hear
- blind cannot see
- mute cannot speak

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

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**Impact of Size**

- 1
- 2
- 4
- 8
- 16
- 32
- 64
- 128
- 256
- 512

- room
- floor
- building
- campus
Teams

Role variations

Belbin's team roles

- Plant: creative
  - Resource investigator
  - Enthusiastic

- Co-ordinator
  - Mature, chairman
  - Monitor evaluator
  - Sober, analytical

- Team worker
  - Co-operative
  - Averts friction

- Implementer
  - Disciplined, conservative
  - Do-er

- Completer finisher
  - Conscientious, painstaking
  - Specialist
  - Single-minded, rare skills

Myers-Briggs Type Indicators

- E Extraversion ↔ Introversion
- S Sensing ↔ iNtuition
- T Thinking ↔ Feeling
- J Judging ↔ Perceiving

Six thinking hats by Edward de Bono

- Neutral facts
  - Feeling

- Instinctive
  - Positive benefits
  - Creative ideas

process meta

Design the team!

team owner

determines charter

well-defined charter

What, When, Where, How, Whom

output

with sufficient room for the team to determine the way-of-working

team

to be respected by receivers

Design team environment

windows

desk
table

cabinets

table

desk
desk
cabinets

tables

wall space

Focus, avoid fragmentation

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.

six tasks in parallel:
all results are late

six tasks sequential:
first result in 1/6 of time!
Summary Module Human Side
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