

Success Factors for Globally Distributed Projects

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Agenda

- Reasons for distributing projects globally
- Different kinds of cooperation
- Development Methods matter
- Is CMMI ML5 the Silver Bullet
- Soft facts

Reasons for Outsourcing

Source: Cutter

Cost	44%
Capacity	20%
Know how	13%
Time to market	11%
On site support	
Country specific adaptation	

Extent of Outsourcing (% of Fortune 500 Companies)

More than 50% in 2003

More than 80% in 2005

86% of it offshore

Different Types of Distributed Projects

- **Distributed projects** within one company
overall responsibility for the whole project including all locations
responsibility for subproject in the location
- **Outsourcing** (off shoring) to another company
client - supplier relationship
contractual hedging

project goals, requirements
project management
quality assurance
system design
detailed design
coding
component test
system integration
system test
acceptance test

Head-
quarters

Scope of Outsourcing (1)

project goals, requirements
project management
quality assurance
system design

detailed design
coding
component test

system integration
system test
acceptance test

Head-
quarters

Minimal Responsibility Outsourcing

detailed design
coding
component test

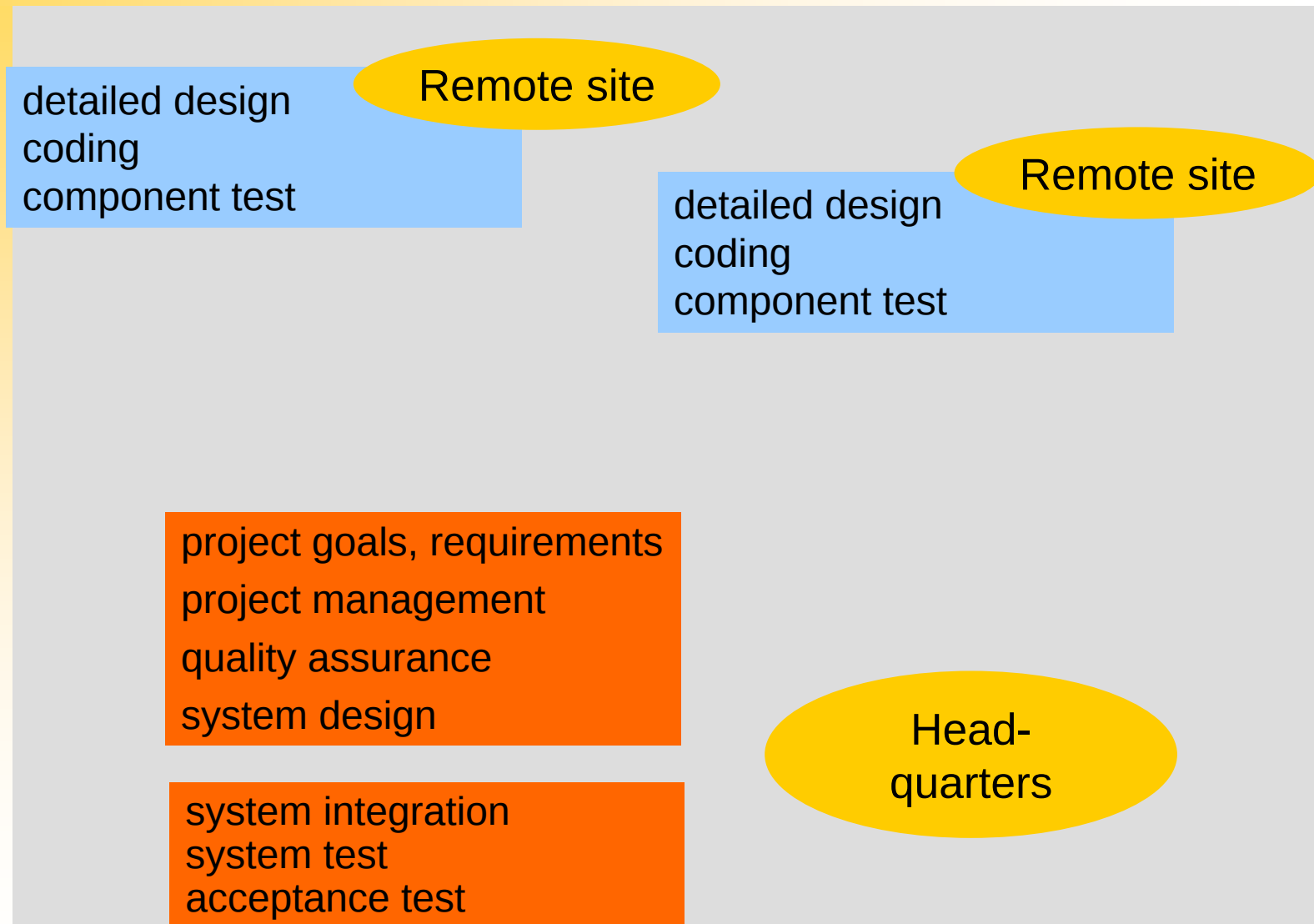
Remote site

project goals, requirements
project management
quality assurance
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system integration
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Head-
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Minimal Responsibility Outsourcing



Minimal Responsibility Outsourcing

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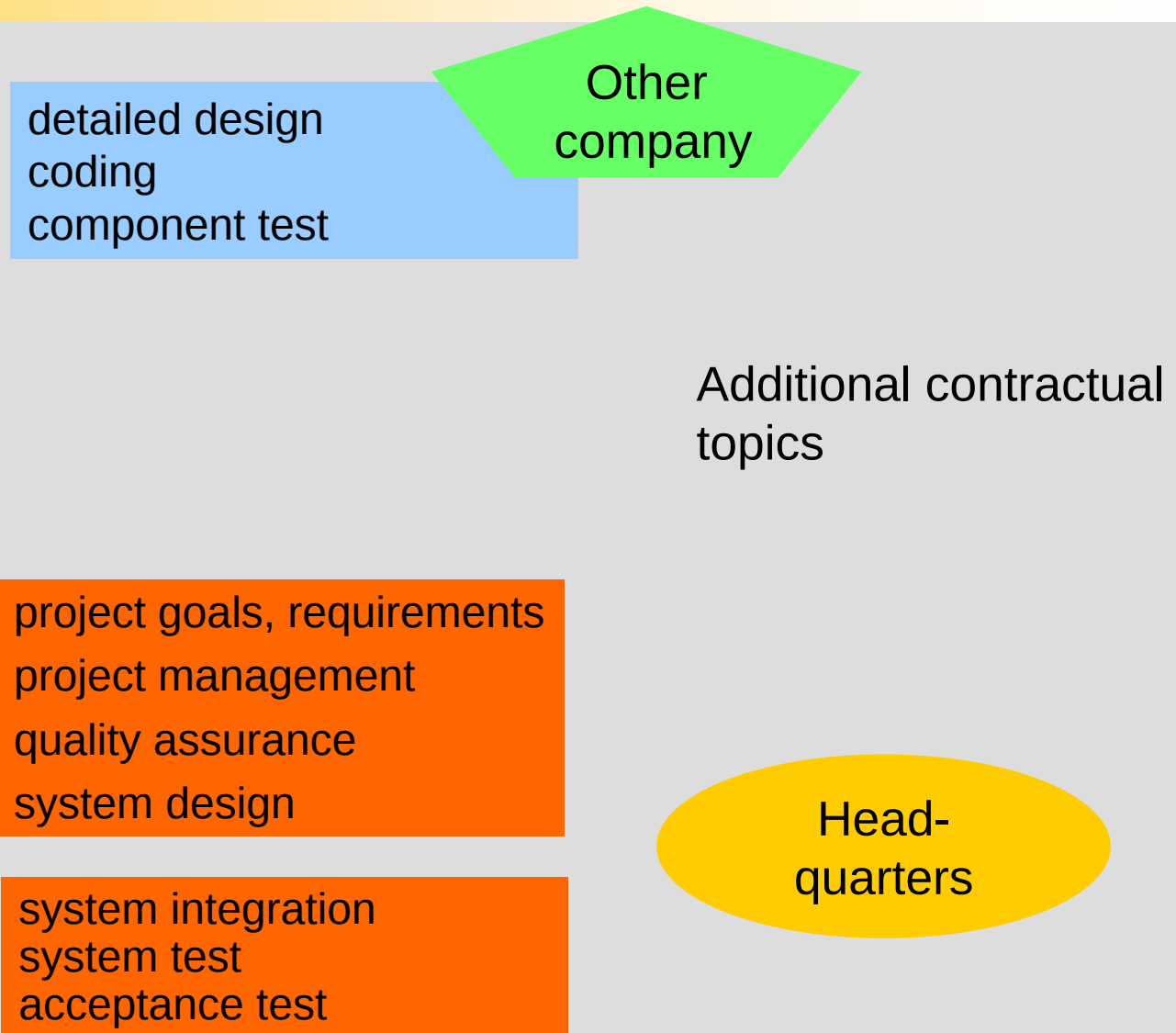
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Minimal Responsibility Outsourcing



Minimal Responsibility Outsourcing

Pro

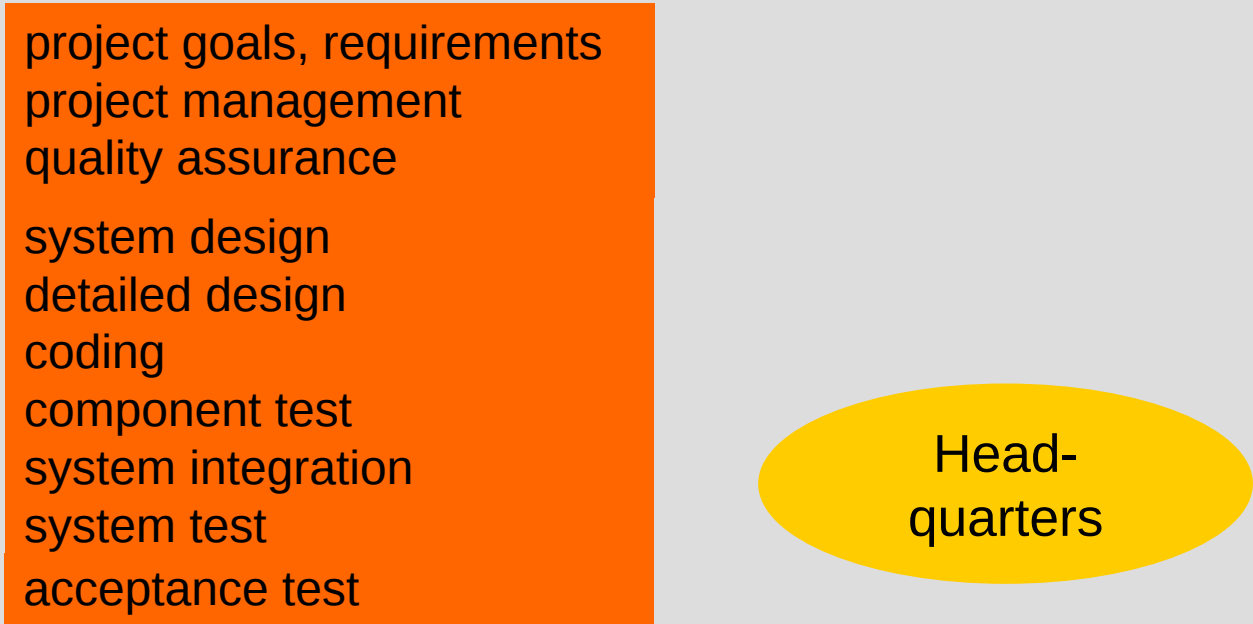
Knowledge persists in
headquarter

Small risk

In-sourcing is possible

Con

Small financial advantage



project goals, requirements
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Remote site

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Head-
quarters

Large Scale Outsourcing

Pro

Bigger financial advantage
Higher increase in capacity
Local presence

Con

Higher risk
Loss of know how at the
headquarters

Beach head necessary

Role of a Beachhead

- Controlling / tracking
 - technical / quality (reviews)
 - schedule
 - cost
- Reporting
- Answer to questions from developers
- Decide change requests from customers and developers
- Acceptance test

about 15-20% of Development Effort
Large Scale Outsourcing)

Know-how at Headquarters

- Exists at the beginning of outsourcing
- Is necessary for technical specifications (e.g. design) technical controlling und quality assurance
- With the end of development practice the downgrading of skills at the headquarters starts. As technology changes over time the headquarters loses its technical competence.
- Skills are transferred offshore where practical experience is built up.
- The headquarters becomes dependent on the offshore partner.

Scope of Outsourcing (3) Partial Outsourcing

project goals, requirements
project management
quality assurance
system design

detailed design
coding
component test

detailed design
coding
component test

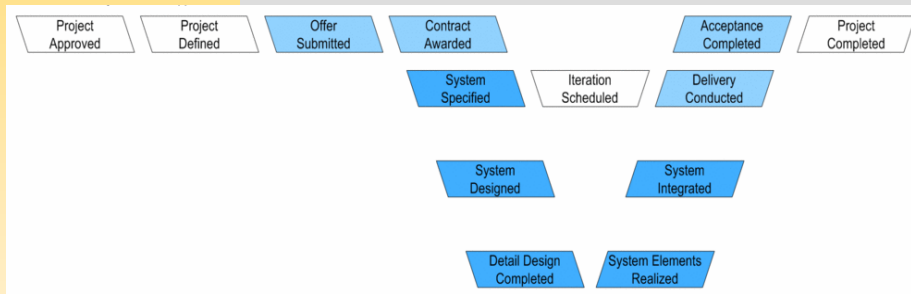
system integration
system test
acceptance test

Experiences from distributed projects

Distributed projects need

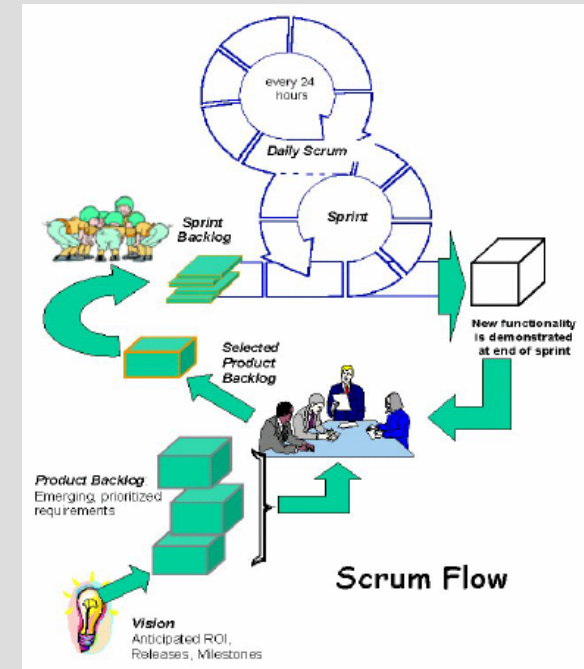
- Well defined processes that are executed correctly
- More effort for coordination
- Clear architecture as base for distribution of work packages

Development Methods matter



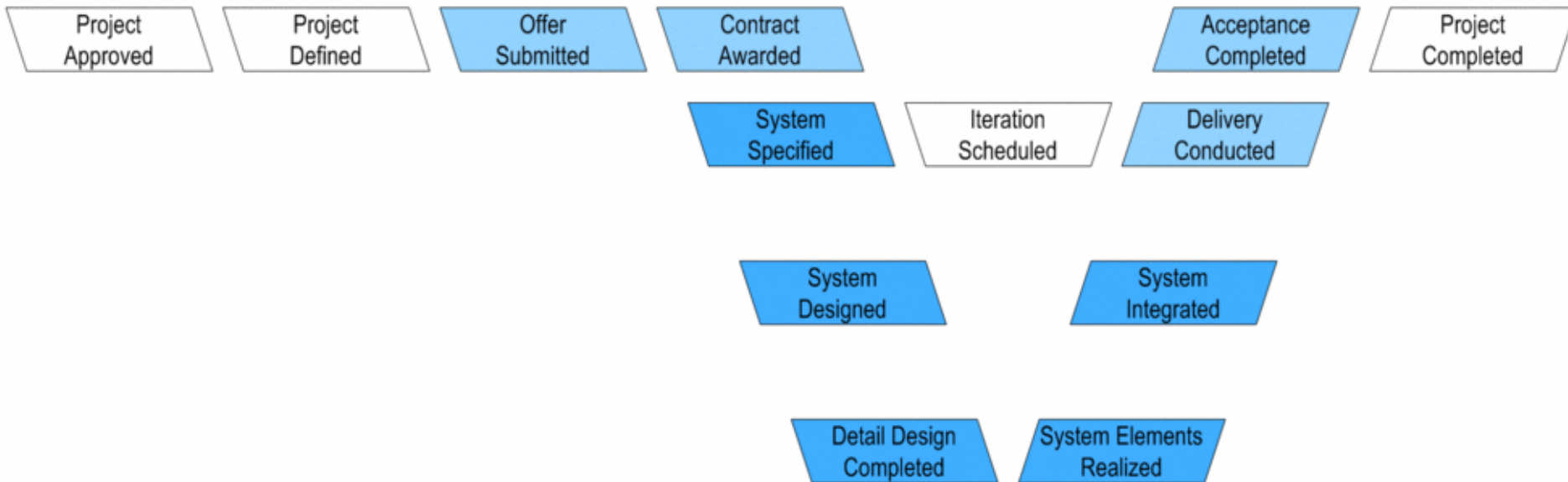
structured

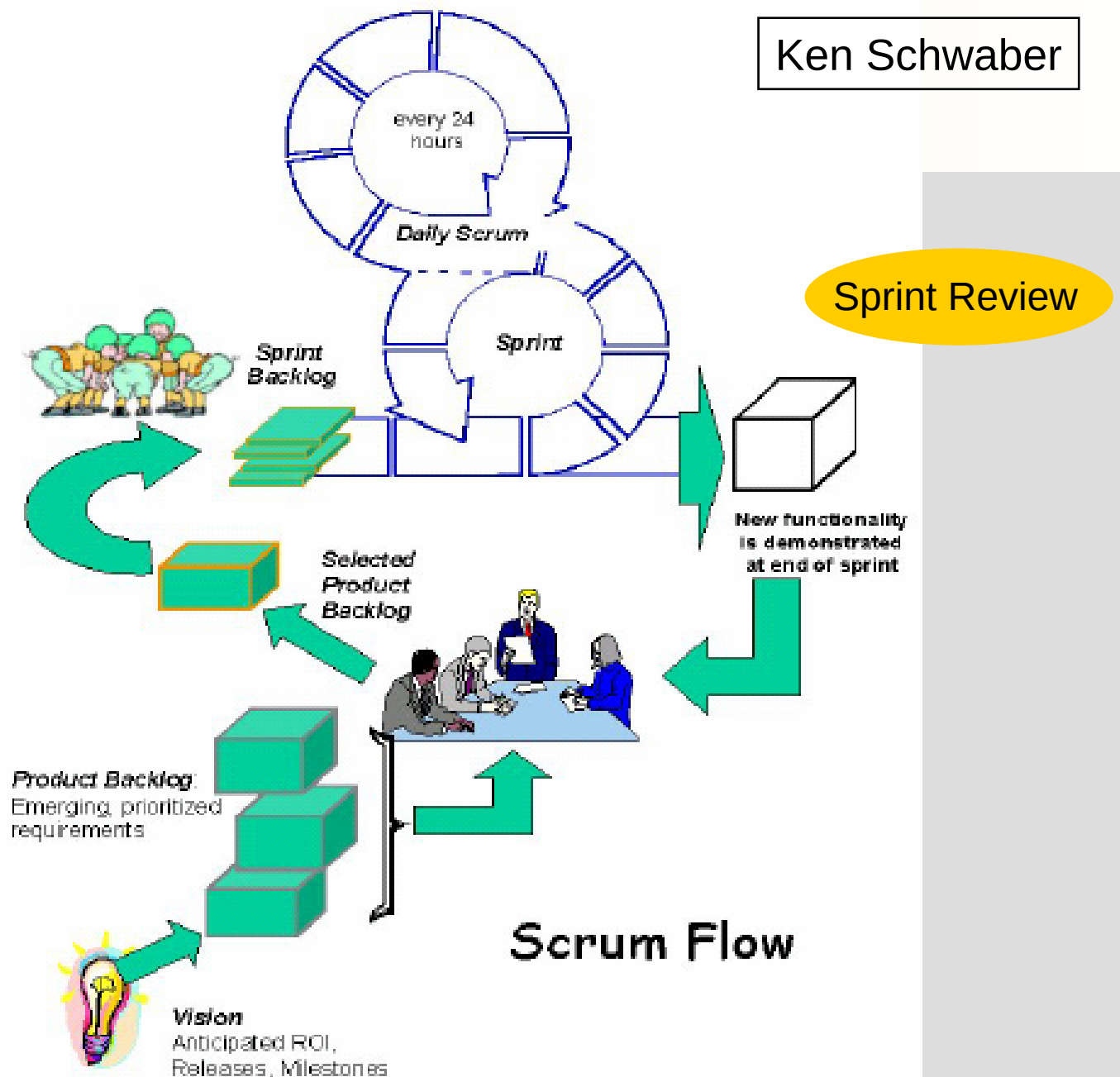
Hacking



agile

V-Model XT





Development Methods matter

Some of the processes that should be followed in every project become very important in globally distributed projects

- Requirements engineering
- Architecture
- Documentation
- Project management / Risk management
- Configuration management
- Quality assurance (Reviews, methodical Tests)

Requirements engineering

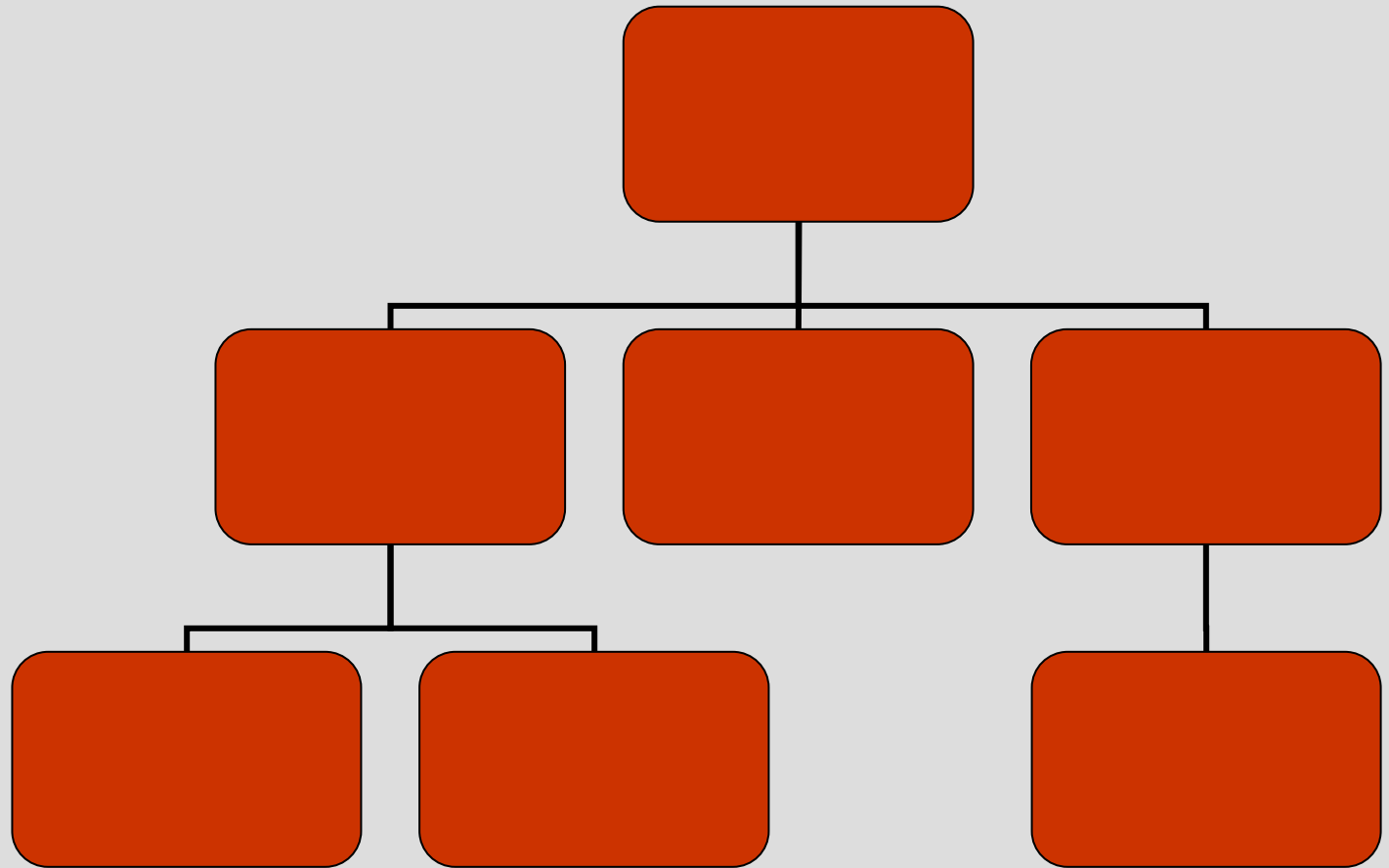
- As developers in remote sites usually do not communicate with client / customer / user the requirements have to be specified
 - Unambiguous and free of contradictions
 - Complete
 - Understandable for the developers
 - Documented

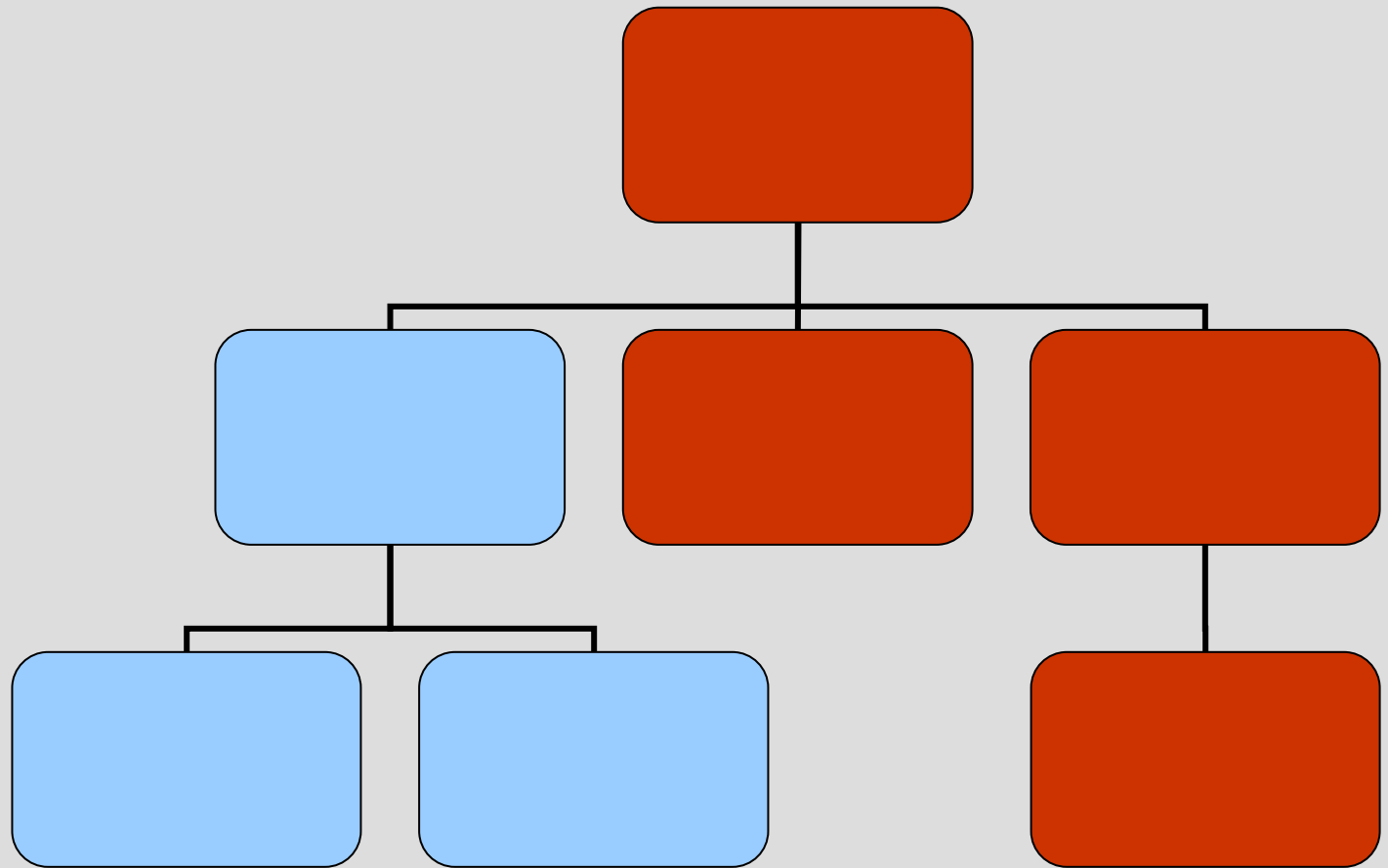
But this is not enough

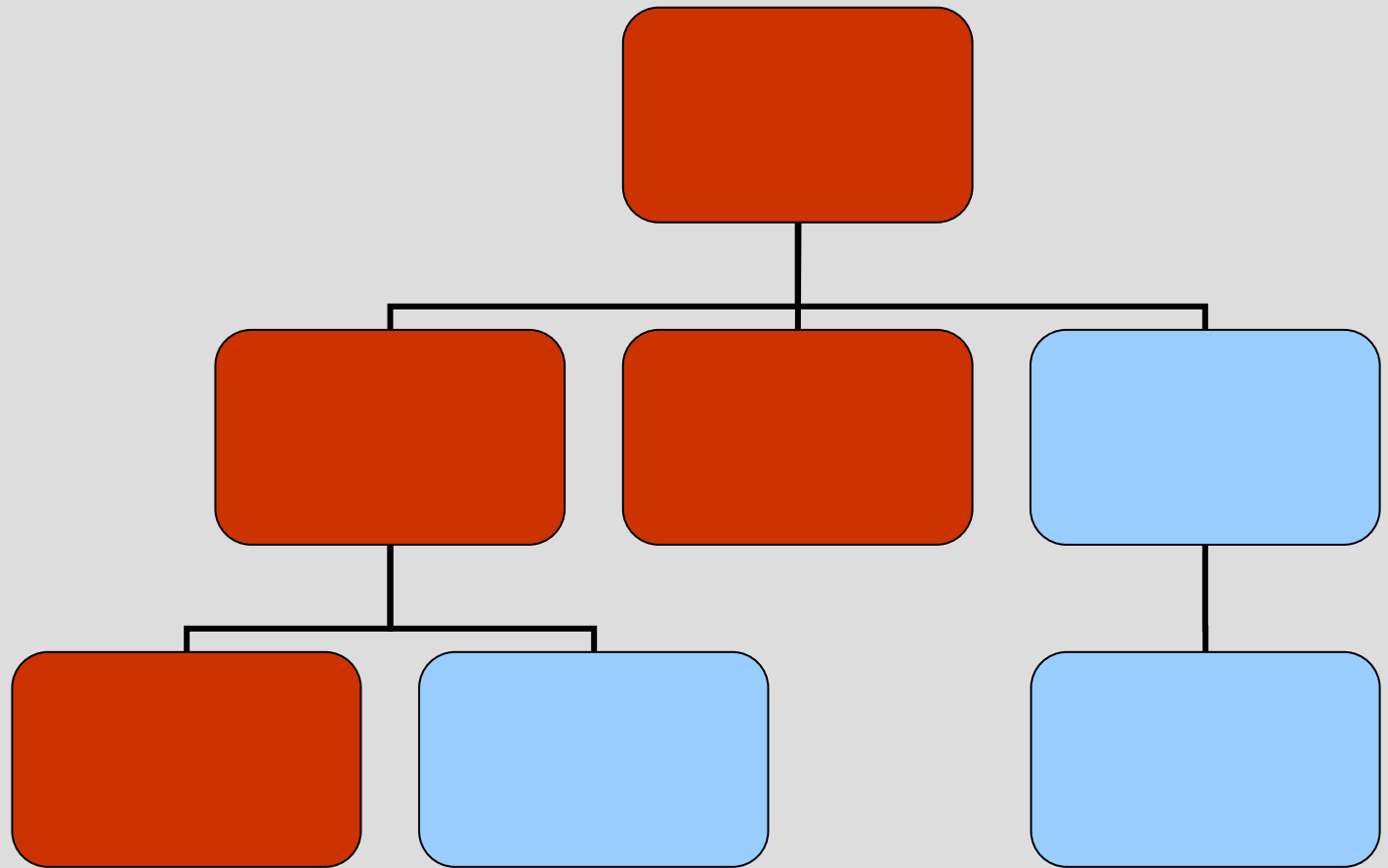
- Encourage developers to ask questions whenever something is unclear

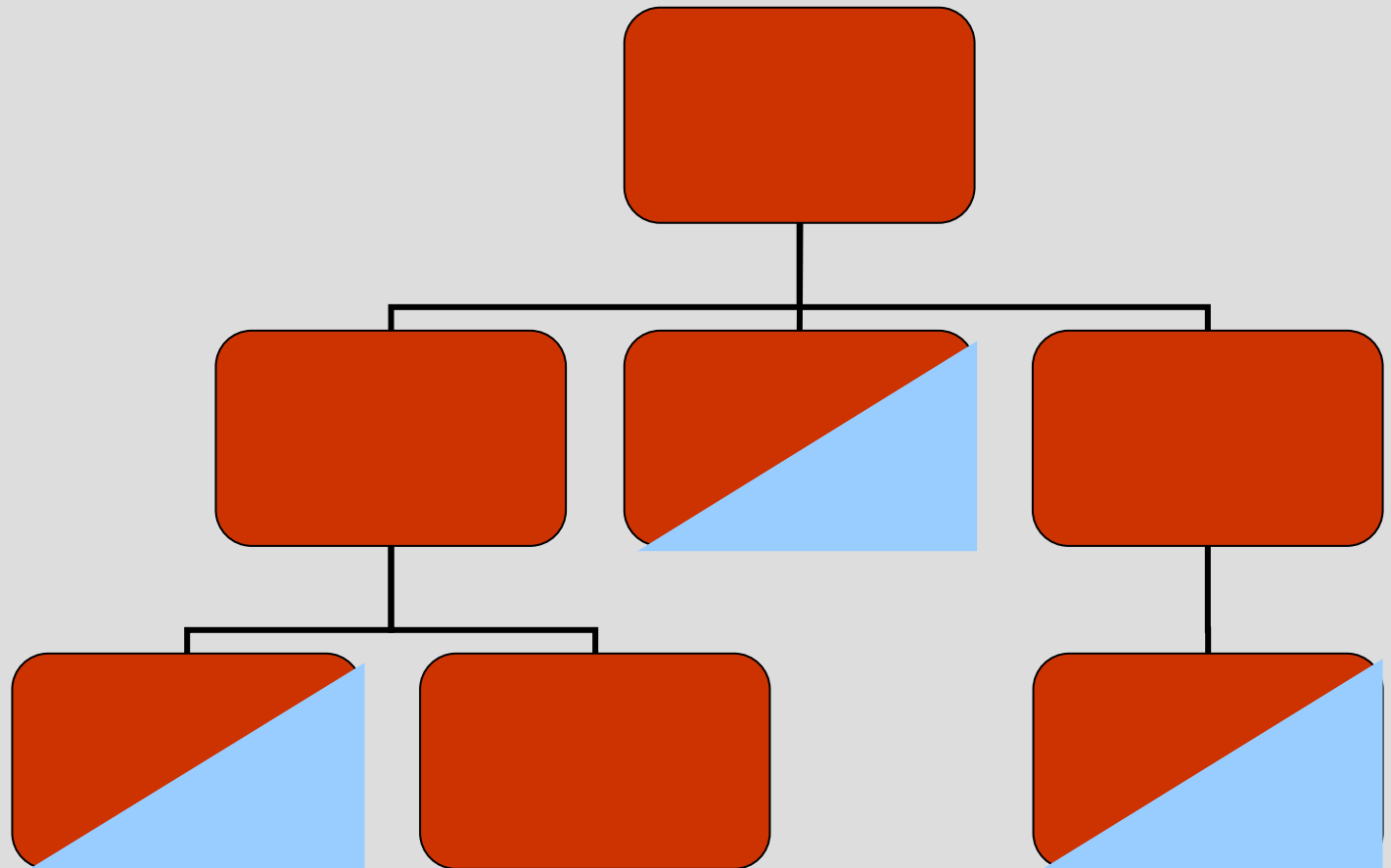
Project Management in line with Architecture

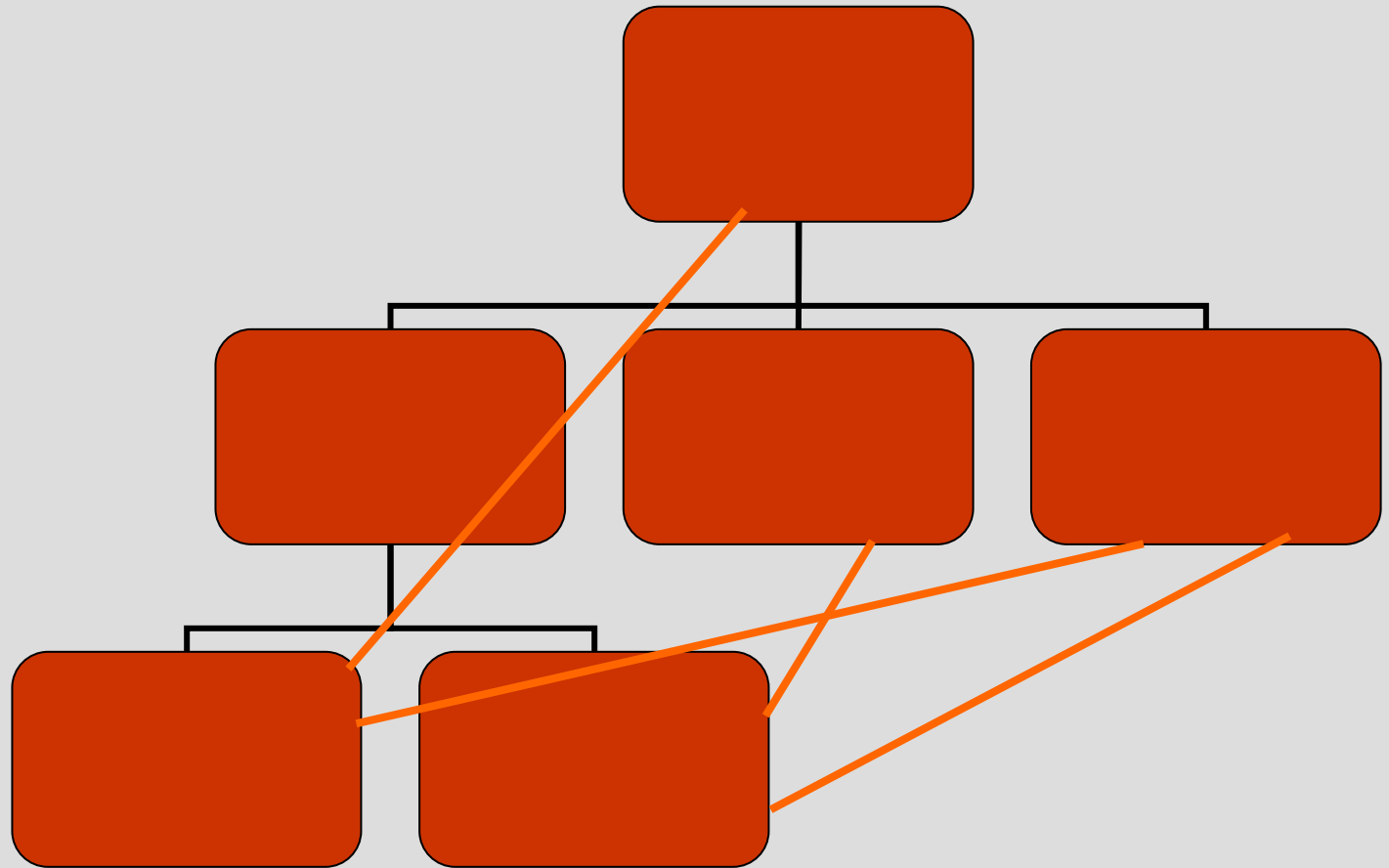
- Good architecture complies with principals of modularisation as
 - Locality
 - Narrow coupling
 - Functional cohesion
 - ...
- With good architecture subprojects can be done with less dependencies of other subprojects
- Definition of (local) subproject should match the architecture
- Therefore success factor: good architecture

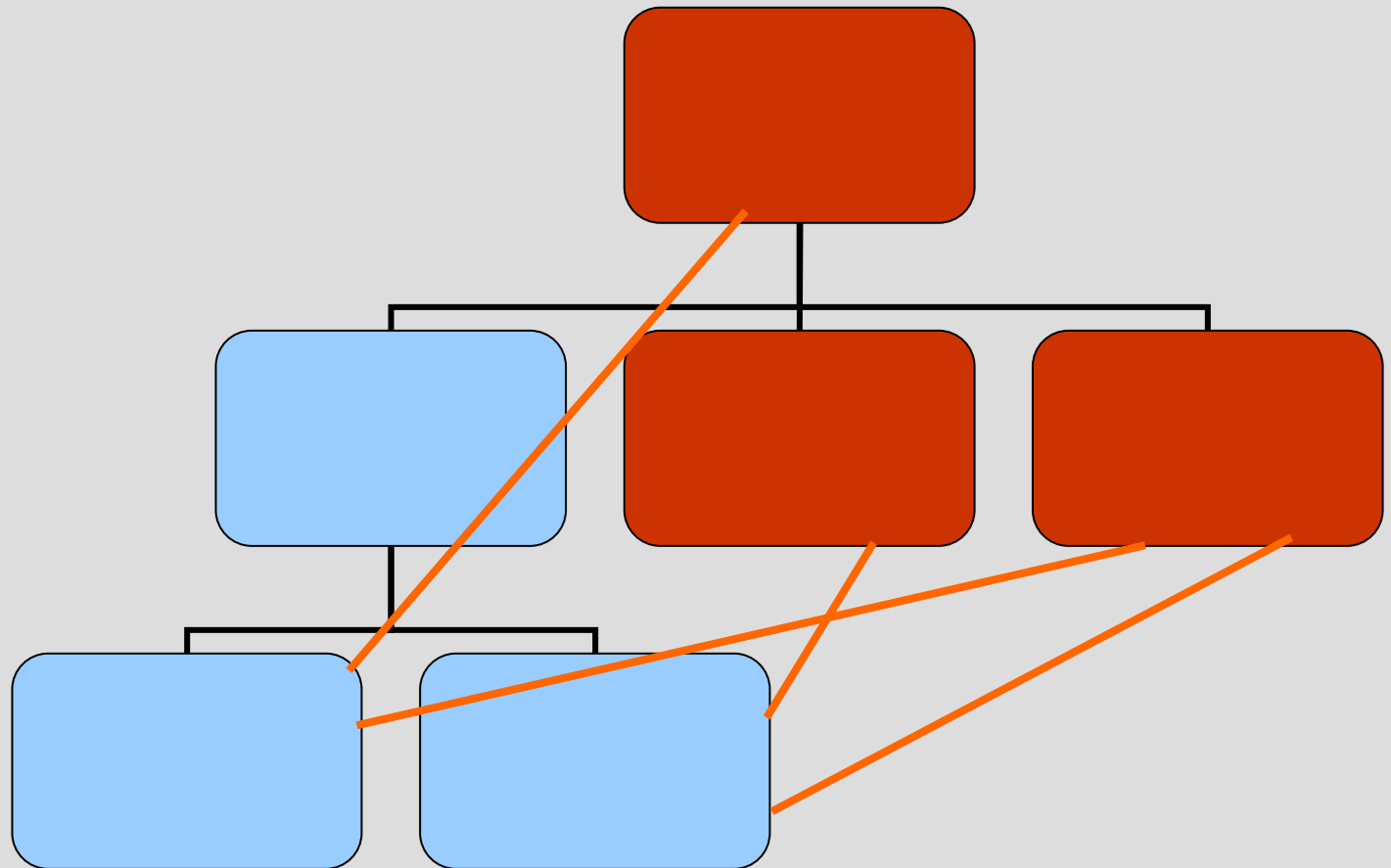












Project Management - Planning

- **Effort (hours) estimated for development at home cannot be applied to distributed projects**
- **Additional effort for:**
 - **Communication**
 - **Travel**
 - **Better documentation**
 - **Know how transfer**
- **Project plan is different**

Project Management – Project Organization

- Clear allocation of responsibilities for
 - Project management,
 - Technical aspects
 - Configuration Management
 - Quality assurance (reviews, tests,...)
 - Communication and reportingat the home base and offshore
- Interface / communication channels between the responsible persons

Documentation of PM must be available in all locations

Risk Management

Prevalent additional risks in globally distributed projects:

- Missing know how
- Misunderstanding because of
 - ◆ Language deficiencies
 - ◆ Different cultural background
- Employee turnover
- Protection of intellectual property

Configuration Management

- Absolutely necessary from the beginning
- Decision (necessary for big systems):
 - Centralised CM or
 - multi site CM with synchronisation to allow builds in the remote location
- Change request procedure

Quality Assurance (1)

- One QA-Manager is responsible for all sites of the project and acts alone from his office in the headquarters

Why not? But

Can he do his job for a remote location in same quality?

Will he see the early indicators for problems in remote locations before they hurt the projects when he is not on site?

(Skill deficit, adherence to processes, troubles, influences from outside the project,...)

Can he master the bulk of work in big projects?

Quality Assurance (1.1)

Problem:

Tendency to formal checks instead of understanding the

- Quality of the content of documents or
- Quality of process execution

Counteraction: frequent travelling to learn to know the persons and to see how work is done

Con: Time and cost

Quality Assurance (2)

- One QA-Manager in the headquarters is responsible for all sites of the project and has a deputy in the remote site with
 - Clear allocation of responsibilities
 - Good communication and reports

- Remote QA-Manager has to be qualified
 - Process knowledge
 - QA knowledge

Reviews in distributed projects

With participants of different sites

With participants of one site

Metrics shall be used to monitor quality of reviews

Reviews in distributed projects With participants of different sites

- Comment technique is frequently used
 - No travel time and cost
- Session technique / Intensive Inspection supported by
 - Net meeting or
 - Video conference systems

Problem: time zones

Is CMMI Maturity Level 5 the Silver Bullet?

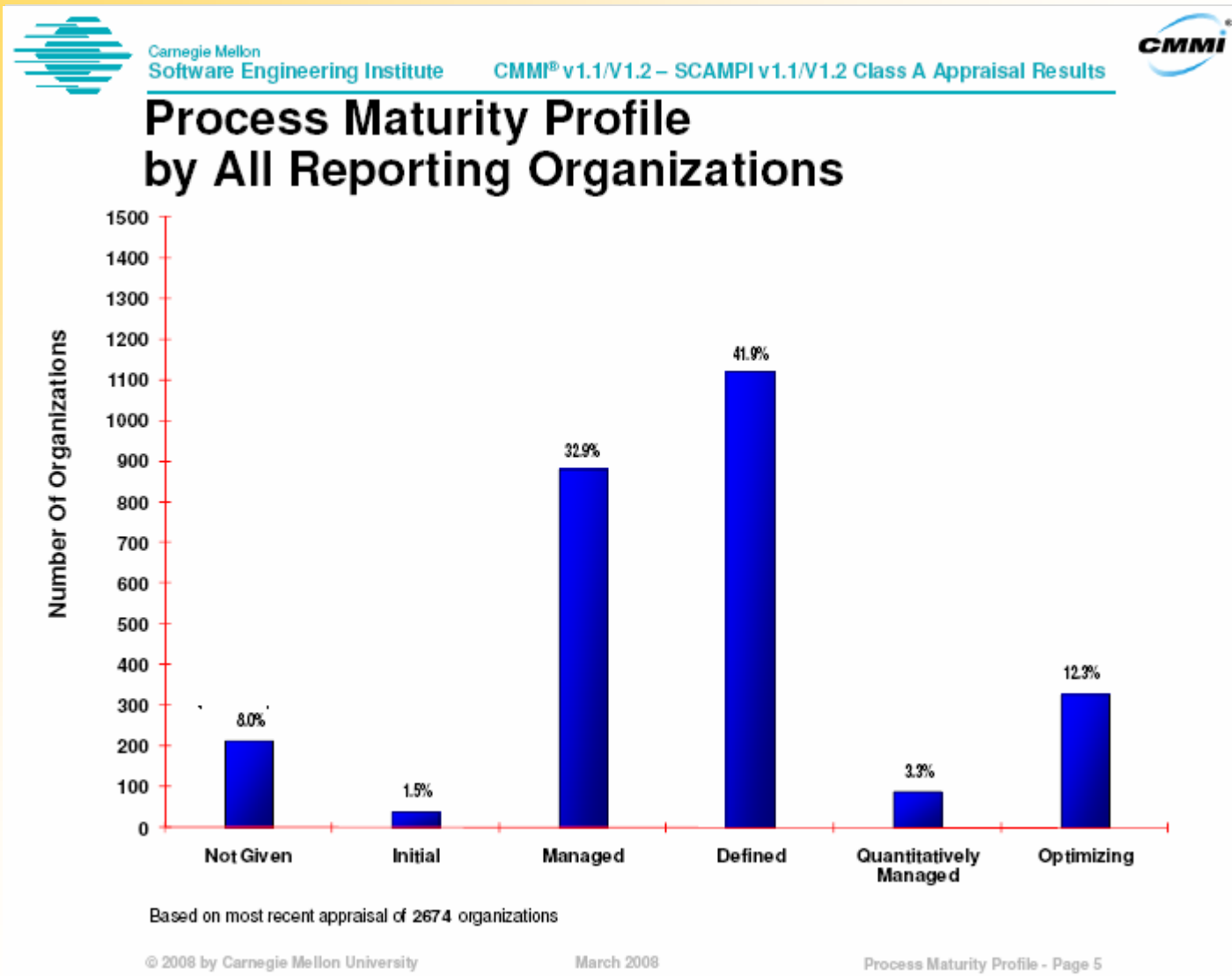


Why not select the best?

CMMI Overview

Siemens

Level	Characteristic	Benefit
5 Optimizing	• Defect prevention process • Process change management • Technology change management	
4 Quantitatively Managed	• Quantitative management of process performance and quality • Consequent use of statistical methods	
3 Defined	• Standard process owned by the organization • Organization standard process established • Project specific tailoring of the standard process	
2 Managed	• Process owned by project manager • Disciplined project management • Process varies from project to project	
1 Initial	• Process not defined, ad-hoc-working methods • Success depends on a few specialist (heroes) • Schedule, quality and cost unpredictable	



Is CMMI Maturity Level 5 the Silver Bullet?

Many Indian companies advertise with CMMI Maturity Level 5

- Does the supplier really work on level 5?
- Which demands arise for the client in a cooperative distributed project?

It does not work to execute one subproject on ML5 when the rest of the project is not at least on ML3

Credibility of a CMMI Maturity Level

- Who was the assessor?
 - assessment / appraisal by an accredited assessor?
 - Independent assessor?
- Which part of the company was assessed?
 - Only one small department of many?
 - Was the department that will execute the project assessed?
- Experience with the supplier
 - Reference projects
 - Reputation
- Behaviour at the begin of the project

Demands on the Client of a ML5 Supplier

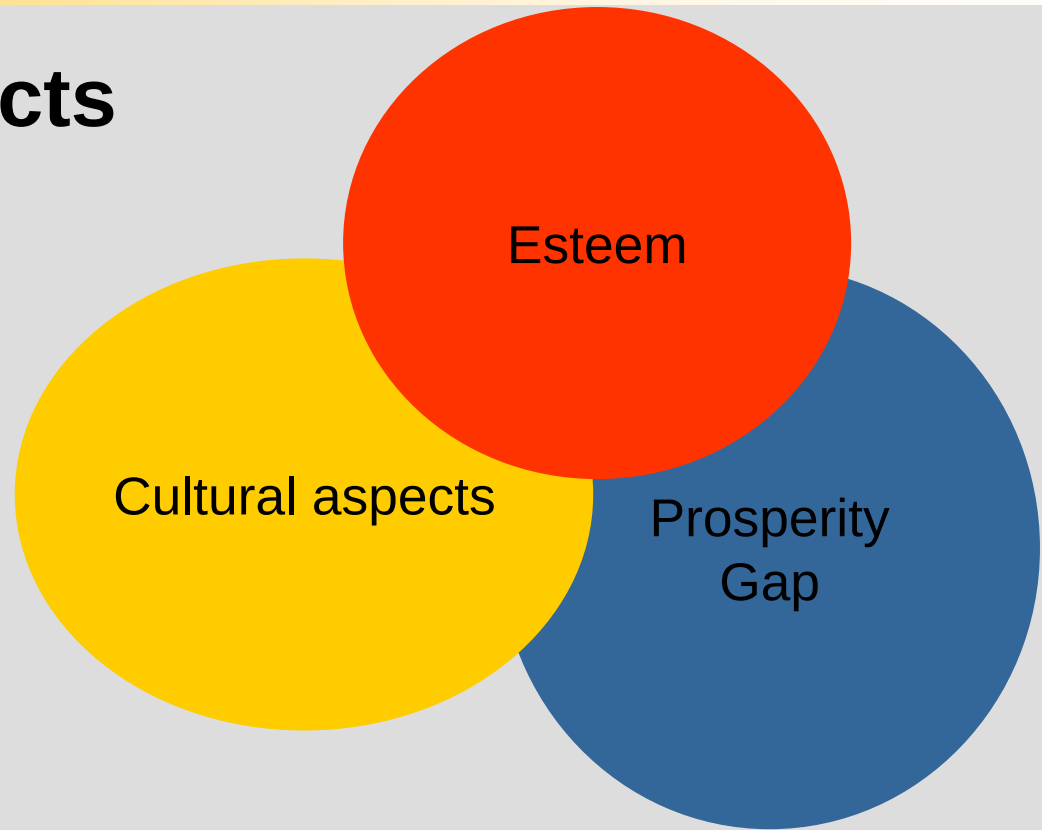
In a distributed project

A mature supplier needs a mature client

The client should have at least

basic understanding of the CMMI-process areas and
work on Maturity Level 3

Soft facts



- Language- / communication problems
- Motivation

Language- / communication problems

- Different cultural context
- Insufficient language skills / deficiencies in understanding are
 - not conceded or
 - not detected

Corrective

- mirror the message with own words
- written documentation of the communication
- check first steps

When English is a foreign language for client and supplier the communication deficiencies are often on both sides

Communication channels

- Direct communication with several developers not only with one person
- Face to face contacts cooperating developers should
- Joint kick off meeting,...



Cultural Aspects

- Loss of face when errors are mentioned in front of other people in meetings
(special preparation for reviews is necessary)
- Imprint by society (dictatorship, caste system,...)
 - No objection to wrong or bad specifications
 - No disclosure of errors
- In some regions people never say “No”
they use other means to communicate a “No”

Search for information about the culture of the remote site

Cultural Aspects

Do you think your messages was understood?

Those expatriates who are not interested in Chinese tend to think communication is ok

Those who learn Chinese are not so sure that every message is understood

(Study by Siemens in China)

Motivation

Facts that bring / increase motivation:

- Know the goals
- Be included in decision making
- Work in a team
- Recognition by team and management

In one site projects it may come automatically

In distributed projects you have to work for it deliberately

Esteem

Esteem provides the basis for motivation / cooperation

Malpractice coming out of an unconscious negative attitude

- Depreciative behaviour (body language, tone,...)
- Depreciative vocabulary
- Ignore human being

Good practice (precondition: change your attitude)

- Look for positive sides of the person
- Show interest in the person
- Take opinions seriously and respond to them

Prosperity Gap

Often the big prosperity gap between headquarters and remote site is the reason for outsourcing

This may influence the behaviour and attitude against the partner in both directions (superiority <-> inferiority)

Superiority feeling often derogates esteem

Inferiority feeling tends to blocks motivation

Success Factors

- Professional project management
- Development processes
- Architecture und distribution of tasks in line
- Optimize globale project not one site
- Plan additional effort
- Care for Soft facts