Panel:
Computer-Supported Cooperative Work in Software Engineering

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Global Software Development & Software Reliability Engineering

Software Reliability Engineering (SRE)
  Teamwork, share of objectives
  Learning process, based on experience
  Record and analysis of a lot of information
  Capitalisation of knowledge
  Feedback to the development process
  Long-term investment
  Continuous communication and coordination

Centralised process
Global Software Development (GSD)  
Distribution of the software production process  
Remote development sites  
Loss of spontaneous communication and coordination  

Negative impact on software reliability?  

Example from Alcatel:  
Collocated teams: 50% more efficient  
Small projects with scattered resources: less than half productivity  
Cycle time impacted by a factor 2 to 3  

Needs for specific actions on GSD
Models of GSD

Relationship between development companies

Legally independent

Contract should include minimally required quality standards (ISO 9001 / CMM)

Legally related

Develop a common understanding of quality issues

Quality management program
Quality management program

Involve all sites as early as possible in the life cycle
→ From the requirement specification phase (system-level requirements)
→ Liaison from development sites

Software architecture ←→ work structure & organization
Decomposition of the software into independent items, well-defined interfaces
→ Decouple the sites (teams) → reduce interactions & correlated modifications
→ Assign black boxes to development centres for complete development cycle

Do not impose a common development process but quality standards
→ Familiarity with the process = productivity

Define the needed measurements / data
→ Common vocabulary (and tools?)

Centralize collected data (common depository)
→ Early analysis, feedback, improvement

Training and knowledge transfer
Continuous communication, clearly defined milestones
→ Formal and less formal
Globalization is a necessity
It can have a negative impact on reliability / quality
But if GSD is well managed
⇒ Improve development process