THE UNIVERSITY OF BRITISH COLUMBIA

Impact of Culture on Global Software Development

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Outline

- Context
- Case-lets
- Culture
- Models in ethnosociology
- More case-lets
- A research agenda?

Global Software Development

- Creating development teams across national borders
  - Mergers and acquisitions, partnerships
  - International projects “by design”: for example EC Esprit program
  - Multinational companies (e.g., IBM, Alcatel)
- More recently
  - Outsourcing (off-shoring?) of software development to India, Thailand, Hungary, Poland, ….
  - Rationale: diff. in manpower cost offsets communication and risks

Virtual teams

- Half of software development is communication between humans
  - Requirements, design, management, reviews
- High bandwidth communication means
  - email, voicemail, teleconference, video, video conference
  - networks, hypermedia, web-based app.
  - collaboration tools: e.g., Groove

Communication

is affected by the mix:

- Personality
  - Specific to one individual
  - behaviour, attitude
- Culture
  - Shared by a group
  - Values, behaviours, attitudes

Culture as an Iceberg

Culture and software development?

- Conjecture*

  A world-wide computer-literate culture, the internet, a programmer (hacker) culture largely dominate the dynamics of these global teams. As a result of the net culture, programmers behave the same in San Jose, Boston, Budapest or Bangalore.

- I disagree. A blind conception.

- See also “how to behave in country X” books

Case-lets

- Vancouver – Stockholm development
  - Morning meetings
  - Silence and disapprobation
  - Role in team
- Tokyo – Vancouver – Santa Clara
  - Negotiating a relocation
  - Hierarchy
- Paris – Santa Clara
  - Hugs and kisses
  - Lunch with the enemy

Sociology

- Models to reason about culture

- Edward Hall, 1975…
- Gert Hofstede, 1980…
- Alan Fiske, 1990
- Fons Trompenaars, 1995…

Meeting other cultures

- Ethnocentric stage
  - Denial (blame issues on personality or misbehaviours)
  - Defense (and try to force things one way)
  - Minimization (push it under the rug)
- Ethnorelativist stage

  Not one culture is central and reference for judging others
  - Acceptance
  - Adaptation
  - Integration
  - *xenophilia ?*

Cultural factors: E. Hall

- Low context, high context
  - HC: unspoken meanings (jp, cn, fr)
  - LC: just what the words say (us, de)
- Time:
  - Polychronic
    - many things interleaved (Middle east, France)
  - Monochronic
    - one thing at a time, “time is money” (US, Scand.)

Source: E. Hall

Cultural factors: G. Hofstede

IBM employees around the world

Multivariate analysis, lead to 5 dimensions:

- Power distance
- Collectivism versus individualism
- Femininity versus masculinity
- Uncertainty avoidance
- Long-term versus short-term orientation

Source: Hofstede

Other factors: F. Trompenars

- Universalism vs. particularism
  - Judging on fixed rules, or based on circumstances ?
- Individualism vs. communitarianism
  - Self, or group?
- Neutral vs. emotional
  - showing emotions in business setting?
- Specific vs. diffuse
  - How far do we get involved?

Source: Trompenars

	Neutral	Emotional
Specific	USA (east coast), Scand. Approval/disapproval	USA West coast, Canada Sympathy/Outrage
Diffuse	Japan Esteem/Disrespect	South of Europe Love/Hate

Other factors: F. Trompenars (cont.)

- Achievement vs. ascription
  - attitude toward titles, degrees,…

And a few secondary ones, such as:

- Attitude to time
- Attitude to the environment (i.e., nature)
- Gender, race, class, religion

Source: Trompenars

Impact on software development

- Management
- Communication
- Meetings
- Task allocation
- Requirement
- Negotiation
- Bug reporting

Case 1

Monday 10:am

- A: -- we will need all features by Friday at 9:00am, to do the final release to send to the lab.
- B: -- Yes.

Friday 12:00 noon:

- A: -- … but you have not pushed your stuff in the CM system!!!
- B: -- Yes.

Case 2

—I have now some data on the defects.

—Yes, I know. I have already started to address the issues they reported.

—How come…?

—I read the fax in the fax machine earlier today

—But it was addressed to me!

—Yes, but it was in the fax machine… I do not see what is the issue here.

—At least you could have told me and cancelled this meeting.

—I wanted to speak about the new candidate,,,

Case 3

- News release: Companies A and B have reached an agreement, thanks to this last minute compromise.

- In A ☺: Agreement gains moral sanction by having resulted from compromising
- In B ☹: By compromising, something is lost, honour is not upheld, the principles are diluted.

Case 4

- J., a functional manager, is interviewing some 10 candidates for a software development position. An 11th candidate is his wife nephew, who has a hard time finding a job, because he did not quite finish his bachelor's degree. He cancels all remaining interviews and hires him.

- J is in a collectivist, polychronic, high context, hierarchical, feminine society (a)
- J is in an individualist, monochronic, low context, masculine society (b)
- J lives in (a) but works for a company headquartered in (b)

Research ?

- Identify and sort out intercultural factors
- identify and sort out set of SW Eng practices
- Identify interesting cultural groups and their profile for the selected cultural factors
- Identify pairs [practice + intercultural factors] affected
- Conduct experiments
- Use post-mortem analysis of real-life projects to detect source of issues
- Identify behavioral patterns that affect +/- SW development (not the general business world)

Examples

- Reviews and chronicity
- Requirement elicitation and power distance
- Proxy pattern