CMPT 475: Software Engineering II

Selecting a Project's Methodology

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References

- Alistair Cockburn, *Selecting a Project's Methodology*, IEEE Software, July / August 2000, 64-71.
- (download this from www.lib.sfu.ca)

Main Question

- How do we determine the need for various processes or methodologies, and what helps us choose the appropriate one for our project?

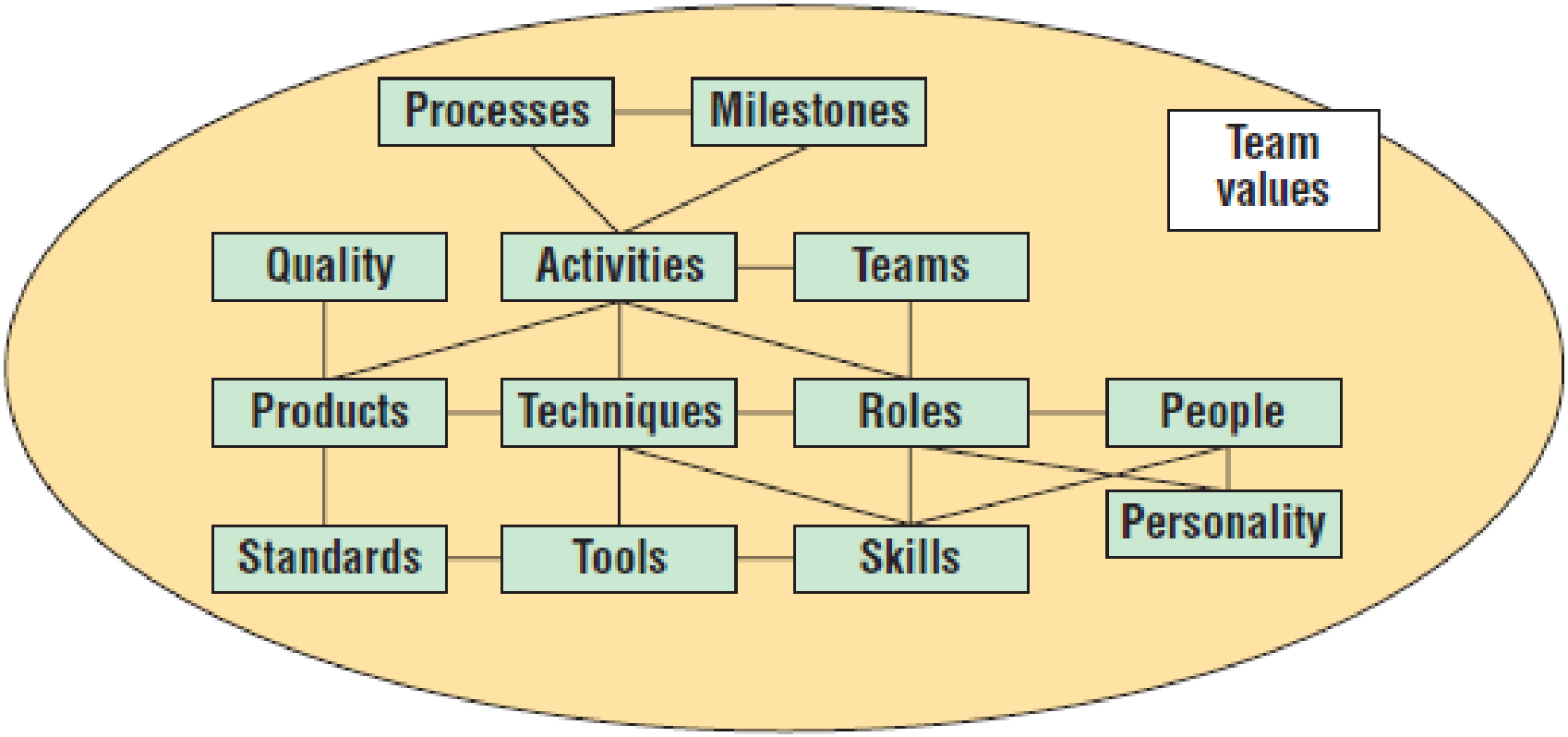
- This article describes a framework for methodology differentiation, principles for methodology selection, and project experiences using these ideas

METHODOLOGY

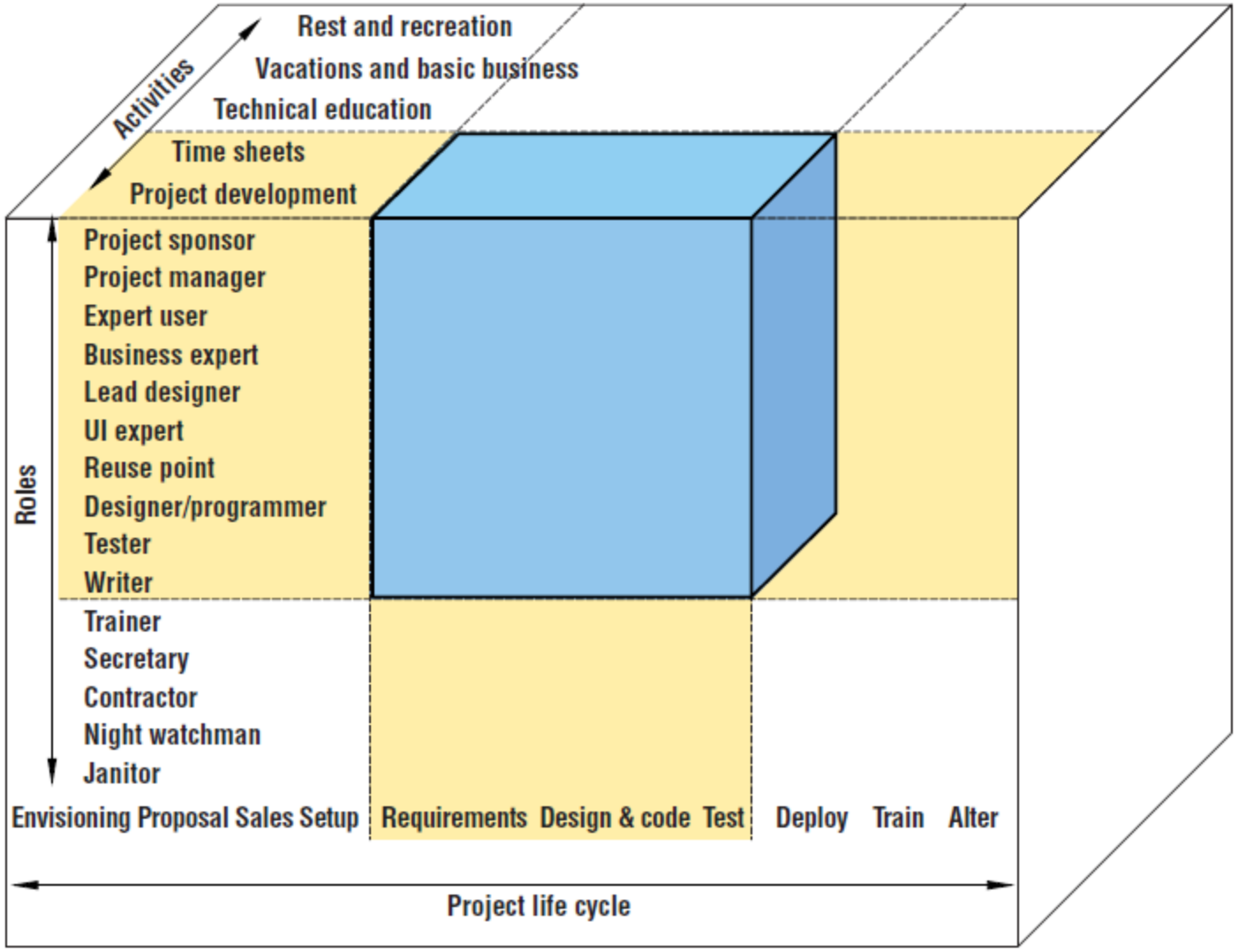
- Little-m methodologies vs. Big-M methodologies

- A methodology's size is its number of control elements, including deliverables, standards, activities, milestones, quality measures, and so on.
- Project size is the number of people the organization allocates for the project. You might expect project size to match problem size, but it is not that simple.

Elements of a Big-M methodology



Identifying a defined methodology



PRINCIPLES INVOLVED

PRINCIPLE 1

Principle 1

- A larger group needs a larger methodology

PRINCIPLE 2

Principle 2

- A more critical system—one whose undetected defects will produce more damage—needs more publicly visible correctness (greater density) in its construction

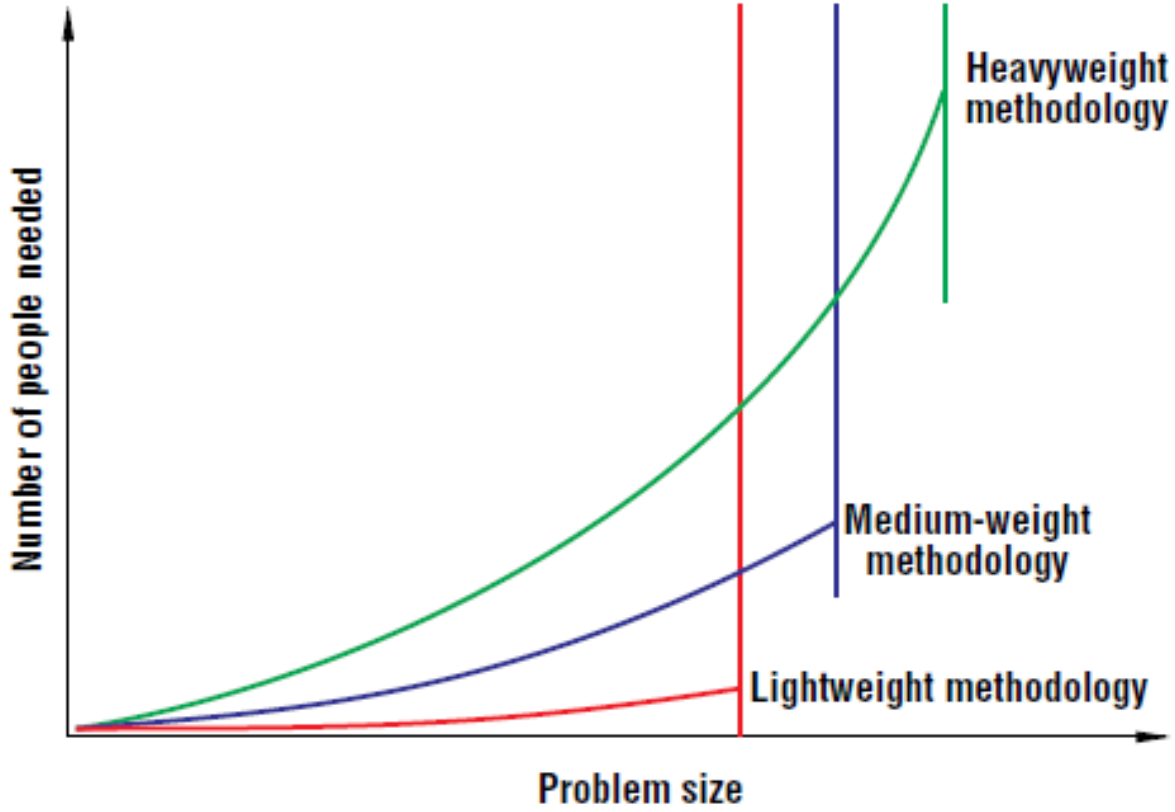
System criticality into loss zones

- Loss of comfort
- Loss of discretionary moneys
- Loss of irreplaceable moneys
- Loss of life

PRINCIPLE 3

Principle 3

- A relatively small increase in methodology size or density adds a relatively large amount to the project cost.



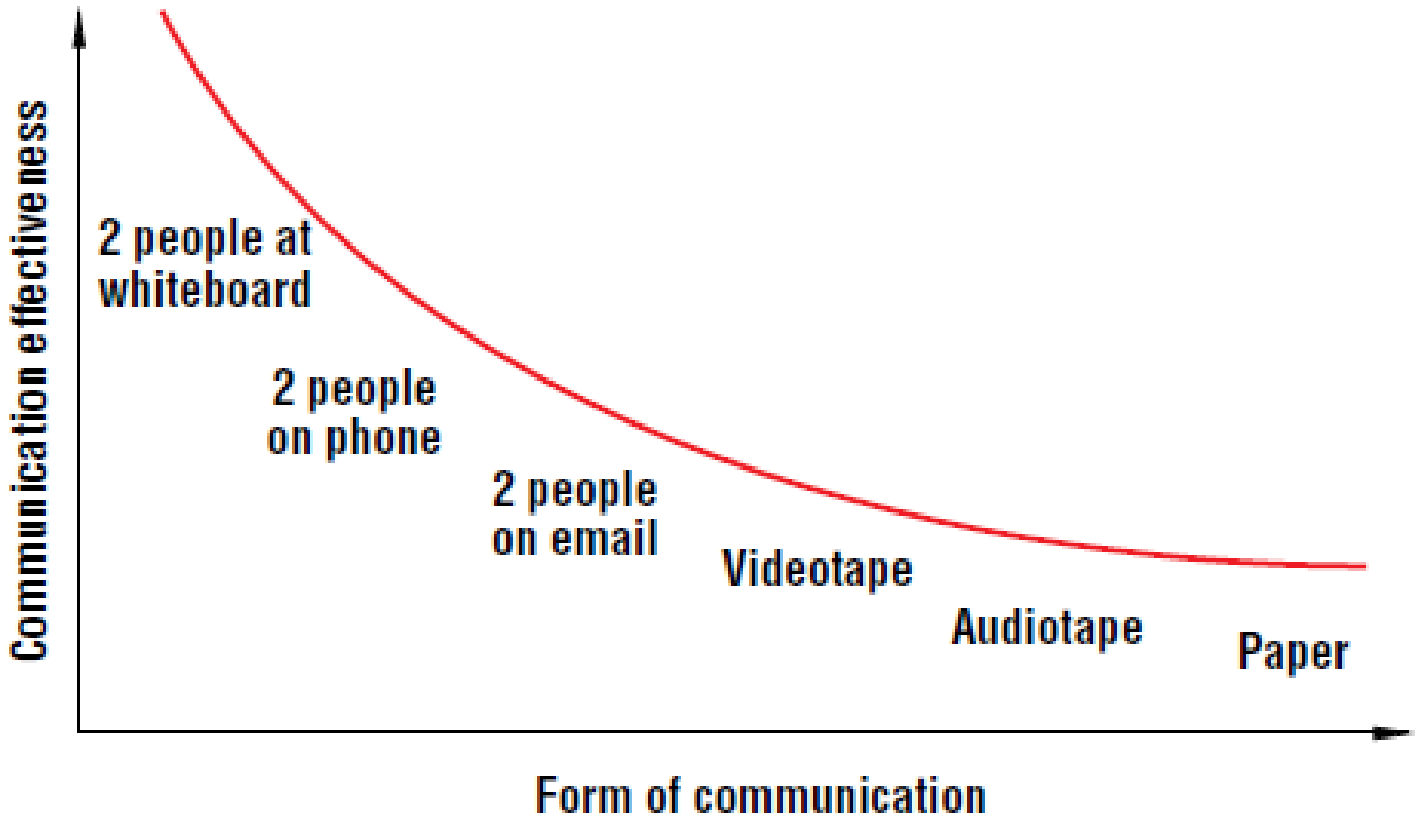
- How problem size and methodology affect staff numbers. As long as the smaller team can deliver the system, fewer people and a lighter (well-founded) methodology are needed. However, as the problem gets larger, eventually, the smaller team simply cannot deliver the system in time. At that point, a heavier methodology, coordinating many more people, becomes necessary.

PRINCIPLE 4

Principle 4

- The most effective form of communication (for transmitting ideas) is interactive and face-to-face, as at a whiteboard.

Communication efficiency decreases as personal contact decreases.

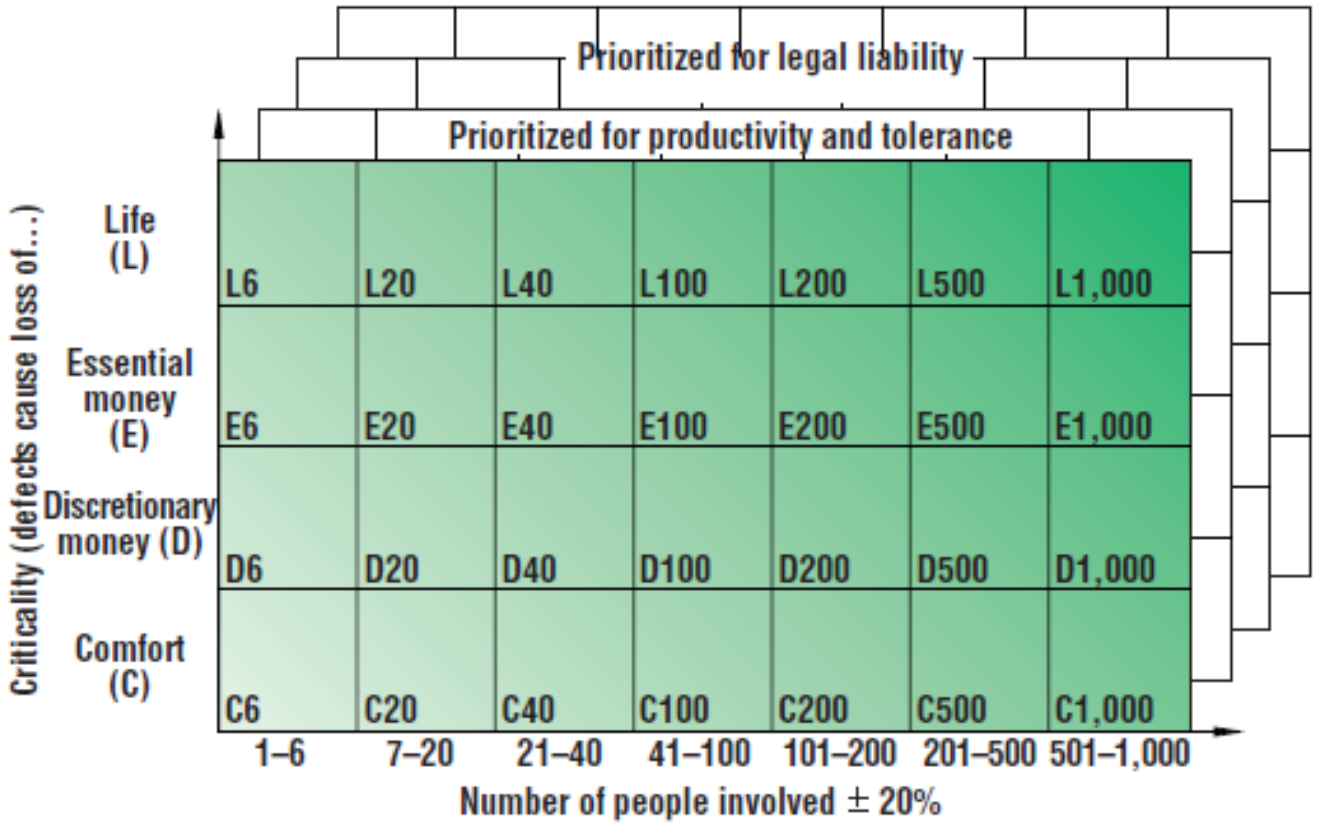


TWO LAST FACTORS

Two Last Factors

- Project priorities
- The methodology designer's peculiarities
  - "All methodology is based on fears" Kent Beck

THE SELECTION FRAMEWORK



- A methodology grid, organized as people × criticality × priority. The letter–number combination in a cell indicates the maximum criticality and project size for that cell. For example, C6 indicates a loss-of-comfort project with up to 6 people. D40 indicates a loss-of-discretionary-money project using 21 to 40 people.

WHICH METHODOLOGY TO USE?

QUESTIONS?