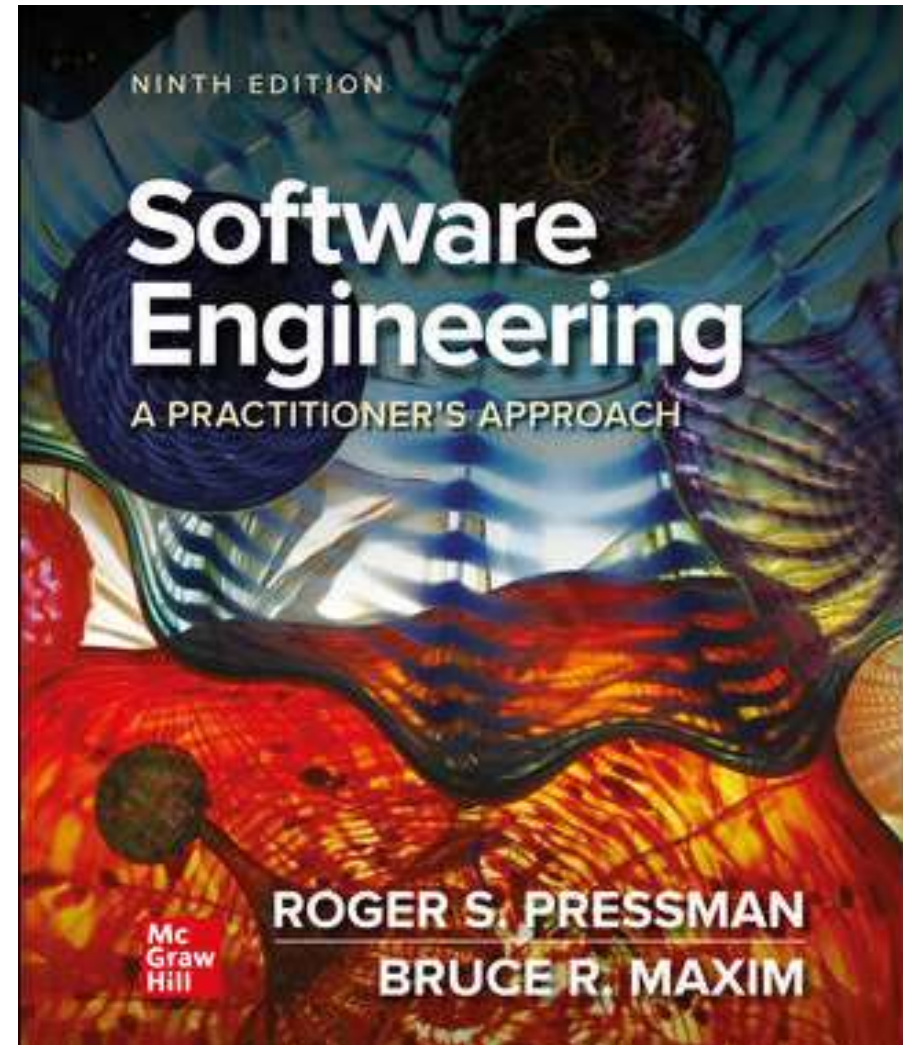


Chapter 5

Human Aspects of Software Engineering

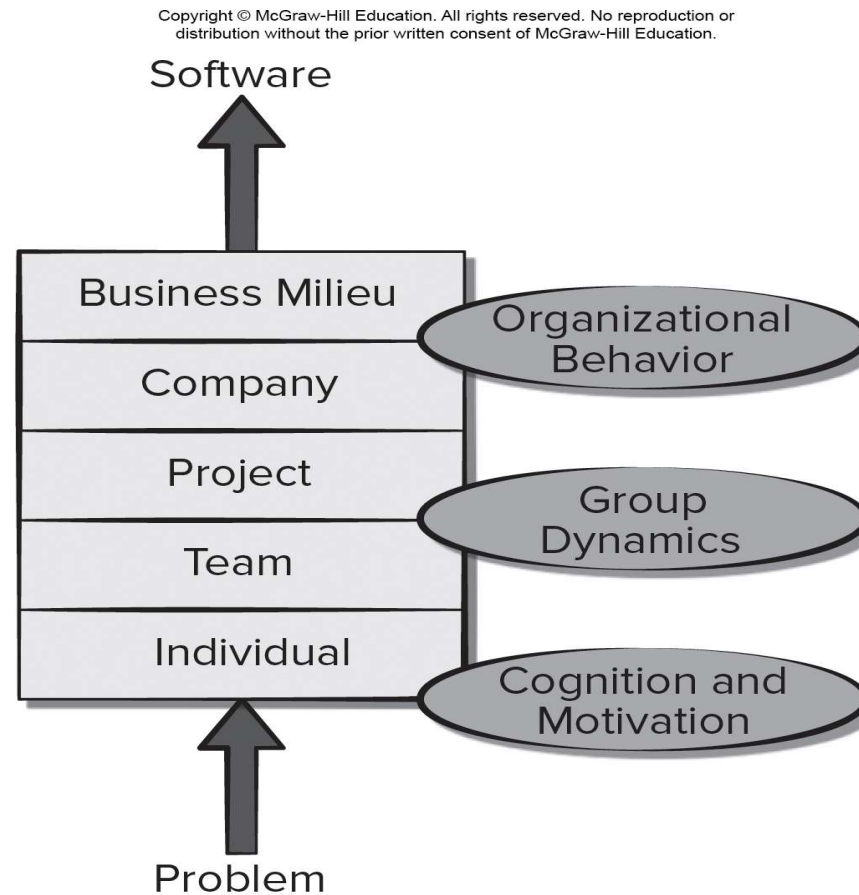
Part One - The Software Process



Traits of Successful Software Engineers

- Sense of individual responsibility.
- Acutely aware of the needs of team members and stakeholders.
- Brutally honest about design flaws and offers constructive criticism.
- Resilient under pressure.
- Heightened sense of fairness.
- Attention to detail.
- Pragmatic adapting software engineering practices based on the circumstances at hand.

Behavior Model for Software Engineering



Source: Adapted from Curtis, Bill, and Walz, Diane, "The Psychology of Programming in the Large: Team and Organizational Behavior," Psychology of Programming, Academic Press, 1990.

[Access the text alternative for slide images.](#)

Effective Software Team Attributes

- Sense of purpose.
- Sense of involvement.
- Sense of trust.
- Sense of improvement.
- Diversity of team member skill sets.

Symptoms of Team Toxicity

- A frenzied work atmosphere where team members waste energy and lose focus on work objectives.
- High frustration that causes friction among team members.
- Fragmented or poorly coordinated software process model that becomes a roadblock to accomplishment.
- Unclear definition of team roles resulting in a lack of accountability and resultant finger-pointing.
- Continuous and repeated exposure to failure that leads to a loss of confidence and poor morale.

Project Factors Affecting Team Structure

- Difficulty of the problem to be solved.
- Resultant program size in lines of code or function points.
- Time that the team will stay together (team lifetime).
- Degree to which the problem can be modularized.
- Required quality and reliability of the system to be built.
- Rigidity of the delivery date.
- Degree of communication required for the project.

Agile Teams

Stress individual competency coupled with group collaboration as critical success factors.

People trump process and politics can trump people.

Agile teams as self-organizing and have many structures.

- Adaptive team structures.
- Significant autonomy.

Communication among developers and stakeholders is important (consider adding customer rep to team).

Planning is kept to a minimum and constrained only by business requirements and organizational standards.

Impact of Social Media

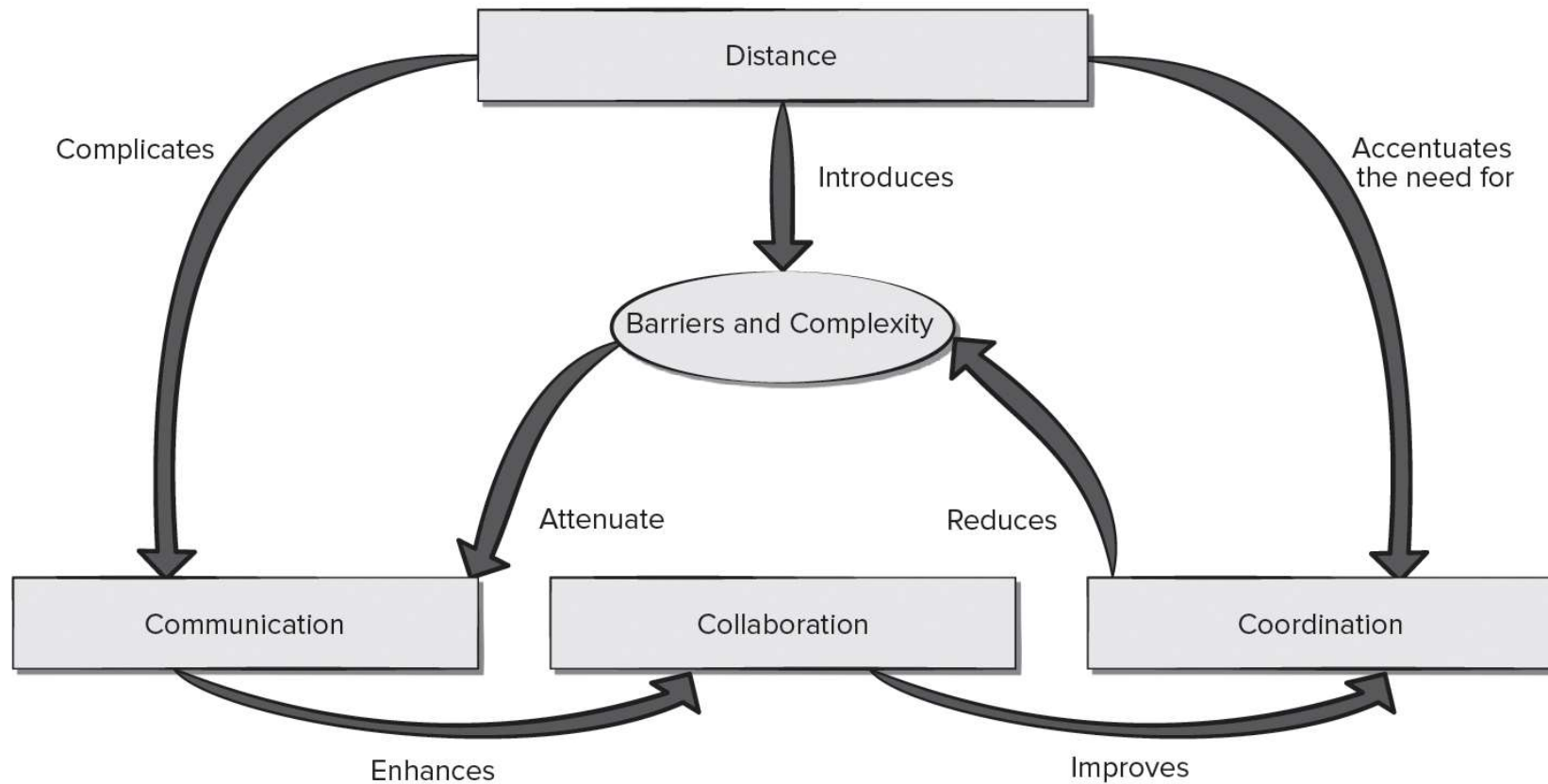
- Social processes around software development are highly depend on engineers' abilities to connect with individuals who share similar goals and complementary skills.
- Value of social networking tools grows as team size increases or when a team is geographically dispersed.
- Privacy and security issues should not be overlooked when using social media for software engineering work.
- Benefits of social media must be weighed against the threat of uncontrolled disclosure of proprietary information.

Team Decision Making Complications

- Problem complexity.
- Uncertainty and risk associated with the decision.
- Work associated with decision has unintended effect on another project object (law of unintended consequences).
- Different views of the problem lead to different conclusions about the way forward.
- Global software teams face additional challenges associated with collaboration, coordination, and communication difficulties.

Factors Affecting Global Software Development Teams

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