

Lecture # 8

# Social and Cultural Issues in Requirements Engineering



# Introduction - 1

- Some aspects of the requirements engineering process deal with social and cultural issues
- What is the best way to deal with these issues?



# Introduction - 2

- Some think that these issues fall outside the scope of requirements engineering process, and fall under management, interpersonal skills, or ethics



# Introduction - 3

- Another point of view is that these issues are very much part of the requirements engineering process and if not accounted for can negatively impact the desired software system



# Social Issues



# Social Issues in RE - 1

- Requirements engineering is a social process, as it involves interaction among clients, engineers, and other systems



# Social Issues in RE - 2

- Requirements engineering is not an entirely formal process, because it involves discovering client needs and reconciling them with technical possibilities



# Stakeholders in RE Process

- ◉ At least three major groups participate in requirements engineering process;
  - > The client organization
  - > The requirements team
  - > The development team
- ◉ There may be other interested parties, e.g., regulatory authorities





# Six Areas of Social Issues - 1

- ◉ Within the client organization
- ◉ Within the requirements team
- ◉ Between the client and the requirements team



# Six Areas of Social Issues - 2

- ◉ Between the development and requirements teams
- ◉ Within the development team
- ◉ Between the development team and the client



# Issues within the Client Organization - 1

- ◉ In a large organization, there are usually competing divisions or groups, so the notion of '*the client*' is not obvious
- ◉ Intended users of the system may be different people from the ones who interact with the requirements team



# Issues within the Client Organization - 2

- The users of the system should be brought into the requirement engineering process, as they hold the key of the eventual success of the software engineering project



# Issues within the Client Organization - 3

- The requirement process reveals the problems within the client organization, which must be addressed by facilitating communication among different stakeholders



# Issues within the Client Organization - 4

- The problems within the client organization must not be buried, as they effect the implementation of the project



# Issues within the Client Organization - 5

- The new automated system may have profound impact on how the business is conducted or how information is classified within the organization



# Issues within the Client Organization - 6

- Success of the project requires that every group within the organization understand different aspects of the new system
- Problems of tacit knowledge
  - > Say-do problem





# Issues within the Requirements Team

- ◉ How work is organized?
- ◉ What methods and notations are used?
- ◉ What team members think about organization and how jelled requirement team is?



# Issues between Client Organization and Requirements Team

- ◉ Financial arrangements
- ◉ Ethical obligations
- ◉ Legal safeguards
- ◉ Personal relationships
- ◉ Denial of information
- ◉ Management of changes



# Issues between Development and Requirement Teams

- Development team needs to work very closely with the requirements team to resolve inconsistencies and to get details
- In some cases, requirements team may be disbanded or assigned other tasks



# Issues of Development Team

## - 1

- Team members may be demoralized
- There may be high turn over rate
- The deadlines may slip
- Developers dislike documentation



# Issues of Development Team - 2

- Development teams may have to communicate with clients directly, to gain better understanding of the project's possibilities and limitations, both for initial development and maintenance



# Cultural Issues in RE



# Cultural Issues in RE

- Advances in the internet and communication technologies has enabled customers and developers to collaborate with each other in geographically and temporally dispersed environments



# Cultural Issues in RE

There may be

- ◉ Time zones differences
- ◉ Language and terminology differences
- ◉ Religious and racial differences
- ◉ Ethical issues
- ◉ Political differences
- ◉ Differences in business environment





# Differences in Time Zones - 1

- ◉ Working hours of clients and developers may differ by eight hours or more
- ◉ Arranging phone calls and video conferences become a hassle as one party has to come to office very early or stay very late



# Differences in Time Zones - 2

- Analysts start assuming requirements



# Language and Terminology Differences - 1

- ◉ Clients and developers may speak different languages or different dialects
- ◉ Requirements errors are introduced by not understanding other partner's language and terminology properly



# Example: A Billion

- Scientific community and US consider the following number to be a billion

1,00,00,00,000

- For the rest of the world, a billion is

10,00,00,00,00,000



# Language and Terminology Differences - 2

- People and government in the US, and worldwide scientific community consider the following number to be a billion

1,00,00,00,000

- For the rest of the world, a billion is

10,00,00,00,00,000



# Language and Terminology Differences - 3

- ◉ Globally, people communicate with fellow citizens using sports lingo to convey certain situations and concepts, even in the business environment
- ◉ This can cause misunderstandings



# Language and Terminology Differences - 4

- Use of the word 'hockey' in Pakistan and US means two different sports: 'field hockey' and 'ice hockey' respectively



# Religious and Racial Differences

- Insensitive comments on religious and racial backgrounds of people involved in software engineering projects can become a major hindrance in the successful execution of the requirements engineering process





# Ethical Issues

- ◉ Access to confidential client information
- ◉ Possibility of elimination of jobs
- ◉ Differences of opinions with the client on the project



# Political Differences

- ◉ Differences in political ideologies and personal convictions can also lead to unprofessional environment in the execution of the requirements engineering process
- ◉ Some people do not want to work on military software programs



# Differences in Business Environments

- Every society has its own culture within the business community, which must be understood for successful execution of the requirements engineering process



# Addressing Social and Cultural Issues



# Addressing Social and Cultural Issues - 1

- ◉ Understand social and cultural issues and differences
- ◉ Avoid judgmental comments and offensive remarks on un-related views and beliefs of others



# Addressing Social and Cultural Issues - 2

- ◉ Create an environment of respect and professionalism
- ◉ Focus on discovering the needs of the customers
- ◉ Use state-of-the-art technology to facilitate activities in the requirements engineering process



# Summary

- Requirements engineering is not a strictly formal process, but one which has social and cultural side effects
- Requirements engineers must understand different aspects of these issues and address them in the requirements engineering process

