Chapter 2

by
David G. Messerschmitt

Definitions

• What is an application?
• What is a technology?
• What is information technology?
• What is the relationship between application and technology?

Application

• Application = something that puts technology to use to the benefit of someone
• Technology = something that puts scientific principles to use
• Terms are relative (e.g. Pentium/PC)
• In this course, we are interested in the level at which technology meets users (people) and organizations

Types of applications

• Individual = entertainment or productivity
• Social = groups of users
• Information management = access to or manipulation of information
• Educational = contribute to learning or training
• Organizational = aid mission or operations

Important ingredients

• Information technology
• Information
• Users (people)
• A purpose or mission (application)

Social Applications

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Social Applications

• Categories of user groups
• Styles of social applications
• Illustrative social applications

Objectives

• Identify distinctive types of user groups
  – In terms of impact on application needs
• Identify distinctive types of social applications
  – In terms of applicability to different groups
• Note: terminology specific to networked applications, not general society
  – e.g. citizenry

Group Characteristics

• What characteristics of a group are relevant to
  – application design and features
  – information technology infrastructure

Group Characteristics

• Size
• Narrowness of purpose
• Duration
• Frequency and type of interaction
• Social relationships
  – communication links
  – trust (individual and generalized)
  – expectations and routines

Group characteristics (cont.)

• Technology accessibility
• Language skills

Group classification

• Note: any classification is imperfect
• Goal is insight into different application requirements
  – Individual
  – Task group
  – Work group
  – Interest group
  – Citizenry
Categories of user groups

- Individual
- Task group
- Work group
- Interest group
- Citizenry

User groups

- What are some examples of:
  - Task group?
  - Work group?
  - Interest group?
  - Citizenry?
- In:
  - University?
  - Company?

Important to application style

- Individual
- Task group
- Work group
- Interest group
- Citizenry

Loose-knit social organization

Each member knows the other members

Important for infrastructure requirements

- Individual
- Task group
- Work group
- Interest group
- Citizenry

Interaction does not have full attention of users

Task Characteristics

- Communication
- Coordination

Communication Applications

<table>
<thead>
<tr>
<th>Direct</th>
<th>Immediate</th>
<th>Deferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication</td>
<td>Same time</td>
<td>Different time</td>
</tr>
<tr>
<td>Same Place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different place</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Some Examples

- Newsgroup
- Chatroom
- Telephony
- Web Board
- Net Meeting

Styles of social applications

<table>
<thead>
<tr>
<th>Direct</th>
<th>Immediate</th>
<th>Deferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication</td>
<td>Full attention of users required?</td>
<td>Other group members known?</td>
</tr>
</tbody>
</table>

Styles (con’t)

<table>
<thead>
<tr>
<th>Immediate</th>
<th>Deferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Infrastructure delay requirements?</td>
</tr>
<tr>
<td>Publication</td>
<td>One or two-way communication?</td>
</tr>
</tbody>
</table>

Styles (con’t)

<table>
<thead>
<tr>
<th>Immediate</th>
<th>Deferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>In which box would you put?</td>
</tr>
<tr>
<td>Publication</td>
<td>Remote conferencing World-wide Web Pointcast Facsimile Television broadcast Electronic and voice mail</td>
</tr>
</tbody>
</table>

Styles (con’t)

<table>
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<tbody>
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<td>Publication</td>
<td>Newsgroup Messaging</td>
</tr>
<tr>
<td></td>
<td>World-wide Web</td>
</tr>
</tbody>
</table>

Some variations

<table>
<thead>
<tr>
<th>Immediate</th>
<th>Deferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Voice mail</td>
</tr>
<tr>
<td>Publication</td>
<td>Newsgroup</td>
</tr>
<tr>
<td></td>
<td>World-wide Web</td>
</tr>
</tbody>
</table>
What is the appropriate role for each box in a task group?

What is the appropriate role for each box in a work group?

What is the appropriate role for each box in an interest group?

How does networked computing change the world (if at all) in each box?

What is the appropriate role for each box in the citizenry?

Coordination Applications
- Resource allocation
- Monitoring and notification
- Collective decision-making
Examples

- Collaborative authoring
- Calendar and scheduling
- Awareness
  - Who’s available now?
  - Who did this?
- Electronic voting

What Kinds of Groups?

- Resource allocation
- Monitoring and notification
- Collective decision-making

Issues in social applications

- How effective is remote collaboration relative to personal interaction?
- What are some advantages/disadvantages of geographic dispersal to organizations?
- What are the relative merits of immediate and deferred styles?

Summary

- Information management for individual user
- Information management as an element of a social application

How networked computing helps information management

- Timeliness
- Wider access
- Processing
- Multimedia
- Social aspect
How networked computing helps

- Timeliness
- Access
- Processing
- Multimedia
- Social aspect

What are some specific ways these can help (or hurt) organizations?

Participants

- User
- Author or publisher
- Indexer or organizer
- Librarian or teacher
- Recommender

Who fills these roles in an organizational context?

How might these roles be affected by networked computing?

Push vs. pull

- User
- Publisher

Push: work
- Brainstorming
- Accessing documents

Pull: attention
- Notification of topic
- Notification of document availability
- Reminder of deadlines

What are some examples of each in an organizational context?

As networked computing grows, the deluge of information and communication can overwhelm the individual unless we use it wisely.
Finding useful information

• Search
• Browse
• Navigate

Others can help

• Author: Hyperlink
• Author or third party: Index
• Metadata
• Reviews or recommendations

Social information access

• A group can collectively access information
• Examples:
  – Remote collaboration
  – Problem solving, e.g. customer service
  – Aid of librarian or teacher