Learning Objectives

71. Define IT infrastructure and its relationship with IT-enabled business capabilities/applications.

72. Explain how and why corporations differ in the way they ‘view’ IT infrastructure.

73. Provide example objectives for four such different views.

74. Map various ‘degree’ of investment and different justification approaches with four corporate ‘views’ of infrastructure.

75. Define ‘reach’ and ‘range’ of IT infrastructure (capabilities).

76. Provide examples of calculating Reach and Range values.

77. Evaluate the processes of successful IT Adoption.

78. Evaluate the factors that influence successes of IT diffusion.
What is IT Infrastructure? (L.O. 71)

The base foundation of budgeted-for IT capability (both technical and human), shared throughout the firm as reliable services, and centrally coordinated.

# Example IT Infrastructure Services

## 5 Core IT Infrastructures Services in Firms

1. Manage firm-wide communication network services
2. Manage group-wide or firm-wide messaging services
3. Recommend standards for at least one component of IT architecture (e.g. hardware, operating systems, data, communications)
4. Security, disaster planning and business recovery services for firm-wide installations and applications
5. Technology advice and support services

## 20 Additional IT Infrastructure Services

6. Manage, maintain, support of large scale data processing facilities (e.g. mainframe operations)
7. Manage firm-wide or business unit applications and databases
8. Perform IS project management
9. Data management advice and consultancy services
10. Perform IS planning for business units
11. Enforce IT architecture and standards
12. Management of firm-wide or business-unit workstation networks (e.g. LANs, POS)
13. Manage and negotiate with suppliers and outsourcers
14. Identify and test new technologies for business purposes
15. Develop business-unit specific applications (usually on a chargeback or contractual basis)
16. Implement security, disaster planning and recovery for business units
17. Electronic provision of management information (e.g. EIS)
18. Management of business-unit specific applications
19. Firm-wide or business-unit data management, including standards
20. Develop and manage electronic linkages to suppliers or customers
21. Develop a common systems development environment
22. Technology education services (e.g. training)
23. Multi-media operations and development (e.g. video-conferencing)
24. Provide firm-wide intranet capability (e.g. information access, multiple system access)
25. Provide firm-wide electronic support for groups (e.g. Lotus Notes)

Four Corporate Views (& objectives) of IT Infrastructure (L.O. 72 and 73)

- **NONE**: Independent business units, No synergies. 
  - INDEPENDENCE FORGOING ANY ECONOMIES OF SCALE

- **UTILITY**: Often not a strategic resource, Utility service at lowest cost, Administrative expense.
  - COST SAVINGS VIA ECONOMIES OF SCALE

- **DEPENDENT**: Response to particular current strategy, Derived from business plans, Business expense.
  - LIFE OF STRATEGY BUSINESS BENEFITS

- **ENABLING**: Integrated with strategic process, Enables new strategies, Influenced by strategies, Business investment to achieve agility.
  - CURRENT AND FUTURE FLEXIBILITY

- **MANAGEMENT OBJECTIVE**: Increasing $$$ and Infrastructure Capability

Adapted from Weill & Broadbent 1998
# Degree of Investment and Justifications of Four Views of IT Infrastructure (L.O. 74)

<table>
<thead>
<tr>
<th></th>
<th>NONE</th>
<th>UTILITY</th>
<th>DEPENDENT</th>
<th>ENABLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/T as % of expenses relative to competitors</td>
<td>Lowest</td>
<td>Low</td>
<td>Just below average</td>
<td>Highest (50%)</td>
</tr>
<tr>
<td>Firmwide I/T infrastructure as % of total</td>
<td>Lowest (0%)</td>
<td>Low (37%)</td>
<td>Just above average (45%)</td>
<td></td>
</tr>
<tr>
<td>Approach to justification</td>
<td>Never supported</td>
<td>Cost saving</td>
<td>Balance flexibility &amp; cost saving</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Infrastructure services</td>
<td>None</td>
<td>Basic services (~13)</td>
<td>Basic + strategic services (~16)</td>
<td>Extensive infrastructure services (~20)</td>
</tr>
</tbody>
</table>

Source: Broadbent & Weill, 1997
IT Infrastructure Reach & Range of Capabilities (L.O. 75)

**REACH - To whom can we easily connect?**

- Anyone, anywhere
- Customers, suppliers regardless of IT base
- Customers, suppliers with the same IT base as ours
- Across different business units abroad
- Across different business units domestically
- Across geographically spread single business unit locations
- Within a single business unit location

**RANGE - What services can we share automatically and seamlessly?**

- Standard messages
- Access to stored data or Intranet
- Perform transactions on one application updating all databases
- Simultaneously perform transactions on multiple applications updating all databases

**Examples**

- Send Mail or Advertising
- Check Credit Rating
- Take Orders
- Process Order

24 hrs on-line batch

‘Business Degrees of Freedom’
Company X’s Reach and Range of Capabilities
(L.O. 75)

REACH - To whom can we easily connect?

- Anyone, anywhere
- Customer, suppliers regardless of IT base
- Customer, suppliers with the same IT base as ours
- Across different business units abroad
- Across different business units domestically
- Across geographically spread single business unit locations
- Within a single business unit location

RANGE - What services can we share automatically and seamlessly?

- Send Messages
- Access to Stored Information / Intranet
- Perform Simple Transactions
- Perform Complex Transactions on Multiple Applications

© 1998 Weill and Broadbent
Calculating Reach and Range (L.O. 76)

REACH - To whom can we easily connect?

<table>
<thead>
<tr>
<th>Segment</th>
<th>Send Messages</th>
<th>Access to Stored Information / Intranet</th>
<th>Perform Simple Transactions</th>
<th>Perform Complex Transactions on Multiple Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anyone, anywhere</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Customer, suppliers regardless of IT base</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Customers, suppliers with the same IT base as ours</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Across different business units abroad</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Across different business units domestically</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Across geographically spread single business unit locations within a single business unit location</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Company X Total Score = 6 + 10 + 15 + 12 = 43/100

RANGE - What services can we share automatically and seamlessly?
Evaluate the Processes of Successful IT Adoption by Organizations

Here we digress to Ford Motor Company case discussion. To prepare for class do the following:

1. Read the case (available in the text book) and the downloadable “discussion question” slides from the class web.
2. Write down your own thoughts and notes following these discussion questions – so that you can readily discuss them in class.
Evaluate the factors that influence successes of IT Diffusion in Organizations

Here we digress to a brief in-class exercise. Required materials will be handed out in class.
Summary/Review Questions

• What is meant by IT infrastructure? What are its common components?
• What are core IT infrastructure capabilities? (Illustration in Ford case also)
• What are the different ‘views’ of IT infrastructure? How do they differentiate from each other? Why are there such different views?
• How would you go about evaluating a company’s (IT infrastructure) Reach and Range?
• Comment on the prerequisites, and problems of introducing a new technology based infrastructure in a complex organization. (Ford)
• What steps should be taken to manage information content of a WWW based intranets in a complex organization? (Ford)
• What are the six factors that are theoretically expected to influence successful IT (Intranet) infrastructure diffusion? Which of these six factors were found to be supported by Eder and Igbaria (2001) study of 281 responding companies? (Hint: Discussions and Handout given out after Ford case discussion).