Chapter 3

Managing digital business infrastructure

Learning Outcomes

- ***Outline the hardware and software technologies used to build an e-business infrastructure within an organization and with its partners***

- ***Outline the hardware and software requirements necessary to enable employee access to the Internet and hosting of e-commerce services.***

Management Issues

- ***What are the practical risks to the organization of failure to manage e-commerce infrastructure adequately?***
- ***How should staff access to the Internet be managed?***
- ***How should we evaluate the relevance of web services and open source software?***

Why the Jargon?

- ***Why do business managers need to know about the jargon and technology?***

Activity 3.1
Infrastructure Risk Assessment

- ***Make a list of the potential problems for customers of an online retailer***
- ***You should consider problems faced by users of e-business applications who are both internal and external to the organization***
- ***Base your answer on problems you have experienced on a website that can be related to network, hardware and software failures or problems with data quality.***

Typical Problems

- ***Website communications too slow***
- ***Website not available***
- ***Bugs on site through pages being unavailable or information typed in forms not being executed***
- ***Ordered products not delivered on time***

Typical Problems (Continued)

- ***E-mails not replied to***

- ***Customers' privacy or trust is broken through security problems such as credit cards being stolen or addresses sold to other companies.***

Main issue	Detail	Where covered?
Which digital access platforms should we support?	Mobile platforms such as tablets and smartphones are rapidly increasing in importance, so the right investment decisions need to be taken here. Other data exchange methods between services such as feeds and APIs also need to be considered.	We introduce the key types of consumer access platforms and data exchange options, and the opportunities of mobile marketing at the start of the chapter.
Setup and selection of services for a new digital service.	Many managers are involved in managing the introduction of a new service where they have to select a platform, suppliers and models for access and data storage.	A section on setup of customer-facing digital service addresses these management decisions, including domain selection, use of hosting providers and cloud services.
How do we achieve quality of service in digital services?	Requirements are: business fit, security, speed, availability and level of errors	Section on ISPs in this chapter, Chapter 11 on design, Chapter 12 on implementation
Where do we host applications?	Internal or external sourcing and hosting via web services	Management issues in creating a new customer-facing digital service in this chapter

Table 3.1 Key management issues of e-business infrastructure

Main issue	Detail	Where covered?
Application integration	Integration of digital business solutions with: – legacy systems – partner systems – B2B exchanges and intermediaries	Section on technology options and standards for supply chain management in Chapter 6
How do we publish and manage content and data quality?	How are content and data updated so that they are up to date, accurate, easy to find and easy to interpret?	Web content management, blogs and feeds are introduced in this chapter and in more detail in Chapters 11 and 12
How do we manage employee access to the Internet?	Staff can potentially waste time using the Internet or can act illegally	Covered in Chapter 11 in '*Focus on* Security design for digital business'
How do we secure data?	Content and data can be deleted in error or maliciously	Safeguards are described in Chapter 11

Table 3.1 Key management issues of e-business infrastructure (Continued)

Digital Business Technology Platforms

- Desktop, laptop, and notebook platforms
- Mobile phone and tablet platforms
- Other hardwares
  - Gaming platforms
  - Indoor and outdoor kiosk-type apps
  - Interactive signage

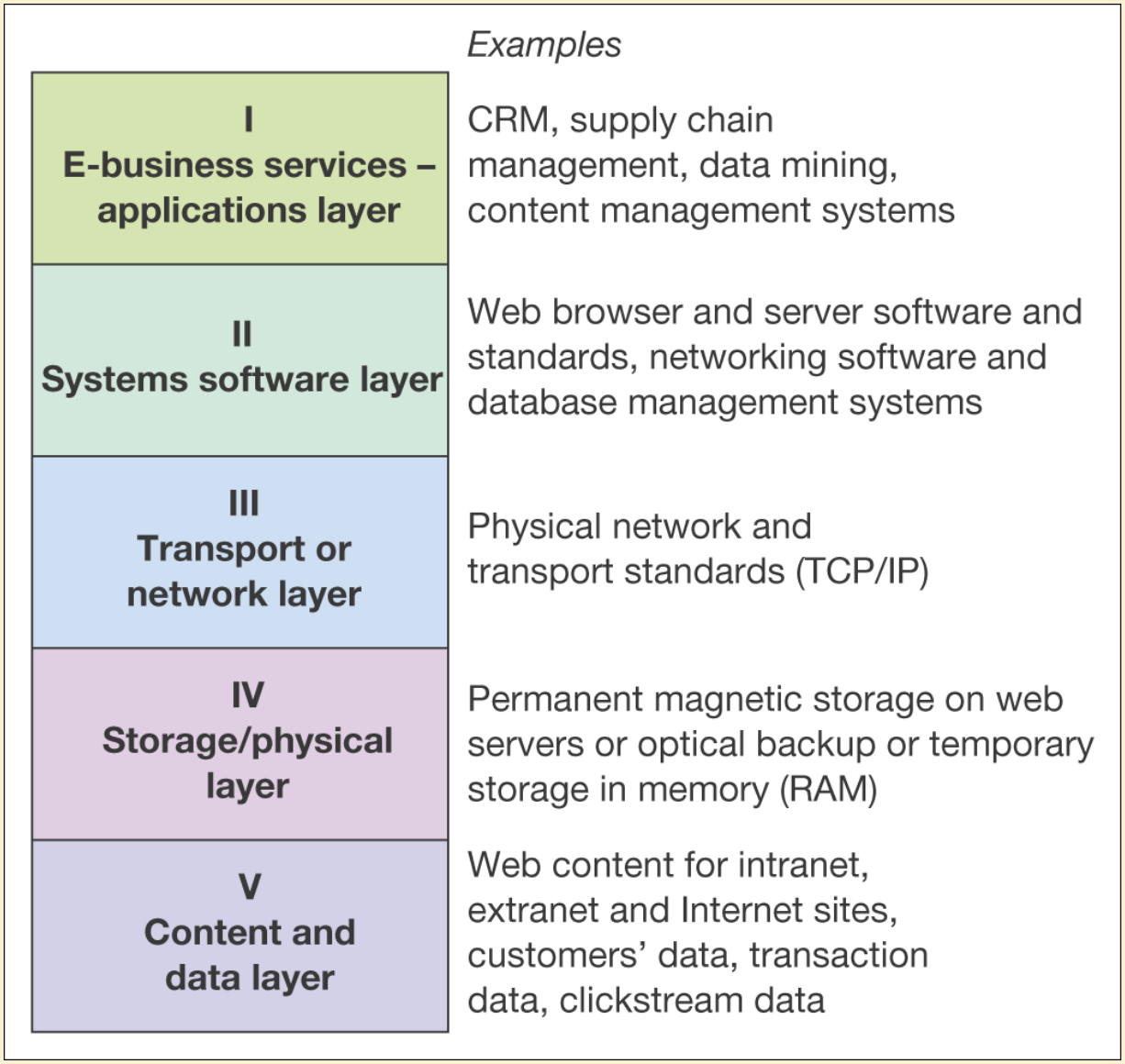

Figure 3.1 A five-layer model of e-business infrastructure

Activity

Internet Infrastructure Components

- ***Write down all the different types of hardware and software involved from when a user types in a web address such as www.google.com to the website being loaded.***

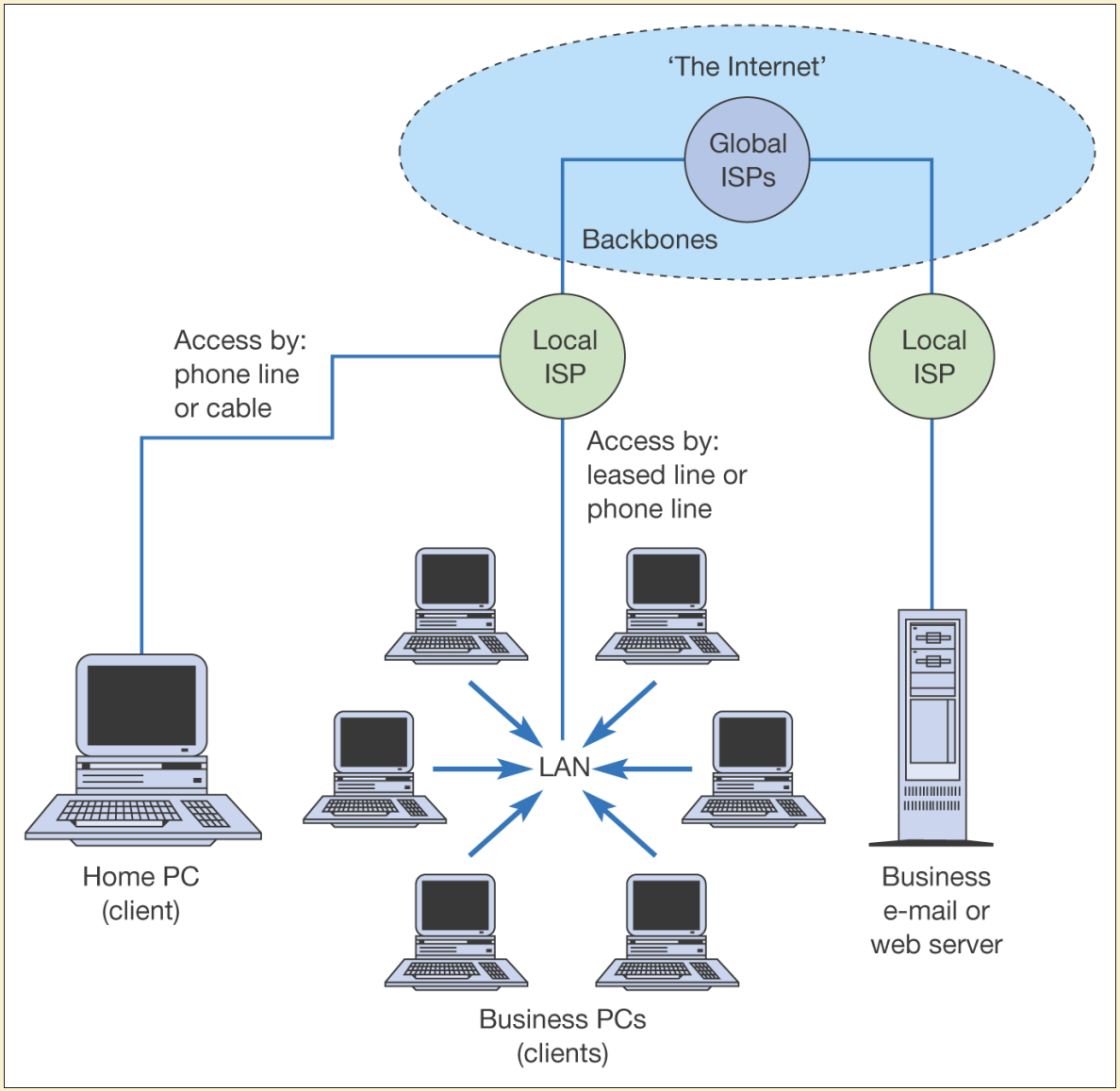

Figure 3.2 Physical and network infrastructure components of the Internet (Levels IV and III in Figure 3.1)

Management issues in creating a new digital service

- ***Domain name selection***
- ***Selection of hosting services***
- ***Selection of SaaS (Software as a Service)***

Domain name selection

- *Domain name: the address of the web server*
- *http://www.domain-name.extension/filename.html*
- *Extensions:*
  - *generic top-level domain*
    - *.com*
    - *.org*
    - *.mobi*
    - *.net*
  - *country-code top-level domain*
    - *.co.uk*
    - *.tr, .de, .fr, .it*
    - *.edu.tr, ac.uk*
    - *org.tr*

Issues related to domain name

- *URL – Uniform Resource Locators*
  - *A web address used to locate a web page on a web server*
  - *URL strategy*
  - *URL components*
- *Domain name registration*
- *Selecting hosting providers*

Managing digital business applications infrastructure

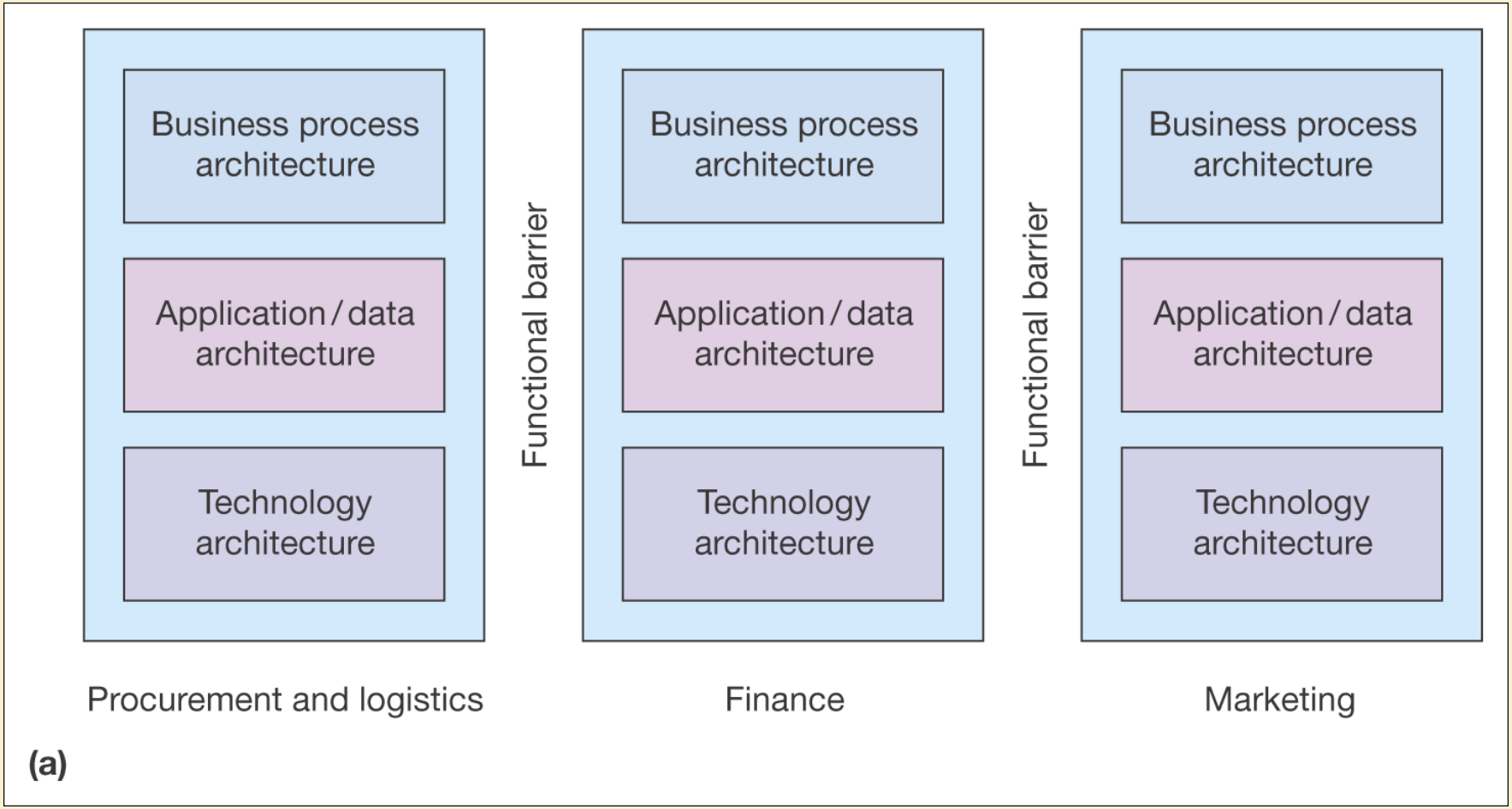

Figure 3.17 (a) Fragmented applications infrastructure, (b) integrated applications infrastructure

Source: Adapted from Hasselbring (2000)

Managing digital business applications infrastructure (con't)

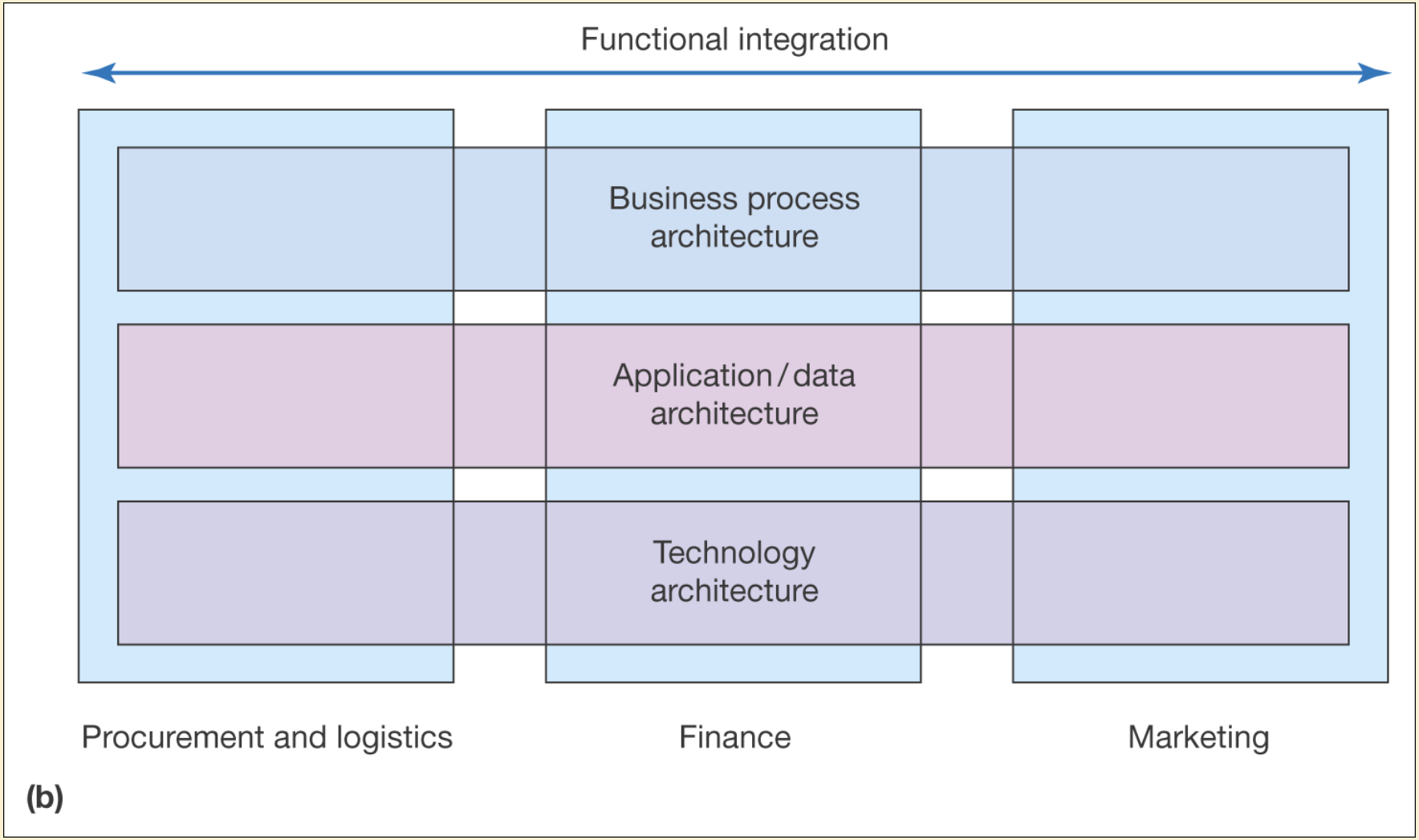

Figure 3.17 (a) Fragmented applications infrastructure, (b) integrated applications infrastructure (Continued)

Source: Adapted from Hasselbring (2000)

Managing digital business applications infrastructure (con't)

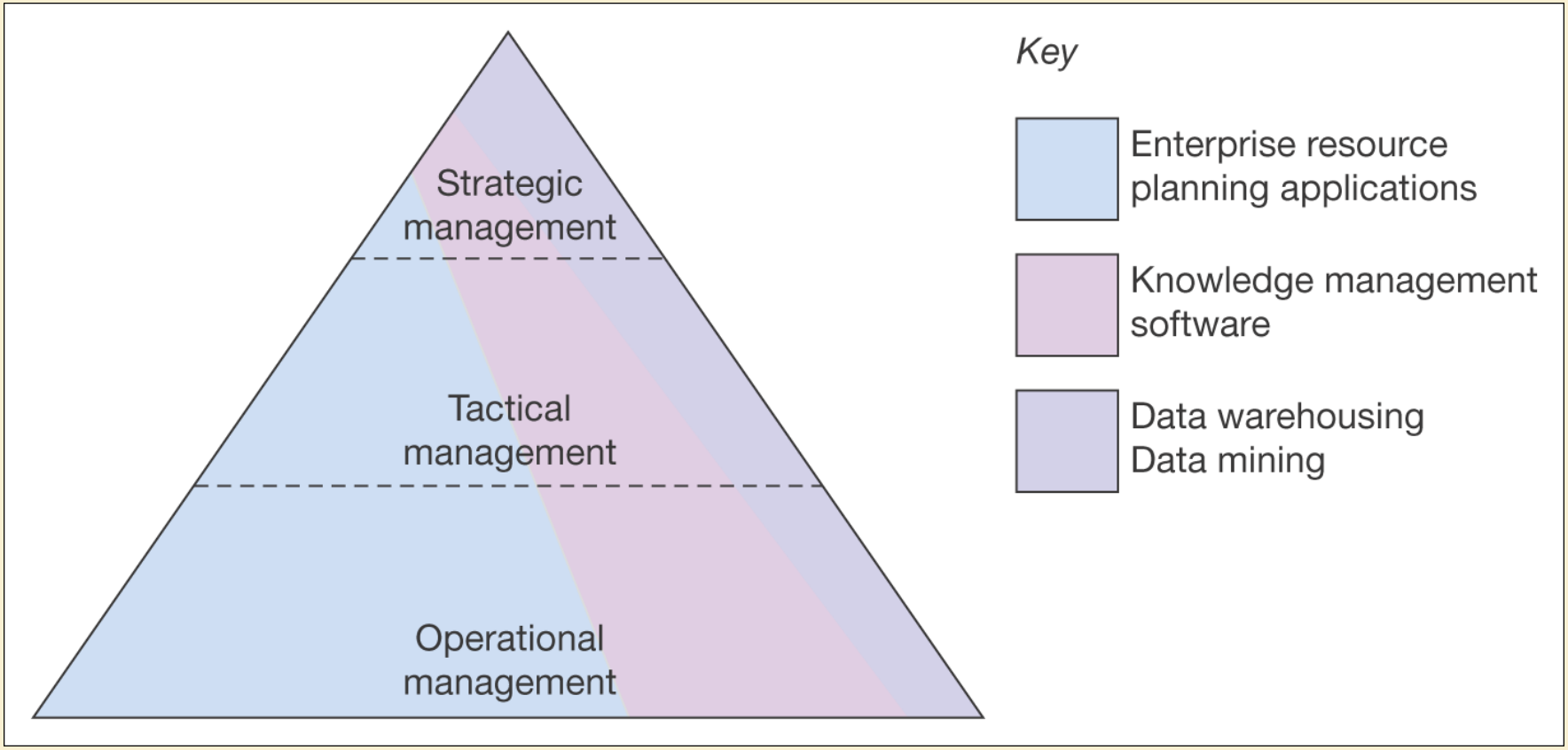

Figure 3.18 Differing use of applications at levels of management within companies

Managing digital business applications infrastructure (con't)

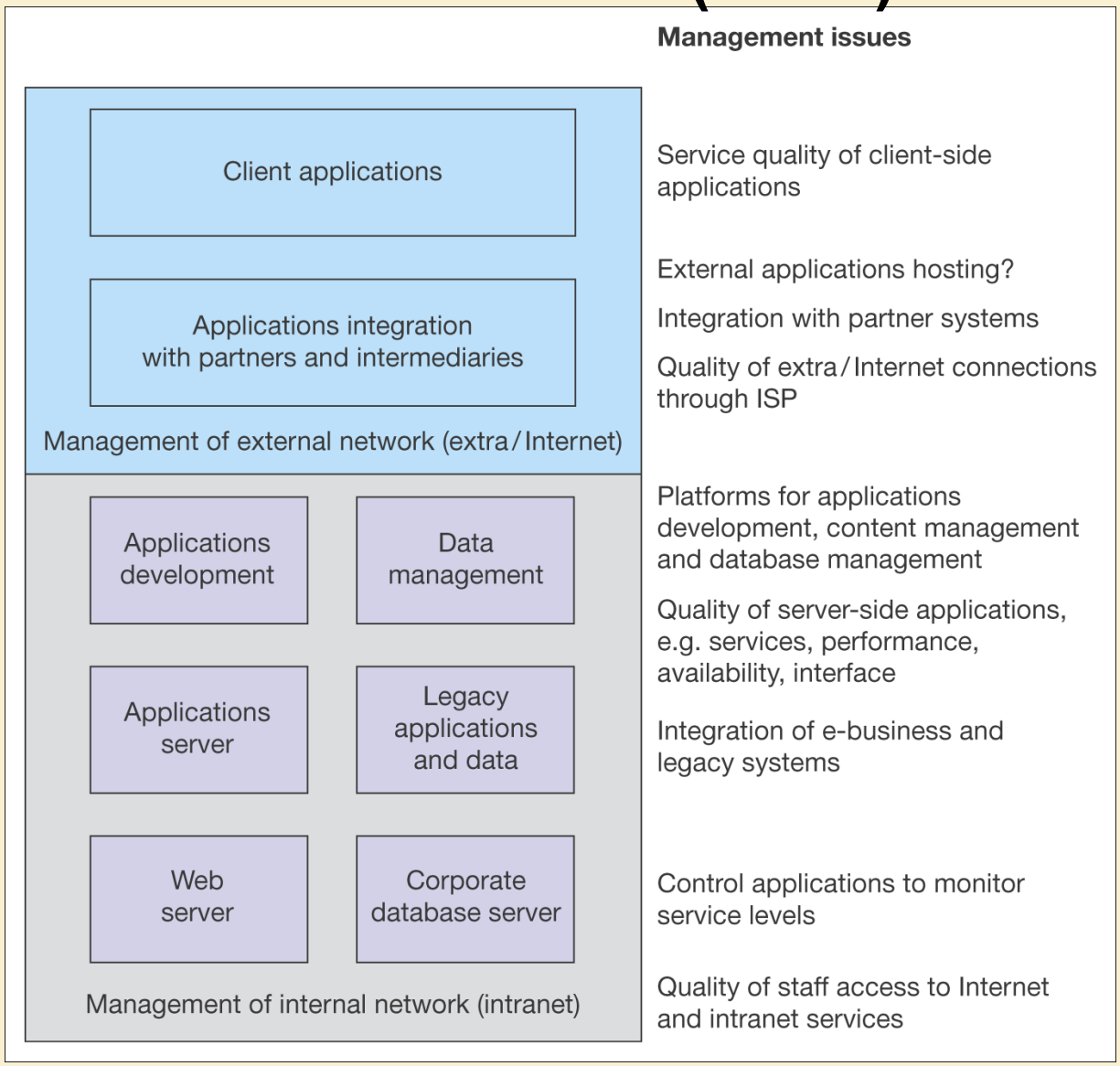

Figure 3.19 Elements of e-business infrastructure that require management

Web Services and SaaS

- ***Benefits of web services***
  - ***Lower initial cost & lower maintenance cost***
    - ***Infrastructure as a Service (IaaS)***
  - ***Ready to use***
  - ***High adoption***
  - ***Convenience of upgrade***
  - ***Integration***

- ***Challenges of deploying Saas***
  - ***Dependence on a third party to deliver services***

Managing IT resources

- *Cloud Computing*
- *Virtualisation*

Technicalities

- *Service-oriented architecture (SOA)*

Managing service quality

- ***Issues in ISP and hosting***
- ***Speed of acceess***
- ***Availability***
- ***Service level agreements***
- ***Security***

Managing internal digital communications

Intranet applications

- ***Benefits of using it***
- ***Issues to be considered***

Extranet applications

- ***Benefits of using it***
- ***Issues to be considered***

Encouraging use of intranets and extranets

Activity 3.3

Overcoming limited use of intranets and extranets in a B2B company

- ***A B2B company has found that after an initial surge of interest in its intranet and extranet, usage has declined dramatically. The e-business manager wants to achieve these aims:***
- ***Increase usage***
- ***Produce more dynamic content***
- ***Encouraging more clients to order (extranet).***
- ***What would you suggest?***

Suggested Answers

- *Identify benefits*
- *Involve staff with development*
- *Find system sponsors, owners and advocates*
- *Train on benefits*
- *Keep content fresh, relevant and where possible, fun*
- *Use e-mail to encourage usage*

Internet-based supplementaries

- ***IPTV***
- ***Voice over IP (VoIP)***
- ***Widgets***

Web presentation and data exchange standards

- ***XML***
- ***Semantic web standards***
- ***Microformats***

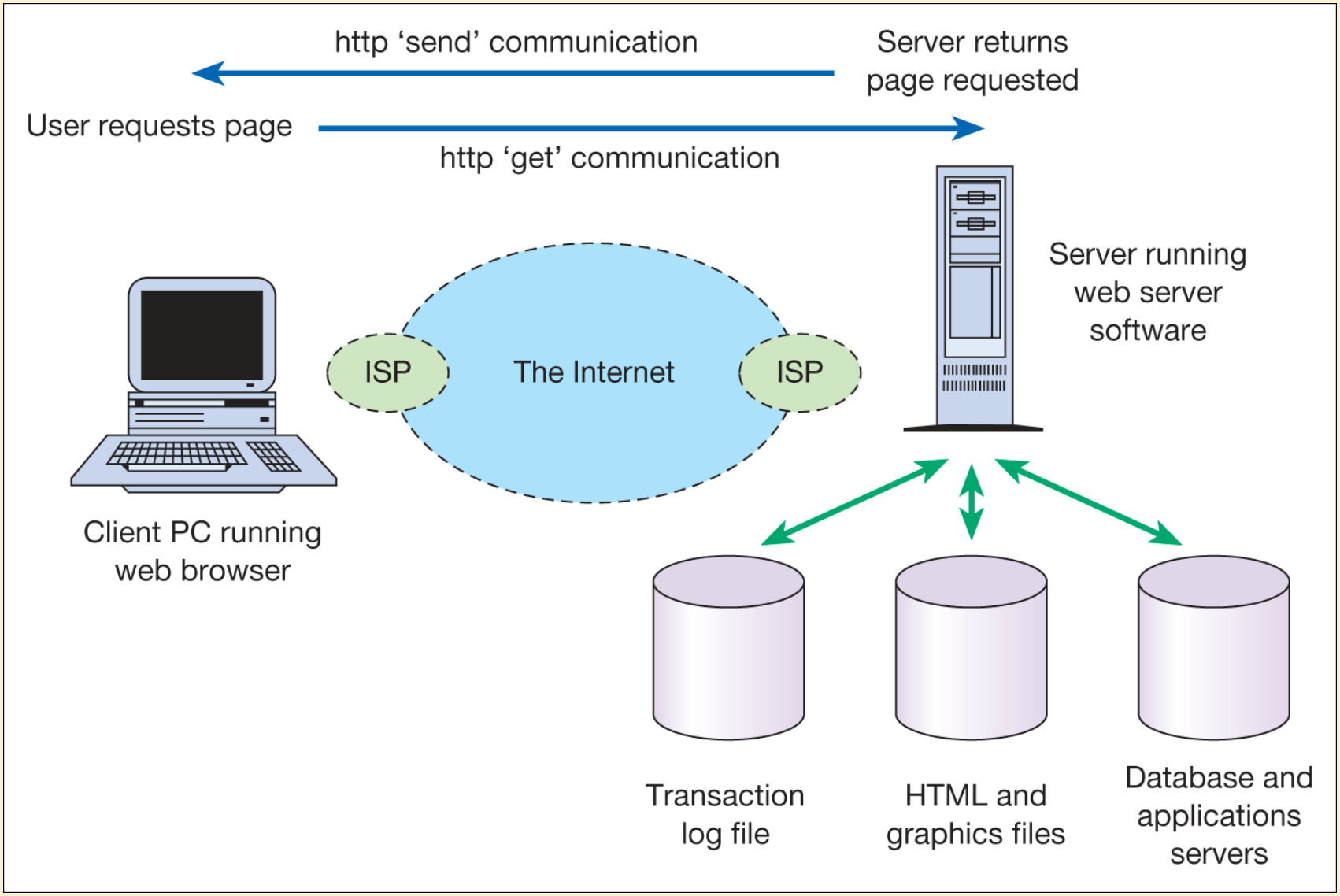

Figure 3.7 Information exchange between a web browser and a web server