



# **DIGITAL BUSINESS AND E-COMMERCE MANAGEMENT**

*I think there is a world market for maybe five computers.*

Thomas Watson, chairman of IBM, 1943

*There is no reason for any individual to have a computer in their home.*

Ken Olson (President of Digital Equipment Corporation)  
at the Convention of the World Future Society in Boston in 1977

Not all organisations have the ability (and in some cases budget) to be technologically innovative. Generally, one of the best things organisations can do is analyse the current situation and respond rapidly where appropriate. A slightly different, and more forward-looking, perspective came from Bruce Tognazzini, who founded the Human Interface Team at Apple and developed the company's first interface guidelines (Econsultancy, 2007):

*Successful technology-predicting is based on detecting discontinuities and predicting the trends that will flow from them.*

He gives the example of the introduction of the Apple iPhone and the other devices based on gestural interfaces that will follow.

In addition to technologies deployed on the website, the suitability of new approaches for attracting visitors to the site must be evaluated – for example, should registration at a paid-for search engine, or new forms of banner adverts or email marketing, be used (see Chapter 7). (Decisions on strategy are covered in Chapter 5).

When a new technique is introduced, a manager faces a difficult decision as to whether to:

- ignore the use of the technique, perhaps because it is felt to be too expensive or untried, or the manager simply doesn't believe that the benefits will outweigh the costs – a cautious, 'wait-and-see' approach;
- enthusiastically adopt the technique without a detailed evaluation since the hype alone convinces the manager that the technique should be adopted – a risk-taking, early-adopter approach;
- evaluate the technique and then take a decision whether to adopt it according to the evaluation – an intermediate approach.

### Early adopter

Company or department that invests in new technologies and techniques.

This diffusion–adoption process (represented by the bell curve in Figure 4.18) was identified by Rogers (1983), who classified those trialling new products as innovators, **early adopters**, early majority, late majority, or laggards.

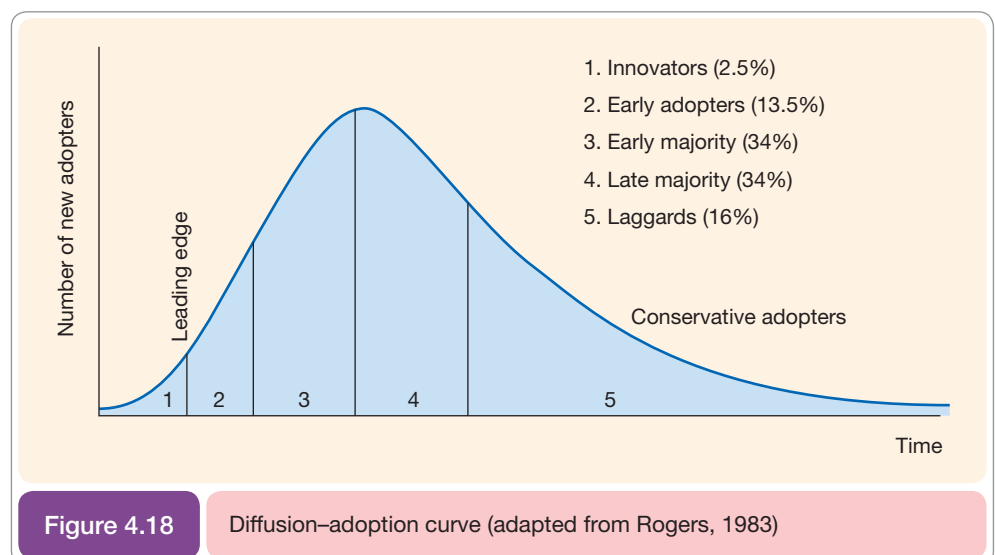


Figure 4.18

Diffusion–adoption curve (adapted from Rogers, 1983)

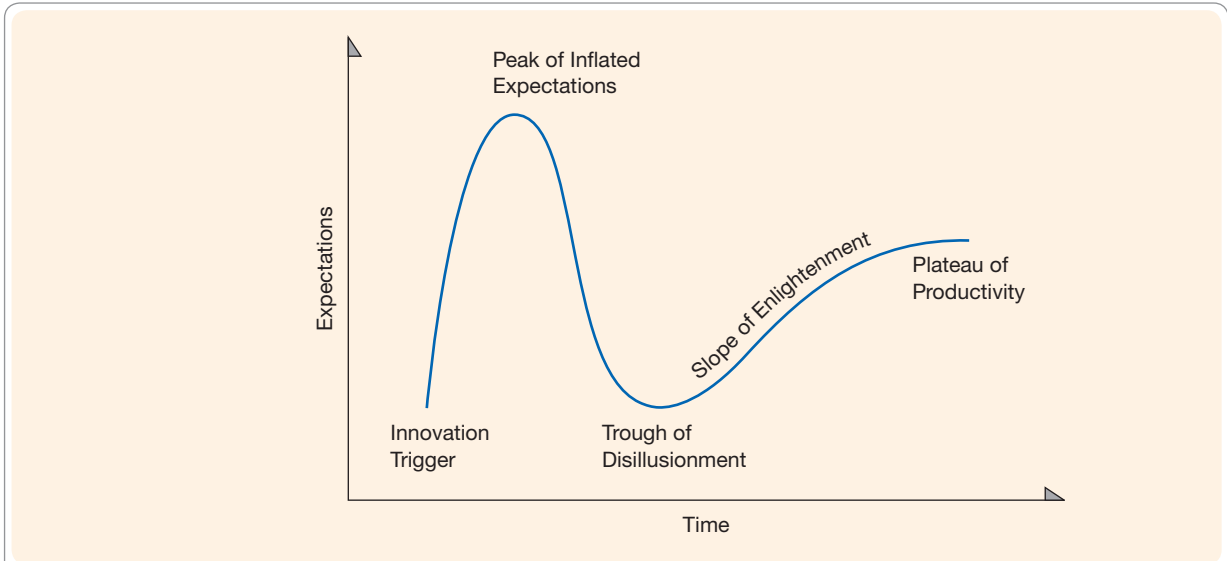


Figure 4.19

## Gartner hype cycle

Source: Gartner Methodologies, Hype Cycle, <https://www.gartner.com/en/research/methodologies/gartner-hype-cycle>

Figure 4.18 can be used in two main ways as an analytical tool. First, it can be used to understand the stage customers have reached in adoption of a technology, or any product. For example, the Internet is now a well-established tool and in many developed countries we are into the late-majority phase of adoption, which suggests that it is essential to use this medium for marketing purposes. Second, managers can look at adoption of a new technique by other businesses – from an organisational perspective. For example, a construction industry supplier could look at how many other digital businesses have adopted personalisation to evaluate whether it is worthwhile adopting the technique.

An alternative graphic representation of diffusion of innovation has been developed by technology analyst Gartner for assessing the maturity, adoption and business application of specific technologies (Figure 4.19). Gartner (2010) recognises the following stages within a **hype cycle**, an example of which is given in Figure 4.19 for emerging trends current in 2016:

### Hype cycle

A graphic representation of the maturity, adoption and business application of specific technologies.

- 1 **Innovation trigger** – The first phase of a hype cycle is the ‘technology trigger’ or breakthrough, product launch or other event that generates significant press and interest.
- 2 **Peak of inflated expectations** – In the next phase, a frenzy of publicity typically generates over-enthusiasm and unrealistic expectations. There may be some successful applications of a technology, but there are typically more failures.
- 3 **Trough of disillusionment** – Technologies enter the ‘trough of disillusionment’ because they fail to meet expectations and quickly become unfashionable. Consequently, the press usually abandons the topic and the technology.
- 4 **Slope of enlightenment** – Although the press may have stopped covering the technology, some businesses continue through the ‘slope of enlightenment’ and experiment to understand the benefits and practical application of the technology.
- 5 **Plateau of productivity** – A technology reaches the ‘plateau of productivity’ as the benefits of it become widely demonstrated and accepted. The technology becomes increasingly stable and evolves in second and third generations. The final height of the plateau varies according to whether the technology is broadly applicable or benefits only a niche market.

Trott (1998) identifies different requirements that are necessary within an organisation to be able to respond effectively to technological change or innovation:

- Growth orientation – a long-term rather than short-term vision.
- Vigilance – the capability of environment scanning.
- Commitment to technology – willingness to invest in technology.
- Acceptance of risk – willingness to take managed risks.
- Cross-functional cooperation – capability for collaboration across functional areas.
- Receptivity – the ability to respond to externally developed technology.
- Slack – allowing time to investigate new technological opportunities.
- Adaptability – a readiness to accept change.
- Diverse range of skills – technical and business skills and experience.

The problem with being an early adopter (as an organisation) is that the leading edge is often also referred to as the ‘bleeding edge’ due to the risk of failure. New technologies will have bugs, may integrate poorly with the existing systems, or the marketing benefits may simply not live up to their promise. Of course, the reason for risk-taking is that the rewards are high – if you are using a technique that your competitors are not, then you will gain an edge on your rivals. Chapter 10 covers this in more detail, by discussing digital transformation and growth hacking.

## Approaches to identifying emerging technology

PMP (2008) describes four contrasting approaches to identifying new technologies, which may give a company a competitive edge:

- 1 Technology networking.** Individuals monitor trends through their personal network and **technology scouting** and then share them through an infrastructure and process that supports information sharing. PMP (2008) explains that Novartis facilitates sharing between inside and outside experts on specific technologies through an extranet and face-to-face events.
- 2 Crowdsourcing.** **Crowdsourcing** facilitates access to a marketplace of ideas from customers, partners or inventors for organisations looking to solve specific problems. LEGO is well known for involving customers in discussion of new product developments. InnoCentive is one of the largest commercial examples of crowdsourcing. It is an online marketplace that connects and manages the relationship between ‘seekers’ and ‘solvers’. Seekers are the companies conducting research and development that are looking for new solutions to their business challenges and opportunities. Solvers are the 170,000 registered members of InnoCentive who can win cash prizes ranging from \$5,000 to \$1,000,000 for solving problems in a variety of domains, including business and technology.
- 3 Technology hunting.** This is a structured review of new technology through reviewing the capabilities of start-up companies. For example, British Telecom undertakes a structured review of up to 1,000 start-ups to assess relevance for improving its own capabilities, which may ultimately be reduced to five companies with which BT will enter into a formal arrangement each year.
- 4 Technology mining.** A traditional literature review of technologies described in published documents. Deutsche Telekom AG uses technology to automate the process through software such as Autonomy, which searches for patterns indicating potential technology solutions within patents, articles, journals, technological reports and trend studies. A simpler approach is setting up a keyword search for technologies through a free service such as Google Alerts ([www.google.com/alerts](http://www.google.com/alerts)).

### Technology scouting

A structured approach to reviewing technology innovations akin to football scouting.

### Crowdsourcing

Utilising a network of customers or other partners to gain insights for new product or process innovations.

**Start-up incubators**

A company that helps new and start-up businesses develop by providing services such as training, expert mentorship, access to advisors/investors and office space. Some even provide seed money, usually in exchange for a small equity stake in the business.

**Internet of Things (IoT)**

The interconnection of physical objects, such as buildings, household appliances, etc., by embedding technology so that they can collect and exchange data with each other via the Internet (i.e. 'smart devices').

**Accelerators**

Designed to accelerate early-stage growth-driven companies, these tend to be fixed-term, cohort-based programmes that include mentorship, training programmes and culminate in a public pitch event or demo day to find investors.

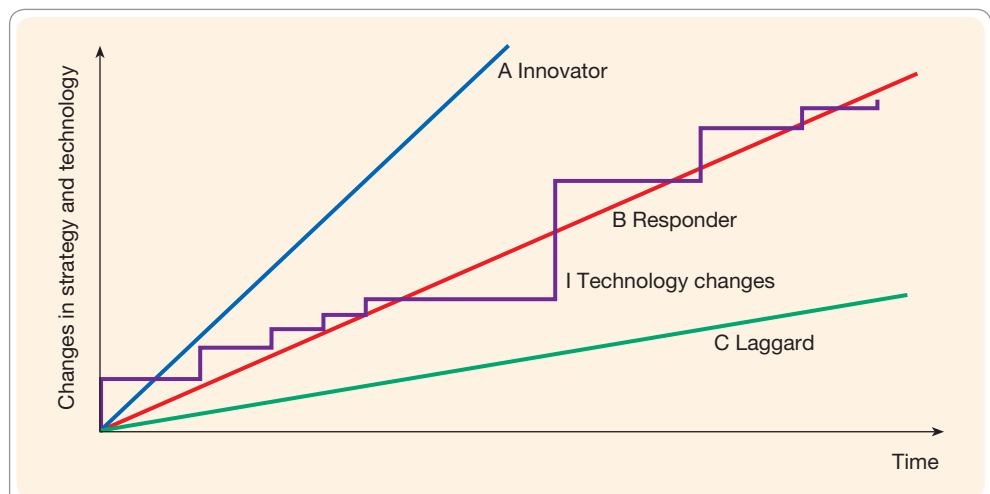
We would like to add another approach to the list:

- 5 **Technology incubators.** Some corporates are setting up their own **start-up incubators** to find innovative solutions for their particular marketplace. For example, John Lewis has set up J Labs, designed to find new ways to help customers shop across channels, using the **Internet of Things** and technology for in-store personalisation. Unilever has set up 'The Unilever Foundry' (<http://foundry.unilever.com>) and Pernod Richard has launched innovation incubator 'Winnovation Lab', while easyJet has an equity stake in 'Founders Factory' (<http://foundersfactory.com>) to find the next big thing in travel technology. Finally, online fashion retailer ASOS has partnered with O<sub>2</sub>/Telefonica's Wayra **accelerator** to find fashion tech start-ups that can help innovate their business and provide competitive advantage.

It may also be useful to identify how rapidly a new concept is being adopted. When a product or service is adopted quickly, this is known as 'rapid diffusion'. Access to the Internet is an example of this – in developed countries the use of the Internet has become widespread more rapidly than the use of TV, for example. Internet-enabled mobile phones are relatively slow-diffusion products.

So, what action should e-commerce managers take when confronted by new techniques and technologies? There is no straightforward rule of thumb, other than that a balanced approach must be taken. It would be easy to dismiss many new techniques as fads, or classify them as 'not relevant to my market'. However, competitors will probably be reviewing new techniques and incorporating some, so a careful review of new techniques is required. This indicates that benchmarking of 'best of breed' sites within sectors and in different sectors is essential as part of environmental scanning. However, by waiting for others to innovate and reviewing the results on their website, a company may have already lost 6 to 12 months (this is discussed further in Chapter 10).

Figure 4.20 summarises the choices. The stepped curve I shows the variations in technology through time. Some may be small incremental changes such as a new operating system, others such as the introduction of personalisation technology are more significant in delivering value to customers and so improving business performance. Line A is a company that is using innovative business techniques, that adopts technology early, or is even in advance of what the technology can currently deliver. Line C shows



**Figure 4.20** Alternative responses to changes in technology

the conservative adopter whose use of technology lags behind the available potential. Line B, the middle ground, is probably the ideal situation, where a company monitors new ideas as early adopters trial them and then adopts those that will have a positive impact on the business.

### Multiscreening

A term used to describe simultaneous use of devices such as digital TV and tablet.

The growth in use of mobile technology is seen as the most significant trend in consumer adoption of digital media. **Multiscreening** is a trend that needs to be considered for its impact on consumers.

Microsoft 'Cross Screen Engagement' research (2010) was a two-phase study; Flamingo Research and Ipsos OTX interviewed consumers in five markets – Australia, Brazil, Canada, the UK and the US – who own multiple devices and use a second screen daily, and then followed up with market-representative focus groups.

The study identified four kinds of consumer behaviours when engaging with multiple devices:

- 1 **Content grazing:** This is the most common way consumers interact with multiple devices. 68% of consumers use two or more screens simultaneously to access unrelated content; for example, watching a show on TV while checking email or texting.
- 2 **Investigative spider-webbing:** 57% of consumers use one device to find information related to what they are doing on another device. For example, they may watch a movie on the TV and look up what other movies the actors have been in on a tablet or PC.
- 3 **Quantum journey:** 46% of consumers use multiple devices to accomplish a task. For example, taking a picture of a pair of shoes on a phone then looking up reviews about the shoes on a PC before purchasing.
- 4 **Social spider-webbing:** This is the least common use of multiple screens. 39% of consumers share content about activities they've accomplished on other devices. An example of this is sharing scores from a gaming console on a smartphone or tablet.

## Summary

- 1 Environmental scanning and analysis are necessary in order that a company can respond to environmental changes and act on legal and ethical constraints on its activities.
- 2 Environmental constraints are related to the micro-environment variables reviewed in Chapter 5 and the macro-environment variables in this chapter using the SLEPT mnemonic.
- 3 Social factors that must be understood as part of the move to the Information Society include buyer behaviour characteristics such as access to the Internet and perceptions about it as a communications tool.
- 4 Ethical issues include the need to safeguard consumer privacy and security of personal information. Privacy issues include collection and dissemination of customer information, cookies and the use of direct email.
- 5 Legal factors to be considered by e-commerce managers include: accessibility, domain name registration, copyright and data protection legislation.
- 6 Economic factors considered in the chapter are the regional differences in the use of the Internet for trade. Different economic conditions in different markets are considered in developing e-commerce budgets.
- 7 Political factors involve the role of governments in promoting e-commerce, but also trying to control it.
- 8 Rapid variation in technology requires constant monitoring of adoption of the technology by customers and competitors and appropriate responses.

## Exercises

### Self-assessment questions

- 1 Why is environmental scanning necessary?
- 2 Give an example how each of the macro-environment factors may directly drive the content and services provided by a website.
- 3 Summarise the social factors that govern consumer access to the Internet. How can companies overcome these influences once people venture online?
- 4 What actions can e-commerce managers take to safeguard consumer privacy and security?
- 5 What are the general legal constraints that a company acts under in any country?
- 6 How do governments attempt to control the use of the Internet?
- 7 Summarise adoption patterns across the continents.
- 8 How should innovation be managed?

### Essay and discussion questions

- 1 You recently started a job as e-commerce manager for a bank. Produce a checklist of all the different legal and ethical issues that you need to assess for compliance on the existing website of the bank.
- 2 How should an e-commerce manager monitor and respond to technological innovation?
- 3 Benchmark different approaches to achieving and reassuring customers about their privacy and security using three or four examples for a retail sector such as travel, books, toys or clothing.
- 4 'Internet access levels will never exceed 50% in most countries.' Discuss.
- 5 Select a new Internet access technology that has been introduced in the last two years and assess whether it will become a significant method of access.
- 6 Assess how the eight principles of the UK Data Protection Act ([www.gov.uk/data-protection](http://www.gov.uk/data-protection)) relate to actions that e-commerce managers need to take to ensure legal compliance of their site.

### Examination questions

- 1 Explain the different layers of governance of the Internet.
- 2 Summarise the macro-environment variables a company needs to monitor.
- 3 Explain the purpose of environmental scanning.
- 4 Give three examples of how websites can use techniques to protect the users' privacy.
- 5 What are the three key factors that affect consumer adoption of the Internet?
- 6 Explain the significance of the diffusion–adoption concept for the adoption of new technologies to:
  - (a) consumers purchasing technological innovations;
  - (b) businesses deploying technological innovations.
- 7 What action should e-commerce managers take to ensure compliance with ethical and legal standards of their site?