



**INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY
CASE STUDY: N&Q INVESTMENTS**

For use in May and November 2009.

INSTRUCTIONS TO CANDIDATES

- Case study booklet required for higher level paper 3 information technology in a global society examinations.

Foreword

The ITGS case study, *N&Q Investments*, is the stimulus material for the research investigation required for May and November 2009 Higher Level Paper 3. All of the work related to the case study should reflect the integrated approach explained on page 8 of the ITGS guide.

Candidates should consider *N&Q Investments* with respect to:

- relevant IT systems in a social context
- both local and global areas of impact
- social and ethical impacts on individuals and societies
- current challenges and solutions
- future developments.

Candidates are expected to research real-life situations similar to *N&Q Investments* and relate their findings to first-hand experiences wherever possible. Information may be collected through a range of activities: primary and secondary research, field trips, guest speakers, personal interviews and e-mail correspondence.

Responses to examination questions should reflect the synthesis of knowledge and experiences that the candidates have gained from their investigations. In some instances, additional information may be provided in examination questions to allow candidates to generate new ideas.

Overview

- N&Q Investments* is an investment company which has operated from Adelaide since 1979. It deals with the financial affairs of numerous clients ranging from individuals and small businesses to multinational companies. With the rapid advances in information technology, it found it was able to expand beyond Australia, opening a second office in Los Angeles in 1988.
- 5 Currently *N&Q Investments* has additional offices in London and Toronto, employing a current total of 60 staff, many of whom travel extensively.

Hector Byrne

- Hector Byrne is an international fund manager based in Adelaide and is employed by *N&Q Investments*. His clients are predominantly multinational companies and he buys and sells shares to increase the value of their investment portfolios. Over the last decade Hector has
- 10 developed a good rapport with his clients at face-to-face meetings, seeing a rapid growth in the number of his clients, which he believes more than compensates for the large amount of time he spends travelling.

- When working in the different *N&Q Investments* offices, in hotels or at home, he is required to have access to the records of clients, which are held on network servers and accessible via a WAN.
- 15 When he has to make sales, purchases or fund transfers on behalf of his clients, it must be done instantaneously. Consequently Hector has to maintain contact with colleagues and clients at all times, which requires the use of wireless networks that can be accessed via hotspots at airports, hotels and other public places. When operating using a wireless network Hector is concerned that correspondence between him and the Head Office or any notes he makes about clients for his
- 20 personal use should remain completely confidential.

- There are issues about the levels of security of the wireless networks in some of the locations he uses. In some cases the network is unsecured and requires no username or password. Other networks, for example in airports, do not change login details for long periods of time. In some hotels, connecting to the network requires either so much time or the level of security
- 25 appears so low that Hector questions whether it is a valid use of time or it creates an unnecessary risk to the confidentiality of company information. Therefore, he works offline and moves company information between his laptop, his home PC and his personal hand held device. He then sends the information by e-mail to colleagues and clients.

When Hector is working from home, he often needs to access the *N&Q Investments* WAN. He has found that he can connect his laptop to the Internet by searching for an available unsecured wireless network or he can use the broadband cable connection on his home desktop PC but on a number of occasions has left sensitive client data saved on the hard drive. Hector often finds that working from home causes a dilemma. He has to choose between using the unsecured wireless connection or leaving sensitive data on his hard drive and can only see the problem getting worse as his teenage children will increasingly require the home PC. To resolve this issue Hector is considering creating a home network; however, his son has warned him that there will be security issues involved in setting this up and he must first address them.

Recent developments

In the last 6 months, *N&Q Investments* has opened new offices in Shanghai, Mumbai, Nairobi, Buenos Aires and Moscow, recruiting a number of employees to carry out duties similar to Hector's. However, *N&Q Investments* is trying to reposition itself as an environmentally responsible organization and is concerned about its "carbon footprint" and the escalating travel costs, particularly with the need to train staff in the new offices. Following a number of senior management meetings, *N&Q Investments* is investigating a range of IT solutions to address this problem.

With the new organizational structure, Hector is now the line manager of Betty Gonzalez, who is based in the new Buenos Aires office. Betty will carry out duties similar to Hector's and has been provided with a laptop computer by her local office. Unfortunately, Hector has found that her laptop has different specifications and uses different versions of software. Hector and Betty are both concerned as this will potentially cause problems in sharing and editing documents.

Technical background

- Each office has a technical department, which is responsible for the maintenance and upgrade of all IT equipment. The maintenance of the WAN is controlled by the technical staff at the head office.
- Each office of the company is connected via a WAN.
- Client data is held on the database at the head office.
- Hector uses a wireless enabled laptop configured by the company's IT department.
- When travelling, Hector carries with him a laptop, PDA and cell phone.
- Hector's home PC has a broadband cable connection to the Internet that is used by all the family.
- Hector uses e-mail to keep up to date with colleagues and transfer information.

Challenges faced

- 60 With the possible significant increase in staff travel, *N&Q Investments* is also investigating a range of alternatives to replace face-to-face meetings between staff in the established and new offices. The senior managers at *N&Q Investments* have proposed the use of video conferencing or virtual meetings but Hector is concerned that the quality of the outcomes from these meetings may be compromised.
- 65 With continued growth, issues are arising such as the lack of compatibility between Hector's and Betty's laptops, so the company is considering commissioning a report from a specialist consultancy company to evaluate emerging issues relating to company practice and policies, security and data integrity.

- 70 The company is aware of the problems that arise when employees use multiple devices such as laptops, PDAs and cell phones, which could lead to numerous different versions of the same document as well as the possible theft of these devices.

Hector and many of his colleagues work from home on a regular basis. The company is concerned that many of the home networks set up by its employees are not secure and could potentially be a route that hackers would use to access sensitive customer information.

Additional Terminology to the Guide

Antenna
Bluetooth
Cell phone/mobile phone
DHCP
Hotspot
Https
IP address
ISP
MAC address
Modem
Radio channels
Router
Spam/spyware protection
SSID
Switch
USB hub
Web conferencing environment
Virtual learning environment (VLE)
Virus protection
WiFi
Wi-Max
WEP/WPA/WPA2

Companies, products, or individuals named in this case study are fictitious and any similarities with actual entities are purely coincidental.
