



**INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY  
CASE STUDY: DEVELOPING AND RUNNING AN ONLINE BUSINESS**

For use in May and November 2011.

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**INSTRUCTIONS TO CANDIDATES**

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

## Foreword

The ITGS case study, *Developing and Running an Online Business*, is the stimulus material for the research investigation required for May and November 2011 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 *Developing and Running an Online Business* with respect to:

- web content management systems (Web CMSs) and providers
- businesses that sell online
- companies that provide services for businesses that sell online
- web sites that sell similar products online.

Candidates are expected to research real-life situations similar to *Developing and Running an Online Business* and relate their findings to first-hand experiences wherever possible. Information should be collected through secondary research **and** primary investigations, such as field trips, guest speakers, personal interviews, e-mail correspondence, hands-on activities and other appropriate methods.

Candidates are expected to research the vocabulary and concepts that are related to the IT technologies in the case study.

Responses to examination questions must 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

Carmen Machado owns a business, *Foto Creativa*, specializing in providing memorabilia for families. She is based in Santander, northern Spain, and runs the business from a shop in the centre of the city.

5 Carmen studied in England for several years and was awarded a university degree in Creative Digital Media. When she returned to Spain she set up a simple web site to help advertise her business. Over the three years that the business has operated it has increased its range of services to include the following:

- digitizing photos, modifying and improving images/photos from customers
- editing video, converting video and home movies to digital media
- 10 • creating and selling digital photo albums
- “stitching” photos together to form one image
- creating multimedia presentations combining text, images, videos, animation and other digital elements
- selling posters, mugs, t-shirts and other products with customer images and photographs.

#### Examples of products sold by *Foto Creativa*



[Source: <http://evansonart.com>, 6 November 2009]

15 Carmen has found that as her business has grown, she has had less time to provide a good service to all of her customers.

## Current IT systems

Carmen's shop, *Foto Creativa*, has the following IT resources:

- two computers, each with a large, high resolution monitor suitable for professional photography and video
  - 20 • a scanner
  - a photo-quality printer
  - a “high-end” digital camera and digital video camera
  - a laptop suitable for demonstrating and displaying work to customers
  - professional software for photography and video work
  - 25 • desktop publishing software
  - web development software
  - a small network with a server, including a RAID backup system
  - broadband Internet access
  - a spreadsheet for keeping all financial and customer records.
- 30 Carmen is currently using almost all of the free 50 MB web space provided by her Internet service provider (ISP). This only allows her to have HTML pages, with images and text in English and Spanish.

She realizes that to improve her web site, which will include completely redesigning it, she is going to need to make major decisions.

- 35 Carmen carried out some initial research into developing the improved web site herself, but soon realized that researching, designing, building and testing, hosting and marketing an online business would take more time than she could afford. Also, she knew she did not have the technical knowledge to do this and therefore sought the advice of Sergio Martinez, an e-commerce consultant.

## Web content management system (Web CMS) and applications

- 40 To run an e-commerce business successfully, Carmen needs a web content management system (Web CMS) to:
- organize and present information about her products and services through a consistent user interface
  - provide e-marketing
  - 45 • interface data from the central database
  - provide secure access to customers to view and upload files
  - provide an e-commerce facility (with a shopping cart service).

However, there are technical requirements that Carmen must meet whether she chooses a free or commercial Web CMS. She will need:

- 50 • a domain name
- a hosting account – one of the more popular configurations includes:
  - MySQL database management system (DBMS)
  - PHP / other scripting language
  - Linux operating system
- 55 – *Apache* web server
- a shopping cart system – purchased or open source
- a payment merchant account
- SSL-encrypted web site pages.

### **User interface**

Successful businesses use a standard appearance and structure for their web sites and documents.

- 60 Carmen must ensure that all the web pages have a consistent appearance. She is considering whether to use commercial or open source software to develop the web site.

### **E-marketing**

Carmen wishes to expand the marketing of her products and services over the Internet. She is considering implementing some of the following:

- an opt-in e-newsletter
- 65 • ad banners
- a blog on her web site
- RSS feeds
- bulk e-mails
- site traffic analysis / web-counters
- 70 • multimedia content.

Also search engine optimization can increase the likelihood of Carmen generating more business. There are many ways to enable her company to appear higher up on a search result list. Some methods are paid for and others will require knowledge of how search engines work.

### **Database and applications**

- 75 Underpinning any e-business there is always a database. In this case, it holds details of customers, products and orders. As with any other database, it is best managed with a DBMS, which provides applications with an interface to the underlying data. A DBMS will also prevent unintentional data corruption. MySQL is a widely used DBMS that can be accessed by many programming languages such as PHP. Many shopping cart services and other web-based applications are written in PHP interfacing with MySQL.

### **Providing security**

- 80 In addition to the security measures required for running an e-commerce web site with a shopping cart, it is necessary to provide secure methods for ensuring the protection of customer data and the files that they upload for processing by *Foto Creativa*.

Consideration has to be given to the installation of anti-virus and anti-spyware software, in addition to firewall and Internet security tools to protect the web site and its underlying data.

### **E-commerce with shopping cart**

- 85 In order to sell products or services from a web site, Carmen will need to set up a shopping cart. This can be implemented through a third party web site or run from her own web site.

Hosting your own shopping cart is generally seen as a much more affordable solution and involves a number of challenges. However, running a shopping cart through a third party web site will also have its share of challenges.

### **Challenges faced**

- 90 Carmen has decided that she needs further information on how to develop the business in the future. Sergio identified issues that would require further investigation before any final decision could be made about how to develop the business further:
- how customers and potential customers can be informed of new products and offers through the web site or other e-marketing techniques
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- different project management techniques to develop the new web site
  - how a range of multimedia features can be effectively integrated on the web site
  - how products are purchased through the use of an appropriate shopping cart service
  - a range of open source and commercial Web CMSs
  - methods of payment for goods (and delivery) purchased using the shopping cart,
- 100 such as PayPal, credit card payments and direct deposit to account
- appropriate privacy and other policies for the web site
  - search engine optimization so that the web site appears on the first page of results
  - the role of web site traffic analysis
  - techniques that can be used to secure a web site
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- policies that could lead to a secure web site
  - the relationships between the data, the DBMS and applications
  - the features offered by a range of web-hosting services.

**Specific Information Technology items, additional to those in the ITGS Guide, which are associated with developing and running an online business web site**

Backup strategies  
Cascading Style Sheets (CSS)  
Denial of service attack  
Domain Name System  
Gantt chart  
HTML  
HTTPS  
Internet service provider (ISP)  
IP address  
JavaScript  
MySQL  
Open source  
Page ranking  
Pay per click advertising  
Payment merchant account  
Payment options – e.g. PayPal / credit card payment / direct deposit to an account  
PHP  
Project management  
RAID  
RSS feeds  
Search engine optimization  
Shopping cart software  
Site traffic analysis  
SQL  
Web 2.0 technologies  
Web content management system (Web CMS)

*Any individuals named in this case study are fictitious and any similarities with actual entities are purely coincidental.*

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