

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMERCE

DEPARTMENT OF BUSINESS MANAGEMENT

OPERATIONS MANAGEMENT – CBU 2108

FINAL EXAMINATION – DECEMBER 2013

TIME ALLOWED: 3 HOURS 30 MINUTES

INSTRUCTIONS TO CANDIDATES

Answer question **one** and any other **three** questions

INFORMATION TO CANDIDATES

- (i) Question **one** is compulsory
- (ii) All questions carry **(25)** marks each.
- (iii) Questions may be answered in any order.
- (iv) As much as possible, use relevant examples.
- (v) This paper contains **seven** questions.

QUESTION 1

The Battle of the Giants.

An Apple addict from the very first iPhone to three models later, Paris based Mr. Masayoshi Noro bought his first Samsung mobile device – a Galaxy Note 2 – in December. Now the 33-year-old supply chain manager says he is pretty sure he's not switching back. "Being disappointed by the last two iPhones, I switched to Samsung and I discovered a whole new way to use my smartphone .. no limitations and a great scope of new possibilities for half the price," Noro told CNBC. "In like 10 days I used it as if I had it for many years."

Noro says he is considering selling his iPad and buying a Samsung Galaxy Note 10.1 tablet to create a Samsung ecosystem. Noro is one of millions of smartphone users around the world who are now viewing Samsung's mobile devices in a new light and opting for them over Apple's much sought-after premium products.

Competitive pricing and growing distribution channels, added to innovative features and sleek designs have made Samsung's mobile devices a popular choice among the masses, and analysts say the South Korean conglomerate's deep market penetration is boosting its brand image, along with smartphone sales. The numbers do not lie. A recent report by research firm Strategy Analytics showed that Samsung sold a whopping 213 million smartphones in 2012, taking a 30 percent share of the global smartphone market, while Apple held 19 percent. Samsung overtook Apple as the world's top smartphone maker in the third quarter of 2011 amid a highly competitive market and has since continued to widen its lead.

Changing Brand Image

Jong-bin Lee, advertising group Cheil Worldwide's director of the team in charge of Samsung Electronics' global advertisement campaigns, says "Samsung has been able to transform its image from a "value for money" brand to an innovative leader by changing its marketing strategy to focus on meeting the needs of all consumers." And it was not easy given that Apple was and

continues to be perceived as the cutting edge choice for people who are interested in sleek well designed devices that have excellent user experience, said analysts.

"When I started in 1996, Samsung was struggling to get through the market in terms of brand awareness and consumer confidence," Lee said of his 12 years of working on Samsung advertising. He added that from being obsessed with finding ways of showing the difference in features between their phones and that of their competitors, it is now pursuing a bigger agenda. Samsung is trying to build a contrast between their biggest competitor Apple as a "self-centered brand" versus them, a brand that "cares for everybody."

For example, a recent advertisement by Cheil for the Samsung Galaxy S3 shows images of working professionals, and married couples to families with kids, trying to attract a broader audience with slogans like "designed for humans, inspired by nature."

Given that Samsung has a range of almost 30 smartphones, varying from the low to the high-end, compared to a handful of Apple mobile devices, Mykola Golovko, senior industry analyst at Euromonitor says it's no surprise that more people are choosing a Samsung, because of its sheer size.

"Broader appeal is really what's driving their sales especially now as smartphone growth sort of moves on from developed markets and more to emerging markets," Golovko said. "Samsung has a lot of specific country, region models and variances of these models, that's really what's driving their overall volume growth."

Andrew Milroy, vice president at consultancy ICT Practice, Asia Pacific, meanwhile, says that by growing market share amid the younger "price sensitive" segment of the market, Samsung has been able to increase its brand appeal. "Obviously if you're hitting a young audience and you get a critical mass of young folks, you've got an opportunity to focus on the hip factor, potentially make Apple devices seem kind of frumpy and unfashionable over time," Milroy said.

Physical Appeal

Samsung's deep pockets for research and development as a manufacturer of smartphone components, including those for Apple, has also allowed them to focus more on their hardware

to make their products more appealing, according to analysts. "Its hardware has really evolved... they are able to deliver a high quality polished product" Golovko of Euromonitor said.

Toronto-based public relations professional Aliya Jiwan-Thawer, for example, says she was really impressed with the look of her first Samsung Galaxy S3 smartphone when she received it from her husband, an iPhone user, in August. "As a woman, we can't deny the fact that looks count for our phones as well," Jiwan-Thawar, 31 said. "It was an attractive phone... It looked so sleek, and it was beautiful and I remember saying to my husband, it looks pretty big don't you think? But now, I like the size, it makes it easier to type."

Samsung's tactic of making bigger screens for its smartphone devices, particularly the Galaxy Note series, has been a big part of its success in differentiating the brand from other market players, according to Melissa Chau, senior research manager, client devices at IDC Asia-Pacific, who says the big screens have become "trendy."

"Most of the android handsets all kind of look the same, but this one's like the big one, which has actually been kind of quite a popular handset in a lot of the more mature markets in Asia like Singapore, Hong Kong, South Korea for example," Chau said. With Apple not making any significant changes to the look and feel of the iPhone 4S and iPhone 5 in its past two releases, consumers may also be looking to try something new, Chau said.

"Before, the gap between iPhone and other brands was so big that it was the clear choice to buy an iPhone. But now it's like I don't have to only choose this one and in fact with Samsung I might get something that I'm not able to find, which is a larger screen," Chau said.

Galvanizing the Android Market

The growing popularity of Google's android operating system worldwide has also helped Samsung emerge as the flagship brand amid other market players, according to analysts. Euromonitor predicts that smartphones run on an Android operating system will account for more than 60 percent of global volume sales in 2013, from 57.6 percent in 2012. That compares to just under 17 percent of global volume sales for Apple's iOS system, the second biggest competitor, in 2013. "There's not that many differences between a lot of android phones," Chau

said. "You're going to choose the one you're most familiar with and Samsung has made itself the familiar brand by plastering it's marketing everywhere."

Meanwhile for Apple, analysts predict that it's inevitable that the tech giant's stupendous growth in the smartphone market over the past few years will slow in 2013 as competitors like Samsung introduce alternatives to its premium products. But Milroy of ICT says "Apple loyalists will remain Apple loyalists. I don't think it's so much Apple fatigue, it's just there's always room for different taste and Samsung's taken advantage of that."

Source: CNBC Corporate Analysis: 2012

Required:

- (a) Using the above case identify and discuss the competitive priorities of Apple and Samsung. **[20 marks]**
- (b) What advice would you offer to Apple management to counter the alleged threat from Samsung from an operations management perspective? **[5 marks]**

QUESTION 2

- (a) Discuss the costs of producing quality products and services. **[10 marks]**
- (b) Discuss the quality gaps in service provision and recommend courses of action for both the consumers and suppliers in bridging these gaps. **[15 marks]**

QUESTION 3

A potential foreign investor intending to establish a leather processing plant in Zimbabwe or South Africa is presented with what a local investment analyst calls three 'best' sets of data to consider for such an investment. Table 1 presents the cost structures of these locations; Table 2 the critical success factors of 2 countries and table 3 the output from different locations.

Table 1: Cost Structures of three locations

Location	Fixed Costs	Variable Costs per unit
Bulawayo	\$30,000.00	\$75.00
Harare	\$110,000.00	\$25.00
Gweru	\$60,000.00	\$45.00

The selling price of a product = \$120.00

Expected volumes = 2,000 units

Required:

(a) Using the Locational Break-Even Analysis, calculate the output range for which Bulawayo, Harare and Gweru are ideal locations for the potential investor. **[8 Marks]**

Table 2: Critical success factors of 2 locations and their weights

Critical Success Factor	Weight	Scores out of 100	
		South Africa	Zimbabwe
Skilled Labour Availability	0.25	60	70
Per Capita Income	0.10	85	80
Tax Structure	0.39	70	75
Unionisation of Labour	0.21	95	50
Political Risk	0.05	45	70

Required:

(b) Using the Factor Rating Method, identify the ideal country to invest in. **[4 Marks]**

Table 3: Output from four locations

Plant Location coordinates	Projected Output (units per month)
Bulawayo (20.17S, 28.58E)	2000
Gweru (19.42S, 29.83E)	1000
Harare (17.86S, 31.03E)	2000
Mutare(18.97S, 32.63E)	1000

(c) Using the Center of Gravity Method, identify the ideal location of the plant. **[5 Marks]**

(d) Why do most service organizations occupy ground floors of buildings? **[8 Marks]**

QUESTION 4

Table 4 below, relates to production figures for rolls at Bakers Inn Bulawayo factory.

Table 4: Production & Capacity figures for Bakers Inn bakery factory

Actual production the previous week	148,000 rolls
Effective capacity	175,000 rolls per week
Design capacity	1,200 rolls per hour
Bakery operates	7 days/week, three – ‘8 hour shifts’

Required

(a) (i) Calculate the design capacity per week **[2 Marks]**

(ii) Calculate utilization and efficiency rates for the factory **[2 Marks]**

(iii) Calculate the expected output of the factory **[1 Mark]**

(b) With an aid of diagrams, discuss capacity plans for coping with variations in the manufacturing sector. [20 Marks]

QUESTION 5

Discuss the elements of a Just In Time (JIT) operations process. [25 Marks]

QUESTION 6

A group of six jobs is to be processed through a two-machine flow shop. The first operation involves cleaning and the second involves painting. Processing times are shown in Table 5 below:

Table 5: Processing times in a shop.

	Processing Time (Hours)	
Job	Work Center 1 (Cleaning)	Work Center 2 (Painting)
A	5	5
B	4	3
C	8	9
D	2	7
E	6	8
F	12	15

- (a) Using Johnson's rule determine a sequence that will minimize the total completion time for this group of jobs. **[10 Marks]**
- (b) Discuss how an operations management function could be used as a tool to achieve a position of competitive advantage. **[15 Marks]**

QUESTION 7

"Say we get an order from a European retailer to produce 10,000 garments. For this customer we might decide to buy yarn from a Korean producer but have it woven and dyed in Taiwan. So we pick the yarn and ship it to Taiwan. The Japanese have the best zippers ... so we go to YKK, a big Japanese zipper manufacturer, and we order the right zippers from their Chinese plants. ...the best place to make the garments is Thailand. So we ship everything there. ...the customer needs quick delivery, we may divide the order across five factories in Thailand. Effectively, we are customizing the value chain to best meet the customer's needs. (Interview: Victor Fung of Li & Fung in HBR, Sept-Oct 1998.)

Required

Identify the concept being referred to in this quote and discuss why it has become an important global business practice. **[25 Marks]**

END OF EXAMINATION PAPER