

PGDM (RM), 2014-16
Management Information System
RM - 107

Trimester – I, End-Term Examination: September 2014

Time allowed: 2 hrs 30 min

Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	3*5 = 15
B	2 out of 3 (Long Questions)	10 Marks each	2*10 = 20
C	Compulsory Case Study	15 Marks	15
		Total Marks	50

SECTION-A

- A1. How do systems serve the various levels management groups in a business?
- A2. Explain various internet-based collaborative technologies used by enterprise to improve organizational performance?
- A3. Explain Internet addressing system: IP address and DNS
- A4. What is the role of m-commerce in business, and what are the most important m-commerce applications?
- A5. Define malware and distinguish among Virus, Worm & Trojan horse.

SECTION-B

- B1. Explain eight unique features of E-commerce Technology with their significance in business.
- B2. How do value chain and value web models help businesses identify opportunities for strategic information system applications?
- B3. Define following current trends in computer hardware platforms:
 - a. Virtualization
 - b. Cloud computing
 - c. Grid Computing
 - d. Autonomic Computing

TURN OVER...

SECTION-C
CASE STUDY

Collaboration and Innovation at Procter & Gamble
CASE STUDY

Look in your medicine cabinet. No matter where you live in the world, odds are that you'll find many Procter & Gamble products that you use every day. P&G is the largest manufacturer of consumer products in the world, and one of the top 10 largest companies in the world by market capitalization. The company is known for its successful brands, as well as its ability to develop new brands and maintain its brands' popularity with unique business innovations. Popular P&G brands include Pampers, Tide, Bounty, Folgers, Pringles, Charmin, Swiffer, Crest, and many more. The company has approximately 140,000 employees in more than 80 countries, and its leading competitor is Britain-based Unilever. Founded in 1837 and headquartered in Cincinnati, Ohio, P&G has been a mainstay in the American business landscape for well over 150 years. In 2009, it had \$79 billion in revenue and earned a \$13.2 billion profit.

P&G's business operations are divided into three main units: Beauty Care, Household Care, and Health and Well-Being, each of which are further subdivided into more specific units. In each of these divisions, P&G has three main focuses as a business. It needs to maintain the popularity of its existing brands, via advertising and marketing; it must extend its brands to related products by developing new products under those brands; and it must innovate and create new brands entirely from scratch. Because so much of P&G's business is built around brand creation and management, it's critical that the company facilitate collaboration between researchers, marketers, and managers. And because P&G is such a big company, and makes such a wide array of products, achieving these goals is a daunting task.

P&G spends 3.4 percent of revenue on innovation, which is more than twice the industry average of 1.6 percent. Its research and development teams consist of 8,000 scientists spread across 30 sites globally. Though the company has an 80 percent "hit" rate on ideas that lead to products, making truly innovative and groundbreaking new products is very difficult in an extremely competitive field like consumer products. What's more, the creativity of bigger companies like P&G has been on the decline, with the top consumer goods companies accounting for only 5 per-

cent of patents filed on home care products in the early 2000s.

Finding better ways to innovate and develop new ideas is critical in a marketplace like consumer goods, and for any company as large as P&G, finding methods of collaboration that are effective across the enterprise can be difficult. That's why P&G has been active in implementing information systems that foster effective collaboration and innovation. The social networking and collaborative tools popularized by Web 2.0 have been especially attractive to P&G management, starting at the top with former CEO A.G. Lafley. Lafley was succeeded by Robert McDonald in 2010, but has been a major force in revitalizing the company.

When Lafley became P&G's CEO in 2000, he immediately asserted that by the end of the decade, the company would generate half of its new product ideas using sources from outside the company, both as a way to develop groundbreaking innovations more quickly and to reduce research and development costs. At the time, Lafley's proclamation was considered to be visionary, but in the past 10 years, P&G has made good on his promise.

The first order of business for P&G was to develop alternatives to business practices that were not sufficiently collaborative. The biggest culprit, says Joe Schueller, Innovation Manager for P&G's Global Business Services division, was perhaps an unlikely one: e-mail. Though it's ostensibly a tool for communication, e-mail is not a sufficiently collaborative way to share information; senders control the flow of information, but may fail to send mail to colleagues who most need to see it, and colleagues that don't need to see certain e-mails will receive mailings long after they've lost interest. Blogs and other collaborative tools, on the other hand, are open to anyone interested in their content, and attract comments from interested users.

However, getting P&G employees to actually use these newer products in place of e-mail has been a struggle for Schueller. Employees have resisted the changes, insisting that newer collaborative tools represent more work on top of e-mail, as opposed to a better alternative. People are accustomed to e-mail, and there's significant organizational inertia against switching to a new way of doing things. Some P&G

processes for sharing knowledge were notoriously inefficient. For instance, some researchers used to write up their experiments using Microsoft Office applications, then print them out and glue them page by page into notebooks. P&G was determined to implement more efficient and collaborative methods of communication to supplant some of these outdated processes.

To that end, P&G launched a total overhaul of its collaboration systems, led by a suite of Microsoft products. The services provided include unified communications (which integrates services for voice transmission, data transmission, instant messaging, e-mail, and electronic conferencing), Microsoft Live Communications Server functionality, Web conferencing with Live Meeting, and content management with SharePoint. According to P&G, over 80,000 employees use instant messaging, and 20,000 use Microsoft Outlook, which provides tools for e-mail, calendaring, task management, contact management, note taking, and Web browsing. Outlook works with Microsoft Office SharePoint Server to support multiple users with shared mailboxes and calendars, SharePoint lists, and meeting schedules.

The presence of these tools suggests more collaborative approaches are taking hold. Researchers use the tools to share the data they've collected on various brands; marketers can more effectively access the data they need to create more highly targeted ad campaigns; and managers are more easily able to find the people and data they need to make critical business decisions.

Companies like P&G are finding that one vendor simply isn't enough to satisfy their diverse needs. That introduces a new challenge: managing information and applications across multiple platforms. For example, P&G found that Google search was inadequate because it doesn't always link information from within the company, and its reliance on keywords for its searches isn't ideal for all of the topics for which employees might search. P&G decided to implement a new search product from start-up Connectbeam, which allows employees to share bookmarks and tag content with descriptive words that appear in future searches, and facilitates social networks of coworkers to help them find and share information more effectively.

The results of the initiative have been immediate. For example, when P&G executives traveled to meet with regional managers, there was no way to integrate all the reports and discussions into a single document. One executive glued the results of experiments into Word documents and passed them out at

a conference. Another executive manually entered his data and speech into PowerPoint slides, and then e-mailed the file to his colleagues. One result was that the same file ended up in countless individual mailboxes. Now, P&G's IT department can create a Microsoft SharePoint page where that executive can post all of his presentations. Using SharePoint, the presentations are stored in a single location, but are still accessible to employees and colleagues in other parts of the company. Another collaborative tool, InnovationNet, contains over 5 million research-related documents in digital format accessible via a browser-based portal. That's a far cry from experiments glued in notebooks.

One concern P&G had when implementing these collaborative tools was that if enough employees didn't use them, the tools would be much less useful for those that did use them. Collaboration tools are like business and social networks—the more people connect to the network, the greater the value to all participants. Collaborative tools grow in usefulness as more and more workers contribute their information and insights. They also allow employees quicker access to the experts within the company that have needed information and knowledge. But these benefits are contingent on the lion's share of company employees using the tools.

Another major innovation for P&G was its large-scale adoption of Cisco TelePresence conference rooms at many locations across the globe. For a company as large as P&G, telepresence is an excellent way to foster collaboration between employees across not just countries, but continents. In the past, telepresence technologies were prohibitively expensive and overly prone to malfunction. Today, the technology makes it possible to hold high-definition meetings over long distances. P&G boasts the world's largest rollout of Cisco TelePresence technology.

P&G's biggest challenge in adopting the technology was to ensure that the studios were built to particular specifications in each of the geographically diverse locations where they were installed. Cisco accomplished this, and now P&G estimates that 35 percent of its employees use telepresence regularly. In some locations, usage is as high as 70 percent. Benefits of telepresence include significant travel savings, more efficient flow of ideas, and quicker decision making. Decisions that once took days now take minutes.

Laurie Heltsley, P&G's director of global business services, noted that the company has saved \$4 for every \$1 invested in the 70 high-end telepresence systems it has installed over the past few years.

These high-definition systems are used four times as often as the company's earlier versions of videoconferencing systems.

Sources: Joe Sharkey, "Setbacks in the Air Add to Lure of Virtual Meetings," *The New York Times*, April 26, 2010; Matt Hamblen, "Firms Use Collaboration Tools to Tap the Ultimate IP-Worker Ideas," *Computerworld*, September 2, 2009; "Computerworld Honors Program: P&G", 2008; www.pg.com, accessed May 18, 2010; "Procter & Gamble Revolutionizes Collaboration with Cisco TelePresence," www.cisco.com, accessed May 18, 2010; "IT's Role in Collaboration at Procter & Gamble," *Information Week*, February 1, 2007.

CASE STUDY QUESTIONS

1. What is Procter & Gamble's business strategy? What is the relationship of collaboration and innovation to that business strategy?
2. How is P&G using collaboration systems to execute its business model and business strategy? List and describe the collaboration systems and technologies it is using and the benefits of each.
3. Why were some collaborative technologies slow to catch on at P&G?
4. Compare P&G's old and new processes for writing up and distributing the results of a research experiment.
5. Why is telepresence such a useful collaborative tool for a company like P&G?
6. Can you think of other ways P&G could use collaboration to foster innovation?