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STRATHMORE UNIVERSITY BUSINESS SCHOOL
BACHELOR OF SUPPLY CHAIN AND OPERATIONS MANAGEMENT
END OF SEMESTER EXAMINATION
SCM 3201: BUSINESS INFORMATION SYSTEMS FOR THE SUPPLY CHAIN

Date: Wednesday, 3rd August 2022 **Time:** 2 Hours

Instructions

- The examination consists of **FIVE** questions.
- Answer **QUESTION 1 AND any other TWO** questions.

QUESTION ONE **(Total 30 marks)**

a) **Read the case below and answer the questions that follow:**

Toyota Europe, Campbell Soup Company, Sony Pictures, and W.W Grainger: Making the Case for Enterprise Architects

When technology infrastructure lines up with business projects like musicians in a marching band, you know you have a good enterprise architect on staff. Enterprise architecture focuses on four crucial C's: connection, collaboration, communication and customers. Imagine needing to manually log onto five different systems to create and track an order or putting in 20 hours research to research a project because you didn't know the information already existed in another department. These situations result from fragmentation and siloed thinking, the goal of enterprise architecture on the other hand is to create unity.

Enterprise architecture's goal is IT that enables business strategy today and tomorrow, says Peter Heinckiens, chief enterprise architect at Toyota Europe. "The 'tomorrow' part is especially important," he says. The enterprise architect must map, define, and standardize technology, data, and business processes to make that possible.

This means that the architect must have both a macro and micro view: It is necessary to understand the business strategy and translate it into an architectural approach (macro view), but also able to work with individual projects and deliver very concrete guidance to these projects that focuses on the successful delivery of the individual project within that macro view. "The enterprise architect transforms tech-speak into the language of business solutions, and he knows what technology is needed to enable business strategy," says Heinckiens.

In other words, an architect knows how to bridge silos. An oft-used metaphor for the enterprise architect's role is that of the city planner, one who also provides the road maps, zoning, common requirements, regulations, and strategy- albeit for a company rather than for a city. And this role is increasingly important as enterprise architecture itself becomes more important.

Enterprise architecture's roots are in the desire to serve what is best for the enterprise versus the individual department, says Andy Croft, Campbell Soup Company Vice President of IT-Shared Services. Croft who has the enterprise architect's role at Campbell's, speaks of the days when incompatible e-mail systems made employees within the same company unable to share information via e-mail. Each department thought it needed its own brand of PC, even its own network or security system. Finally, Croft says, "People lifted their heads and thought, maybe it's more important to be able to work together rather than me having the 'best'" Enterprise architecture gained traction from the bottom up. That siloed view on projects may come in the form of "I want to use this package" or "I want to build this application" according to Heinckiens. As an architect, he advises, it's important to take a step back: Try to understand what problem the proposed project will solve.

Is there already a solution that covers the proposed area being researched? Does the proposed project fit into the wider picture? "Structurally business units are silos-and therefore often have a limited view - but the enterprise architect ensures that the pieces of the wider-picture puzzle fit together, says Heinckiens. As an Illustration, some projects use data that nobody else will be interested in, while other projects use data that are useful and relevant to everyone in the company. It is the enterprise architect's job to figure out how to make the latter type available to the rest of the company, and one part of that task is creating compliance standards. "It is important that this discussion takes place," says Heinckiens.

"Then you see other discussions start to happen." For example, who owns this data? - Who should receive permission to access this data? What is a customer? For the marketing department, after-sale department, finance department, the definition of 'customer' is totally different, even though they refer to the same person.

In many companies this process is ultimately formalized. At Campbell's, it's called a "blueprint.". Before a new project can be started, each technology area must review a proposed project to ensure that it fits into the overall strategy.

Achieving that impressive lockstep between business and IT takes time and practice, of course. Not only that, but an. enterprise architect must be a voice that many kinds of people can understand, says Tim Ferrarell, CIO and senior vice president of enterprise systems at W.W.Grainger, a $6.4 billion distributor of heavy equipment. Ideally, Ferrarell says, this person "can think at a strategic level and all the way down to the operating level and understand how to move up and down that chain of abstraction" he says.," And know how to deal with conflicts and trade-offs"

Is that all? Actually, no. That person also has to gain the confidence of the senior leadership team, he says. Executives must believe that the enterprise architect comprehends how the company works, where it wants to go and how technology helps or hinders, he says. Then effective working relationships can bloom.

In 2006, Grainger went live with a company wide SAP project: 20 SAP modules and 30 additional applications that would touch 425 locations. To help guard against what could go wrong in a big bang cutover (conversion), Ferrarell took his team of about 20 enterprise architects off their regular jobs and assigned them to 'design' and 'integration' roles on the SAP project. The SAP implementation was such an all-encompassing program that it made sense to repurpose the enterprise architects into key roles in the project. Their broad business and technical knowledge made them very valuable team members, says Ferrarell.

Grainger's senior business-side managers knew these architects and their business savvy first-hand, he explains. The trust was there, which helped get IT the intense cooperation needed during and after the complicated launch. Their architects played a significant role, not only in shaping the

needs for completion of the ERP project, but in ensuring that its design would enable their business requirements. The SAP project succeeded, Ferrarell says, in part due to the institutional knowledge and business-IT translation skills the enterprise architects brought to it.

Other companies though, have to be convinced of the enterprise architects' criticality. Sony Pictures entertainment launched an enterprise architect role modestly in 2002, focused at first on technology issues only, says David Buckholtz, vice president of planning enterprise architect and quality at the media company.

He had to start small: Sony didn't even have a corporatewide IT department until the late 1990s, Buckholtz says. The company grew from acquisitions and other deals that parent company Sony corporation of America made in the 1980s and 1990s, such as the acquisition of Columbia Tristar movie studio (The Karate Kid and Ghost busters) and the acquisition of Merv Griffin Enterprises (Wheel of fortune and Jeopardy).

We're in a creative industry and people made a lot of decisions on their own," he says. Hence, no central IT until relatively recently and no strong belief in the importance of central IT, he says.

Buckholtz was hired from GE to start an enterprise architect team because Sony Pictures wanted more efficiency and savings from IT, he says. At first, he concentrated on classifying existing and future technologies in development where Sony is doing proofs of concept, technologies in pilot; current and supported; supported but older versions; those headed to retirement; and those that are obsolete and no longer supported except under extreme duress, Buckholtz said, laughing.

He began this way to demonstrate that IT could be business-like: investing well, conscious of risk, and planning for the future. "Tis is how you plan enterprise architect when you don't have business support yet. We had to build up on that"

Once the architecture group has the enterprise IT house under control, it can look for ways to work with different business technology groups to build credibility beyond bytes and bits, he says. One technique Buckholtz used was to install architects in different business groups to work on projects on business turf but using IT's budget. A free trial in a sense.

By 2005, Buckholtz's group had started a high-profile project with digital media team to map out how Sony Pictures would digitize content for downloading to mobile phones and other devices. He counts it as a success that the digital media group continues to use that road map today. "we identified high-value work and we were all committed to it" he says. "It was not a group 'off' somewhere passing standards"

As the economy tightens. Sony Pictures must make its distribution chain as efficient as possible; he adds. Movies after all, are a discretionary expense for consumers, and if they pull back on luxuries, Sony Pictures will feel it. Enterprise architecture continuously reinforces to the business-side counterparts the expected returns on IT projects as the temptation to cut spending grows. "We make sure we close the loop and quantify hard dollar costs and benefits for the CFO" Buckholtz says.

Source: O'Brien (2011)

Required:

i) Based on the course, the case here and your review of the Nestle case illustrate three areas that you see enterprise architects facilitating the realisation of business value from information systems investments and supporting in a concrete way, the supply chain.

(10 marks)

ii) Using the example of Grainger or any other organisation you may be aware of that has

implemented information systems in their organisation, explain how the divided software life cycle concept has been implemented in the organisation. **(6 marks)**

iii) Ferrarell said, "Ideally this person (enterprise architect) can think at a strategic level and all the way down to the operating level and understand how to move up and down that chain of abstraction"

Required:

Discuss this statement drawing from the information needs at the different levels and the vertical and horizontal flows of information. **(6 marks)**

b) Explain using a **simple** example any four of the business objectives of Information Systems. **(8 marks)**

QUESTION TWO **(Total 15 marks)**

There are now numerous companies that are involved in the packaging and distribution of drinking water. Some of the companies are multinationals that have been in business for many years while others are startups that are struggling to survive with many in between. You have been hired by Genius Water Company a medium sized company that has been in existence for five years now and has operations in Nairobi, Kisumu, Mombasa, Nakuru and Eldoret. Genius attributes part of its success to innovative packaging that distinguishes it from the other bland water bottles. Having grown rapidly in the five years, the managers are increasingly agitated over decisions relating to many aspects of the business with each manager blaming the other for their 'woes'. Genius now has over 500 employees most of whom are involved in the distribution and sales of the water.

i) Explain three ways that an Enterprise Resource Planning system (ERP) can facilitate the operations of this company. **(6 marks)**

ii) Using your knowledge of ERPs, advice the managing director of Genius how he might go about sourcing and procuring a suitable ERP. Ensure you discuss the process of acquiring the system and any features that would be important to have for the ERP as well as factors to consider in arriving at the ERP to adopt **(5 marks)**

iii) In your view what do you see as the drawbacks of Genius investing in an ERP? **(4 marks)**

QUESTION THREE **(Total 15 marks)**

a) Explain using a simple example three ways that the Internet affects the way organizations use IS in the supply **(5 marks)**

b) E-commerce is the best thing that has happened to the supply chain and logistics profession.

Required:

Discuss the above statement in view of the current business environment. Ensure you illustrate your discussion with practical examples. **(5 marks)**

c) An organisation has decided to invest in a new information system to help in carrying out its processes more efficiently. They task you with the responsibility of researching potential challenges they could encounter in getting this systems adoption project successfully sourced/developed and implemented.

Required:

i) Identify any two potential challenges that could be encountered. **(3 marks)**
ii) Explain how one of the challenges identified in i) above could be addressed that it does not affect the project negatively. **(2 marks)**

QUESTION FOUR **(Total 15 marks)**

Organisations that decide to develop their own systems whether for sale to others or for their own use apply a methodology to successfully carry out the project. The following are among the common information system development methodologies.

- Systems Development Life Cycle- Waterfall & Spiral
- Dynamic System Development Methodology (DSDM)/Extreme Programming
- Object Oriented Systems Development
- Structured Systems Analysis and Development Methodology

Required:

Write a brief report to enlighten the decision committee about ONE of these methodologies mentioned above. Ensure you include:

a) Description and a short history of the methodology **(3 marks)**
b) Stages of the methodology including illustration of any techniques applied in the methodology **(8 marks)**
c) Identify and explain a system that has been developed using that methodology **(2 marks)**
d) Critique the use of the methodology. **(2 marks)**

QUESTION FIVE **(Total 15 marks)**

a) Security is a critical component of the organisation's information systems. In some cases, there is the possibility of complete failure of the organisation's delivery of services or products which can be detrimental to the organisation's success.

Required:

Using a company that you are familiar with explain any two threats to the security of an information system and outline for each how it can be prevented and how recovery can be done if it occurs. (**5 marks)**

b) Information systems may be delivered either off the shelf or bespoke for an organisation. Each of these modes of delivery have their costs that are incurred at different stages. Some vendors argue that off the shelf software is cheaper while others say that it is vice versa.

Required:

i) Distinguish between the two modes of delivery for information systems **(2 marks)**
ii) Identify the costs involved with one of the modes of delivery considering the total cost of ownership. **(4 marks)**
iii) In your opinion, which of the two modes of delivery are likely to be cheaper whilst considering the total cost of ownership? Give two situations or examples to support your point. **(4 marks)**