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THE OPEN UNIVERSITY OF SRI LANKA

FACULTY OF ENGINEERING TECHNOLOGY

MASTER OF TECHNOLOGY IN INDUSTRIAL ENGINEERING – LEVEL 7

FINAL EXAMINATION – 2009/2010

MEX 7118– TECHNOLOGY MANAGEMENT

DATE : ***14 March 2010***

TIME **:** ***0930 hrs – 1230 hrs***

DURATION : ***Three (03) hours***

Answer four (04) Questions including question No.01.

Q 1) Read the following case and answer the questions given below.

Vickers learns the value of new strategic architecture

The idea that top management should develop a corporate strategy for acquiring and deploying core competencies is relatively new. There are a few exceptions. An early convert was Trinova, a US company, which enjoys a worldwide position in power and motion controls and engineered plastics. One of its major divisions is Vickers, a premier supplier of hydraulic components such as valves, pumps, actuators, and filtration devices to aerospace, marine, defense, automotive, earthmoving, and industrial markets.

Vickers saw the potential for a transformation of its traditional business with the application of electronics disciplines in combination with its traditional technologies. The goal was 'to ensure that change in technology does not displace Vickers from its customers'. This, to be sure, was initially a defensive move: Vickers recognized that unless it acquired new skills, it could not protect existing markets or capitalize on new growth opportunities. Managers at Vickers attempted to conceptualize the likely evolution of (a) technologies relevant to the power and motion business, (b) functionalities that would satisfy emerging customer needs, and (c) new competencies needed to creatively manage the marriage of technology and customer needs.

Despite pressure for short-term earnings, top management looked to a 10- to 15- year time horizon in developing a map of emerging customer needs, changing technologies, and the core competencies that would be necessary to bridge the gap between the two. Vickers is currently in fluid-power components. The new strategic architecture identifies two additional competencies: electric-power components and electronic controls. A systems integration capability that would unite hardware, software, and service was also targeted for development.

The strategic architecture developed by Vickers, while describing the future in competency terms, also provides the basis for making here-and-now decisions about product priorities, acquisitions, alliances and recruitment. During the past few years, Vickers has made more than 10 clearly targeted acquisitions, each one focused on a specific component or technology gap identified in the overall architecture. The architecture is also the basis for internal development of new technologies. Vickers has undertaken, in parallel, a reorganization to enable the integration of electronics and electrical capabilities with mechanical-based competencies. Vickers believe that it will take another two to three years before they reap the total benefits from developing this strategic architecture, communicating it widely to all its employees, customers and investors, and building administrative systems consistent with the architecture.

a) Discuss the relative importance of different technology components at the initial stage of the implementation of the new strategic architecture. (10 marks)

b) Describe the technological capabilities that Vickers should possess for the successful implementation of this strategy. (10 marks)

c) Discuss the suitability of the technology acquisition methods used by Vickers and propose two alternative methods for technology transfer that Vickers could have used. (20 marks)

Q 2)

a) "Technology means more than just machinery". Explain using the example of an industry known to you. (10 marks)

b) Explain the different stages in the technology life cycle and identify, giving reasons for your answer, the current life cycle stage of a technology known to you. (10 marks)

Q 3)

a) Discuss the usefulness of scenario planning as a technology forecasting methodology. (10 marks)

b) Explain how the technology S- curve concept helps in the development of a firm-level technology strategy. (10 marks)

Q 4) Compare two different methods of technology transfer available for a developing country and critically analyse the suitability of them for a Sri Lankan industry known to you. (20 marks)

Q 5)

a) Briefly describe the stages of the technological innovation process. (10 marks)

b) Identify the possible stakeholders in a cluster that can be formed in an industry known to you and comment on the advantages of forming the cluster for that particular industry. (10 marks)