



Tentamen 6 November 2019, vragen en antwoorden

Leadership and Technology Management (Technische Universiteit Delft)

Name:
Student number:

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Leadership and Technology Management

Question 1: The knowledge economy and its impact on innovation-driven firms

The notion of 'Knowledge Management' (KM) is used in both the popular and academic literature to refer to the general idea that organizations can generate value by improving the ways in which they create, capture, store, distribute, and transfer and effectively apply knowledge. The focus on KM was partly a reaction to a changing business context.

- a) Explain the nature of this changing business context and show how this differs from the traditional industrial economy? **[2 points]**

This question is all about the context of our knowledge economy and not about organizational structures and is structured in two parts. In part 1 you should show the nature of the knowledge economy. The book mentions the following aspects in relation to the knowledge economy in chapter 1:

- The growing knowledge-intensity of business,
- the importance of information and communication technology on work and work relationships
- The importance of change and innovation for organizations
- More turbulent business environments

You can also use the slides from lecture #1 in which I presented the following trends:

- Organizations are becoming increasingly flexible
- Technology enables companies to organize their activities through complex projects with dispersed specialists often spanning boundaries of time and culture
- Many companies aim for innovation as their primary source of competitive advantage
- Organizational processes are increasingly becoming knowledge processes
- Innovation takes more often place in networks of companies

If you are able to mention one or more of these nine aspects you will get 1 point or half a point in the case you only mention one.

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In part 2 you are asked to show the difference between our current knowledge economy and the traditional industrial economy for one point:

In the traditional industrial economy, labor was treated as a factor of production (like land or capital). The hand/body was important (e.g. scientific management) rather than the brains of workers, which are more significant in the era of the knowledge economy. (see Ch. 1).

- b) Why and how has the view of workers changed with the increasing importance of innovation? [2 points]

This question is all about how workers changed from blue/white collar workers as part of the traditional industrial economy to gold collar workers within our knowledge economy (see chapter 2 of the book. Why this happened is rooted in the fact that specialists in the area of different technologies are relatively scarce and can find jobs easily since they are very important drivers of innovation in today's firms. Such knowledge workers need to be managed skillfully, provided with excellent working conditions, and with very good employment conditions. This also implies a power shift from business owners to the workforce. (You may earn one point for the how and another point for the why).

- c) Current organizations often seem to use projects to manage their innovation processes. What is the difference between teams versus projects and show how projects can enable radical innovations? [2 points]

In order to answer this question you need to provide the following:

Define teams:

are characterized by common goals, shared identity, interdependence, interaction, mutual influence.

Define Projects:

Organizational context that in contrast to teams does not often have a fixed membership, work is often temporary, fluid, interrupted and distributed.

Define radical innovation:

Innovation processes aimed at creating a very different and disruptive ways of doing things.

Show how projects enable radical innovations:

Projects can stimulate knowledge creation and be fertile sites for learning because they bring together individuals from different backgrounds to work collectively to create something radically new.

You may find all of this in chapter 5 of the book and in the lecture slides. You may earn half a point for each of the correct answers.

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- d) Many current innovation driven firms are struggling to balance their exploration and exploitation activities in their organization. Explain what this means and give an example of how companies could create such a balance. **[2 points]**

This question is about a firm's ability to combine both exploitation (delivery) and exploration (new idea generation) otherwise known as **ambidexterity** (see lecture slides as well as the SUPERTEL case).. It is not necessary to mention the word ambidexterity as long as you are able to show the difference between exploitation and exploration activities (you may earn 1 point for this).

Rather than just creating a workforce that is able to efficiently and effectively take care of existing business activities, current knowledge-driven firms also need to support the workforce in creating all kinds of innovative outcomes, such as solutions to current problems, adapting to environmental change or developing completely novel products, services, or business models. There are different ways in which companies may enable ambidexterity (i.e. balancing exploitation and exploration activities), such as allocating a certain amount of time per week to the workforce to work out their own ideas (like this is done at 3M (but also at Google), see lecture #7), organizing sessions in relation to new developments, or just being open to new ideas by opening an idea box and let people profit from the innovations that may come out of their ideas. You may earn 1 point for describing one of these ways.

- e) Some management gurus advocate that companies should strive for a strong culture in order to firmly base their business and innovation activities. Explain the significance of a strong culture for today's firms and show a way how firms could further strengthen their culture if needed? **[2 points]**

As explained in lecture #2 and in chapter 2 of the book, each organization has a unique culture, which is based on the deeply rooted values, beliefs, norms and principles displayed by leaders and determines how to respond to threats and opportunities in both the external and internal environment. A strong culture conveys a strong sense of identity for its members and facilitates the work.(1 point for such a definition and explanation)

Firms may strengthen their culture through storytelling, engaging in rituals, material symbols, creating a common language, and to provide role-models who do the 'right' thing. (1 point for mentioning any of these).

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Question 2: Sensor-based technologies in car insurance

Segurali is a car insurance firm located in Italy. This insurance company was one of the first European firms to adopt a 'pay as you drive' (PAYD) business model in which insurance premiums are based on the behavior of drivers. In order to monitor the behavior of their insurers, Segurali developed a sensor-based onboard diagnostics device that can record several significant details of individuals' driving behavior in collaboration with another online insurance company. The device called the 'black box' is installed in cars and is equipped with a GPS system and SIM card that transmits data every day to the data center of a third-party. The data center transmits a summary of the data collected to Segurali on a monthly or even daily basis.

- a) Monitoring drivers and creating ad hoc premiums based on their driving style clearly represents an innovative business model. What are the main benefits for insurance companies, such as Segurali and its customers that emerge from the use of the black-box in vehicles? [2 points]

Here you need to mention at least two main benefits, one for customers (1 point) and another one for Segurali (1 point):

Customers:

- lower premiums
- incentive for safer driving
- no more perceived discrimination as premiums are based on behavior rather than on personal characteristic, such as age, gender, or race of insurers.
-

Segurali:

- Since insurers will get an incentive for safer driving, less accidents can be expected leading to a lower payouts and as such higher profits
- Ability to attract new clients.
- Useful data about the link between driving behavior and accidents
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- b) Some innovations relate to new technologies applied to existing business models, other innovations relate more to new ways to use old or mainstream technologies in novel ways. To this end, how do you see the introduction of the black-box in the automotive insurance industry? Explain your answer. **[2points]**

This is clearly an example of the use of existing ideas and technologies in a new domain. The so called 'black box' technology in which sensors collect data from different sources is well known in transportation. Also, the way in which the nature of the GPS data and the way the data are transmitted via a SIM are applications are examples of well proven technologies. The introduction of the black-box in the automotive insurance industry, however, is a typical example of a business model innovation. Although insurance companies have always used risk profiles of their clients in order to establish their premiums, these were often perceived as unfair to its users since these were based on general statistical data rather than related to their actual behavior. Now this is no longer the case and clients may perceive their insurance premiums as more fair since this is directly related to their driving rather than indirectly based on the behavior of the specific group (often based on gender, age, and experience) they belong to. By being one of the first Segurali is able to attract new clients who are triggered by the direct link to their driving and the amount they need to pay in premiums. As soon as more and more insurance firms are going to use black-boxes this advantage will be lost but for now their business benefits from the introduction of PAYD.

You will get 1 point for showing that PAYD is an example of the use of existing ideas and technologies in a new domain and another point for showing the business model aspects of this innovation.

- c) In order to enable the introduction and application of their PAYD business model, Segurali had to adopt a so called open innovation model. Explain what this means and show how this worked out in the particular case of Segurali. **[2points]**

Open innovation implies the use of 'others' in the innovation process or as defined by Henry Chesbrough (2006) as a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and external and internal paths to market, as the firms look to advance their technology' (p.1.). (1 point)

The key is to enhance networks capable of supporting new forms of collaboration and knowledge flow. Segurali collaborated with another insurance firm in order to develop their sensor-based onboard diagnostics device. They also collaborate with a data center as they do not have the capabilities to receive and compute the raw data generated by onboard diagnostics device. (1 point). You may find Open Innovation in chapter 9 of the book as well in lecture #7.

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- d) Could this business model based on sensors that monitor customer behaviors be translated into other industries? Provide two examples and provide arguments in answering this question. [2points]

Sensor-based technologies are widely diffused, and most people worldwide will interact with this type of technology in some aspect of their everyday life. There are many examples of how you could apply a business model based on sensors that monitor customer behaviors. You may gain 1 point for each convincing example. Your examples should be convincing by showing the **business model aspects** as well as **the way sensor-based technologies are applied** in your example. Just saying that this could be applied in healthcare, supermarkets, connected home devices, and other vehicles is not enough. You need to show how the behavior of users (clients) is supposed to be monitored by sensors and how this may translate into possible successful business models.

- e) At Segurali, drivers that use PAYD have to 'sign off' that they are willing to have their driving data collected and analyzed. Do you believe that there are some dark sides associated with this kind of implicit digital connectivity innovation? [2points]

Implicit digital connectivity innovation is not without its issues. In this question you need to reflect on the balance between the value of private data for organizations and the privacy of the users. There are also issues in relation to strict monitoring, how far can you go as an organization and how far are you willing to go as a user/consumer of a platform/service?

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Question 3: Personality, Ethics of Creativity and Innovation

Recently, an international newspaper wrote the following editorial on a court case involving a person called “X”:

“If [X] does nothing more, his name in history is already inscribed as the man who lied so hard he nearly broke the constitution. He certainly broke the law, as definitively interpreted by the supreme court today. Any leader with respect for the responsibilities that come with high office, and capable of shame, would immediately resign. Nothing in [X]’s record suggests he is such a person. He clambered to [power] over the wreckage of his own former beliefs, ruined friendships and betrayed relationships. He has never recognized the imperative of truth, so takes no instruction from it now. [...] That is the murky ground where [X’s] supporters now stand. They know he is a liar. They also know there is no purpose for his leadership [...] higher than the satisfaction of vanity”.

- a) In the Occupational Personality Questionnaire (or OPQ), the traditional “Big Five” model of personality is extended with a sixth personality dimension to better fit job settings. Provide the name of, and briefly describe, this additional personality dimension? [2 points]

Achievement motivation / Need for Achievement (1 point).

A general concern with meeting standards of excellence, the desire to be successful in competition, and the motivation to excel. In the OPQ, this is measured as: Active, Competitive, Achieving, Directive (1 point).

- b) To what extent would person X described in the Guardian editorial above be in possession of this sixth OPQ personality dimension, and what makes you think so? [1 point]

High on Achievement. Very competitive, achieving, and directive (but meeting standards of excellence in doing so, no).

- c) Researchers on cross-cultural differences have proposed a different modification of the traditional “Big Five” model of personality with another sixth personality dimension. Provide the name of, and briefly describe, this other additional personality dimension? [2 points]

Honesty-humility (1 point).

The extent to which someone is: humane, sincere, honest, truthful, loyal, compassionate, just, faithful, unselfish, fair, altruistic, generous, understanding, openhanded, benign, helpful, kindhearted (1 point).

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- d) To what extent would person X from the Guardian editorial above be in possession of this (other) sixth personality dimension, and what makes you think so? [**1 point**]

Not at all. The supreme court in the newspaper calls him a liar, a law-breaker, who betrayed friends and relationships at work. That is the opposite of honesty-humility.

In their (2008) article on “Fostering Creativity and Innovation without Encouraging Unethical Behavior”, Baucus and colleagues identified four (4) categories of dark creativity that may exist at work.

- e) List each of the four categories of dark creativity at work? [**2 points**]

1. Breaking rules and standard operating procedures. (0.5 points)
2. Challenging authority and traditions. (0.5 points)
3. Creating conflict, competition and stress. (0.5 points)
4. Taking risks. (0.5 points)

- f) Explain, which of these four (4) categories probably applies to the work behavior of person X above? [**2 points**]

All of the above

1. Breaking rules and standard operating procedures. **Yes**, X did this. (0.5 points)
2. Challenging authority and traditions. **Yes**, X did this. (0.5 points)
3. Creating conflict, competition and stress. **Yes**, X did this. (0.5 points)
4. Taking risks. **Yes**, X did this, and it almost brought the constitution down. (0.5 points)