

Technology and Innovation Management

Last Lesson

- TIM is the field of scientific enquiry focused on the analysis of how a socio-technical system of interconnected elements hinges over time, whether by emergence or through designs, and how such changes can be leveraged to generate value in a sustainable way.
- Simplification and specialization of work are essential features of the process of innovation
- Blockchain/
- Organizational/ People does not like to change to new tech
- Instead of ask people in organizations to fit new tech, it is way acceptable to Fit new tech to the old organizations
- Organizational change may be (i.e. usually is) slower than technical change
- Innovating organizations do not exist in value, but are embedded in xxx
- Exam: Tuesday, 14 Jan 2020
- Bring Student ID/ Water bottle
- Time: 09:00 - 10:30 / 90 minutes
- Location: ONA E7(in Oerlikon!!!)
- Type: multiple choice + case+concept questions
- Repetition exam Feb 17th 2020
- Online exam
- Closed book examination: no written or printed material
- English
- No dictionaries and electronic devices allowed (cellphones, calculator etc.)
- Exam Preparation:
- Readings / Important
- Interactive case discussions:
- Semiconductor industry: Sept 30th
- ARECO: Oct 28th
- 3D Printing: Nov 25th
- Music Industry Dec 9th
- 55 points
- 5 choices will be multiple choice. Worth 2 points each
- The rest are combination of questions, applied and memory based questions
- Bring Moodle Password, and bring your legi
- Changlign industrial leadership

Exam Mock Question:

1. **R&D consists of three different types of activities (as discussed in class). Define and give an example of each type of activity.**

Answer: Basic Research, Applied Research, Experiments Development

2. **Innovating persistently (rather than innovating sporadically) has a positive impact on which two firm-related factors?**

profitability & survival

3. **Cefis & Ciccarelli (2005) find that there exist differences in performance between non-innovators and innovators, but they also distinguish persistent innovators that perform even better. What is the mechanism that makes persistent innovators perform better?**

Reference: Cefis, E., & Ciccarelli, M. (2005). Profit differentials and innovation. *Economics of Innovation and New Technology*, 14(1-2), 43-61. Note for mock exam: whenever we ask a question about a specific paper, we provide you the reference as above

4. **According to Cefis & Marsili (2006), which of the following is true?**

Note: in the examples below, with 'importance of innovation', we mean the height of the innovation premium: the effect of innovative activity on firms' survival probability Reference: Cefis, E., & Marsili, O. (2006). Survivor: The role of innovation in firms' survival. *Research Policy*, 35(5), 626-641.

Wählen Sie eine Antwort:

- a. small and young firms have a relatively high risk of failing, and innovation is less important for these firms than others
- b. small and young firms have a relatively low risk of failing, and innovation is more important for these firms than others
- c. small and young firms have a relatively high risk of failing, and innovation is more important for these firms than others.
- d. small and young firms have a relatively high risk of failing, and innovation is equally important for all firms
- e. (this is a dummy answer listed as correct in this mock exam)

5. **How does an ambidextrous organization (as described by O'Reilly & Tushman, 2004) solve the exploration-exploitation problem?**

Reference: O'Reilly, C. A., & Tushman, M. L. (2004). The ambidextrous organization. Harvard business review, 82(4), 74-83.

6. **ARECO (for Air Refreshing Control) is a company that spun out of its parent company, IMRA Europe. This process started in 1997 when Michel Gschwind developed a venture proposal. This proposal was based on technology developed in IMRA, but IMRA didn't want to pursue this venture plan. In the end, Michel Gschwind negotiated a spinout construction for his venture, ARECO.** What were the advantages for IMRA, and for ARECO, to engage in a spinout construction? Describe one advantage for IMRA and two for ARECO.
7. **Which of the following is NOT a supported claim, in Cirillo, Brusoni & Valentini's (2013) study on spinouts?** Reference: Cirillo, B., Brusoni, S., & Valentini, G. (2013). The Rejuvenation of Inventors Through Corporate Spinouts. Organization Science, 25(6), 1764-1784.

Wählen Sie eine Antwort:

- a.
Inventors that join a spinout increase the extent of exploration in their inventive activities
- b.
Inventors that join a spinout decrease the extent to which they rely on parent organizations' knowledge
- c.
Long-tenured employees benefit more from the spinout experience than short-tenured employees
- d. Inventors that join a spinout do so because they want to explore new technological fields
- e. (this is a dummy answer listed as correct in this mock exam)

8. **What are the two core principles of modularity?**
9. **What are the main advantages and disadvantages of designing and making modular products? Name two advantages and two disadvantages.**
10. **What do Sanchez & Mahoney (1996) mean with 'embedded coordination'?** Reference: Sanchez, R., & Mahoney, J. T. (1996). Modularity, flexibility, and knowledge management in product and organization design. Strategic Management Journal, 17(S2), 63-76.
11. **How do Henderson & Clark (1990) describe architectural innovation? And why do established firms find it hard to cope with?** Reference: Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The

reconfiguration of existing product technologies and the failure of established firms. Administrative Science Quarterly, 9-30.

12. **According to Adner & Kapoor (2010), which of the following is true about component challenges and complement challenges?** Reference: Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. Strategic management journal, 31(3), 306-333.

When it comes to the performance advantage of technology leaders...

Wählen Sie eine Antwort:

- a. ... component challenges are more problematic than complement challenges, because they hold up the entire value chain
- b. ... component challenges are more problematic than complement challenges, because they restrict the focal firm's potential for learning
- c. ... complement challenges are more problematic than component challenges, because they erode the firm's leadership advantages
- d. ... complement challenges are more problematic than component challenges, because they force firms to redesign their products when they are already finished
- e. (this is a dummy answer listed as correct in this mock exam)

Bonus Question

1.What is socialization