05.03.2013 Exam for TU-22.1321 Industrial Service Operations

The exam is in three parts. Select 4 (out of 5) questions from Parts I and II. Answer one of the questions in Part III. The maximum of points from Part I to III is 30

PART I

You have read a collection of 22 articles and participated/ read the material from the lectures. Next follows questions on three topics you should be familiar with based on the articles and lectures. A good answer brings together ideas from both the articles and lectures with your own analysis.

1. *Standardization of product data and parts in the spare parts supply chain (6p)*

Answer based on lecture materials primarily.

- *Describe the problems associated with duplication and poor quality of product data in many spare parts supply chains. Why is data standardization a potential solution to these problems?*
- *Describe how data standardization enables collaboration and inventory consolidation (i.e. parts standardization) in the spare parts supply chain.*
- *What are the benefits of parts standardization in the spare parts supply chain to the equipment owner and to the OEM (=equipment and spare parts supplier)?*

2. *Installed Base Information Management (6p)*

Answer based on lecture materials, guest lecture and article by Holmström, J., Främling, K., and Ala-Risku, T. (2010), "The uses of tracking in operations management: Synthesis of a research program", International Journal of Production Economics, Vol. 126, No. 2, pp. 267-275

- *Describe the basic architecture of Installed Base Information Systems. Give examples illustrating why it is useful to distinguish between installed items, installation locations and installed base events.*
- *Give an example of how an installed base information system can be used to improve service delivery in a field service organization*
- *Explain how monitoring and tracking of individual products could be used to reduce the cost of warranty for OEMs selling equipment under warranty.*

3. *Performance Contracts (6p)*

Answer based on the lectures and article by Ivory, C.J, Thwaites, A.T. and Vaughan, R. (2003) "Shifting the goal posts for design management in capital goods projects: 'design for maintainability'". R&D Management 2003, 33(5), 527-538

- *Describe how a manufacturer can re-organize its business to deliver value in use for a large customer, based on a performance contract*
- *How was design for maintainability financed in the example described in the paper?*
- *How can sub-system suppliers effectively be involved in improving performance?*
- *What do the case examples illustrate regarding the length of contract for delivering value in use?*

PART II

You have worked on three cases and participated in the debriefing sessions. Next follows two questions where you are asked to apply a concept in different case settings (6p).

Please answer the following questions:

4. *The benefit of installed base information systems in project delivery (6p)*

Answer based on your work with the group assignment on the "very large project delivery" and/or the article by Ala-Risku, T., Collin, J., Holmström, J., and Vuorinen, J.-P. 2010. "Site inventory tracking in the project supply chain: problem description and solution proposal in a very large telecom project," Supply Chain Management: An International Journal (15:3), pp. 252-260.

- *In the case setting what role did a lack in accurately tracking activities play in losing control over the project?*
- *What different actions would you consider in the case setting to regain control over project delivery operations?*
- *Why is it especially important to track and control design, material deliveries and installation work in a large project delivery?*

5. *Performance improvement (6p)*

Answer based on the article by Repenning, N. and Sterman, J. (2001), "Nobody ever gets credit for fixing problems that never happened": Creating and sustaining process improvements", California Management Review, Vol. 43, No. 4, pp. 64-82.

Answer considering the case setting described in the group assignment material on Comtech

- *Describe why taking shortcuts and not paying attention to maintaining capability leads to higher operating costs and lower performance?*
- *Describe how a supplier of a key component to production systems (such as Comtech) can attempt to make a business out of problems that never happen?*
- *What do you see as the key elements for delivering a performance based value offering in the Comtech setting?*

PART III Guest lectures

You have attended 5 guest lectures. Based on the guest lectures answer one of the questions below.

6. *Based on the guest lecture of* Ilkka Töyrylä (Midagon) *on Warranty Chain Management answer the following short questions (6p)*
    - *What is an OEM's legal obligation in the EU to provide warranty in the business-to-business context?*
    - *What is the illegal warranty practice of some OEMs (e.g. some well-known computer company) towards EU consumers? What is the OEM's economic logic for this practice?*
    - *What are common illegal practices of some third party repair shops towards OEM's? What can the OEM do to prevent these practices?*
    - *Describe the slippery slope that can lead a service shop to start systematic warranty fraud?*

7. *Based on the guest lecture of Reijo Hänninen from Granlund answer the following short questions (6p)*
    - *What is Building Information Management?*
    - *How can BIM be introduced to support facilities management processes? What are the potential benefits?*
    - *Why is BIM not widely used in operations and maintenance of buildings?*