Literature Exam Construction Supply Chain Management and Digitization (2020-201800045-1A)

Date: October 2, 2020
Time: 13.45-15.30

This exam consists of four open questions. Formulate your answers using the concepts and theories discussed during the course.

Succes!

Question 1 CSC&Digitization: a portfolio approach (24 points: 4x6)

In *Buyer-supplier relationships in industrialized building* Bildsten develops a purchasing portfolio model for industrialized building, partly based on the concentric model of Dyer.

a. How does Bildsten apply the concentric model of Dyer model to buyer-supplier relationships in industrialized building?

In the literature on construction supply chains long-term buyer-supplier relations are often associated with close relations.

b. Bildsten concludes in her study that in construction short-term buyer-supplier relations can be close too. Explain why.

In *Physical distribution costs in construction supply chains: a systems approach* two optimal physical distribution strategies of building materials are distinguished.

c. Describe these two distribution strategies in terms of parties involved, order quantity and delivery time.
d. Which two parties are according to this study competing for control of the supply chain of building materials and why?

Question 2 CSC&Digitization: a governance approach (24 points: 4x6)

Laan et al. analyses in *Reducing opportunistic behavior through a project alliance* how a project alliance reduced opportunistic behavior between client and contractor organizations in a large railway construction project.

a. Traditional contracts commonly used in construction and design-build contracts can be characterized by the same problem. What is this problem?
b. How did the alliance agreement solve this problem in the case project?

In *The effect of industry clockspeed on supply chain co-ordination* of Meijboom et al. four case studies in four different industries are compared with each other. ASML, a supplier of machines to the chip industry, acts in a business environment characterized by a high industry clockspeed.

c. Describe two ways in which you could measure the industry clockspeed of ASML as discussed by Meijboom et al.
d. One striking fact in this study is that the level of outsourcing and the number of planning levels is in the low clockspeed sector of construction the same as in the high clockspeed sector of fashion. Explain why?

Question 3 CSC&Digitization: a maturity approach (24 points: 4x6)

One of the constructs determining an effective buyer-supplier relationship management mentioned by Bemelmans et al. in the paper *Assessing Buyer-Supplier Relationship Management: Multiple Case-Study in the Dutch Construction Industry* is *Integrate suppliers into the operational process*.

a. Describe this construct.

In *Measuring BIM maturity in construction* Siebelink et al. developed a maturity assessment tool based on the Information Technology Interaction Model of Silver et al. (1995).

b. What is the basic assumption of the model of Silver et al.?

Siebelink found that, when using BIM, companies in construction make a difference between intrinsic and external motives.

c. Provide for each category of motives one example.

In *Assessing Maturity Development of Purchasing Management in Construction* of Van Lith et al. it is found that BIM provides an incentive for an increasing maturity of contractor-supplier relationships

d. In what way does BIM stimulate purchasing managers to focus on more strategic purchasing activities?

Question 4 CSC&Digitization: a mediation approach (24 points: 4x6)

In *The impact of RFID in construction: a mediation perspective* one speaks of an alterity relation between the RFID technology and its users in construction practice.

a. What's meant with an alterity relation between RFID and its users?

In *Machine learning and technological mediation in cost estimation practice* the instrumental intentionalities or built-in selectivities machine learning technologies are discussed.

b. What in general is meant by instrumental intentionalities or built-in selectivities of technologies?
c. Give an example of a built-in selectivity in machine learning technology.

In *BIM mediation and users' behavior* BIM mediation effects of guidance and persuasion are discussed.

d. What are in construction practice guidance and persuasion effects of BIM?

Total number of points to be earned: 4x24=96.
Bonus points for just being here in these heavy Covid-19 times: 4.