

1. Research design (3 points)

The questions on this page are based on the following text, adapted from Susha, I., Filipsen, M., Agahari, W., de Reuver, M. (2020) Towards Generic Business Models of Intermediaries in Data Collaboratives: From Gatekeeping to Data Control 19th IFIP WG 8.5 International Conference, EGOV 2020, Linköping, Sweden.

*In our study we investigate a novel form of cross-sector partnership called Data Collaborative. We focus on the business models employed by intermediaries in data collaboratives. Our research question is: What business models are employed by intermediaries in data collaboratives?*

- a. Would this be a descriptive, exploratory or explanatory research question. Why? (1 point)

*Descriptive since it will produce a list/set of business models*

*Exploratory, since there is currently no knowledge / it is a novel form / the authors want to identify*

*(1 point: both type and the reasoning needs to be provided)*

- b. The first sentence seems to state the research objective. It starts by 'we investigate'. Please rephrase the research objective such that it has a concrete deliverable. Ensure that your research objective is aligned with the research question as stated above. (2 points)

*The objective is in line with the descriptive research question (1 point)*

*The objective states a concrete deliverable (1 point)*

*Example: Identify/define/describe/unearth/classify business models employed by intermediaries in data collaboratives*

## 2. Conceptual model (3 points)

The questions on this page are based on the following text, adapted from Bashir, M. (2023). The influence of strategic flexibility on SME performance: is business model innovation the missing link? International Journal of Innovation Science.

*The purpose of this paper is to investigate the influence of strategic flexibility on small and medium enterprises (SMEs) performance, and how such effects are mediated by business model innovation (BMI). Strategic flexibility is defined as “the capability of the firm to respond quickly to changing competitive conditions”. Two hypotheses are tested using a quantitative survey.*

- a. Explain in your own words what is meant by ‘how such effects are mediated’ (1 point)
  - *Business model innovation is an effect of the independent variable / strategic flexibility and in turn affects performance (1 point)*
  - *The impact of strategic flexibility on performance happens because business model innovation is in between (1 point)*

*Max 1 point*

- b. Formulate two hypotheses that are in line with the text above (3 points)
  - *Strategic flexibility affects / increases performance (1.5 point)*
  - *BMI mediates the impact of strategic flexibility on performance (1.5 point)*

Answer:

Strategic flexibility affects performance

BMI mediates the impact of strategic flexibility on performance

1.5 points per hypothesis

- c. What is the unit of analysis for this study? (1 point)

*SME / firm (1 point)*

- d. The size of the SME might matter. Formulate a moderation hypothesis that incorporates size, and which is otherwise in line with the text. (1 point)

*A moderation hypothesis that is in line with the text (1 point).*

*Examples:*

- *Strategic flexibility affects performance, especially for smaller/larger SMEs // depending upon size*
- *The impact of strategic flexibility on business model innovation depends on size*
- *Size affects the extent to which business model innovation enhances performance*

### 3. Research strategy (4 points)

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*This study highlighted the mediating influence of BMI. However, recent research has highlighted the ability of strategic flexibility to affect several internal organizational factors that in turn might affect innovation and market and financial outcomes. Therefore, future research should take into account the impact of these variables on firm performance.*

a. How does this limitation relate to internal validity of the findings? (2 points)

- *A condition for internal validity is that there is no third variable that explains the relationships / no spurious relationships / alternative explanations should be ruled out (1 point)*
- *According to the text, there could be other internal organizational factors that mediate / affect performance (1 point)*

b. In a follow-up study, the authors plan to conduct the same quantitative survey multiple times over a three-year period. They would send the survey to the same set of SMEs. Mention two disturbing effects that affect such a study (2 points)

*Any answer that relates two of the disturbing effects as taught in the course to the study as described (1 point each, max 2 points)*

*If a student gives incorrect answers, 1 point is deducted per incorrect answers (thus accounting for students who give more than 2 answers)*

*Model answer:*

- *Maturation: the performance of the firm might grow naturally, without being affected by the flexibility*
- *History: an external event might affect the performance of some of the firms.*
- *Testing effect: respondents get used to the questions which biases the answers*
- *Death/mortality: respondents may stop answering the questionnaire / drop out of the study*

#### 4. Measurement (4 points)

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*Strategic flexibility is defined as “the capability of the firm to respond quickly to changing competitive conditions”.*

- a. Formulate a Likert scale item. Provide the item wording and answer categories. (2 points)

*A statement that reflects the definition of strategic flexibility (MOT2313: 1 point; MOT2312: 0.5 point) with an answer scale ranging from disagree to agree (MOT2313: 1 point; MOT2312: 0.5 point). The statement should be non-ambiguous and not double-barred*

*Example:*

- *When faced with new competitors, we are able to act quickly*

- b. How could you evaluate the predictive validity of the item that you developed? (1 point)

*Any practical way to evaluate whether a score on the item is correlated to future behaviour of the responding SME (1 point). Incorrect: concurrent validity (current behaviour) or other forms of validity.*

*Example: Check if the SME is indeed able to change when the market conditions change due to a future event.*

- c. Strategic flexibility could also be measured through document analysis, for instance by studying the year reports of a firm. Define a variable or measure for doing so. (1 point)

*Any variable that can be derived from a year report, and that is related to the ability to act in response to competition. A proxy is correct as well (1 point)*

*Examples:*

- *The number of changes announced in the year report.*
- *Proxy: The number of people cited to be working at a strategy change department*

## 5. Sampling (4 points)

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*Data was collected from SMEs in the kingdom of Saudi Arabia. This study followed a two-stage sampling procedure. In the first step, different manufacturing and service industries were selected. In the second step, a convenience sampling design was used to collect data from January 2021 to April 2021. The multi-industry sampling design will help in the generalizability of the findings. A total of 600 questionnaires were sent to the SMEs, and 225 were received back, 25 were discarded as they had more than 10% missing values. Only those respondents were chosen who had prior knowledge about strategic flexibility, BMI and SME performance. Responses came from electronics and communication 23.5%, computers and office machinery 17.5%, pharmaceuticals 21%, motor vehicles and transportation equipment 21.5% and chemicals 16.5%. 5% of the surveyed respondents were owners and 65% were senior managers.*

- a. In the two-step sampling approach, one step is similar to stratified sampling but the other is not. Explain which step is similar to stratified sampling, and explain which step is not. (2 points)
  - *Step 1 is similar as heterogeneous groups are selected (1 point)*
  - *Step 2 is dissimilar as random sampling was not used / as convenience sampling was used (1 point)*
- b. The author mentions that selecting multiple industries helps for generalizability. Explain this claim. (1 point)

*Answer: By selecting multiple industries, we can be more confident that the findings are valid for a broader setting / many industries / all industries. (1 point)*
- c. Selecting multiple industries is, however, not sufficient for external validity. Why not? Mention at least one other aspect of external validity. (1 point)

*Answer: Representativeness of the sample / representativeness within each industry (1 point)*

## 6. Case study 1 (3 points)

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*In our study we investigate a novel form of cross-sector partnership called Data Collaborative. We focus on the business models employed by intermediaries in data collaboratives. Our research question is: What business models are employed by intermediaries in data collaboratives?*

*For our study we conducted an exploratory multiple case study. Data collaboratives can be categorized by their expected outcome into three arenas: (a) policy intervention, (b) data science, and (c) data-driven innovation. In our case sampling we included two cases per each type to ensure diversity. We assumed that, for each type, the business model would be different.*

*The data was collected by conducting online desk research which included analysis of the case websites, documents, and applications. The number of data sources depended on the availability of information and ranged between 2 and 8 per case. In analysing each case, we followed the qualitative content analysis approach that is driven by the structure of our pre-defined analytical framework, i.e. data for every case were coded and categorized into the main dimensions of business models: value proposition, value architecture, value network, and value finance dimension.*

- a. A multiple case study has been done. What replication strategy did the authors use for selecting the cases? (1 point)

*Theoretical replication / selecting dissimilar cases / purposive sampling (1 point)*

- b. Suggest two forms of triangulation that could have been applied to strengthen the study. (2 point)

*Triangulation between methods / doing other methods / doing interviews (1 point)*

*Comparison the findings to theory (1 point)*

*Comparing the analysis of different researchers (1 point)*

*Incorrect: Triangulation between sources (already done)*

## 7. Case study 1 (3 points)

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- a. Suggest a protocol question for the case study. Ensure that the protocol question is relevant within the scope of the research question. (1 point)

*A descriptive question for a business model aspect (1 point)*

*Example: What is the value proposition of the different intermediaries?*

*What business models exist for the intermediaries?*

*What does an intermediary do?*

*Incorrect: Interview / survey questions; Questions about validity; Questions about causality; Statements (e.g. research objective)*

- b. Whether case studies are a suitable method depends on the topic of a study. State two reasons to do case study research. For each reason, discuss whether it is relevant for this particular study. (2 points)

*More variables than observations / complex study topic (0.5 point). Relevant since business models are complex (0.5 point)*

*Context cannot be separated from phenomenon (0.5 point). Relevant because data intermediaries operate in a context (0.5 point)*



*Exploratory research in-depth / developing theory (0.5 point). Relevant because the aim is identify business models*

8. Qualitative 1 (6 points)

The questions on this page are based on the following text, adapted from de Reuver, M., Haaker, T., & Cligge, M. (2019). Online courses on business model innovation for practitioners in SMEs. *Journal of Business Models*, 7(3), 12-23.

*The aim of this paper is to evaluate whether massive open online courses (MOOCs) can be a teaching method for bringing business model innovation to SME managers and owners. The paper is based on a large project carried out by the authors in creating five MOOCs on business model innovation. To the participants in the MOOCs, extensive surveys were sent. The surveys asked the learners a set of open and closed questions on several aspects such as their comprehension of the course, the workload of the course and the clarity of instruction texts and videos. The answers to the open questions are analysed through qualitative coding.*

*The following quotes from participants were obtained:*

*"I missed out a deadline due to an unplanned business travel. It is totally understandable that the assignment is closed [...] However, for working people it would be helpful to get a second chance."*

*"I like to reflect my learning against practice. Actually working tools and frameworks are a really useful addition for this!"*

*"The instruction videos are very clear, which is important to help us understand the concepts of business models and how to apply it to our own company."*

*"It really stimulated to work on my own business model"*

*"The peer review is an excellent idea and helpful to see/read how others view my business idea"*

a. Provide two codes (2 points)

- A code max 3 words, related to the objective, relating to the quotes (1 point each, max 2 points)
- Examples:
  - o Time management challenges
  - o Application to practice
  - o Clarity
  - o Peer feedback

b. Provide a code category (1 point)

- A category of max 3 words which subsumes the two codes from question a.
- Example: Challenges, Design choices

