Antecedents of Business Model Innovation in Manufacturing SMEs: A configurational approach

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Funding statement

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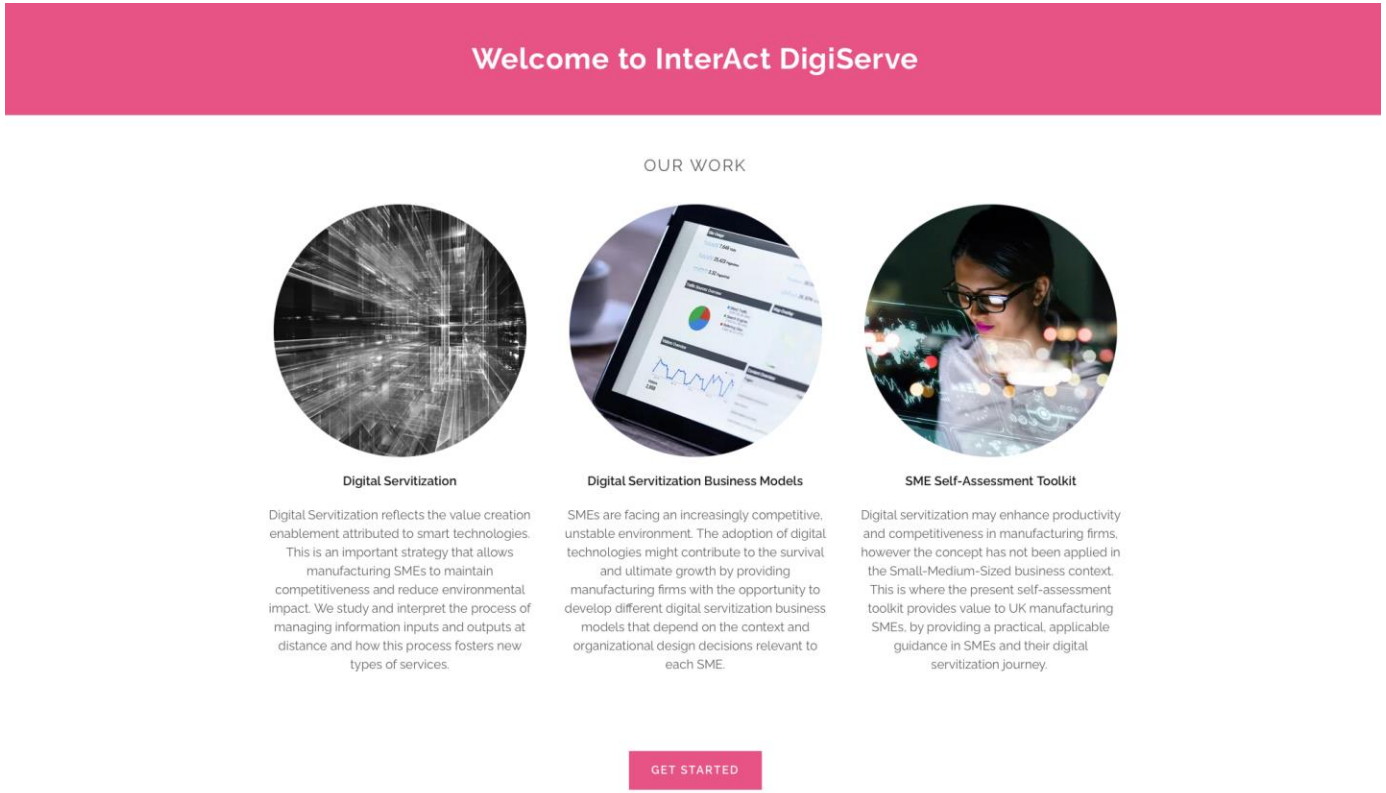
Funding statement

Project Overview

- This work was supported by the UKRI Made Smarter Innovation Challenge and the Economic and Social Research Council via InterAct [Grant Reference ES/W007231/1]



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Background

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Background

Limitations of existing BMI research

- A cumulative body of research (over)emphasizes the direct link of BMI to outcomes such a firm competitiveness and performance.
- Scholarly emphasis on outcomes alone, leaves an intriguing gap in understanding the impact of its antecedents.
- BMI realisation in incumbent SMEs is still not clearly understood
- BMI configurations for novelty over efficiency focus?

Background

BMI from a configurational approach

- The 'classic' view of organizational configurations suggests that complex phenomena (such as BMI) can be understood by examining multiple constellations of interrelated firm characteristics.
  - ***Imperative conditions***: incumbents often need to operate under an existing business model while at the same time experiment with novel ones. Ambidexterity has been interlinked to BMI, suggesting that the presence of BMI is driven by the tendencies to manage existing certainties and consider extensions to meet customer demands and new market exploration.
  - ***Complementarity:*** choices across characteristics are interconnected
  - ***Fit:*** the appropriateness of configurations in sets of external environmental conditions

Background

BMI antecedents

- BMI antecedents can be classified in relation to external (contextual) and internal (organizational) factors:
- **Contextual Antecedents**
  - *Technological turbulence:* BMI may be triggered by adaptation of operational routines to increase operating efficiency.
  - *Competitive intensity:* BMI may be driven by exploratory learning to overcome environmental uncertainties and respond to competitor pressures.

Background

BMI antecedents

- BMI antecedents can be classified in relation to external (contextual) and internal (organizational) factors:
- **Organisational Antecedents**
  - *Firm size:* As a precursor for innovation, size may characterise the propensity for BMI
  - *Product/Process complexity:* BMI is linked to product/process complexity as incumbents providing simple products may not directly benefit from BMI
  - *Degree of digitalisation:* the organization's state to strategically leverage new technologies reflects a precursor condition for BMI

The study

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The study

Measures

- *Business Model Innovation*, was measured by adopting the scale of Asemokha et al (2019).
- *Ambidexterity* was measured through the scale of Jansen et al. (2009) combining in an additive manner exploration and exploitation (Jansen et al., 2009).
- *Competitive intensity* and *technological turbulence* was measured by adopting the scales of Jaworski and Kohli (1993).
- *Firm size* has been measured using self-reported number of employees.
- *Product complexity* was measured by adopting the scale of Vickery et al. (2016).
- *Degree of digitalisation* was measured through the digital maturity scale developed by PwC (Greif et al. 2016)

The study

Sample

- *Data collection* is ongoing, as the present effort is part of a larger study.
- Qualtrics-commissioned data collection, incorporating the following criteria alongside the platform's own screening criteria:
  - *Owners/principal decision-makers* of UK Manufacturing SMEs,
  - SMEs in manufacturing industries with products of medium and high technology intensity
- 422 responses – 39 omitted for failing attention checks, admitting low level of knowledge about firm processes or not coming from SMEs from specified industries. Another 23 responses excluded as outliers.
- Final sample comprised from 352 usable responses from SMEs, 42 of which were micro-enterprises (1-9 employees), 158 Small and 152 Medium-sized.

The study

Data analysis

- *Fuzzy-set Qualitative Comparative Analysis* (fsQCA) has been employed to depict the configurations.
- Sufficiency analysis outcomes, indicating the configurations of conditions that are sufficient for achieving high BMI.
- Conditions are representative of the constructs discussed in the theoretical framework namely ambidexterity as the organisational imperative, technological turbulence and competitive intensity (contextual antecedents), firm size, product/process complexity and degree of digitalization (organisational antecedents). Business model innovation represents the outcome condition.

Results

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Results

Low Ambidexterity

Configurations for presence of high BMI		
	Solution	
	1	2
Contextual Antecedents		
Technological Turbulence	●	
Competitive Intensity	●	●
Organizational Antecedents		
Firm Size		●
Product/Process Complexity	●	●
Degree of Digitalization		
Consistency	0.776	0.815
Raw Coverage	0.570	0.549
Unique Coverage	0.085	0.064
Overall Solution Consistency	0.759	
Overall Solution PRI	0.347	
Overall Solution Coverage	0.635	

Results

Low Ambidexterity

- ***Configuration 1*** demonstrates the antecedent role of the environment and stresses the importance of product and process complexity, shaping high BMI in SMEs. BMI may support incremental changes by marginal improvements in existing products, responding to changes in the external environment (Albats et al., 2021).
- ***Configuration 2*** explores the role of firm size alongside product and/or process complexity, in an environment characterised by competitive intensity. This insinuates that in this case BMI may assist medium-sized SMEs in the absence of technological turbulence as a defence mechanism to counter competitive threats.

Results

High Ambidexterity

Configurations for presence of high BMI				
	Solution			
	1	2	3	4
Contextual Antecedents				
Technological Turbulence		●		
Competitive Intensity	●			
Organizational Antecedents				
Firm Size		●	●	
Product/Process Complexity			●	●
Degree of Digitalization		●		●
Consistency	0.838	0.953	0.934	0.922
Raw Coverage	0.808	0.447	0.372	0.518
Unique Coverage	0.286	0.005	0.027	0.006
Overall Solution Consistency		0.833		
Overall Solution PRI		0.759		
Overall Solution Coverage		0.896		

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Results

High Ambidexterity

- ***Configuration 1*** suggests that the efficacy of BMI may be driven from exploratory learning to overcome competitive pressures (Najafi-Tavani et al., 2023).
- ***Configuration 2*** indicates that in the presence of technological turbulence, medium-sized firms develop BMI when they are oriented towards digitalization (Coreynen et al., 2020). As the technological context of the firm is evolving, firms that can harness digital technologies and channel these through BMI.

Results

High Ambidexterity

- ***Configuration 3*** suggests that irrespective of environmental pressures, BMI may assist firms in motivating competitive advantage through product and/or process complexity. This reflects that extensions in product and process developments may indicate opportunities for redefining the value proposition (Paiola and Gebauer, 2020).
- ***Configuration 4*** suggests SMEs may still achieve BMI by attaining high degrees of digitalization and by reinforcing product and/or process complexity. This implies the tailored value proposition offered via high degrees of digitalization that can provide SMEs with advantages related to product development, production and maintenance.

Implications and Future Work

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Implications

BMI in incumbent SMEs

- We propose a configurational approach that suggest the imperative-specific configurations that lead to BMI realisation in incumbent SMEs. This approach emphasizes the contextual and organisational interdependence of BMI on the basis of its antecedents.
- In conditions of **Low Ambidexterity**:
  - Incumbent SMEs may rethink value creation and provision under environmental uncertainty, facilitating BMI.
  - In addition, the size of the firm becomes critical when considering competitive intensity.
  - In conditions of low technological turbulence, BMI reflects a defence posture for incumbent SMEs to counteract competitive threats

Implications

BMI in incumbent SMEs

- In conditions of **High Ambidexterity**:
  - BMI plays a transformative role to enable firms to counter competitive pressures
  - In conditions of technological turbulence, the size of the firm drives BMI when coupled with digitalization
  - High ambidexterity promotes a forward-looking, expansive view of BMI

Future Work

Next steps

- Results derived from a single source and as such findings need to be treated with caution
- To replicate results on the configurations using multiple sources of data, to gain a more detailed understanding of BMI drivers and their intricacies.
- Linking configurations to SME performance

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