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Can SMEs grow without R&D investment?

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Can non-R&D investor SMEs grow? (Non-visible innovation in SME growth)

The role of SMEs in job creation, innovation and enabling economic stability has been established at national, regional, and global levels (Carter et al., 2006; The World Bank Group, 2022). Yet SMEs' heterogeneity relating to the geographical environment, internal resources, market position, etc., provides challenges and opportunities for growth (Ipinnaiye et al., 2017; Komulainen, 2018). Though mature SMEs provide over half of the national GDP, they are often characterised by little or no growth (Komulainen, 2018; Milosevic et al., 2022).

SMEs operate in ever-changing markets with emerging opportunities and risks, thereby requiring dynamic capabilities to configure internal and external competencies for competitive advantage (Teece, 2007). Unfortunately, researchers have concentrated on SMEs' external capabilities to achieve growth while ignoring the internal capabilities that enable external development (Teece et al., 1997; Barney, 1991). Capability development for growth depends on internal resource utilisation and external resource exploitation (Barney, 1991). Nonetheless, this has been overlooked in the extant literature on SME growth.

Internal capabilities which are 'difficult to imitate', provides the foundation for developing external capabilities for SME growth (Teece et al., 1997 p. 510; Barney, 1991). Remarkably, the multidimensional nature of SME growth has attracted different measures which obscure the understanding of growth indicators (Penrose, 2008; Ipinnaiye et al., 2017; Delmar et al., 2003). Moreover, researchers (Nunes et al., 2013; Smallwood and Ulrich, 2004) have argued that R&D investment is an antecedent to achieve growth through innovation. While SMEs require dynamic capabilities to sense, seize and configure internal and external competencies to respond promptly to the external environment (Teece et al., 2007), the resource-based view (RBV) coupled with the composition-based view (CBV) of firms provide a theoretical lens of understanding the influence of internal factors (firm characteristics and R&D) on UK SME growth (Penrose, 1959; Ullah & Smith, 2015; Scuotto, et al., 2021).

Consequently, this paper examined 86 SMEs from different sectors in the Northwest of England who achieved growth between 2016 and 2019 to understand growth indicators based on internal R&D capabilities. Surprisingly, only 31% of them invested in R&D which contradicts the notion of SME growth being influenced by R&D investment. This highlights a gap in the perception that a lack of formal innovation through R&D investment hinders growth as all 86 SMEs achieved growth. This begs the questions as to how SMEs could achieve growth without formal innovation process through R&D investment. It also raises the question of the type of innovation activities the 69% of SMEs engaged in, to achieve growth as Coad et al., 2016's survey of Spanish firms reported that successful R&D investment could deliver positive returns or negative returns to firms, if unsuccessful. A qualitative research approach that provides comprehensive understanding of SME growth has been overlooked in the literature. Extant literature has employed quantitative research methodologies (Miocevic & Morgan, 2016; Scuotto, et al., 2021) which has been criticised by Runyan et al., 2007; Ullah and Smith, 2015 for being simplistic and inadequate for examining SME growth. This triggered this paper's research methodology contending that qualitative approaches are needed to complement existing quantitative studies and provide a balanced view of firm growth (Gilman & Salder, 2021). So, this paper contributes to the research area in two ways.

- First, it tests the applicability of the notion of non-visible innovation activities through a comprehensive cross-sector investigation of the growth indicators of regional SMEs in Lancashire to understand why SMEs could achieve growth without formal innovation through R&D investment.
- Next, it addresses a significant gap by investigating how SMEs could achieve growth without formal (visible) innovation through R&D investment. George, 2005 and Terlinck, 2022 theorized that a crucial resource employed for innovation activities is financial slack (FS) in form of cash. Nevertheless, most studies on SME growth have

yet to investigate FS in relation to innovation and SME growth. This study investigates how non-R&D investor SMEs achieve growth to generate insights on FS as an indicator of innovation.

By drawing on the RBV and CBV theories of resources (Barney, 1991; Luo & Child, 2015) applied to 86 SMEs across 13 sectors, this research addresses a gap in the understanding of SME growth through in-depth qualitative and methodology to generate new insights. This begs the question – ‘Can non-R&D investor SMEs grow?’

Theoretical Foundation

SME Growth

The Covid-19 pandemic and the current economic recession have crushed some SMEs, considered the bedrock of employment in most societies (Kindström, Carlborg and Nord, 2022; Marconatto et al., 2022). Indeed, the complexity of the growth process has constrained the development of firm growth theory (Burvilland, et al., 2018) which is compounded by a paucity of empirical testing of many theoretical perspectives within the literature, such as Penrose’s theory, despite its acceptance within academic literature (Lockett et al., 2007; Burvilland, et al., 2018). Though Penrose (1959) defined firms based on their activities and engagement, firm growth can be viewed from two perspectives. From a quantitative perspective, it is perceived as an expansion in scope and size, while a qualitative standpoint presents it as capability development resulting from learning and resource maximisation (Coad, 2009; Gancarczyk, et al., 2021). The former perspective measures growth, in terms of increase in market share, enhanced revenue, return on investment, size, employment, R&D, etc. (Gilbert, 2006; Delmar and Wennberg 2010). The latter perspective views growth as multidimensional, influenced by multiple factors including firm characteristics, internal and external capabilities, etc. (Delmar, et al., 2003; Almarri and Gardiner, 2014; Ipinnaiye et al., 2017). Nevertheless, some of these indicators focus on the outcomes of the growth process rather than factors affecting growth.

A proactive approach to investigating SME growth must first understand firm growth indicators based on internal capabilities, yet extant literature has adopted a reactive approach. Ultimately, growth is achieved when firms control their resources to overcome deficiencies or limitations associated with SMEs to gain a competitive advantage (Shelton, 2005).

R&D

R&D is recognised as the firm’s internal commitment to (formal) innovative activities so, Martín-Peña et al., 2023 presented R&D as an antecedent to innovation, to achieve growth. This suggests that the absence of R&D means that firms are not innovating and may not grow. However, Oakey et al., 1988, Belderbos, et al., 2021 have reported that despite many SMEs’ engagement in innovation activities, the outcome does not always result in increased productivity or growth. Likewise, R&D investment may not lead to innovation or growth in every case (Nunes et al., 2013) as other drivers may be at play. Oakey et al. (1988)’s survey of 131 technology SMEs from the UK and US found that although 79% invested in R&D, they did not necessarily achieve growth. Coad et al., 2016’s survey of Spanish firms reported that successful R&D investment could deliver large positive returns or large negative returns to firms, if unsuccessful. Therefore R&D and innovation are only indications of growth potential rather than actual growth. Ortega-Argilés, et al., 2009 have also confirmed SMEs’ engagement in informal innovation activities, which might not be evidenced on a financial statement or R&D tax credit. For instance, process innovation may be integrated into capital structure rather than an R&D activity which underestimates actual R&D (Vaona and Pianta, 2008; Ortega-Argilés, et al., 2009). Apart from R&D, other drivers of growth such as firm size, firm strategy, industry characteristics, R&D investment, government grant or subsidies, external financing etc. (Ipinnaiye et al., 2017; Joensuu-Salo et al., 2023, Brozović et al., 2023, De Blick et al.,

2023) also affect innovation capabilities. These drivers will interact with hidden innovation in different ways. For example, access to external financing could support hidden innovation to enable growth, while a firm strategy might inhibit or support hidden innovation depending on the context. The interactions of these drivers have not been investigated in relation to hidden innovation in SME growth.

Non-Visible (Hidden) Innovation

The OECD (2018)'s definition of innovation highlights the dissemination of the innovation process outcome to potential users in the wider environment which emphasises visibility and accessibility of innovation. Hence formal innovation types are product, process, organisational and marketing. NESTA (2006) defined 'hidden innovation' as innovation activities that are not reflected in traditional indicators such as investments in formal R&D or patents. Ortega-Argilés, et al., 2009 has confirmed SMEs' engagement in informal innovation activities, yet there is scarcity of studies linking non-visible (hidden) innovation with growth and internal capabilities (Tether, 2005; Scuotto et al., 2021). The difficulty in measuring non-visible innovation (OECD et al., 1996; Scharinger, 2023) increases the chances of hiding innovation activities and stops them being captured formally in financial statements or surveys such as the European Community Innovation Surveys (CIS) (Tether, 2005). Non-visible innovation activities are also plagued with complexity because they are difficult to reproduce consistently in a systematic way (Tether, 2005; Wiedner, Croft and McGivern, 2020). Consequently, differentiating between service variations and innovations may be problematic as services aim to be flexible to meet dynamic customer needs. Non-visible innovation types are classified as service innovation (Tether, 2005; Scharinger, 2023) but NESTA, (2007) offered four classifications of non-visible (hidden) innovation namely:

- a. Technology - Identical activities that are measured through traditional indicators, but excluded from measurement such as the development of new technologies in oil exploration.
- b. Organisational or Business model - Innovation without scientific and technological basis, like innovation in organisational or business models innovation. For example, new contractual relationships between suppliers and clients on a project.
- c. Process - Innovation derived from a unique combination of existing technologies and processes. For example, IT systems integration by banks to deliver innovative services like online banking.
- d. Service - Low-scale innovation happening 'under the radar', by organisations or individuals working in a sector e.g., daily enrichment activities occurring in classrooms and multidisciplinary teams.

Though non-visible, they make valuable contribution to the operations and performance of firms e.g., successful programmes for the rehabilitation of offenders (NESTA, 2007). Therefore, the nature of non-visible innovation activities hides them away from recognition and consequently formal classification. The classification fit within incremental innovation as shown in Tidd and Bessant, 2021's process dimensions of innovation space, nevertheless, this area remains under-explored, despite NESTA, 2007's assertion that non-visible innovation is crucial to the UK's future development. Consequently, this study contributes to the extant literature by assessing the nature of non-visible innovation in UK SMEs and their impact on growth to generate fresh insights across different SME sectors. The non-visible innovation classifications are presented in Figure (1) along with the classical (visible) types of innovation.

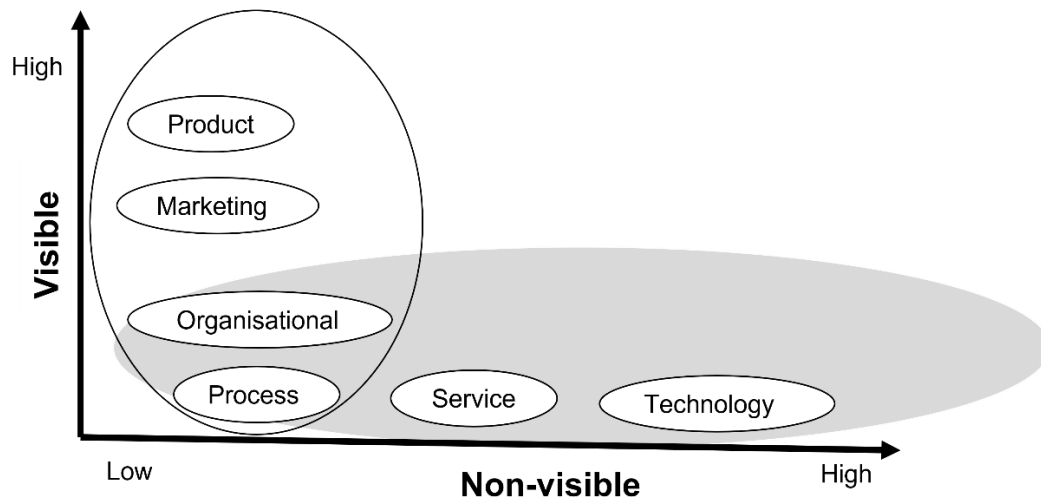


Figure 1: Non-visible and formal (visible) Innovation types

Methodology

Despite the interest in SME growth studies, Gilman and Salder, 2021 have also critiqued the lack of robustness and objectivity in the quantitative approaches often employed due to:

- High dependency on large datasets inhibits depth of research (Daft and Weick, 2001).
- Narrowed and restricting theoretical lens employed in data analysis (Frank and Roessl, 2015).

This study overcomes the critique levelled against quantitative SME research (Hoffman et al., 1998) through a qualitative approach that investigates quantitative variables alongside qualitative indicators of SME growth.

This exploratory study embraces flexibility for an in-depth investigation to conceptualise emerging findings from rich empirical case studies for investigating real-life experiences (Gancarczyk, et al., 2020; Kindstrom, et al., 2022). Contrary to Eisenhardt's case study approach (2021)'s, this study is not aimed at theory building, but rather theory testing. The study aims to test the theoretical notion that R&D is a good indicator of growth. Therefore, the methodology combines a variety of data collection methods in an iterative fashion to generate valuable insights (Yin, 2018). To achieve its aim, this study employs the bricolage metaphor to freely determine the research design.

Sampling

By employing Pratt et al., (2022)'s bricolage of "conceptual leaping", the researchers engaged with distinct resources techniques and data collection sample from different SME sectors to achieve the aim of this study. From Gilman and Salder, 2021's critique of quantitative research, purposeful sampling was employed to include SMEs with whom in-depth research could be carried out. The sample was drawn from SMEs in the Lancashire region engaging with the Edge Hill University Productivity and Innovation Centre (EHUPIC). Additional criteria were employed to select 86 firms for this study. The EHUPIC do not engage with start-ups or technology-intensive SMEs, so these were excluded from the sample. The average level of cash available in the SME sample was £294,514.

Previous studies (Gancarczyk, et al., 2020; Kindstrom, et al., 2022) have employed 44 SMEs for survey data collection and six cases for in-depth investigation. Similarly, this study involves

86 SMEs in the survey while conducting in-depth investigation with eight firms from professional services, IT, manufacturing, and financial services sectors.

Data collection

This study employs a four-step approach to improve the understanding of SME's growth indicators which combined a diagnostic survey, literature review, in-depth qualitative interviews, and final analysis, as shown in Figure (2).

The four-stage methodology started with the development and dissemination of a diagnostic data collection instrument to 240 SMEs. However, a response rate of 36% was achieved resulting in the analysis of 86 SME results. Following this, a comprehensive literature review was conducted to identify research findings on SME growth and theoretical constructs to analyse empirical data. The theoretical findings were employed to analyse the quantitative data about SME characteristics and financials to construct narratives that helped to generate questions for further investigation. Following this, SMEs were consulted to discuss initial findings and explain the need for further in-depth analysis. A sample of seven SMEs who indicated interest was selected for the qualitative data analysis through semi-structured interviews. Finally, the results of the interview data collection were analysed and integrated to deliver the research contributions for this study as well as provided in reports disseminated to the SMEs.



Figure (2) – Research process

Discussion of Contribution

The research activity is on-going, therefore findings are yet to be obtained for the research activity. Therefore, this is not reported in the current draft. However, the anticipated impact is presented below.

The study aims to uncover (i) why SMEs could achieve growth without formal innovation process through R&D investment and (ii) the type of innovation activities the 69% of SMEs engaged in to achieve growth. The study employs a rich qualitative design to investigating regional SMEs in the UK across different sectors to address a gap in the understanding of SME growth and hidden innovation to generate new insights to the question – ‘Can non-R&D investor SMEs grow?’

First, the study establishes a different perspective to innovation which is commonly overlooked in the literature. Extant research on innovation often concentrates on formal innovation types which are visible while non-visible innovation is rarely studied, yet they impact SME growth.

Consequently, the study contributes to the SME growth literature. The study uncovers an important aspect of innovation practices that contribute to growth in SMEs by evidencing the presence and role of non-visible innovation through empirical research. Moreover, the qualitative investigation provides in-depth understanding of non-visible innovation to demonstrate their importance to the UK's future development. The major role of SMEs in creating wealth and creating jobs in the Nation means that their non-visible innovation activities are crucial and should not be ignored.

Secondly, the study contributes to the extant literature by assessing the nature of non-visible innovation in UK SMEs. Therefore, it complements and expands extant literature on innovation by crystalising non-visible innovation classifications against formal innovation types. It also demonstrated the complexity of articulating innovation types as two of the classifications apply to both non-visible innovation classifications and formal types of innovation. This highlights the challenges facing firms in relation to how to clarify and differentiate non-visible from formal types of innovation and the impact on innovation activities.

Future studies can consider adopting a mixed-method research design to strengthen the data collection and generate more insights. In addition, a larger sample size could be involved in the study to increase the generalisation of the findings. Finally, future studies could embrace a wider range of external factors affecting innovation could be considered such as government subsidies to strengthen the robustness of the assessment of factors affecting SME growth.