Supporting SMEs’ internationalisation through a deeper understanding of Human and Technology Barriers: Applying Effective HRM processes from a developing-country

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<th>Journal:</th>
<th><em>Journal of Organizational Effectiveness: People and Performance</em></th>
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<td>Manuscript ID</td>
<td>JOEPP-12-2018-0121.R2</td>
</tr>
<tr>
<td>Manuscript Type:</td>
<td>Research Paper</td>
</tr>
<tr>
<td>Keywords:</td>
<td>Emerging Markets, Entrepreneurship, Human Capital, Resourcing Systems, Strategic Partnership</td>
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Supporting SMEs’ internationalisation through a deeper understanding of Human and Technology Barriers: Applying Effective HRM processes from a developing country

Introduction

Researchers’ attention is being increasingly attracted to the contributions made by small and medium sized enterprises (SMEs) to both national and international economies (Saridakis, Yanqing and Cooper, 2017; Vrontis, Bresciani and Giacosa, 2016). However, SMEs encounter numerous challenges, which include lack of capital (Naldi, Nordqvist, Sjoberg and Wiklund, 2007), operating in struggling economies (Bhana and Bachoo, 2011) and stiff competition in the internationalisation sphere (Conz, Denicolai and Zuchella, 2017; Hansen and Winther, 2014). Despite their numerous challenges, studies on SME’s internationalisation are limited (Mustafa and Yaakub, 2018; Gunasekaran, Rai and Griffin, 2011). More worryingly, research on SMEs’ desire to internationalise while making effective use of Human Resource Management (HRM) processes despite the technical challenges is lacking. Although Mamoghli, Cassivi and Truddel, (2018) looked at the inter-dependence of IT and people and developed an iterative model based on a business’s maturity/growth levels, their work is predominantly theoretically focused. Likewise, Ardito, Besson, Petruzzelli and Gregori, (2018) examined the usefulness and favourability of IT on business performance but failed to recognise internationalisation from a developing country perspective. Although they used a number of hypotheses and conducted empirical work, they are yet to produce a model that is data and conceptually driven (Mendy and Rahman, 2019). In spite of the efforts made by El Makrini (2015) in this direction, Booltink and Saka-Helmhout (2018) and Kim-Soon et al. (2017) focused on the role of innovation and technology in boosting SMEs’ performance (Edmondson. and Harvey, 2018), whilst generally neglecting internationalisation.

Internationalisation is defined in the literature as involving business activities and trade between geographic boundaries. Within these are processes through which companies try to increase their enterprise’s activities beyond their borders (Welch and Luostarinen, 1988) or when adaptations are made to their firm’s operations externally (Prashantham, 2005). Those who adopt a historical view highlight the importance of market relationships across national borders (Ruzzier Antončič and Konečnik, 2006). However, others who adopt a traditional definition consider a business’s export strategy as pivotal (Kamakura, Ramón-Jerónimo and
Gravel, 2012). Yet, strategy alone is not enough as it failed to look into the actual process of internationalisation (Grandinetti and Mason, 2012) and other aspects/items. Recently, other researchers perceive internationalisation as a sum-total of economic-type activities geared towards the expansion of a business’s operations externally (Ruzzier et al., 2006). Despite attempts made on definitions, there is no consensus on the real meaning of SMEs’ internationalisation (Vissak and Zhang, 2012) not just the role of ‘human capital’ on performance as perceived by Dar and Mishra, (2019) and Mamoghli et al., (2018), among others. Sometimes, theoretical postulations are offered without much regard to practical elements (see Ardito et al., 2018). In this current paper, we take the perspective that internationalisation comprises economic-related activities that firms use in their business attempts to mobilise inward products and services for external destinations.

Some of the economic variables perceived to be crucial for internationalisation include entrepreneurial and employee commitment (von Bonsdorff, Janhonen, Zhou and Vanhalad, 2015), leadership and trust (Top, Akdere and Turcan, 2015) and cross-border teams (Edmondson and Harvey, 2018). Part of the problem here is that these issues have been treated in isolation and mainly in large firms. This calls for a more balanced treatment of the issues raised particularly in small and medium sized enterprises that also wish to internationalise their firms’ operations. Other researchers have pointed out the role that strategy (Ulrich and Dulebohn, 2015) and talent and skills management can play in internationalisation and development of not only SMEs (Ren et al., 2015; Krishnan and Scullion, 2017) but MNEs as well (Morley et al. 2015) from . Recent attempts to remedy some of the missing aspects highlighted initiatives to address herding behaviour (Shah et al., 2017) or other barriers (Rahman, Uddin and Lodorfos, 2017), risks (Kola and Kodongo, 2017) and problems (Quaicoe et al., 2017). Other recent attempts within small business research include the identification of differences in practices and processes within the informal sector (Williams and Horodonic, 2016) and the effects that leadership can have on their entrepreneurial development (Zhou et al., 2017) and the performance of family-type SMEs (Lwango, Coeurderoy and Giménez Roche, 2017). Despite the measures and perceptions there is room for further development in relation to the human processes of SMEs’ internationalisation within a developing and emerging market context (Mendy and Rahman, 2019).

Other efforts have looked at various approaches to talent management and development from an SME perspective (Krishnan and Scullion, 2017) or even an MNE angle (Morley et al., 2015; Festing et al., 2013) to rectify what is missing. Recently, Ramirez-Portilla, Cagno and Brown,
(2017) have proposed the use of open innovation, SmartPLS software approaches find out about the performance of SMEs within the automotive industry. However, a plethora of studies still looks at MNEs more than the attention received by SMEs in attempts to internationalise business operations. When they do so, researchers have adopted a developed country perspective (see Giacosa et al., 2018). Other studies in the HRM area indicate the need to combine a set of practices in the form of ‘bundles’ as it is believed that the configuration of human resources with an organisation’s externalities can enhance processes of organisational business performance (Mustafa and Yaakub, 2018; Lepak and Snell, 1999). Since Pfeffer’s (1998) identification of the effects of HRM practices on workplace outcomes (e.g. performance, productivity, productivity and so on) via ‘high performance work systems’ (Huselid, Jackson and Schuler, 1997) or high performance work processes (Rogers and Wright, 1998) looking at SMEs from a developing country angle is still neglected. It is high time to remedy such neglect to see what they can contribute to our understanding and knowledge.

Therefore, there is need to combine people/HRM systems and practices and technology to study SMEs’ internationalisation.

**Literature Review**

**Configuration Model of HRM**

The configuration model is extracted from HRM. It seeks to highlight a fit between HRM, strategy and the organisation’s external (i.e. international) environment. It is assumed by proponents of the model that such a relationship shapes organisational business outcomes, their successes (e.g. their performance) and failures (e.g. their barriers to performance – Mendy and Hack Polay, 2018). This model has been chosen because it highlights not only business context but also additional aspects that have not been looked into by previous studies on SMEs’ internationalisation. These are HR/people-related strategy to find out the extent to which it ‘fits’ with or enhances success (Delery and Doty, 1996). The latter is generally taken in the literature on SMEs to refer to business performance (Adomaku et al., 2018) and social value creation (Mendy, 2019; Porter and Kramer, 2011). It is thought that such configuration will impact positively and ensure performance (Huselid, 1995; Delaney and Huselid, 1996; Boxall and Purcell, 2003; Gerhart and Fang, 2005). Whether this performance aspiration can be validated through some design (Ardito et al., 2018; Ramirez-Portilla, et al., 2017) or model is yet to be shown. However, scholars have attempted to demonstrate the role of model use in lowering turnover (Guthrie, 2001), enhancing organisational effectiveness (Delery, 1998)
through the intermediating role of leadership (Subramony, Segers and Chadwick, 2018) and marketing, product development and dissemination (Hu, Shen and Sun, 2018). However, technology issues are not mentioned.

However, there is an ongoing debate and discussion on the characteristics and benefits of the configuration model in SMEs, prompting us to ask the question ‘what combination of HRM as well as business bundles could best deliver alignment?’ Put differently, ‘is a combination of HRM policies and technology use the best configuration model to deliver an organisation’s intended outcomes?’ Despite positive claims to ensuring performance (Huselid, 1995), the extent to which human and technological issues are examined and aligned during SMEs’ internationalisation is yet to receive adequate research attention.

In their attempts to bring some clarity to the notion of ‘fit’ in internationalisation, Lepak and Snell (1999) maintain that the configuration model should focus simultaneously in combining four areas if firms are to benefit from it. These areas are namely 1) commitment-based (knowledge intensive, extensive training and development schemes, core set of knowledge workers who enjoy loose job descriptions, job-designs and performance-related pay); 2) productivity-based (internally selected, skills are not competitively advantageous to the organisation, staffing and task-focused rather than developmentally focused); 3) compliance-based (human capital is not of high value, fixed-term tasks may be contracted out for greater flexibility) and 4) collaboration-based (alliances and partnerships create added value, R & D and information sharing are encouraged to cut costs). In line with Lepak and Snell’s (1999) earlier attempt at configuration, most researchers tend to look solely into performance while ignoring other aspects such as internationalisation. For example, Kim-Soon et al. (2017) highlighted the positive impact of innovation and technology whereas Mustafa and Yaakub (2018) identified some dynamic capabilities needed in volatile market conditions. Although similar to Lepak and Snell (1999), Blonigen and Taylor, (2000) highlighted such dynamism in terms of product development. Central to the propositions on SMEs’ growth and development it is ascertained that technology and innovation constitute capabilities central to SMEs’ innovation and performance (Maes and Sels, 2014). However, acknowledging the potential barriers especially within the internationalisation space is missed. Although Mustafa and Yaakub (2018) signalled that the human resource component could pose a difficulty they did not specify how this might be – that is, in the form of a model or some theory for SMEs’ internationalisation. Dar and Mishra (2019) identified ‘human capital’ but clarity is lost when
the term is used to cover aspects ranging from educational capacity to skills development as enablers (Ren et al., 2015) of performance (Booltink and Saka-Helmhout, 2018). Something more special is needed in SMEs’ hostile operating environment (Hansen and Winther, 2014).

After due consideration of relevant literature, we have subsumed each of the aspects of Lepak and Snell’s configuration model into four main variables or hypotheses (to test the relationships between people and technology during SMEs’ internationalisation), something not attempted in previous studies. These are namely language (H1a), social perspective (H1b) as part of commitment, skill (H1c) and training as part of productivity (H1d) and finally infrastructure (H2a), ICT (H2b) as part of compliance, warehouse facility (H2c) and R & D (H2d) as part of collaboration. Each of these is examined independently within the SME literature and limited studies have highlighted the human-technology aspects in SMEs’ internationalisation from an emerging economy’s perspective. Each of these constructs/factors is examined in greater detail to establish what has been missing in the configuration debate situated within the human-technology distinctions of SMEs’ internationalisation as follows.

Skill generally includes the capability or the development of the capacity to do something. In this paper, the latter is taken to apply to the context of a small or large firm’s business activity (Jasra, Khan, Hunjra, Rehman and Azam, 2011). Although it might be perceived that skill is available worldwide, the availability of educational and training-type facilities is not generally the same worldwide. Small and large businesses stand the possibility of benefiting differentially not only in its acquisition but also in its dissemination and maintenance (Roza, Van den Bosch and Volberda, 2011). SMEs are generally understood to struggle in acquiring the requisite skilled labour, in retaining and developing its skilled staff (Dutta and Sobel, 2016). When this happens barriers to internationalisation are rendered more problematic (Hadjimanolis, 1999) thereby adding to socio-cultural constraints (Dreher and Gassebner, 2013).

Language serves as a medium of communication between people and firms. Within the business context, communication is used to build and maintain relationships thereby rendering businesses that fail to do so efficiently unhealthy. This tool becomes ever so important in an international trade context, where more countries are involved in the process (Mendy and Rahman, 2019). In addition to the language barrier (Morgan and Katsikease, 1997), there is an additional socio-cultural barrier commonly encountered by SMEs during internationalisation and this includes the use of different social approaches (Erramilli and Rao, 1990; Weaver and
Pak, 1990). Again, the approaches and processes used vary from one country’s border to the
next. Likewise, different social customs and attitudes have differential impacts (positively or
negatively) on the nature of a firm’s business. Perspectives are divided or lack clarity. For
example, while Buono and Bowditch, 2003; Chatterjee, Lubatkin, Schweiger and Weber, 1992;
Datta, 1991; Olle, 1994; Weber et al., 1996 view this aspect negatively, Krishnan et al., 1997;
Larsson and Risberg, 1998; Morosini et al., 1998 and others have asserted that the socio-
cultural diversity enables the creation of value if the necessary processes are adopted (Mendy,
2019). However, other researchers have paid mooted attention to the social aspects of SMEs’
internationalisation (Booltink and Saka-Helmhout, 2018; Gunaratne, 2009; Okpara and
Koumbiadis, 2010). Based on the differing perspectives, we recognise the vital linkage between
language and socio-cultural issues and conceptualise them as barriers of internationalisation
given their problematic nature in the context of developing countries’ SMEs.

Warehouses play a vital component in a country’s or business’s value-creation process. This is
reflected in the way their availability renders a firm’s products/goods readily available at the
appropriate timing and situational setting (Lambert and Stock, 1993). It therefore behoves that
the lack of such a useful facility can render the internal production and external procurement
alignment process a problem (Lepak and Snell, 1999). Firms tend to surmount such a difficulty
generally by investing in custom and tailor-specific Research and Development ventures
(Pisano, 1990) so as to render them more dynamic in the face of competition (Mustafa and
Yaakub, 2018). Therefore vital as the infrastructure and ICT of a country may be to the physical
fabric for businesses and society (Kim-Soon et al., 2017) it is not the panacea to
internationalisation barriers. However, developing countries generally tend to have inadequate
infrastructure or ICT (Okpara and Kabongo, 2010) capabilities and facilities (Apulu and Ige,
2011) and these could cause additional barriers to business (Fleenor and Raven, 2011)
especially as international competitors might have an edge in this area. Based on the available
literature, inadequate infrastructure and lack of good ICT facilities are considered as key
barriers faced by SMEs’ internationalisation.

Despite their claims, this study explores the two sets of barriers in relation to the configuration
model of HRM to see what these can add to our understanding of the internationalisation of
SMEs as they encounter people and technology-oriented barriers. The extent to which HRM
practices and processes are configured and whether these are adapted to small firms’ business
situation/context is an unresolved issue. Therefore, a key question to be answered is ‘what
combination of HRM as well as business bundles could best deliver alignment’ or ‘is a combination of HRM policies, business strategy and organisational context always the best configurational model to deliver an organisation’s intended outcomes?’

Such attempts to understand what the configuration model could contribute start with the human resources that constitute the resource-based competencies of people (Wernerfelt, 1984; Barney, 2001) as Mustafa and Yaakub also concurred (2018). It is opined that their acquisition and proper organisation will lead to talent management and staff retention as well as their professional and competency development (Boxall, 1996; Horgan and Muhlau, 2005; Marchington and Grugulis, 2000; Dolan, Mach, and Olivera, 2005). These are thought to resolve some of the constraints as an innovative process (Ramirez-Portilla et al., 2017). Those who propound this view assume that an organisation has to align its HRM systems in the way staff are selected, trained, appraised and rewarded (Snell, 1992) to enhance dynamic ‘human capital’ (Dar and Mishra, 2019). This is based on an assumption that all firms observe such people practices. The reality is that smaller firms do not have such a luxury mainly due to resource constraints. Others highlight the role of the external environment and what it could contribute (Lepak and Snell, 2002; Guest, 2001). One of the un-intended consequences of the polarised nature of the debates is that organisations tend to be either process or outcome-driven in terms of which configurational HRM policies they emphasise on and therefore adopt. Those that adopt the former tailor and align their HRM procedures in line with job descriptions, job (re)design, performance appraisals and reward systems (Dyer and Reeves, 1995). Companies that are driven by outcomes (e.g. performance) focus on staff commitment and involvement, and engaging in a process of rewarding them to gain such involvement in their people management strategies (Kamakura et al., 2012). Whether these processes are adequate in achieving the intended outcomes especially within an SME context as ascertained by Dar and Mishra (2019) is another issue.

Configuration theorists posit that HRM policies, procedures and processes should be formalised and adopted as part of a coherent set of practices. One essential way via which these practice-orientated bundles are formalised in a process is through language or social practices, which over time might become an accepted norm. However, they may be resisted by an organisation’s members. When acceptance is the case, language and social norms and beliefs become part of the culture over time (Okpara and Kabongo, 2010) or, if one wills, part of an
organisation’s tradition and the way its people have made sense of their environmental situation (Berger and Luckman, 1967). If they do not, then further research is needed to find out why although this seems missing (Hansen and Winther, 2014). Part of the latter case is observable when resistance abounds. Sub and sometimes counter-cultures might highlight additional process-related issues for businesses and society (Hofstede, 2001), not least family firms (Santoro, Ferraris, Giacosa and Giovando, 2018). Though Hofstede (2001) and some of his followers did not consider the HRM element as crucial, this research notes this aspect as one of the fundamental barriers of internationalisation especially from an emerging economy perspective. The extent to which HRM practices are adapted to a business’s situation/context is an ongoing discussion.

**Conceptual Model Development**

It is the general norm that when one wants to develop a model that might work in practice the first key stage is to identify the limitations of previous attempts in selecting the components. Other researchers have questioned the effectiveness of some business and work practices that should be included (Phillips, 1996; Foot and Hook, 1999). Secondly, once the right types of employees that need to be included are available, they should be motivated using the ‘best practices’ that are perceived to yield an increase in performance (Paul and Anantharaman, 2003). If this does not work, Patterson et al., (1997) and others advised a (re-) organisation of not only the people activities but also work and information sharing processes involved so as to benefit from outputs (Perkins and White, 2011; Armstrong, 2015), something sorely missed by Dar and Mishra (2019), Boultink and Saka-Helmhout (2018) and Mamoghli et al., (2018). This might include a firm’s financial profitability and people’s preferences (Campbell and van Wanrooy, 2013 Perkins and White, 2011) as well as the extent to which people and non-people aspects interact (Marsden and Dickinson, 2013; Gerhart and Fang, 2005). Therefore, studies on the barriers to increasing performance levels (Ardito et al., 2018; Koch and McGrath, 1996; Pfeffer, 1995) also need to (re)focus on the ‘outward’ activities of firms’ internationalisation (Perkins and White, 2011; Heywood, Siebert and Wei, 2010). See Figure 1 below for an initial identification of the various aspects of the two major barriers (technology and people) and how they have been used to develop the study’s model.

*Insert Figure 1 here...*
Although configuration theory highlights the importance of HRM practices, policies and processes, there is lack of consensus as to how such practices may be formalised and via what mechanisms. The use of language or social practices might over a period of time become accepted or sometimes resisted by an organisation’s or business’s members. When accepted the language, social norms and beliefs become part of the firm’s culture (Okpara and Kabongo, 2010) or what has been categorised as a business’s tradition (Berger and Luckman, 1967; Meyer and Rowan, 1977). When such traditions are not accepted they may constrain developmental aspects (Dar and Mishra, 2019). However, whether HRM practices become accepted as a firm’s set of beliefs and norms in the face of hostile external competition is still under debate and discussion (Hansen and Winther, 2014).

On the basis of relevant aspects of Lepak and Snell’s (1999) configuration model and SMEs’ internationalisation literature, the study’s following hypotheses are associated with human and technological barriers as developing countries’ SMEs’ are trying to internationalise their businesses. The people-orientated barriers are sub-categorised into four areas namely language (H1a), social perspective (H1b), shortage of skilled labour (H1c) and shortage of education/training facility (H1d) whereas the technological barriers include four components namely adequate infrastructure (H2a), developed ICT (H2b), warehouse facilities (H2c) and R & D (H2d) respectively.

**H1a. As a human-oriented barrier, language differences impact on the internationalisation efforts of SMEs.**

**H1b. As a human-oriented barrier, social perspective impacts on the internationalisation of SMEs.**

Skill is the ability or the capacity to be able to do something and this might be in the context of businesses activity (Jasra et al., 2011). However, despite its ubiquitous availability, educational facilities are not the same globally and large and small firms may profit differentially in its acquisition and maintenance (Roza et al., 2011). SMEs might struggle in such skilled labour acquisition or its development (Dutta and Sobel, 2016) further cementing barriers to internationalisation (Hadjimanolis, 1999) and creating socio-cultural rifts (Dreher and Gassebner, 2013). The inadequacy of resources and shortage of training and educational facilities do not bode well for SMEs’ innovative capacity (Maes and Sels, 2014; Edmondson and Harvey, 2018). Although Okpara and Kabongo (2010) and Kim-Soon et al. (2017) did not
consider such a barrier as crucial, this study proposes that the shortage of skilled labour and the necessary educational facilities need to be noted as barriers of internationalisation in the context of developing countries’ SMEs. In the light of the above, the following hypotheses are proposed:

\[ H1c. \text{As a human-oriented barrier shortage of skilled labour impacts on the internationalisation of SMEs.} \]

\[ H1d. \text{As a human-oriented barrier the shortage of educational/training facility impacts on the internationalisation of SMEs.} \]

Infrastructure and ICT of a country is the supporting physical structure for the society or business. Lepak and Snell (1999) identified this aspect in terms of ‘collaboration’, alliance building, information sharing through R & D and cost-cutting schemes. The ‘commitment’ aspect of Lepak and Snell’s (1999) model also takes due account of training and development. Due to the economic constraints, developing countries may not have adequate infrastructural or ICT facilities and these could cause serious barriers for the business development (Fleenor and Raven, 2011). Although inadequate infrastructure and lack of developed ICT is an important barrier both for national and international business, internationalisation may face further challenges coming from the international competitors having better technological and communication facilities, an aspect least focused on in the literature on people and technology (Mustafa and Yaakub, 2018). Therefore, inadequate infrastructure (Okpara and Kabongo, 2010) and lack of improved ICT (Apulu and Ige, 2011) are considered as the key barriers for the internationalisation of SMEs. Despite this importance, some studies ignored inadequate infrastructure and lack of ICT development (such as Rahman et al. 2017). Considering the important link between these two factors as technological barriers, the following hypotheses are proposed:

\[ H2a. \text{As a technological barrier, the shortage of adequate infrastructure impacts on the internationalisation of SMEs.} \]

\[ H2b. \text{As a technological barrier, the shortage of developed ICT impacts on the internationalisation of SMEs.} \]

As warehouses play an important role in creating values for the firms by making the product available at the right time and right place (Lambert and Stock, 1993), lack of such a facility
can create additional challenges in terms of the productivity and compliance aspects raised by Lepak and Snell (1999) and the performance process (Apulu and Ige, 2011). To tackle additional challenges firms invest in customised R & D initiatives (Pisano, 1990) which could be insurmountable for resource-constrained SMEs particularly in developing countries such as Bangladesh. Such resource constraint is highlighted by Lepak and Snell (1999) in terms of ‘compliance’ as a way of flexing the human capital of a firm, given the constraints faced by SMEs. In the light of above discussions, the following hypotheses are proposed:

**H2c. As a technological barrier, the lack of warehouse facility impacts on the internationalisation of SMEs.**

**H2d. As a technological barrier, the lack of R & D impacts on the internationalisation of SMEs.**

**Methodology**

This study has derived aspects of barriers to SMEs’ internationalisation from the literature and combined these with the empirical findings to develop a model to study Bangladeshi SMEs’ barriers to entering foreign markets. A model is formulated and is empirically testable. To be able to do so, we attempted to measure whether there is a causal network relationship within the context of Bangladeshi SMEs’ internationalisation. To carry on the empirical investigation, a cross-sectional survey technique was applied to extract views from the 212 respondents (Malhotra, 2008). To achieve the maximum response rate a postal survey was applied rather than other methods (Malhotra, 2008) so as to help our appreciation of situational and causal explanations, otherwise not offered by the SEM or other studies (Hofstede, 2001; Okpara and Kabongo, 2010).

Based on the suggestions from the participants during the piloting stage, this study collected data from international SMEs only. This could be viewed as a limitation as it raises issues of potential sample selection bias. However, it could be better to have data from firms that are thinking to expand in international markets as this was our principal research objective rather than focus on data from firms that have no intention whatsoever of internationalisation. The researchers recognised that combining internationalisation and non-internationalisation firms
would have added confusion and led to a multi group analysis (MGA) thereby going against the variance based analysis used here. The latter is suitable for smaller sample size as ours in order to facilitate the analysis of complex relationships. This allows two or three or more variables to be analysed as factors depend on each other while at the same time measuring some constructs by some other indicators (e.g. the 8 individual items/factors). The latter aspect is commonly used in SME research (Dar and Mishra, 2019; Booltink and Saka-Helmhout, 2018), the former is not.

**Questionnaire Survey**

This study collected survey data from four major divisions of Bangladesh – Dhaka, Khulna, Chittagong and Rajshahi from July/2011 until September/2011. A total of 1000 questionnaires were equally distributed among four major divisions in the tradition of a cluster sampling technique. From each division, districts were selected and from each district, villages or wards of the four major city corporations were selected, and, finally, international SMEs were selected from each village and each ward. For the sake of equal opportunity for selection, we applied systematic random sampling technique. The survey population consisted of SMEs in Bangladesh from who are engaged in international business. Out of 1,000 219 questionnaire responses were returned. Out of these, seven were considered unsuitable for this study as they contained too much missing data. We reported and analysed the 212 questionnaires and Table 1 shows that the data are representative of a cross-section of the Bangladeshi population and business types.

*Please insert Table 1 here...*

We measured all the items included in the questionnaire in a five-point Likert-scale. Before we collected the final data set, we conducted a pre-test among 20 samples and five academics were invited in the process to ensure a number of research elements, namely the appropriateness of the wording, its contents, its scales, its sequence and format. Very minor amendments were highlighted and made on the basis of the pre-test and its outcomes. The latter identified the technological and people barriers faced by SMEs in entering the foreign markets and processes involved. This is used as the current paper’s model. Hierarchical construct (also known as the multidimensional construct) is defined in this current paper as a construct with a range of
dimensions at various hierarchies so as to capture an overall latent variable (Jarvis et al., 2003). In our case, we are referring to the human and technological aspects of internationalisation.

This study used 8 items/factors from a questionnaire to examine human and technology related barriers of internationalisation for SMEs from a developing country context. All items of the questionnaire were based on existing literature (see pp. 3 – 11). Prior to the data collection, the content validity of the internationalisation-related questionnaire was confirmed through review request among experts including independent researchers, academics, various owners and managers of SMEs. Minor amendments were made on the basis of the outcome of the pilot study. Before the final data collection, pre-testing was conducted on 10 willing and potential respondents to ensure the questionnaire is free from confusion, awkwardness and offence. Based on their suggestions, smaller groups were created rather than too many questions under one heading.

*Insert Table 2 here...*

Table 2 above shows a representation of the equations for estimating the hierarchical representations on these two barriers. The equation for the first-order representation specifies first-order MVs ($y_i$), latent variable ($\eta_j$), loadings ($\Delta y$) and an error term ($\varepsilon_i$). The equation of the first order factors (e.g. people and technology) are repeated in the second-order factors (e.g. see items summary in Table 3 and Figure 2) which consist of the second-order latent variables ($\xi_k$). Error ($\zeta_j$) in the first-order factor and second-order latent variable loadings ($\Gamma$) is included in the repeated calculations. The selected 8 items are significant both as categorical and overall barrier-factors (e.g. human and technology) as first and second order item loadings. All the item loadings were calculated and found to be significant which is higher than 0.70.

**Findings**

The study’s findings were presented using the following three steps 1. How to develop a measurement model to see the extent to which people and technological factors pose barriers to SMEs’ internationalisation; 2. How to develop a hierarchical construct model to ascertain which of the people and technological aspects could be classified as first and second order in terms of SMEs’ internationalisation and 3. How to assess the reliability and validity of the model. In the first stage, an evaluation/analysis of the model measurements is conducted, in the second an evaluation/assessment of the model is carried out and finally the testing of the
relationships in the model enhanced the study’s model contribution. The validity and reliability of these findings were ensured by following this step-procedure prior to drawing any conclusions on the hypothesised relationships on each of the 8 tested items/factors of SMEs’ internationalisation (Akter et al., 2016).

This study used several modification approaches (dropping items and application of variance-based analysis) to develop an appropriate structural model to examine people and technology related barriers of internationalisation. These approaches are consistent with several PLS SEM based studies. For example, the final model was modified by dropping two items (religious differences and gender differences) because of lower item loadings and R square values following Dinger et al. (2015) and Chandra et al. (2012). Other studies have used a similar modification approach by dropping constructs (such as, Tan et al., 2013) or adding a new construct (such as, Sykes, 2015). Because of these modification approaches, the results of this study are very strong as they indicate item loadings that are above the expected threshold which is 0.70 (see Figure 3).

The three steps identified above included evaluation/analysis of measurements, assessment of representation and testing representational relationships for the purposes of data and results validity and reliability. This was conducted before drawing any conclusions on the nature of the hypothesised relationships (Akter et al., 2016). The hypothesised relationships of this study are complex with a number of variables and dimensions. Therefore, this study used a structural model as an alternative to the first generation regression techniques, which emphasises the importance of comparing variables (be they independent or dependent) and then analysing the linkages between them as a predictor of barriers of internationalisation. By using the second generation analytical technique, we found how two apparently different types of variables (e.g. human and technology) can both be dependent on each other to help measure as appropriately as possible what the actual barriers to internationalisation are. However, with the advent of second generation technique, SEM provides the opportunity to model multiple aspects of relationship constructs at the same time.

Although there are different SEM approaches, this study used repeated indicator approach to estimate the various aspects of the human and technology constructs simultaneously rather than the distinct estimation for higher-order and lower order dimension with reflective mode of measurement (Mendy and Rahman, 2019).
Considering the nature of the data, this study used component based structural model because “PLS can successfully avert the constraints on distributional properties (multivariate normality), measurement level, sample size, model complexity, model identification and factor indeterminacy” (Akter et al., 2016; p. 121). To investigate the human and technological barriers of internationalisation this study has used PLS graph 3.0 (Wetzels et al., 2009) in order to capture and represent the complex relationships between all the factors in the 8 variables. By using the hierarchical model with PLS path modelling with a path weighting scheme for the inside approximation. Further, non-parametric bootstrapping (Wetzels et al., 2009) was used where the standard error of the estimates are obtained by using 500 replications. Following the tradition of Akter et al. (2010), this study has used repeated indicators to estimate the higher order latent variables. Therefore, the second-order factors, which combine people and technological barriers, are directly measured by the indicators (MVs) of the first-order factors. Following Wetzels et al.’s. (2009) suggestion, a confirmatory factor analysis was conducted to test the model and analyse reliability and validity issues. 0.70 was required for the validity of 8 individual items and this was superseded (see Table 2 for details). The reliability of this model was also validated through the composite reliability (CR), Cronbach’s α (CA) and average variance extracted (AVE) (see Akter et al., 2010).

**Analysis of measurement model**

To investigate the human and technological barriers to internationalisation this study has used PLS graph 3.0 (Wetzels, Schroder and Oppen, 2009). By using the hierarchical model with PLS path modelling with a path weighting scheme for the inside approximation. Further, non-parametric bootstrapping (Wetzels et al., 2009) was used where the standard error of the estimates are obtained by using 500 replications. Following the tradition of Akter et al. (2010), this study has used repeated indicators to estimate the higher order latent variables to determine the extent to which our selected 8 variables act as and can be validated as barriers to SMEs’ internationalisation. Therefore, the second-order factors are directly measured by using the indicators (MVs) of the first-order factors. Following Wetzels et al.’s. (2009) suggestion, a confirmatory factor analysis was conducted to test the model and analyse reliability and validity issues. 0.70 was required for the validity of 8 individual items and this was superseded (see Table 2 for details). The reliability of this model was also validated through the composite reliability (CR), Cronbach’s α (CA) and average variance extracted (AVE) (see Akter et al., 2010).
The result (Table 3) finds that the values for CR and CA on the human and technological barriers are well above the threshold point of 0.70 (Hulland, 1999), which indicates the scale consistency for each item. For example, the values obtained for the human and technology loadings (for each of the individual items in the 8 variables) highlighted the reliability of the data, consistency and robustness (see Table 3). This means that our results can also predict the potential SME barrier of internationalisation in the areas of people and technology. The AVE (Table 5) is also higher than the modest threshold 0.50 (Fornell and Bookstein, 1982). Therefore the selected items have captured adequate variance from each of the constructs and the convergent validity of all the scales is achieved. Table 4 below shows discriminant validity as the square root value of AVE is higher than the corresponding correlation coefficients in the correlation matrix (Fornell and Bookstein, 1982). We can therefore conclude that all the empirical results related to the analysis of the measurement model are satisfactorily obtained through adequate reliability, convergent validity and discriminant validity.

Please insert Table 4 here...

Assessment of higher order model

Based on the results, a hierarchical construct model is developed to show the human and technology barriers to entering foreign markets for Bangladeshi SMEs in Figure 2. The second-order constructs (overall barriers) are reflected in the first-order constructs and the degree of explained variances both for human and technology is 83 per cent. This means that both human and technology factors need to complement each other when SMEs internationalise their businesses. The result in Table 5 shows that the path coefficients from overall barriers of internationalisation to second order (People and Technological) are significant. Further, the validity of higher order reflective model is confirmed from the CR, CA and AVE value that have been found to be higher than threshold values of 0.70 (see Figure 3 below for the model’s critical loadings).

Insert Figure 3 here...

Analysis of structural model and results of hypotheses testing

This study has estimated the relationship between the overall human and technological barriers and sub-dimensions with an objective to measuring the structural validity of the model (see Figure 3). The respective coefficient value for human and technological barriers are 0.913 and
0.912 each, thereby indicating a strong association between those variables. This result also shows that there is a strong, associative relationship between human and technological factors of internationalisation. Equal investment is needed in both for internationalisation to work. Further, all these path coefficients are significant at 0.01 (see Table 6). Therefore, the overall findings support the hypotheses as shown in Table 6.

*Please insert Table 5 here...*

*Please insert Figure 3 here...*

**Summary of findings**

One of the key objectives of this study is to identify the human and technological barriers of internationalisation for SMEs in a developing country, something not attempted previously. To fulfill this objective, this study has initially looked at the configuration model of HRM practices and processes involved by exploring Lepak and Snell’s (1999) seminal model and some of the innovative practices identified in SMEs’ internationalisation activities (Dar and Mishra, 2019; Krishnan and Scullion, 2017). Following the findings from the extant literature, we developed a structural barriers-model that is able to explain the major human and technological barriers faced by the Bangladeshi SMEs in foreign markets, something that eluded Mustafa and Yaakub (208), Conz et al., (2017) and Dar and Mishra (2019). This study also contributes to extend our knowledge on the barriers of SMEs from a Bangladesh perspective by categorising the barriers into two dimensions (human and technology) with eight indicators. It has effectively enclosed barriers to enter in foreign markets for SMEs in a second-order model where both dimensions reflect overall the human and technological barriers as they have been constructed, something that has not been attempted by Ardito et al., (2018) or even Ramirez-Portilla et al.’s (2017) innovative use of SmartPLS software. Hence it contributes to the theoretical support for the application of the configuration model in the tradition of Delery and Doty (1996), Huselid and Becker (1996) and their followers (Brewster, 1999; Campbell and Van Wanrooy, 2013; Perkins and White, 2011; Adomaku, 2018) onto international small business research. Our model also highlights each of the different components within the human and technology categories that SMEs need to pay due attention if they wish to enhance the effectiveness of the people practices in contributing value of their internationalisation (xxx, 2019). In fact, this study extends all these conceptualisations as the model developed here has been shown to be competent to compare different types of barriers, aspects that have not been previously studied (see Mamoghli et al., 2018). In general, both people and technological
oriented barriers seem to be likewise significant at 83% overall variance for SMEs in a developing country context such as Bangladesh. Therefore, it can be recommended that both of these constructs should be given equal attention.

*Insert Table 6 here...*

This model should be able to better explain the complex relationship as suggested by Fornell and Bookstein (1982) as well as the cultural processes (Okpara and Kabongo, 2010; Hofstede, 2001). Following the suggestion made by Wold (1985), this study has used repeated indicators from first to second-order model. All results confirmed the validity of measurement model and structural model (see Figure 2 below).

*Insert Figure 2 here...*

Therefore, it has successfully shifted individual barriers of internationalisation to overall barriers of internationalisation as stated by Wold (1985, p. 589): “PLS comes to the fore in larger models, when the importance shifts from individual variables and parameters to packages of variables and aggregate parameters”.

**Implications for Practice and Further research**

The study’s results have a number of practical, methodological and theoretical implications as follows. Firstly, on a practical level, they can help policy makers to initially identify what types of people behaviours they should identify and focus on when SMEs operate internationally. The study’s results have therefore helped in the extension of what we knew previously about some of the practical barriers that SMEs, business people and policy designers can encounter. SMEs’ internationalisation barriers focused on in previous studies included non-availability of capital (Naldi et al., 2007), lack of information sharing capacity leading to innovation and performance glut (Booltink and Helmhout, 2018) and lack of R & D and skills capability (Krishnan and Scullion, 2017). By identifying the importance of other factors related to the human loadings of our model (see Figure 3), this study is signalling that a shift in focus is now needed in SMEs’ internationalisation studies. Policy makers can now concentrate on both technological *as well as* human aspects of internationalisation (e.g. language and social aspects). This implies that SMEs need to develop appropriate and effective HRM processes in
order to facilitate the performance of their firms in order to deal with SMEs’ challenges. HRM practitioners should identify R & D programmes, work with ICT and information sharing experts so as to develop training and development sessions in internationalisation centres of operation. This will help in practically addressing shortages in skilled labour and innovative capacity as identified by Dutta and Sobel (2016) and Ren et al. (2015). HR professionals also need to configure their new activities in line with language and socio-cultural professionals so as to address the social aspects that our model has highlighted as barriers to internationalisation. Doing so, will practically facilitate the alleviation of the socio-cultural constraints identified in an earlier study by Dreher and Gassebner (2013) in international settings. The added benefit here is the realisation of Lepak and Snell’s (1999) configuration model between local and international aspects of managing ‘human capital’ in a dynamic way as theoretically envisaged by Dar and Mishra (2019) and Mustafa and Yaakub (2018) among others. The results also help in adopting and implementing programmes of activities and people management processes that could help enhance business expansion and SMEs’ performance development. Given the fact that it has been found that human and technology-related barriers are equally as significant, it is crucial that people’s cultural heritage, including their language, social perspectives and traditional customs are attributed equal emphasis as the development of technological software and hardware in the processes of SMEs’ internationalisation. This view has previously been partially supported by Okpara and Kabongo (2010) and earlier by Hofstede (2001) and Oliver (1997). Our study has delved into the practical difficulties involved (e.g. human and technological) and provided an outlet for where HRM processes could be involved in their effective management and mitigation.

Secondly, on the theoretical level we developed a model that highlights 8 variables that could constrain the application of the configuration model of HRM. We examined its characteristics by using the SME and HRM literatures where this has not been done before – i.e. barriers of SMEs’ internationalisation. The results show that although human and technology barriers are equally weighted in significance, the evidence points to including both in a set of HRM ‘bundles’ to effectively address the constraints identified. This theoretical opportunity was previously missed by scholars like Ardito et al., (2018), Becker and Huselid (2006), Ramirez-Portilla et al., (2017), and even Steinerowska-Streb and Steiner (2014). There is an additional implication here in the sense that making this theoretical addition helps to extend Lepak and Snell’s (1999) configuration model to include the positioning of people management practices at the heart of SMEs’ internationalisation. Doing so helps those developing business processes
to understand the types of SME partners, investors and collaborative configurations that could work, once the barriers and processes are dealt with. However, two levels of business interactions and configuration ought to be recognised and their addressed, namely the employer and employee levels. From the employer-level perspective/approach, the type of high performance and innovative work systems initially proposed by Huselid and Becker (1995) and later subscribed to by Booltink and Saka-Helmhout (2018), among others, should be complemented by an equally high level commitment when collaborations and partnerships between SME owners, SME workers and other agencies internationally. This will help in alleviating the human and technical challenges as highlighted. Doing so will facilitate the skilled labour and training issues (H1c and H1d) as well as address the language (H1a) and social concerns (H1b).

This is not enough. On the third (i.e. methodological level), the individual employee’s needs should also be addressed simultaneously. Although Huselid (1995) and Boxall and Purcell (2003) identified the use of ‘High Performance Work Practices’ as part of HRM processes in facilitating training and development (Marchington and Grugulis, 2000) a firm’s financial performance can be enhanced (Campbell and van Wanrooy, 2013) not only via technological innovation (Booltink and Saka-Helmhout, 2018). Our study has shown that developing a model that captures the complex range of interactions and relationships between different human and technological elements is crucial for SME survival and viability if they wish to operate internationally (see H2a, H2b, H2c and H2d). Therefore, an integrative approach is necessary for the HRM process to yield some success in SMEs’ internationalisation. The ‘greasing (of) the wheels’ (Dreher and Gassebner 2013; Maharjan and Sekiguchi, 2016,) is no longer a sufficient proposition to be include in internationalisation models given the growing sophistication of legal frameworks that bind companies operating internationally. This research has added both human and technology aspects as crucial ‘wheels’ that should be configured in SME internationalisation studies.

Conclusions

The main objective of this study was to compare the human and technological barriers to entering foreign markets for the SMEs in a developing country. To address this objective, a model has been developed and validated through empirical data.
The results of the study will assist policy makers and owners of SMEs to know which behaviors they need to prioritize when they internationalize their businesses and what HRM processes are critical in guaranteeing success. The results have extended our knowledge as they highlight that policy makers need to consider both human and technological and innovative practices equally when they design and implement growth and economic development initiatives targeting SMEs in emerging economies.

Theoretically, this study extended the application of the configuration model of HRM to study the barriers of SME internationalization. The study also demonstrated that both human and technologically-related issues should be factored into Lepak and Snell’s (1999) four categories and Portilla et al.’s (2017) SmartPLS software and Ardito et al.’s (2018) IT and performance mix especially as SMEs seek to develop collaboration-based initiatives as part of their drive to internationalise businesses.

A specific bundle based on technology or humans and their contribution to performance will be less effective (see Booltink and Saka-Helmhout, 2018; Mustafa and Yaakub, 2018) than a combined effort of bundles based on both. The application of the characteristics of the configuration model could also be used for international entrepreneurship as the contribution of its human dimension as proposed by Dar and Mishra (2019) is extended through this study. Having identified the barriers for SME internationalisation at employer and employee levels of theoretical analysis data from 212 Bangladeshi companies were validated through PLS-SEM, something that El-Makrini (2015) earlier and the cited successors missed. It was found that each of the barriers was equally as significant not just for their economic contributions (see Vrontis, Bresciani and Giacosa, 2016) but specifically for entrepreneurial and human development. Therefore, support services given by government and non-government organisations in developing countries that assist the growth of SMEs should prioritise both human and technological issues likewise.

Future research should consider the environmental factors from other perspectives such as political, legal, economic, financial and socio-cultural. Findings from developed countries could also be compared to those from an emerging/developing market.

References


Supporting SMEs’ internationalisation through a deeper understanding of Human and Technology Barriers: Applying Effective HRM processes from a developing country

Figure 1: Hypothesis on the Human vs Technological barriers of internationalisation for SMEs in a developing country
Figure 2: Human vs Technology-related Barriers of internationalisation as a Hierarchical Reflective Model
Figure 3: Main Loadings of the Model
Supporting SMEs’ internationalisation through a deeper understanding of Human and Technology Barriers: Applying Effective HRM processes from a developing country

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Category</th>
<th>%</th>
<th>Particulars</th>
<th>Category</th>
<th>%</th>
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<td>Co-operative</td>
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<td>Private Ltd</td>
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<td>33.70</td>
</tr>
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</table>

Table 1: Demographic Profiles of Respondents

First Order

\[ y_i = \Delta_y \cdot \eta_j + \epsilon_i \]

Second Order

\[ \eta_i = \Gamma \cdot \xi_k + \zeta_j \]

\[ y_i = \text{manifest variables} \]

\[ \Delta_y = \text{loadings of first order latent variables} \]

\[ \eta_j = \text{first order latent variables (political, economic, technological and social)} \]

\[ \epsilon_i = \text{measurement error of manifest variables} \]

\[ \eta_i = \text{first order factors (e.g. political)} \]

\[ \Gamma = \text{loadings of second order latent variables} \]

\[ \xi_k = \text{second order latent variables (procedural barrier)} \]

\[ \zeta_j = \text{measurement error of first order factors} \]

Table 2: Estimation of Human and Technology Barriers of Internationalisation

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items summary</th>
<th>Loadings</th>
<th>CR</th>
<th>CA</th>
<th>rho_A</th>
<th>AVE</th>
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<td>Human</td>
<td>Language differences</td>
<td>0.953</td>
<td>0.955</td>
<td>0.936</td>
<td>0.941</td>
<td>0.842</td>
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<td></td>
<td>Different social perspectives</td>
<td>0.950</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shortage of skilled labour</td>
<td>0.941</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shortage of training facilities</td>
<td>0.820</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>Inadequate Infrastructure</td>
<td>0.939</td>
<td>0.954</td>
<td>0.935</td>
<td>0.937</td>
<td>0.837</td>
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<td></td>
<td>Underdeveloped ICT facilities</td>
<td>0.895</td>
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</tr>
<tr>
<td></td>
<td>Poor warehouse facilities</td>
<td>0.963</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of R&amp;D facilities</td>
<td>0.860</td>
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<td></td>
<td></td>
<td></td>
</tr>
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</table>

Table 3: Psychometric properties for first order constructs
Table 4: Latent Variable Correlations

Note: square root of AVE on the diagonal*

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<th></th>
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<th>Technology</th>
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<td>Human</td>
<td>0.918*</td>
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<tr>
<td>Technology</td>
<td>0.667</td>
<td>0.915*</td>
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Table 5: Analysis of Structural Model Path Coefficients (Mean, STDEV, T-Values)

<table>
<thead>
<tr>
<th></th>
<th>Original Sample coefficient</th>
<th>Sample Mean coefficient</th>
<th>Standard Deviation (STDEV)</th>
<th>P Values</th>
<th>T Statistics</th>
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</thead>
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<td>Overall Barriers -&gt; Human</td>
<td>0.912</td>
<td>0.910</td>
<td>0.017</td>
<td>0.000</td>
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<tr>
<td>Overall Barriers -&gt; Technology</td>
<td>0.913</td>
<td>0.912</td>
<td>0.016</td>
<td>0.000</td>
<td>58.303</td>
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<td>Hypothesis</td>
<td>Path coefficient</td>
<td>t-value</td>
<td>Conclusion</td>
<td></td>
<td></td>
</tr>
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<td>---------------------------------------------------------------------------</td>
<td>------------------</td>
<td>----------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a. As a human-oriented barrier, language differences impact on the internationalisation efforts of SMEs.</td>
<td>0.953</td>
<td>123.028</td>
<td>Supported</td>
<td></td>
<td></td>
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<tr>
<td>H1b. As a human-oriented barrier, social perspective impacts on the internationalisation efforts of SMEs.</td>
<td>0.950</td>
<td>125.937</td>
<td>Supported</td>
<td></td>
<td></td>
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<td>H1c: As a human-oriented factor, the shortage of skilled labour impacts on the internationalisation of SMEs.</td>
<td>0.941</td>
<td>93.972</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>H1d: As a human-oriented factor, the shortage of education/training facility impacts on the internationalisation of SMEs.</td>
<td>0.820</td>
<td>30.126</td>
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<td>H2a: As a technological barrier, the shortage of adequate infrastructure impacts on the internationalisation of SMEs.</td>
<td>0.939</td>
<td>80.472</td>
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<td>H2b: As a technological barrier, the shortage of developed ICT impacts on the internationalisation of SMEs.</td>
<td>0.895</td>
<td>35.196</td>
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<td>H2c: As a technological barrier, the lack of warehouse facility impacts on the internationalisation of SMEs.</td>
<td>0.963</td>
<td>133.060</td>
<td>Supported</td>
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<td>H2d: As a technological barrier, the lack of R&amp;D facility impacts on the internationalisation of SMEs.</td>
<td>0.860</td>
<td>31.964</td>
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Table 6: Results on Hypotheses