When your world is an island
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WHEN YOUR WORLD IS AN ISLAND: SOCIAL NETWORKS AND DECISION-MAKING IN INTERNATIONAL ENTREPRENEURSHIP

ABSTRACT
Social network and decision-making approaches became dominant ways to study born global firms. Network approaches explain internationalization of born global firms in terms of the connections established and utilized by the born global firms. Decision-making approaches explain the determinants of the decision logic associated with the use of social networks. Two prominent theories used in this endeavor are the effectuation and entrepreneurial bricolage. Research applying these views to the study of the logic associated with the use of social networks in the internationalization show conflicting empirical results. Towards that end, through multiple cases, we study how the causal, effectual, and entrepreneurial bricolage influence the process of becoming born global firms. Applying a ‘small world networks’ lens, we advance the contributions. First, we suggest that born global firms are not only a matter of social networks, but the embeddedness of the entrepreneurs in the networks are vital to the logic used and the chosen paths for internationalization. Embedded entrepreneurs use effectuation to bridge networks and circumvent resource scarcity, whereas entrepreneurs that are not embedded use causation and become born global firms. Secondly, we contribute to the effectuation literature by advancing the thought that the embeddedness is a boundary condition of effectuation.

KEYWORDS:
Born global startups, entrepreneurial decision-making, social networking

INTRODUCTION
How do young entrepreneurial firms internationalize? This question is at the heart of the international entrepreneurship (IE) literature. Early internationalization theories described the internationalization process as slow and gradual (Johanson & Vahlne, 2009), a playing field of large established enterprises with slack resources (Cavusgil & Knight, 2015). These theories, however, were considered weak in explaining the born global phenomenon: young and typically small firms that, despite operating in uncertain and resource-constrained environments (Zahra, Korri, & Yu, 2005), show signs of early and rapid internationalization (Knight & Cavusgil, 2004). These born global firms are generally knowledge-intensive (Autio, Sapienza, & Almeida, 2000) and mostly originate in small and open economies (Cavusgil & Knight, 2015; Terjesen, 2015) where domestic opportunities for growth are limited, and social networks can be leveraged to enter international markets (Ellis, 2000).

While being investigated from a large variety of theoretical perspectives, social network and decision-making approaches became dominant ways to study the phenomenon. Network approaches explain internationalization of born global firms in terms of the connections established and utilized by the firms. These connections both determine what information and resources are available to the firms, as well as when these become available and hence what (international) opportunities can be pursued (De Carolis & Saparito, 2006; Hoang & Antoncic, 2003). For instance, within this stream of research, Zhou, Wu, and Luo (2007) showed that domestic network ties mediate the relationship between inward and outward internationalization and firm performance. Others have pointed to the importance of developing networking
capabilities (Cavusgil & Knight, 2015; Mort & Weerawardena, 2006) and the changing composition and role of networks during the early internationalization process (Coviello, 2006; Laurell, Achtenhagen, & Andersson, 2017). Decision-making approaches explain the determinants of the decision logic associated with the use of social networks by born global firms (Zahra, 2005). Two prominent decision-making theories from the entrepreneurial domain (Fisher, 2012) that are applied to study the internationalization of born global firms are Sarasvathy’s (2001) effectuation theory, and Baker and Nelson’s (2005) entrepreneurial bricolage theory (Baker & Nelson, 2005). These theories posit that entrepreneurs initiate social networking from inward reflection (Engel, Kaandorp, & Elfring, 2017; MacMaster, Archer, & Hirth, 2015) and the decision logic are used under different conditions; effectuation under liability of foreignness (Kalinic, Sarasvathy, & Forza, 2014); causation under psychic distance (Harms & Schiele, 2012); and entrepreneurial bricolage under weak and emergent institutions (Desa, 2012).

Despite the recent advances in the born global research, “there remains […] a long way to go, in terms of truly understanding these firms” (Zander et al., 2015, p.30). In particular, research applying the effectuation and entrepreneurial bricolage lenses to study the logic associated with the use of social networks show conflicting empirical results. For example, Gabrielsson and Gabrielsson (2013) found social networks were effectually leveraged in the early internationalization, whereas Kalinic et al. (2014) found the use of causation. We attribute these contradictions to the lack of integrating ‘small world networks’ theories (cf. Aldrich & Kim, 2007; Watts & Strogatz, 1998) to the study of the decision logic associated with the internationalization of born global firms. ‘Small world networks’ suggest that most local actors are connected within a few steps, while the number of connections to other networks is relatively scarce. Clusters are mostly created through homophily (Ruef, Aldrich, & Carter, 2003) which erect barriers for others to form ties with the network (Marsden, 1987).

Towards that end, we aim to study entrepreneurial decision-making in the internationalization process in the context of ‘small world networks.’ We ask ‘how do causation, effectuation, and entrepreneurial bricolage used by entrepreneurs, independently or jointly influence the process of becoming born global firms?’ In addressing this question, we turn to the specific context of the Small Island Developing States (SIDS). The SIDS are a group of developing islands that share similar characteristics and a unique set of challenges, e.g., small size (Briguglio, 1995), dependence on export market (McGillivray, Naudé, & Santos-Paulino, 2010) and narrow range of skills (Dolman, 1985). It is these challenges that make firms be born global (Crick & Jones, 2000; Kalinic et al., 2014) and entrepreneurs operating in SIDS have indeed been able to develop large successful born global multinationals, e.g., Citco Fund Services1. At the same time, SIDS are characterized by tightly knitted social networks that, due to their small size, in some ways resemble the networks found in large organizations (Leseure, 2010). Indeed, SIDS can be described as ‘small world networks’ (cf. Aldrich & Kim, 2007; Watts & Strogatz, 1998). Thus there are vital lessons to learn from these entrepreneurs (Baldacchino, 2015) such as the decision-making used when leveraging social networks to become born global firms.

To study our research question we used an exploratory design consisting of multiple cases (Eisenhardt & Graebner, 2007). We used multiple criteria and snowball sampling to select the cases. The data was collected from multiple sources including interviews and archival documents, based on existing indicators and measurement instruments (Baker & Nelson, 2005; Reymen et al., 2015; Senyard, 2015).

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1 CITCO Fund Services is worldwide the second largest fund administrator with US$ 650 billion (17.4% of the worldwide total) assets under management in 2016 (eVestment Alliance, 2016).
The findings revealed that while social networks are information gateways that enable entrepreneurs to exploit international opportunities, these also function as funnels that limits entrepreneurs to the exploitation of opportunities with regard to their embeddedness. Thus the position of entrepreneurs in the social strata and the division of labor act as ‘knowledge corridor’ (Baker, Gedajlovic, & Lubatkin, 2005). The entrepreneurs’ expertise are of limited use outside those corridors. Research shows that entrepreneurs are more prone to start companies in the same industries and sectors in which they have built their expertise (Stam & Bosma, 2015). Thus, entrepreneurs’ embeddedness are vital to them in using their social networks to its full potential in international opportunity exploitation.

We contribute to the literature on born global firms and effectuation. First, we advance the idea of entrepreneurial embeddedness as an antecedent to the decision logic associated with social networking for internationalization. Social network studies show that domestic network ties mediate the relationship between inward and outward internationalization (Zhou et al. (2007), and studies testing the associated entrepreneurial decision logic are inconclusive. However, the ‘small world networks’ lens suggests that born global firms are not only a matter of resource scarcity but also the embeddedness of the entrepreneur. Embedded entrepreneurs can bridge networks to circumvent the limitations of resource scarcity, and in this process use effectuation. Whereas those that are not embedded use causation and become born global firms. Second, we suggest that embeddedness is a boundary condition of effectuation. Embedded entrepreneurs can pinpoint functional stakeholders in their networks whereas non-embedded entrepreneurs will not be able to pinpoint functional stakeholders making the use of effectuation inadequate.

**LITERATURE REVIEW**

**Defining the ‘born global’ firm**
The born global firm has received considerable attention in IE research. Its origin dates back to the work of Rennie (1993) (as cited in Coviello, McDougall, & Oviatt, 2011; Cavusgil & Knight, 2015). Several definitions of rapidly internationalizing firms have been proposed. Cavusgil and Knight (2015, p.4) define the born global firm as “entrepreneurial start-ups that, from or near their founding, seek to derive a substantial proportion of their revenue from the sale of products in international markets”. On the other hand, Oviatt and McDougall (1994) in their seminal article used the concept ‘international new venture’ (INV) and defined this as “a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries “ (p.49).

The ‘born global firm’ is often used interchangeably with the ‘INV.’ Coviello et al. (2011) strives to bring clarity by reserving ‘born global’ for firms that enter many countries and ‘INV’ for firms that enter a single or few countries. In addition, the definitions can be divided between those that focus mostly on the sales expansion to international markets through e.g., export (e.g., Cavusgil & Knight, 2015) and those that also include the sourcing of products internationally and thus participate in the globalization of production (e.g., McDougall & Oviatt, 2000).

A temporal dimension of born global firms is also disputed in the literature. How long is the period between establishment and entry in a foreign market? McDougall and Oviatt (2000) and Rennie (1993) argue that it is three years or less. Whereas Rialp, Rialp, and Knight (2005) argue that this period is even shorter; less than one year. Furthermore, the export intensity and the number of countries the firm has entered are also dimensions in the definitions of the born global firm (see Fan & Phan (2007) and Hashai (2011) for an overview).
In this study, we define a born global firm as an entrepreneurial start-up that, from their founding, seek to derive significant competitive advantage from the use of resources and/or the sale of outputs in international markets. We use to this definition because literature shows that the born global firm do not only engage in exports but additionally, uses its social networks to also gain access to resources and capabilities (Coviello, 2006).2

What we know about the born global firm
Two decades of research on born global firms has produced many insights (See Knight & Liesch (2015) for an extensive review of the literature). What do we know about born global firms? The born global firms experience at least three types of liabilities. First is the liability of newness. This involves limitations in the resources and social networks these firms can access (Aspelund, Madsen, & Moen, 2007; Zahra, 2005). The credibility of born global firms are in question and the resource limitations raise doubt about the ability to cope with challenges in the internationalization process. Second, the liability due to small size is also a characteristic of born global firms. This involves the limitation of slack resources these firms possess and lack of a physical local presence (Zahra, 2005) and the psychic distance (Aspelund et al., 2007). Slack resources are defined as “the pool of resources in an organization that is in excess of the minimum necessary to produce a given level of organizational output” (Nohria & Gulati, 1996 p.1246). The physical distance is the geographical distances between born global firms and their foreign partners. The psychic distance refers to the linguistic, cultural, economic and political/legal factors that prevent or disturb the flow of information between born global firms and their foreign partners (Nordstrom & Vahlne, 1992). The physical (Zahra, 2005; Coviello & Munro, 1997) and psychic distances (Aspelund et al., 2007; Fan & Phan, 2007; Sarasvathy et al., 2014) are sources of uncertainty that born global firms experience. A final characteristic is the liability of foreignness. The born global firms need to create legitimacy among their foreign suppliers and customers (Zahra, 2005) in order to reduce their failure rates (Barkema & Drogendijk, 2007).

Despite these liabilities born global firms embark on paths towards internationalization. The effects of these liabilities are profound for it is precisely the constraints in the home country of the born global firms and the availability of resources in foreign markets that make born global firms internationalize (Mathews & Zander, 2007). Small domestic market size (Crick & Jones, 2000) and domestic competition influence the internationalization of the entrepreneurial firms (Oesterle, 1997). The born global firms might first pursue internationalization strategies as paths to increase their product capabilities in new markets and afterwards use these new operations to also sell their products in those respective markets (Kalinic et al., 2014). Knight and Cavusgil (2004) posit that the early internationalization of born global firms are made possible by two key developments in international business: the globalization of production and markets, and the advances in information and communication technologies, transportation technologies, logistics and methods of production.

The liabilities experienced by born global firms also influence their internationalization strategies. The born global firms pursue differentiation strategies in various market niches (Aspelund et al., 2007; Knight & Cavusgil, 2004; McDougall, Oviatt, & Shrader, 2003). Because of their liabilities of newness and small sizes, born global firms make use of low commitment strategies that are based on their resource availability (Burgel & Murray, 2000; Crick & Jones, 2000). Because their resources are scarce and the entry mode is irreversible (Morschett, Schramm-

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2 According to the INV literature (e.g., Oviatt & McDougall, 1994) our international firms fit in the category ‘geographical focused start-ups.’
entrepreneurs do not connect randomly but are clustered. Their leverage for internationalization is through solidary and networks. Any two persons might encounter another. In addition, there are only a few bridges tying the location described (Terjesen, 2015). Social networks as a path to internationalization
Born global firms generally originate in small open economies (Cavusgil & Knight, 2015; Terjesen, 2015). These economies are characterized by tightly knitted social networks that can be described as ‘small world networks’ (cf. Aldrich & Kim, 2007; Watts & Strogatz, 1998). In these networks entrepreneurs do not connect randomly but are clustered on the basis of physical locations such as neighborhoods. Socio-cultural constraints substantially limit the extent to which any two persons might encounter another. In addition, there are only a few bridges tying the networks.

In the internationalization, an important strategy to offset the limitation in resources is the use of social networks (Sasi & Arenius, 2008)(Mort & Weerawardena, 2006). The literature defines the social network as a set of individuals (or organizations) and the link between these (Hoang & Antoncic, 2003). Its main task is to facilitate the flow of knowledge and information. Knowledge that can induce to new capabilities and information about new opportunities. The manner that this flow takes place is influenced by the content of the relationships, the governance, and the structure of the social network (Powell, Koput, Smith-Doerr, & Owen-Smith, 1999).

The born global firms use social networks to access knowledge (Kogut, 2000), to learn and create new capabilities (Anand & Khanna, 2000), and enter international markets (Ellis, 2000). Through social networks born global firms can also gain access to resources and capabilities that are required for the internationalization process (Coviello, 2006). Social networks are also used to offset the lack of a close proximity and psychic distance (Coviello & Munro, 1997). It provides reputational meaning (Elfring & Hulsink, 2003; Higgins & Gulati, 2003), referral trust and solidarity (Zhou et al., 2007). Al-Laham and Souitaris (2008) furthermore found that ventures that are embedded in local clusters with higher number of international research alliances foster internationalization.

The born global firms’ positions in their social networks influence to which extent they can leverage their social networks to discover, enact, evaluate, and exploit international opportunities. Their centralities within the social networks and their abilities to bridge structural holes (i.e., absent links between actors), determine the types of knowledge, information and resources born global firms can access (Hoang & Antoncic, 2003) and ultimately their expansion across national borders.

Entrepreneurs’ positions in the social stratification, the division of labor of a country, and ultimately their expertise have to a large extent to do with the entrepreneurs’ abilities to leverage their social networks (Baker et al., 2005) in the international opportunity exploitation. The social stratification influences the information and knowledge that flows through the social networks. The expertise that entrepreneurs have gained in a particular activity will aid them to see value whereas others will disregard that information and/ or resource. Thus entrepreneurs are idiosyncratic towards the value they associate with a particular information (Penrose, 1959).
**Causation, effectuation and entrepreneurial bricolage**

Decision-making approaches have become dominant in the study of born global firms since it is vital in the process of internationalization. The decision-making is the origin of a competitive advantage for these entrepreneurial firms (Zahra, 2005) and explains why these firms internationalize from inception (Bloodgood, Sapienza, & Almeida, 1996; Oviatt & McDougall, 1994). Two prominent decision-making theories from the entrepreneurial domain (Fisher, 2012) that are applied for this purpose are Sarasvathy’s (2001) effectuation theory, and Baker and Nelson’s (2005) entrepreneurial bricolage theory (Baker & Nelson, 2005).

Effectuation theory posits that entrepreneurs engage in controlling unpredictable futures (Sarasvathy, 2001; 2008) and is a decision-making mode most applicable to expert entrepreneurs (Read & Sarasvathy, 2005; Sarasvathy, Dew, Read, & Wiltbank, 2007). Entrepreneurs that use effectuation make use of four heuristics in their decision-making (Sarasvathy, 2008). First, the affordable loss (i.e., what an entrepreneur can afford and is willing to lose in opportunity exploitation (Dew et al., 2009). Second, the means-orientation (i.e., the starting point where an entrepreneur evaluates who s/he is, what s/he knows, and whom s/he knows (Sarasvathy & Dew, 2005). It is the evaluation of his/her personal identity and resources in possession. Third, the pre-committed stakeholders (i.e., the stakeholders that are willing to pre-commit to the effort of the entrepreneur even before there is a clear goal. Finally, the leveraging of contingencies (i.e., the entrepreneur will ‘be open’ to exploit any possible future alternative presented (Read & Sarasvathy, 2005).

Effectuation is often contrasted with causation in decision-making. Causation assumes that individuals are goal-oriented and methodological (Ansoff, 1979). An individual will first set a goal and afterwards s/he determines the steps necessary to realize the goal (Knight, 2012). Sarasvathy (2001) lays out four basic principles of causation to contrast with effectuation. First, the investment based on expected return (i.e., the individual will invest if the expected financial return exceeds his/her threshold). Second, the goal-orientation (i.e., the individual will first select a goal and subsequently search for the means necessary to realize this goal). Third, the treatment of (potential) partners through competitive analyses (i.e., the entrepreneur will select partners based on the set goal). Finally, the hedging against contingencies (i.e., the entrepreneur will minimize the possibility that unexpected events can influence his/her actions to realize the goal).

The entrepreneurial bricolage theory (Baker & Nelson, 2005; Garud & Karnøe, 2003) addresses the entrepreneurial decision-making in penurious environments (Baker & Nelson, 2005). When an entrepreneur is faced with these environments, s/he engages in entrepreneurial bricolage to ‘stretch’ the available resources towards new uses (Baker & Nelson, 2005). An entrepreneur is able to do this because each entrepreneur has a unique relationship with his/her resource environment (Penrose, 1959), and thus different entrepreneurs will create different uses of the resources, and same resources might be viewed differently by entrepreneurs.

The accepted definition of entrepreneurial bricolage is “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker & Nelson, 2005, p.6). Making do refers to the active attitude of an entrepreneur to create something from nothing, use discarded and unwanted resources for new purposes, and use untapped resources that other organizations failed to recognize (Di Domenico, Haugh, & Tracey, 2010). It is also the refusal to accept the limitations imposed by the resources according to ‘collective wisdom’ or routines that

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3 We do not claim that effectuation and causation in opposite ends on of a continuum but we view these logics as orthogonal in nature (cf. Smolka, Verheul, Burmeister-Lamp, & Heugens, 2016).
have been universally accepted (Steffens et al., 2010, p.6). Resources refer to both the resources that the entrepreneur has at hand and resources that are available for free or very cheaply.

Causation, effectuation, and entrepreneurial bricolage have many similarities (cf. Fisher, 2012). For example, effectuation and entrepreneurial bricolage draw on very similar concepts. Also, uncertainty is a driver of the use of entrepreneurial bricolage as well as of effectuation (Cunha, 2005). These similarities provide a fruitful ground for theory integration (Mayer & Sparrowe, 2013) as both perspectives use similar accounts to explain different phenomena, namely decision logic under uncertainty for the former and resource constraints for the latter. Hindle and Senderovitz (2010) posit that both effectuation and entrepreneurial bricolage are in opposition to rational planning; include non-predictive and control logic; have no preference for strategic analyses; focus on the use of existing resources; assumes a social construction of resources and opportunities. Causation and entrepreneurial bricolage have only two similarities namely the use of pre-existing goals and that these decision logic can be carried out by both expert and non-expert entrepreneurs. Finally, effectuation is placed in a goal ambiguity context while causation similar to entrepreneurial bricolage has a teleological context. Fisher (2012) suggest that effectuation and entrepreneurial bricolage are similar on four counts. First, the entrepreneurial opportunities are constructed via existing resources. Second, entrepreneurs take action to overcome resource limitations. Third, there is proactive action to acquire commitment from partners. Finally, resource limitation enhances creativity. According to Welter et al. (2015) both effectuation and entrepreneurial bricolage look at opportunity as unspecified and created by the entrepreneur. Further similarity between the two is focus of the actor on the resources s/he has. However, the contexts are different. The context of effectuation is bounded rationality and the context of entrepreneurial bricolage is resource scarcity.

**Causation, effectuation, entrepreneurial bricolage and social networks**

There are conflicting views on how causation, effectuation and entrepreneurial bricolage explain the use of social networks in the process of rapid internationalization. Using a case study of a Swedish frim, Andersson (2011) observed that the social networks of the firm’s employees were used in an effectual manner to expand across borders. Gabrielsson and Gabrielsson (2013) found among Finnish firms that social networks were effectually leveraged in the early internationalization. In a study of 65 fast growing firms, Harms and Schiele (2012) found that entrepreneurs who have proclivity towards causation are more likely to use export as an entry mode whereas experienced entrepreneurs are more inclined to use internationalization strategies that require leveraging social networks. They also found that psychic distance has positive relationship with the causation. Kalinic et al. (2014) found that a switch from causation to effectuation helped the entrepreneurs to leverage their existing and new social networks to deal with liability of foreignness in the unplanned internationalization. Furthermore, Galkina and Chetty (2015) found that effectual social networks determine the market selection. Lesage and Ronteau (2012) extended the study of social networks in the internationalization process to also include entrepreneurial bricolage. In a single case study of a Japanese entrepreneur in the “wagasa” industry, Lesage and Ronteau found the use of both effectuation and entrepreneurial bricolage to leverage social networks. In opposition to these studies, Su (2013) shows that Chinese IT service suppliers use causation and entrepreneurial bricolage in combination as they expand their operations to Japan and the USA. Nummela et al. (2014) found that there are entrepreneurial firms that early on in the internationalization process already show a strong preference for causation

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4 Wagasa is the Japanese traditional umbrellas.
when they leverage their social networks to internationalize. Finally, Desa (2012) using only the entrepreneurial bricolage found that internationalizing firms that are influenced by weak or emergent institutions will engage in entrepreneurial bricolage. These conflicting views regarding the use of causation, effectuation and entrepreneurial bricolage in the rapid internationalization suggest that “there remains […] a long way to go, in terms of truly understanding these firms” (Zander et al., 2015, p.30).

**METHODS**

**Research Strategy**

In this paper we set forth to understand how the application of causation, effectuation, and entrepreneurial bricolage by entrepreneurs influence them in becoming born global firms. We used an exploratory research strategy with multiple cases because case studies are adequate to research ‘how’ questions and a contemporary life phenomenon where the researcher does not have control over the events that will take place.

We collected data on the small Caribbean island of Curacao characterized by resource limitations (Dolman, 1985) and a small domestic market that induce entrepreneurial firms to become a born global firms (Cavusgil & Knight, 2015). Curacao has an open economy that relies primarily on three sectors; financial intermediation (USD 349.4 million (11.24% of GDP) in 2014), manufacturing (USD 348.6 million (11.22% of GDP) in 2014), and transport, storage & communication (USD 343.0 million (11.04% of GDP) in 2014).

Studying multiple cases can address the challenges for data collection on small islands. The challenges are a lack and shortage of data, the unwillingness of participants to provide data, and there are deliberate misrepresentations, response and recall biases (Briguglio, 2003). Collecting data through in-depth interviews can help overcome the lack or shortage of data. Having multiple sources (including a mix of primary, secondary and tertiary sources) can overcome the challenges of participants being unwilling to provide data due to secrets. In addition, having multiple sources facilitates triangulation and can minimize the effect of deliberate misrepresentation, response and recall biases.

**Selecting case participants**

The methods for selecting cases were criteria and snowball sampling because “the purpose of the research is to develop theory, not to test it, and so theoretical (not random or stratified) sampling is appropriate” (Eisenhardt & Graebner, 2007, p. 27). We took the following aspects proposed by Miles and Huberman (1994), as cited in Curtis et al. (2000), into consideration when developing the selection criteria. First, what is the relevance of the theories and research questions? Secondly, can the cases generate rich information on the phenomenon to be studied? Thirdly, can the cases enhance the generalizability of the findings? Following these guidelines, we took four steps in developing the case selection criteria. In the first step we developed the criteria taking into account the causation, effectuation and entrepreneurial bricolage theories. In the second step we reviewed the research questions and we added relevant criteria to the list of criteria from step 1. In the third step we developed the list of criteria further to be able to generate rich information for the phenomena concerned in this study. Finally, we further introduced polarity in the selection criteria to provide additional cross-case variation that is useful for theory building. This ultimately enhances the theoretical generalizability of the findings.
To select the cases, we approached the ICT community in Curaçao to identify the local ICT firms and entrepreneurs that fit the sampling criteria. We first established contact with a (co)-founder and afterwards relied on snowball sampling to develop the case study with interviews from additional co-founders and/or early employees.

The cases
We selected three cases from the local ICT community\(^5\) (see Appendix 1 the case descriptions). Table 1 presents an overview of all the cases and the selection criteria that is applicable to that specific case. Out of the three cases, two are born global firms, namely GameCo and MusicCo, and TransactionCo internationalized incrementally. All cases operate in the knowledge-intensive industry. The latter does not come as a surprise since research shows that international entrepreneurial firms are mostly found in these industries (Autio, Sapienza, & Almeida, 2000). It is easier for a knowledge-intensive firm that develops intangible products (e.g., software) to internationalize at inception (Kotha, Rindova, & Rothermel, 2001; Zander et al., 2015). A determinant to rapidly internationalize is the firm’s capacity to produce products in high volumes that are required to fulfill the new market demand (Fan & Phan, 2007). Product development in high volumes is easy for knowledge-intensive firms.

<table>
<thead>
<tr>
<th>Table 1 Selection criteria and the applicable case</th>
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</thead>
<tbody>
<tr>
<td><strong>Entrepreneurs face uncertainty</strong></td>
</tr>
<tr>
<td>GameCo</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Intermediate: one founder with 7 years venture experience (2nd venture)</td>
</tr>
<tr>
<td><strong>Expert and novice entrepreneurs</strong></td>
</tr>
<tr>
<td>GameCo</td>
</tr>
<tr>
<td>No innovation</td>
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<tr>
<td>Born global firm</td>
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<tr>
<td><strong>Solo and team-entrepreneurs</strong></td>
</tr>
<tr>
<td>GameCo</td>
</tr>
<tr>
<td>Solo</td>
</tr>
<tr>
<td>Successful</td>
</tr>
<tr>
<td>Post entrepreneurial stage</td>
</tr>
<tr>
<td>International business, strategic management, innovation management</td>
</tr>
</tbody>
</table>

\(^5\) We started the study with seven cases. Three were excluded because these were still in the seed phase, i.e., the stages of entrepreneurial development, and had no sales, and one was excluded because the firm remained local and did not internationalize.
Themes for data collection
We used the empirical indicators developed by Reymen et al., (2015) for causation and effectuation. They have developed an 18-item measurement for causation and an 18-item measurement for effectuation. To measure entrepreneurial bricolage, we use inspiration from Baker and Nelson (2005), Senyard (2015), and Senyard et al. (2014) to develop a 14-item measurement (see Appendix 2 for all measurement indicators). The measurements for causation, effectuation and entrepreneurial bricolage were supplemented with indicators that emerged during our coding of the data.

The data was collected through interviews and archival documents (see Table 2). An initial personal interview was conducted with several rounds of informal questioning for further clarification of the interview answers, and this done through email communication. The interviews lasted between 45 minutes and 1.5 hours. We used pseudonyms to maintain confidentially of the participants. In addition, we signed non-disclose and non-compete agreements with each respondent.

Table 2 Overview collected data

<table>
<thead>
<tr>
<th>Face-to-face/Skype Interviews</th>
<th>GameCo</th>
<th>MusicCo</th>
<th>TransactionCo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Telephone Interview</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Closed Interview</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Emails</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Who was interviewed</td>
<td>Founder</td>
<td>Two co-founders, two early employees</td>
<td>Two co-founders, partner</td>
</tr>
<tr>
<td>Site Visits</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Archival Documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types</td>
<td>Certificate of Registration Chamber of Commerce Curacao, Online Promotion, Sketches, Third Party Reviews, Website</td>
<td>Certificate of Registration Chamber of Commerce UK, Email communication, Presentation Slides to Artists, Press Releases, Published Interviews, Website</td>
<td>Certificate of Registration Chamber of Commerce Curacao, Job Advertisements, Newsletters, Press Releases, Social Media Pages, Third Party Websites</td>
</tr>
<tr>
<td>Quantity</td>
<td>12</td>
<td>31</td>
<td>17</td>
</tr>
</tbody>
</table>

Coding and analytical strategy
We coded the data based on the measurement indicators discussed the previous section. The coding and analysis consisted of a pattern-matching approach (Yin, 2009). To code and analyze the data, we first used “open coding” (Locke, 2001) and developed matrices that contained quotes of incidents linked with the decision logic derived from these quotes. The decision logic related to the indicators of causation, effectuation and entrepreneurial bricolage. To facilitate the cross-case comparisons, we quantified the data. To achieve the quantification of the data, we counted the times a specific indicator was observed. One count was coded as 0.33, two counts as 0.67, and three or more counts as 1.00. A score cannot be smaller than zero (i.e., 0.00) or larger than one (i.e., 1.00). Indicators for which it was not possible to find incidents in the data received scores of zero (i.e., 0).
RESULTS

The results are reported in Table 3. The systematic analysis of the use of the causation, effectuation and entrepreneurial bricolage revealed that there were no significant differences between the born global firms (i.e., GameCo and MusicCo) and the firm that internationalize incrementally (i.e., TransactionCo). All the firms used the causation, effectuation and entrepreneurial bricolage in combination as they leveraged their social networks. We will discuss the internationalization before turning to an explanation for results.

Internationalization of the born global firms. GameCo internationalized rapidly. Its internationalization resulted from its difficulties to access scarce resources on the local market. GameCo is a graphic designer and considers designing for apps and website a part of its core capabilities. When making the decision about who will illustrate and produce the music for its product, GameCo searched through its established social network of professionals and friends, and outsourced the illustration and production of the game music through assignments. GameCo made use of both causation and effectuation in this process. GameCo first looked at the existing social network which is an indication of means-orientation, and afterwards established the partnership with an arm’s length contractual agreement. The latter is a causal logic in how to deal with partnerships.

When it came to the programming of the game, GameCo also used its social network for it did not have the expertise to write the software for the product. GameCo stated that “I am actually a graphic designer which is nowadays more and more apps and websites and so actually it falls a little under this. I do not do development and so forth. So no programming and stuff but design.” At first instance, GameCo searched among its social network for software developers, but could not acquire pre-commitments from anyone. GameCo stated:

"In the first instance I also looked for a developer in Curacao [among my friends] but then there was none for iPad and iOS development. There was no one in Curacao who could. In 2010 we already started thus that was not there."

Subsequently, GameCo contracted a US-based software developer through an arm’s length contract. GameCo became aware of this software developer through an unexpected event. GameCo stated:

"I looked for people who could develop it because as I said, I do not write much code. Then I saw in a magazine WIRED. It was an advertisement for the company. They are in America ... Then I approached them."

This was the first step of GameCo towards internationalization. The critical component of the product (i.e., the software development) was developed in a foreign country. GameCo approached this partnership causally. The partnership was based on an arms’ length contractual agreement where the software developer would not co-create with GameCo. GameCo stated that "They did exactly what I said and there was a price tag for everything. I ask clear questions of what they think of something and if they can share their opinion. They did not react." Interestingly, when GameCo transferred its international operations to another country, this did take place effectually by leveraging its social network. GameCo was approached by a friend and the friend’s business
Table 3: Results causation, effectuation and entrepreneurial bricolage

<table>
<thead>
<tr>
<th></th>
<th>Score causation</th>
<th>Score effectuation</th>
<th>Score bricolage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expected return</td>
<td>Goal-orientation</td>
<td>Competitive analysis</td>
</tr>
<tr>
<td>GameCo*</td>
<td>1.00</td>
<td>0.67</td>
<td>0.67</td>
</tr>
<tr>
<td>MusicCo*</td>
<td>0.67</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>TransactionCo**</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Born global firm
** Internationalized incrementally
product development. GameCo approached this developer and formed a co-creation relationship. GameCo stated:

"Now I got from the developer in [Europe] ... who did what I thought the first developer did not. They have even played it. They feel that this should change or that should change. They can be program so they know what can be done and they also said that if you do this that will happen, and that's nicer."

As this narrative shows, GameCo used both effectual and causation to leverage its network in the internationalization process. The internationalization was driven mainly by lack of access to networks and resources locally for the development of the product. But considering that the product was distributed through an online platform, GameCo also engaged in internationalization of market. The product was sold in all markets where the online platform was operational.

The second born global firm is MusicCo. This entrepreneurial venture also leveraged its social network in the process to become a born global firm. It started with one of the co-founders receiving inspiration to make MusicCo’s vast library of unique and difficult to acquire Dutch Antillean music available on the Internet. The first action that this co-founder took was to contact a very good friend. MusicCo stated that "When I had the idea in my head, but very raw, I contacted [the other co-founder]. I already knew [the other co-founder] would be a good partner." The friend, who later became a co-founder in MusicCo, was living in a different country and thus this was the first step into cross-national operations for MusicCo. The first stakeholders who subsequently pre-committed to MusicCo were part of its social network thus MusicCo showed signs of effectuation by leveraging its existing social network. However, the MusicCo was dissatisfied with the progress. For example, MusicCo stated that “[We] thought about needing to have someone with more technical expertise, and we also needed a designer.” Consequently, MusicCo placed a job vacancy on a freelance platform to search for a computer engineer and as a result acquired a new stakeholder who resided in Eastern Europe. This was a very causal process with a clear predetermined goal. MusicCo stated that “Very often you think let's find cheap developers [in Asia via freelance platforms].” MusicCo also used effectuation to expand its partners at this time. The current partners leverage their social network and introduced the founders of MusicCo to new stakeholders. This process was once more repeated when MusicCo was looking into expanding its human capital for the third time. For example, MusicCo stated:

"We were working with a guy called [John Q Public] … he referred us to [the current Head of Design]… When [the Head of Design] got busy with school he needed some support and another guy [the assistant designer] joined"..."I know [the assistant designer] from Curacao, we used to compete in speed swimming together... So I see him at school every time... we took the same classes."

This shows that in the first instance to cross borders MusicCo leveraged its network effectually. However, MusicCo approached its operational expansion into a third country causally, and also leveraged its own social network to expand its team.

MusicCo also used entrepreneurial bricolage in its internationalization process. MusicCo acquired human capital very cheaply by compensating the partners with shares in MusicCo and other job opportunities. MusicCo creatively made use of other organizations in which they had decision-making authority to sign freelance jobs for MusicCo’s partners.
**Incremental internationalization firms.** TransactionCo internationalized incrementally. From the initiation of the firm, it aspired to operate on the international market. For example, Transaction stated that “If you start with something, it has to be something you can sell on the international market. If you cannot do that, stop because the market of Curacao is too small to start with only local products.” TransactionCo’s sales was first local and after successful operations in Curacao, the firm planned their international expansion. This strategy is evident from the data. For example, TransactionCo stated that “The first basis started in Curacao. The first projects we started here but it funded our trip to look e.g., at the Windward Island.” As the organization gained experienced within the region, it expanded to more distant markets. For example, TransactionCo stated:

> “Two years ago, we opened a rep office in Asia, Kuala Lumpur. Why? Because [...] look at the reception that [our flagship product] received in our region. I always had the gut feeling that this thing I think we can sell elsewhere too. Other bigger markets because I believe all banks have the same problem. So, two years ago we developed our Asia strategy where we said, let us do an Asia trip and present our product and look at the reaction.”

Though TransactionCo expanded their sales of their products to international markets, the development of the products is done locally. First, TransactionCo worked with a local partner for the development. This partner was effectually sourced through their existing social network. For example, one of the partners at TransactionCo stated that “When I used to work for the bank, they used to already develop things for us.” Another partner stated “They came to me before… I had a company and the company where they worked in the past before they started [TransactionCo], we worked together. My company made functionalities for [the company where they worked before].” However, after partnering for some years, the two partners make the strategic decision into integrate their operations in TransactionCo. For example, the firm stated:

> “Then it comes difficult if you are selling a product, and we are selling a product, that the copyright is somewhere else […]. You have a problem that they would not believe in you […]. We decided it was time to put those things under one company and I became the third partner.”

In sum, TransactionCo strategically planned their internationalization in incremental phases, first the Caribbean and close markets, and afterwards Asian and more distant markets. During this process, TransactionCo relied on causation. Furthermore, Transaction only participated in the globalization of markets but not in the globalization of production. The development of the product is local. For example, TransactionCo stated:

> “Our first choice is to look for people locally. We always look for people locally first. If we don’t find there, we find ourselves having to look for people internationally. We have people all over the place; Venezuela, in the Caribbean, The Netherlands, England. However, all development takes place here.”

**DISCUSSION AND IMPLICATIONS**
The embeddedness of the entrepreneurs
The results were unexpected and prompted the search to find an explanation. A search into details of the data revealed that the striking similarities in the use of the logic between the born global firms and the one that internationalize incrementally is in part due to the embeddedness of the entrepreneurs. The embeddedness, referring specifically to structural embeddedness, is the consideration that individuals’ behaviors are influenced by (i.e., embedded in) their networks of interpersonal relationships (Granovetter, 1985). Structural embeddedness is defined as “the contextualization of economic exchange in patterns of ongoing interpersonal relations” (Zukin & DiMaggio, 2003, p.18). The social stratification, the division of labor of a country, expertise (Baker et al., 2005) and homophily (Ruef, 2002) determine the embeddedness of the entrepreneurs. The embeddedness is characterized by its network closure, i.e., the number of internal ties. The higher the level of embeddedness the more internal ties and less external ties (Simsek, Lubatkin, & Floyd, 2003). In other words, highly embedded entrepreneurs are often found in ‘small world networks.’ Furthermore, embedded entrepreneurs have access “to latent resources and resources otherwise not available to the individual entrepreneur” (Jack & Anderson, 2002, p.484).

In this research we determined the level of embeddedness by specifically looking at the expertise (i.e., industry experience and education) that is required to develop the firm’s core products. We observed that the embeddedness of the entrepreneurs played a major role in determining the use of the decision logic in the leveraging of social networks and the extent to which these led to the firm become a born global firm. In cases of a low embeddedness, leveraging one’s network through effectuation brings difficulties in the acquisition of resources. For example, GameCo and MusicCo did not have a software development background, which is a key technical expertise for the development of their products. These entrepreneurs searched effectually among their close ties for stakeholders (i.e., software developers) to commit but could not find a potential partner. Subsequently, GameCo and MusicCo reverted to causation to acquire necessary resources but internationally. These were the first steps for GameCo and MusicCo towards becoming born global firms.

TransactionCo that did not show signs of becoming a born global firm. These entrepreneurs also leveraged their networks. However, these entrepreneurs were highly embedded. TransactionCo showed similar use of effectuation to acquire resources. Both founders of TransactionCo have educational backgrounds in data communication and ICT and have built expertise in these areas while working in several ICT roles in their former jobs. To develop their product TransactionCo was in need of software developers. To acquire resources TransactionCo relied on its social network. It contracted a small firm whom they have worked with at their previous jobs.

In sum, the results of the study show that the embeddedness of the entrepreneur is a determinant of the logic used to acquire resources and the chosen path of internationalization. Under conditions of high embeddedness, entrepreneurs were able to use effectuation to acquire resources in their ‘small word network,’ though these resources being scarce. However, under conditions of low embeddedness, the use of effectuation was useless and entrepreneurs turned to causation to acquire resources internationally. It is noticeable that in the first attempt by MusicCo to acquire human capital through effectuation, it resulted in unsatisfactory results. In the case of GameCo, it could not even access functional stakeholders. However, in its third attempt to acquire human capital, MusicCo again used effectuation. Similarly, when GameCo transferred its operations from the United States to Europe, it also relied on effectuation. In both cases, the
successful use of effectuation in the latter attempts came after the entrepreneurs gained a few years of experience and became more embedded.

**Implication**

**Entrepreneurial decision-making and social networks in internationalization.** First, we would like to suggest contributions to the literature on born global firms. Network and decision-making approaches became dominant ways to study these firms. However, research applying the effectuation and entrepreneurial bricolage lenses to study the logic associated with the use of social networks in the rapid internationalization process show conflicting results. For example, Gabrielsson and Gabrielsson (2013) found social networks were effectually leveraged in the early internationalization, whereas Kalinic et al. (2014) found the use of causation. We attribute these contradictions to the lack of integrating ‘small world networks’ theories (cf. Aldrich & Kim, 2007; Watts & Strogatz, 1998) to the study of the decision logic associated with the internationalization of born global firms. Therefore, “there remains […] a long way to go, in terms of truly understanding these firms” (Zander et al., 2015, p.30).

We advance the idea that embeddedness (i.e., expertise gained through industry experience and education) is vital in the internationalization through networks for born global firms. Though embeddedness and social networks are information gateways that enables entrepreneurs to exploit international opportunities, these also functions as a funnel that limits the entrepreneurs to the exploitation of opportunities with regard to which they have developed expertise. Thus the level of embeddedness of entrepreneurs act as ‘knowledge corridors’ (Baker et al., 2005). Under conditions of high embeddedness, the use of effectuation is an adequate logic to acquire resources through social networks. However, under conditions of low embeddedness, effectuation is useless to which entrepreneurs oscillate to causation. The entrepreneur’s expertise is of limited use outside that corridor. Research shows that entrepreneurs are more prone to start companies in the same industries and sectors in which they have built their expertise (Stam & Bosma, 2015). Low embeddedness hampers entrepreneurs to acquire resources. Under these conditions, entrepreneurs turn to causation and embark on a path to acquire resources internationally. Thus, the embeddedness of the entrepreneur is vital in him/her in using his/her social network to its full potential in international opportunity exploitation. Therefore, Ganitsky (1989) suggest that flexible managerial attitudes and practices are important to deal with the challenges that are present in the internationalization process.

**Effectuation and its boundary conditions.** We also would like to suggest contributions to effectuation literature. An important topic to advance the effectuation literature is the boundary conditions of the theory (Arend, Sarooghi, & Bur kemper, 2015). Under which conditions do entrepreneurs choose for effectuation in their decision-making? Research shows that resource constraint, stakeholder pressures (Reymen et al., 2015) and uncertainty (Sarasvathy, 2001) are reasons why entrepreneurs choose for effectuation. In particular, Sarasvathy (2001; 2008) argues that expert entrepreneurs choose effectuation above causation when these entrepreneurs face Knightian uncertainty. Under conditions where no information is available to calculate probable effects of decisions, expert entrepreneurs will take distance causation and use effectuation instead. However, Alsos, Mauer, Clausen, & Solvoll, (2017) found in their study that expert entrepreneurs preferred causation under conditions of uncertainty. This contradiction in the use of effectuation under uncertainty by expert entrepreneurs under similar conditions raises the inquiry for an
explanation. We would like to advance the thought that decisions are complex constructs and that the categorization in different levels of uncertainty is too simplistic. We suggest that the social networks and the embeddedness of the entrepreneurs are also important factors to take into consideration. For example, when facing resource constraints and uncertainty in ‘small world networks,’ embedded entrepreneurs use effectuation to bridge networks and mitigate constraints and uncertainty. Despite constraints of embeddedness (Uzzi, 1997), for example the social strata and the division of labor (Baker et al., 2005), the embedded entrepreneurs can bridge their networks and still access functional stakeholders if these are not present in their direct social network. Through self-reflection of ‘whom I know’ (Engel et al., 2017), the embedded entrepreneurs can access functional stakeholders which they have worked with before, are part of professional discipline-oriented associations, or even have meet at discipline-oriented events (e.g., congresses and seminars). However, entrepreneurs that are not embedded have less probabilities to identify functional stakeholders through effectuation. These entrepreneurs’ knowledge corridors constraint the type of knowledge these entrepreneurs can access through effectuation. Under these circumstances, entrepreneurs that are not embedded turn to causation to search for functional stakeholders. Thus, under the same conditions of resource constraints and uncertainty in the ‘small world networks,’ embeddedness is a predictor of logic used by entrepreneurs.

CONCLUSION

Limitation
Despite advancing our knowledge regarding the use of the decision logic in the rapid internationalization, this study has some limitations. First of all, there are limitations in the data. The data is not coded by more than one independent coder. Secondly, this research has a lack of generalizability. It is an explorative multiple-case study and the conclusions are drawn from a limited set of cases. In addition, all the cases of this study are knowledge-intensive firms and rely mostly on intangible resources. Thus, insights gained from this study cannot be generalized to other industries.

Future research
There are numerous opportunities for future research. An interesting question to ask is if there is a distinction between how entrepreneurs in small countries and small islands are born globally. The born global firm is mostly evident in small economies (Cavusgil & Knight, 2015; Terjesen, 2015) but in the literature no distinction is made between small countries and small islands. Small islands are recognized as a distinctive group of developing islands that share similar characteristics and a unique set of challenges. Thus, there is a distinctive context between these groups of small countries. How does the size of the island and its context influence do internationalization process?

A second topic that needs further research is the size of the level of the embeddedness. We referred to small and high levels throughout this study. However, in cases where entrepreneurs have related expertise and show ‘medium’ embeddedness, how will these entrepreneurs acquire resources and do these entrepreneurs show the tendency to become born global firms? Future research should address these issues.
REFERENCES


## APPENDIX 1 CASE DESCRIPTIONS

| **GameCo** | With the introduction of the iPad in 2010 the creator of GameCo started the development of this iPad game. With support of outsourced iOS developers, the game was launched in the Apple’s Appstore in 2011. Despite being launched on the market, the GameCo did not meet the expectations of the creator and is not successful. For this reason, the creator started working in 2011 with a different outsourced software developer with the intention to relaunch. |
|**MusicCo** | In February 2012 two friends co-founded the online music streaming service. The beta of MusicCo was launched on the October 1, 2013. The launch did not proceed without any challenges mainly due to challenges of finding software developers. In its 2 years of existence MusicCo has collected over 20 thousand songs in its database. The future plans of MusicCo are to open the platform to public, index their content in the Google search engine and also introduce a mobile version of the service. |
|**TransactionCo** | In 2000 TransactionCo was funded as a consultant’s bureau for the banking industry. With their experience in this industry, the two co-founders pitched a new automated transaction processing system that became the flagship product of TransactionCo. During the years they have grown the company to include mostly international clients; they have added additional features and functionalities; and have released two additional automated transaction processing system for other sectors. |
# APPENDIX 2 MEASUREMENT INDICATORS

## Indicators for causation

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Empirical indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected returns</td>
<td>Makes financial forecasts of required funds.</td>
</tr>
<tr>
<td></td>
<td>Makes forecasts on expected market return.</td>
</tr>
<tr>
<td></td>
<td>Expects a return on competence/personal satisfaction.</td>
</tr>
<tr>
<td></td>
<td>Active attempt to raise external funds (e.g. capital investors).</td>
</tr>
<tr>
<td>Goal-orientation</td>
<td>Takes action on a clearly defined course of action (i.e. goal).</td>
</tr>
<tr>
<td></td>
<td>Defines a clear course of action (i.e. goal).</td>
</tr>
<tr>
<td></td>
<td>Does research to define opportunities, requirements and needs.</td>
</tr>
<tr>
<td></td>
<td>Has a long term vision.</td>
</tr>
<tr>
<td>Competitive analysis</td>
<td>Acquires resources through arm’s length contractual assignments.</td>
</tr>
<tr>
<td></td>
<td>Makes use of property rights protection.</td>
</tr>
<tr>
<td></td>
<td>Develops a competitor’s analysis.</td>
</tr>
<tr>
<td></td>
<td>Does systematic research.</td>
</tr>
<tr>
<td>Hedging against contingencies</td>
<td>Carefully interacting with environment for secrecy reasons (feel threatened by unexpected events, therefore work in isolation as much as possible).</td>
</tr>
<tr>
<td></td>
<td>Not open to act upon requests that will change the company.</td>
</tr>
<tr>
<td></td>
<td>Stops a project due to unforeseen events.</td>
</tr>
</tbody>
</table>

Note: Italics are self-developed

## Indicators for effectuation

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Empirical indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordable loss</td>
<td>Finding unused resources in local environment (including subsidies).</td>
</tr>
<tr>
<td></td>
<td>Investing limited, small amounts of personal/company money, time and effort.</td>
</tr>
<tr>
<td></td>
<td>Willingness to make sacrifices.</td>
</tr>
<tr>
<td></td>
<td>The initial product idea is seen as interesting and worth exploring</td>
</tr>
<tr>
<td></td>
<td>Investment requirements are seen as uncertain and there is a desire to minimize this uncertainty.</td>
</tr>
<tr>
<td></td>
<td>Investment is seen as a first necessity to create an opportunity to start the development of a product.</td>
</tr>
<tr>
<td>Means-orientation</td>
<td>Makes use of own knowledge, resources, or network of stakeholders.</td>
</tr>
<tr>
<td></td>
<td>Identifies opportunities based on network of stakeholders.</td>
</tr>
<tr>
<td></td>
<td>Has an undefined desired idea.</td>
</tr>
<tr>
<td></td>
<td>Does not focus on future 'problems' but deals with them in near-present.</td>
</tr>
<tr>
<td>Pre-committed stakeholders</td>
<td>Reaching trust-based flexible stakeholder agreements and commitments.</td>
</tr>
<tr>
<td></td>
<td>Co-create with stakeholders.</td>
</tr>
<tr>
<td></td>
<td>Approaches potential client with a prototype early in the development process.</td>
</tr>
<tr>
<td>Leveraging contingencies</td>
<td>Open to act upon ideas/ requests that will change the product/ company/ add an additional product.</td>
</tr>
<tr>
<td></td>
<td>Does not develop concept in detail but leaves room for unexpected events.</td>
</tr>
<tr>
<td></td>
<td>Open to change strategy based on unexpected events.</td>
</tr>
</tbody>
</table>

Note: Italics are self-developed

## Indicators for entrepreneurial bricolage

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Empirical indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making do</td>
<td>Uses an existing resource in a new way.</td>
</tr>
<tr>
<td></td>
<td>Uses untapped/ unwanted resources to create something new.</td>
</tr>
<tr>
<td>Resources at hand</td>
<td>Gives ownership in the product/ company.</td>
</tr>
<tr>
<td></td>
<td>Licenses a resource instead of buying.</td>
</tr>
<tr>
<td></td>
<td>Compensates with non-monetary resources (e.g. be part of a disruptive innovation).</td>
</tr>
<tr>
<td></td>
<td>Compensates with other (employment) opportunities.</td>
</tr>
<tr>
<td></td>
<td>Executes parts of the tasks him-/herself.</td>
</tr>
<tr>
<td></td>
<td>Makes use of barter deals.</td>
</tr>
<tr>
<td></td>
<td>Makes use of royalty deals.</td>
</tr>
<tr>
<td></td>
<td>Asks for a favor.</td>
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</tbody>
</table>