Resources accessibility for start-ups: the example of RBSUs
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Abstract

Title: Resources accessibility for start-ups: the example of RBSUs

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Key words: Resources, start-ups, RBSU, social contracting, ownership, partnership, alliance, merger, acquisition, control.

Purpose: The aim is to describe how to build a foundation of resources in RBSUs by addressing the issues of access to and control on resources in order to understand this context and to further develop the language of RBSUs.

Scientific method: The research lies in the interpretative field of inquiry. Abduction is used to combine empirical data with theoretical studies in order to try to investigate patterns that could give an understanding of the phenomena that is studied. Descriptive research approach using multiple-case study design is used.

Theoretical frame of references: The first part of the theoretical frame of references explores existing theories on resources. This leads to RBSUs basic resources. The second part explores different means for accessing and controlling resources.

Empirical method: The chosen approach is qualitative. Interviews have been conducted for data collection. Documents are gathered and analyzed to support the interviews.

Analysis: Following each stage of RBSUs development, it is described what resources are the most important ones to each RBSU and how they got access to and control over those resources.

Conclusion: The major contribution is that RBSUs access and control their basic resources in different ways depending on the stage of the RBSU development. In addition, the findings describe and allow understanding how RBSUs’ founders make their choices when it comes to build a foundation of resources in each of those stages.
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1. Introduction

1.1. Background

In this chapter, the importance of technological start-ups for economy and employment is shown. The reader is introduced to the problems of resource identification, accessibility and combination faced by research based start-ups (RBSUs). The problem discussion and the purpose of the research are presented to conclude this chapter.

Entrepreneurial activities have always existed; nowadays small and young companies are the foundation of many economies thanks to the large amount of start-ups they contain. Since the 1980’s, many start-ups have been of a technological nature (Storey & Tether, 1998). The technology sector includes plenty of small and micro firms and counts a large percentage of total amounts of start-ups (Storey & Tether, 1998; Heirman & Clarysse, 2004). This tendency is clearly showed in figure 1 below which illustrates the total annual new enterprises between 1990 and 2003, and the percentage of new technology-based enterprises. Even though the percentage of technology-based enterprises represents a low percentage of the number of new enterprises, it has mainly risen during the past 2 decades. Therefore, more and more scholars and theorists show interest in understanding how those companies evolve in their environment and on markets.

Figure 1: Total annual new enterprises and percentage of technology-based enterprises between 1990 and 2003 in Sweden

On a regional level and, by extension, to world economy, technology- and research-based start-ups – RBSUs – are future potential sources of employment (Storey & Tether, 1998; Heirman & Clarysse, 2004; Heirman & Clarysse, 2005). Moreover, the jobs provided are expected to be of good quality and indirect employment is expected to augment (Storey &
Tether, 1998). But what are precisely RBSUs? Heirman and Clarysse (2004) give an interesting definition that will be used as a working definition. Heirman and Clarysse (2004) say that RBSUs are “new business start-ups which develop and market new products or services based upon a proprietary technology or skill” (p. 247).

The major pitfalls RBSUs face are resource identification, accessibility (Penrose, 1959 in Heirman & Clarysse, 2004) and combination (Greene & Brown, 1997; Brush & Chacanti, 1998).

There are two main approaches on this topic. First, resource based theorists – RBV – raise the question whether a firm should build internal resources or rely on acquisition of external resources. Second, resource dependency theorists raise the question whether a firm can create access to resources of need from its environment.

From RBV perspective, entrepreneurial firms face a lack of direct control over resource flows, especially funding and legitimacy (Stone & Brush, 1996). Entrepreneurial firms must meet external standards of legitimacy to acquire resources (ibid.). They suffer from liability of newness, lack established patterns for locating suppliers and customers (Stinchcombe, 1965), and are often unable to generate internally all the resources needed (Cooper & Dunkelberg, 1986). To access resources, entrepreneurial firms must rely on social networks and meet their norms and expectations to achieve economic purposes (Starr & Larson, 1993).

Researches on small entrepreneurial firms display that many rely on the intuitive decision-making of an owner/founder(s) whose values, goals and skills shape the company (Heirman & Clarysse, 2004). How entrepreneurial firms perceive their environment is likely to influence their attitudes toward growth (Stone & Brush, 1996). They rely on social networks to acquire resources. A decision to grow often means they must go beyond established networks and interact with outside investors, funding agencies, and regulatory bodies (ibid.).

From resource dependency perspective, start-ups access and control on resources are influenced by their environment. For instance, Romanelli (1989) relies on concepts and perspectives that emphasize environmental influence on start-ups. Environmental factors are, among others, population, ecology, resource dependency and social structure (Stinchombe, 1965).

Resource dependency theory is helpful to understand how start-ups environment can influence access and control over resources. Romanelli (1989) recognizes that specialist organizations, for instance RBSUs, have a higher probability to survive the early years than generalist firms. Even though, both face strong and intense competition which negatively affect their likelihood to access and control basic resources in the early years.

1.2. Problem

A significant amount of researches underlining the importance of constituting a solid resource base has been made within the scientific world. Some theories explain how performance differentials between firms can be related to their underlying resource base (Barney, 1991; Brush & Chacanti, 1998; Brush et al., 2001; Heirman & Clarysse, 2004).
This debate leads researchers to wonder how small firms work to build a foundation of resources. In this sense, studies oriented on the ambiguous context shared by entrepreneurial firms e.g. their small size (Cooper, 1981; Miller, 1983; Feeser & Willard, 1990; Scott & Shaver, 1991; Bird, 1992), their interaction with multiple external actors (Freeman, 1984; Gartner et al., 1992), and their lack of control over resources flows (Cooper & Dunkelberg, 1986; Romanelli, 1989; Hoffman et al., 1991; Bielefeld, 1992) have been carried out to highlight the dilemma linked to gaining both legitimacy and commitment from external actors to build a foundation of resources (Stone & Brush, 1996). The result of evolving in such ambiguous contexts has led researchers to inquire on how entrepreneurial firms plan for gaining legitimacy and resources acquisition (Bracker et al., 1988; Gibb & Scott, 1985; Robinson, 1982; Spitzer et al., 1989). They demonstrate that planning is necessary and useful strategy for obtaining legitimacy and primordial to resource acquisition.

This leads to wonder how small entrepreneurial firms get access and gain control of important resources. Specific theories focus precisely on resources acquisition by elaborating on how resources can be accessed and controlled e.g. social contracting theory (Starr, & MacMillan, 1990), ownership theory (Fama & Jensen, 1983; Demsetz & Lehn, 1985; Grossman & Hart, 1986) alliance and partnership theory (Mohr & Spekman, 1994; Gulati, 1998; Das & Teng, 2000; Vanhaverbeke et al., 2002), and merger and acquisition theory (Borys & Jemison, 1989; Berkema & Vermeulen, 1998; Brouthers & Brouthers, 2000).

In accordance with Barney’s (1991) proposition, Brush and Chacanti (1998), Brush et al. (2001), and more recently Heirman and Clarysse (2004) suggest that small firms such as RBSUs differ at founding due to their peculiar foundation of resources. Plus, Stone and Brush (1996) underline the need of entrepreneurial firms like RBSUs for gaining legitimacy and commitment from external resources to acquire resources. In addition, the issue of access and control over resources proposed by the scientific world highlights the different means to acquire resources needed by RBSUs. However, to the extent of our knowledge, little emphasis has been given to the development of an integrative framework that combines theories on what the basic resources to build a solid foundation of resources are and other theories that more precisely focus on the access and control of resources. In order to understand how RBSUs’ founders access and control their basic resources after identifying them the following research question has been formulated:

“How to build a foundation of resources in RBSUs”

1.3. Purpose
The aim is to describe how to build a foundation of resources in RBSUs by addressing the issues of access to and control on resources in order to understand this context and to further develop the language of RBSUs.
2. Scientific method

In order to answer the research question – “How to build a foundation of resources in RBSUs” – and to understand the underlying reasons to how RBSUs own and control their resources, descriptive research approach using multiple-case study design has been chosen (Yin, 2003; Bryman & Bell, 2007).

This research lies in the field of hermeneutics and is aimed at interpreting and understanding the underlying reasons that lead RBSUs founder to make their choices. This interpretative approach focuses on interpreting human actions while using qualitative analysis and taking into account the context inherent to the research topic (Bryman & Bell, 2007). It has so helps to interpret and understand subjective meanings like the underlying reasons that lead RBSUs founder to make their choices. As Burrell and Morgan (1979) put it: “hermeneutics is concerned with interpreting and understanding the products of the human mind which characterise the social and cultural world” (pp. 235-236).

In the dossier lays abduction that starts from empirical facts which do not turn away theoretical conceptions. In this design, there is a closer connection to deduction rather than to an inductive attempt. Abduction is used to combine empirical data with theoretical studies in order to try to investigate patterns that could give an understanding of the phenomena that are studied (Peirce, 1932). Here we are looking for a successful interpretation of empirics and theoretical references.

The research design needs to give descriptive answers in order to understand what the mechanisms behind the choices made by the RBSUs founder are. The design has three specific features. Firstly, it should answer the question “how” which, among others, relates to the description of decisions such as “why they were taken, how they were implemented, and with what results” (Schramm, 1971 in Yin, 1989, pp. 22-23). Secondly, the research method does not need to provide control to the researcher over the behavioural actions. Empirical material is mainly gathered through interviewing and documents (Yin, 1989). Thirdly, contemporary facts – as opposed to historical facts – should be captured (ibid.).

Consequently, the overall research design chosen for the empirical investigation is the case study (Yin, 1989). Firstly, the case study research design using a qualitative research method allows having a more descriptive approach than a quantitative research method (Bryman & Bell, 2007). Quantitative method deals with frequencies whereas qualitative method is aimed at understanding the social world (ibid.). Thanks to qualitative method, questions such as “how and why” rather than “how much” as in quantitative research method are answered (Bryman & Bell, 2007; Yin, 1989). Secondly, case-study empirical material can be gathered through interviews, documents, artefacts and observations. Observation is not an exclusive condition when conducting a case-study (Yin, 1989). In this case, no observations are made because of the retrospective nature of the research. Thirdly, case-study allows a focus on contemporary events (ibid.).

Moreover, as advocated by many researchers, case study research is an efficient method for constructing a rich understanding of complex phenomena (Eisenhardt & Graebner, 2007).
In particular, multiple-case-study design is chosen. This allows both having an in depth study of each case, and spotting similarities and differences that exist at the firm level (Bryman & Bell, 2007; Eisenhardt, 1989) between start-ups having for common point to be research-based.
3. Theoretical frame of references

This chapter consists of two parts. The first part of the theoretical frame of references explores existing theories on resources. This leads to RBSUs basic resources. The second part explores different means for accessing and controlling resources. A summary is included at the end of the chapter which highlights relevant theories to the topics.

3.1. General approach

To answer the research question, RBSUs basic resources need to be identified. In order to define them, theories such as Barney (1991) and Greene and Brown (1997) are used.

Many researchers identify and classify firm resources. Pioneers in this area, Yuchtman and Seashore (1967) give an explicit definition of resources. According to them, resources are “(more or less) generalized means, or facilities, that are potentially controllable by social organizations and that are potentially usable – however indirectly – in relationships between the organization and the environment” (1967, p. 900). This definition of resources is the one referred to through the entire paper.

Resources can be classified in different ways. This paper classifies them into five main categories: human resources, social resources, physical resources, financial resources, and organizational resources (Barney, 1991; Greene, & Brown, 1997; Heirman, & Clarysse, 2004). Human resources include the entire human capital required to run a business. Social resources contain familial and individual involvement and support to business. Physical resources enclose plant and equipment, physical technology, access to raw material and geographical location. Financial resources include both internal and external sources of capital. Organizational resources contain resources as firm’s structure, formal and informal planning, controlling, and coordination system as informal relation between employees, firms and environment as part of organizational resources.

This gives a holistic picture of resources start-ups need. Nevertheless, it is relevant to narrow down this concept to RBSUs basic resources. Thus, RBSUs basic resources are; how these resources can be combined to each other to enhance RBSUs endurance; and different ways of accessing them are identified.

In order to understand RBSUs basic resources identification process, further developments need to be done on why resources differ from industries/businesses orientation (Greene & Brown, 1997).

3.2. Resources identification

There are many industry areas such as aerospace, biotechnology, food industry... By analyzing quickly these different industry sectors, it can be said that resources are kind of similar in a sense that those sectors require human resources, financial resources and organizational resources (Yuchtman, & Seashore, 1967; Barney, 1991). Thus, to distinguish different industry areas, lights are sheds on characteristics embedded in business orientation (Greene, & Brown, 1997).

Quadrant I includes the so called economic core firms. They have a low rate of innovation and low rate of growth. Basically, their growth stops when owner’s objectives are achieved. This quadrant can be illustrated for example by familial corner shop, small bookselling business, professional firm as dentists, accountants, and doctors (Kirchhoff, 1994 in Greene, & Brown, 1997).

Quadrant II regroups ambitious firms. They have a low innovation rate and high growth rate. They make few early innovations and their growth declines when innovations lose their newness. Example can be taken from the fast food industry; this kind of franchise grows through creation of new outlets generated by the initial set of innovations. When the product loses its level of newness, the franchise expansion severely slows down (ibid).

Quadrant III includes resource constrained firms. They have a high rate of innovation and low rate of growth. Innovation requires a lot of financial resources, human resources... Therefore, if the necessary resources are not collected, the rate of growth and innovation are low. For instance, two start-ups with high level of innovation but unwilling to meet the required level of resources; over the time one remained small under the control of the founder while the other one grew under new ownership (ibid).

Quadrant IV includes glamorous firms. They have a high rate of innovation and high rate of growth. Their creation constrains considerable amounts of all kinds of resources. Company as Microsoft illustrates well glamorous firms. It has grown to an impressive international level and its innovations are internationally known (ibid).

As shown by the quadrants below, each of them requires different level of resources, depending on the business orientation (Greene, & Brown, 1997).
Based on Heirman and Clarysse’s (2004) RBSUs definition, RBSUs are innovation orientated with a rather low or high willingness to grow depending on their access to resources. Founder’s willingness to develop his business further is not taken into consideration yet. Hence, based on Kirchhoff (1994) in Greene and Brown (1997) and Heirman and Clarysse’s (2004) RBSUs definition, RBSUs can be associated to resource constrained and/or glamorous ventures. This means that they have a high need for human, financial, physical resources and organizational resources, and a lower need for social resources.

In addition to why resources differ from business orientation, Kirchhoff (1994) in Greene and Brown (1997) gives a relevant support to Heirman and Clarysse (2004) study. Heirman and Clarysse (2004) say in their study that human, financial, and technological resources are basic resources for RBSUs. Clarification is needed to explain why physical resources are restrained to technological resources in this paper. This is based on Storey and Tether (1998) and Heirman and Clarysse (2004) who demonstrate that, at RBSUs level, the dominant resource within physical resources is the technological resource. Thus, from now on, human, financial and technological resources are considered as being basic resources for RBSUs.
RBSUs are characterized as having high needs for human, financial, and technological resources (Greene, & Brown, 1997; Heirman, & Clarysse, 2004). Thus, as previously said, RBSUs basic resources have been brought to light. Therefore, the next explication focuses on constraints embedded in RBSUs basic resources.

3.3. **Constraints on RBSUs basic resources**

When talking about constraints on basic resources having impact on RBSUs endurance, distinction between independent and dependent factors has to be done (Heirman, & Clarysse, 2004). Based on Heirman and Clarysse (2004), this means that first, resources peculiar to RBSUs have to be analyzed independently from each other and then resources have to be combined to each others. By doing so, Heirman and Clarysse (2004) claim that it gives a holistic view on resources constraints.

3.3.1. **Independent factors**

*Human resource*

Theories demonstrate that resources identification differ at RBSUs depending on their founder’s characteristics (Heirman, & Clarysse, 2004; Storey, & Tether, 1998; Greene, & Brown, 1997).

Therefore, founder’s characteristics, size of teams, their trainings and experiences are key factors in RBSUs success. (Van de Ven et al, 1984 in Heirman, & Clarysse, 2004; Barney, 1991; Roberts, 1991). In addition, entrepreneurial theorists relate new ventures failure, success and growth to a measure of resources categorized as entrepreneurial capabilities, relevant knowledge bases, expertise and financial capital, and controlling which are discussed below (Cooper, Gimeno-Gascon, & Woo, 1994).

RBSUs theorists demonstrate that RBSUs are mainly run by highly to very highly educated founders (Westhead, & Storey, 1994; Donckels, 1989; Autio et al., 1989; Licht et al., 1995; GSRT (1995) in Storey, & Tether, 1998). They are also usually older than others firms starters (Westhead, & Storey, 1994; Harvey, 1994; Donckels, 1989; Autio et al., 1989; GMV Conseil, 1989 in Storey, & Tether, 1998). Moreover, they are, most of the time, characterized by having at least experience as high level staff for over many years in large scale or research firms/centres (Carroue, & Martin, 1993; GMV Conseil, 1989; Donckels, 1989; Westhead, & Storey, 1994 in Storey, & Tether, 1998). Then, the gender profiles of founders are mainly or exclusively males (Westhead, & Storey, 1994; Harvey, 1994 in Storey, & Tether, 1998). Thus, RBSUs founder are usually men with high educational level compared to the whole working population with certain background in large scale companies and/or research centres.

Founders’ abilities and skills have been identified as being basic resources for RBSUs, but some authors show that RBSUs suffer from a lack of managerial skills and willingness to grow their businesses (Autio, 1995; Gorriño, & Isusi, 1995; Parger, 1995 in Storey, & Tether, 1998).
Researchers demonstrate that among human resources, the founder is the most critical factor in a new firm (Van der Ven et al., 1984 in Heirman, & Clarysse, 2004). Still, another key point, even though less critical than the founder’s abilities and knowledge, has been identified as being the size of teams, their experiences and trainings (Shane, & Stuart, 2002 in Heirman, & Clarysse, 2004; Barney, 1991; Greene, & Brown, 1997; Roberts, 1991). When the founder suffers from a lack of knowledge about sector he works in or has low managerial skill; hiring experienced people in the management team can fill in this gap (Heirman, & Clarysse, 2004; Roberts, 1991).

Financial resource

Starting capital for RBSUs differs from their orientation and financial capital is only one of the basic resources needed by RBSUs. (Chandler, & Hanks, 1998) Above all, the amount of financial resources invested has direct effect on RBSUs failure, innovativeness and growth (Greene and Brown, 1997; Chandler, & Hanks, 1998; Cooper, Gimeno-Gascon, & Woo, 1994). Thus, inadequate initial capital invested has influence on RBSUs survival. Besides, there is still no real guideline which helps RBSUs to evaluate appropriated financial starting package required (Carter and Van Auken, 1990 in Chandler, & Hanks, 1998).

Financial resource includes all resources RBSUs can use. They are from internal sources e.g. founder or founding team savings, and/or from external sources e.g. debtors, equity investors, and lending institutions. Lack of financial resources is an important drawback faced by RBSUs (Heirman, & Clarysse, 2004). RBSUs require high financial resource in order to develop new technologies and market them (Greene, & Brown, 1997; Heirman, & Clarysse, 2004).

Carter and Van Auken (1989) in Chandler and Hanks (1998) identify equity stake from a multiplicity of sources e.g. personal savings from the founder or founding team, friends, relatives, mortgages and outside investors. Resources substitutability theorists note that founders having higher need of autonomy on their RBSU increase their initial investment through adding more personal savings, creating debts, or generating loans (Chandler, & Hanks, 1998).

Technological resource

As defined previously, RBSUs goal is to develop and sell products, services or processes which are technologically new or at least technologically improved. Thus, technology is one aspect that distances RBSUs from other start-ups. It is important to notice that technological resources between RBSUs vary broadly (Storey, & Tether, 1998; Heirman, & Clarysse, 2004). RBSUs differ mainly in three dimensions of technology inputs:

- The degree of innovativeness
- RBSUs position at founding differs in the product-development cycle
- The application of their product-technology to one or more product
3.3.2. Resource inter-dependence factors

In this section, as previously mentioned, constraints embedded in resource inter-dependence are investigated (Chandler, & Hanks, 1998; Heirman, & Clarysse, 2004).

Human resource and financial resource

In view of the fact that initial capital invested differs according to RBSUs orientation, founder’s experience and knowledge can enhance RBSUs financial resource approach. Some authors recognize that founder and financial resources can be partially substitutable (Chandler, & Hanks, 1998; Heirman, & Clarysse, 2004). Theorists on substitutability of founder and financial resources have established that RBSUs with high level of human resources and low level of financial resources compete similarly to RBSUs with low level of human resource and high level of financial resource (Chandler, & Hanks, 1998). In fact, RBSUs with high level of human resources do not need as much financial resources as the ones with low level of human resources since founder’s educational level, background and experience are expected to compensate low financial resources level (Green, & Brown, 1997; Chandler, & Hanks, 1998; Cooper, Gimeno-Gascon, & Woo, 1994). Therefore, some researchers stress the importance of founder’s abilities to seize business opportunity and find out ways to acquire basic resources (Chandler, & Hanks, 1998).

Human resource and technological resource

RBSUs are technology-oriented (Heirman, & Clarysse, 2004; Storey, & Tether, 1998). Technology is constantly evolving to more complex process. Therefore, founder’s educational level has to fit such evolution (ibid). This though can be reflected in a sense that depending on innovative level of RBSUs, the founder is expected to have required level of knowledge/skills. This idea is supported by Kirchhoff (1994) in Greene and Brown (1997) that business with a moderate to high innovative level required high level of human resource.

Financial resource and technological resource

Some authors stress that RBSUs need higher financial resources than some others (Heirman, & Clarysse, 2004; Storey, & Tether, 1998). Reaching certain level of newness usually takes time, a lot of research, specific component, and uncertainty to nature of investment in R&D... In other words RBSUs require moderate to high level of financial resources depending on the innovative level and willingness to grow (Kirchhoff, 1994 in Greene, & Brown, 1997).

Undeniably, access to human resources, financial resources, and technological resources is a major precursor of RBSUs performance. It needs to be combined by the founder thanks to a careful analysis of resources RBSU got access to (Chandler, & Hanks, 1998, Storey, & Tether, 1998). This leads to the next section about resource accessibility.
3.4. Resources accessibility

There exist four major ways of getting access to resources in order to control them (Starr, & MacMillan, 1990; Demsetz, & Lehn, 1985; Mohr, & Spekman, 1994; Borys, & Jemison, 1989)

- Social contracting
- Ownership
- Alliance and partnership
- Acquisition and merger

Their different characteristics, which are explained below, can help RBSUs to get access to resources and so enhance survival likelihoods.

3.4.1. Social contracting

Starr and MacMillan (1990) develop an approach on how to acquire resources and their costs. According to their approach, a RBSU manager usually picks up the needed resources by defining what seems to be fair, right or appropriate for his business (Etzioni, 1988 in Starr, & MacMillan, 1990)


For instance, it can be assumed that human resources can be accessed thanks to social transaction. Since founders of RBSUs are highly technologically educated persons, they can have a lack in managerial and/or marketing skills. Nevertheless, given the fact that these persons have generally past experience in a company or in a research centre, it is likely that they have some acquaintances with market knowledge that can help on the managerial and marketing level.

Co-optation means “to appropriate as one’s own” (dictionary.reference.com, 2010). Co-optation can lead in some cases to successful resource accessibility. (Starr, & MacMillan, 1990) Co-optation is an easy way and really flexible mechanism to get access to resources and to gain credibility. Two ways of cooptation are defined:

- Co-opting legitimacy and
- Co-opting underutilized goods.

Co-opting legitimacy consists of getting help from external actors to enhance the lack of credibility due to the no “track record”. This can increase the customers’, distributors’ and suppliers’ confidence in the RBSU (ibid.). Starr and MacMillan (1990, p. 83) state that “without co-opted legitimacy the business may not be able to start at all” or to start but only
after devastating delays due to time needed. Gaining legitimacy takes time and also costs money.

Because of their lack of legitimacy, it can be assumed that RBSUs are more likely to have their loan requests refused by banks. Consequently, in order to keep a good control level on his company, the founder needs to bring a sufficient contribution in internal financial resource. That can be solved, for instance, thanks to a wealthy friend who is able to lend him money at a lower or null interest rate.

According to Starr and MacMillan (1990), founders can co-opt underutilized resources through four different strategies. There are three implications of these strategies linked to cost-efficiency, lowering the risk and lower the basic investment. These four strategies are:

- Borrowing
- Begging
- Scavenging and
- Amplifying.

RBSUs’ founder can borrow underutilized goods to secure resources or resources that must be returned after use. Founders can beg them by using the charity, honour, goodwill of the owner to get access to resources and they do not have to return the goods. Scavenging consists of using resource other do not want to use. Amplifying consists of adding value to the original resource or resources. One advantage of social contracting is that the word “debt” starts being flexible and postponable (ibid.).

In order to make it clearer, in accordance with the co-optation theory, a RBSU that needs a means of production but cannot afford it can utilize the one of another company that uses the same technology but not to 100 percent of its capacity and to another purpose. For example, a RBSU that needs to produce integrated circuits to a certain purpose and cannot afford the machine to produce them can use the one of another company that under-uses its machine and do not use it to the same purpose.

Researchers demonstrate different ways to create an inventory of social resources. According to Starr and MacMillan (1990) social resources, which can be friendship, liking, trust, gratitude or obligation, can be build in four different ways:

- Sharing information
- Solving and receiving help with problem
- Giving and receiving
- Developing goodwill

Sharing information consists of finding out opportunities which could be used by someone later on. Solving and receiving help with problem consist of solving problems for others. Giving and receiving favours consist of getting or providing help to solve problems. Creating opportunities for people to demonstrate their skills and competence consist of developing goodwill. The positive aspect of this technique is that it can help managers to develop trustful
network for the future. Starr and MacMillan (1990) approach is useful for corporate venture to understand the resource accessibility process for RBSUs.

### 3.4.2. Ownership and control

The concept of ownership can be defined in different ways; in this paper ownership is taken for the nexus of resources that belong to a company and the control they have on it. Conner (1991) defines it as “the operational control of the entity’s resources” (p. 141). More precisely, as Grossman and Hart (1986) mention, the ownership can be understood as the control that one company has on particular resources e.g. inputs such as human, physical, financial, and organizational resources. The control one has on certain resources is provided by the rights one has on those resources. As a result, it implies, for the owner, to bear the risks issuing from those resources but it also allows him to enjoy the positive output emerging from them (Fama, & Jensen, 1983).

In case of total ownership, the entrepreneur does not have problems of control on it; he does not have to discuss with a co-owner or co-controller. The main issue in RBSUs is to get access to resources until full ownership. It is assumed that the majority of the entrepreneurs fully possesses only a little part of its resources and has recourse to co-ownership or co-control to reach other ones.

The control on resources becomes harder to grasp when there is no full ownership. In case of partnership, resources are gathered in order to reduce costs. That reduces also the control of each and every one partner on his resources and gives bits of control on others’ resources. This is regulated in partnership contracts (Fama, & Jensen, 1983). On the entrepreneurial level, entrepreneurs can set up the boundaries of the resources shared and the allocation of control on them through formal contract or informal arrangement (Demsetz, 1988). Grossman and Hart (1986) underline that contractually set up rights of control on certain parts of certain resources can lead to a never-ending list. An alternative means to that is to obtain the residual rights that still belong to the other part; to do so and to fill in the contractual gaps, property rights make full sense and can be used in order to solve residual rights problems.

According to Demsetz and Lehn (1985), the ownership structure of a firm is determined by four factors i.e. value-maximizing size, control potential, regulation, amenity potential of a firm's output. Value-maximizing size is to maximize the utility of all the resources accessed in a firm. When an entrepreneur has full ownership of a resource, he will get full payoff but will also have to bear the entire risk. As a result, an entrepreneur will more likely enter into partnership in order to share risk to the detriment of value-maximizing size. Control potential refers to the rent reachable thanks to an effective management of the resources. Consequently, the more an entrepreneur has full control on a resource, the more he will be able to control it in order to get the best rent and vice versa. Unfortunately, owners have to follow regulations that are set up in the firm; that could affect control potential. Nonetheless, in RBSUs regulations are set up by the founder and/or the founding team, and so do not hinder his/their functioning. Amenity potential of a firm’s output designates the pleasure the owners can get from the output of their firm. An entrepreneur is more likely to have a closer managerial
control on his company than a manager in a big company. The entrepreneur is willing to get a better image to his company and product; that, in need for achievement. The fuller the ownership, the more involved in his firm’s activities.

Concerning resources accessibility, all companies do not have more than the resources available on their market. Romanelli (1989) calls this pool of resources, the market breadth. Furthermore, she brings up a concept – aggressiveness/efficiency – that “expresses the depth and rapidity of resource-acquiring activities in either broad or narrow market domains” (p. 374). Firms are situated in this range of aggressiveness level that goes from aggressive firms to efficient firms. Aggressive firms’ strategy is to amass and control as many resources as possible as fast as possible, which is a risky choice since they expend a lot of resources to get access to other less certain ones. Moreover, efficient firms secure their market position by combining rare organizational resources while aggressive ones use loads of corporate resources to grow and enforce their market position (Romanelli, 1989). Thanks to Brittain and Freeman (1980), Romanelli (1989) explains that aggressive-manager firms dominate an industry when the industry population density is low. On the contrary, efficient-manager firms dominate an industry when the industry capacity is saturated and the industry population density is high. Since RBSUs are more than likely in an industry with growing demand and low density, and that aggressive firms dominate this kind of industry, it can be assumed that RBSUs are firms that augment their chances of survival if they adopt an aggressive strategy in resources acquisition.

Nevertheless, in some environmental situations, it is better for RBSUs to adopt efficiency strategy in order to stay alive. However, in general, RBSUs are first movers; that permit them to acquire a lot of resources in a short period and so to set up industry standards as well as economies of scale in order to put potential competitors off entering the market (Romanelli, 1989).

In view of what has been said, some assumptions concerning resources and ownership can be expressed. On the human resources level, even though the founder of a RBSU is a highly educated individual. If the RBSU needs and can afford it, it can hire an experienced person (or more) who has been working in its market sector for several years. That person can also bring his marketing and managerial skills. On the financial level and depending on the control the founder/founding team wants to have, a part of or the entire financial capital is accessed by the company. Accessed financial capital comprises internal contribution of the founder/founding team and loans contracted to banks; it excludes external investments of, for example, venture capitalists. To end up with the technological resource, the founder/founding team that has developed a technology and patented it, and does not want to share it with someone else as well as wants to have full control of it, will keep ownership of this resource.
3.4.3. Alliance and partnership

A good means for RBSUs to have access to resources is to ally with other actors that can be suppliers, customers, competitors, other organizations at local or global level (www.smallbusinessnotes.com, 2010). According to Mohr and Spekman (1994), partnerships and alliances are “purposive strategic relationships between independent firms who share compatible goals, strive for mutual benefit, and acknowledge a high level of mutual interdependence” (p. 135). Gulati (1998) claims that they are “voluntary arrangements between firms involving exchange, sharing, or co-development of products, technologies, or services” (p. 293) while Vanhaverbeke, Duysters, Noorderhaven (2002) add that they are “inter-firms linkages that do not result in one firm having majority ownership of the other” (p. 716). To sum it up, it can be said that alliances and partnerships are formal or informal relationships between two or more independent firms or individuals that ally to reach a common goal more easily than if each one of them had acted alone.

RBSUs use alliances and partnerships to:

- achieve advantages of scale, scope and speed
- increase market penetration
- enhance competitiveness in domestic and/or global markets
- enhance product development
- develop new business opportunities through new products and services
- expand market development
- increase exports
- diversify
- create new businesses
- reduce costs
- promotion
- purchasing
- joint marketing
- joint sales or distribution
- joint production
- design collaboration
- technology licensing
- research and development


RBSUs are likely to enter in alliances and partnerships when they need to reach resources – e.g. markets, technologies, capital and people (www.gaebler.com, 2010) – they are not able to acquire either because of a lack of financial resources or because they do not need all the resources another company can provide (Das, & Teng, 2000); next, they are not able to access critical resources to seize the opportunity aimed because these are accessed by different parties and not only by them (Ramanathan et al., 1997 in Das, & Teng, 2000). Finally, in case of one does not have enough contacts to operate social contracting, alliances and partnerships collaborations can help to widen one’s network as well as enter knowledge flows (Madhok, 1997 in Das, & Teng, 2000). Alliances and partnerships can be set up in different ways such
as joint ventures, medium transaction and production costs, direct equity investments, research and development agreements, research consortia, joint-marketing, agreements, buyer-supplier relationships (Mohr, & Spekman, 1994; Das, & Teng, 2000).

To bring alliances and partnerships to success, commitment, coordination and interdependence are concepts that parties have to be aware of. Commitment means that the partners are willing to achieve the purpose of the relationship (Mohr, & Spekman, 1994). Coordination refers to the scheduling and the arrangement of the tasks assigned to the parties. Interdependence expresses the fact that each and everyone firm in the relationship is based on the other ones (Mohr, & Spekman, 1994). This whole needs cooperation and more or less flexibility within the relationship; the latter are also influenced by the relationship duration planned (Das, & Teng, 2000). Partners are more likely to get deeply involved in a long-term relationship than in a short-term one.

RBSUs can enjoy and take advantage of industry networks; for example, the Silicon Valley, USA gathers hundreds of RBSUs in the computer industry. That allows RBSUs to share knowledge and find potential allies (Storey, & Tether, 1998). When RBSUs are not spin-off emerging from certain universities or certain companies, they are helped by them. They enter into partnership with them, on one hand, to obtain some substantial inputs needed, on the other hand, to help them to survive and strengthen during their first years (Marbella et al., 1995 in Storey, & Tether, 1998). Another strategy suggested by Storey and Tether (1998) is to, instead of competing with large multinationals, find niche markets that do not interest large companies because these markets are too specialized or demand too many non-standard processes. These firms are often supported by multinationals in terms of skilled personnel, finance and marketing. These large corporations frequently emerge from the private sector and so are willing to invest in new product development and new industry emergence.

Prior to investigations, it can be assumed that, for RBSUs, alliances and partnerships are the favourite means for getting access to resources even if they have to do it to the detriment of control level they have on resources. On the Human resources level, if the RBSU notices a person who has experience in its domain but cannot afford to pay his too-high salary or is not able to offer him a competitive salary, they can enter in a business partnership so this person becomes co-owner of the RBSU and is paid through the dividends of her shares in the firm. On the financial resources level, the spin-off-RBSU can be helped by the mother company or the university it is related to. Moreover, some non-spin-off-RBSUs are also in partnership with larger companies that help them financially (Marbella et al., 1995 in Storey, & Tether, 1998); furthermore, many RBSUs are financially helped by governmental agencies (The Royal Swedish Academy of Engineering Sciences 2008; Eurostat, 2009, 2010). On the technological level, RBSUs can find out that they have complementary resources with other one RBSUs and so that they can enter in an interdependent partnership matching the same goal.
3.4.4. Merger and acquisition

Borys and Jemison (1989) define merger as “the complete unification of two (or more) organizations into a single organization” (p. 235) and acquisition as involving “the purchase of one organization by another, such that the buyer assumes control over the other” (p. 235). Mergers and acquisitions can be answers to control problems that exist in alliances and partnerships. Firms that do not want to be dependent on other firms’ resources control acquire them or merge with them in order to reduce uncertainty related to dependency on other firms (Pfeffer, 1972; Pfeffer, & Nowak, 1976 in Borys, & Jemison, 1989).

On the practical level, Brouthers and Brouthers (2000) shows that large companies that possess substantial amounts of financial and managerial resources are the ones that have the most room to engage in merger and acquisition process and to achieve them. According to Borys and Jemison (1989), contractual arrangements become even messier when companies come to a merger or acquisition. This results from the fact that organizational resources of the companies have to be merged and organized to form only one remaining organizational base. The main characteristic of companies carrying out merger and acquisition is that they are big companies; in the specific case of acquisition, the buying company is bigger in size than the other one.

Deriving from the above features of companies engaged in mergers and acquisition, it can be assumed that RBSUs are less likely to enter in merger and acquisition process than those companies in order to access resources.

Undoubtedly, star-ups are concerned by merger/acquisition and more precisely by acquisition but in the role of the acquired one. Haveman (1995) takes up Mueller (1980) who says that many start-ups vanish because of merger and acquisition. Berkema and Vermeulen (1998) emphasize the fact that companies willing to go abroad rather buy start-ups on the local market than build up new ones. By doing so, they enter the market with an existing market share and experience on the local market. Even if start-ups are partly concerned with acquisition, they are probably not on the resource seeking side but rather on the resource sought one.
3.5. Summary

In order to answer their research question – “How to build a foundation of resources in RBSUs” – explore resources theories are explored. The chapter begin with a general approach to resources in order to, like a funnel, narrow down to resources that are the basic ones to RBSUs. Next, the different means by which RBSUs are likely to access and control those resources are presented.

There are many industry areas and firms that all need resources. In diverse industries, resources follow the same nomenclature such as human resources, social resources, physical resources, financial resources, and organizational resources (Barney, 1991; Greene, & Brown, 1997; Heirman, & Clarysse, 2004). Nevertheless, business orientation determines the specific resources needed by industry area (Greene, & Brown, 1997). Thanks to that, RBSUs basic resources are identified.

Three resources are seen as the basic ones for RBSUs. These are human, financial, and technological resources (Van de Ven et al, 1984 in Heirman, & Clarysse, 2004; Barney, 1991; Roberts, 1991; Greene and Brown, 1997; Chandler, & Hanks, 1998).

RBSUs encounter constraints in the access to resources (Conner, 1991; Heirman, & Clarysse, 2004) that is why at human resources level, the founder has an important role in determining what resources RBSUs will need, in which amount and how. The founder will be helped through his abilities and skills. The more an entrepreneur as past experience, the more likely he will solve these problems. The founding team is an important factor in making what is the core activity of RBSUs, but may suffer from lacks of skills such as knowledge in marketing, management or law (Autio, 1995; Gorriño, & Isusi, 1995; Parger, 1995 in Storey, & Tether, 1998).

Financial resource is needed to run RBSUs. They need high financial fund to develop new innovative technological products and market them (Greene, & Brown, 1997). They can form their financial capital either through internal contribution such as personal savings or bank loans, or through external sources such as investors, venture capitalists, equity stakes, and so on (Carter, & Van Auken, 1989 in Chandler, & Hanks, 1998). The amount of internal and external contribution to RBSUs’ capital would crucially influence founders control on RBSUs as well as the financial risk related to them (Chandler, & Hanks, 1998).

The technological resource is a crucial resource needed by RBSUs too. Technology is what distances RBSUs from each other (Heirman, & Clarysse, 2004). The nature of RBSUs implies a certain degree of innovativeness, specific product-development cycle, and possibilities to use their technology to more than one product (ibid.).

Considering each resource as a lonely player in the business world would be a mistake. Consequently, each and everyone resource has an influence on the level of other resources needed (ibid.). For example, RBSU founder being considered as a high educated person who has work experience is likely to engender a reduction of the level of financial resources needed. In this case the human resource substitutes the financial resource (Chandler, &
Following the same idea, the technological resource will be influenced by the human resource (Heirman, & Clarysse, 2004; Storey, & Tether, 1998) as well as by the financial resource (ibid.).

In order to access and control those resources, RBSUs have different means at disposal. These are:

- **Social contracting**: refers to a set of social transactions that allows one to have access to a resource without spending money but rather by using his or her social network, by building trust and confidence with other people (Starr, & MacMillan, 1990). These social transactions are not done to the detriment of one or another part of the deal. It serves at least one of the parts without being harmful to the other one. This is due to existing social acquaintances or by previously built social links.

- **Ownership**: operational control that company has on the entity’s resources such as human, social, physical, financial, and organizational resources which allows the owner to enjoy or deplore positive or negative outcome emerging from them. Usually a company owns a resource in order to have full control on it or, in the case of the financial resource, the more ownership the more autonomy on decision making, and on controlling RBSU (Demsetz, 1988; Fama, & Jensen, 1983; Demsetz, & Lehn, 1985).

- **Alliance and partnership**: formal or informal relationships between two or more independent firms or individuals that ally to reach common goals more easily than if each one of them have had acted alone. The practice of partnership allows RBSUs to have access to resources they could not afford to acquire or own completely (Ramanathan et al., 1997 in Das, & Teng, 2000; Gulati, 1998). This practice also allows, on the financial level, to spread the financial risk incurred in risky activities like those carried out by RBSUs.

These permit RBSUs to access and control their basic resources under conditions related to the specific means described above. At the same time, fourth dual means of getting access to resources is identified. Nevertheless, this dual means **merger and acquisition** which is assembling two companies or more is less likely to be applicable to RBSUs (Pfeffer, 1972; Pfeffer, & Nowak, 1976 in Borys, & Jemison, 1989; Brouthers, & Brouthers, 2000). Merger and acquisition are often processed when company feels that the need of resources is big enough to take control over it by merging with or buying another company. This often requires big amounts of money which RBSUs do usually not possess in large quantity enough to be able to enter this process.
Figure 3: How RBSUs access and control their basic resources

This model shows what influences choices made by RBSUs’ leaders in their quest of resources and the way they can own and control them.

On the left side of the model lie the resources identified as being the basic ones to RBSUs. First, human resource contains the founder and his inherent characteristics that RBSUs are built on, the technology developing team at early stage, and possibly management and/or marketing team at later stage (Conner, 1991; Heirman, & Clarysse, 2004). Second, financial resource, composed of internal and external contributions, varies depending on different stages RBSUs goes through (Chandler, & Hanks, 1998). Third and last basic resource, technological resource is what RBSUs activity is based on (Heirman, & Clarysse, 2004).

In the centre of the model are situated the means – social contracting, ownership, partnership/alliance – to access and control resources for RBSUs (Starr, & MacMillan, 1990; Demsetz, 1988; Fama, & Jensen, 1983; Demsetz, & Lehn, 1985).

Finally, on the right side of the model are localized factors that affect the choices of RBSUs’ leaders. Substitutability of resources, control, and risk are the key points that guide RBSUs’ leaders in their attempt to either use social contracting, ownership, or partnership/alliance in order to access and control their basic resources.
4. Empirical method

This chapter gives details on how the empirical material has been gathered. The chosen approach is qualitative. The sample, the data collection, and the operationalisation are described. The section concludes on how we analyze our empirical material.

4.1. Data sources

As Bryman and Bell (2007) state, collecting empirical data should always start by a desk research i.e. look as much as possible for already existing information in various databases and other sources of information such as official reports, journals, archives, websites. When the desk research has come to an end, and if not enough data have been collected to achieve the purpose of the study; then, the next step is to carry out either a quantitative survey or a qualitative research. As previously said, in this paper, the qualitative research has been chosen.

Consequently, desk research permits to collect relevant data without having to produce enormous efforts. Even though the latter is sometimes not sufficient and needs to be completed by further investigations. In order to gather complementary data, the qualitative research method has been chosen. According to Yin (1989) and Bryman and Bell (2007), a good way to gather data in an attempt to describe social behaviour is by analyzing the relationship between theory and qualitative empirics. Thus, a qualitative research method is more appropriate when “the researcher aims to provide an in-depth elucidation” (Bryman, & Bell, 2007, p. 63) of a phenomenon.

The data are analyzed as followed. The first part contains a number of various documents. Nevertheless, these documents are mainly annual report containing the name of the RBSUs. Thus, for confidentiality and privacy reasons, they are not included in the paper. The second part brings information through a qualitative multiple-case study.

4.2. Documents

The documents searched are of an official nature. They are either come from RBSUs official websites and/or they emerge from private references such as RBSUs annual reports.

4.3. Interviews

Interviews are carried out based on the semi-structured interview. An interview guide is made; so the interviewers can adapt the questions with regard to interviewees’ answers (Bryman, & Bell, 2007). The interview guide can be found in appendix 1. The sample used and the shape of the questionnaire are explained later in this paper.

4.4. Sample

The empirical data are collected in Sweden because there lays a level of technological innovation which is one of the highest ones in Europe (The Royal Swedish Academy of Engineering Sciences, 2008; Eurostat, 2009, 2010). This can be explained by the fact that
Sweden is one of the countries that devotes a consistent part of its GNP in helping companies that are technology-oriented (ibid.).

Figure 4: R&D as a percentage of GNP and categorized by who is conducting research in 2005

![Figure 4: R&D as a percentage of GNP and categorized by who is conducting research in 2005](image)

The Royal Swedish Academy of Engineering Sciences, 2008, p. 10

Figure 4 above represents the percentage of GNP invested by countries in R&D in different sectors such as corporate sector, universities, public institutes and other organisations. One can observe that Sweden is one of the countries that is the most active in financing the research-based sector. The largest part of its help is devoted to the corporate sector followed by universities; finally a minor part is devoted to public institutes and other organisations.

This research focuses on RBSUs because it has been proven in previous studies (Heirman, & Clarysse, 2004; Heirman, & Clarysse, 2005) that the level of innovation of this sort of start-up is high. That matches the framework of the program which is innovation management and business development. Furthermore, RBSUs are of significant help to develop the economy, as well as for bringing new products onto the market. RBSUs are also potential sources of employment for the future (Storey, & Tether, 1998; Heirman, & Clarysse, 2004; Heirman, & Clarysse, 2005). According to Romanelli (1989), RBSUs also represent a significant and growing part of the start-ups landscape.

Concerning the current sample, since the early stage of the RBSUs are investigated; it is preferable to get answers from persons who can still remember what exactly happened during the early moments of their company (Carter et al., 1994 in Heirman, & Clarysse, 2004).
Heirman and Clarysse (2004) define RBSUs as young firms – 1 to 12 years old – carrying out their own researches and developing their own product. In order to collect contacts, help has been received from the Science Park of Halmstad University. This permits to have access to a range of young companies. Nevertheless, one of the companies interviewed being older than this – RBSU A, the founder was asked to tell the interviewers about the early years of his company, when it was still a start-up.

The size of the company is not of great importance to the sample but can be important for the pertinence of the empirical data. That said, companies of different size are chosen.

The environmental factors taken into consideration are the entrepreneurial community, the governmental financial help (Heirman, & Clarysse, 2004), and the proximity and help of universities. The area chosen to meet these conditions is the city of Halmstad located in Sweden where lies a large university that helps out RBSUs to take off. The interviews are made on 4 RBSUs i.e. 1 university spin-off and 3 RBSUs that are not spin-off of a university but rather emerging from an original idea of their founder. Too many university spin-offs are not wanted in the sample. University spin-offs receive more help than other RBSUs. That would bias the results. Nevertheless, having one university spin-off in the sample allows comparing choices made by the founder in both cases.

The founder or founders of the RBSUs are interviewed, because they are the persons who possess the information required to further answer the research question in the most concrete and relevant way (Carter et al., 1994 in Heirman, & Clarysse, 2004, Brush et al., 2001).

4.5. Operationalisation

The procedure implemented in the multiple-case study follows two paths. On one hand, concepts about resources supported through literature and past studies are tested. On the other hand, the manner RBSUs get access to their resources is investigated. Literature exists about the different options to access resources, but there is a lack of development on which option RBSUs settle their choice. As advised by Bryman and Bell (2007), this paper takes key points in the theoretical frame of references in order to be transformed into questions and gather empirical data which are needed to answer the research question.

4.5.1. Resources identification

Origin of the RBSU

It is assumed that the origin of the RBSU might influence access to resources either in a positive or negative way (Heirman, & Clarysse, 2004; Chandler, & Hanks, 1998; The Royal Swedish Academy of Engineering Sciences, 2008). This allows saying whether RBSUs’ access to resources is different depending on their origin e.g. self initiative, academic or corporate spin-off.

- Could you tell us how your company was born?
Resources identification

RBSUs theorists cite human, financial, and technological resources as being the most important basic resources (Heirman, & Clarysse, 2004; Greene, & Brown, 1997). This paper wants to compare those results and know if the founders are usually aware of that.

- Could you tell us the most important tangible starting resources for your RBSU?

Founder Characteristics

Since it is stressed that founder’s characteristics affect resources identification in start-up process, there are some variables that need to be collected in order to understand some problems possibly faced by RBSUs (Heirman, & Clarysse, 2004; Storey, & Tether, 1998; Greene, & Brown, 1997).

- Could you tell us about your educational background?
- Could you tell us about your professional background? (business orientation and task in the previous company)
- Could you tell us how old are you or give us an appraisal?

4.5.2. The resources

4.5.2.1. Human resource

Size of the founding team

The size of the team, its experience, and training are mentioned as key factors in the firm success. The founder can suffer from a lack of knowledge concerning the sector, managerial or marketing skills. Thus, hiring people fulfilling those characteristics is a matter of RBSUs well-development.

- Could you run the RBSU all by yourself or extra people were needed?

Raison d’être of the founding team

As underlined above, the founder abilities and skills are identified as being important resources for RBSUs. However, some authors show that science-based start-ups suffer from a lack of managerial skills and willingness to grow the business (Autio, 1995; Gorriño, & Isusi, 1995; Parger, 1995 in Storey, & Tether, 1998). Thus, the reason why founders want to hire extra people is inquired and verified.

- What has been the essential purpose of your team?

In case of existence of a team, a sub-question will be asked.

- What were their experience and training in the area they were hired for?
4.5.2.2. Financial resource

Seize the appropriate investment

The importance of founders’ knowledge to seize the appropriate investment required is checked (Cooper, Gimeno-Gascon, & Woo, 1994), as well as the absence of real guidelines helping founders to evaluate the appropriate financial starting package required (Carter and Van Auken, 1990 in Chandler, & Hanks, 1998)

- At the beginning, were you aware of the adequate investment required by your business? Why?

Internal VS external

The ratio between internal and external capital can be influenced by the founder’s need for autonomy. Indeed, resources substitutability theorists say that founders with a higher need for autonomy increase their initial investment by adding more personal funds, limiting external investment, or both (Chandler, & Hanks, 1998).

- Is your financial capital rather from internal or external origin? Why?

4.5.2.3. Physical resource

As previously said, technological resources is of a higher importance with regard to the other physical resources (Heirman, & Clarysse, 2004). However, major differences still exist between RBSUs depending on their degree of innovativeness, their position in the product-development cycle, and the application of their technology-product to one or more product (ibid.). Information cannot be collected through the RBSU website, but by hopefully asking question about the RBSU activity. It can result that data collected do not contain enough information. Thus, sub-questions have been made.

- Could you describe to us what you technological resources include?
- What is your position in the product-development cycle?
- Is the application of your product-technology to one or more product?

4.5.3. Access

The research tries to figure out to what extent companies use one or another means to get access to the different resources. Thus, data containing information about access to human, financial and technological resources either by social contracting, ownership, alliance and partnership, or merger and acquisition are investigated.

As Romanelli (1989) says, it is hard for new firms to gather and control crucial resources. Moreover, Heirman and Clarysse (2004) found out that identifying and accessing those crucial resources are things that keep on being not really clear. Indeed, no magic words exist to determine the resources needed and how to access them.
In order to get answers to these questions as neutrally as possible, the interview guide is used. The questions concerning access to resources are sober but, if need be, completed by follow-up questions (Bryman, & Bell, 2007).

On the human resources level, the main question is:

- How did you get access to your human resources?

Since the respondent might not cover all the fields to further answer properly the research question, a follow-up question can be asked based on the answers gathered during the first phase of the interview as well as on the theory about the human resources. In case of the RBSU needed to hire additional personnel (Heirman, & Clarysse, 2004), question such the one below will be asked. As a result, the follow-up question is:

- How did you get access to the additional personnel you needed?

On the financial resources level, data on whether the RBSUs had recourse to personal contribution, social contracting or partnership and alliance to access them are collected. Consequently, follow-up questions based on the answers gathered earlier and on the theory about financial resources are posed. Chandler and Hanks (1998) underline that internal and external financial resources are access by different means. Thus, the interviewers would like to know how the interviewees accessed them. Then, derived from the answer to this question, questions about reputation (Starr, & MacMillan, 1990), control and autonomy (Chandler, & Hanks, 1998), risk bearing (Fama, & Jensen, 1983; Demsetz, & Lehn, 1985; Romanelli, 1989, Starr, & MacMillan, 1990) are asked. Those concepts are considered as influencing the way RBSUs can access and control their financial resources.

- How did you get access to your internal and external financial resources?
  o Did the degree of newness of your company influence the access to financial resources?
  o Which criteria did you take into consideration when you built your financial structure?

On the physical resources level, the main question is:

- How did you get access to your technological resources?

The interview style being qualitative, it allows the analysis to start while the interview is conducted. As Bryman and Bell (2007) recommend for such approach, the interview is carried out face to face. This is considered as being more representative than any other means of interviewing e.g. telephone, Skype… The interviews take place in a quiet place excluding any disturbance. Questions follow the semi-structured interview guide prepared beforehand so questions are not omitted. If need be, follow-up questions are asked as stated in the operationalisation. The interviews are recorded to allow transcription which make the analysis easier thanks to the written support. Thus, three hours of interview transcribed in written version that permits to analyse them more accurately.
After being transcribed, the empirical data collected through interviews are arranged by concepts in a relevant way to be analysed.

### 4.6. Conducting the analysis

Thanks to the interviews being conceptualized, the analysis on how each resource independently was accessed and controlled by each company is rendered feasible. The analysis is done thanks to the help of the theoretical frame of references and additional theory that completed the lacks of the theoretical frame of references.

The analysis is carried out following the different stages of the RBSU development. This segmentation allows seeing the specifications of each of stage. Plus by implementing such segmentation, RBSUs are analyzed in a systematic manner. This will underline the similarities and differences existing at the different stages in the different RBSUs.
5. Empirical data

This chapter regroups the empirical data collected from the four interviews done, and the analysis of companies’ website to describe RBSU history. The chapter starts with an historical review of each RBSU. Further, answers from each RBSU are regrouped following the sections of the operationalisation.

5.1. Interviews

In this section is displayed a short presentation of each RBSU studied. Next, is revealed the empirical data collected during the interviews with the founders of the studied RBSUs.

5.1.1. History of the RBSUs

RBSU A was founded in 1992 and was listed as an “AB” company. RBSU A arose from an original idea of its founder; it was involved in the innovative medical technology. In 2000, the company was taken over by one of the largest medical devices manufacturers in the world. From the beginning, the RBSU could be settled thanks to the winning of a competition organized by a Swedish governmental institute that was looking for new aids for people having medical disorders. They won this competition thanks to collaboration with researchers that had worked for 20 years in this area.

The RBSU succeeded in conceiving a prototype – the greatest companies in this field had tried to make for ten years – and tested it on patients. Once the device worked properly, four engineers worked on it for three years to make it mass-producible. They could enter the market because there was not such an existing product at that moment.

The RBSU was set up on a 50/50 basis between the founder and his partner on one hand, and the researchers on the other hand. The RBSU developed manufactured and marketed innovative medical devices for personal use. The development, manufacture and marketing of the RBSU were situated in Sweden. Their first markets were Sweden and Denmark and the RBSU was composed of eight persons. The interview of the founder lasted for 45 minutes.

RBSU B was founded in 2005 and was listed as an “AB” company. RBSU B arose from an original idea of its founder; it is involved in innovative security technology for industrial and personal use. This RBSU based its technology on a researcher’s works using Bluetooth technology.

The development, manufacture and marketing take place in Sweden. The RBSU sold 20,000 products in Sweden so far. Its current markets are Denmark, Finland and Sweden. The company started with two persons and now hires 17 employees. The interview of the founder lasted 45 minutes.

RBSU C was founded in 1999 and was listed as an “AB” company. RBSU C spun out of researches conducted in Halmstad University; it is involved in innovative communication technology for industrial use at first. The company now also produces end products embedding innovative communication system.
The company started with seven employees covering technological development as well as marketing. Currently the headquarters and marketing are located in Sweden whereas the development and production are located in Malaysia; it now contains 22 employees. The interview of the founder lasted for about 30 minutes.

*RBSU D* was founded in 1999 and was listed as an “AB” company; it became a public company in 2004. The RBSU arose from a self-initiative and original business idea of its founder; it is involved in innovative medical compliance system for personal use. The company uses the most advanced technology on this market.

The company has been composed of one to four people depending on the time. During the four first years, the founder worked alone; in 2003, a second person entered the company. The team principally takes care of marketing the company and the product whereas the development and production have always been subcontracted. All activities take place in Sweden. The company now contains up to 5 employees. The interview of the founder lasted for about 30 minutes.

5.1.2. Origin of the RBSUs

Out of the four RBSUs we interviewed, three of them arose from an original idea, self initiative of their founder and one spun out of researches conducted in Halmstad University.

RBSU A: “we started this company in 1992 from original idea of ourselves.”

RBSU B: “it was a totally self initiative that resulted from a meeting with the head of the aid for elderly people here in Halmstad.”

RBSU C: “We conducted a research project in 1999 where we would evaluate the Bluetooth technology for Ericsson and Volvo. So that was when we saw that this technology could be suitable for industrial use. So you could say it was a spin-off.”

RBSU D: “the business idea was unique.”

All the companies are innovative and technology based.

RBSU A: “...they wanted a brand new technology...”; “...we could pour into our innovative team...”

RBSU B: “...based on the Bluetooth technology...”; “...you need innovativeness...”

RBSU C: “It is all very technology driven.”; “These things they are considered as components and it is shrinking margins and it’s very tough to be innovative when you do this.”

RBSU D: “That was the basic idea, to develop a product that was unique in the sense that it had the most advanced technology on the market.”
5.1.3. Resources identification

RBSU A pinpointed innovativeness, knowledge, and human resource as important resources. According to its founder, these resources are not to be regarded solely but as a combination.

“The most important resources in the company from the beginning were our innovativeness, the doctors’ researches – they got 15 years of research that we could pour into our innovative team that had free hands and that could do whatever they wanted without any restrictions and without any knowledge of what was done before, so they could think of something new and totally different to what was done before – so it was this combination of those very skilful researchers who knew everything about this topic and again our innovative engineers that did not know anything about this medical field.”

Moreover, RBSU A mentioned the importance of marketing and legal regulations that have to be taken into account.

“We needed more knowledge on how to market, how to get through the different regulations – European regulations and specific situations in the USA for instance.”

On the financial level, RBSU A’s founder thought that if you manage to do the things right, you get finance without too many problems.

“You need skills, you need innovativeness, you need money, you need market experience, and knowledge on the market. You need the idea, the market possibilities, and knowledge; then you get finance.”

RBSU B considered the combination of market experience, knowledge and innovativeness as important resource.

“...you have the combination of these three elements: market experience, deep knowledge in technology, and an innovative team that brings something totally new...”

In order to fulfil the market experience, RBSU B identified that they needed to have the right person as CEO of the company.

“...to have a CEO who had the market competences to bring the product to the market and who knew how to sell the product to the different communities or societies.”

“You must be aware that there are always people that are better than you. Usually for short periods I act as a CEO in the very early beginning in all the company I started; all companies must find the best guy, the best situated for this job. I am not really interested in being CEO in the companies because it is a lot of work. So you must find the best guy to take this place, sometimes it’s quick to find him, sometimes you pick the wrong guy.”

RBSU B’s founder thinks that at the beginning, you need the right financing in order to start.

“...get the right financing to pour money in the company.”
For RBSU C, we could see that, in the beginning, they were not interested in marketing, but rather in technology development. Their main resources were their business idea, the project they had, the technology they used, and the human resources that were allocated to develop their product. On the other hand this company has had financers since the beginning.

“This business idea of encapsulating the technology into modules makes it easy for users to adopt the technology that was the main reason.”

“We had this project...”

“This company from the beginning was really heavy on the engineering side.”

“You can say that this company was founded and had a venture capital funding from day one.”

RBSU D adopted another strategy from the beginning that consisted of marketing the company and its product in order to get finance and being able to subcontract the development and the production of its product.

“We started “AB” directly and then we needed to register as a public company to be able to go on the stock exchange. We had the plan to do this all the way since the beginning.”

“The key aspect of that is to find a way to market the company and the product to attract enough attention; that is the key aspect.”

We could see that the most important resources for it were the founder of the company as well as the financing they got in order to subcontract. The Subcontractors can be considered as an important resource for them as well.

“The technology as always been subcontracted and I think we are going continue that way. It fits us very good to work like that...”

At the same time, an important resource for this RBSU was the exchange of knowledge they could get through meetings with university researchers, their investors that were connected to the medical area, and the investors that could also help them on the financial and regulations level.

“...we found a lot of good adviser in our shareholders, a lot of those shareholders where not only contributing with money, but also with knowledge.”

“We have had a lot of information exchange with Karolinska university hospital in Stockholm, Sahlgrenska university hospital in Gothenburg, and some in Lund as well.”

“A lot of medical people all over Sweden found that idea very interesting and invested in the company. We have always been good at finding an angle where to find new investors.”
5.1.4. Founder characteristics

RBSU A’s founder is an engineer from pre-university level and took innovation engineering at university; he was 25 years old when he started this company.

RBSU B’s founder has an entrepreneurial education combining technical topics, and economics and marketing; he qualifies himself as a fanciful person looking at possibilities not at problems; he was 38 years old when he founded this company and has founded several companies before and so has experience in the entrepreneurial process.

“...and also the fantasy and I’m not looking at the problems, I’m looking at the possibilities. It is good to see that at early stage. You also need the social skills to make other people believe the same.”

RBSU C’s founder was doing his PhD by conducting the researches from which he started his company. He never finished his PhD since he started the company. He has a license in computer engineering and still is a researcher the computer department that he founded at university; he has industrial experience going back to when he worked in the computer industry before being researcher at university; he was 47 years old when he started his company.

RBSU D’s founder calls himself a serial entrepreneur; that is the third company he founded, the first one in the medical sector; nevertheless, he is a board member in another company involved in the medical sector. He has a technical degree and started to study economics and marketing but never finished it; he started his first company instead. He started his first company when he was 20 years old and started this one at the age of 30 years old.

5.1.5. Size of the founding team

RBSU A’s founding team was composed of four persons consisting of the founder and his colleague, and two researchers.

RBSU B’s founding team was composed of two persons consisting of the founder and one researcher.

RBSU C’s founding team was composed of seven persons consisting of the founder, his colleague, and 5 engineers.

RBSU D’s founding team consisted of the founder himself.

“The early years, the company was not active, I was alone.”

Raison d’être of the founding team

RBSU A’s founding team aimed to understand the problem assigned to them by tight collaboration between the researchers who knew about the problem and the engineers who solved the problem by materializing the solution.
“We didn’t have any competence in this field so we went and see some researcher in a hospital because we didn’t know how to do that and we met some interesting people. So after one or two years I went in contact with this doctor in the hospital in Halmstad. He had conducted researches about this problem for 15 years or something, maybe 20 years. He was the head of the department and his wife was also part of this department and so they had conducted those researches together. He asked us if we could take a look at his researches and see if we could help the people with this disease. Those people have major. With this device you can get rid of this problem within 5 minutes. We made some sort of prototype and it worked.”

RBSU B’s founding team aimed to adapt the existing technology they possessed in order to make it usable for the purpose they wanted to reach.

“I had some business with a guy who developed a dating system based on the Bluetooth technology in Singapore 10 years ago. They had really interested component, safe with regard to security, easy to upload via internet. I took a meeting with the owner, telling him he has a really good idea, but he won’t make money from it. So I decided to replace the profile in the component by a “key”. So the guy starts to rethink his product with his team. Now they have one of the best solutions on how to deal with digital keys in open network.”

Then they worked on the mechanical part of the product with another team.

“So we put another team that start working on the mechanic hardware.”

RBSU C’s founding team worked on developing the product of the company and sell it in B2B.

“This company from the beginning was really heavy on the engineering side.”

“We rather focused on the development of the product at the beginning because if you do this kind of things, the marketing itself is really technical, so this is a bit of a challenge for us now, going to a more market oriented things. Now we are recruiting sales people from, they are not engineers, they are sport people.”

RBSU D’s founder aimed to develop his business idea and work on the marketing of his company to attract investors in order to produce his product.

“I tried to have a look at the different statement of the market and we have continued to do that all along the way. At first I looked at the private sector, patients buying medicine at the pharmacy. Then I looked at the care givers. Different types of care givers where we could identify the specific needs I guess. Then I looked at the pharmaceutical sector, clinical trials and the product sector at pharmaceutical companies. I tried to make some trials at the different sectors and found in some areas very big obstacles like in clinical trials the process is extremely long during the process a lot of documentation, a lot of approvals from the government are needed to be regarded.”
“We have been working very much with the financial aspect and marketing the company in the financial sector. That has been a lot of work.”

5.1.6. Seize of the appropriate investment

In general, the interviewees told us that if the appropriate investment was known from the beginning everything would be easier. It has to be understood that nobody really knows; indeed even when a business plan is well settled, it is not certain that it will be matched.

RBSU A’s founder thought that he knew the appropriate investment he would need from the beginning but that the venture capitalists came too early; as a result, because of their pressure on investing more and going faster, the RBSU finally went over its budget and almost went bankrupt.

“Yes we knew the appropriate investment but they came up at a too early stage those capitalists. If we had had the time to carry out this company for a couple of months more, we could have done things a little bit better. We could have brought this product to the next level at a lower cost. When they came at early stage they wanted to tell how to manage the money. Many critics I got as the CEO was that we didn’t use the money enough, they wanted us to invest more because nothing was happening. But I wanted to do things at a low cost. Okay it takes more time but it’s really cheap. So a better approach, while watching behind, we should have brought this company alone a couple of months more before the capital came in. Then we would have had a bigger success. Because when the capital comes, the time becomes more crucial. Time is more important than hiring 10 more people.”

“They put SEK 30,000,000 in the company at a very early stage … Actually we got lots of costs in this company with marketing and it cost us SEK 55,000,000 in the end to build up this company. In 2000, we ran out of money and we were some weeks away from bankruptcy.”

RBSU B did not exactly know the appropriate investment they would need in order to bring their project to reality so they worked really cheap with small money.

“Business angels came very early but with quite small money so we worked very cheap. We brought the product a little bit longer before we let these financers in.”

RBSU C’s founder told us that nobody really knows and that if people were stopped because they do not know, nobody would start a company.

“We thought we knew the appropriate investment, nobody knows really. I would say that we thought that everything would go much faster than it did and we would make more money earlier. And I would say that everybody that starts a company thinks so and I think it is a good idea to think so otherwise not anyone would start a company. So if people are accused of being naïve, thanks god for that otherwise we wouldn’t have all those companies around.”

RBSU D’s founder had no idea of what investment he would need in order to bring his project to reality but got the help of financial advisers. The only thing he was aware of is that it would cost him a lot of money.
“...I found a lot of good adviser in our shareholders...”

“I have had many financial advisors...”

“For me I was really interested in the segment of medtech, I saw that taking a medtech idea all the way up to volume production would cost a lot of money...”

5.1.7. Access to resources

5.1.7.1. Human resource

RBSU A’s founder used to use networks in order to get access to his human resources.

“Well, the best thinks when you do not know anybody, take the people that are quite close to you. A lot of companies are hiring people only because they need each other – ‘Well I know you so you could work for me’ – You form a team and you grow experience together and them we become super professional in that area, without anything from the beginning. Most of the company in the world are like that. I believe it is sometimes too much hunt for the most important people; you can find really good people everywhere.”

When this entrepreneur needs people with experience, he looks for people who work in other companies and who have a good reputation.

“Perhaps the best people to put in the company are people who have started some work, at some company and they find not so interesting, not so much fun or they want to do something else, so you can pick them up after their first job. In that situation you have some experience and you do know in some way how to act or behave in a certain situation.”

He also needed people with knowledge like the researchers he picked up at the hospital but also engineers; when hiring engineers, he prefers them to be inexpeirenced so they are not disturbed by past experience.

“We didn’t have any competence in this field so we went and see some researcher in a hospital because we didn’t know how to do that and we met some interesting people.”

“I usually find those people at the university.”

“...some young people with new idea and different perspective...”

RBSU B’s founder liked to use networks in order to get access to his human resources as well.

“I have invested some money in Sven’s research couple of years before this so we had some communication and I got to know him. He came to me with this dating idea and that was quite funny and we tried to make something out of it so we started collaboration in 2001-2002. Actually, Sten was at university when I was there 20 years ago. After that, he got several companies and I got to know him without being partner but he had a company at the same office at this science park. After that, he worked for a big company. When I was looking for a CEO for my RBSU, Sten came up to my mind. I told him: ‘Sten are you interested in leaving
your job and doing something quite interesting, half the salary, twice the fun?’ He was directly interested because he had been working for this big company for a couple of years already and he was kind of bored. So that was old friends.”

RBSU C’s founder used to hire technical people he knew beforehand; for marketing people, he recruited them externally.

“My former students. In the first round then we recruited some new people also from University. Easy way to handpick people.”

“Marketing people have always been externally recruited.”

RBSU D’s founder worked alone for some years then a friend of his joined him; for other employees like engineers, they networked.

“They are all around you so it is just a matter of meeting people.”

“...a good friend of mine, one of the first colleagues has a big network of contacts mostly in Stockholm so he has been a good help during that process.”

5.1.7.2. Financial resource

RBSU A worked with almost no money and invested time rather than money; the founder told us he does not like to borrow money from people; therefore, they had to work really cheap which is also a means to lower the financial risks.

“I did not have anything, I came with two empty hands.”

“A lot of working time and working for free. So that was the idea before we started this RBSU but we started like consulting engineers in 1991 for the first three, four years, we advised company on how to make product development. And then we created a little platform on that. The first spin off, we worked hell lot with no money.”

“Well I remember I took a loan from my little brother and I still owe him that money (10.000SEK). I personally avoid borrowing money from people, because to me the best thing is working cheap at the beginning, work hard.”

“Start small, without high salary and fancy car, you get more from the company at the end.”

At a very early stage, they called in a Swedish/Danish investment fund which was a risk capital company; consequently, this company was mainly externally financed at early stage.

“At the very early stage, I got in contact with a risk capital company that was Swedish Danish investment collaboration.”

The founder told us he could not get any loan from the banks because they do not like risky business and they usually do not lend money to small businesses that do not have cash flow and customers.
“No loan in the banks because they are not interested in investing in these kind of companies, because it is too risky. Of course we talk with the bank at the beginning to get access to some kind of credit, small amount that do not really give you the possibility of doing anything. But the bank system you can pull in to the financing you have, a positive cash flow, and a lot of customers and perhaps than it will be easier to use to bank and add some more cash in the system, so you can continue the process independently.”

“No, they should not lend money to small RBSUs, the regulations are against it, and so they cannot do it. It is too risky to test new things.”

He also mentioned that loans can be found at a governmental agency called Almi which is a risk loan fund with high interest rate.

“Of course you have a lot of cooperation with Almi, they can borrow you money in the early stage of the company. Actually, we still do that and most of the RBSU does that from the beginning. This helps come from the government, they can have a loan for more than 200,000€. If they company go bankruptcy they do not ask for the money back. It is so a risky loan which involve really high interest. So if you succeed it is really expensive. This help is really important for our kind of companies.”

On a more general level concerning access to capital he told us:

“Built something up that you can start to finance with some contribution and then you have some business angel that come, some with a lot of money.”

Concerning venture capitalists, the founder told us that RBSUs without track record get more attention than other ones because they have not done any mistake yet.

“Venture capitalists tend to find people with no background, because people with no background haven’t failed yet and Scandinavian people do not like invest in people who have already failed. The reason is they look at young and promising entrepreneurs.”

The level of control is also something the founder told us about concerning venture capitalists’ will in investing in companies with no track records.

“…the major reason is since they have a lack of experience, they will be more willing to listen to venture capitalist idea and go in their sense, ‘they are easier to manipulate’. We can say that venture capitalist like having control on the business since it is also their money invested in the project.”

“…over the years it started to be 50 times harder to get a loan from those people. Thus I realized over the time your track record become more and more influencing because of some stuff that went wrong, you are less willing to let yourself be influenced by venture capitalist point of view. In Sweden and Denmark, it is not really accepted to fail, if you fail with your company in the USA it is ok, you get experience form it but in Scandinavian countries if you go bankrupt people will not really appreciate it.”
The level of control was really important to this entrepreneur and he actually regrets he did not keep control of his company longer so he could have developed his product the way he wanted to; indeed when the venture capitalists put money in his RBSU, he lost control because of the capitalists’ investment; as a result, they put pressure on him to go faster and he could not develop the product as he planned to.

“They came up at a too early stage those capitalists. If we had had the time to carry out this company for a couple of months more, we could have done things a little bit better. We could have brought this product to the next level at a lower cost. When they came at early stage they wanted to tell how to manage the money. Many critics I got as the CEO was that we did not use the money enough, they wanted us to invest more because nothing was happening. But I wanted to do things at a low cost. Okay it takes more time but it is really cheap. So a better approach, while watching behind, we should have brought this company alone a couple of months more before the capital came in. Then we would have had a bigger success. Because when the capital comes, the time becomes more crucial. Time is more important than hiring 10 more people. The process must go through each steps, you cannot miss anyone of them. You get more knowledge and so maybe you can see that you are not going in the good direction. But when the capital is there and the board as well, people do not see those steps and it is very difficult to change of direction, it is almost impossible. So it is better to get more knowledge before this structure comes in place.”

Even while still having the majority parts in the company, this entrepreneur had difficulties to keep control on decision making because of the money brought by these capitalists; he advised us to pick venture capitalists carefully

“Actually we had the majority but they brought the money so they wanted to tell us what to do because they think they know better then you. They say they have experience too, that they know what to do, and you follow their advice.”

“You should pick them very carefully. Some are very good, these are like angels. They know what is important and they let the entrepreneur grow by himself. The ones that are not good, they actually breakdown what you are doing, they try to break you down.”

As a conclusion to that he gave us two reasons why in some case it is maybe better to keep the company internally financed for a longer time at the beginning so you can keep control of what you are doing.

“...in general people bring their own money at the beginning to go through the first steps, to check whether it is a good idea, whether it is possible to go to the market with the product like that, whether some technical evaluation are required and perhaps build the first team ... and after that we try to run the company ourselves thanks to the business angel money and after either we sell it or we try to bring some more money inside thanks to the venture capitalist, so we can accelerate the process.”

“...it is a question of control, the more money you borrow, the less control you have on your company, so at the end you maybe own only 20% of your company.”
The second reason why venture capitalists should not be the first means to finance the company is a question of risk.

“...to ensure the quality of the product, to see if they are really something we believe in and if it show up this is not something we want we turn it down immediately, because then we do not want to lose money on it ... this is not always a lot of money involved, but this kind of businesses is really risky.”

To this entrepreneur, getting access to venture capitalists financing is a matter of business orientation and fashion that venture capitalists follow.

“It was really easy to get access to finance, if you work in an area venture capitalist are interested in.”

“I believe that risk capitalist, venture capitalist can improve the learning experience but also have the tendency to look at the same kind of companies, they move together, thus if you have a great company, but in the wrong area, they are no financing for it, even if it is a fantastic company. For instance, venture capitalists are interest in para-medical industry and not industrial product at that time.”

RBSU B got easy financing thanks to a university research centre from Stockholm which was quite interested in their project and was willing to finance it at an even higher level than the founder expected which allowed them to have internal financing and so keep full control on the product development.

“We got quite easy financing, it came really quick. The financers had their own research institute; it is a university in Stockholm which had a lot of money to invest. The outcome of their investment, they could use it to make some research in the university. The rulers of this institute were asked to invest SEK10,000,000 and they got great interest in our project but while we got out the conference room they said they did not want to invest SEK10,000,000 but SEK20,000,000. So we came out with twice as much money as expected. Other companies also got interested and so we got money easily.”

Even though they had big control in the beginning, they had to lose part of it in order to grow and the founder to explain us:

“When you do not have the majority, then you have to use you skillfulness and social skills and of course be clever. You must find the best way to solve the situation and you must find the best way to keep some control but not all the control. It is better to have 10-20% of something that is very big than 100% of nothing.”

This entrepreneur thought it is quite common to lose control even though some of his peers want to keep it.

“I think it is quite common to lose control but there are of course entrepreneurs or innovators that want to keep whole control, they want to keep all for themselves but it is in general small companies that do not grow.”
He told us that networking can be a good way to get access to finance but that in bad times, you see who you can rely on.

“Networking is very important. Of course there are some drawbacks as well. After a time, during bad times, for instance, you can see who is who. Some of them ran away, some of them are still there. Some of them like this risky situation and like those tests.”

This entrepreneur is involved in many companies and considers risk bearing as an important since you never know which one will be the most successful; consequently, he does not have full ownership in his companies and so prefer to lose control but spread his financial risks. This also allows him to work with the same business angels in different companies so everybody spread his risks and he also gets financing from them for different activities.

“I am involved in several companies and I could have more ownership in them but when you are involved in more than one company at a time, you do not know which one will be the most successful so you have to spread your risk a little bit. So I could not manage to finance that company myself so I let people come with me. You can find the same angels in different kinds of company. They also have the possibility to spread the risks. Some of those companies almost have the same owners. Some angels come to me and tell me they want to be part of my new companies. Really early they can pour some money.”

RBSU C, at the beginning, had most of its capital structure coming from internal contribution that the founder and his colleague could get through loans from banks and Almi, a governmental agency that gives out risky loans at high interest rates.

“We had bank loans to some extent and there is this institution in Sweden called Almi, we had some loans there as well.”

“These are high risk loans but still loans because they don’t take any equity stake in the companies they lend to.”

From day one this RBSU started with venture capital which was the only external contribution brought to this company; the venture capitalist did not have majority stake in the company, on the contrary, it was very small money.

“You can say that this company was founded and we had a venture capital funding from day one.”

“They were not majority holders, they were not majority shareholders. But on the other hand, these venture cap companies, I knew these people very well from the start. It was not very risky for us. You can say that I and another guy founded the company; you can also say that we founded this company together with this venture cap. So these venture caps put in very seed money, just nothing. We had this project; I mean it was really nothing when we started. You could say that it was really purely seed money that they put in.”
This RBSU also received a financing emerging from the European Union.

“We had some project financing for developing our RFID system. That was EU financing that led us to the RFID market.”

RBSU D chose another strategy to get access to its financial resources; the founder of the company decided to spread the ownership of the company and so to issue shares that people could buy; that strategy has been the same since the founding of the company.

“We have financed the company through spreading the ownership. Most of that capital we attracted it when we were on the stock exchange in Stockholm, when we went public. The process of doing that is quite like a workflow you follow that is quite structured.”

“What you do is that you give out more stocks from the company, the company gives out stocks and your owners pay money for those stocks and you use this money to form the capital of the company. If one person buys a lot of stocks then she has the possibility to vote on the board meeting.”

“The same structure when I was “AB”. The only difference was that the company was not public. We attracted the capital in the exact same way.”

This company got access to finance quite easily thanks to its business sector and its business idea that interested people.

“We had one absolutely brilliant idea when we went public. That was to send out some information to the doctors’ association. A lot of medical people all over Sweden found that idea very interesting and invested in the company. We have always been good at finding an angle where to find new investors. That has been the key thing.”

“...we had a different idea of spreading the shares and present the product in the companies in such a way that big mass of people find it really interesting. I think today we have 1,000 shareholders something like that.”

The financial aspects of this RBSU have always been strong; that is thanks to the colleague of the founder as well as shareholders who brought financial advice at the same time as money in the company.

“My colleague on the financial sector will always be here because he has a very good control of that.”

“... I would call them more financial advisors.”

This entrepreneur did not want to take financial risks and so preferred to lose control in order to lower the financial risks.

“I wanted to do that without taking huge financial risk myself; so I tried to look at different ways, ideas to finance to company; so I thought this was really appealing in my case.”

“I preferred to lose a bit of control instead of taking big financial risks.”
**5.1.7.3. Technological resource**

RBSU A got access to its technology by building it inside the company thanks to the knowledge of both the engineers on the technical level and the researchers on the knowledge concerning the problem area.

“It was a partnership between us and those researches. The most crucial competence in their competence was the physiological part, what is going on, and our employees thought those researchers had all the answer to our question, but when we compared it with other scientist they had different kind of answers, so any way, we based the company on their research and they were at our disposition 24/7. We could call them and discuss different kind of problem, but when it came to more technical problems, how to build the product, make it market attractive, it was more our resources, engineering, consultancy and it was talking with the company that are different kind of process.”

“It was a mix between researchers and us the young team.”

RBSU B got access to its technology thanks to a partnership with the researcher who worked with the technology on which its patent is based on.

“We built it (the technology) inside the company besides Sven’s works.”

RBSU C’s technology spun out of researches conducted by its founder at his university.

“We conducted a research project in 1999 where we would evaluate the Bluetooth technology for Ericsson and Volvo. So that was when we saw that this technology could be suitable for industrial use.”

“We got access to the technology thanks to the researches I was conducting and we had very good competence in radio design and software for radio protocol. We used that to develop an RFID system.”

RBSU C did not register many patents but use another protection means.

“You can say that we rely heavily on that we make the product very hard to copy, that’s the way we work, having software that is not easy to copy.”

RBSU D, possessing sufficient financial resources, subcontracts its technology development to other companies.

“We have many different RBSU companies that have the ambition to do the development work themselves.”

“The technology has always been subcontracted and I think we are going to continue that way; that fits us very good to work like that.”

In order to get information about the technology they should use, RBSU D interacts with university research centres.
“We have had a lot of information exchange with Karolinska university hospital in Stockholm, Sahlgrenska university hospital in Gothenburg, and some in Lund as well.”
6. Analysis
This section comprises the analysis of the two stages of RBSUs development. In each stage, it is described what resources are the most important ones to each RBSU and how they got access to and control over those resources.

Figure 5: Analysis model

<table>
<thead>
<tr>
<th>RBSU</th>
<th>Resources</th>
<th>Access and control</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>B</td>
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<tr>
<td>C</td>
<td></td>
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<tr>
<td>D</td>
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</tbody>
</table>

Stage 1

In this chapter, the most important resources of the RBSUs sample are determined. These important resources i.e. human, financial and technological resources are likely to be owned differently at different stages of the start-up development. Plus, the analysed RBSUs comprise two stages which are early stage or technology development stage, and production or marketing stage. The first stage is defined as the development of a new and innovative technology, and the second stage as the production of the end product and the marketing of it. These definitions are connected and can be found back in Heirman and Clarysse's (2004) definition of RBSUs which states that these are “new business start-ups which develop and market new products or services based upon a proprietary technology or skill” (p. 247).

Consequently, the most important resources of the RBSUs sample have to be determined. The sample mainly points out human resource and financial resource as being the most important resources. Knowledge and innovativeness are pointed out a couple of times. This supports Heirman and Clarysse (2004) theory that also points out human and financial resources as being highly important resources for RBSUs. Nevertheless, the need for human and financial resources differs depending on the stage the RBSUs face – either development of the business
idea or development and marketing the product – this point is developed further through the analysis.

RBSUs are companies developing new products; therefore the technological resource needs to be created from scratch or results from the combination of different technologies. This does not mean that the technological resource is not important, but since the technological resource needs to be created the interviewees rather underline knowledge and innovativeness as being important resources. The creation of the technological resource stems from the founder(s), his team and possible partners’ contribution. Thanks to their knowledge combination on how to develop the business idea, how to turn it into a product development idea, and the competence on how to market the product, RBSUs will get access to the financial resource. Even if it has been recognized that in the RBSUs’ early stage the level of financial resource can be low, it is still necessary, RBSUs’ founders will always need at minimum seed money to turn their idea into something tangible. The sample shows that besides being an essential resource, the financial resource is rather easy to access for these start-ups. There are plenty of public or private agencies that are interested in investing in RBSUs in Sweden. The only condition that could affect the resource activation is to develop technology those investors are interested in. Thus, this does not really support Storey and Tether (1998) who mention that start-up sufferers from a lack of financing; at least not the ones interviewed which seem to evolve in business sectors that are interesting to invest in.

6.1. Early/development stage

**RBSU A**

RBSU A was founded by a single man. However, from the really beginning, there were more actors in the company: the founder’s colleague who contributed to the firm’s development by providing his financial knowledge and the researchers’ team that contributed to the product development by sharing their studies’ results and knowledge that are really specific and out of engineer’s academic education. That corroborates Heirman and Clarysse’s (2004) theory pointing out the need for awareness of the founder who, here, felt the need for help by other people who could complete is insufficient knowledge in different fields. Thus, during the product development stage the team was made of the founder, a financial expert, and a researchers’ team providing specific knowledge.

The financial expert is a friend of the founder and was hired by the founder. Thus, the financial expert allows the founder to use his knowledge by providing him, through a formal hiring contract, the right of employing him within the company. Then, the researchers’ team was not hired by RBSU A, they were in a partnership. During the interview, the founder clearly mentioned that a partnership between him and the researchers’ team was established through a formal contract. Moreover, according to Mohr and Spekman (1994), since the two parties were willing to reach the same goal, the partnership is confirmed.

On the financial aspect, RBSU A worked with almost no money in the very beginning of the firm. According to Chandler and Hanks (1998), finance is just one of the resources needed in a new venture. At the same time, the amount of finance needed differs from business
orientation. As a result, it is not surprising that this new venture started with a very low capital at the very early stage. Nevertheless, its financial capital was soon flooded by external money but the founding team could keep it sufficiently internally financed in order to keep the majority stake in the firm.

The investment in the very beginning was the time the founder devoted to his company. The only money he borrowed at that moment was a small loan of SEK10,000 from his little brother. When the time came to invest more money in the firm, the founding team could not have access to bank loans in order to generate an internal capital because banks do not lend money to risky activities. The founding team could borrow money from a governmental agency called Almi. Thanks to further researches about R&D and innovation financing in Sweden it can be observed that Sweden invests part of its GNP in governmental institutions that can help RBSUs to develop by issuing loans to them (The Royal Swedish Academy of Engineering Sciences, 2008). Externally, some venture capitalists came and took parts of the company. In fact, according to The Royal Swedish Academy of Engineering Sciences (2008), venture capitalists invest considerably in the R&D and innovation sector in Sweden compared to other countries.

Consequently, RBSU A owned the majority of its capital. Firstly, thanks to the little brother of the founder who lent him money with no interest rate, this is called social contracting by Starr and MacMillan (1990) and implies trust and gratitude between the two actors. Secondly, this little social contribution not being sufficient, the principal part of the internal capital emerged from loans contracted to Almi – a governmental agency providing high rate loans for risky activities. This agency, being supported by the Swedish government (The Royal Swedish Academy of Engineering Sciences, 2008), does not ask the money back if the company that borrowed money goes bankrupt. On the other hand, the company faces high rate interests in case of success. The fact that RBSU A owned a majority of its capital offered the founder the right to have majority of the decisional power in the company as well as enjoying or deploring majority of the positive or negative output emerging from the company (Fama, & Jensen, 1983). Nevertheless, a consequent part of its capital was brought thanks to a partnership with venture capitalists. According to Mohr and Spekman (1994), partnership exists between people who want to reach the same aim while being interdependent. The partnership between RBSU A and the venture capitalists shows the interdependence of the actors. RBSU A has a project but does not have sufficient finance to carry it to the market and venture capitalists have money and are looking for project to support with the purpose of making it successful.

RBSU A’s technological resource was developed thanks to a partnership with researchers who could help them bringing knowledge the innovative engineers of the company did not master. Nevertheless, the technology built thanks to this partnership was erected within the company which made the company owner of the technology. The innovativeness of this product is considered as being a radical innovation (Henderson, & Clark, 1990) which empowers the fact that this RBSU has ownership on this resource since it brought this radically new product on the market (Demsetz, & Lehn, 1985).
Table 1: Control of the resources by RBSU A at early stage

<table>
<thead>
<tr>
<th>RBSU A Early stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social contracting</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership(^1)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Merger/acquisition</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

\(^1\) Ownership in case of human resource has to be understood as hiring

**RBSU B**

This RBSU arose from the idea of its main founder who contacted an old acquaintance of his to start the company with. The main founder was 38 years old when the company started; the second one was 36 years old. The main founder has an educational background in economy and marketing combined to some entrepreneurial and technological education. He started several companies involved in technological development before launching this one in 2005. His experience and background confirm Heirman and Clarysse (2004) who point out the importance of the founder as the engine of the RBSU thanks to his abilities to seize opportunities and carry them. The colleague and partner (Mohr & Spekman, 1994) has an educational background in technology and worked for more or less a decade in technology development in a big corporation. Together, they provide RBSU B with their skills and knowledge in innovativeness and technology. Nevertheless, due to the product specificity, another person is involved in product marketing. One of the founders knew that the presence of this person was required since she already worked in the technological field and so had knowledge about the market and could bring their product to the market. To say it with other words, this person has the specific market knowledge the RBSU B is interested in (Romanelli, 1989) and so has been hired by the RBSU to become its CEO.

RBSU B, in its early stage, was fully internally financed which, according to Chandler and Hanks (1998), is likely to reflect a certain need for autonomy and control of the founder or founding team. This internal financing was made possible thanks to a university who was interested in the project and financed the researches and the product development. According to The Royal Swedish Academy of Engineering Sciences (2008), universities receive money in order to conduct research and/or to finance researches in the private sector.

Consequently, at the very early stage of the product development, RBSU B had full ownership on its financial capital which represents a full control and the right to enjoy or deplore the positive or negative output of the company (Fama, & Jensen, 1983).
RBSU B’s founder, thanks to a partnership with a researcher, could adapt the researcher’s technology in order to reach the technology needed to its business idea and activity. Consequently, this technology was partly developed in-house; even though, the final version of the technology used by this company is its property (ibid.). The use made of this technology is highly innovative which helps understanding why this RBSU has and keeps full ownership on it. Full control on the technology reflects the will of not sharing it and of maximizing the value of its resource by being the only one company that owns it (Demsetz, & Lehn, 1985).

Table 2: Control of the resources by RBSU B at early stage

<table>
<thead>
<tr>
<th>RBSU B Early stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social contracting</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ownership²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merger/acquisition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RBSU C**

RBSU C’s founder has high knowledge and skills in technological devices related to computer sciences. Nonetheless, other engineers were required to develop the technology further. The founder thought he needed additional people to help him carrying out all the work required for the technology development. Consequently, he decided to pick up someone he used to conduct researches at university with. By remembering Cooper, Gimeno-Gascon and Woo (1994), firm’s growth and success can emerge from the founder’s relevant knowledge basis. In this case, thanks to his past experience in technological devices, the founder was aware of the massive work load such a technology development required. Therefore, he decided that surrounding himself by other people was necessary to develop the product faster and so, hopefully, grow faster.

During the interview the founder of RBSU C said he hired those engineers on a formal contract. While making research at university, the founder taught a bit as well. He developed good relationships with some students. Thus, at the time of recruiting an engineering team, the founder thought it was appropriate to go back to the university and hire some of his former students. Furthermore, a partnership was established between the founder and his colleague. Those two persons were carrying out studies at university for many years. Even though the founder came out with the idea, he thought it was more suitable to form a partnership with his

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² Ownership in case of human resource has to be understood as hiring
colleague since they had been working together on this technology at university for many years.

Financially, RBSU C owned the major part of its financial capital at that stage. Since this company emerged from a project conducted by the founder of this company, it can be understood that this person was attached to his product development and wanted to keep some autonomy in the commencement (Chandler, & Hanks, 1998). This company also had a little external contribution to its capital which represented almost nothing compared to the rest of the capital.

The internal contribution to the capital at early stage brought by the founder and his colleague was emerging from loans contracted to banks and Almi, governmental agency, which in Sweden is well known by entrepreneurs thanks to its high rates loans dedicated to risky activities (The Royal Swedish Academy of Engineering Sciences 2008). The external contribution to the capital at early stage was seed money completing the finance needed in order to conduct the technology development. However, this did not really permit them to be as innovative as they would have liked to be. As Chandler and Hanks (1998) argue, an inappropriate amount of money can affect the innovativeness of the company.

Consequently, RBSU C had quasi-full ownership of the financial resource at the beginning of the company and during the technology development which allowed the founder and his colleague to have control on the development process and decision making in the company (Fama, & Jensen, 1983; Demsetz, & Lehn, 1985). The seed external money that came from the beginning was provided by a venture capitalist. He came as financial partner from the beginning in order to complete the finance needed so as to progress in the technology development. This is a partnership since the company and the ventures capitalist both brought resources interdependently in order to reach the same goal (Mohr, & Spekman, 1994).

RBSU C’s technology derives from researches conducted by its founder in his university department. The founder carried on the researches after the setting up of his company. The technology developed in this company is owned and made hardly reproducible by its engineers thanks to architectural innovation. This means that they build this technology departing from an existing knowledge in an innovative and new way (Henderson, & Clark, 1990). Moreover, this technology, being considered as a component, allows this company to embed it in different end products. Thus, this is of great importance for this company to keep ownership on its technological resource in order to compete with other actors in the same business orientation (Heirman, & Clarysse, 2004, Demsetz, & Lehn, 1985; Romanelli, 1989).
Table 3: Control of the resources by RBSU C at early stage

<table>
<thead>
<tr>
<th>RBSU C Early stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social contracting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership³</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merger/acquisition</td>
<td></td>
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</table>

**RBSU D**

RBSU D’s founder started the company by himself and stayed alone for a few years. The reason why he could manage the company by himself is that he was principally interested in marketing his business. He rapidly admitted due to the work load that some help could be beneficial. Therefore, he started to work with a partner to help him on marketing the business idea (Romanelli, 1989). The employees of RBSU D are hired through formal contract which details all the conditions needed.

RBSU D spread its financial capital from the beginning, even when it was listed as an AB company. When it became a public company the system remained the same. This company has always had a majority external financial contribution to the capital because of the strategy used by its founder. As a technology-oriented start-up, it needed some crucial financial resource (Heirman, & Clarysse, 2004), probably to the detriment of autonomy which is brought by internal contribution to the financial capital (Chandler, & Hanks, 1998).

From the beginning, RBSU D built its financial capital thanks to investors who believed in the project the company was carrying out. That is not the common way of getting money from the beginning of a RBSU especially because of the lack of legitimacy a new venture suffers from (Starr, & MacMillan, 1990). Even though, this company managed to market its product and image enough to attract the interest of investors.

The overall financial capital of RBSU D has, from the beginning, always taken the form of partnership in the sense that the founder of the company had a business idea but needed some finance to have it come true. This financing has been provided by investors who had money to invest in a project which they had faith in and that they supported. All these partners shared resources in order to reach the success of the company (Mohr, & Spekman, 1994).

RBSU D has always worked in partnership either for information exchange or for the technology development. The founder of the company has partnerships with doctors who

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³ Ownership in case of human resource has to be understood as hiring
work in university hospitals in order to get medical information. At the same time, he has partnerships with subcontractors that develop the innovative technological part.

Table 4 Control of the resources by RBSU D at early stage

<table>
<thead>
<tr>
<th>RBSU D Early stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social contracting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership&lt;sup&gt;4&lt;/sup&gt;</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Merger/acquisition</td>
<td></td>
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</table>

6.2. Production/marketing stage

RBSU A

RBSU A at the production/marketing stage had to find some help. Actually, the founder, his colleague, and the researchers’ team recognized they had a lack of knowledge on how to market the product and how to get into the international regulations (Roberts, 1991; Heirman, & Clarysse, 2004). Thus, at the time of marketing the product, the knowledge was brought by a consultancy agency in marketing with which a partnership was established (Mohr &, Spekman, 1994).

Often, additional financing is needed when the will of grow arises (Heirman, & Clarysse, 2004). In this case, RBSU A needed more money in order to mass-produce its product. This money was brought by venture capitalists.

Table 5: Control of the resources by RBSU A at production stage

<table>
<thead>
<tr>
<th>RBSU A Production stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social contracting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership&lt;sup&gt;5&lt;/sup&gt;</td>
<td>X</td>
<td>x&lt;sup&gt;6&lt;/sup&gt;</td>
<td>X</td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Merger/acquisition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>4</sup> Ownership in case of human resource has to be understood as hiring

<sup>5</sup> Ownership in case of human resource has to be understood as hiring

<sup>6</sup> The small “x” indicates that this option still exists but at a lower range
**RBSU B**

When it came to market the product, no marketing knowledge was required to be added since one of the founders of RBSU B had hired a CEO who could market the product properly. Nevertheless, a few more engineers joined RBSU B at this stage in order to help the RBSU with mass-producing and keeping on developing the product further.

The engineers were hired on a formal contract. As previously said, the first engineer was also an acquaintance of the founder and the three others engineers were hired right after they were done with their studies.

External money arrived when the need for producing more in order to grow arose. From that moment, the company has mostly been externally financed. As said by Heirman and Clarysse (2004), companies need some more resources when they need to grow or to invest money in production. Consequently, thanks to the founder’s experience, a will of autonomy in the beginning of the product development engendered the will of keeping this company’s financial resource fully owned for some time. This happened before he decided to inject external money when the growth became possible along with the product mass-production (Chandler, & Hanks, 1998; Heirman, & Clarysse, 2004). The external money was brought by venture capitalists; this is the most common way to get external money for risky businesses like RBSUs’ (The Royal Swedish Academy of Engineering Sciences, 2008).

Once this will of growth arose, RBSU B lost parts of the ownership of its capital and entered in a partnership with venture capitalists that the founder knew thanks to his business network. This is considered as partnership in the sense that all the parties inject the resources they possess and that are useful to the aim of the company in order to reach the same goal – the growth of the company in this case (Mohr, & Spekman, 1994).

Table 6: Control of the resources by RBSU B at production stage

<table>
<thead>
<tr>
<th></th>
<th>RBSU B Production stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social contracting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership⁷</td>
<td>X</td>
<td></td>
<td>x⁸</td>
<td>X</td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merger/acquisition</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

⁷ Ownership in case of human resource has to be understood as hiring
⁸ The small “x” indicates that this option still exists but at a lower range
The founder admitted that no additional knowledge was required to be added in the team since he had, thanks to his past experience, the required knowledge to market the product. It is important to notice that the company does not market the product to the final user, but sells its technology to other companies. In this business to business situation, the founder, when selling his product, usually interacts with other engineers; therefore, the need for marketing knowledge is rather low.

Financially, when the will of growth and the production process emerged, the company had recourse to becoming a public company in order to increase the capital by external contribution. In fact, the will of growth is one of the reasons why companies look for external contribution to be poured in the capital (Heirman, & Clarysse, 2004).

When the company went public, it needed to get some external money poured in the financial capital. That was done through spreading the ownership to shareholders that became partners of the company. The largest holders received a decision making right. They all wanted to reach a same goal, the growth and success of the company (Mohr, & Spekman, 1994).

Table 7: Control of the resources by RBSU C at production stage

<table>
<thead>
<tr>
<th>RBSU C Production stage</th>
<th>Human resource</th>
<th>Financial resource</th>
<th>Technological resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social contracting</td>
<td>X</td>
<td>X(^{10})</td>
<td>X</td>
</tr>
<tr>
<td>Ownership(^9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partnership/alliance</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Merger/acquisition</td>
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</table>

RBSU D

After two years running the company, the founder and his partner were ready to develop a prototype. Since they did not have enough technological knowledge, they hired a team of four engineers to help them developing it.

RBSU D founder admitted that at the time the company was growing – move from the business idea to the product idea and development of a prototype, more work force was required. This corroborates the theories developed by Roberts (1991) and Shane and Stuart (2002). Those authors stipulated that the size of the team can have an effect on firms’ growth and success which seems to be verified here. Nevertheless, after brainstorming with his partner, they both decided they wanted to focus again on marketing the product. Thus, they

\(^9\) Ownership in case of human resource has to be understood as hiring

\(^{10}\) The small “x” indicates that this option still exists but at a lower range
subcontracted the technology and product development. RBSU D has always wanted to have enough financial resource in order to grow rapidly. This joins Cooper, Gimeno-Gascon and Woo’s (1994) theory telling that finance is crucial when a company wants to grow.

The doctors, the owner of the company and his partner as well as the subcontractors work all together in order to develop this innovative product. As a result, they are tied to each other by the fact that they all bring resources in order to reach the same goal and so form a partnership (Mohr, & Spekman, 1994).

Table 8: Control of the resources by RBSU D at production stage

<table>
<thead>
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6.3. Answer to the assumptions

Some of the assumptions made earlier on the control of the resources are answered some other ones are not.

Human resource

About assumptions on the ownership and partnership concerning the human resource, it can be said that on a hand RBSUs’ founders tend to hire, at least, part of the human resource required to turn the business idea into a tangible technological resource when they can afford it. On the other hand, a partnership seems to be established between people when the founder has only part of the knowledge to create the product. For instance, the founder has the business idea but misses knowledge on the technological facet required to turn his idea into something tangible, plus he has only seed money. This is a situation faced by most of the RBSUs of the sample at early stage. The founder usually forms a partnership with someone else. Thus, this supports partly the assumptions in a sense that the formation of a partnership is more complex than only a financial problem to hire the required person.

Financial resource

It has been assumed that RBSUs in Sweden are likely to be helped by governmental agencies (The Royal Swedish Academy of Engineering Sciences 2008). That is verified in the case of RBSU A. On the contrary, this company has never been helped financially by any university,

\(^{11}\) Ownership in case of human resource has to be understood as hiring
research centre, or larger company (Marbella et al., 1995 in Storey, & Tether, 1998). At the same time, it has been assumed that RBSUs own a part of their financial resource which is the case for RBSU A with a financial capital partly owned and partly accessed through a partnership with venture capitalists.

According to the assumption that RBSUs are likely to be helped financially by universities (The Royal Swedish Academy of Engineering Sciences 2008; Marbella et al., 1995 in Storey, & Tether, 1998), in the case of RBSU B, this is verified. On the contrary, they have never been financially supported by larger companies (Marbella et al., 1995 in Storey, & Tether, 1998); neither did they borrow money from governmental agencies (The Royal Swedish Academy of Engineering Sciences 2008). The assumption concerning the ownership of the capital is verified concerning the early stage of the firm as well as later even though they lost part of it.

The assumption telling that RBSUs are likely to get financial help through governmental agencies is verified thanks to the help RBSU C got from Almi and the European Union (The Royal Swedish Academy of Engineering Sciences 2008; Eurostat, 2009, 2010). However, this RBSU has not received any financial help emerging from universities or larger corporation. The assumption concerning the ownership of at least part of the financial capital is completely fulfilled for the early ages of RBSU C. This remains true later when the company went public even though they lost parts of the ownership of the financial capital.

The assumption concerning financial help received from universities, larger corporations and governmental agencies does not take place in the case of RBSU D. Concerning the assumption about the ownership of the financial capital, it is difficult to say that the ownership of the capital is relevant in this case since it has been spread almost completely externally since the beginning of the company.

**Technological resource**

The assumption saying that a RBSU keeps ownership and so full control on the technological resource it has developed is confirmed in the case of RBSU A. This company did not enter a partnership in order to get access to complementary technological resource. However, it did so in order to access information which helped it developing its technology as stated by the second assumption on technological resources.

The assumption telling that RBSUs own their technological resource is confirmed in the case of RBSU B. The other assumption concerning partnerships on complementary resource and information useful to the technology is also confirmed. A partnership was established with the researcher who was working with the technology on which the technological resource of RBSU B is based.

RBSU C’s technological resource allows confirming the assumption stating that RBSUs own their technological resource. The assumption telling that partnership are likely to be settled in order to have access to complementary technology or information useful to the technology is invalidated here. The entire development and information work was processed in-house.
The assumption telling that RBSUs own their technological resource cannot be confirmed here. The technological resource of RBSU D results from partnership between the company, doctors from university hospitals and the subcontractors who develop the technology in order to build the product that is owned by RBSU C. This allows confirming the assumption telling that technological resource and information useful to the technology are likely to be accessed by RBSUs through partnerships with other actors such as other companies or individuals.
7. Conclusion

This chapter highlights the major contribution to how RBSUs access and control their basic resources in each of the two stages of their development. In addition, the findings describe and allow understanding how RBSUs’ founders make their choices when it comes to build a foundation of resources in each of those stages.

In order to answer the research question which is “How to build a foundation of resources in RBSUs” the most important basic resources to RBSUs are identified. How RBSUs access and by inherent manner control them at different stages of their development i.e. technology development and product marketing is demonstrated. In the previous chapter, how the sample access and control their basic resources within the two stages is highlighted. The conclusion leads to what influence the choices made by the RBSUs when deciding to enter in a partnership, take property of something or hire someone depending on the different stages.

The human, financial, and technological resources of the RBSUs sample are detained by ownership and/or partnership. Rather than depending on the environment as suggested by Romanelli (1989), RBSUs – which are companies that evolve in fields that are highly specific – base their choices on the level of control and the risk bearing ownership and partnership provide as well as on the control and the risk RBSUs are willing to take during the different stages of the RBSU development.

No matter the control or the development stage of the RBSU, as the theory suggests it, this study confirms that the founder of a RBSU is the most important resource. RBSUs being “new business RBSUs which develop and market new products or services based upon a proprietary technology or skill” (Heirman, & Clarysse, 2004, p. 247), the founder contribution by bringing the business idea and the will to develop it are completed by his experience in technology and not to forget an innovative mind. He builds around him a team that gathers all the knowledge required in order to develop the foreseen technology. The technological resource management suits all those conditions in all the RBSU interviewed. Nevertheless, only three of them own their technological resource whereas the last one has access to its technological resource through a partnership. The technological resource is the only one resource that is managed the same way all the way from the beginning. According to Heirman, and Clarysse (2004), the technology is an important resource for RBSUs where the technology emerges directly from the founder, the idea he got, and the team he built to develop it from scratch. The newness and innovativeness of the technology gets impossible any other way to access it but by developing it. The first aim of RBSUs is to develop this technology so as to be able to start a lucrative activity. This generates the idea that the founder coupled to the technology – resources that, as previously demonstrated, are closely tied – are the most important resources of RBSUs at early stage. The financial resource is, however, necessary at early stage as well but becomes more important later on when the product has to be brought to the market. The way the financial and human resources are accessed and controlled varies depending on the stage in which the RBSU lies.

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At early stage, the founder does not mind the financial aspect so much because he wants to develop the technology the way he wants to and so keep control that external investors would steal parts of. Thus, an internal financing to the capital is more likely to suit the product development even if this is little money. A RBSU entrepreneur prefers to work cheap, bring his technology to maturity and wait for the market to be ready for his product before letting external investors pouring large amount of money and take decisional power on the company. This little internal financial contribution at product development stage can be done through personal contribution, bank loans, or loans contracted at governmental agencies. Nevertheless, the sample showed some dissimilarity on that point. RBSU A thanks to a rapid partnership with venture capitalists lowered the risk of the company by spreading it onto the partners but the other side of the coin was that the founder lost control on the technology development. By looking behind the founder regrets he could not develop the technology at ease without the control of investors. RBSU C and D’s founder, more experienced, kept their company internally financed and could develop their technology the way they wanted to. The founder of RBSU D, who does not attach too much interest to the product but more to the financial and marketing aspect of his company, does not need control on the technology development; that goes against Cross and Travaglione (2003) and the traditional way of building a RBSU (Heirman, & Clarysse, 2004) since he first marketed his product in order to attract investors and then had the technology developed by subcontractors.

At the founding, a RBSU emerges from the business idea of its founder who enters or not in partnership with one or more actors who possess complimentary elements or knowledge useful to the technology the RBSU wants to base its activity on. This phase, most of the time, ends up in a partnership between all the parties who have in their possession either the idea, the technological skills, a technological basis to the technology that is developed in-house, or the complementary knowledge useful to the technology on which the RBSU bases its activity on. At the same time, RBSUs may need to hire skilled persons such as engineers who are able to develop the technology in order to complete a lack of innovativeness or engineering skills (Roberts, 1991). These are employees of the RBSU which means they are hired by the RBSU. RBSU A’s founder entered in partnership with researches which permitted them to develop the technology with five engineers who were hired for this purpose. RBSU B did not need to hire any additional engineer in the beginning because the partners possessed all the knowledge needed in order to develop the targeted technology. RBSU C beyond the partnership directly hired five engineers – emerging from the university the founder worked in – with whom they developed the technology. RBSU D started by a partnership planning on the marketing of the business idea then hired subcontractors in order to develop the technology.

Later on, when the time to market the product comes, additional human resource is likely to be needed because of the marketing experience a technically educated person is likely to lack (Shane and Stuart, 2002; Heirman, & Clarysse, 2004). Even though marketers are supposed to be able to sell any kind of product, in highly innovative and technological areas, RBSUs look forward to integrating in their marketing process people who both have technological and marketing skills in order to bring the product to the market. Those persons are more likely to
understand technological specificities and the technological atmosphere during a marketing process. This stage does not only need human resource to market product but also additional money (Heirman, & Clarysse, 2004) in order to both market and produce the innovative product in sufficient quantity to fulfil the demand of the market. Consequently, more money is needed. Generally RBSUs’ founders then look for or let external investors taking parts of ownership in the company by bringing additional capital that allows RBSUs to go further in their activity and to grow. This engenders a loss of control for the founder. The founder cares less controlling than during the technology and product development. He wants his activity to develop and so prefers to keep a smaller part of a big cake than the entirety of a small one. It has to be said that this stage is less risky than the technology development stage. RBSU A was driven by its venture capitalists to hire more engineers and spend more money in order to get faster; this almost got the firm bankrupt. Consequently, despite the low risk they took, they lost too much control. RBSU B, needed more engineers in order to mass-produce its product and so let venture capitalists take part in the company, they lost control. That step, being more marketing driven, permitted them to lose control on the company and let the CEO, who was hired beforehand, run the product marketing. RBSU C did not need to hire someone to market the product. It has to be said that they first worked in B2B which reduced the marketing skills needed. The founder did the marketing himself. Besides, the company went public in order to get more money to hire new engineers and mass-produce their technology and product. RBSU D has never functioned in two steps financially; it has always been externally financed. The founder, who had experience in entrepreneurship, did not want to bear the risk alone however it was to the detriment of some loss of control. Nonetheless, the company went public to raise the financing in order to augment the production and follow the rising demand.

7.1. Implications

The major contribution brought is a better understanding of how to build a foundation of resources in RBSUs. It is interesting to take a look at this kind of company. RBSUs are taking more and more space in the RBSUs’ landscape. They also bring innovative products and improvements to existing products onto the market. Moreover, these are companies that are likely to provide future employment for skilled people.

This study underlines the great importance of the founder of a RBSU. In fact, he is the starting point of everything in the sense that his characteristics – educational background, past experience, his will and belief in his project make possible the achievement of his activity. He is the person who gathers all the persons needed in order to reach the final technology needed to the activity. He is the person who decides whether he wants to have more or less control and whether he is ready to bear risk at different stages – technology development versus product production and marketing.

This paper recognizes the importance of human, financial, and technological resources for RBSUs. The human resource is probably the most important resource for them because it shapes the composition of the financial resource and the degree of innovation of the technological resource. In the early stage of the RBSU – characterized by turning the business
idea into a first prototype – the founder’s characteristics such as his educational background and his professional experience determine the need for financial resource and the degree of innovation he can put into the technological resource.

In the early stage of the company, as previously said in the conclusion, the founder mainly accesses his basic resources rather through ownership and/or partnership which affects the degree of control and who bears the risk. The other way around, the degree of control and risk bearing wanted by the founder affects the choices made by the latter.

Thus, on the technology development stage, RBSUs’ founders thwart the loss of control engendered by a partnership by substituting human and financial resources. This is supported by Chandler and Hanks (1998). A founder who has the required skills and knowledge to develop his technological resource can substitute the need for financial resource by increasing the contribution made by the human resource. To say it with other words, if the human resource through the founder, co-founder, and/or the founding team has the sufficient knowledge, skills, and a minimum of internal financial resource – through bank loans, personal savings, and so on – it has the opportunity to substitute the need for a high level of financial resource.

The technology development stage makes it easier for the founder to substitute financial resource by the human resource in order to keep control on the technology development. The product development stage requires the founding team to have knowledge and skills in technology. Next, money is essential to develop a prototype which can be obtained through personal saving, bank loans, and governmental agencies. But when reaching the mass-production and product marketing stage, substitution is still an option for the founder even if this is more complicated because it does not only depend on his own will anymore, but on the external protagonists too.

When the product has to be brought to the market and commercialized, more money is needed and the financial risk becomes higher. Consequently, the founder prefers to lose some pieces of the cake and lets investors enter into financial partnership with him to the detriment of a loss of control. This strategy can also be applied from the very beginning of the company. In the case of an entrepreneur is able to market his business idea and product so well that he attracts so many financial partners that nobody really has a big enough part of the company to provide him with decisional power. The human resource in the second stage evolves, first, if more employees are needed to mass-produce; second, when there is a lack of marketing knowledge to sell the product properly.

In substance, the findings are in line with the results of Brush at al. (2001) who say that start-ups’ development comprises different stages. In addition, the findings describe and allow understanding how RBSUs’ founders make their choices when it comes to build a foundation of resources in each of those stages. The technology is the starting point of a RBSU. No business starts without it. It emerges from an idea of the founder of the RBSU. This happens in the early stage of the RBSU. At that moment, the human resource is hired or partnership is settled if the founder lacks knowledge, skills, or innovativeness in order to reach the
technological resource needed. The financial resource is owned or brought by external investors depending on the level of control and the risk bearing the founder wants to have. At that moment, it is still possible to substitute the financing by a high quality level of human resource. Later on, if the will of growth is expressed by the RBSU, more money is needed in order to mass-produce the product and market it. The founder has to be willing to lose control on the company but the risk will also get lower. If the founder is not willing to lose control, he has to either “not grow his company” or invested the entire financing himself and so bear the financial risk alone. Thus, during the second stage the choices concerning the financial resource are less driven by the control or risk wanted but more by the will of growth. For the human resource, a marketer might be needed if the company lacks a competent person. Next, more workforce might be needed if the company cannot fulfill the demand. This shows us that the choices concerning the human resource during the second stage are driven by a lack of marketing skills within the company, a lack of workforce, and/or lack of innovativeness in order to continue the improvements on the technology and/or the product.

7.2. Future research

This study demonstrates that the two stages of a RBSU lead its founder to make choices driven by factors that are different in each of them. None of the RBSUs interviewed had the same decisional scheme. Each founder makes his choices not as Romanelli (1989) suggested depending on the surrounding environment but rather depending on the balance control risk and innovativeness level needed during the first stage of the company. The second stage of the company sees the will of growth, the lack of marketing skill and workforce, and lack of innovativeness direct the choices the responsible person has to make. Since the sample does not see any trend emerge, a quantitative study on this subject is worth doing. Trends could emerge on how it works most of the time, or on the contrary show that the choices made are totally random.
References

Articles


**Books**


**Internet**


Appendice

Interview guide

1. Resources identification

Origin of the RBSU

- Could you tell us how your company was born?

Resources identification

- Could you tell us the most important tangible starting resources for your RBSU?

Founder Characteristics

- Could you tell us about your educational background?
- Could you tell us about your professional background? (business orientation and task in the previous company)
- Could you tell us how old are you or give us an appraisal?

2. The starting resources

2.1. Human resource

Size of the founding team

- Could you run the RBSU all by yourself or extra people were needed?

Raison d’être of the founding team

- What has been the essential purpose of your team?
  - What were their experience and training in the area they were hired for?

2.2. Financial resource

Seize the appropriate investment

- At the beginning, were you aware of the most adequate investment required by your business? Why?

Internal VS external

- Is your financial capital rather from internal or external origin? Why?

2.3. Physical resource

- Could you describe to us what you technological resources include?
- What is your position in the product-development cycle?
- Is the application of your product-technology to one or more product?
3. Access

- How did you get access to your human resources?
  - How did you get access to the additional personnel you needed?

- How did you get access to your internal and external financial resources?
  - Did the degree of newness of your company influence the access to financial resources?
  - Which criteria did you take into consideration when you built your financial structure?

- How did you get access to your technological resources?