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Minority Entrepreneurs in East Africa

An effectual approach for Norwegian
start-ups in Kenya

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Abstract

With the economic growth in the emerging markets surpassing the growth in industrialized countries, an increasing number of entrepreneurs are grasping this opportunity by establishing new ventures in such markets.

Through a four months field experiment in one of these emerging markets, Kenya, this thesis concludes that entrepreneurs from the industrialized-Western hemisphere, with a proper understanding of the local culture and its customs, have a competitive advantage over native East-Africans. This is due to the network effects between minority entrepreneurs and the valuable role social capital plays in these untransparent markets. Through the methodology of action research, the study also shows that the effectual approach to business development is suited to quickly test a business model with limited prior knowledge about the market.

This is a case study conducted on RESolar, a Norwegian start-up company that sells solar power plants to corporate customers in the tourism sector in Kenya.

The classic effectual approach is refined with additional elements from resource-based theory, social capital, network theory and the lean start-up approach before it is tested out in the field experiment. The competitive advantage enjoyed by minority entrepreneurs is enabled due to the nature of the Kenyan market. The customers and other key players in the market are in many ways in a similar situation. They are foreigners that have developed companies in a broad range of sectors. New growth companies are often started by minorities. Social capital and the effects of the minority entrepreneur network therefore play a bigger role in this market than usual and should be utilized to the full extent.

The authors also recommend future entrepreneurs to use the unified effectual framework that this thesis creates as a model for their business development in foreign markets.

Sammendrag

Verden er i stadig utvikling, og mens økonomisk vekst avtar i den industrialiserte verden så vokser økonomien i flere deler av den tredje verden. Et økende antall gründere og investorer ser denne utviklingen, og flere ønsker å utnytte dette gjennom oppstartsselskaper og investeringer.

Gjennom et fire måneders feltstudium i Kenya kartlegger denne oppgaven et av disse markedene og konkluderer med at gründere fra den vestlige verden, med forståelse for lokal kultur, har et konkurransefortrinn i forhold til øst-afrikanere. Dette skyldes nettverkseffektene som oppstår mellom minoritetsgründere og den betydelige rollen *social capital* spiller i disse uoversiktlige markedene. Gjennom bruken av aksjonsforskning viser også studien at forretningsutvikling gjennomført med *the effectual approach* er velegnet for raskt å prøve ut en forretningsmodell med begrensede forkunnskaper om markedet.

Dette er et case study av RESolar, et norsk oppstartsselskap som selger solcellekraftverk til bedriftskunder i den kenyanske turistindustrien.

Den klassiske *effectuation* metoden på forretningsutvikling blir utvidet med ytterligere elementer fra *resource-based theory*, *social capital*, *network theory* og *the lean start-up approach* før den prøves ut i markedet. Konkurransefortrinn som minoritetsgründere opplever skyldes strukturen i det kenyanske markedet. RESolars kunder og andre lokale nøkkelaktører befinner seg alle i samme situasjon. De er utlendinger som har utviklet firmaer i et fremmed marked ettersom nye vekstselskaper ofte startes av minoriteter. *Social capital* og nettverkseffekter mellom minoritetsgründere spiller derfor en større rolle i dette markedet enn i andre markeder og bør utnyttes så langt det lar seg gjøre.

Forfatterne anbefaler fremtidige gründere å ta i bruk det utvidede rammeverket som blir fremstilt i denne oppgaven og bruke det som modell for egen forretningsutvikling i fremmede markeder.

Preface and Acknowledgements

This master thesis is the work of Stian Mundal, Erik-Nicolai Korme Thorp and Andreas Hvam Michelsen and is a research project at Centre for Sustainable Energy studies (CenSES) . We are all students at the Norwegian University of Science and Technology (NTNU) School of Entrepreneurship pursuing a Master of Science in Entrepreneurship. This thesis is based on our experiences and research we have conducted since we started developing RESolar in January 2011.

We wish to thank our supervisor, Professor Roger Sørheim at the NTNU Entrepreneurship Center, and our secondary supervisor Jørund Buen from Differ AS for their feedback and keeping us focused through the last eventful six months.

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Chapter 1

Introduction

While the economy is stagnating in the debt ridden industrialized Western world the emerging economies of the developing world are estimated to account for more than 50% of global growth from 2010 to 2015 (Economist, 2010). More and more companies and entrepreneurs are grasping this opportunity and one of these is the case-company in this thesis, RESolar. RESolar is a Norwegian solar start-up that is established in Kenya, one of the largest and most dynamic solar markets in Africa (Jacobson and Kammen, 2007). Entrepreneurs in such markets are often a cultural minority in the country they arrive and business clusters are frequently developed around these minority entrepreneurs.

Few studies have been conducted on the challenges an immigrated entrepreneur from the industrialized world faces when establishing a company in an emerging economy. This thesis will map and solve some of these challenges based on a four-month in field experiment as the case-company RESolar takes an effectual approach to business development.

The study will answer these three research questions:

1. *How will business development be affected by the fact that we are Western entrepreneurs?*
2. *How has the dynamics in the effectual approach worked for RESolar's business development?*
3. *What is the role of social capital in creating viable business relationships?*

To answer these questions a methodology based on action research has been employed in this case study. In close resemblance with the work method used in the business development of RESolar, action research suggests to continually improve the research method as the research project develops. Data has been gathered through experiences in the case-company and in interviews with other minority entrepreneurs in Kenya.

Useful academic theories for the minority entrepreneur are presented. Common for these perspectives are that they are based on trial and error where you test your ideas and resources in the market. Results from such trials are reviewed and used to improve the next market test. Theories presented include resource-based theory, social capital, network theory, exploration, lean start-up approach and effectuation. These theories are all put in a context of the minority entrepreneur. Aspects from these theories will be used to construct a unified model for an effectual approach.

The method and model described above will be tested in field while conducting business development of RESolar. Based on findings discovered in the start-up process in Kenya, both model, method and business strategy will be continuously evaluated and improved.

In conclusion we find that the unified effectual approach works well in the emerging market of Kenya. In an untransparent market social capital provides enormous value. For the entrepreneur we suggest to use network sessions to ease market entry. Minority entrepreneurs have a competitive advantage due to networks of minorities. At the end of the thesis suggestions are presented for further research. The academic literature lacks studies on how entrepreneurs can handle uncertainty in start-up projects and how Western minority entrepreneurs can enter emerging markets. Further research is also suggested on our unified model.

Chapter 2

Context

The background for this project was an idea to capture the market for rural electrification. The idea was founded on the fact that 1.6 billion people do not have access to electricity and history has shown that people after time want such basic needs covered. RESolar's business concept was developed in collaboration with the entrepreneurs Kristian Tangen and Jørund Buen from Differ AS and three students from the School of Entrepreneurship at the Norwegian University of Science and Technology; Andreas Hvam Michelsen, Erik-Nicolai Korme Thorp and Stian Mundal. The latter are the authors of this thesis.

Now the business idea for the start-up is to reduce electricity costs for businesses by providing them with energy economization solutions like solar water heaters and solar power plants. This will be paid for by the customer with monthly instalments at a lower price than their current energy bill until the solution is paid down. When the solution is paid down the customer will have a low-cost energy source for the rest of the products' lifespan.

RESolar outsources all technical calculations, design, dimensioning, logistics, construction and installations to strategic partners. The start-up focuses on three core activities; sales, gathering of operation data from customers and payment services. RESolar fills a central gap in the market with their financing plan as one of the main barriers for customer adaptation of renewable energy today is the lack of such a service.

The company is strategically located in Nairobi, Kenya. Political focus on improving the business sector and relative political stability has made East Africa an attractive area to conduct business in for both foreigners and local companies. Other important factors for making Kenya an attractive location are its ports and that English is the official language. The headquarters of many international organizations and corporations are located in Nairobi. The electricity grid is poorly developed outside the main cities and leaves many businesses with no other altern-

atives than to help themselves in regard to electricity supply. To a large extent these businesses use diesel generators for electricity supply.

The target customers of RESolar are businesses with their own electricity production, primarily in Kenya, Tanzania and Uganda. The beachhead customers are off-grid safari camps in Kenya. Another aspect that has become ever more pressing is the focus on being “green” and environment friendly.

This gives the diesel generators a poor reputation since they pollute and make a lot of noise, which safari guests staying at these places do not like.

Chapter 3

Methodology

This thesis uses the methodology of action research with RESolar as the case we research. When using action research it is recommended to start by addressing what exactly one looks for and pinpoint the exact area of research before starting off in the field (McNiff and Whitehead, 2011, p. 90).

The subject of this thesis is how one can establish oneself in Kenya as a Western entrepreneur and how this process will work with an effectual approach to business development. This holds relevance to us in RESolar as we moved to Kenya in February 2012 and started our business development. During our planning phase in the autumn of 2011 we tried to gather information and articles to advise us how to prepare and what the challenges could be. This investigation did not result in identifying what we were looking for and our most important finding was that there is not much information about this at all. As researchers interested in this on an academic level and with invested self-interest in the findings, it was natural for us to approach this research question ourselves.

There were two main approaches available if we wanted to pursue this. Either we could do case studies on one or more start-ups already in Kenya and write a thesis about their experiences, or we could try to start our own company and do research on our own experiences first hand. Either way we had to move to Kenya, and with a running start-up the obvious choice was to do research on our own start-up. The next question to arise was how to approach the market. Would it be best to first conduct an extensive market research, form a business plan and then execute, or would it be best to jump into it and try? In our project thesis we concluded that doing market research without being present in the market would be difficult, if not impossible.

From our curriculum at NTNU School of Entrepreneurship we have learned about the experimental approaches of effectuation and concluded that as long as we were going to Kenya with a start-up, the best approach would be to go for it and

experiment while we conducted our research. Effectuation is an entrepreneurial method based on assumptions, experiments and revisions to build a company with the resources available for the entrepreneur.

The research project is structured as an action research project. Action research was recommended by our supervisor as a framework for researchers that participate in their own research subject. Especially with the continuous evaluation and changes of direction from effectuation, action research is able to capture those changes into the study. Action research is a democratic research method with a main goal to include the research subject in creating change within itself (McNiff and Whitehead, 2011).

We do not ask “How do one start up a business in East Africa?”, but rather ask: “How do we go about to start up a business in East Africa?”. This is a question formed as suggested for action research (McNiff and Whitehead, 2011). Based on this we consulted the literature, the findings from our project thesis, our own experiences and ended up with our three research questions:

1. *How will business development be affected by the fact that we are Western entrepreneurs?*
2. *How has the dynamics in the effectual approach worked for RESolars business development?*
3. *What is the role of social capital in creating viable business relationships?*

3.1 Research questions

In our project thesis we set out to create a stepwise model for how a company best could establish oneself in a foreign market, with a focus on East Africa, based on traditional business literature. The project thesis had a very theoretical approach and used analytical frameworks for business development.

Our most important finding from this project was that market research done from abroad on a foreign market where little data is available does not yield many usable results. Another finding was that it is difficult to create a stepwise entry model for entrepreneurs based on traditional analytical business literature.

As far as we could find there are no research done on how to establish a company in Africa for entrepreneurs from the industrialized world. We found some studies about the current situation and on how the market is but nothing about how to operate in it as a minority entrepreneur.

Through our curriculum at NTNU School of Entrepreneurship we have previously learned about effectuation, a more practically applicable theory. We found little research done on the use of effectuation for entrepreneurs who start up in a foreign

market. Based on our experiences from the project thesis and our knowledge of effectuation we wanted to know how it was to execute the effectual approach and how well it would work with regards to workflow and results. We therefore wanted to make a framework based on effectuation and test this in real life. This amounted in the research question: *“How has the dynamics in the effectual approach worked for RESolar’s business development?”*

We had also been through theories touching upon minority entrepreneurs in the project thesis. Through our findings we got the understanding that cultural and structural challenges of being a minority entrepreneur in Kenya would affect the business development of RESolar to some extent. This resulted in the research question: *“How will business development be affected by the fact that we are Western entrepreneurs?”*

Finally as a turnkey provider with a business model that relies on business networks we wanted to research the role of social capital and business networks and how it affects business developments and relationships. This amounted in the last research question: *“What is the role of social capital in creating viable business relationships?”*

3.2 Selection of theory

With these three research questions we wanted to select theory that were similar to the effectual approach. Through our curriculum at NTNU School of Entrepreneurship we have learned about alternative theories that claim to be more suited for start-ups than the traditional approach taught in MBA-programs.

It is said that a start-up is not a small version of a big company but rather an experiment of what works and what does not work. In this thesis we refer to this as the effectual approach, it includes several resource-based approaches that deals with experimenting in the market. This includes the classical inside-out perspective, exploration and exploitation, the lean framework in addition to other models and procedures that compliments the effectual approach. Based on these theories we set out to create a unified model to include all the theories related to the effectual approach.

We started to search for literature in the curriculum of previous university courses at NTNU, such as Technology Based Business Development, International Business Development, Idea Search and Market Assessment and Strategic Management. Curriculum from the summer term at the Norwegian Entrepreneurship program at Boston University. We then searched the list of references from the initial articles and other papers that have cited the initial articles. In addition to this we have broaden our horizon by searching online on Google Scholar, Scopus, ISI Web of Knowledge and Euromonitor after phrases such as: *minority entrepreneurs,*

entrepreneurship, Kenya, effectuation, Sarasvathy, action research, lean, Scrum, resource-based view, social capital, network entrepreneur and business model innovation. Additionally we got help from our supervisor Roger Sørheim and his colleagues Vegar Lein Ausrød , Vivek Sinha and Ola Edvin Vie to gather relevant literature for our thesis.

The nature of the research project is limited by what actions are possible with RESolar. This narrow definition of the research has limited the selection of theories. Still there are some literature that would have been interesting that we did not select. We were most interested in theories that give practical implications for how to develop companies. Born global theory describing companies like RESolar, even with effectuation as in Andersson (2011), mostly explains why born globals arise and not how to become a successful born global. Theories on microfinance and financing in general in emerging markets although interesting to RESolar, rather describes the subject more than help you attain such financing. Interesting reads could have been Waddle and Perlack (1992) and Erickson and Chapman (1995).

Information on the Kenyan market, especially the market for solar power would also provide interesting background information, but it falls outside the scope of this thesis, especially since it only describes the market for rural consumer electrification. Some research is done on this field, including Yadoo and Cruickshank (2012); Duke, Jacobson and Kammen (2002); Jacobson (2007); Acker and Kammen (1996); Jacobson and Kammen (2007).

Further, there were some literature available on the role of social networks and minority entrepreneurs that did not fit into our limited scope. Kilby (1983) describes alien entrepreneurs, Zhou, Wu and Luo (2007) explore the role of social network in Chinese born globals, McDade and Spring (2005) discuss a “new generation of African entrepreneurs” and Kristiansen (2004) study how high-quality social networks put entrepreneurs in a better position to perform well as entrepreneur.

Lastly we also chose to leave theories on cultural differences out. We studied this in the project thesis and the theory available was found not to provide much valuable insight into project development in different cultures.

Simultaneously with the research project, we have started a company that has entered this market. Even though a lot of our time and resources have been devoted to establish RESolar, we have tried our very best to cover as much relevant theory as possible and conduct a comprehensive and adequate literature review. We have covered the most relevant theory for a comprehensive literature review and a complete unified model. There is a possibility that we might have overlooked theory that could have been of importance to us. However we believe that our literature review covers all main aspects of the theories and models mentioned.

3.3 Action research

3.3.1 What is action research?

“Action research is the study of an issue and how one can improve and/or fix the issue. Unlike other scientific methods the researcher, most often a practitioner, is an insider.” (McNiff and Whitehead, 2011). Action research is most often used to answer questions that try to improve practices or procedures in the researchers company. McNiff and Whitehead (2011) suggest one conduct action research with an action-reflection cycle:

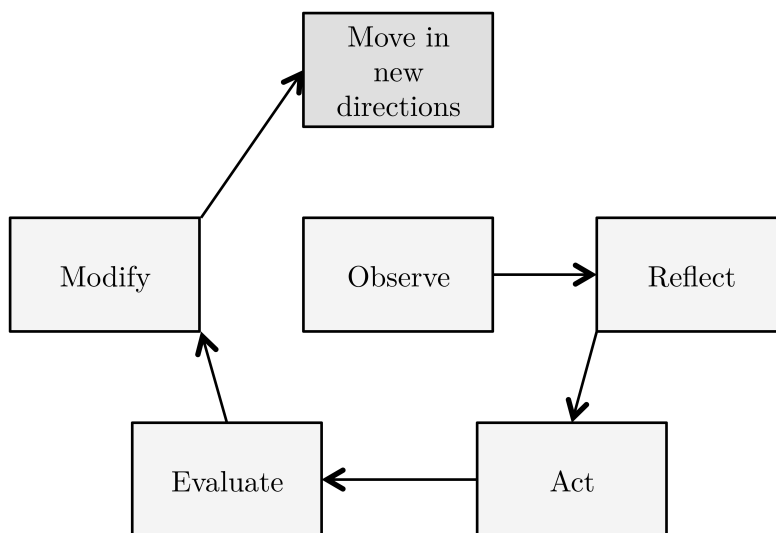


Figure 3.1: Action-reflection cycle (McNiff and Whitehead, 2011, p. 9)

There are several assumptions underlying the action research method. Due to the nature of action research where the researcher is participating in the research subject, action research is naturally “value laden” and “morally committed”. The “[...] researchers perceive themselves as in relation with one another in their social contexts”. Therefore they bring in their own values and perspectives into the research (McNiff and Whitehead, 2011, p. 27).

Further on, it is given that in action research you research on yourself and how you interact with others. Also “[k]nowledge is uncertain” and “[k]nowledge creation is a collaborative process”. Action research as a method is supposed to be developed while used. Action research is most often used to improve workplaces and evaluate practices through better learning with social intent (McNiff and Whitehead, 2011, pp. 31, 34, 36).

A typical action research project is suggested to follow this procedure:

- *Identify a research issue.*
- *Identify research aims.*
- *Draw up a research design (plan).*
- *Gather data.*
- *Establish criteria and standards of judgement.*
- *Generate evidence from the data.*
- *Make a claim to knowledge.*
- *Submit the claim to critique.*
- *Explain the significance of the work.*
- *Disseminate the findings.*
- *Link new knowledge with existing knowledge (McNiff and Whitehead, 2010, pp. 8-9).*

(McNiff and Whitehead, 2011, p. 26)

The action research method originated in social sciences in the 1930s and 1940s and has been especially used to improve methods in education. Lately it has moved into other research areas and has gathered more acceptance in the research environment (McNiff and Whitehead, 2011, p. 50).

When working with an action research project, McNiff and Whitehead (2011) state that it is important to understand and value that you as a researcher is both a “[...] *capable practitioner*” and a “[...] *capable theorist*”. You also need to understand that an action researcher will work in two contexts at the same time, both in the practice context and in the knowledge context. This is obvious to us since we work both with RESolar and the master thesis at the same time. We want to “[...] *contribute to new practices (this is the action focus of action research)*” and “[...] *contribute to new knowledge and theory (this is the research focus of action research)*” (McNiff and Whitehead, 2011).

3.3.2 Critique and defence of action research

Many academics classify action research, applied research and most qualitative research as unscientific as the findings often are anecdotal and based on telling stories rather than “doing science”. In these circles, science is viewed upon as something that needs to be completely objective and rigorous, using statistical tests and staying away from the world of application (Greenwood and Levin, 2007). This type of research is what Nowotny, Scott and Gibbons (2001) refer to

as Mode 1 knowledge production or *reliable knowledge*. Action research on the other hand produces knowledge in the context of application and is what would be Mode 2 knowledge that is “socially robust”.

Action research does not claim to be context free, quite the opposite, action research celebrates the fact that it is context based knowledge and thus applicable in the real world, not just in theory. Action research is also transferable to new contexts without any abstract generalizations about the knowledge. Another important aspect about action research is that it takes a bottom-up approach of democratic research. This means the attitude towards the research subjects is that they know more than the researcher about the actual on-ground situation in question (Greenwood and Levin, 2007).

3.3.3 Why did we choose action research?

McNiff and Whitehead (2011) state the following: “*Use action research when you want to evaluate whether what you are doing is influencing your own or other people’s learning, or whether you need to do something different.*” Participatory research, another name for action research is designed for research where the researcher is a part of the research subject. Action Research is not only descriptive, it is also a method designed to create change and find solutions to the problems one uncovers in the research. This is exactly what we do in RESolar. “*The focus of the inquiry is determined by what the participants consider important, what affects their daily lives. The inquiry process thus is linked to actions taken to provide a solution to the problem being examined.*” (McNiff and Whitehead, 2011, p. 63). Additionally, action research is designed to be used in a setting where the researcher naturally gets a subjective bias to his results. This fits us well as our results will be subjective.

Another important aspect of action research is how the methodology hedge for evaluation and restructuring of the methodology while in field. This is useful when a researcher enters a market he knows little about and a good assumption about best practice work structure is hard to create.

McNiff and Whitehead (2011) further list three goals for action research projects: “*When you want to improve your understanding*”, “*When you want to develop your learning*” or “*When you want to influence others’ learning*”. If your study tries to answer such questions action research will be a suitable research method. Below, we compare and argue how each research question are connected with the three goals above.

1. *How will business development be affected by the fact that we are Western entrepreneurs?*

We want to improve our understanding of how our Western background influence business development. When we discuss the findings of this

project we want to develop our learning and hope readers of the thesis can learn something as well.

2. *How has the dynamics in the effectual approach worked for RESolar's business development?*

We both want to learn how to use effectuation and better understand how effectuation works in the context of RESolar. In other words how effectuation can be used as a tool for business development. Other entrepreneurs might learn something through our experiences.

3. *What is the role of social capital in creating viable business relationships?*

Understanding of the role social capital has in business relationships can be crucial for a start-up company. We want to learn how social capital can be used to RESolar's benefit. We hope others can learn something from our conclusions.

To sum up this brief discussion on why we chose action research, we see that our research project is well suited for such a research method according to McNiff and Whitehead (2011). This is why we selected action research for this thesis.

3.3.4 Cogenerative action research

Greenwood and Levin (2007) describes the cogenerative model, which also is interesting to look at in this research project. They define two different parts of the research. First you define a research question. Then you work together with others to solve the problem and generate a solution. This method is done in collaboration between an internal and an external part. The internal actor is the problem owner and the external actor is often a professional or an academic brought in to solve the problem. A figure of this model is depicted in figure 3.2. When a solution has been generated, both external and internal parts have to reflect over the findings. After this, a new cycle of research question can be started.

Figure 3.2 is a simplified version of the model described in Greenwood and Levin (2007, p. 94). We find that in our research project this simplified model fits better. This simplified model gives a general outline to how a process should be, but not how the researcher should structure the day or what techniques he should apply to best follow this process. In this thesis we will use techniques from two frameworks; Scrum and lean. Both originating from the software development sector. We have used these techniques earlier and have found them effective and useful.

Scrum is originally a methodology for software development. It is a so-called agile development method. Although most of this method is purely software-related, some of the elements are useful in a more general setting and have been applied

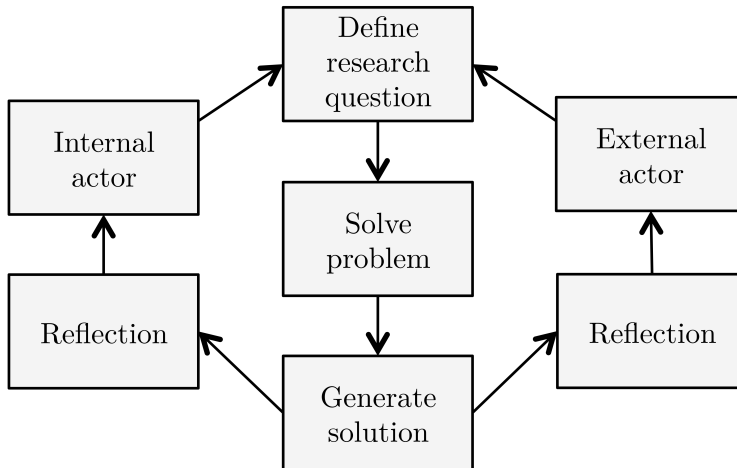


Figure 3.2: The cogenerative action research model

in this research project (Sutherland, 2011). The essential elements that have been used in this research project are daily Scrum meetings, sprints and sprint review. Daily stand-up meeting is a 15-minute meeting to start the day, evaluate how the last day went and what today's goal are (Schwaber, 2009). Sprints are a way to split up the work with several smaller milestones during the project. After a sprint the team shall gather to evaluate the sprint work-method. Three questions are suggested: *“What do we want to continue to do?”* *“What do we want to stop to do?”* *“What do we want to start to do?”* This cyclical approach is somewhat similar to the cogenerative action research model, and we find that it is a detailed technique of how to execute the model in practise.

The lean start-up approach (Ries, 2011) will be described in further detail in the Literature review. The cycle of build-measure-learn from lean start-up is similar to the cogenerative action research model and basically outlines a similar iterative process. In this thesis we will implement validated learning from lean. In short this is how lean describes how the researcher or entrepreneur makes assumptions, take them to the field and evaluate the findings before making new assumptions again. This is further described in the literature review as well.

3.4 Practical structuring of our research team

Our research team consists of three students from NTNUs School of Entrepreneurship. We are located in Nairobi, Kenya and Trondheim, Norway. Being geographically dispersed and only able to sit together for seven weeks of the six months study, we found it necessary with a detailed list of tasks to do through the term. We also made a list of milestones with deadlines to reach. Inspired by the Scrum-framework (Schwaber, 2009), we call each period between two deadlines a sprint

and we also assign responsible persons to the different parts of the project.

3.4.1 Responsibility and work distribution

There are several important tasks that have to be completed through this term both for RESolar and for the master thesis. Michelsen and Mundal are permanently on ground in Kenya. Thorp is responsible for office routines and keeping in touch with Norwegian partners. Customer account management is as far as possible split evenly between Michelsen and Mundal. The suppliers are assigned to those making initial contact. For the master thesis, each task is assigned at the beginning of every sprint.

3.4.2 Work day structure

To create some sort of structure and a daily routine and be able to work focused on both thesis and business development, we wanted to assign specific workdays to each of them. Every Monday and Tuesday is thesis-work days, Wednesday and Thursday should be spent working on RESolar. Fridays were designated to do back-office, iterating our work process and discussing the past and coming week.

3.5 Data gathering, interviews and meetings

When collecting data for research projects, McNiff and Whitehead (2011) state the following:

“In your action research you are looking primarily for two things:”

- *“Episodes of practice that show the developing educational influence of your own learning”*
- *“Episodes of practice that show your educational influence in the learning of others”*

Data shall be gathered mainly in two ways, through interviews with entrepreneurs and through minutes from meetings.

Interviews will be conducted with fellow minority entrepreneurs, preferably entrepreneurs that are experienced with conducting business in the East African region. Especially it will be interesting to talk with founders of companies in the energy-sector or venture capitalists and others in investment-companies. As our research question is about Western entrepreneurs this will also define whom we will talk to.

The interviews will be conducted as an open unstructured interview opposed to a more detailed and systematic approach. Entrepreneurs are in general people that have a lot to tell and have difficulties sticking with one topic at the time. It is their stories that we are interested in and therefore we believe that a freer interview will give us the best result. The interviews can be found in full in appendix A.

Minutes has to be typed up shortly after each meeting and archived digitally. We also archive email correspondence with actors we meet. By doing this we ensure that the meeting protocols and correspondences are systematized and easily accessible to everyone on the team. A weekly research diary will be kept to ensure that we document data and findings that we discover outside of structured meetings. We will evaluate our findings every week to see if there are important points we need to research further to answer our research question.

3.6 Evaluation of our methodology

How did we plan to develop and evaluate our research project? We started out with a model of our method that we constructed on Thorp's first visit to Kenya. The model was based on a cyclical approach with evaluation and iteration of the model at given time intervals. Evaluation was to be done every Friday, where four subjects were to be assessed:

- Responsibility distribution: Do any of the team members prefer or excel at any specific tasks?
- Work method: What days should be designated to what kind of work?
- How to log meetings and work: Write minutes during meetings, batch all minutes on Fridays, or do some every day?
- Questions for interviews with other entrepreneurs: Try some interviews, see how our questions work, do we get the information we need or do we have to change our questions?

The other important aspect of our iteration model was how we evaluate and implement iterations. When evaluating, we were to go through all points mentioned above, write a report and implement changes. Based on the evaluation a new or refined method should be tried until the next evaluation.

3.6.1 How did we evaluate our research method?

During the run of the research project we tried to apply the method described above. The notion to evaluate the method every Friday never got started, instead we did iterations throughout the project when we found them critically needed. The iterations were aimed to create more structure and kick-start our work if

things moved too slowly. Some of the things evaluated were as follows. We reviewed what we had done with the project lately, how that could be done better and if there were something to be learned from it.

We restructured the distribution of responsibility several times. To begin with Thorp should work more on the thesis, while Michelsen and Mundal primarily focused on RESolar. Responsibility was to be shifted around when needed. It took a while before we found it necessary to change this. The second attempt was to assign the responsibility of RESolar to Mundal and assign Michelsen and Thorp to the thesis. This worked better, however especially RESolar moved slowly with the new distribution. At the final attempt we spread the RESolar work on the three of us: Customers, Suppliers and Financing. This still works and seems to be an even distribution.

The initial plan for the workday structure proved difficult to follow. We did on several occasions discuss that we should find a new structure. There always seemed to pop up new things that required our full work capacity. Some examples were when we unexpectedly won the *Energy Award 2012 (Grønn Fases Energipris 2012)* and had to create press material, when we received difficult enquiries from customers or new information on the financing structure that required our full work capacity.

We have been better at logging meetings and work. Minutes from all meetings were digitalized and shared with all team members. Since we did not evaluate the method fully there are no logs from such evaluations. We tried to write a short diary to keep track of what work was done, since days were hectic this was forgotten after some weeks.

The three interviews we conducted were done thoroughly and logged well. Emails are archived automatically in a digital system, this works as expected. All in all we have been fairly good to keep record of what we do and this has helped and kept structure to our work.

Although we never iterated the whole model we did improve the most critical elements when needed and the changes that were implemented worked well.

The interviews were conducted at the end of our stay in Kenya. There were several advantages of having the interviews late in the stay. We were conscious of what we needed answers to and we knew the interviewees. A set of questions were created and reviewed together with our supervisor and then we did the three interviews with the same set of questions. Our criteria for choosing interviewees were primarily that they had been located in Kenya continuously over a long period of time. Secondly, that they have conducted business privately and not just been a representative for a big company or organization.

The interviewees have all long business experience from Kenya. Due to their different backgrounds and their field of work in Kenya we believe they present a

solid and realistic description of how it is to be a minority entrepreneur in East Africa. Even with different fields of work we feel certain that their backgrounds are similar enough to be of relevance for us and still contribute to illuminate our questions from different perspectives. When we make conclusions on the basis of our own experiences and the interviewees we feel confident that what we present is correct.

Svein Mork Dahl

Dahl is from Arendal, Norway. His first experience with Kenya was through the Norwegian NGO ARC-aid, where he worked for one and a half year. After this he wanted to stay in Kenya and established himself in Nairobi, where he now has lived for four years and is married to a Kenyan. He has a background as an investment banker, lawyer and entrepreneur.

Dahl is actively involved in several projects and businesses. He is part owner of a finance broker EmAC, develops agriculture investment funds, establishes Innovation Norway's business exchange program and is also active in social entrepreneurship projects.

Primarily we find Dahl relevant for RESolar due to his involvement in current projects and his extensive network in Kenyan business life. He is relatively young and started up for himself approximately four years ago. He therefore knows what we are going through and has the ability to help us and point us in the right direction.

Gerd and Jostein Holmedahl

The Norwegian missionaries Mr and Mrs Holmedahl have lived and worked in Kenya for nearly forty years. They first came to Kenya in 1973 after escaping from Ethiopia when the communists overthrew the Ethiopian government. Through their long period in Kenya they have been involved in several projects. Mostly their work have been related to develop Scripture Mission, which is the Norwegian Lutheran Mission organization working in East Africa.

Mr and Mrs Holmedahl are of importance for RESolar as they have been in the country for nearly four decades. They have a lot of experience, can put things in perspective to how it used to be and where the development is headed. As missionaries most of the work that Mr and Mrs Holmedahl have mostly been non-profit work. That does not make them any less entrepreneurial than us. They came to an unknown market, established schools, health clinics, wool production companies to employ women and are currently running a small bed and breakfast as a side business. They have gone through the same processes that we have to go through and felt the same uncertainty when "paving the way". They had to

gather financing, find locations, establish network, build partnerships and relate to locals.

Johnni Kjelsgaard

Kjelsgaard is a Danish investor and businessman that have started over 20 businesses. Back in 1998 he founded a company in the IT-sector in Kenya. He has later started an investment company and this year a business incubator in Nairobi, where RESolar is located.

Kjelsgaard is, as Dahl, a pure businessman, only with more years in the Kenyan market. With long experience from establishing businesses in Kenya and the neighbouring countries he knows what it means to be a minority entrepreneur in East Africa.

Kjelsgaard is a great resource for RESolar and can give advice on every aspect of doing business in Kenya. Not only because he is Scandinavian in Kenya, but because he has started several businesses here, some of which has failed and other which has succeeded.

3.6.2 How did this work out for us?

Following the methodology of action research has been an asset for both our research and start-up. By doing evaluations and iterations we forced ourselves to take a step back at times and reflect on where we were going and whether or not it was the right path for us. This opened our eyes at several occasions, unfortunately the amount of evaluations were less frequent than we initially planned. We found out that we had difficulty following the planned structure of frequent evaluations and iterations that action research, Scrum and lean recommends. We believe this has been due to lack of work structure that arose from working at separate continents.

Due to the fact that two of us were operating in a developing country we often had to deal with poor Internet connections. This should not necessarily be a structural problem with the right planning, nevertheless we failed to take this into account when we planned our collaboration method. Our team has been dependant on Internet based collaboration tools like Google Documents, Skype and Dropbox that rely on stable Internet connections. When you operate in an environment where the connection is slow and drops out quite frequently, other tools should be used. Instead of realizing this at an early stage and reflecting on an alternative we started rescheduling our morning meetings to the undefined future and ended in effect up working offline and quite separated. This in turn resulted in the separated team members drifting apart, negatively affecting both work efficiency and degree of collaboration towards common goals. Every time

Thorp visited Africa the team came together with a stronger structure and ended up being a lot more productive after their evaluation meetings. In retrospect we clearly see that this is an important aspect that can be hard to catch in the heat of the moment and will hurt the progress of the research development if it is not addressed.

Lack of structure resulted in some unfortunate outcomes that might have reduced the quality of our research. After some weeks we stopped using the research diary and did fewer methodology evaluations along the way than what we planned. With more follow-ups we believe we could have changed direction when we were on the wrong path sooner, thus saving ourselves unnecessary work and worries.

We see that it has been hard to adjust and adapt our research methodology when we do not evaluate what we are doing often enough and that this is caused by lack of structure. Nevertheless, action research has been a very suitable methodology in our case. The process has been natural and intuitive and the times where we actually reflected on what we were doing and where we were going, we ended up with a highly improved approach. In conclusion we feel that action research is an extensive methodology that is easy to use and provides the research team with good results when followed properly.

3.7 Credibility, validity and reliability to our result?

Greenwood and Levin (2007) defines credibility as *“the arguments and the processes necessary for having someone trust research results”*. They further determine two different groups of credibility; *“First there is knowledge that has internal credibility to the group generating it. [...] External credibility is knowledge capable of convincing someone who did not participate in the inquiry that the results are believable.”* By its definition, all action research projects provide internal credibility as the research is conducted with participation from the stakeholders involved. The question is to what degree our research is transferable and whether or not our conclusions are reliable and holds external credibility.

A study can be considered reliable if other researchers can reach the same conclusions in a new study. To improve our reliability we conducted interviews with other minority entrepreneurs at the end of our study. As explained above, our interview objects are experienced in the Kenyan context, with a similar background as us. Since all interviews confirmed our findings and conclusions without knowledge about what we found, we believe this improves the reliability of our study. Most of the challenges we met such as infrastructure, uncertainty, the lack of formal support institutions and the untransparent marketplace are all common for any Western entrepreneur who comes to East Africa. Therefore we find it likely that others will come to the same conclusions as we have.

Our findings are contextual dependent and qualitative, which means we cannot claim that our findings are empirical or statistically significant. Still our conclusions can be valid in other situations. For other Norwegian or Western entrepreneurs who plan to establish a company in Kenya or East Africa the recommendations will be more or less directly transferable. More generally, our experiences and findings from the effectual framework should be valid and relevant for all entrepreneurs. Likewise, our conclusion on the role of social capital and the effects of minority entrepreneur networks holds validity for all businesses and business people from the west operating in East Africa.

Even though the effects of minority entrepreneur networks for Asian entrepreneurs might be different than for Western minorities, the validity of the effectual approach still stands. In the same way we believe that everyone planning to start something in a foreign market should use the effectual approach of experimenting in the field and thus our paper holds relevance for them as well.

Western minorities that are already established in East Africa will have something to gain from reflecting on the effects of the minority networks, but little else. For business people in general, which enter a market in a foreign culture, this study might not be valid, but the effects of the minority networks should still be relevant. A globalized company with a rigid business plan, which holds a policy of doing the same everywhere might have little to gain from this paper. Companies that do this, Western or not, will have little to gain from our findings.

A last note should be made on ethical and confidential issues. Simultaneously working with the start-up project RESolar we have had access to some data as founders and not researchers. Some of the findings presented below might not have been available for external researchers and therefore an ethical issue arises. Has it always been clear to RESolar's business partners that they also are subject to research? And does it matter if they are aware of it or not? In some cases the team have considered it unfortunate to inform business partners that their opinions might be included in a master thesis since we pose as sellers of our own product and not academics in sales meetings. We have decided also to include some of these findings.

Chapter 4

Literature review

The aim of this literature review is to compare effectuation and similar theories for business development and try to unify them in the end. We will go through the inside-out and outside-in perspective, exploration and exploitation, the lean start-up approach and business model innovation and compare them to the effectual framework. Based on how the theories fit together, a unified model will be constructed and complemented with the context of the minority entrepreneur literature, the role of social capital and the *network entrepreneur*.

The first part of this literature review presents the different theories individually and elucidate the main aspects of each framework. The next part then evaluates how the different theories fit together and complement the effectual framework. Grounded in this evaluation a unified model is constructed to include the suitable elements. The model is then to be used by the case-company RESolar in their in field experiment.

4.1 Minority entrepreneurs

For almost 1000 years East Africa was influenced by the Far and Middle East, especially Arabia, India, Persia and China. The first Portuguese arrived in 1498 on a mission to dominate the economy and Christianize the Swahili coast. For several hundred years the Portuguese tried to take control, but because of Swahili resistance and with the help of Omani Arabs the Portuguese were removed by 1729 (Mwakikagile, 2007).

The Kenyan population is among the most diverse populations in Africa. The non-African groups, Arabs, Indians and Europeans, still play a fundamental role in the Kenyan business life (Mwakikagile, 2007). The following table displays some of the key minorities represented in the East African business environment.

Non-African groups	Business sector
Arabs	A small but historically important minority ethnic group in Kenya mainly engaged in trade. They are principally concentrated along the coast in cities such as Mombasa.
Indians	Are primarily noted for their business acumen and form one of the most prosperous communities in the region.
Europeans	Primarily consist of descendants of British colonials. Many are of aristocratic descent and still continue to wield significant influence, especially over Kenya's political elite. Britons and other Europeans in Kenya have also traditionally dominated the local business community.

Table 4.1: Central minority groups in the Kenyan business life (Mwakikagile, 2007)

Minority entrepreneurs' influence in Kenya

The World Bank conducted a study of Kenyan enterprises in the late 90's, published in 2003. The study was done through the World Bank's Regional Program on Enterprise Development (RPED). This data emphasizes that most Kenyan firms are owned by Non-Africans. Vandenberg calculate that Asians own between 65% and 89% of Kenyan firms with eleven or more employees (Vandenberg, 2003, p. 445).

When looking at size and growth of companies it is clear that the minorities perform better. Ramachandran and Shah (2007) find that the average Kenyan firm owned by a minority is close to four times larger than indigenously African owned companies, measured in number of employees. Especially in larger start-up businesses, but also in general, it is clearly seen that a majority of the entrepreneurs encountered in Ramachandran and Shah's survey are of a Non-Kenyan origin. Biggs and Shah (2006) find that non-indigenous African entrepreneurs raise performance through networks and private governance systems.

Networks of minority entrepreneurs

Studies show that immigrated minority entrepreneurs are likely to cluster together. Ramachandran and Shah (2007) point to several aspects where minority entrepreneurs enjoy several benefits due to their ethnicity. For instance they have a larger chance of receiving trade credit and can expect to sustain supplier relationships for longer (Biggs, Raturi and Srivastava, 2002; Biggs and Shah, 2006; Ramachandran and Shah, 2007).

There seems to be several reasons to why the foreigners tend to stick together.

In an earlier article, Ramachandran and Shah (1999) finds that “[e]xternal environmental parameters such as limited occupational choice, the never-distant threat of expulsion, and enforceable cooperation with fellow minority entrepreneurs [...]” These conditions leads to “[...] networks of trust which provide access to scarce information, risk-spreading arrangements, favourable terms of credit and a larger pool of individuals to whom managerial responsibility can be delegated.”

Ramachandran and Shah (1999) conclude that these networks and mechanisms are extremely important to the performance of entrepreneurs. Through lower transaction costs, easier contract enforcement and better access to financing and information, Indians and Europeans by far outperform the indigenous African entrepreneurs. Encouragingly for African development though, Ramachandran and Shah (1999) suggest that education at secondary and university levels substitutes for access to these minority entrepreneur networks.

Networking among minority entrepreneurs

How does the minority entrepreneur connect to a network? In a study of three young born-global entrepreneurs by Harris and Wheeler (2005), it is shown that entrepreneurs in a new market often form “*highly serendipitous and fortunate relationships*”. Such nodes in an entrepreneur’s network can provide help with expanding the network with new contacts, point and introduce both suppliers and customers. Even more importantly such relationships can help transform and redirect new market entries (Harris and Wheeler, 2005).

It appears to be important to be prepared to connect to new nodes at all times. Harris and Wheeler’s study show that new relationships can arrive rather randomly. “*In all the relationships rooted in social activity, whether business related or not, a relationship developed to some degree, without any idea of the business exchanges that may or may not subsequently take place.*” (Harris and Wheeler, 2005).

Network with countrymen

When connecting with new nodes it seems particularly likely that they will be originated from the same country as yourself. Evaluating the data in Harris and Wheeler (2005) one can see that of the eleven relationships they studied, eight of them were with fellow countrymen.

This notion that minorities tend to seek together with their own countrymen can further be explained from a different perspective. In his book “*Predictably Irrational*” author Dan Ariely call it relativity. When considering the people around you, persons with the same ethnicity or similar cultural backgrounds will appear to have a lot more in common with you. When surrounded by apparently

Africans Ariely's conclusion is that countrymen will be easier to befriend and begin fruitful networks with. Put simply, you find it nicer to chat with people you share background with, just because of that background (Ariely, 2008).

4.2 The outside-in perspective

In the classic and generic business literature there is generally two important views on how the company should attack and enter the industry. Traditionally the most used perspective is outside-in, where Michael Porter is the most know theorist. Porter's key themes are strategic positioning, competition and competitive advantage and the value chain (Porter, 1985, 1980). A brief summary of his ideas follows.

Strategic positioning is about how to enter a new market, and is illustrated by the "five forces" in figure 4.1.

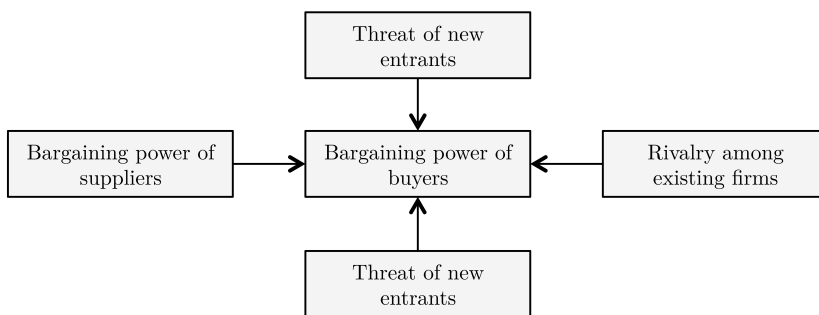


Figure 4.1: Porter's five forces (Porter, 1980)

The key learning from these five forces are that one has to position oneself correctly and build defence against the five forces to sustain competitive advantage. Further, Porter describes a generic competitive strategy best shown as in figure 4.2.

		Competitive advantage	
		Lower cost	Differentiation
Competitive scope	Broad target	Cost leadership	Differentiation
	Narrow target	Cost focus	Focused differentiation

Figure 4.2: Porter's generic competitive strategy (Porter, 1985)

The clue with the generic competitive strategy is to choose between low cost

and differentiation and be careful not to be stuck in the middle. You should establish your company in an existing industry and make adaptations based on what possibilities exist besides your competitors. *“The key to a company’s growth and success is to stake out a position that is less vulnerable to attack from other companies.”* (Baraldi, Brennan, Harrison, Tunisini and Zolkiewski, 2007)

The last concept introduced by Porter is the value chain. As Baraldi et al. (2007) puts it: *“The value chain is primarily analysed in terms of sequential interdependent activities from which a competitive advantage can be created. The advantage can be generated because of an effective co-ordination between these activities and the optimization of their interconnections. A company’s value chain belongs to a broader value system that involves the upstream value chains of the suppliers and the downstream value chains of the channel actors.”*

4.3 The inside-out perspective

The outside-in perspective as described in the previous section is usually put up against the inside-out perspective. Where the outside-in theories see how the firm better can adjust to the market already existing, the inside-out theorists prefer to look at it the other way around. How can a company use the resources it already has for maximum impact on the market. Inside-out is usually tied to the term “Resource-Based Theory”. One of the most known theorists is Jay Barney with his “Resource-Based View” Barney (1991). The resource-based view states one needs “physical, human or organizational assets that are valuable, rare, inimitable and non-substitutable (VRIN)” to build sustainable competitive advantage (Barney, 1991). Origins can be tracked back to Penrose (1959), much research was done by Wernerfelt (1984), Rumelt (1984) and Barney (1991). Baraldi et al. (2007) summarizes the resource-based view well: *“Competitive advantage is derived from the control of unique resources”*.

Barney (1991) cites Daft (1983) when describing a firm’s resources: *“Firm resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness”*. The following characterize valuable, rare, inimitable and non-substitutable resources:

- Valuable: *“attributes only become resources when they exploit opportunities or neutralize threats in a firm’s environment”* (Barney, 1991).
- Rare: Resources cannot be common among competitors.
- Imperfect imitable: How difficult will it be for your competitors to copy your resources? Are there unique historical conditions? Can they be causally ambiguous? Or socially complex?

- Non-substitutable: “*there must be no strategically equivalent valuable resources that are themselves either not rare or imitable*” (Barney, 1991).

Another concept that is essential in the inside-out perspective is dynamic capabilities. Eisenhardt and Martin (2000) describe them as “*The firms processes that use resources, specifically the processes to integrate, reconfigure, gain and release resources to match and even create market change. Dynamic capabilities thus are routines by which firms achieve new resource configuration as markets emerge, collide, split, evolve and die.*” Further Eisenhardt and Martin (2000) states that “[*dynamic capabilities*] value for competitive advantage lies in the resource configuration that they create, not in the capabilities themselves”. It is important for the company to look everywhere for asymmetries in the firm and develop them to competitive advantages.

4.3.1 The network entrepreneur

Burt (1992) describes a concept called “The network entrepreneur” that gives a somewhat cynical and clinical view on how the best network should be. The two important basic premises that Burt mentions are that a well-structured network can provide a player with a competitive advantage but that the market is imperfect. Secondly establishing and maintaining a well-structured network costs resources, both human and financial. An expansion of the network is therefore only good if the new contact gives you as a player a new network cluster. This is called a non-redundant network expansion.

Burt (1992) discusses the value of locating and filling structural holes. In short a structural hole means a “missing link” between one or more nodes in a network that would benefit from having a connection. By mapping and filling these holes an entrepreneur can gain a lot by being the link between these two. One should therefore seek to achieve as many non-redundant contacts as possible and fill structural holes between one self and other networks.

The two main principles to optimize a network are:

Efficiency – Maximize the highest number of non-redundant contacts to cover the highest number of structural holes as possible

Effectiveness – Expand to network clusters that you do not yet have any network connections

This approach is a part of what Granovetter (1973) refers to as the strength of weak ties. The theory revolves around the notion that if you focus on keeping as many non-redundant contacts as possible, and only put as much time into maintaining each one of them so that you can keep using them you will optimize the efficiency of the network. In addition, the theory of the strength of weak ties

suggests that you will get more relevant information through weak ties than you will get through strong ties (Levin and Cross, 2004).

4.3.2 Social capital as a resource

Adler and Kwon (2002) have described and summarized both the concept of the *network entrepreneur* and the strength of weak ties and combined them under the term *social capital*. Social capital is a widely discussed term among researchers of sociology and business. They put together a new and more conclusive concept for social capital. Their definition gives clear benefits to the firm in three forms; information, power and solidarity. Information both through strong and weak ties is especially important for entrepreneurs.

Further, Adler and Kwon (2002) identified that the core intuition guiding social capital research is that the goodwill that others have toward us is a valuable resource. They define social capital as: “*The goodwill available to individuals or groups. Its source lies in the structure and content of the actor’s social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor*” (Adler and Kwon, 2002, p. 23).

Adler and Kwon (2002) distinguish three conceptual types of relations; *market relations*, *hierarchical relations* and *social relations*. It is likely that any relation between people include a mix of the three types. “*However it is the social relation that constitutes the aspect of social structure underlying social capital.*” (Adler and Kwon, 2002)

As mentioned initially defining social capital is widely discussed in academia and what primarily separates the different views depends firstly on if they focus on the substance, the source, or the effects of social capital. Secondly it depends on if they focus on the relations between actors, *external*, the structure of relations among actors within a collective, *internal*, or both of the views, *integrated* (Adler and Kwon, 2002).

External dimension

A focus on the external relations is also known as *bridging* and is connected to the *network ties* and how such connections might provide valuable information (Nahapiet and Ghoshal, 1998; Sørheim, 2003; Adler and Kwon, 2002). This view looks into how individuals and firms get exposed to opportunities through their social network and how this creates a competitive advantage (Adler and Kwon, 2002; Burt, 1992).

“*Through social capital we receive opportunities to use our financial and human capital.*” (Burt, 1992)

Burt (1992) describes the *network entrepreneur* as a player that brings three kinds of capital to the competitive arena; *Financial-*, *Human-* and *Social capital*. It is through social capital the actors receive opportunities to use their financial- and human capital. In contrast to Burt's view of Social Capital another group of authors, like (Fukuyama, 1995), focus on the collective actors' internal characteristics in groups like organizations and nations (Adler and Kwon, 2002).

Internal dimension

The internal structure in a collective group depend on having a set of informal values, norms or other common grounds that binds them together in cooperative relationships (Adler and Kwon, 2002).

"The ability of people to work together for common purposes in groups and organizations" (Fukuyama, 1995; Adler and Kwon, 2002)

Integrated approach

The third group of authors are neutral to this internal or external dimension Adler and Kwon (2002), and Nahapiet and Ghoshal (1998) have come up with an integrated approach where both dimensions are included (Sørheim, 2003). The integrated approach includes three specific dimensions of social capital, a *structural-*, a *relational-* and lastly a *cognitive* dimension.

The structural dimension It can often be a tedious and resource demanding job to acquire relevant information when needed. By having the right network one can benefit from the information flow in at least three ways; *access*, *timing* and *referrals*.

Access is relevant for receiving valuable information and knowing how to use it. To prevent overflow of information the network has the important job to also act as a screening process (March, 1991; Sørheim, 2003). *Timing* is relevant since critical information has different value depending on when it is received. Lastly, *referrals* relates to the importance of being mentioned by name and recommended to potential partners at the right time and circumstances (Sørheim, 2003).

"Granovetter (1985, p. 490) illustrates the importance of reputation and being referred in the right circumstances are of great value; 'Better than the statement that someone is known to be reliable is information from a trusted informant that he has dealt with that individual and found him so' "(Sørheim, 2003).

The relational dimension The relational dimension of social capital brings up the aspects related to trust, trustworthiness and motivation (Tsai and Ghoshal,

1998; Sørheim, 2003; Nahapiet and Ghoshal, 1998). Trust is defined in various ways as described by Welter (2012). In this paper we define trust as “[t]he willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustee, irrespective of the ability to monitor or control the other party” as in Mayer, Davis and Schoorman (1995). These matters are important in order to clarify the motivation of individuals to involve themselves in knowledge creation through the exchange and combination of resources (Sørheim, 2003).

The cognitive dimension For people to create common grounds and a shared vision, they need to be able to share and exchange information e.g. have some sort of shared codes and language (Sørheim, 2003).

4.4 The effectual approach

“I always live by the motto of Ready-Fire-Aim. I think if you spend too much time doing ready-aim-aim-aim-aim, you’re never going to see all the good things that would happen if you actually start doing it and then aim. And find out where your target is.” – Interview object from Sarasvathy’s study in 1997 (Sarasvathy, 2001b).

So what is the effectual approach to reasoning and how does it differ from a causal approach? Causal processes are defined as to take a particular effect as given and focus on selecting between means to create that effect. The effectual processes are defined to take a set of means as given and focus on selecting between possible effects that can be created with that set or means (Sarasvathy, 2001a). This can be simplified by comparing two different approaches to the same problem.

A causal affiliated person, often a professional with a MBA-degree would start a business venture by creating a business plan based on market analyses, data on competitors and on what resources needed to be acquired to reach a fixed goal. The effectual person would often start with his own abilities and see where they could take him. This starts with the three core questions:

- Who am I?
- What are my skills and knowledge?
- Who do I know that can help me?

The effectual person skips the phase of planning an entire business concept and action plan before he starts his venture. The effectual start is much more iterative and interactive. Instead of doing customer surveys and analyses, he will go directly to the customer and try to sell directly. The feedback from the market would then guide the entrepreneur to stake his venture in the right direction.

Table 4.2: The difference between effectuation and causation (Sarasvathy, 2001a)

Categories of differentiation	Causation processes	Effectuation processes
Givens	Effect is given	Only some means or tools are given
Decision-making selection criteria	Help choose between means to achieve the given effect Selection criteria based on expected return Effect dependent: Choice of means is driven by characteristics of the effect the decision maker wants to create and his or her knowledge of possible means	Help choose between possible effects that can be created with given means Selection criteria based on <i>affordable loss</i> or acceptable risk Actor dependent: Given specific means, choice of effect is driven by characteristics of the actor and his or her ability to discover and use contingencies
Competencies employed	Excellent at exploiting knowledge	Excellent at exploiting contingencies
Context of relevance	More ubiquitous in nature More useful in static, linear, and independent environments	More ubiquitous in human action Explicit assumption of dynamic, nonlinear, and ecological environments
Nature of unknowns	Focus on the predictable aspects of an uncertain future	Focus on the controllable aspects of an unpredictable future
Underlying logic	To the extent we can predict future, we can control it	To the extent we can control future, we do not need to predict it
Outcomes	Market share in existent markets through competitive strategies	New markets created through alliances and other cooperative strategies

This approach also leaves the entrepreneur much more flexible to handle unforeseen events and lets him experiment a lot more with possible approaches to the market. The effectual entrepreneur handles unforeseen events when they arise instead of using a lot of resources to map them beforehand. This way of making the best of contingencies is a core aspect of the effectual entrepreneur and allows him to change direction as new challenges and opportunities arise. Given the higher degree of uncertainty, they have to be able to handle this more often and make the best of it at all times. Even if uncertainty and contingencies plays a key role for the effectual entrepreneur, the effectual approach is not a random strategy. Effectuation is a method one uses to benefit and use the uncertainties and contingencies to develop new and unforeseen results (Sarasvathy and Dew, 2010).

Davidsson's (2005) four ground pillars describes the core aspects of effectuation and shows in a specific manner how it differs from causation. The four pillars are presented below:

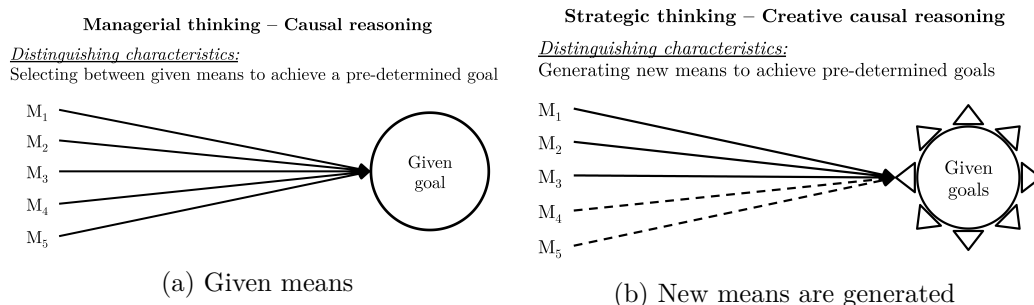


Figure 4.3: Causation focuses all plans towards one direction (Sarasvathy, 2001b)

Affordable losses The effectual approach starts by asserting *affordable losses* instead of the causal approach that speculates in expected returns. The core philosophy is that it is more important to limit the damage if unsuccessful, than to get the highest possible return if successful. This arises from the how the effectual entrepreneur goes out to experiment while the causal entrepreneur plans everything before execution.

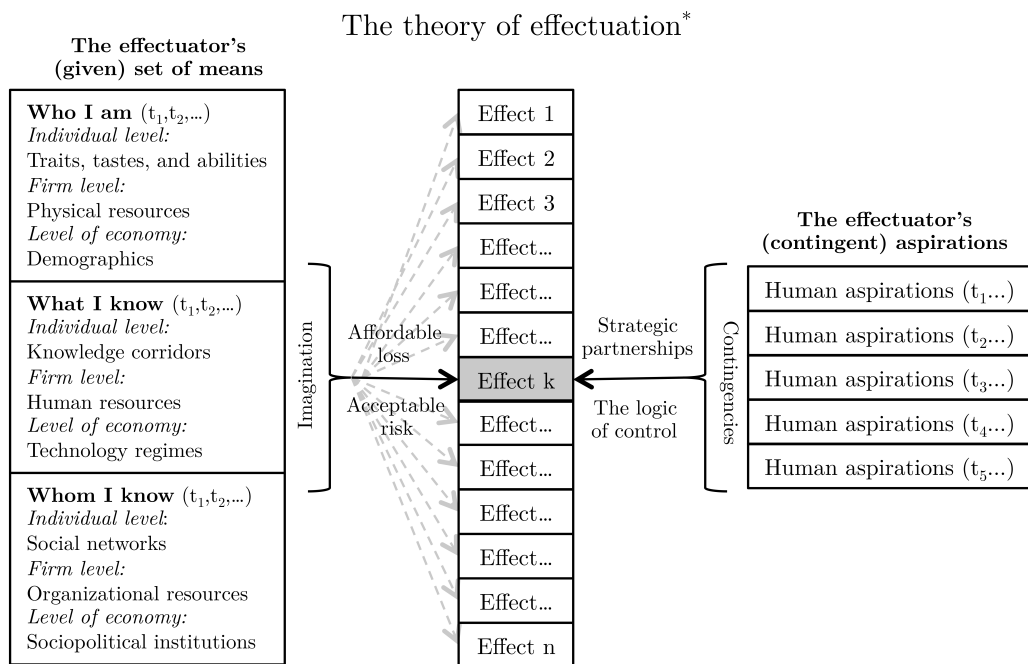
Approach to actors The causal approach handles other actors by analysing whom he has to beat to be successful. The effectual approach handles other actors by asking himself who he should partner up with or cooperate with to be successful. In short, strategic alliances rather than competitive analysis.

Emerging opportunities Effectuation focus on possibilities that arise in the marketplace rather than what is known beforehand. Exploitation of contingencies rather than pre-existing knowledge. The entrepreneur is sensitive to what comes up along the road and prepared to turn these contingencies into business strengths.

Managing the uncertain future Causation wants to tackle the uncertainty by mapping it and then analyse what the best possibility for action is comparable to the classic business plan. Effectuation is more prepared for uncertainties and contingencies that arise and exploit these unforeseen events into benefits along the way. Causation logic assumes one can predict the future, while effectuation logic suggests that if one can create the future one does not have to predict it.

In the real world

The causal approach to reasoning is a lot more widespread in the world of successful professional managers at large corporations and is also what is taught as curriculum at most MBA schools. The effectual way of reasoning on the other



*Effectuation begins with a given set of means and contingent human aspirations to select from a set of possible effects imagined by the effectuator(s). Both means and aspirations change over time. The particular effect selected is a function of the level of loss or risk acceptable to the effectuator(s), as well as the degree of control over the future that the effectuator(s) achieves through strategic partnerships along the way.

Figure 4.4: Effectuation is to focus towards a range of potential opportunities (Sarasvathy, 2001b)

hand is empirically shown to be widespread among successful serial entrepreneurs. However, no one uses solely the effectual or the causal approach since most will need a mix of the two. Both rational choices based on causation and a methodology based on effectuation is necessary as guidelines for good actions and decisions since they work best on different areas of business life. Causal processes are well designed for making the best of acquired knowledge while effectual processes are good for exploiting contingencies (Sarasvathy and Dew, 2010).

4.5 Exploitation and exploration

Exploitation and exploration are considered extremities in the paradox on how to allocate resources in an organisation (Graff and Narvhus, 2012; March, 1991). Organizations that apply an exploitation approach work to eliminate inefficient process and try to use their resources in the most efficient manner (Green, 1999). Such organisations are often considered profit-making machines as they try to re-

duce costs as much as possible at the same time as they increase production. Lean manufacturing is recognized as one of the more extreme variants of exploitation strategy (Graff and Narvhus, 2012).

There are some controversies on the usage of exploitation in organizations (Green, 1999; Graff and Narvhus, 2012). Two points are especially emphasized; exhaustion of humans and inhibition of innovation. Exploitation may utilize humans to the extremes and this may lead to terrible work conditions and can come close to human slavery (Graff and Narvhus, 2012). Further, innovative initiatives face the risk of being diminished due to the organizations focus on short-term performance (Nohria and Gulati, 1996). The positive impacts of the exploitation tactic are summarized in three elements: Discipline, Development of Core Competencies and Inhibition of Slack Accumulation (Graff and Narvhus, 2012). In short, the organization works to be better at what it knows well without using unnecessary resources.

Exploration is considered a contradiction to exploitation and encourages collection of new information that can increase organizational production in the future (March, 1991; Graff and Narvhus, 2012). *“An exploratory organization has a mindset based on experimentation, flexibility, divergent thinking, and increasing variance.”*(Graff and Narvhus, 2012)

As a contradiction to exploitation, explorative strategies are often considered to be weak on the strengths in exploitation strategies. Three critiqued elements of exploration is: Lack of Effectiveness (March, 1991), Ignore Core Competencies (Gupta, Smith and Shalley, 2006) and the *“Failure Trap”*, where *“[t]he firm, therefore moves from one opportunity to the next without exploiting prior learning and experience (Levinthal and March, 1993)”* (Graff and Narvhus, 2012). On the positive side, exploration enables organizations to achieve long-term viability through new opportunities (Atuahene-Gima, 2005). Plus a firm with an explorative strategy can build up an ability to handle environmental uncertainty that is superior to other actors in the same industry (McGrath, 2001; Graff and Narvhus, 2012). *“Adaptability [from exploration] becomes increasingly important when the competitive landscape intensifies.”* (Graff and Narvhus, 2012)

4.6 Lean manufacturing and lean start-up approach

The production practice lean manufacturing derives from the Toyota Production System, a Japanese management philosophy that was established by the Toyota Corporation (Ohno, 1988; Becker, 1994). Lean manufacturing considers all activities that do not create value for the customer to be waste and should therefore be avoided (Reeb and Leavengood, 2010).

In essence the lean start-up approach is another alternative solution to the causal

planning approach for a start-up to go forward with. The idea is to build a prototype with a minimum set of features, minimal viable product, sell it to early adopters, get feedback from the customers and make improvements on the product as fast as possible. This is called the build-measure-learn cycle. The process is to continue to iterate and make improvements until the product is fully featured and the customers love it (Ries, 2011).

Leap of faith

A start-up's business plan usually begins with a set of assumptions, and for the start-up everything depends on these *leap of faith* assumptions. Having a first-hand understanding of the customer is therefore important so these assumptions can be tested as quickly as possible. In lean manufacturing this is called "genchi gembutsu" and translates into "go and see for yourself" so that decisions can be based on first-hand knowledge (Ries, 2011).

In the early phase of the start-up it is challenging to predict what will happen and what the future will look like. A mind-set of experimentation and learning is necessary to raise the odds of success (Gruber, 2010). Lean manufacturing use the production of high-quality physical goods to measure progress. The lean start-up approach also measure progress, but uses a different unit of progress, namely validated learning. "*By making predictions ahead of time about your product/service and documenting them, you know when you are off the mark and you can use the results to iterate your product and test new assumptions, this is validated learning.*" (Ries, 2011)

Because of the uncertain future a start-up faces, the questions of who the customers are and what they might find valuable are unknown (Ries, 2011, p. 48). It is therefore challenging for start-ups to know what work is value-creating and what work is wasteful (Ries, 2011, p. 47).

The start-up should apply its available "tools" for finding out what customers value. The first step is to build a minimum viable product with the least applicable features needed to get customer feedback and then start gathering this feedback.

Ries, Eisenmann and Furr (2011) defines the minimal viable product as: "*the smallest set of features necessary to secure the next round of validated learning*".

Minimum viable product A minimal viable product helps the entrepreneurs start the process of learning who their actual customers are and what they value as quickly as possible. A minimal viable product is not necessarily the smallest product imaginable, they can range in complexity but they are simply the fastest way to get through the build-measure-learn feedback loop with the minimum amount of effort (Ries, 2011, p. 93). The initial minimal viable products do not

need to be perfect, the main goal is to get the product sold to early adopters and adjusted to the customers before it can target the mass market. An aspect that worries entrepreneurs with regards to building a simple minimal viable product and releasing it, is the fear of competitors. Sooner or later a successful start-up will encounter competitors and the only way to win that race is to learn faster than anyone else and accelerate through the build-measure-learn cycle faster than your competitors can manage (Ries, 2011, p. 111).

Pivot or persevere?

Ries (2011, p. 149) defines pivot as “*a structured course correction designed to test a new fundamental hypothesis about the product, strategy, and engine of growth*”.

For a start-up to succeed it has to constantly take into consideration the feedback it gets from its customers and the marketplace. Then either continue at the current path, persevere, or change to a new direction, pivot.

For a start-up to constantly make these fundamental decisions is challenging and highly emotional. The start-up team needs to address this in a structured way and schedule regular pivot and persevere meetings no matter how the flow is. In pressed times when the start-up is running low on cash, there are two alternatives for how to extend the start-up’s “life-line”. Either the start-up has to reduce its costs or raise more funds. The essential aspect that the start-up team needs to keep in mind is that they have to increase the number of pivots they can conduct so that the start-up will increase its opportunities to succeed with its business strategy. If reducing the company costs results in a slower process through the feedback loop then the start-up has only achieved going out of business in a slower pace (Ries, 2011).

4.7 Business model innovation

When entering a new market as a small, new start-up, it may often be smart to use a different business model compared to incumbents in the market. Especially during the downturns of the 2000’s, there has been much focus on business models and development of new models, so called business model innovation.

First, what is a business model? In general a business model is a way to describe what and how a company’s costs and revenues are generated. Several ways to depict the business model has been developed. Here we will explain two models that the authors have found relevant and useful. In the HBR-article “*Reinventing your business model*”, Johnson, Christensen and Kagermann (2008) describe a model with four elements; *customer value proposition*, *profit formula*, *key resources* and *key processes*. This is illustrated in figure 4.5.

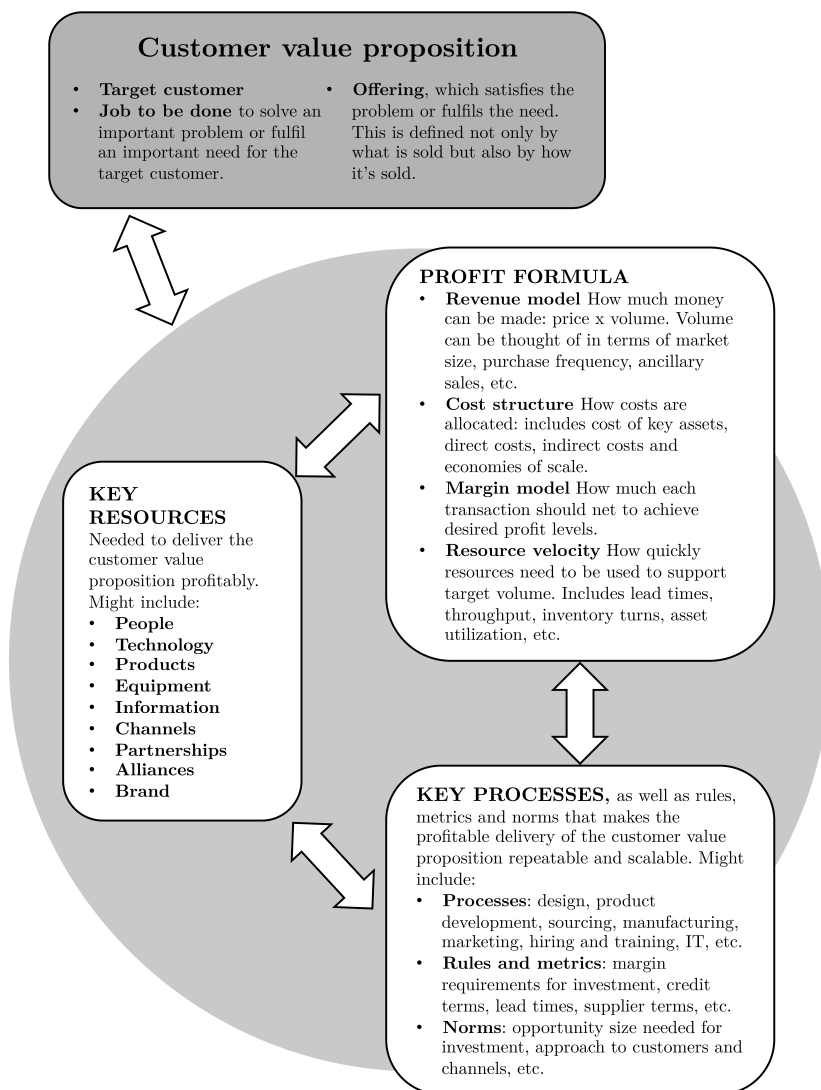


Figure 4.5: Business model innovation (Johnson et al., 2008)

Another popular description is the Business Model Canvas by Osterwalder (Osterwalder and Pigneur, 2010). He defines business model in the following way: “A business model describes the rationale of how an organization creates, delivers and captures value.” The business model canvas consists of 9 building blocks; *customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships* and *cost structure*. As one can see, these two models have a lot in common but the canvas provides a more granulated model.

How does one innovate a new business model? Essentially, you only have to change some or all of the elements in your existing model. For a start-up this would

typically mean to look at what the incumbents do and do something different. Johnson et al. (2008) recommends starting with creating a new customer value proposition. Using a “Job-to-be-done”-focus it is easier find what the customer really needs and then fit your product or offering to this need. When you have a new customer value proposition, it will be easier to find what profit formula, key resources and process will be needed to deliver this.

4.8 Framework for an effectual approach

The theory presented above is to be used in analysis of data found in the study of the case company RESolar, as described in the Context chapter. To make the analysis and discussion of the findings easier we summarize the models and theories in a more conclusive way. We will use the effectual approach as a foundation for a framework and include relevant aspects from the other perspectives where they are found useful.

To build this framework we will first process all theories presented above in an orderly manner and reason for whether they should be included in the framework or not. Then we present a structured framework and explain where in the framework the various theoretical elements belong. In the end we visualize the model and summarise it for the entrepreneur.

As a general framework the effectual approach is fairly similar to the resource-based view. In resource-based view you analyse the resources contained in the firm. Similarly, with effectuation one start with an assessment of the internal resources. In the inside-out perspective where the resource-based view belongs, there is also a focus on what you and your organisation can do rather than the outside-in view of constantly assessing what your environment is doing. The focus on your internal resources can be concluded to be the foundation of effectuation. The resources that are recognized in resource-based view are the same as those recognized in effectuation.

We find that the resource-based view is more directed towards existing firms, whereas effectuation is more suited for the entrepreneur. The effectual approach has a broader definition of resources since resource-based view is focused on resources that can build competitive advantage, usually in an existing market. Effectuation can be considered to be more creative and more suited to capture new opportunities and markets. This is why we decided to use effectuation as the foundation for the framework and connect the other theories into this framework.

The lean start-up approach framework also deserves to be mentioned in particular as a concise framework for start-ups. The method originated in a software-start-up environment, therefore we find that most parts of the lean start-up approach framework are not useful in the general cases. One can further note that lean start-

up approach is strongly connected to both lean manufacturing and effectuation. This provides an easily available “handbook” for the software start-up based on an effectual approach.

4.8.1 Comparison of presented theory

Here we will go into more detail on similarities and differences between the theories presented above and the effectual approach. We decide if the various concepts are suited for inclusion into a unified framework that will be compiled after this comparison. The theories will be discussed one at the time in the same order as in the literature review above.

Minority entrepreneurs

The first part of theory from the literature is about minority entrepreneurs and how the networks and ties between different minority entrepreneurs function. Networks of minority entrepreneurs, networking among minority entrepreneurs and network with countrymen should be affected by two of the three effectuation-questions that Davidsson (2005) mentions in his article: *Who am I?* and *Who do I know that can help me?*. By asking oneself *who am I?* the entrepreneur can reflect on what cultural ties he has and whom he should approach to benefit from his minority entrepreneur network.

In other words, to figure out *who do I know that can help me* in the minority entrepreneur network. Another valuable point we can learn from the minority entrepreneur literature is how it affects the effectuation pillar *approach to actors*. Minority entrepreneurs usually enjoy each others company and have a natural tendency to stick together and help each other out. They should therefore be willing to cooperate more easily than other actors in the market. This should make market entry easier. Since minority entrepreneurs are far from home, why should they not help each other?

Outside-in

The strategic view of outside-in is most commonly referred to as the opposite of inside-out and the resource-based view. The main theories from this chapter, Porter’s five forces, the generic competitive strategy and the value chain are all theories that take the classical causal reasoning-approach to business development. Even though this is not a direct opposite of the effectual approach we do not feel that these theories are suited for our model as they are not similar to any of the core theories of effectuation.

Inside-out

The strategic view of inside-out on the other hand, has many similarities with the effectual approach. The resource-based theory has a similar focus as the three core effectual questions presented by Davidsson (2005): *Who am I?*, *What are my skills and knowledge?* and *Who do I know that can help me?*. The answer to these questions are the resources the entrepreneur possesses and should be used to create dynamic capabilities in addition to a business model and a product that is valuable, rare, inimitable and non-substitutable as described by Barney (1991).

The *network entrepreneur* from Burt (1992) bears similarities to the effectual question *who do I know that can help me* in addition to the chapter *approach to actors*. The *network entrepreneur* uses his network to build strategic ties and should according to effectuation form cooperative ties to his competitors and substitutes in the market.

In combination with effectuation and minority entrepreneurs, a tactic for the *network entrepreneur* can be to approach people with the same cultural background since ties are easier formed with nodes that share cultural background. Getting acceptance into such networks usually goes fast and often brings with it several new nodes and increase the entrepreneurs' social capital. Social capital is formed because minority entrepreneurs feel that other people from their culture are trustworthy and hence trust each other sooner. This sense of commonalities and the common cognitive dimension motivate the minority entrepreneurs to help each other out.

Exploitation and exploration

Both exploitation and exploration are originally directed towards established companies. There are still similarities with effectuation and strategies for the entrepreneur to be found in this paradox. Exploitation tactics are to some extent comparable to Davidsson's (2005) *emerging opportunities*. The goal both for effectuation, exploitation and resource-based theory is to do fewer different activities but do those you do better.

Exploration on the other hand can be connected to Davidsson's (2005) *managing the uncertain future*. Exploration is aimed to discover new information and knowledge in your organization. Through this exploration you will be better prepared for the future, which is exactly the conclusion made in the effectual approach.

Lean start-up approach

Ries' (2011) lean start-up approach is perhaps the framework most similar to the effectual approach of the presented literature. The build-measure-learn cycle is in

general comparable to the market experimentation process of effectuation. The *leap of faith*, to make assumptions before market entry are found both explicitly in lean and implicitly in effectuation.

Both frameworks recommend entering the market solely based on what the entrepreneur already knows. The assumptions are built on the answer to the effectual question *what are my skills and knowledge* and not on external information that needs to be gathered. After the assumptions are made the lean start-up approach tells the entrepreneur to engage with experimentation and create a minimal viable product. This is equivalent to what Davidsson (2005) refers to as “managing the uncertain future” and what March (1991) refers to as exploration.

This process from lean is closely compatible with valuable, rare, inimitable and non-substitutable resources from inside-out. In this scenario the entrepreneur should build a minimal viable product that is valuable, rare, inimitable and non-substitutable based on the resources at hand.

The overall lesson is that in both lean and effectuation the entrepreneur should not use too much resources to plan before he knows how the market functions and how the initial response is. After market feedback lean recommends the step of “pivot or persevere”, a step where the entrepreneur decides if he should alter the product or service based on the market feedback or if the market prefer his proposition “as-is”. This is what Davidsson (2005) refers to as *emerging opportunities* and is in the start-up context comparable to March’ (1991) exploitation. This process is referred to as validated learning in lean.

Ries (2011) explicitly recommends that start-ups should not focus on revenue or profits but rather on perfecting the business model and deal with the revenue stream when a proper business model and a proper product is in place. Lean thereby implies bootstrapping and running a financial strategy of dealing with *affordable losses* and cutting costs at all corners where it is possible, just as effectuation does.

Business model innovation

Business model innovation covers all the aspects of a business model. The customer value proposition will in the effectual setting deal with creating a valuable, rare, inimitable and non-substitutable minimal viable product based on the resources available to the entrepreneur. The issue of funding and potential returns is treated by the effectuation theory in what Davidsson (2005) refers to as *affordable losses* by suggesting that one should cut the cost structure as much as possible and evaluate how much you can afford to lose. The revenue model and the margin model on the other hand is more related to the classical causal approach of predicting the future and will therefore not be implemented in our model.

Key resources is handled by all the core effectuation questions: *Who am I?*, *What are my skills and knowledge?* and *Who do I know that can help me?* Naturally, it is also related to social capital and the *network entrepreneur* from the inside-out perspective since the key resources shall describe how the entrepreneurs social capital can help with the different processes of the business model. Key resources are also applicable to the creation of a minimal viable product as this is based on what the entrepreneur has available. In a pure effectual approach key processes are not that relevant to map. Instead you rather create the processes needed on a trial-and-error basis, if anything, you start by building a minimal viable product and map key processes along the way.

4.8.2 Framework development

In this chapter we have built a model with the elements that we have chosen in the chapter above based on the effectual framework from Davidsson (2005). We have chosen to make a model based on what we perceive to be the logical chronological steps an entrepreneur takes as he follows an effectual approach to business development and structure the relevant theory accordingly.

4.8.3 The unified model of an effectual approach

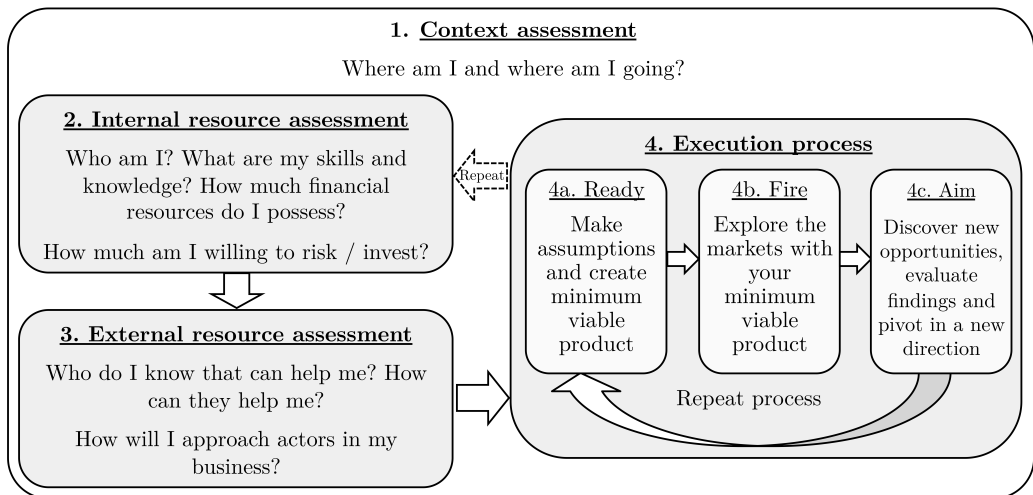


Figure 4.6: The unified model of an effectual approach

The model, in figure 4.6 starts with a *context assessment* where the entrepreneur shall address which market he operates and is located. *Internal resource assessment*, with the sub-chapters “What are my internal resources?” and “What am I willing to invest and risk?” address what the entrepreneur possess of internal resources. Then the *external resource assessment* asks *who do I know that can*

help me and makes the entrepreneur look for external resources that can help him out. The *execution process* that consists of the three elements *ready, fire, aim*, follows with how the entrepreneur conducts his in-field approach. We believe these five modules are a natural separation of the process that should encapsulate the different relevant theories with ease and be intuitive for the entrepreneur to follow.

1. Context assessment

Even though it is not mentioned in the literature we believe that every entrepreneur on some level starts off with a *context assessment*. In the *context assessment* the entrepreneur asks himself “*Where am I and where am I going?*”. Initially this starts off with what industry or market the entrepreneur wants to operate in. Secondly the entrepreneur needs to address where he is located geographically and how this would affect him and his potential business. This includes structural, political and cultural challenges that may arise in his part of the world. Lastly the entrepreneur needs to make a hypothesis about where he wants to go, why he wants to operate in this market and what the goals of the start-up are. After this is addressed the entrepreneur is ready to start with the business development.

2. Internal resource assessment

Internal resource assessment is structured with the two main questions “*What are my internal resources?*” and “*What am I willing to invest and risk?*”. We have structured it this way because we feel that it is natural for an entrepreneur to first assess what kind of internal resources he has access to before he makes an assessment on how much he is willing to invest and risk.

What are my internal resources? *Who am I? What are my skills and knowledge? How much financial resource do I possess?*

In this chapter the resource-based view from inside-out has its natural place as it deals with what kind of resources the entrepreneur possess. This also applies for the *key resources* point from the business model innovation theory. In addition to this two of the three core questions from Davidsson (2005), *who am I* and *what are my skills and knowledge*, fall into place here.

How much am I willing to invest and risk? We have decided to place *affordable losses* here because we believe it is important for the entrepreneur to decide how much he is willing to invest or potentially lose before he moves on with his venture.

3. External Resource Assessment

Who do I know that can help me? In this part of the model the last one of the three core questions from Davidsson (2005), *who do I know that can help me* fits in. The *network entrepreneur* and social capital from inside-out treats who the entrepreneur knows and how his relationship to them are, in addition to how the entrepreneur should build his network and how he puts it to best use. The effectual *approach to actors* fits this chapter as it advises the entrepreneur to form cooperative ties to other similar actors in the market instead of attacking them head on.

Networking among minority entrepreneurs deals with this as it advises the minority entrepreneur to form structural ties with fellow entrepreneurs with same cultural background. In such a network the entrepreneur can expect a faster formation of ties with more trust and help.

4. Execution process

Similar to what is described in the lean start-up framework the *execution process* is an iterative process. We use the concept of *ready-fire-aim* to name the three parts of this process. The duration the entrepreneur is able to continue and repeat this process should be defined under the point of *affordable losses* in the *internal resource assessment*.

4a. Ready – Make assumptions and build minimum viable product

The *execution process* starts with *ready*. The entrepreneur needs to prepare for market entry. To do this one does a *leap of faith* and makes assumptions. This is why *leap of faith* from lean start-up is appropriate in this phase. You need to take a look at what you can put together that will be hard to imitate as described as valuable, rare, inimitable and non-substitutable resources under inside-out.

Lastly you create a minimum viable product to bring into the market. The method of creating a minimal viable product from lean start-up is therefore suited here.

4b. Fire – Explore the markets

Next phase is to *fire* and explore the markets. The concept of exploration is recommended here as it allows the organisation to use a trial-and-error approach. Further *managing the uncertain future* from effectuation tells you to go into the market and embrace the uncertainty ahead. The point of this step is to test your minimal viable product in the market before you do any more development.

4c. Aim – Discover, evaluate and pivot

Last phase of the *execution process* is where you take one step back and reassess how your *fire* went. *Aim* is the last step in the effectual approach. This is where you take the time to discover *emerging opportunities* that might have showed up. Further *exploitation* strategies tell to improve internal process for better efficiency and quicker results, in this framework one exploits new knowledge.

The *serendipitous events* that arise according to the minority entrepreneur literature should also be addressed in this phase. It is likely that you have met new customers or suppliers that can help restructure your product. From the lean start-up perspective it is simply important to consider *pivoting or persevering*. Can you continue in the same direction or do you need to pivot somewhere else? Lastly, be aware of business model innovation, especially if you pivot. The use of this framework may allow you to improve your market offer significantly.

Repeat

Ready, fire and *aim* should be repeated continuously just as validated learning from the lean start-up approach suggests. Every once in a while the entire process from 1 through 4 should be repeated to assess all the elements as contingencies arise.

Chapter 5

Story of RESolar

The objective of this chapter is to give the reader a general overview of RESolar's journey from the initial business concept origination up until today. Through an explanation of the happenings and events that lead to RESolar's establishment in Kenya, the reader will get the background information needed to understand the topics that will be brought up in Findings and discussions.

The story of RESolar is divided in five subchapters and the essential happenings for the development of RESolar are presented chronologically from January 2011 to June 2012.

5.1 Concept development

Development of the project started in January 2011 after Buen and Tangen from Differ AS originated the idea in 2010. The goal of the project was to provide electricity to rural areas in developing countries. Extensive amount of market research on global markets were conducted and it was decided that Africa was the continent to go for. Several African countries were examined, especially Angola, Kenya, Namibia and Nigeria. A plan to sell solar generated electricity to consumers in rural villages was created. Finally, in late spring 2011, the team decided to select Kenya and the East-African region as the entry market. The business concept was to build an organization that developed and built modularized solar power plants based on readily available technology and parts. The firm should further install and maintain these power plants. Revenue would arrive from sales of electric power to consumers in a mini-grid. We estimated one mini-grid for each village or town. See appendix B.

After five months RESolar had looked at different possibilities for how to create a sustainable and robust business model and tried to decide between two different business models.

The first model was to sell electricity per kWh through a pre-paid system. In addition we would receive foreign aid from the Norwegian government and the carbon quota based clean development program issued by the United Nations.

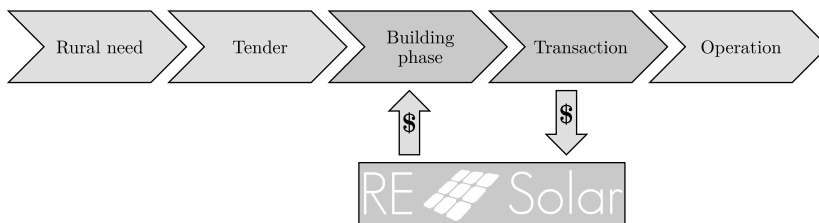


Figure 5.1: Illustration: Business model alternative one

The alternative model was based on the fact that some countries have open tenders on villages where the government want electricity installed. We wanted to go into this process, build power plants and sell them to the government. In many ways we would be a turnkey contractor. We also considered the opportunity to enter the aftermarket to provide consulting, service and maintenance.

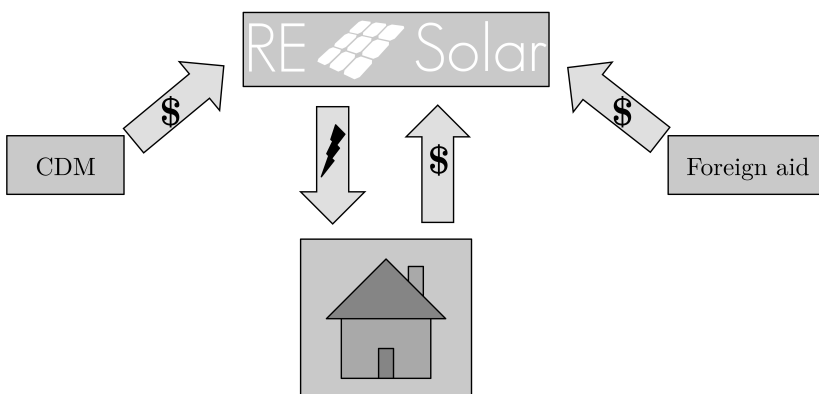


Figure 5.2: Illustration: Business model alternative two

5.2 Business model innovation

At this point, Thorp and Mundal were to take a summer term at the Norwegian Entrepreneurship program at Boston University. Michelsen was to go to Kenya and Tanzania to conduct an in-field market research. All three were to further investigate how RESolar could become a reality. Part of the Norwegian Entrepreneurship program that Thorp and Mundal participated in also included continued work with RESolar's business model. Together with a summer intern, Vetle Nilsen, they worked to develop a more precise and consistent business plan

and a business model based on the business model canvas from Osterwalder and Pigneur (2010).

Going into details on production, scaling, financing and market entry, they discovered several major holes in both the earlier defined business models. Among several things, the team had little knowledge about building solar power plants, designing modularized solutions or calculating dimensions of mini-grids. Further Thorp and Mundal concluded that the financial predictions were weaker than earlier believed in the consumer market. Evidence showed that it would be difficult to enforce customer contracts and that solutions for the grid would be subject to sabotage and illegal connections.

Since we had the opportunity to send Michelsen to visit the market and potential customers in East Africa, we found this to be an efficient way of learning about the culture and the market first hand. In Kenya Michelsen concluded much of the same as Thorp and Mundal. Many of the activities we had planned to do in-house were marginalized industries with a myriad of suppliers. There would be small margins to earn from these sectors, only severe competition. By being out in the field Michelsen saw and realized the complications of the current business model. When we finally concluded that this market approach was not sensible for us, we needed to rethink our strategy.

Even though the communication between Boston and Nairobi was challenging, the two halves of the team actually thought of almost the same new business model but failed to communicate this to each other. This is how one can describe the process for the Boston-team. They took a step back and asked: “What is our competence? What services are actually needed in the Kenyan energy market? How can we build competitive advantage among established actors?”. Without knowing it we took an *internal resource assessment* based on both resource-based view (Barney, 1991) and the effectual approach (Sarasvathy, 2001a).

We found that our core competencies were in sales and business development. Furthermore we saw that while there were many firms doing solar power plants both on large and small scale, few were targeting the business-to-business market. In addition, those targeting business customers, most suppliers used little resources on sales and marketing. We found that customers in the business segment would have higher perceived value of solar electricity and that their willingness to pay would be higher. We concluded that a pivot like this was necessary. RESolar was still selling renewable energy to electrify rural areas, only now we targeted business customers with a defined willingness to pay and usage of electricity.

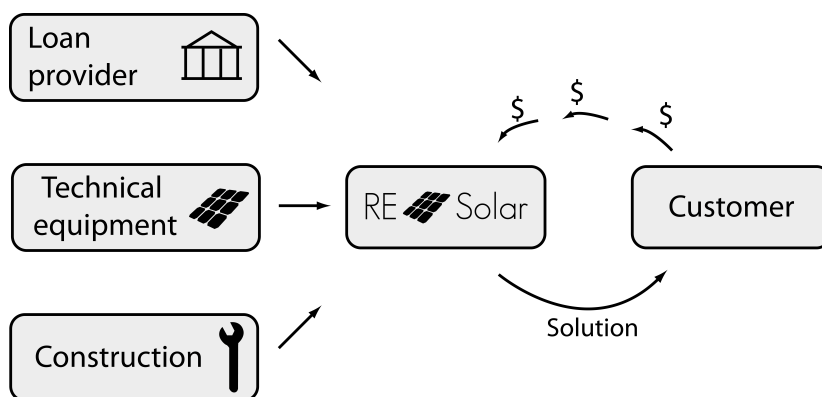


Figure 5.3: Illustration: The new business model

5.3 The new business model

According to the business literature, we have in retrospect learnt that this is what is called a business pivot as explained by Ries (2011). The result of the pivot is that RESolar will reduce electricity costs for customers through energy economization solutions like solar water heaters and solar power plants. The targeted customers have diesel generators and are seldom connected to the national power grid. Primarily will the first customers be found in Kenya, Tanzania and Uganda, and the beachhead customers are off-grid safari camps in Kenya.

The energy products will be sold with a financial solution so that the customer pays with monthly instalments at a lower price than their current energy bill, until the loan is paid down. The financial solution is similar to a regular mortgage, provided by local banks through corporate brokers. RESolar has agreements with such brokers to reduce risk for RESolar and ease rapid scaling of sales. When the mortgage is repaid, our customers have reduced energy costs for several years to come. The goal is to reach a down payment period of three to six years and solar power plants can be guaranteed for up to 25 years.

To be able to concentrate on the core competencies of sales, energy usage audits and payment services, RESolar will outsource all other parts of project development. This includes technical calculation, design, dimensioning, logistics, construction and installation. Essentially, RESolar fills a gap in the market between suppliers, loan providers and customers. The market does not provide anything in between microfinance and major investment loans to our core customers yet. We believe that there is need for a mediator or middleman between suppliers and customers and as of now there is no one providing this service.

5.4 Business development from Norway

Once the team was back in Norway it took some time to get the same cognitive landscape since we had different views of the situation. After long dialogues and discussions, we discovered that although we initially seemed to disagree, we found common ground when we concluded on the same business model.

The fall of 2011 was spent in Trondheim and used to further define the business model, conducting market research and test the market. We wrote a project thesis on entrepreneurship and the development of RESolar. We experienced that doing market research in Africa from Norway gave little relevant value and it were more a demotivating activity than anything else.

During a discussion in late December we concluded that doing business development in Kenya, from Norway, did not give the results we hoped for. After sharing our mental maps and getting a common understanding of how we perceived the situation, we looked at what could be *affordable losses* for us and what would be the worst-case scenario.

5.5 Market entry in Kenya

Mundal and Michelsen moved to Kenya in the beginning of February 2012. The first weeks were spent on getting many practicalities under control, find a place to live, an office space and a car.

We soon realised that we would need a larger network to solve the task that we had anticipated that we could do ourselves. Luckily several of the persons that we got to know initially, proved highly helpful and relevant in several aspects. Our connections put us in contact with customers and also helped us find a financial partner and an office space. Instead of doing cold calls we were able to book direct meetings with customers and also conducted an energy audit at a hotel, called United Kenya Club.

After three weeks Thorp came down for the first time. Most of the practicalities were in order and with Thorp in Kenya, we could move into our new offices and start to do business. The processes that Michelsen and Mundal had initiated were taken to the next level. Meetings were held with our financial partner on how to construct the financial packages, how to find lenders and we met with potential customers and competitors.

When Thorp went back to Norway the team went on Easter vacation. After the holiday we got back to Nairobi and got the news that we had won the *Energy Award 2012* of 50'000 NOK. This was not something that we had planned for, so the two subsequent weeks got filled with to-dos from forming a web page, writing press releases and preparing for the award. The workload we had put on ourselves

proved to be too much and after receiving *Energy Award 2012* we lost some of the motivation and drive. This went on for some weeks with elements of sickness and low working moral until Thorp came down the second time in the end of May.

In the middle of our stay we realized that we needed more customers in the pipeline because the sales process with each individual client would take longer time than expected. The process of getting the suppliers and financial solution would likewise require more time. Until that time our hands had been full working with customers that we had been referred to and business colleagues had warned us that cold calling would never work so we had been reluctant to pick up the phone.

Getting Thorp down helped the team to get out of the bad spiral, and in the next couple of days we cold called approximately sixty customers. Out of this cold calling round we went out to several customers and also conducted energy audits at two safari camps.

The week before returning to Norway we attended the Karibu Tourism Fair in Arusha and got in contact with several potential customers and suppliers in Tanzania.

Chapter 6

Findings and discussions

In this chapter our findings will be presented, analysed and discussed against the literature and our model. The discussion chapter is primarily limited to findings from RESolar's business experiences in Kenya. The time-span of RESolar's Kenyan experiences were when action research and research questions were used and therefore most findings is from this period of time. Still, some episodes are added from Story of RESolar in chapter 5, since they add significant value to the discussion. In total, the findings include evidence gathered through one year of market research, first hand business experiences and interviews with Scandinavian minority entrepreneurs located in Kenya.

This chapter is structured according to our three research questions, starting with: *How will business development be affected by the fact that we are Western entrepreneurs?*, *How has the dynamics in the effectual approach worked for RESolar's business development?* and *What is the role of social capital in creating viable business relationships?*

6.1 Business development for Western entrepreneurs

In this chapter we will discuss the following research question: *How will business development be affected by the fact that we are Western entrepreneurs?*

This research question is divided into five sections. First, the aspects considering that we are minority entrepreneurs and how this affected our business relations will be discussed. Next we look into the structural challenges of developing a company in Kenya. Thirdly we will address how the uncertainty that followed with our situation affected the business development. In the fourth section we make a remark on the effect of age in Kenya and at last we conclude with some lessons learned.

6.1.1 Minority entrepreneurs

Lessons from supplier encounters

As a central part of our strategy for developing RESolar we need to rely on strategic partners to supply us with products and structure the financial packages. This process put us in contact with suppliers from East Asia, East Africa and Northern Europe.

In the initial stages of developing a relationship with a partner there is a lot of uncertainty and it is common for both parties to be open for an initiation period, where one learns how to work with one and another. In our Skype talks and chats with the Asian suppliers the negotiations were polite and positive, but also challenging and complicated due to miscommunication and trouble understanding each other.

It was easier to deal with our European suppliers. It did not take more than two Skype meetings of thirty minutes each with six months in between to engage a cooperative partnership. No contract has been formed yet but we have a verbal agreement about them being our supplier, so this relationship builds fully on trust (Mayer et al., 1995). When you think about the fact that Asantys, a German renewable energy product supplier, is part owners in one of our competitors, this partnership becomes even more interesting.

From the very beginning we felt immediate trust and Johannes Germ from Asantys gladly shared information, technical data and financial numbers of previous projects with us in our very first Skype meeting. We felt that they really liked the fact that we as fellow Northern Europeans were going to enter the same market as they had been in for a little under a year. We believe we had a similar cognitive landscape with Asantys since they had been in Kenya several times before, and therefore they did not complain over poor quality with the Skype line. Because of the shared cognitive landscape, in talks about strategies and market challenges it were easy to get our points across.

This is spot on regarding what the theory from networks among minority entrepreneurs suggests (Ramachandran and Shah, 2007). Based on this theory our relationship with the Norwegian renewable energy product supplier GETEK should have been even easier to manage. Our relationship with GETEK has been good and they have been a great partner so far. But making ourselves understood and sharing our experiences with them has been harder than with Asantys. We believe this to be due to a lower degree of a shared cognitive landscape since GETEK only has been in Kenya one time before, while Asantys has operated in Kenya for a while.

However, both GETEK and Asantys have been a pleasure to deal with in comparison to our dealings with Chinese suppliers. We have so far only dealt with

them through email and Skype, but the encounters have been frustrating and we have had a hard time getting our point across to them. From our point of view it feels as if they do not quite understand how our customer development works or how we as a middle man in the market operate. They want the data from our customers before they are willing to give out product information. When we tell them that we need product data to test it out on our clients they switch topics. Another experience is that when they do not understand what we are asking for, they avoid the question instead of asking for a clarification.

Obviously, the Chinese understand each other and big suppliers know how to do business. Never the less, we felt the cultural differences first hand when we dealt with them. The rapport is non-existing, and we believe this to be solely because of a different foundation of reference. From this finding it is easy to understand why most minority entrepreneurs choose to do business with fellow countrymen or people from the same cultural background.

We also felt it fairly difficult to deal with most local Kenyans as their culture dictates them to avoid initial disappointment, which in turn makes them promise everything they think you would like to hear. This includes everything from delivery dates to meeting times.

One example of this was our first meeting with the Norwegian owned hotel Eden Gardens. The meeting was booked with the Norwegian owners and confirmed with Maureen the local Kenyan CEO. Maureen did not show up to the meeting, which was at her own camp. After 15 minutes she called and told us that she was still held up in another meeting across town and asked if we could wait. We proposed to meet her at a cafe at her location to save time. This was not a problem, and she assured us that she would get to the cafe before we could finish our 20 minute drive. At the cafe we had to wait another 20 minutes before she showed up. This do happen occasionally in most places of the world, and most times it is understandable. Had this been a one time thing it would not have been something we reflected over, but when it happens often, and in most cases involve local Kenyans a pattern emerges.

We did find exceptions, Michael Musau and Teddy Bukhala from EmAC our financial supplier have been easy to deal with. They show up on time and are fairly good at telling us how the actual situation is. Both Musau and Bukhala are educated in England, and have worked there for several years prior to starting EmAC in Kenya.

An additional aspect that makes working with Kenyans and Chinese more challenging than with other business people is the language barrier. When the other party cannot express themselves fluently, discussions and negotiations are difficult to conduct. This can sometimes even unconsciously, make both us and the Kenyan or Chinese counterpart more reluctant to finalize a business deal.

The minority entrepreneur literature tell us that entrepreneurs team up with

fellow countrymen because of their shared background, we found this to be true. However we want to emphasize that we believe this to be mostly because they have the same educational background and a shared cognitive landscape. Local Kenyans are almost as easy to deal with as British as long as they have a British education, or have worked in Britain. In the same way, a German partner may be easier to deal with for a Norwegian actor than a Norwegian partner, as long as the German partner possesses a more similar cognitive landscape. Same cultural background is just an easy screening technique for the entrepreneur that comes natural. This screening technique gives a high success rate of finding people with the same cognitive landscape with the least amount of effort. It is here important to mention that skin colour is also a screening technique that is widely used, both by minority entrepreneurs and by local Kenyans. The historical aspect of previous British rule with white people in power plays a part here, but another reason for this is the common belief that no person from the Western hemisphere would move to Kenya unless he had business to conduct there.

“Being white is an advantage, they believe that you have more knowledge than them and also that you are Norwegian is an advantage since they think you have money. As a white guy everyone wants to be associated with you. Local people befriend you since they hope and believe that something will drip on them.” – Svein Mork Dahl, the Norwegian entrepreneur

After the initial screening is done we still see a higher degree of trust between countrymen than between people from different countries. Of course there are exceptions to this like our relationship with the German supplier Asantys and the Norwegian supplier GETEK, but in general countrymen almost blindly trust each other from the beginning. There are several reasons to this. On a business relation level, you trust the legal framework of your home country and feel that you can prosecute with your country’s laws should a scam or similar occur. Another thing is the sense of common nationality that makes you feel at home, a feeling that is anchored with safety and trust (Ariely, 2008).

In our case we rarely actively reflected on the nationality of people we met, but after a short while a pattern emerged. We dealt mostly with Western entrepreneurs in business and spend our social time with Western people. It is not an action we chose strategically it just feels right, but this might have limited our horizon.

Lessons from customer encounters

The cultural difference is also present in interactions with customers. We ended up having a much better relationship and a smoother sales process with Western run safari camps than other camps. With other Westerners we share the same reference points and are accustomed to do business in the same way. With a common ground it is easy to have meaningful and productive conversations, instead of trying to convince your client that you are not there to steal company secrets.

The closer the decision makers were to our cultural background, the quicker the trust was formed and a relationship created.

Cold calling proved to be a success. This was a useful experience for us and enhanced our knowledge of how customers could and should be approached. When we conducted our cold calls the relationship between culture and trust was clear in a quantitative fashion. Thorp and Mundal experienced good response from the safari camps they called and were able to book several energy audits quite quickly. Michelsen had poorer response and struggled getting hold of the right persons and book meetings. When we evaluated these findings we found that Thorp and Mundal in general had called smaller Western companies, while Michelsen called larger companies with Kenyan employees and decision makers.

In short, if the person we talked with was from Europe, or had a European heritage they understood what we had to offer and we got invited for a meeting almost without a pitch. When we reached Indians a meeting was harder to get and where we reached Kenyans it was next to impossible. This manifested itself in two ways. Firstly the bigger the company was, the lower the odds of a European being the decision maker was. Secondly the big companies either had an Indian or a local Kenyan that acted as a gatekeeper, which made the booking of meetings much harder. These results fit the minority entrepreneur literature, as described in the Literature review, but we still wondered how these findings could be attributed to a common cultural background.

On a poor quality telephone line it is hard to notice what kind of cultural background the person on the other side of the line has, but it is usually manageable to decipher if one pays attention to it. We do believe that the customers notice how we articulate ourselves and how we present our message. People from different places in the world use unlike ways to describe things, and a Western way of presenting a pitch may seem familiar to a Western client. Another aspect could be that Western decision makers have an educational background from business. Business minded people are usually more open to talking to sales people, as they know that sellers usually tries to provide them with something of value. Laymen more often perceive a sales call to be one seller trying to get something from him without providing something valuable in return. We believe that a combination of these two caused the large variation in the responses to our cold calls, and that this is consistent with the minority entrepreneur literature.

In the actual meetings and in the energy audits we felt the effects of minority entrepreneurs even stronger. All of us have previously worked in sales and we are used to dealing with customers. When meeting Western customers we felt a surprisingly strong degree of trust, and could talk with the customers as if we had known them prior to our initial meeting. The conversations became “informal” in a positive way. It was delightful to chat with people who wanted solar power to be a part of the solution to protect the environment. All of them had wanted to be more eco-friendly for a while and actually thanked us profoundly for

contacting them out of nowhere. This shared cognitive landscape of a cleaner environment created an even bigger trust than the initial effects of being a minority entrepreneur had initially created. A type of “us green people against the world” commonality was formed.

This trust is exemplified well in the case of Leleshwa camp versus Aberdare camp. Joe Charleson, the british owner of Leleshwa, thanked us for contacting him and invited us to come and conduct an energy audit without meeting us in advance. Upon our arrival at his camp Charleson had prepared a complementary lunch and a luxurious tent for us. He shared all his electricity data openly and we had a great time through our stay. At Aberdare Philip Nyagah, the local Kenyan CEO, greeted us when we arrived for our pre-booked energy audit. From the beginning the conversation was rough and he did not quite understand who we were or what we were doing there. This made it not only difficult to conduct the energy audit but also challenging to build trust.

It is worth mentioning that we had the exact same approach to both these actors, but the outcome was radically different. Nyagah refused to share essential information about the operations of the camp with us, even though we had made it perfectly clear to him that we needed this to conduct our complementary energy audit that he had ordered. It felt like he thought we were industry spies. One could argue that this could be because Western entrepreneurs just do not know how much scams there are in this region, and that foreigners are just gullible. The same sense of unity that we had with Leleshwa, we also shared this with Cottars Safaris, a camp run by third generation British immigrants.

It is clear that the effects of being a minority entrepreneur are huge when it comes to dealing with customers. Trust and rapport arose automatically with customers that had a common cultural background. This is hard to explain it in any other way than with the *networks of trust* among minority entrepreneurs (Ramachandran and Shah, 1999). We believe a sale will be achievable fairly fast with the Western customers as soon as the entire product is developed in completion because of this. A sale is an agreement based on trust.

Remarks on the effect of young age

“Being the age you are is a tremendous disadvantage. Especially in Africa where knowledge and respect come with age.” – Jostein and Gerd Holmedahl, the Norwegian missionaries

We had been anxious to find out how we would be perceived by customers and partners because of our young age and that it would be hard for us to build trust. We had heard from colleagues and people operating in Africa that our age would be a huge disadvantage since respect and knowledge is something that is perceived to come with age.

To our surprise we have not felt anything negative regarding the age aspect. On the contrary we have been treated with more respect and been taken more seriously in Kenya than in Norway where we are treated as students. This applies for all settings where we have met other business people, from customers and suppliers to finance houses and networking events.

One cause might be because Africans had a hard time guessing our age, or since we dressed up every day and acted professionally. We believe that the main reason we got the amount of respect that we did is because people think that if you move down to Kenya for business, you are dedicated and know what you are doing. Like the Danish entrepreneur Kjelsgaard stated in his interview:

“Being young is not looked at as a good thing, knowledge and experience comes with age so this doesn’t play in your favour. But Scandinavians have a good reputation when it comes to agriculture, green tech and technology so people will presume that you know what you are talking about when it comes to these subjects.”

Lessons learned

When we dealt with people in general in Kenya, whether it was through business or in a social setting, we felt the positive discrimination of being perceived as trustworthy instantly.

People we inquired about this told us that this occurs because of the old British heritage of white people being in power and the assumption that white people are in Kenya to conduct business. Another aspect is that locals have a reputation of scamming and fooling people, while Europeans have a reputation of being honest.

In a network setting this means that people more often are willing to refer us to their partners without doing any due diligence on us. This gives us an ease of referrals that again builds initial trust before the first meeting. Combine this with the benefits of having other minority entrepreneurs including you in their network and you have the recipe for building social capital fast (Adler and Kwon, 2002).

Based on our experience with customers, suppliers and in general doing business in Kenya we found that being European gives us a competitive advantage when dealing with other Western entrepreneurs. In the study by Biggs and Shah (2006) they conclude likewise that minority entrepreneurs have access to networks that increase performance. This is a big asset as there are many minorities who own companies in Kenya. However it is important to emphasize yet again that skin colour is not what gives the advantage. After initial screening it is the Western background, culture, reference frame, the knowledge, skills and education that matters. Dark skinned Europeans benefit from the exact same effect. Skin colour works as a de facto screener in mingling sessions, at cafes, etc. and make an initial first impression on first contact as there are far more dark skinned Kenyans than there are white skinned Kenyans.

6.1.2 How to handle structural challenges?

“The cultural way of thinking is that they never want to give you the bad news. Even if the roof was to fall down.” – Svein Mork Dahl, the Norwegian entrepreneur

As mentioned earlier, Kenyans have another attitude towards time than Westerners. “The time isn’t running out, it is running in.” This amounts to local Kenyans having a hard time keeping appointments and leads us to playing the waiting game quite often. We had several times gotten reassurances from our local suppliers and financial partners that the product they were working on should be finished soon. In the beginning we were naive and believed in their promise, but eventually learned that to get things done we had to check up on our partners and put continuous pressure on them. This made it frustrating to deal with locals and resulted in that we chose to deal more with other minority entrepreneurs who have the same relation to time as us. Obviously some Kenyans do honour meeting times, like Musau in EmAC. However, trial and error made us reluctant to initiate meetings and dealings with locals as we felt they are likely to waste our time. It is important to mention that many locals felt the same towards the Western minorities. They find it frustrating that Westerners do not take their time but stress around on a rigid time schedule. This also supports the findings of Ramachandran and Shah (1999) regarding networks among minority entrepreneurs.

6.1.3 How to live with uncertainty?

“There is definitely higher uncertainty conducting business here than in Scandinavia so I wouldn’t recommend people that have a weak stomach to come down here and start up their venture. The planning horizon is shorter due to the uncertainty and you demand a premium on your return.” – Johnni Kjelsgaard, the Danish entrepreneur

Having an effectual approach is all about *experimenting in the market*. Because we did not have a clearly defined plan on what to do at all times, we had to make stops occasionally and evaluate what we had done and how we could plan forward in the best possible manner based on our learning. We have been working with customer and product development simultaneously. This includes customers, suppliers and finance institutions. It has been difficult to complete something tangible with any of these since the entire work situation has revolved around moving forward in a stepwise fashion with each process based on the latest development from the other processes. When the work got tiresome it was easy to let this uncertainty affect our thoughts regarding our future and what would happen after we graduate. We were in Kenya and experiencing a harder reality than we expected and comparing ourselves with friends from class that are going out in stable and well-paid jobs, this added to the increased sense of uncertainty.

We did not reflect on the effects uncertainty would have before we moved to Kenya. As mentioned above this is something we quickly experienced first hand. We believe that had we read up on theory regarding the effects of living with uncertainty and how to deal with it beforehand, it would have given us a heads up, and made us plan for it more thoroughly. Both effectuation and to some degree lean teaches us that a mindset of experimentation and learning is important, we interpreted this to more or less mean “everything works out great if you are an adventurous person”. Lean also teaches us that it is smart to run iterations often, but in our opinion both the effectuation and lean framework would benefit from going into this in more detail and link it up to the challenges that arise when living with uncertainty. As entrepreneurs far from home it is clear that we most likely feel this more than the average entrepreneur who effectuates in his hometown, but we still feel that theory regarding this is missing from all the frameworks.

6.2 Dynamics in the effectual approach

In this chapter we will discuss the following research question: *How has the dynamics in the effectual approach worked for RESolars business development?*

In this chapter the use of the effectual approach is analyzed and discussed in regards to how it affected the business development of RESolar. The chapter is structured after the modules from our model, the findings and relevant theory are discussed respectively. The model as illustrated in figure 6.1, is presented at the end of the literature review on page 41 and includes the following modules: 1. *Context assessment*, 2. *Internal resource assessment*, 3. *External resource assessment*, 4. *Execution process* with sub-modules 4a. *Ready*, 4b. *Fire* and 4c. *Aim*.

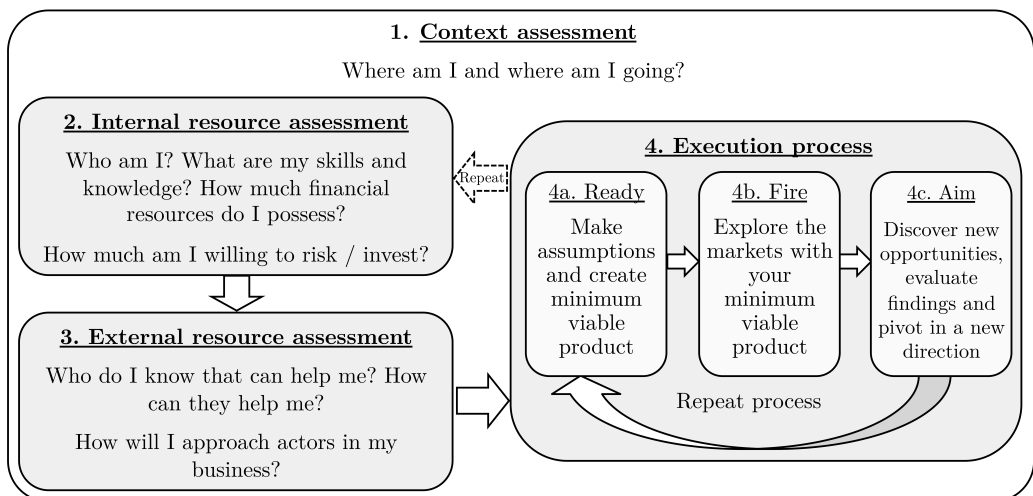


Figure 6.1: The unified model of an effectual approach

6.2.1 1. Context assessment

Most entrepreneurs make a subconscious choice of their context in the initial phase of their venture. Our context was set by two initial premises, firstly we are students at NTNU School of Entrepreneurship and part of the study programme is to start our own company. Secondly the concept originators in Differ AS passed on the idea to sell solar power in developing countries. A refinement of the context was done through market research. Which developing country would be most suited for solar power from Norwegian entrepreneurs? Several markets were evaluated, including Kenya, Angola, Namibia, India, Indonesia and Bangladesh. Kenya was selected as most suitable due to the limited extent of competition, good conditions for solar power and a stable business environment with English as an official language.

For most entrepreneurs choices like this are done without any in-depth evaluation. Often the context you are in is given by where you are and most often a business opportunity emerges in a given context. This assessment is rarely done based on a theoretical consideration. Still, it is important not to forget. Without an assessment of where you are and where you are going, you are more likely to miss important information that can help improve your chances of success.

6.2.2 2. Internal resource assessment

There are two parts of the *internal resource assessment*. The first part is to consider who you are, what you know and how much you have to spend. In the second part the entrepreneur needs to actively evaluate how much he can risk.

The best example of where we evaluated what we knew and had to spend was during the summer of 2011. We discovered that we did not have the skills to develop an organization that sells electricity per kilowatt-hour to consumers, we therefore had to reconsider what we were good at. This is when the current plan of selling power plants to hotels and safari camps arrived. Seen in retrospect this is obviously an *internal resource assessment* and so far we can conclude that this was a smart reflection. It should be clearly noted that it was not actively considered as an effectual approach at the time. Business model innovation (Johnson et al., 2008; Osterwalder and Pigneur, 2010) was used actively in this evaluation. We see that the valuable, rare, inimitable, non-substitutable resources from the resource-based theory (Barney, 1991) and pivot from the lean start-up approach (Ries, 2011) fit well to this reconsideration.

On several occasions we have considered and reconsidered what we have been willing to loose in the process. This is what Davidsson (2005) calls *affordable losses*. As long as we are students we have a personal “revenue stream” from student loans without obligations or demand of success. This enabled us to develop RES-

olar as we like with a low burn rate and without demands from investors. Since we also attend an educational program that is in high demand from the industry, we felt we took little risk. Without financial risk we afforded to put in 11'000 NOK each as share capital. We also concluded that the experience we gained by establishing an energy company in Africa, even if it failed, would give us valuable and marketable experiences.

We concluded that that it would be an *affordable loss* to spend one semester in Kenya at our own expense. Since this had a limited cost, we moved to Kenya. This allowed us to be closer to our customers and evolve the company at a much greater speed than what would have been possible from Norway. At the same time the semester in Nairobi would not affect the founders' alternative careers, if anything, career options would improve. With the mindset of what we can afford to lose, we are going to Kenya again when we hand in our master thesis, with the 50'000 NOK we won with the *Energy Award 2012*.

As described in the findings it has been challenging to retrieve financial numbers to create sensible business plan calculations. The *affordable losses*-strategy of effectuation has allowed us to go out into the market and try. Even though we have worked towards customers and suppliers for four months, we still do not have the final numbers. We are testing out a new business model, therefore it is expected that there are few figures available and that *affordable losses* as a strategy is essential.

A problem we discovered with *affordable losses* is that people do not understand our strategy. Even experienced entrepreneurs often ask for financial numbers, some look sternly at us when we after operating for more than a year still do not have definite financial estimates. So far none of the customers have commented on this.

6.2.3 3. External resource assessment

In the third phase, *who do I know that can help me* is to be evaluated. What resources can we retrieve through others? We knew two companies operating in the solar business in Kenya before we moved down in February, Asantys and African Solar Design. We also got in touch with Dahl just before we left from Norway. In other words, our network in Nairobi before we arrived was limited.

Arriving in Kenya we discovered that it was easier than expected to build a professional network. Dahl quickly got us in touch with a possible financial partner, EmAC. In social settings it turned out to be easy to connect with new nodes for our network (Burt, 1992). The effect of the network of minority entrepreneurs seems to be valid and it were stress-free to connect with other people with a European or American descent. We also feel a larger degree of trust with actors that share our cultural background. This will be discussed in greater detail

further down under the research question: “*What is the role of social capital in creating viable business relationships?*”

African Solar Design is a Kenya-based specialized renewable energy company. It provides services and equipment in the renewable energy sector with a focus on off-grid solar products, supply, installation and auditing. African Solar Design is a fairly new firm but the American managing director, Mark Hankins has 30 years experience from the solar sector in East Africa.

Davidsson’s (2005) *approach to actors* pillar in effectuation says you are to figure out who you should work with to be successful and this is particularly applicable towards competitors. We never considered going into head-to-head competition with our competitors. We have been talking with African Solar Design about this, and have found that we should rather go into co-opetition, simultaneous cooperation and competition, for instance through a shared installation team. In this way a market can be created where both companies thrive instead of destroying for each other. Although the conversations with African Solar Design have not taken us in final agreements yet, we feel this is the correct approach. Until any agreements are finalized we have a common understanding of what is the most beneficial way of conducting business.

One example of the mutual respect in the field is when we later met one of the employees from African Solar Design at the same Tourism Fair in Tanzania. We were both targeting the same customers, and when we came to clients that had been visited by African Solar Design they told us that African Solar Design had mentioned us in kind words.

6.2.4 4. Execution process

The fourth phase contains three steps: *Ready, fire, aim*. This process was entered as we went to Nairobi in February.

6.2.5 4a. Ready

This process was started by making assumptions as suggested in lean and effectuation (Ries et al., 2011; Davidsson, 2005). The assumptions we made were that we could learn to be a provider of solar power plants in Kenya, and assumed there would be a market for this. During the summer of 2011, we spent weeks trying to create a product. This proved to be difficult and it became clear that we needed to be in the market to create a proper viable product. It seems to be an essential decision to create a minimum viable product (Ries, 2011), in our case this was just a limited outline of the qualities of a solar power plant to bring out to the customers.

Through our minimal viable product we discovered several new requirements from the customers, such as the needs for batteries, what sizes of power plants would be correct and that a set of three ready-made plants would make it easier to present and sell. In this way the minimal viable product approach has been useful, we would not have been able to move as quickly forward and connect with our customers otherwise. An issue later discovered was that the suppliers not necessarily understood our approach and therefore did not know how to work with it.

Further we assumed that technical and financial solutions would not prove to be a problem since we believed the hard job would be to find and approach the customers. This has mostly proven to be a correct assumption, but it showed that for example the financial solution has taken longer to provide than initially assumed. In the end this do not seem to be a long-term problem and in conclusion this seems to be a very sensible approach.

6.2.6 4b. Fire

The next step is to *fire*. Here the entrepreneur is to go out to the customer to figure out what they need to get feedback. In this process you explore the markets and this is what effectuation (Davidsson, 2005) refers to as *managing uncertainty* and what lean (Ries, 2011) refers to as *measure* in the validated learning process. Through talks with suppliers we learned what products and solutions are available. Likewise, we needed to get to know the needs of the customers through customer meetings. With this we found the need for on-grid solutions in addition to the most interesting off-grid solutions. Working with data from customers together with our suppliers it became clear that solar power plants actually could make cheaper electricity compared to the national electricity provider, KPLC.

The important part of the fire-step is to continually improve your product especially before you have sold anything. This is can be done in collaboration between you and your customers and suppliers.

6.2.7 4c. Aim

The third and last step, *aim*, can be described by three keywords, discover, evaluate and pivot. In effectuation (Davidsson, 2005) this is *emerging opportunities* and in lean (Ries, 2011) this is *learn* in the validated learning process.

How did RESolar use *serendipitous encounters* (Harris and Wheeler, 2005)? One example is Dahl. We connected with him almost by chance and he has been one of our most helpful connections. Dahl has provided us with help in many ways including key insights to the market. One could say that Dahl is the classic *network entrepreneur* and therefore wants to be found. *Network entrepreneurs*

has to connect with others to get business, and is hence represented numerous places, so that he is easy to find by a *serendipitous encounter*.

How important are these encounters? They have proven to be very important, it seems like entrepreneurs like us are dependent on such encounters and the ability to exploit them. If one constantly keep looking for such encounters you will find them more often. In a market such as the Kenyan if you look for other minority entrepreneurs they will be easy to find and connect to.

When doing *aim* and evaluating our approach we discovered that the large hotel chains in Kenya generally were operated by large organizations, and mostly populated by Indians and Kenyans. As discussed above in the minority entrepreneur chapter, these are more challenging to get through to. The sales process in a large organisation is a lot more time consuming than in smaller organisations.

What effect have RESolar's business model innovation had in East Africa? We used the business model innovation strategy during the summer of 2011 and found a hole in the market as a middleman providing financial solutions. This allows us to focus on sales, our most important core activity. This differentiates us from our competitors and suppliers that mostly work on technical development. We only work towards sales and care only for what the customer needs and how to get them to buy from us.

One of the reasons we discovered business model innovation was that it was part of our curriculum at university. It is highly unlikely that we would have been able to use such a structured process on RESolar by chance. We found our pivot as described by Ries (2011) because we really needed to figure out what to do and where to go. While doing the market research in the spring of 2011 we learned several theories on entrepreneurship that allowed us to better plan what to do later on. Our experience is that a structured effort on reviewing and developing your business model through the theories presented here is recommendable. In many ways the business model innovation process is what affected RESolar the most during 2011.

6.2.8 Concluding discussion on the effectual approach

How were the dynamic between causation and effectuation? Before market entry we did not have a proper product, but an idea that off-grid Kenyan safari camps and hotels in general wanted to switch their diesel generators for solar power plants, both to reduce costs and to be able to market themselves as eco-friendly. This proved to be a correct assumption and was exactly what the customer wanted. This possibly proves both that we did our research properly and that we were correct not to spend too much time before testing the product in the market. According to the theory presented this is precisely what should be done and it worked!

This does not mean we have not tried elements from causation. When we conducted market research from Norway and partly from Boston we worked on creating a business plan. This was a causal approach that did not give the desired result. The elements of causation fit better together with an exploitation strategy, when the company works to improve current processes. An *affordable losses*-approach was also better than to calculate the traditional “hockey stick chart”. Especially since we are students on student loans that can afford to try, “without risk”.

A final remark on the effectual approach is that effectuation is not the same as running around as a headless chicken, some level of plans needs to be in place. A set of goals and an idea of how to get there is usually sufficient. We found that it has been cheaper and more effective to go to the market for a while to talk directly with the customers, than to go back and forth several times. This holds true even though we have complimentary office space, phone and access to support services at NTNU. An effectual approach works very well as long as one is prepared for the element of uncertainty.

6.3 The role of social capital

In this chapter we will discuss the following research question: *What is the role of social capital in creating viable business relationships?*

This chapter strives to give an account of how social capital is used to create viable business relationships in the East African context. This is done by assessing three business relationships with actors in Kenya and discuss how we use social capital towards them and how they use social capital themselves.

Relationships with other actors are crucial in all aspects of business life. In East Africa where the market is less transparent and open than for instance the Norwegian market social capital is essential for developing such relationships. Relevant for this discussion is module 2 of the effectual model presented in the Literature review. This includes Davidsson’s (2005) effectual topics *who do I know that can help me* and *approach to actors*, Burt’s (1992) network entrepreneur and networks of minority entrepreneurs.

Even though we have drawn great advantage of the social capital from our concept originators in Differ AS we will not focus on the role social capital has played for us in Norway, but how social capital has played a role for us in East-Africa. We present three key contacts that have had an important impact on our research and business development and discuss how they relate to the theory, one subject at the time. The three contacts are two individuals and one company. First, Mark Curtis; a Canadian professor, then Svein Mork Dahl; Norwegian entrepreneur and lastly, EmAC; RESolars financial partner.

6.3.1 From a social to a business relationship

Curtis is a retired professor from McGill University and has worked for UNEP in Kenya for several years, therefore he is familiar with the different aspects of the “green sector” and what have happened in this field the last couple of years and who the important actors are. We met Curtis in a social setting and started to chat over a couple of beers. As he took great interest in our project, he said it straight out that he wanted to help us:

“In the end it is not what you know, but who you know. Knowing the right people is extremely important and that is the best door opener for getting any where in a country like Kenya. I would love to help as much as possible so setting you in contact with the people I know is the least I can do.” – Mark Curtis, the Canadian professor

Curtis introduced us to a professor from Kenyatta University, Michael Koech. Koech was Kenya’s UNEP ambassador and this is how they got to know each other. Koech liked the idea of RESolar and introduced us to the hotel United Kenya Club, where he sits in the board of directors. When Koech recommended us to the General Manager we got a meeting a week later. Without this introduction we do not think it would be possible to get that meeting.

This is one example of how unclear the border between “businesses and pleasure” is. You can spend time socially with someone and suddenly you end up talking business. Like in a workplace you end up talking about work, as this is a common denominator on similar basis as talking about the weather.

To cite the theory “It appears to be important to be prepared to connect to new nodes at all times. Harris and Wheeler’s study show that new relationships can arrive rather randomly. *“In all the relationships rooted in social activity, whether business related or not, a relationship developed to some degree, without any idea of the business exchanges that may or may not subsequently take place.”* (Harris and Wheeler, 2005).” You always bring your business cards and are ready to pitch your project to anyone anywhere. It might be a new customer or investor.

As the minority entrepreneur theory indicates, we found that connecting with Westerners were easier than to connect with people of non-Western background. To our understanding Curtis quickly trusted us enough to introduce us to others in his network. Had we been local Kenyans Curtis most likely would not have felt the same connection he did towards us as another minority. This proves how networks of minority entrepreneurs can be easy to enter if you get to know one node in such a network.

6.3.2 From a business to a social relationship

Before going to Kenya we came across a Norwegian entrepreneur that was establishing an incubator in Nairobi and when arriving in Nairobi he was among the few contacts we had. We came across his name when looking for an incubator in Nairobi. Dahl has been involved in several business ventures in Nairobi during his four years there. The story of how we got to know Dahl is the exact opposite of the one with Curtis. Initially we contacted him for help with sorting out practicalities like office space, visas and to find a place to live. We met him for dinner on a few occasions and after some time, our relationship with Dahl changed from a pure business relation to a more social and friend-like one.

Due to Dahl's know-how of the Kenyan business sector he has become our sparring partner in several matters for instance how to establish RESolar, where to find finance and suppliers and establish business relationships.

Dahl is a prime example of a *network entrepreneur* as Burt describes them (Burt, 1992). His business model is to map an untransparent market and be a node between different nodes in a complex market. He has a large network, and gathers information and opportunities and looks for where he can create synergies by connecting people. He is good at exploiting strength of weak ties and continually looks for structural holes. One example is how he has seen the hole in the market that Innovation Norway and Norad does not cover for Norwegian start-ups. He works to establish a matchmaking program that connects Innovation Norway, Norad and start-ups, where he is the connecting node.

Minority entrepreneurs tend to stick together because they enjoy each others company. We ended up being friends with Dahl, without reflecting about it. Even though we knew the literature, we ended up spending our spare time with people with similar cultural backgrounds. The more similar background, the tighter the social ties are and this transmits into business life. We did not do this on purpose, it was simply more comfortable to speak both business and socially with people from the same cultural background. Surrounded by new and challenging markets it is a nice break to speak Norwegian once in a while and feel a link back home.

Together with Dahl and other Norwegians we feel that we have a lot in common. This also leads to easier business discussions. You can small talk about Norway and you feel a stronger connection. This builds social capital for you towards other Norwegians. Through being a minority the entrepreneur has extra social capital especially when working with countrymen without any additional effort. It is a lot easier for both parties to deal with a countryman than others.

Furthermore, Westerners and Indians still employ several positions of power in the East African marketplace and there is an elite network that can be entered on a cultural basis. A Norwegian entrepreneur will quickly connect to other Norwegians and be accepted and incorporated to existing network structures.

This makes market entry less stressful than one should think and surprisingly, easier for minority entrepreneurs than it is for local entrepreneurs.

We would not be without all the knowledge and stories we have learnt from Dahl in informal settings like dinners. Through this exchange of experiences, we learned to know the market and culture quicker than what we think would be possible otherwise.

To efficiently build a network you need to be aware that you meet business people everywhere and in another way than at home. Also, almost all foreigners are in Kenya to do business and they want to network.

6.3.3 Network-sourced relationships

It was Dahl that linked us up with our now current financial supplier Emerging Capital Africa (EmAC). Since we had been referred to EmAC through Dahl we did not feel that we had to do any further due diligence. We took it for granted that they were reliable and that we could trust them. EmAC is led by a Kenyan businessman, Michael Musau who has long experience from the financial sector and banking. Arriving four years before us, Dahl was in the same shoes as us. Finding trustworthy persons was one of his struggles. Dahl had to get to know Musau over a time period to be certain that Musau were a reliable and trustworthy businessman before they went into a partnership.

EmAC has proved a valuable connection. They have searched through their network and also gone outside of their network to find potential investment companies that can finance loans to RESolar's customers. Even though they know the market well, this has been a time-consuming process. Our conclusion is that they have saved us much time and effort, and it has been the correct decision to outsource this. We believe that since we were connected through Dahl, they have considered our business more seriously and conducted this work more thoroughly and quicker than what they would have done if we had contacted EmAC on our own.

Also Musau and EmAC use the *network entrepreneur* (Burt, 1992) as a business model. They connect businesses that need financing with capital and exploits through bridging holes in companies' networks. Regarding RESolar they have filled the structural hole towards capital available to Kenyan customers. A "structural-hole-filler" is an even more important role in Kenyan business networks, as the market is less transparent and comprehensible than Western markets. This means that new entrepreneurs should look for such *network entrepreneurs* and use them actively. This will speed up the business development process immensely and give enormous value to the founder. In markets based on trust, such *network entrepreneurs* can also help to find people you can trust, through referrals. They can both vouch for other actors and vouch for you to others.

An example of where EmAC did this is when they introduced us to a venture capitalist that was looking for investments in renewable energy. We believe it is the social capital we share with EmAC that makes them trust us and present such opportunities.

6.3.4 Lessons learned

Social capital and a broad network is a key factor to success for every entrepreneur and it is even more essential in such untransparent markets like East Africa. Especially for minority entrepreneurs solid networks are crucial to gain competitive advantage. The networks opens opportunities and give help for how to navigate and operate in this foreign market. This type of network actively uses its nodes, which in turn makes it an even greater asset.

Chapter 7

Conclusions and implications

7.1 Conclusions

Through the discussion we have seen that an effectual approach to business development is well suited in unknown markets. The effectual model that is presented in this thesis has enabled the case company to evolve in the Kenyan context in a sensible manner. Our suggestion to other entrepreneurs in a similar situation is to utilize a similar approach. Further we feel that the theories that are presented in the Literature review fit well together in the unified model. The combination of different perspectives creates a versatile model that is an excellent basis for entry into a new market and we conclude that our approach has been correct for us.

The notion of social capital is extremely important to the entrepreneur in un-transparent markets such as in East Africa. Even more than anywhere else since it is necessary to have a network of people that can help you move your business forward. To other entrepreneurs we strongly recommend to be ready to spend enough time to connect with potential nodes for your network, especially people with the same cultural background. We experienced that this was as important as sales and product development efforts.

An efficient way to build network can be to connect to *network entrepreneurs*. In a market such as the Kenyan the presence of business people like this seems frequent. If one can connect to them and make them keep you in mind in their business, you may have a large network of weak ties overnight.

To build up a business in Kenya as a minority entrepreneur is a challenging process. We enjoyed an advantage due to our Norwegian origins, and as a minority it has proven easier than expected to connect to other minorities in this market. The theory of minority entrepreneurs seems correct and would be important to other entrepreneurs as well. If you are headed for a market where you will be a minority, make sure to be aware of networks of minority entrepreneurs. We con-

clude that we benefit from our Western cultural background when doing business in East Africa.

7.2 Implications for practitioners

We found several practical implications for actors connected to entrepreneurship in Kenya. First we will present practical implications for the entrepreneur, then implications for policy-makers.

7.2.1 Cultural differences in the sales process

One of the things we noticed in our sales process was the big gap in customer response based on their cultural background. While we got a head start with the Western clients, reaching through to the Indians were harder and even more so to the local Kenyans. As we stated in the Findings and discussions, we credit this to the cultural differences. Any Western entrepreneur needs to address this issue before he enters the East African market.

We did not address this issue before we moved down and neither reflected on it until our last cold calling session in June. After reflecting on this finding we took the easy way out and decided not to approach customers with different cultural background. Although this is an option for other entrepreneurs as well, it is obviously not a good option. We do not have a definite solution for how to approach the local customers the best. Two alternatives we are going to try out are actively learning the culture and the local way of doing sales, in addition to hiring local sales people.

7.2.2 Uncertainty in business development

East Africa is an uncertain market that may change quickly. The effectual approach we chose turned out to add to this uncertainty, and including the uncertain work environment like this can easily make the work process inefficient. At times were we a frustrated team that did not perform at its best. Looking back the best for the team would have been to be stricter on having regular evaluation meetings with all team members, and made specific plans with a shorter time frame. When the environment changes rapidly it is important to keep all team members up to date to make sure everyone works in the same direction. It might be wise to have an external partner or an advisory board to follow up and help you to keep on track.

7.2.3 Issues with infrastructure

Our team use a plethora of different Internet based services to develop the business and research for the master thesis, such services require fast and reliable Internet connections. Seen in retrospect it might not surprise anyone that Kenya as a developing country, does not allow the same stability of service that we are used to from home. We did not take this into account before we went to Kenya and after a while it became clear that a change of tools were necessary. We recommend that other entrepreneurs prepare to take a technological step backward and plan for more face-to-face meetings. Additionally when you plan meetings be aware both of a different cultural relation to time and that traffic is an accepted reason to be late for meetings. We recommend always to bring work to meetings so that one never risks being idle while waiting.

7.2.4 Student entrepreneurs

At the same time as completing our master studies we have also started RES-olar. This has given us some advantages as we are used to bootstrapping, limited budgets and that we have stable income through our student loans, regardless of where we are or what we are doing alongside our studies. This makes the approach of effectuation and *affordable losses* suitable and controllable for us. A full time job is rarely an option for students alongside their studies, the opportunity cost of a start-up is therefore fairly low. These factors all ensure that a student is in a unique position with spare time, a secure income and a given timeframe before graduation where he can experiment in the market without any substantial risk. Based on this we conclude that not only is the effectual approach an excellent framework for student entrepreneurs, but that students are in a unique position and should use it for entrepreneurship.

7.2.5 Suggestions to improve the Norwegian support systems

On several levels we have been unable to attract governmental support from Norway. The organizations that provide government grants leave us between two stools. Innovation Norway mostly works towards innovators operating in Norway. Norad and Norfund can only help large companies, Norad requires that companies has more than 10 million NOK in revenue before applying for grants. Historically one has seen that new companies are better to discover and make the most of new opportunities. Given the assumption that the Norwegian government would be interested in supporting Norwegian business initiatives abroad, it would be appropriate to suggest possible improvements.

We believe that the current structure of government grants may not be the best way to get Norwegian businesses into world markets. It should be possible for

entrepreneurs with projects based on business model innovation to attract a government grant, also if they work directly towards foreign markets.

Another aspect where a better support system would have been appreciated is in relation to registering a company in foreign markets. Registering a company in Kenya requires detailed knowledge of the rules and paperwork to be done to get through the bureaucratic process. We first approached the Norwegian embassy for guidance, but here there was no help to get for Norwegian businesses. Instead we chose to use a service from the private market for this to ensure that we would not get into any trouble or dead ends. We have experienced that to use professional business brokers is an approach that most of the foreign entrepreneurs apply to register their companies in Kenya.

For instance the Canadian and Spanish embassies have much better support systems for Canadian and Spanish businesses. According to employees at the Spanish embassy, they help both entrepreneurs and larger companies to establish business in Kenya. For a while we did consider to move to Uganda instead of Kenya. In Uganda the Norwegian embassy and NHO (The Confederation of Norwegian Enterprise) cooperate and have a support system for the entrepreneurs, and in Kampala there is even a Norwegian business incubator, Norway House.

We have met many competent and helpful people in the instances mentioned above, that were unable to help us mainly because of the system and specific guidelines from the governmental program. We also see similar services and institutions working out very well for other countries, and even Norwegian embassies working well with businesses in other countries.

We therefore believe that a revision of the current governmental programs and their operations are necessary if Norwegian business presence is to be a governmental goal. This includes funding for SMEs and start-ups, not only large corporations, a business service to help Norwegian companies establish their firm abroad, a more extensive collaboration with NHO or outsource these services to private actors that has local knowledge, experience and passion.

Chapter 8

Further research

Some of the areas we have researched and discussed in this thesis are poorly covered by the current research literature. This chapter summarizes the suggestions we have for further research.

The direst need for further research is an evaluation of how entrepreneurs handle the uncertainty that arise with an effectual approach to business development. We have found no in-depth mentions of how to cope with the enormous amount of uncertainty entrepreneurs in emerging markets experience. No studies of the psychological aspect of business development with effectuation were found either. How is the entrepreneur affected by an effectual approach opposed to a causal approach? The effectual model will have increased value if more advices on personal challenges for the entrepreneur are added. Our belief is that this will better prepare the entrepreneur for the way ahead.

The subject of minority entrepreneurs is to the extent of our knowledge also a limited researched subject. Some research are available especially on the effects of Asian minority entrepreneurs around the world, one discussion of this is found in Granovetter (1995). We experienced some of these effects, but the networks of Western minority entrepreneurs are set up slightly different. Also the networks we have connected with provide a different kind of support than what the literature describes as common in Asian minority-networks. Studies on how immigrants from Western countries flock together in Africa will be interesting to read. What mechanisms provide foundation for these networks? How does such networks work, what output do they create and how can an aspiring entrepreneur enter them?

Another suggestion for further research are more studies on what it is like to be a minority entrepreneur. We have done initial research on the first phases of a start-up. Still there are several aspects and phases of entrepreneurship that we have not experienced. Both the minority entrepreneur literature and effectuation

will benefit from more practical case studies on this form of entrepreneurship. Longitudinal multi-case studies, which follow start-ups from beginning to end, will be interesting to evaluate success criteria for minority entrepreneurs and an effectual approach. With such data from longitudinal studies it will be possible to create a comprehensive guide to the entrepreneur in foreign markets.

Lastly, and as a run-up to a larger study as suggested above, another study based on how our unified effectual model works in a start-up would be interesting. If other entrepreneurs can confirm the value of this effectual approach in real life, this will bring value to the entrepreneurship community in general. We find the effectual approach a good basis to establish a company in foreign markets. A more detailed guide for entrepreneurs will therefore be useful for others.

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Appendix A

Interviews with entrepreneurs

A.1 Interview with Svein Mork Dahl

Company development in Kenya

How did you plan your company establishment before arriving in Kenya?

I did not plan my company establishment. I came down with the NGO ARC-aid and worked for them in Kenya and true this work I went back and forth for and 1.5 year. After this period I did not want to leave. It was good to have some connections before trying on my own.

What did you experience when you arrived in Kenya, compared to your plan?

The first thing people discover is that they need to redo their business plan. This is especially true for businesses and NGOs that targets the people living on the bottom of the pyramid (BOP), since nothing works as you think from home. Here in Kenya you do not have a one-stop-shop like Brønnøysundregistrene that we have in Norway. In Kenya permits and registration processes are done through several instances and can be difficult and complex.

As Norwegian entrepreneurs how do RESolar go forward with founding a company?

I always use a lawyer to set up a company and recommend others doing the same. If a customer requires that we use an international registered and known law firm I use Piper, otherwise I use local lawyers. In East African is Kenya defiantly the best country to conduct business in. The neighbouring countries like Tanzania are harder to do business in. It is a lot of bureaucracy, lots of red tape and less transparent. Kenya has today 47 ministries, but that will be reduced to 22 after elections and that will improve the red tape and bureaucratic dilemmas.

What specific challenges would RESolar meet that is worth mentioning? One central issue that is challenging is to get hold of people. They do not return calls and do not reply to emails. People are not used to have access to Internet and it is unnatural to relate to it. It is better to call in that case if they pick up the phone they need to do it then and there, if not, they will just postpone it. Often folks just check email in the morning and not for the rest of the day and it often gets “forgotten”, and they do not have to do anything about it. Only professionals have email and use it the way we from the Western world is accustomed to. For example the Burundi government use only yahoo-email and this seems unprofessional and shady. For example in Norway you could do the job yourself to get overview of competition or suppliers, this is almost impossible to do on your own here, but on the other hand you can get someone to do the research for you.

Business development in East Africa

How would you recommend others to build their professional and/or social network in Kenya? Many of the people I have today in my network have I found through Facebook. I follow discussions and groups and I keep an eye on likeminded people on what they post and what they write. Francis, my current secretary I found on Facebook.

The first contact I had with Kenya Investment Authority (KIA) was through their Facebook page. I started having discussion with the ICT-manager and today he is a person I meet with regularly and he helps me out.

Social Medias is a good way of getting to know people. If they are not on social medias I immediately think they have something to hide. Francis and several others are not on Facebook with their full names because they are afraid that other people will try to steal their identity.

Even in rural areas people are usually on Facebook at least one time during the day. When I was in Kenya with the NGO we even used Facebook to conduct our research. It was an easy way of getting feedback from the people we targeted since they already used this communication line.

As a white guy everyone wants to be associated with you. This gives a lot of noise in both positive and negative ways. I find it challenging to establish network, finding, screening and making sure that the people I link up with are the people I want to be associated with.

To get things done I use my network, but I try to use official channels primarily. That is why I use lawyers to that sort of things for me.

How are you perceived as a Western entrepreneur compared to your experience of how Kenyan entrepreneurs are perceived? It is probably easier to do business for me than for Kenyans, people trust me more than a fellow Kenyan. There are a lot of trust issues in Kenya and the locals think that I white guy is trustworthy.

This is not a good thing since I could do shady business and then just go back to Norway. The locals find it “easier” to work with white people that haven’t been in Kenya too long, and for us that have been here too long we are called Kimo. Kimo means that we have “overstayed” our welcome. That’s because I have learnt when to lie, what the correct prices are and I know my way around. When doing business it is important to make sure that the local part understand that I have been here long enough because they won’t try to hassle me that easily.

Being a Western entrepreneur how do you find doing business in Kenya

It is not easy and it’s difficult to get accustomed to a totally new cost structure. *Jokingly says; “I pay more in child support than people earn in a month”* Ease of doing business should not be differentiated on being foreigner or local. For example it is a lot easier to do business with people in Nairobi than with people from the rural areas.

In the rural areas people think that everything is for free because of the presence of NGOs. I have experienced the same with some foreigners that they expect work to be done for free.

How/what is the easiest/best way to build a network for RESolar? It will take time and resources to build your network. It is necessary to be present here, meet the people, and do it over time. You do not necessarily have to be here yourself but you need someone to represent you and maintain local presence. Things take a lot more time than you think. Therefore you need more money, even though it is cheap here. If you want to scale to other countries the systems, bureaucracy and red tape are completely different.

How do we build a network with content that is useful for RESolar, and what is that content? Booking meetings are difficult if you are not a hotshot that everybody wants to have meetings with. The best way to get to know people is by meeting them at social gatherings, sports events and etc. To know where these events take place is not easy to know but that is where you should be present. For example, the event that Mathru hospital arranges every year is one of these events where you find the whole financial elite of Nairobi.

Does RESolar receive any benefits as entrepreneurs in Kenya? There are no big benefits you will receive. As a foreign investor you can achieve benefits. But Kenyans will get the same thing. There are not many benefits from government either.

How did you perceive us in your network? Your business model is very interesting and especially the financial part. A lot of my work focuses on these aspects, finding creative solutions for how to tap into the BOP segment but also to get into the untapped market between BOP and large-scale operations.

Living with uncertainty

When operating in East Africa, do you find there is much uncertainty?

Yes. As an entrepreneur there are lots of mistakes to be made since you do not know the culture and market. That is also why you need to take your time and do the mistakes as cheap as possible. I did a lot of these mistakes while I was working for ARC-aid, but then it wasn't my own money I lost. Another aspect is the culture, the locals never like to give you bad news. Even though the roofs are falling down they will tell you otherwise. Most of the times my wife has guided me. She allowed me to learn fast and in this way have reduced the number of mistakes I could have done.

One central issue in Kenya is the political stability, what do you think of this and how does this affect you? Yes and no. It affects the people around me, but not me directly. I hear it all the time from business partners that "*Wait till after the elections*". That is the same situation I have with Norad and Innovation Norway regarding the matchmaking program we are putting together. I'm not scared by political violence, but the traffic. More people died last year in traffic than in post-election violence. Only in Nairobi did over 150 people die last year in traffic, but I believe the numbers are in there thousands if we include the people that die after coming to the hospital.

How should we cope with this uncertainty and how can we continue to develop the business, through political turmoil and change of social climate? I don't think there will be any turmoil, maybe some fighting in Kibera, but that will not impact business. Last time the turmoil lasted less than a week, 4-5 days.

A.2 Interview with Johnni Kjelsgaard

Company development in Kenya

How did you plan your company establishment before arriving in Kenya?

I have started over 20 businesses and there hasn't always been too much planning behind all of them. Prior the start-up in Kenya I used to be a member of the student organization ISAC. Together with them I travelled to many countries including Uganda and Kenya. This was back in 1998 and I found the region very interesting with a lot of potential. I talked loosely with some friends that I wanted to start up businesses here and primarily in the IT sector since I'm biased toward IT. Through ISAC I had a solid network of resource persons that I could rely on initially and that helped me find the opportunities. I did not use the embassy for this purpose.

What did you experience when you arrived in Kenya, compared to your plan? It was much easier than expected, less corrupt, less red tape than it was 14 years back. The way to conduct business has been vastly improved so today it is way more straightforward.

When I first came here it was more of a jungle for finding out how the rules worked. Now it's more difficult for the local bureaucrats to hustle a foreigner and now you can even demand something from them. It has happened sometimes when I come to some bureaucrats office that instead of me bribing them they literally have a cake on their desk and they ask me how big slice of the cake I want to buy, of course the price isn't 10 shilling a piece but more like 10000. In that way it is not bribing since I would have bought cake from them. I have always replied that I'm not hungry or that I don't want cake. Kenya is defiantly easier to conduct business in compared to the neighbouring countries. I haven't personally worked in Rwanda but I have heard that it is quite strait forward there as well.

As Norwegian entrepreneurs how do RESolar go forward with founding a company and what specific challenges would RESolar meet that is worth mentioning? The first time we established a company here in Kenya we did the whole registration process ourselves, it was very learning full but all the other times after that we have used business brokers. This is people that have law degree but the only thing they do is establishing businesses. In this way the process goes a lot faster and you don't have struggle with the bureaucracy. I'm not too concerned with any specific challenges like corruption. As I said prior I have experienced a lot less corruption than I expected. But of course you should be aware and prepared that it exists. At the stage RESolar is now I wouldn't think too much about it, but if you guys really start to make money that aspect can become more realistic. You can meet corruption in several ways e.g. that

other businesspeople with political connections can come and demand some of your cake and if you don't give them they will try to squeeze you. Sometimes these threats can be real other times they are just empty words. A good advice is to not create too much attention around what you are doing. As we have in Norway and Denmark with the "*Law of Jante*", this exist as much here. It is best to live a quiet and successful life.

It is also worth mentioning the cultural aspect. There are huge cultural differences between us Scandinavian and native Kenyans. It's important to create a strong corporate culture with rigid systems and good control mechanisms. If a local person get the opportunity to cheat it is often way to tempting for him/her to cheat than not to do that. Additionally local persons thrive better under having strict rules and guidelines to follow. Another aspect one should keep in mind is which tribe your employees come from. Usually in the big cities like Nairobi tribe mixture is not a problem since the inhabitants look at themselves as Nairobians before Kikoyo or Luo. But the further you get out of Nairobi this is something that can lead to great tension. We have made some mistakes with this e.g. when we had all the washing people with Luo background and all the one that worked in the accounting department were Kikuyus. This lead to bad work environment where they looked at the bad jobs as work for the Luo's. We didn't fire anyone but when new positions opened up we had to mix the tribes.

Business development in East Africa

How would you recommend others to build their professional and/or social network in Kenya? Getting referrals are as important here and even more important than in Scandinavia. There is quite an overlap with the social network and the business network. For Westerns to come to Kenya it is not easy to get friends and the social network is limited. So often the friends you have and go out to have a beer with are colleagues.

In the expat community there is possible to have friends like you have back home. The best way to get a network is to attend as many as possible cocktails and forums. Everybody uses his or her network for what it is worth so you should take advantage of it yourself.

The Danish embassy isn't too helpful so I rarely use them.

How are you perceived as a Western entrepreneur compared to your experience of how Kenyan entrepreneurs are perceived? There is a slightly advantage of being white, it is not huge but it is there. Locals presume that the knowledge you bring has a high degree of quality. For the last two and three decades Kenyans have experienced a lot of white trash coming in. Africa has a always drawn upon itself either people that are of the adventurous type or people

that are running away from something and want to start their life over again. In the last 10 years Kenya has seen more and more white people coming in with quality skills, technical backgrounds and business skills. This has improved the opinion of white people. Kenya has always compared itself to Singapore. When Kenya got their independence in 1963 Kenya had two times the GDP of Singapore. Today Singapore has ten times the GDP of Kenya. Kenya should do the same as Singapore did and give all the people that want to come into the country with a master or PhD a free work permit.

Being a Western entrepreneur how do you find doing business in Kenya

I have good and bad experiences with both and it is difficult to draw any conclusions. If you are not careful you will attract the wrong people even if they are Westerns or locals.

The only ethnical group I am sceptic of doing business with is the Indian /Asians. They have very different ethics than us. When we find new partners to work with we do our due diligence. We check them trough our network and see if any other have worked with them and can come with insightful information. We also check the businesses through the court system and see if they have any outstanding court cases.

How/what is the easiest/best way to build a network for RESolar?

I would attend as many conferences, congresses, fairs etc. that is relevant for the field of work that you are into. It can be an idea to visit other companies that do almost the same that you do. I believe that other firms will agree on meeting you, but you might find it difficult to get any information.

Does RESolar receive any benefits as entrepreneurs in Kenya?

Being young is not looked at as a good thing, knowledge and experience comes with age so this doesn't play in your favour.

Scandinavians have a good reputation when it comes to agriculture, green tech and technology so people would presume that you know what you are talking about when it comes to these subjects.

Living with uncertainty

When operating in East Africa, do you find there is much uncertainty?

There is definitely higher uncertainty of conducting business here than in Scandinavia so I wouldn't recommend people that don't have the stomach for it to come down here and start up their own shop.

The planning horizon is shorter due to the uncertainty and you demand a premium on your return.

One central issue in Kenya is the political stability, what do you think of this and how does this affect you? During the elections there might be some tensions but I don't think we will see the same as we saw last time. I think the politicians got scared when they saw what a little spark could do and that they weren't able to control the masses. The politicians are also the ones that are biggest in business so I hope and think they will not do the same again. They are not interested in having a country in civil war, this would ruin their businesses.

I neither think we will experience the Arab spring here in Kenya. Even though we are getting a larger middle class there are still to many uninformed people that believe everything a politician in suit says.

How should we cope with this uncertainty and how can we continue to develop the business, through political turmoil and change of social climate? You should reduce your financial risk, not have all your money invested here. Take out insurances that guarantees for war and so forth.

A.3 Interview with Jostein and Gerd Holmedahl

This interview is done with the couple Jostein and Gerd Holmedahl. Both of them have contributed to this interview and filled out details for each other.

Company development in Kenya

How did you plan your company establishment before arriving in Kenya?

Gerd: We went to Ethiopia in 1969 with Scripture Mission and stayed there until 1973 when we had to flee the country because of turmoil that came with the Communism. Back in Norway Scripture Mission started planning where a new school and an office for East Africa could be established. Scripture Mission had its competence on East Africa so the new offices had to be established in this region. All the countries in East Africa were put under the loop. In Uganda had Idi Amin ruled the country since 1971 so that was left out of the question. Tanzania also had a new political regime that made the country unstable. Due to all the turmoil in east Africa, Kenya was the best option to locate our new office. From Norway we contacted the people that we knew in Nairobi to start looking out for potential areas and plots that we could acquire. We also sent down people from Scripture Mission that knew the city.

What did you experience when you arrived in Kenya, compared to your plan? Jostein: We didn't have any concrete plans for how to start out, but we were lucky that we knew people there that could help and guide us. At that time the Norwegian ambassador were of the old admiral sort, he knew what had to be done and did his job. He believed in our project and that we weren't just a crazy religious sect. He stopped suspiciousness from especially Norad people that were sceptical to us. He personally attended and opened up the school and as he said to us afterwards: "If you ever run into any kind of trouble come to me and I will sort it out."

Jostein: In the 1970s there weren't a straightforward process of getting the right licenses and knowing how to proceed with establishing Scripture Mission in Kenya. A friend and I spent an awful lot of timing running from office to office. After a while they started giving us nicknames, for the African man find all white people similar so my friend they just called the "busy man" and I got "Ni velle yo" which means the man with the hair straight up. Thirty years back Kenya was the best place for us to get established in. The situation has improved a lot in East Africa. With the new constitution in Kenya, I believe Kenya has become a better country for doing business. There have been some drawbacks since the Englishmen left, like more dirt and garbage everywhere.

Gerd: Your age group talks about the new Kenya, a country where it shouldn't be any corruption. Today compared to our time you have the law on your side.

As Norwegian entrepreneurs how do RESolar go forward with founding a company *Jostein:* I would have chosen Kenya to establish myself in if I had the option today. Tanzania is like a middle-aged country with its laws. Ethiopia has come a long way after ridding itself of the Communism but I'm still unsure about them and I haven't been in Uganda for several years so it is hard to give them a fair judgment.

Jostein: We did the whole business registration process, if I were to do the same thing over again I would use brokers. In that way you don't get any surprises. I would also recommend that you get a big network as fast as possible since that can help on all processes. For getting through all the bureaucratic processes I highly recommend you to have humour, be incorruptible and patience. In this way you will get to your goal but it might take you longer time first, but in the long run you will be saved a lot of hassle. We saw it time after time with Norad that they wanted to cut corners, and in the heat of the moment it is easy to bribe someone so that whatever needs to be done get fixed immediately instead of six months later. As fast as you have bribed one person the others will know about it and its difficult to change the lane you have got yourself in. *Gerd:* We have experienced several episodes where we could have chosen the easiest way out and paid the "premium" price. Looking back I don't think we would have gained anything particular in doing in that way. For example, there is a new law

in Kenya that states that everybody shall get electricity and not pay more than 35000 Ksh for it. We have applied for this and when the guys from KPLC came over to do the assessments they demanded that we should pay 1.6 million Ksh. This was an absurd amount of money and we never paid what they demanded. That's why we haven't installed electricity from the grid and have to rely on solar and wind. We believe that "*the power of example*" is the strongest in the world and that is something that we should strive after.

What specific challenges would RESolar meet that is worth mentioning? *Jostein:* I think we have touched on this in the above question. One thing I can add is that I don't think the politicians will bother to look at your company until you get big enough to start getting into the playing field of the big boys.

Business development in East Africa

How would you recommend others to build their professional and/or social network in Kenya? *Jostein:* Being white is an advantage, they believe that you have more knowledge than them and also that you are Norwegian is an advantage since they think you have money. Local people befriend you since they hope and believe that it will drip on them. For example, when we were building our house one day the construction manager came with us into town. Driving by the market the locals looked at our car and the CM says; "today I will have to pay more for the fruits since they have seen me in the presence of a white man. They think that I will have earned more than I do on a regular job". Locals are sceptical towards people that are from big nations like America, Russia, Germany and France because they are afraid of the imperialism. That's why they have a more positive attitude towards Norwegians since we are from a small country.

Jostein: When it comes to network we see that it is more important here in Kenya than in Norway. Having a big network and knowing people in the right places will open opportunities and also increase the chance for keeping up doors that might have been closed on you otherwise. Another thing that is more common here than in Norway is the use of middlemen. You need to know the social structure in firms and organizations. If you want to talk to Mr. X you have to go through Mr. Y that knows you and can recommend you is crucial. *Gerd:* Africans are costumed with oral transmission and this still plays a crucial role and in some aspects is trust worthier than a piece of paper. When doing deals it can be a good idea to have witnesses or middlemen that attend the transaction. In this way if one of the parts don't keep their agreement of the deal there will be consequences. Only challenge here is to have a witness that wont take bribes.

How are you perceived as a Western entrepreneur compared to your experience of how Kenyan entrepreneurs are perceived? *Jostein:* Yes, this has changed even though there are still advantages of being white these are getting smaller, which is a good thing.

When we first got to Kenya the British has just left the country 10 years earlier. Many locals were still not accustomed with white people and when we were standing in queues they used to stand aside so we could pass them.

Being a Western entrepreneur how do you find doing business in Kenya

Jostein: I don't feel there are any big differences between these groups. There is one common thing I believe counts for us all and that is the principal, "you scratch my back I scratch your back" and finding common grounds.

How/what is the easiest/best way to build a network for RESolar?

Gerd: You should go through connections and start with people that you trust and build it from there. After my thirty years in Kenya I can honestly say that there are only three persons that I truly trust. This is sad but a reality that we are from different cultures and there are some things that is difficult to unite. We have experienced you, Stain and Erik as very special persons. You listen to others advices, are humble and down to earth. This is the best way to succeed and build up your business. We have several horrible examples of how things have been done the opposite way. Norwegian projects done by Norad where they come down with the mentality that we know the best and don't listen to advises. The worst example is probably with the fisheries in Lake Turkana where they after three years had emptied the lake for fish.

Does RESolar receive any benefits as entrepreneurs in Kenya? *Jostein:*

Being the age you are is a tremendous disadvantage. Especially in Africa where knowledge and respect come with age.

Living with uncertainty

When operating in East Africa, do you find there is much uncertainty?

Gerd: You should be like the Africans and conduct the same way. When you buy something you pay half of the cost up front. In this way there are incentives for both of the parties to precede the deal. The seller has the incentives to get the products or service since there will be more money coming in and the buyer has already paid half and will pay the rest. You are now living and operating in a part of the world that is looked upon as a warzone.

Here in Africa we have never felt that we are the direct aim and the situations looks always worse from abroad than how they actually are.

One central issue in Kenya is the political stability, what do you think of this and how does this affect you? *Jostein:* This does not really affect you at this stage. Not until you are big enough to start coming up on the politicians radar will this be something that you have to worry about. There is still political turmoil but it is less than it used to be. To hedge yourself always know the winners in the different groups and don't take unnecessary risks.

Appendix B

Business plan spring 2011

Preface

This business plan was put together in April 2011 as a delivery in the course TIØ4851 Experts in Teamwork at NTNU's School of Entrepreneurship.

Analyses and calculations are based on data from primary and secondary sources collected during the feasibility analysis and in the period January to March 2011. Primary sources are mainly interviews with academics and professionals in the trade. Secondary sources are research reports and other analysis carried out in our focus areas.

We would like to thank Line Hansen, Brage Strand, Olav Nymoen and Martine Narvhus for their work on the feasibility analysis and the concept originators, Jørund Buen and Kristian Tangen for the opportunity to work with them on this project.

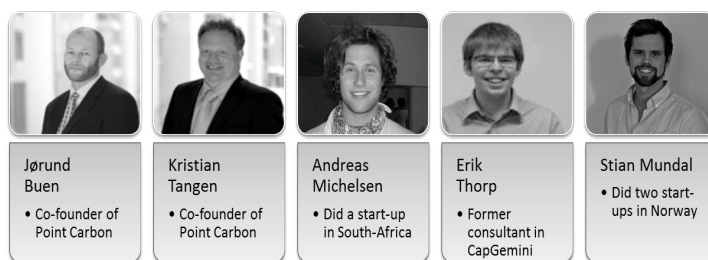
Andreas Michelsen, Erik Thorp and Stian Mundal

Executive summary

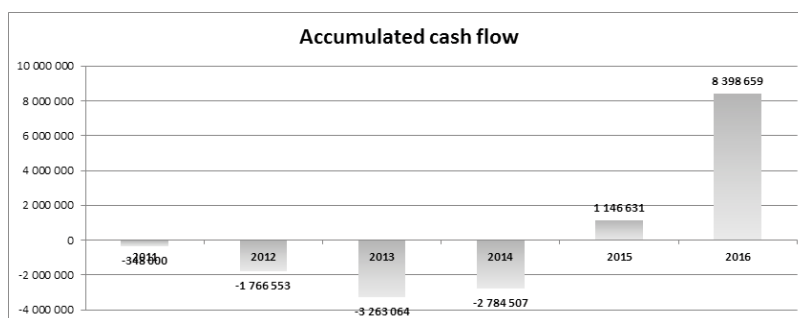
The energy situation in Africa is critical. Only 15 per cent of the population in rural areas of Sub Saharan Africa has access to electricity through a national grid today. Still the need for electricity is dire. Electricity is needed for lighting, irrigation, water pumps and in factories and businesses to enhance productivity. Today they use expensive solutions based on fossil fuel, such as diesel and kerosene.

RESolar will reduce the costs of energy and increase the supply of electricity through innovative modular based solar power plants. We will reduce cost in assembly and logistics massively, thus not only outperform fossil fuels, but also the solar solutions provided today. These mini solar plants will be sold to governments through public tenders.

The estimated energy spending in the BOP market worldwide is 351 billion USD (2.9 billion people). Only in Africa the estimated total energy market is 27 billion USD (254 million people). This leads to the conclusion that there is a considerable market available, and these numbers are expected to rise significantly in the future.



Our three most compelling competitive advantages are that we deliver five Full-time equivalents without salary expenses, we are early movers in a fast growing market and that we possess an extensive economical and technical network.



We will have our first sale in 2012, reach positive accumulated cash flow in 2015 and have a total capital need of approximately 3,3 MNOK.

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Introduction, team and product

Business opportunities

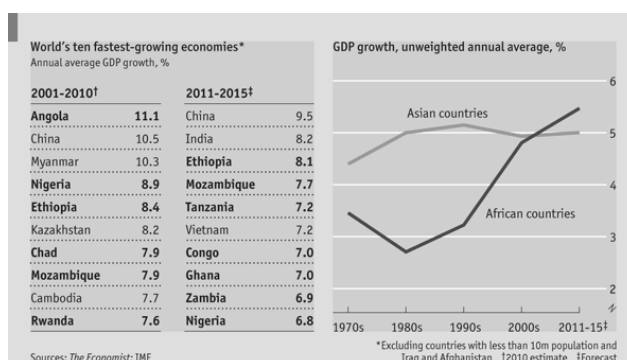
“Access to electricity is a key element in determining quality of life.”¹

Solar PV prices have declined by 70 % the past ten years, and are estimated to decline further. 1.6 billion People lives without access to electricity today.² The majority of these people lives in Sub-Saharan Africa and South East Asia. Most of them live in rural villages without access to the national power grid. These are the so called “off-grid” villages.

Facts and abbreviations	
BOP	Bottom Of the Pyramid, defined as people living for less than 3000USD per year
Brownout	Significant drops in voltage, enough to harm electric equipment
Blackout	Complete power outtakes
Solar energy	Common term for electrical energy generated from energy from the sun
PV	Photo Voltaic
FIT	Feed-in-tariffs; subsidies paid to energy producer per kWh
RET	Renewable Energy Technology
RE	Rural Electrification
PPA	Power purchasing agreement
RE(S)	Renewable Energy (Sources)

“Over the next five years emerging economies are expected to account for over 50% of global growth but only 13% of the increase in net global public debt. Rather than rebalancing, the world economy in the immediate future will skew even more between a debt-ridden West and thrifty East.”³

The economic structure in the world is changing; PWC estimates that countries like Nigeria and Vietnam will outdistance even China in average annual real growth in GDP and average annual GDP per capita growth from 2009 to 2050⁴. This shows, just like the figure below, that Africa is becoming a key player as well. There should no longer be a question if one should enter an emerging market or not, but rather how one is to proceed in order to make the most out of the growing economy at a reasonable risk.



¹ Off-grid electricity for developing countries, Dr Alison Doig, Berkeley University - http://josiah.berkeley.edu/2007Fall/ER200N/Readings/Doig_1999.pdf

² <http://siteresources.worldbank.org/INTWDR2010/Resources/WDR10-Main-Messages.pdf>

³ Three-way split, The Economist - <http://www.economist.com/node/17677746>

⁴ http://www.pwc.com/en_GX/gx/world-2050/pdf/world-in-2050-jan-2011.pdf

Vision

Create a sustainable business by improving people's life through saving the environment.

Business idea

Through innovative, modularized mini solar power plants, RESolar will enable economic growth and societal development, in addition to reducing energy related costs in rural areas, which are off the national power grid in developing countries.

Team

RESolar is a startup company located in Trondheim, Norway. Behind RESolar are Andreas Michelsen, Erik Thorp and Stian Mundal, students at NTNUs School of Entrepreneurship, and Jørund Buen and Kristian Tangen, founders of the carbon analysis and trading company Point Carbon. Both Jørund and Kristian has extensive knowledge about the environmental sector, network and deep understanding for doing business in this segment.

Jørund Buen

Expert on the project-based mechanisms under the Kyoto Protocol (Clean Development Mechanism (CDM) and Joint Implementation (JI)). Has published extensively in professional journals and books on climate policy and politics as well as the role of policy instruments and politics in stimulating new renewable energy innovation.

Kristian Tangen

Has extensively knowledge about the international environment, energy and resource management politics after working as a researcher at Fridtjof Nansen Institute for 7 years. He sat as Director for Point Carbon since 2002 until 2008 and had three years after that as senior expert in the same company.

According to the Norwegian newspaper Dagens Næringsliv, Point Carbon was acquired by Thomson Reuters for approximately 1 billion NOK in 2010.⁵ These numbers indicate that Jørund Buen and Kristian Tangen left with approximately 55-80 MNOK each.

Michelsen, Mundal and Thorp are in the first year in the two-year Masters program in technology within entrepreneurship at NTNUs School of Entrepreneurship. Andreas Michelsen has a technical background from geosubjects and petroleum technology with specialization in Environment and Natural Resources Engineering. Previously he has contributed in the startup of a tourist company in South Africa in the summer of 2010. Stian Mundal is a civil engineer and has contributed in two startups in Norway. Erik Thorp came from industrial economics and technology management and has a specialization in computer sciences and ICT. He has worked as a consultant for CapGemini.

With the different backgrounds and experiences the members of the team complement each other. Buen and Tangen brings along a lot of experience and a track record. They give RESolar credibility and trustworthiness. Michelsen, Mundal and Thorp are three highly committed students with varying backgrounds, a track record of starting smaller companies and work experience.

⁵ <http://www.hegnar.no/okonomi/article427690.ece>

Product and Concept

Product

RESolar develops a modularized solar energy solution for use in rural and remote areas with basis in standard shipping containers. The concept originates from the possibilities that arise from assembling all necessary parts of the power plant in a container, enabling global outsourcing of the production, fast scaling and significantly reduced installation time. Transportation and installation time and cost are likely to be reduced from over a month to less than a week. Easy installation and logistics, today accounting for nearly 25% of a solar power plant costs, greatly increases the profitability of our solution. Ready-to-use solutions increase both user friendliness and ease of maintenance.



The term mini-/micro-grid describes a small power grid that typically covers a small geographic area and is usually connected to a local power source. Once RESolar have installed the solar solution in the village, houses will be connected through an already existing grid or a small grid will be put up, connecting customers to the grid. Nearby the power plant there will be a charging station where people who do not have electricity installed in their household can come to charge mobile phones, lanterns and car batteries, which are used by many households to power up lighting, radios and TVs today.

RESolar focuses mainly on 3 areas:

- ✓ Standardization: Our solution must be easy to assemble and scale well.
- ✓ Logistics: Our solution must be practical and cost efficient to transport.
- ✓ Quality: Our solution must be durable, user friendly and able to operate in harsh environments

This will make RESolar the obvious choice, when time, quality and price are the purchasing criterias.

Product Development

RESolar will first develop a basic, standardized solution that can deliver approximately 100 kWh daily, supplying an African village of 100 household with electricity. This can be delivered in 2 containers, one container with the configuration of batteries, inverters, controls and transformers and one with PV-modules and other necessary equipment. A basic solution like this scales easily by connecting several containers in series. With a smart entry point in the market we can expand alongside the market when demand increases.

Recent activities

In collaboration with professors at the Department of Electric Power Engineering and the Department of Engineering Design and Materials at NTNU, we have confirmation that our concept solution will work and that the technical uncertainties can be solved within containers, considering size, weight, temperature and so on. We have put a lot of effort in connecting with resourceful people at NTNU that can help us out in the development of our concept and give constructive feedback. Several of these professors and associate professors have stated they are willing to contribute in a workshop and/or in an advisory board.

WHO	FIELD OF STUDY
Marisa Jackson	Solar Cell Materials
Gabriella Tranell	Production of Ferroalloys Production and Refining of Silicon Solar Cell Materials
Fride Vullum-Bruer	Li-ion batteries
Otto Lohne	Materials science. Extensive experience about the Solar industry
Tommy Fernandes	CEO Solar energy unlimited
Olav B Fosso	Head of Department of Electric Power Engineering
Øystein Ulleberg	Principal Researcher at Institute for Energy Technology

Product development plan

The table below shows how RESolar will proceed in the process to develop the product.

DATE	WHAT/WHO	ACHIEVE
25.03.11	In the process of finding students for writing project and master thesis about RESolar's technology and international expansion <ul style="list-style-type: none"> ✓ Department of Electric Power Engineering ✓ Department of Engineering Design and Materials ✓ African Studies 	Hopefully RESolar can get some students that do more research about the technology, logistics, production and also aspects concerning the African countries
11.04.11	Apply for NTNU Discovery	Give us financial resources to speed up the development process
15.04.11	Institute for Energy Technology (IFE) - Øystein Ulleberg	Help us optimize and dimension the system
04.05.11	Workshop with professors and other resource persons (see table above)	Get more precise feedback on our concept and pinpoint solutions and obstacles
09.05.11	2nd meeting with Scatec Solar	Discuss how a joint venture or an alternative cooperation can be formed, and how both parts can gain from it. For RESolar: <ul style="list-style-type: none"> • Transfer of knowledge • Suppliers • Prices • Calculation models
09.05.11	Suppliers	Assemble Norwegian and international suppliers that can deliver the parts to start building a prototype

Market analysis

Trends and Market size

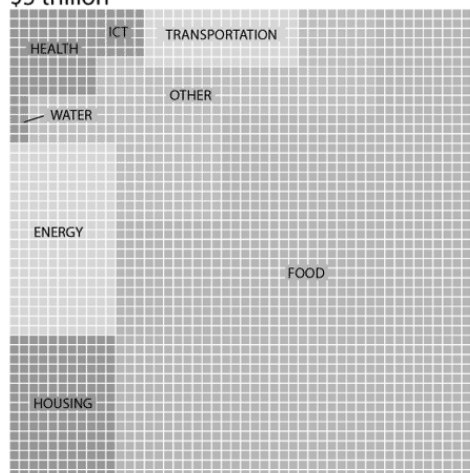
Since 2005 Western firms have started to open their eyes for the BOP-market. People in developing countries living on 1000-3000\$ per year constitute an enormous market. Despite the limited buying power, there are a tremendous number of potential buyers. Their purchasing power is growing and both the people themselves, national and global authorities see electricity as an important means for improving the living conditions, equality for women, education, building up local industry and in this way develop a whole nation.

In the World Energy Outlook-report published by the UN and the International Energy Agency (IEA) in 2010, it is clearly stated that to meet the ambitious target of universal access to modern energy services by 2030, additional investments of 756 billion USD will be needed.⁶

Throughout the developing world the IEA states that 73% of the population has access to electricity today. Looking at Sub-Saharan Africa the number is 31% and in the rural areas of Sub-Saharan Africa it is merely 15%. The energy situation in Africa is critical. Alm'ost 600 million people lack access to electricity, and the costs of buying fossil fuels are high. Droughts have led to reduced hydro power production, and countries which depend on hydro electricity resort to rationing of power supply when drought strikes.

According to the World Resources Institute report "The Next 4 Billion"⁷ the estimated energy spending in the BOP market worldwide is 351 billion USD (2,9 billion people). Only in Africa the estimated total energy market is 27 billion USD (254 million people). This leads to the conclusion that there is a considerable market available, and these numbers are expected to rise significantly in the future.

Estimated BOP market by sector
\$5 trillion



WORLD RESOURCES INSTITUTE

⁶ WEO-2010: Energy Poverty - How to make modern energy access universal? - <http://www.worldenergyoutlook.org/universal.asp>

⁷ The Next 4 Billion: Market Size and Business Strategy at the Base of the Pyramid - <http://www.wri.org/publication/the-next-4-billion>

The African continent is situated in the "sun-belt" between 30°N and 30°S which receives the most solar energy on the planet. This vast potential combined with easy access to inhabited land areas indicates very promising possibilities for PV in Africa.⁸

Several projects and organizations funded from both national and global funds works towards giving all people access to electricity. A project in Namibia⁹ has shown that off-grid solutions can be both better and cheaper compared to expansion of the national grid. Since the market is in the early stages and solar energy is not yet competitive compared to large scale on grid solutions like hydro power plants, FiT and other incentives are used to make it competitive and to encourage firms to invest.

Feed-in-Tariffs (FiT) are successfully put in use in industrial countries to promote the use of Renewable Energy Technology (RET). Often developing countries sees the situation differently and prioritize otherwise. The national grid is often poorly developed and a large part of the population does not have access to electricity. According to Norwegian embassies throughout Africa, most African governments starts or has already established such Feed-in-Tariffs. Another incentive in this market is the use of CDM (Clean Development Mechanism). CDM rewards cuts in carbon emissions or prevention of increased carbon emissions with monetary rewards, and gives a project like this an economical boost. CDM usually makes up for approximately 10% of the investment costs of a solar power plant.

The World Bank fronts growth potential in markets with incentives like FiT, which makes them continuously better, while fossil fuel get more insecure. This predicts a reduction in cost for the solar power production due to technological advances and changes in the global economy. The price on production of solar cells is expected to decrease significantly the coming years. The price on the most common substitute, diesel, is varying and the tendency is that it becomes more expensive. This means that solar energy could compete with conventional energy sources.

"African countries are in lack of electricity and this is something that the Angolan government is taking serious. There is money in the budget that will be spent directly on renewable energy solutions and in the next 5 years will there be built renewable energy solution contributing with 6000 MW. There is an enormous market which need good solutions. I'm sure that the firms which have competitive solutions with good quality will earn money in Africa."

-Jon Vea, Ambassador, Royal Norwegian Embassy.

⁸ Large-scale solar power plants - NORAD

⁹ EU and Namibian government in Tsumkwe, Namibia

SWOT

<p>STRENGTHS Five full-time equivalents salary-free Technical and economic network Agile and dynamic team Start-up experience Extensive knowledge of environmental sector Localized in Norway's main technology cluster Complementary know-how in the team</p>	<p>WEAKNESSES No technological competence in the team - yet No track record in energy market Solar energy production only at daytime Lack of cultural experience in the team</p>
<p>OPPORTUNITIES Emerging market PV prices falling AirCon and similar raises power demand quickly Growing consumption Growing middle class Entry of foreign companies Diesel prices rising FiT, CDM and other environmental subsidies</p>	<p>THREATS Someone exploiting our solutions Large competitors Foreign aid agencies PV-modules are still expensive Expensive equipment - risk of theft Energy storage is expensive (batteries)</p>

The Customer

User value

RESolar's goal is to provide access to electricity for rural areas. Electricity has some obvious benefits, it will allow for more activity after sunset and usage of electric light, refrigerators, TVs and fans. For businesses, electricity will also allow for increased productivity, through electric machinery, computers and other modern equipment. Introducing streetlights is often regarded as a mean to reduce crime. Case studies have also shown that electricity is important in enabling women rights and equality. Other reports concludes that access to stable electricity after some time leads to small businesses opening up around town, building up the local industry and providing economic growth.

Purchasing behavior

Various governmental plans for electrifying rural areas exists throughout the developing world. One approach is the one used in Angola. During the next 5 years the Angolan government plans to develop renewable energy providing 6000MW. Expanding the national grid is not a sustainable solution due to the costs. They want private investors to take part in this expansion and here international firms will have the technological advantage in addition to be backed up with international funding sources. The Angolan Ministry of Environmental Affairs have therefore done research over which villages they want electrified with different renewable solutions. For every village they want electrified they issue a public tender and choose a suitable supplier through a regular tender process.

The same purchasing behavior can also be found in various NGOs, especially foreign aid agencies. History suggests they will select villages and areas after the same criteria as the government, but might choose suppliers differently.

Purchasing criteria

- Reasonable investment costs
- Easy and/or cheap to maintain
- Price and efficiency need to be competitive with other available energy forms.
- Proof that we can deliver and proof of quality.

Competitive technologies, competitors and substitutes.

This is an international market so we know there are both competitors and substitutes from all corners of the world. We will, based on the complexity and size of the industry, not present a list of competitors, but just clarify that they exist, what technologies are used, substitutes and other indirect competitors that we have to be aware of. A list of competitors could just as easily be misleading.

As a small player it is therefore important to choose countries where we can have an advantage relative to the others. In our criterias for selecting countries we emphasize the importance of Norwegian presence (Foreign Aid, Embassy, NGOs, etc.) that can give us goodwill and reduce the number of potential competitors. In the list below are the most prominent Norwegian, and some international, competitors and substitutes:

Most common off-grid energy sources

FORMS OF RENEWABLE ENERGY	PROS	CONS	COMPETITORS
Solar	Sunlight is free when available. Costs are dropping. An increasing trend in the market. A heavily researched area.	Limited to sunny areas throughout the world. Current technology requires large amounts of land for small amounts of energy generation. Still quite expensive compared to some alternatives.	Scatec Getek REC Solar E+Co NGO's
			Substitutes
Hydro	Very inexpensive once dam is built. Government has invested heavily in building dams, particularly in the Western U.S.	Limited source since depends on water elevation. Many plants already built. Dams have affected fish (e.g. salmon runs).	Rainpower Minipower SN Power Trønderenergi
Wind	Wind is proving to be a reasonable cost renewable source. Generation and maintenance costs have decreased significantly.	Need 3x the amount of installed generation to meet demand. Limited to small generator size; need many towers. Highly climate dependent - wind can damage equipment during windstorms or not turn during still summer days. Reliability. Investment cost.	GE Energy Statoil Hywind Sway Vestas
Bio fuel	Industry in its infancy. Could create jobs because smaller plants would be used.	Inefficient if small plants are used. Could be significant contributor to global warming because fuel has low heat content. Limited access to fuel.	Biofuel Energy Corporation Umoe BioEnergy
Diesel	Low investment cost. Easy accessible fuel. "Everyone" can fix a diesel aggregator.	High and unpredictable O&M-costs. Pollution. Depends on diesel availability.	

Milestones

Product

Q2 2011	Product design workshop
Q4 2011	Basic solution prototype - design finalized and ready to build
Q3 2012	Refurbished version of product

Market

Q3 2011	Define entry region and country
Q3 2011	Participate in Africa Carbon Forum
Q3 2011	Attract media coverage
Q3 2011	Feasibility study in entry country
Q3 2011	Stand at "Energi for verdens fattigste"
Q4-2011	Decide for a location for pilot project
Q2 2012	First installment and pilot project
Q3 2012	First sale to customer

Organization

Q3 2011	Entrepreneurship study program at Boston University, USA
Q3 2011	Incorporate company
Q3 2011	Participate in business plan competitions
Q1 2012	Strategic partner on technology
Q1 2012	Cooperation with local partner
Q4 2012	Establish base for assembly, production facility and local HQ

Economic

Q2 2011	Support from NTNU Discovery
Q3 2011	Support from Norad
Q3 2011	Support from Innovation Norway
Q3 2011	Retrieve capital through emission
Q3 2012	First sale to customer
2014	Reach positive annual result
2015	Positive accumulated cash flow

Execution plan

Selection of countries

As a small player RESolar works with methods for how to best make strategic choices that will enhance our competitive edge compared to bigger players with larger financial resources.

Choosing countries to entry will be extremely important choices and they will have to be well considered.

For the selection process we have developed a quantitative data analysis sheet that takes into consideration many of the local factors that will need to be mapped out and presented in a way that can easily compare the different countries against each other. The criterias can be seen in appendix 2. We have emphasized the importance of having Norwegian presence in the countries that we want to enter. This is based on talks with Innovation Norway, Scatec Solar, Minipower and other Norwegian firms that operate abroad.

The selection process cannot be done solely on the basis of the quantitative analysis, but they give a trustworthy indication of the local possibilities. Own experience, network, contact with local partners, advices from Norwegian embassies and other resource persons will weigh heavy in a decision process.

"This document is useful for my own knowledge base in relation to opportunities for doing business in developing countries." - Ole Jakob Sjørdalen Sector head, Energy and Environment in Innovation Norway

Pre-study phase

Our market research so far has shown that it will be crucial for a successful market entry to have a proven solution that reliably delivers what it promises. It will be essential to, as soon as possible, build a pilot installation to receive feedback from users and to gain experience so we can prove our solution to future customers.

When	What	How
Q2 2011	Product design workshop	Invite relevant, resourceful people. Carry out workshop.
Q2 2011	Support from NTNU Discovery	Send application as soon as possible, preferably before Easter.
Q3 2011	Define entry region and country	Finalize quantitative analysis of countries. Interpret analysis. Make selection of cluster and country.
Q3 2011	Participate in Africa Carbon Forum	Andreas and Jørund will participate and build network with relevant actors in the region.
Q3 2011	Attract media coverage	Define market profile. Contact Teknisk Ukeblad, Under Dusken, Adressa, Asker & Bærum Budstikke and other interested medias.

Q3 2011	Feasibility study in entry country	Use connections through universities and other relevant people in our network. Plan the trip in regards to strategic partners, both domestic and local in detail. Make a detailed plan for the stay, pre-plan locations, organizations and governmental bodies we should visit. Book these meetings. Execute the plan and conduct the trip. Evaluate afterwards.
Q3 2011	Entrepreneurship program at Boston University, USA	Improve business plan. Build financial, strategic and technological network.
Q3 2011	Incorporate company	Acquire the money needed. Sign shareholders' agreement. Complete necessary paperwork.
Q3 2011	Participate in business plan competitions	Polish our Business Plan. Send plan to relevant competitions.
Q3 2011	Support from Norad	Apply for financial support for feasibility study.
Q3 2011	Support from Innovation Norway	Apply for "Establishment-support" early in Q3.

Product development phase

Our next phase is to develop and build a prototype.

When	What	How
Q4 2011	Basic solution prototype - design finalized and ready to build	Either pay professional industrial designers or use student projects. The latter will be cheaper, but slower.
Q4 2011	Decide for a location for pilot project	During the feasibility study in Q3 we will work towards a selection of a few suitable sites.
Q1 2012	Strategic partner on technology	Keep contact with Scatec Solar. Investigate other possibilities. Look into firms like such as REC and Eltek Valere.

Prototype-testing/pilot phase - Until Q2-2012

Through local and strategic partners, we will install and test our prototype as a pilot project.

When	What	How
Q1 2012	Cooperation with local partner	Maintain and formalize contacts made during feasibility study. Cooperate with IN, Norad and IEH (Initiativ for Etisk Handel).
Q1 2012	Retrieve capital through emission	Use media coverage to build brand. Use economic network and find interested investors with relevant experience.
Q2 2012	First installment and pilot project	New visit will be necessary to finalize contracts. Assemble containers in Norway. Ship containers to pilot location and install. Document as much as possible of both plant and agreements made with partners and customers to ensure proof of concept.

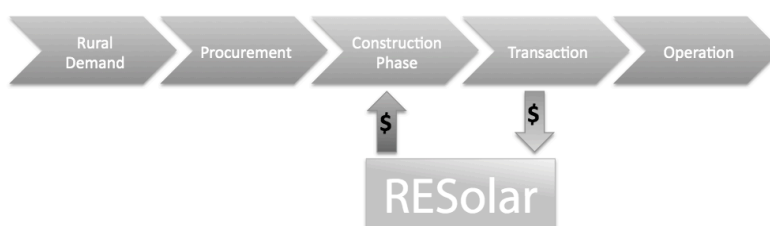
Roll out phase (Distribution strategy)

We will assemble components purchased and shipped to a factory in either Mombasa, Kenya or Walvis Bay, Namibia, depending on what entry markets we select. The production will mainly consist of installing the various components in the containers.

When	What	How
Q3 2012	Refurbished version of product	Evaluate experience from pilot project and develop new version of our solution. Consider the use of Norwegian Industrial Research and Development (IFU) Contracts.
Q3 2012	First sale to customer	Through the documentation in the pilot phase, achieve proof of concept. Work towards a sale with help from the Royal Norwegian Embassy, IEH and Norad.
Q4 2012	Establish base for assembly, production facility and local HQ	Local partners with integrity is a must. Work towards this goal in each visit. Continuous cooperation with IN, Norad and IEH . Find sensible land, close to the harbor area. Build factory and organization to assemble container modules.
2014	Reach profitability	Press product expenses, achieve economies of scale. Enter the aftermarket.
2015	Positive accumulated cash flow	This will be achieved by scaling number of sales fast enough. Hold position in aftermarket.

Business model

On entering a developing country it's desirable to reduce risk as much as possible and avoid binding too much capital in the country over a longer time period of time. This will result in a lower capital requirement and allow faster scaling. Thus, it's desirable to pursue a public procurement process where we act as a total contractor who undertakes turnkey projects through a request for tender from governments, foreign aid agencies and NGOs. This process is particularly successful in Angola where the Norwegian company Mini Power¹⁰ already operates with their mini hydro plants.



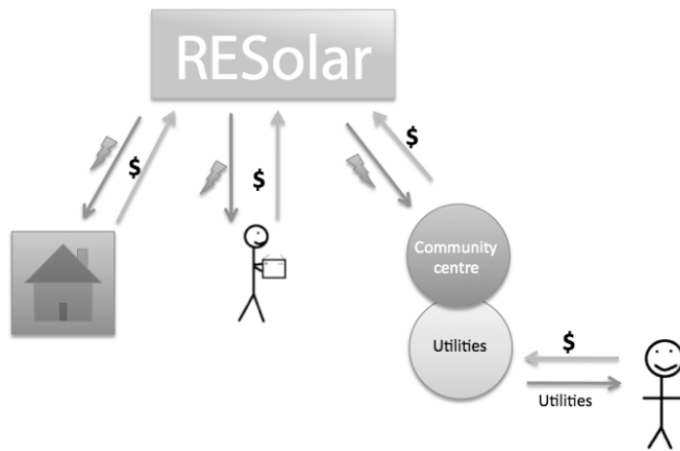
One example is the public procurement process in Angola. It's initiated by the government who analyzes and maps the rural areas they want electrified by private companies.

- RESolar responds to the request for tender.
If we win the procurement process, we install our system as mentioned above in "our solution".
- When the system installation is completed, it is sold to the government who will have the responsibility to operate it.

¹⁰ www.minipowerinc.com

Alternative business model

Even though this is our desired business model at the time, we are looking into an alternative business model for countries where a public procurement process is not an option. This includes countries with FiT and PPAs. If these markets are chosen in the future, we will adopt a business model which relies on the direct sale of prepaid electricity through charging stations, the mini-grid and utilities such as water pumps, irrigation and similar. This will bind up more capital and put a larger risk on RESolar, but could prove to be more profitable in the long run.



Not only will the economic situation be completely different with this business model, but our customer will also be the consumer, thus require a different market strategy.

Either way, we will pursue economic aid from organizations and programs like Norad, CDM for reduced carbon emissions, GIEK and others.

Economy

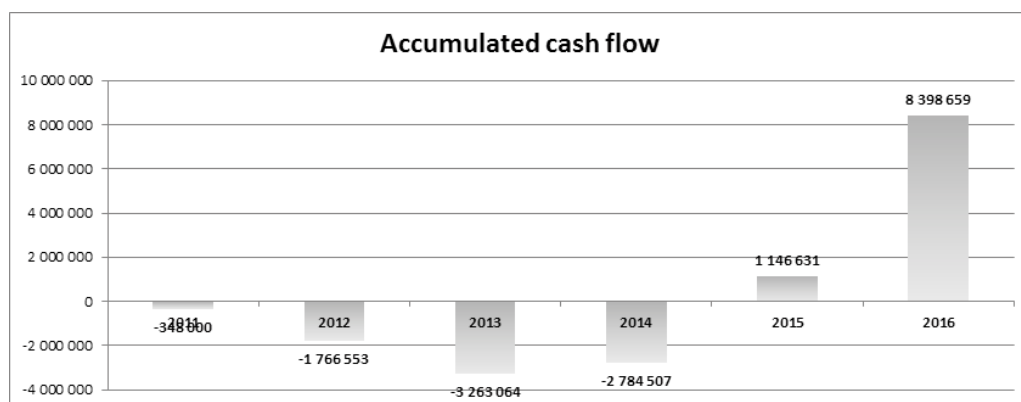
Capital requirement

We have put together the following preliminary product costing based on meetings with professors at Department of Electric Power Engineering at NTNU and employees in Scatec Solar

PV Modules	350 000 NOK
Batteries	100 000 NOK
Inverters and controllers	100 000 NOK
Logistics, labour, cables and more	200 000 NOK
Total cost per installation	750 000 NOK

Some simple calculations on our preferred business model through legal tenders gives us the following accumulated cash flow in the next five years. The table shows we have a total capital need around 3,3 MNOK and will have positive accumulated cash flow in 2015.

	2011	2012	2013	2014	2015	2016
Sales	0	1	3	10	20	25
Accumulated cash flow	-348 000 NOK	-1 766 553 NOK	-3 263 064 NOK	-2 784 507 NOK	1 146 631 NOK	8 398 659 NOK



In the early phase, RESolar will be funded by soft money from Innovasjon Norge, NORAD and others. In addition, the team, especially the concept originators, will contribute with up to 1 MNOK. The first power plant in operation will provide us with a proof of concept and ease both further sales and attract other investors. Norfund, GIEK, Eksportfinans and others are potential investors.

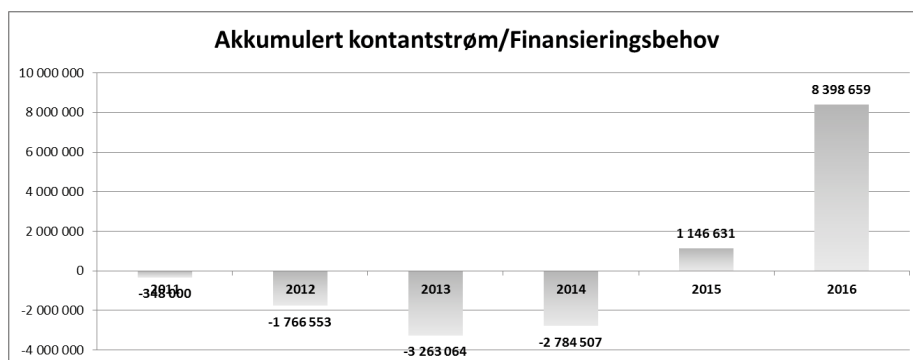
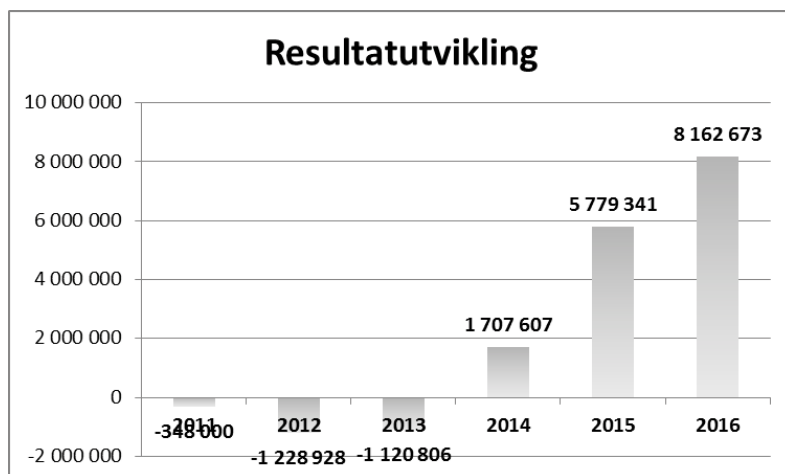
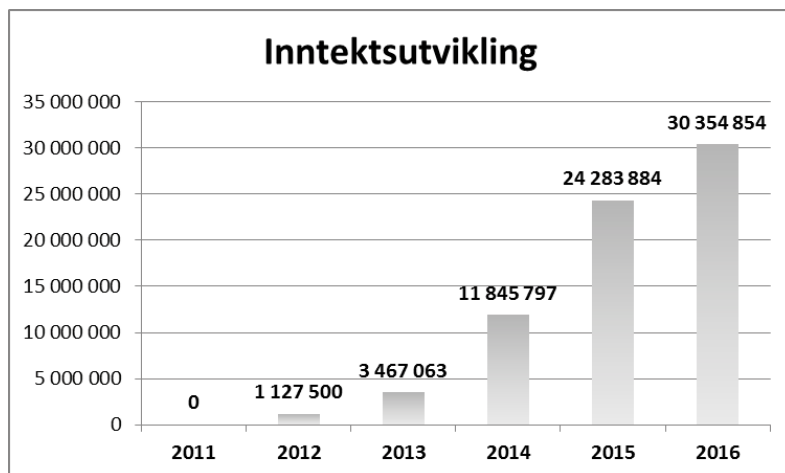
Exit strategy

An exit will most likely not be achieved before 2016. By that time we have built up a series of locations and a good track record. There are several actors who operate in this market and who are looking for acquisitions. Potential buyers could be E&CO, Scatec Solar, Accumen fund and Energy Future Invest.

Appendixes

Appendix 1 – Economics

RESULTATOPPSETT	2011	2012	2013	2014	2015	2016
Salgsinntekter Produkt/markedsgruppe 1	0	1 127 500	3 467 063	11 845 797	24 283 884	30 354 854
Sum salgsinntekter	0	1 127 500	3 467 063	11 845 797	24 283 884	30 354 854
Varekost Produktgruppe 1	0	-768 750	-1 954 163	-6 375 193	-12 512 823	-15 015 167
Sum varekost	0	-768 750	-1 954 163	-6 375 193	-12 512 823	-15 015 167
Dekningsbidrag	0	358 750	1 512 900	5 470 604	11 771 061	15 339 688
<i>Dekningsgrad</i>	NA	32 %	44 %	46 %	48 %	51 %
Lønnskostnader	0	-602 550	-1 655 004	-1 704 654	-1 755 794	-1 755 794
Andre driftskostnader	-348 000	-974 878	-950 942	-1 366 514	-1 970 894	-2 246 848
Avskrivninger	0	-10 250	-27 760	-27 760	-17 510	0
Driftsresultat	-348 000	-1 228 928	-1 120 806	2 371 676	8 026 862	11 337 046
<i>Driftsmargin</i>	NA	-109 %	-32 %	20 %	33 %	37 %
Skatt	0	0	0	-664 069	-2 247 521	-3 174 373
Årsresultat	-348 000	-1 228 928	-1 120 806	1 707 607	5 779 341	8 162 673
KONTANTSTRØMOPPSETT	2011	2012	2013	2014	2015	2016
Årsresultat fra drift	-348 000	-1 228 928	-1 120 806	1 707 607	5 779 341	8 162 673
Avskrivninger	0	10 250	27 760	27 760	17 510	0
Primær kontantstrøm fra drift	-348 000	-1 218 678	-1 093 046	1 735 367	5 796 851	8 162 673
Endring i arbeidskapital	0	-169 125	-350 934	-1 256 810	-1 865 713	-910 646
Kontantstrøm fra drift	-348 000	-1 387 803	-1 443 980	478 557	3 931 138	7 252 027
Investering i kontorutstyr	0	-30 750	-52 531	0	0	0
Investering i produksjonsutstyr	0	0	0	0	0	0
Kontantstrøm fra investeringer	0	-30 750	-52 531	0	0	0
Fri kontantstrøm til totalkapitalen	-348 000	-1 418 553	-1 496 511	478 557	3 931 138	7 252 027
Akkumulert kontantstrøm	-348 000	-1 766 553	-3 263 064	-2 784 507	1 146 631	8 398 659



		2011	2012	2013	2014	2015	2016
Produkt/markedsgruppe 1							
		Salgvolum					
Oppsatt anlegg			1	3	10	20	25
Totalt salgsvolum produkt/markedsgruppe 1		0	1	3	10	20	25
Produkt/markedsgruppe 1	Salgspris	Sum omsetning per kunde produktkategori 1					
Omsetning på kunde 1	1 100 000	0	1 100 000	3 300 000	11 000 000	22 000 000	27 500 000
Total omsetning produkt/markedsgruppe 1		0	1 100 000	3 300 000	11 000 000	22 000 000	27 500 000
<i>Markedsandel av omsetning produkt/markedsgruppe 1</i>		<i>0 %</i>	<i>0 %</i>	<i>0 %</i>	<i>0 %</i>	<i>0,5469 %</i>	<i>0,6836 %</i>
Markedestimat (omsetningstørrelse)							
Markedsstørrelse produkt/markedsgruppe 1		4 022 700 000	4 022 700 000	4 022 700 000	4 022 700 000	4 022 700 000	4 022 700 000

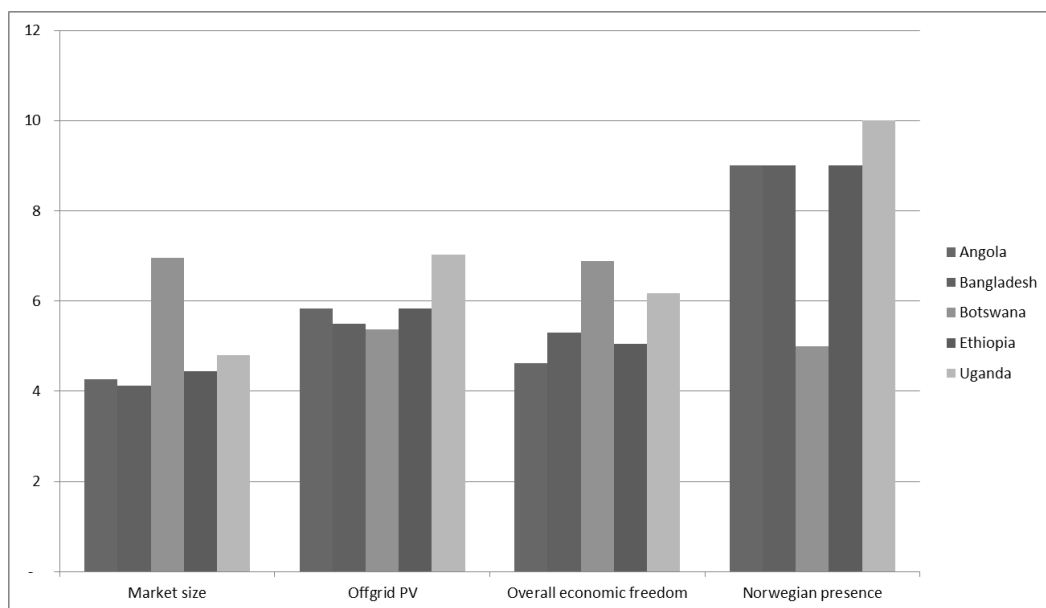
		2011	2012	2013	2014	2015	2016
PRODUKTKALKYLER							
Produktgruppe 1							
Paneler			350 000	280 000	252 000	226 800	204 120
Batterier			100 000	100 000	100 000	100 000	100 000
Inverter/kontroller			100 000	100 000	100 000	100 000	100 000
Logistikk, arbeid, kabling med mer			200 000	140 000	140 000	140 000	140 000
Innsatsfaktor 5							
Produktkalkyle produktgruppe 1		0	750 000	620 000	592 000	566 800	544 120
Effektivisering i produksjonen							
Effektiv produktkalkyle produktgruppe 1		0	750 000	620 000	592 000	566 800	544 120
Antall produkter (kommer fra "Inntekter" arket)		0	1	3	10	20	25
Sum produksjonskostnader produktgruppe 1		0	750 000	1 860 000	5 920 000	11 336 000	13 603 000

		2011	2012	2013	2014	2015	2016
PERSONALKOSTNADER							
Personalplan	Årslønn	Bemanning					
Daglig leder	300 000		0,5	1,0	1,0	1,0	1,0
Utviklingsansvarlig	300 000		0,5	1,0	1,0	1,0	1,0
Økonomiansvarlig	300 000		0,5	1,0	1,0	1,0	1,0
Markedsansvarlig	300 000			1,0	1,0	1,0	1,0
Antall ansatte		0,0	1,5	4,0	4,0	4,0	4,0
Lønnskostnader							
Lønnskostnader		0	450 000	1 200 000	1 200 000	1 200 000	1 200 000
Lønnskostnader etter lønnsøkning	3,0 %	0	463 500	1 273 080	1 311 272	1 350 611	1 350 611
Sosiale kostnader	30 %	0	139 050	381 924	393 382	405 183	405 183
Totale lønnskostnader		0	602 550	1 655 004	1 704 654	1 755 794	1 755 794
ANDRE DRIFTSKOSTNADER							
Utviklingskostnader							
Prosjektering	Leverandør 1		500 000	150 000	500 000	1 000 000	1 250 000
Produktutvikling	Leverandør 2	300 000	150 000	100 000	100 000	100 000	100 000
Totale utviklingskostnader		300 000	650 000	250 000	600 000	1 100 000	1 350 000
Markedsføringskostnader							
Hjemmeside		1 000	1 000	1 000	1 000	1 000	1 000
Brosjyrer og markedsmateriell		7 000	7 000	7 000	7 000	7 000	7 000
Totale markedsføringskostnader		8 000	8 000	8 000	8 000	8 000	8 000
Faste driftskostnader							
Husleie inklusive felleskostnader - kontor	Norge		50 000	100 000	100 000	100 000	100 000
Husleie inklusive felleskostnader - produksjon Kenya			50 000	150 000	150 000	150 000	150 000
Reiser	50 000	30 000	75 000	200 000	200 000	200 000	200 000
Telefoni og porto	20 000	0	30 000	80 000	80 000	80 000	80 000
Forbruksmateriell kontorrekvisita	5 000	0	7 500	20 000	20 000	20 000	20 000
Utstysleie							
Regnskaptjenester (hvis innkjøpt)		0	57 600	69 120	82 944	99 533	99 533
Revisor		10 000	10 000	10 000	10 000	10 000	10 000
Jurist		0	10 000	10 000	10 000	10 000	10 000
Annen rådgiving (annet enn utviklingskostnader)		0	0	0	0	0	0
IT-support	2 000	0	3 000	8 000	8 000	8 000	8 000
Totale faste driftskostnader		40 000	293 100	647 120	660 944	677 533	677 533
Sum andre driftskostnader		348 000	951 100	905 120	1 268 944	1 785 533	2 035 534
Usikkerhetspåslag andre driftskostnader		0	0	0	0	0	0
Totale andre driftskostnader		348 000	951 100	905 120	1 268 944	1 785 533	2 035 534

		2011	2012	2013	2014	2015	2016
KONTORUTSTYR							
Kontormøbler	5 000	0	7 500	12 500	0	0	0
Møbler til møterom og representasjonsareal							
Datautstyr	15 000	0	22 500	37 500	0	0	0
Kopimaskin							
Annet 1							
Annet 2							
Annet 3							
Sum investering i produksjonsutstyr		0	30 000	50 000	0	0	0
Inflasjonsjustering		100,0 %	102,5 %	105,1 %	107,7 %	110,4 %	110,4 %
Totale investeringer i produksjonsutstyr		0	30 750	52 531	0	0	0
AVSKRIVINGER							
Avskrivningstid kontorutstyr	3 år						
Avskrivningstid produksjonsutstyr	5 år						
Avskrivning kontorutstyr							
Avskrivning på utstyr investert i 2011		0	0	0	0	0	0
Avskrivning på utstyr investert i 2012			10 250	10 250	10 250	0	0
Avskrivning på utstyr investert i 2013				17 510	17 510	17 510	0
Avskrivning på utstyr investert i 2014					0	0	0
Avskrivning på utstyr investert i 2015						0	0
Totale avskrivninger på kontorutstyr		0	10 250	27 760	27 760	17 510	0
Avskrivning produksjonsutstyr							
Avskrivning på utstyr investert i 2011		0	0	0	0	0	0
Avskrivning på utstyr investert i 2012			0	0	0	0	0
Avskrivning på utstyr investert i 2013				0	0	0	0
Avskrivning på utstyr investert i 2014					0	0	0
Avskrivning på utstyr investert i 2015						0	0
Totale avskrivninger på produksjonsutstyr		0	0	0	0	0	0
Totale avskrivninger		0	10 250	27 760	27 760	17 510	0

Appendix 2 - Quantitative Data

Criteria for country selection														
Country	Population			GDP		Electrification rate		Corruption score	Doing business rank	Solar radiation (kWh/m ² /day) Data very uncertain	Overall economic freedom	Norwegian presence	Feed-in-tariffs	Rural electr. plan
	Total	Density (people/km ²)	Rural percentage	Total	Per capita	Rural	Urban							
Angola	1,85E+07	15.2	42.4	1,08E+11	5812.0	0.7	10.7	38.0	1.9	163.0	46.2	9	4	8
Bangladesh	1,62E+08	1263.0	72.4	2,30E+11	1416.3	5.7	28.0	76.0	2.4	107.0	53.0	9	5	7
Botswana	1,95E+06	2.5	39.7	2,61E+10	13384.5	-3.7	12.0	68.0	5.8	52.0	68.8	5	2	7
Ethiopia	8,28E+07	75.9	82.7	7,74E+10	934.4	8.7	2.0	80.0	2.7	104.0	50.5	9	5	6
Ghana	2,38E+07	107.0	49.2	3,70E+10	1552.4	4.7	23.0	85.0	4.1	67.0	59.4	0	0	0
India	1,16E+09	408.0	70.2	3,78E+12	3270.1	7.7	52.5	93.1	3.3	134.0	54.6	0	0	0
Indonesia	2,30E+08	128.0	47.4	9,66E+11	4198.8	4.5	32.0	94.0	2.8	121.0	56.0	0	0	0
Kenya	3,98E+07	71.8	78.1	6,26E+10	1572.6	2.6	5.0	51.3	0.0	0.0	0.0	0	0	0
Mozambique	2,29E+07	29.8	62.4	2,03E+10	885.2	6.3	6.3	21.0	2.7	126.0	56.8	0	0	0
Namibia	2,17E+06	2.7	62.6	1,39E+10	6410.1	-0.8	13.0	70.0	4.4	69.0	62.7	0	0	0
Nepal	2,93E+07	208.0	82.3	3,39E+10	1154.7	4.7	34.0	89.7	2.2	116.0	50.1	7	0	6
Nicaragua	5,74E+06	48.5	43.0	1,52E+10	2641.0	-6.0	42.0	95.0	2.5	117.0	58.8	0	0	0
Nigeria	1,55E+08	174.0	50.9	3,41E+11	2203.3	5.6	26.0	69.0	2.4	137.0	56.7	0	0	0
Tanzania	4,37E+07	50.8	74.0	5,76E+10	1355.7	5.5	2.0	39.0	2.7	128.0	57.0	0	0	0
Uganda	3,27E+07	169.0	87.0	3,98E+10	1217.0	7.0	4.0	42.5	2.5	122.0	61.7	10	7	9
Vietnam	8,73E+07	274.0	71.7	2,58E+11	2953.1	5.3	85.0	99.6	2.7	78.0	51.6	9	4	7



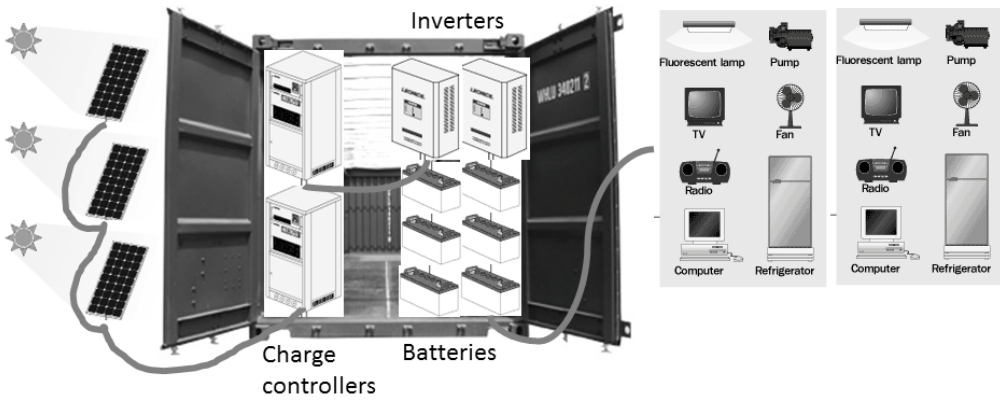
Appendix 3 – Product sketches

Modularized solution

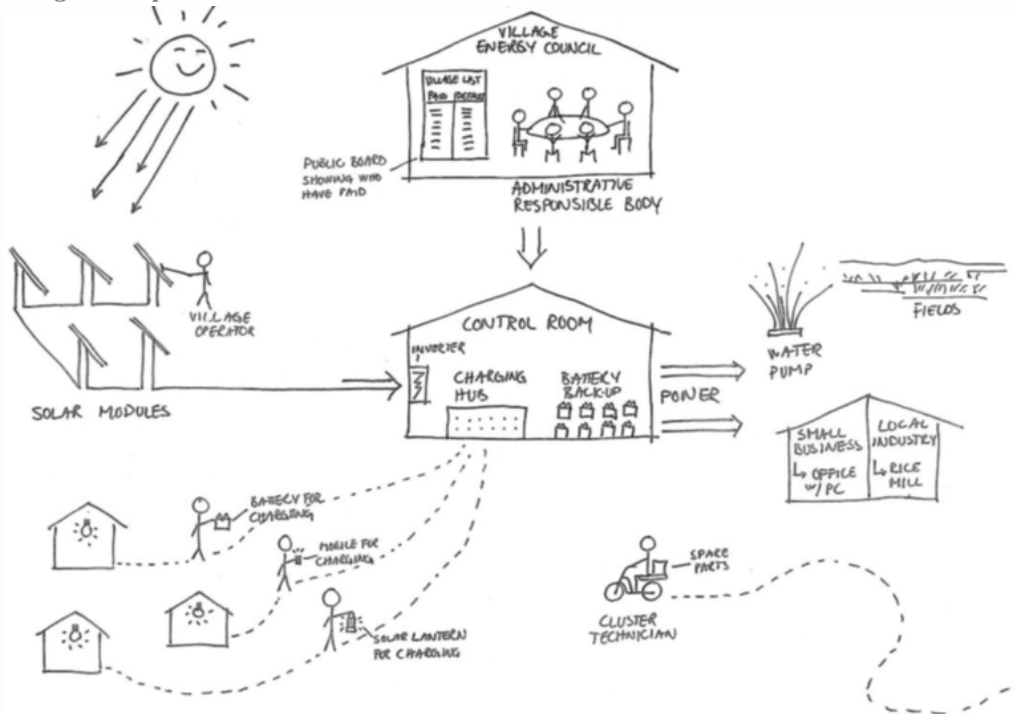
Solar arrays

Container-module

Application areas



Mini-grid setup



Source: Scatec Solar

Appendix C

Business plan autumn 2011

Executive summary

Need and Market Opportunity

Only 16.1% of Kenya is electrified. This means that there are a lot of businesses without access to the national power grid. Today they typically rely on diesel generators to provide them with electricity. Diesel generators have high operating costs, need refueling often, pollute and fuel costs are likely to rise significantly.

The rural businesses in east Africa need a simple solution they can order without technical insight or an industry overview. They want a turn-key solution which reduces their monthly cost of energy without high investment costs, pollutes less and is reliable all year around.

Business description

RESolar reduces businesses electricity costs by providing them with a solar power plant that they pay for with monthly installments that are the same as their current energy bill, until it is paid down. When the plant is paid down they will have a very cheap energy source for the rest of the panels' lifespan. RESolar makes sure the customer only needs to place an order and we take care of the entire process and deliver a fully functioning solar power plant. The target customer is a business or mini-grid owner or others that use a substantial amount of electricity that are not connected to the national power grid, and use diesel generators as their primary energy source today.

RESolar is the first company in Kenya to deliver solar power plant solutions that utilize both Feed-in-Tariffs (FiT) and the Clean Development Mechanism (CDM) of the Kyoto protocol to give additional margins and enable a lower sales price.

Macroeconomic drivers

- FiT has just been established in Kenya, opening up for a lot of new possibilities.
- Fuel prices increases and is expected to rise significantly in the future.
- There is an international focus on renewable energy
- Solar energy prices has fallen with over 70% over the last ten years
- The CDM-program has an application deadline 31.12.2011; through this program we can sell carbon quotas from our plants. This cannot be done easily outside the CDM-program.
- East Africa as the most stable economy in the emerging markets in Sub Sahara Africa, and have shown high interest and willingness to pay for better solutions
- East Africa is supported by plural international foreign aid programs

What RESolar delivers

RESolar delivers a complete loan-financed solar-power-plant solution to the customer through a financial partner with monthly installments at the same amount as their present energy expenses. Our organization will outsource all power-plant design, dimensioning, logistics, construction and installation to our upstream partners, and focus on our three core activities; sales, building programming and acquiring renewable energy incentives. Our business model is to build margins through selling power plants and keeping CDM and FiT in RESolar for all plants we deliver.

Substitutes and current solutions

To solve the problem at hand there are several options, ranging from doing nothing to extending the national power grid and build large-scale power plants. Among the more sensible solutions for rural

electrification are using diesel generators or small renewable energy plants on a mini-grid. Solar energy is the more versatile renewable energy source, especially near equator. The best renewable alternatives besides solar are hydro and bio generated electricity. They require a nearby river or large amounts of bio mass that can be challenging to collect in the vast areas of rural Kenya.

Management Team

The concept originators, Jørund Buen and Kristian Tangen previously co-founded Point Carbon, and have extensive knowledge about the international energy market, clean development mechanisms, and how to utilize them. They also have a lot of experience in dealing with the energy and resource management politics.

Buen and Tangen are joined by three graduate students from the NTNU School of Entrepreneurship, Stian Mundal, Erik Thorp and Andreas Michelsen. The students have diversified backgrounds and knowledge about; civil engineering, sales, petroleum technology, and industrial economics.

Financial Overview

To successfully launch RESolar our current financial projections suggest we need 10 MNOK to attain a positive cumulative income in 2017.

In 2017:

- Revenue of more than 97 MNOK
- Cost of goods sold of 63 MNOK
- Total operating expenses will be at 19 MNOK
- EBIT is 15 MNOK.

Numbers in 1'000 NOK	2012	2013	2014	2015	2016	2017
Income	1 740	16 320	31 440	50 748	72 679	97 356
Gross Margin	-	660	4 296	11 050	21 072	34 460
(EBIT) Operating Profit	-3 420	-4 030	-2 426	1 422	7 454	15 360

In total, at the end of 2017, RESolar's 26 employees has sold and built 122 power plants.

Exit Strategy

Our execution strategy allows for plural exit possibilities. There are several milestones throughout the project and the strategy is design to allow an early exit. In 2014 the first exit window opens, as RESolar has built a self-sufficient organization and can be phased out of the company with limited effects on the daily operations.

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Introduction

As energy prices are rising, the demand for renewable energy sources increases. Environmental initiatives have led to new ways for increasing revenue in firms selling environmental friendly solutions. Feed-in-Tariffs (FiT) are established in most of western countries and is starting be established in many developing countries. FiT solutions means that the producer of “green power” will receive governmental support, often in the form of a fixed price per kWh produced.

There are also exiting possibilities in the carbon quota market through the Clean Development Mechanism (CDM) of the Kyoto Protocol. This means that industrialized countries could invest in emission reducing measures where it is cheapest. The emission reduction can then be capitalized in the form of sales of carbon quotas. The CDM will be up for re-evaluation in 2012, and the window for getting CDM might very well be closing.

Businesses in rural parts of developing countries see the benefit of having electricity and they are willing to pay for it. They are often far from the national grid and typically the source of electricity has been diesel generators. As diesel prices are increasing, renewables are becoming more and more relevant.

Photo Voltaic (PV) technology has had a continuous improvement and the prices for solar power has dropped 70% the last ten years. All these trends opens exciting possibilities to deliver renewable energy to places where there have been little or no electrification earlier, RESolar want to tap into this market.

Facts and abbreviations

<i>CDM</i>	Clean Development Mechanism is a part of UN's Kyoto Protocol allowing industrialized countries to reduce carbon emission in developing countries instead of their own, to reduce the cost of these reductions.
<i>Green incentives</i>	Common denomination to incentivize development of renewable energy sources
<i>Building programme</i>	A document that describes the technical attributes and needs which the finished power plant must deliver. A foundation for the power plant designers to conduct their dimensioning.
<i>REA</i>	Rural Electrification Agency in Kenya
<i>KPLC</i>	Kenya Power and Lighting Company
<i>Asantys</i>	German system integrator operating in Kenya that handles the process from dimensioning to maintenance.
<i>African Solar Designs</i>	Nairobi-based renewable energy company, specialized in design of rural solar power plants
<i>BOP</i>	Bottom of the Pyramid, defined as people living for less than 3000USD per year
<i>Brownout</i>	Significant drops in voltage, enough to harm electric equipment
<i>Blackout</i>	Complete power outtakes
<i>Solar energy</i>	Common term for electrical energy generated from energy from the sun
<i>PV</i>	Photo voltaic
<i>FIT</i>	Feed-in-tariffs; subsidies paid to energy producer per kWh
<i>RES</i>	Renewable Energy Sources
<i>RE</i>	Rural Electrification
<i>PPA</i>	Power purchasing agreement
<i>POA</i>	Program of activities connected to a CDM-project

The cluster

There are many places where there is a demand for electrification solutions, but not all of these places are good places to do solar business. A set of criteria was chosen to select the countries to enter. The criteria where:

- Market size and rural population without electrification
- Solar panel potential, solar radiation and FIT
- General economics and business environment in the country
- Norwegian presence in the country

A large number of data points were gathered to find the answer to these criteria, full list of data points and calculations could be found in exhibit 2. An illustration of the result is shown in Figure 1.

As seen from the figure, India is rated as the top country from our set of criteria, followed closely by Kenya and Uganda. India has the most competitive landscape when it comes to bringing new renewable solutions to the market, and in addition India is very suitable for biomass solutions which currently are cheaper than solar powered electricity. The competitive landscape is completely different in the African countries, development has been slower there, and there is a lower biomass potential.

Among the African countries Kenya, Uganda and Tanzania are among the most political stable, has the best business environment, a government with a focus on green energy and is easily accessible for supplies since it lies near the coast. These factors, among others, make them ideal for RESolar.

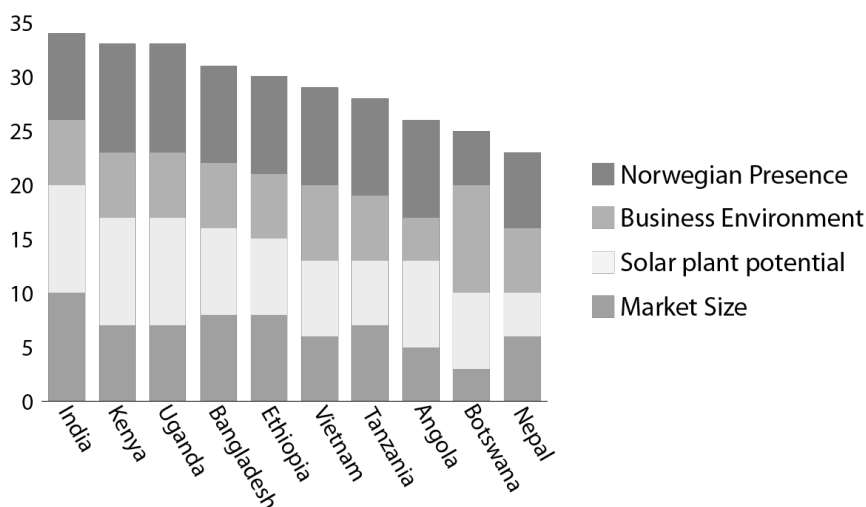


Figure 1 Mapping of the potential for doing off grid solar business in different countries. The categories are weighted 10 points. Norwegian presence bases itself on the presence of a Norwegian embassy or consulate and if there are Norwegian companies already doing business there. Business environment consists of different business rankings. Solar plant potential is the combination of the amount of solar radiation and the governmental incentives for doing solar energy. Market size is the amount of rural population living without electricity. For detailed numbers and calculations see exhibit 2.

Kenya

Quick facts

<i>Population</i>	41 Million
<i>Living in rural areas</i>	78 %
<i>Land area</i>	580,000 km ²
<i>Feed in tariff for solar</i>	\$ 0.2/kWh
<i>Electricity spread (rural and urban)</i>	Rural 5%, Urban 51.3 %
<i>Global doing business rank</i>	98/183
<i>GDP</i>	\$ 32.163 billion

The reasons why Kenya has been chosen to be the first market to enter are:

- Stable, English speaking country with good regulatory environment
- Government focus on green energy
- \$ 0.2 per kWh FIT for producers between (0,5 - 10 MWh)
- Open for foreign business
- Kenyan Power and Lightning Company, KPLC, which is governmental owned, stated that they want external actors to support their diesel grid with solar electricity¹
- As a coastal country in East-Africa, logistics to the capitol Mombasa is fairly simple and the roads are also very good compared to the African standard
- Possible to get support and funding from NORFUND (The Norwegian governments investment fund for business in developing countries)
- There is already an established market for renewable energy solutions in Kenya, also in the rural areas. RESolar are in contact with both possible suppliers and customers already present in Kenya.

¹ Henry Gichungi, Engineer at KPLC, Solar Transitions workshop UIO, February 12, 2010

The Need and Pain

Our target customers use diesel generated electricity operated off the national grid.

Pain

Diesel generators have high operating costs, need refueling often and they pollute. Fuel costs are likely to rise significantly in the future and pose a financial risk because of the price uncertainty.

Need

Our customers need can be divided into three different jobs to be done:

- Reduce production cost for electricity
- Reduce pollution and harmful emission - become green
- Reduce financial risk that the price sensitivity on diesel pose

Small electricity producers in rural parts of Kenya often have small operating budgets that make them unable to make the large investments usually required to switch to renewable energy sources. To enable a switch they have a need to keep their monthly payments at the same level as their current expenses; this reveals a need for financial solutions when investing in green electricity.

The Solution

As indicated above, a solution to the problem at hand ideally needs to solve four jobs, and overcome the problem with the limited cash available for a large upfront cost. It will have to cut operating expenses at the same time as it pollutes less. There are of course several options to solve this problem.

The three main options available for an owner of diesel generators are:

- Alternative fossil fuel sources like a gas turbine.
- Still high operational costs
- Connect to the national power grid
- A very large investment cost, extremely long ROI
- Subject to power shortage, black out and brown outs
- Alternative off grid energy sources, Hydro, Bio, Wind and Solar
- The green alternative
- High investment costs
- Needs technical insight to find an appropriate solution in each case
- Needs a backup solution for when nature doesn't provide

Characteristics of the different green alternatives:

- Hydro energy is fairly cheap, but needs larges streams of water
- Bio energy is fairly cheap, but bio mass can be labor intensive to gather and requires large quantities of livestock or fertile land areas
- Solar energy has a high investment cost, but low maintenance costs, and the sun is accessible everywhere in Kenya
- Wind energy has very high investment costs and depends on enough wind. Is generally more expensive per kWh than the other three alternatives.

The table above concludes that solar electricity will be the best solution at most of the sites in rural East Africa, where it's not possible to connect to the national grid.

Solar generated electricity is both cheaper and more environmentally friendly than most other options. RESolar delivers a solution based on photovoltaic solar panels together with some electronics, including inverters, batteries and charge controllers. This combination reduces operational cost to a matter of cleaning and protecting the equipment. The drawback of solar electricity is that the sun only up half of the day. Our solution is mainly directed towards customers that already have a diesel-based solution in place, and want to support this. The cheapest solution to provide energy at night is to keep the diesel generator for when solar energy is not available, but we will hold the possibilities open to create solutions that will include enough batteries for full 24 hour operation from solar.

RESolar will focus on getting solar power out to the rural areas by combining all the different parts necessary for selling, planning, building and financing. By being a hub for all the necessary parts for building the plant we will ease the process from buying the plant to it is delivered turn-key ready for our customers. We will be able to do this cheaper than the rest of the industry by managing the green incentives, FIT and CDM, that follow these types of investments. We will deliver the hub service in itself very cheap, but then keep the revenue stream from FIT and CDM for ourselves. Our customers could not attain FIT or CDM on their own since their plants will be below the size required. This will give us a continuous revenue stream into the company that would cover for the small margin of the building project.

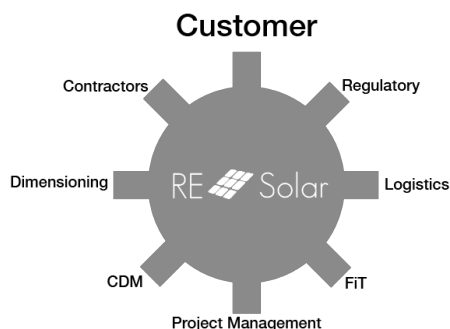


Figure 2 RESolar will act as a turnkey provider for the customer and connect of all the different parts and actors needed in the process of building their power plant.

Because the need for electricity at different sites will vary a lot, we have chosen to do calculations on one specific site, where we found the need for solar to be around 60kW in solar panels. For the complete production of a plant of this size, the cost to the end user will be around 288 000 dollar, this would decline as prices for panels go down. The payback time for the customer is very dependent on the price of diesel and efficiency of the generator. Compared to a new, efficient diesel generator for a micro-grid at maximum efficiency, that produces electricity at around 0.4\$/kWh, our plant will have a payback time of around 15 years. However a generator rarely operates at maximum efficiency, and usually the generator may deliver electricity at 0.5-0.7\$/kWh; this gives a payback between 6 and 11 years. All calculations are done with 8% interest and with an assumed constant diesel price.

Value Proposition

The cheapest turn-key solar power solution delivered in Africa. We figure out your needs and deliver the perfect solution, with no change in current payment behavior at a lower cost.

Peace of mind, turn-key solution

- From order to finished plant, we make sure the entire process runs smooth
- The customer will not need technical insight or knowledge of the market, we will work with them to find the best solution

Reduce monetary expenses, hence reduce the switching costs

- Provide monthly expenses at the same price, or lower, than today's diesel expenses through a financial loaning partner

Greener environment

- PR, good for tourist centered activities
- Better local environment for customers, noise and local pollution

Reduce financial risk

- Diesel prices are uncertain and expected to rise, our down payments are not.

The Industry

The electric power industry in developing countries is huge and underserved. In countries like Kenya, Uganda and Tanzania only fractions of the people living in rural areas have access to electricity through the national grid. The main transmission lines are shown in Figure 4. The total electricity consumption in Kenya was 4.86 Billion kWh, an according to the Kenyan Department of Energy it is suspected to grow with an annual 9% the next two decades. The world market for micro-grids was 4.14 Billion USD in 2010, and is projected to have a significant growth the next ten years.

The industry is generally divided into four parts, electricity generation, transmission, distribution and retailing. The four parts is shown in Figure 3. One could also divide the industry into four other categories defined by their size; national grid, mini-grid, micro-grid and home systems. The national grid in Kenya is mainly powered by hydro and thermal energy.

For mini-grids there are typically no need for transmission lines, because of the limited power and short distances, leaving only power generation, distribution and retailing. In Kenya the whole process is usually done by the same company. There are some 15-20 large state owned mini-grids, where a few is owned by KPLC and the rest by the Rural Electrification Agency. These are mostly diesel powered. KPLC has stated that they are open for private companies to come and support these state owned mini-grids with green power. This could be an exciting possibility in the future, but the procurement process in the government is long and as a new actor it is difficult to gain entrance here.

Grids that are even smaller than the mini-grids are often called micro-grids. Micro-grids are most often owned and run by private companies in the region they deliver electricity. These micro-grids often support one village, a couple of houses, a NGO or a business. As with the mini-grids, micro-grids are often operated by one company doing the generating, distribution and retailing, but in the micro-grid, the operator is often also the user.

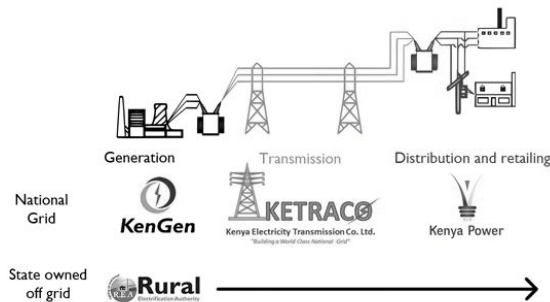


Figure 3 Components in Kenyan power industry

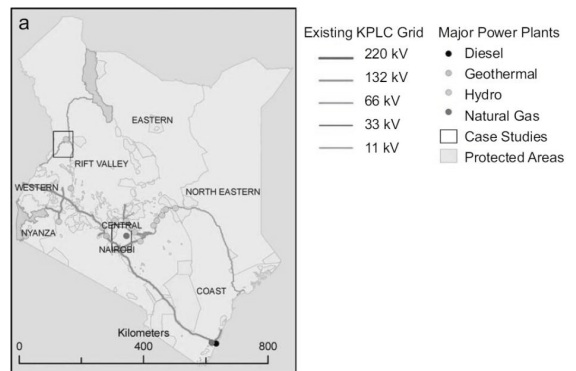


Figure 4 Main transmission lines

RESolar will focus on the micro-grid segment, where one actor cannot receive FIT and CDM on their own because of their small size. Micro-grids are most often privately owned, making the process of selling simpler. Today many micro-grids in Kenya are powered by diesel, and as fuel prices are going up, it will become more profitable to support the existing diesel grid with solar power.

Five forces analysis

Threats of new entrants

There will be similar entrants, but since the market is vast, the chance of them choosing the same spot as us when we are established is small. The unlikeliness of new entrants in the micro-grid market acquiring CDM and FiT also offers a degree of protection.

Bargaining power of customers

RESolar is targeted for customers in rural areas with no access to the main power grid. This leaves them with few options for alternative power solutions apart from the diesel generator they use today. Unless hydro power is available, RESolar's product will be the most profitable choice.

Bargaining power of suppliers

RESolar will rely on components and partners that are easily acquirable from other sources. This gives us high bargaining power towards our suppliers and little risk of not being able to acquire the resources needed.

Rivalry among existing firms

We are going to deliver a service that is different than the way power plants are delivered today. This makes this force a low threat to our business.

Threat of substitute products

Several products can threaten our value proposition. Smaller PV home systems, expansion of the national grid and large actors in rural electrification might all interfere with our plans. Small, cheap systems might be attractive in certain areas with only small businesses. Where there is demand for more power, larger systems, like ours, will be needed. The expansion of the grid is also a threat, but is considered unlikely as this is an extremely expensive option in most cases.

Business Model

To map out our business model we have chosen to use the Osterwalder business model canvas. The canvases with the nine boxes are shown Figure 5. Under we have filled out the boxes to create the business model we will have.

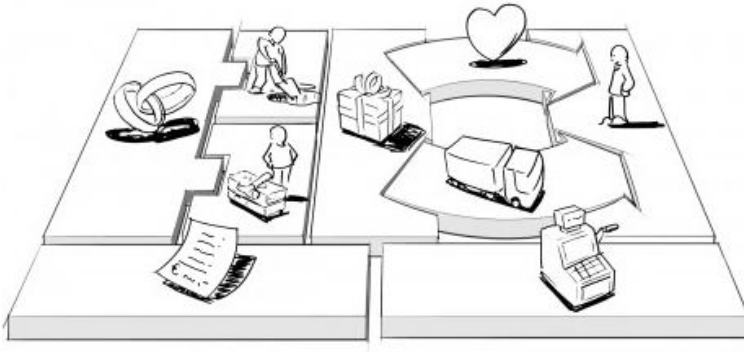


Figure 5 Osterwalder's Business Model Canvas

Value prop.

The cheapest turn-key solar power solution delivered in Africa. We figure out your needs and deliver the perfect solution, with no change in current payment behavior at a lower cost.

Customer relations

- Site inspections
- Feedback loops
- Key account managers

Customer segments

- Tourism operators
- Diesel grid operators
- NGOs

Channels

- Direct sales force
- Conferences and trade shows
- Cold calls
- Customer leads and networks

Revenue stream



- Sale of power plant deployment
- Feed-in-Tariffs
- POA and CDM

Key activities



- Manage sales force
- Acquire new customers
- Customer management
- Partner management
- Keep FIT
- Building programme development

Key resources



- CDM acquisition
- Sales competencies
- Account management competencies
- Market insight
- Financial instruments

Industrial partners



- Solar PV plant dimensioning firm (Asantys)
- Solar PV plant installer (Contractors)
- Parent Company (Differ)
- Pilot customer (Basecamp Explorer, Grid operators)
- Development aid companies (Innovation Norge, Norfund)
- Government bodies (REA)
- Maintenance crew
- Shipping and logistics partners
- Financial companies/Loan providers (SG Finance, Norfund)

Cost structure



- Order plants
- In-house Sales force
- In-house building programme management
- Project management

RESolar acts as a building project initiator that acquires most of its profits through innovative revenue channels such as Feed-in-Tariffs and CDM-projects. Our in-house activities; ordering plants, keep a sales

force, building programme development and manage green incentives will be our main cost drivers. The rest of the key activities needed to deliver our value proposition we will outsource to our key partners. A model showing the process is shown in the figure below.

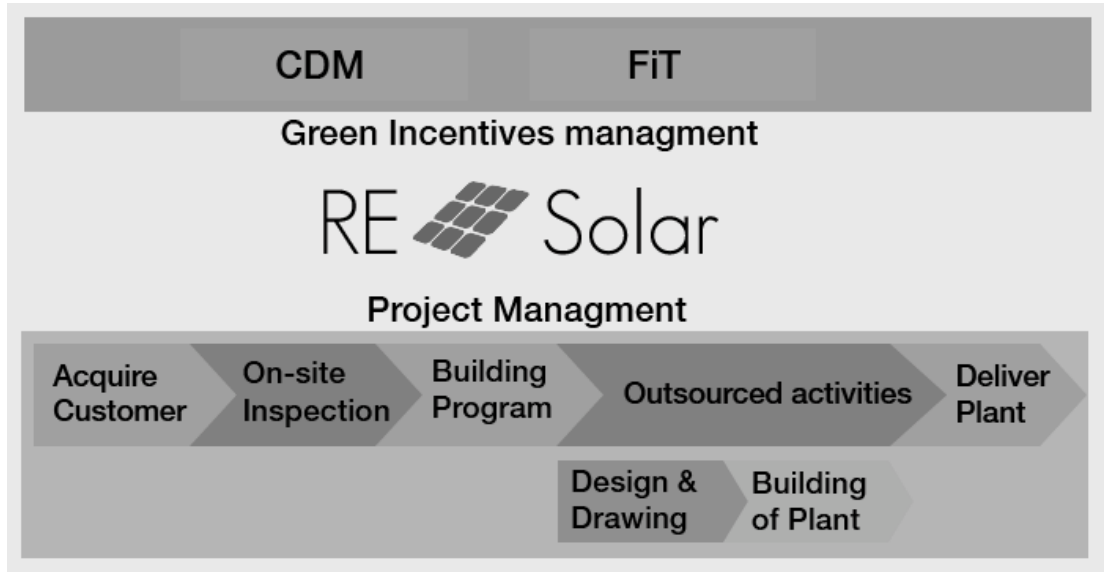


Figure 6 RESolar's Business Model

We chose to outsource project management, dimensioning and construction because these activities are hard to scale fast. We therefore chose to not do these activities in-house because we are relying on fast scaling to get reasonable revenue from CDM and FIT. Since the job of operating a power plant demands a lot of resources, is hard to scale, we chose to not include this activity in our operations. We will also not own any power plants as this is highly capital demanding and involves a high degree of financial risk.

Market plan

Sales strategy and customer acquisition

To this project; word-of-mouth marketing, TV, radio and similar advertisements will not add a lot of value. Personal contact with the customers is the only way we can sell projects, and this is only possible if we find our customers ourselves. We need exposure at conferences, trade shows, industry gatherings and other similar arrangements. In addition we need to map our potential customers as well. By using our “job-to-be-done” customer segmentation, we will identify our customers and look for contact points into the firm, either through common affiliates within our network, or by cold calling through email, phone and/or personal appearances at their offices if all else fails. Here we need to contact the influencers or the decision makers. We need to find out how and where we will look for potential customers. There are no complete databases over our potential customers available.

Once initial contact is established, we will set up a meeting and figure out their specific needs. We will then construct a sales pitch adapted to this. Here, it's key to locate the decision makers and conduct the meeting with them. The sales pitch and the procurement process is subject to further research. When our sales persons have established a need for a solar power plant, we will conduct a site inspection together, to make the customer feel ownership over the need at hand. Before this is initiated it is crucial to semi-close with a letter of intent. The goal of the inspections is to create a building programme and tender document that our customers agree upon, and then close the sale. During each meeting it is crucial to be alert for leads and key contact points to other potential customers.

Customer development

Pilot customer [2012]

Basecamp Explorer or similar safari tourist camp who wants green electricity. Basecamp have an established relationship with our concept originators. We have already conducted two meetings with them, and we need to close a pilot customer within Q2 2012.

Questions we need answered:

- How will we approach a close with basecamp or a similar customer?
- How is the procurement process for basecamp, how many decision makers are there?
- What do they need to make a decision, what kind of information?
- Purchasing criteria/decision points needs to be mapped.

Profile of beachhead customer [2013]

We will start to map potential customers as soon as the contract with our pilot customer is signed. When construction of the pilot project is completed we will start to conduct sales meetings. Our beachhead customers has to be early adopters, own an off-grid diesel power plant and have cost reductions as main incentive. There needs to be an already established mini-grid or that only a fairly small area of outreach is needed. Preferably there is no procurement process and one or few decision makers. The customer should either know about or trust our pilot customer. This will typically be other safari camps or some of the NGOs in the area.

Scaling strategy

In short our philosophy is go big or go home. We will start to scale with the first customer after proof of concept.

Project management

We will hire external competence from Norway to conduct the building programme development for our pilot customer. This building programme expert will continue on a retainer out Q1 2014, and train up two Kenyan employees in our first beachhead customer project in Q2 2013. He will then step up as a building programme overseer at the next projects and make sure that our new hires get the help they need the first year. The two most skilled and experienced local hires will take over as building programme overseers when the retainer for the Norwegian expert runs out. One of these two skilled local employees will be trained to be COO of West Africa in the future.

Sales management

The founding team will close the sale with our pilot customer in Q2 2012. When our pilot project is built, and we have a proof of our concept we will hire a local sales representative and one of the founders will train him while they attend customers meeting together in Q2 and Q3 2013. We will hire two new sales persons in Q4 2013 and train them as they attend customer meetings together with one of the founders and the previously hired sales representative. In Q1 2014 the founder and the most experienced sales representative will step out as sales manager and further train two new employees. In Q2 2014 the founder will step out and let the most experienced sales representative become VP of sales and manage the four sellers.

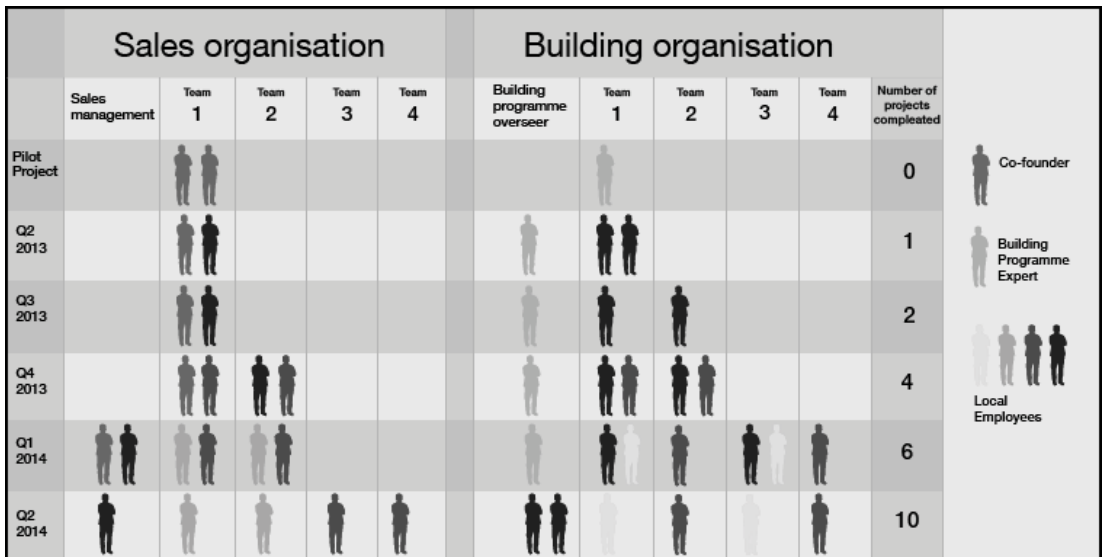


Figure 7 Sales and build programming organization development

Distribution Channel

The distribution and logistics of the solar power plants will be outsourced and mainly handled by the hired construction project management. However, we have a stake in reducing costs of the power plants, and will therefore try to help optimizing this as much as possible.

Operations

RESolar delivers a turn-key solution and acts as a project overseer for our customers. In the first stage of our development, to shorten our time to market as much as possible, we will outsource most of our operations. In this first phase RESolar will mainly act as a sales company with in-house building programme development. Through our expertise in CDM, FIT and financial solutions, we will be the perfect choice for customers in need of smaller solar plants where price is of the essence. Both logistics and manufacturing will be handled by partners, such as Asantys or African Solar Designs. RESolar's sales personnel will acquire customers, figure out their specific needs and customize an order for a power plant. This order will be fulfilled by our partners all the way through installation. We will also partner up with local companies to offer maintenance and other after sales services to our customers.

After some years of only having sales and building programme development in house, RESolar will gradually evolve the company to include more parts of the value chain. Through expanding our set of core capabilities we will raise our margins. This will of course require significant growth in the organization, requiring several more employees which also create a need for more comprehensive secondary activities.

At the start of phase one most operations will be done from our offices in Oslo, Norway. During this phase we will work towards establishing an office in Kenya, most likely in Nairobi, due to its convenient connections with Europe. When evolving into phase two the local attachment will become very important as the level of direct cooperation with Kenyan contractors increases. It is important that RESolar builds a self-sufficient organization so that the founders can be phased out of the company with limited effects on the daily operations upon an exit.

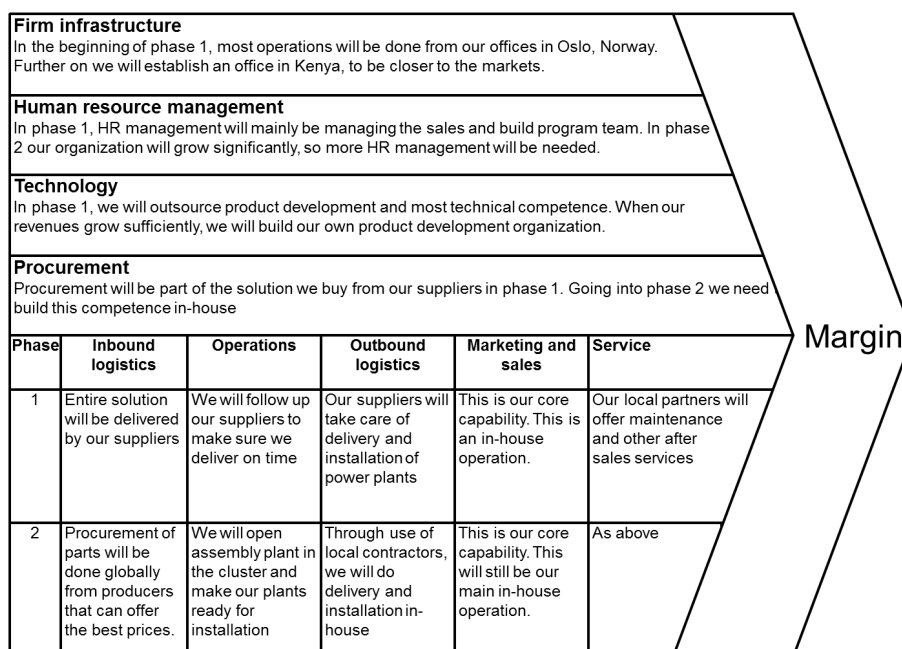


Figure 8 RESolar's Value Chain

Project life cycle

In the first phase, since we outsource both dimensioning and building, our power plant projects will follow the following time frame:

	Sale Closed	1 Month	2 Month	3 Month	4 Month	5 Month	6 Month
Get Building Permit							
Building Programme							
Dimensioning of Plant							
Building of Plant							

Figure 9 Project development life cycle

Key milestones

Solution

Q4 2011	Clarify if RESolar is CDM-eligible
Q4 2011	Confirm the legal issues around FiT
Q4 2011	Close deal with strategic partner on technology - Sign a Letter of Intent with Asantys or a comparable supplier
Q1 2012	Confirm that our business model will work out in collaboration with BaseCamp Explorer or an equivalent customer. Make necessary changes to our model to make it suit our customer needs.
Q1 2013	Complete construction of pilot project plant.

Market

Q2 2012	Attract media coverage - After first sale
Q2 2012	Closed sale for pilot project
Q2 2013	Start our sales scaling as outlined in Market Plan
Q1 2013	First sale after pilot project

Organization

Q3 2011	Establish Norwegian HQ in Oslo
Q4 2011	Incorporate company
Q1 2012	Establish partnership with financial partner - Establish a financial solution with Norfund or similar
Q1 2012	Field trip to Kenya. Work with pilot customer, legal issues and strategic partner. 3 founders deployed in one month
Q2 2012	If the field trip yields positive results we will return to Norway to complete our Master degrees and hire a specialist in programming solar building projects.
Q3-2012-Q3-2013	The three founders will be in Kenya. It will be necessary that the founding team moves to Kenya to establish an office and operations in Nairobi or another suitable location.
Q4-2012	Begin process of hiring Kenyan building programmers and sales persons
Q4-2013-Q2-2014	Two founders in Kenya. One of the Norwegian management team will return to Oslo
Q3-2014->	Due to the African business culture it will be necessary that at least one executive remains in Kenya from Q3-2014 and onwards.

Economic

Q4 2011	Support from NTNU Discovery
Q4 2011	Support from Innovation Norway
Q2 2012	Closed series A founding round
2015	Reach positive annual result
2017	Positive accumulated cash flow

Organization

Management Team

Jørund Buen

Co-founder of Point Carbon. Expert on the project-based mechanisms under the Kyoto Protocol (Clean Development Mechanism and Joint Implementation). Has published extensively in professional journals and books on climate policy and politics as well as the role of policy instruments and politics in stimulating new renewable energy innovation.

Kristian Tangen

Co-founder of Point Carbon. Has extensive knowledge about the international environment, energy and resource management politics after working as a researcher at Fritjof Nansen Institute for 7 years. He sat as Director for Point Carbon since 2002 until 2008 and had three years after that as senior expert in the same company.

Andreas Michelsen

Student NTNU School of Entrepreneurship. Technical background from geology and petroleum technology with specialization in Environment and Natural Resources Engineering. Two years in The Norwegian maritime special forces and contributed in the startup of a tourist company in South Africa in the summer of 2010.

Stian Mundal

Student NTNU School of Entrepreneurship. Civil Engineering background, with project development and management as the main focus. Has participated in two Norwegian start-ups that both had sales as their core capabilities. He has also worked as a sales trainer and sales leader.

Erik Thorp

Student at NTNU School of Entrepreneurship. Background from industrial economics and technology management and has a specialization in computer sciences, project management and business strategy. He has worked as an intern consultant for Cap Gemini.

Differ

Differ will be the parent company that RESolar will fall under when proof of concept has been established. Differ was started by Jørund Buen and Kristian Tangen, and aims to be a company dealing with different types of renewable energy projects in developing countries. Differ is currently in the process of hiring a CEO from the solar industry which would be to great help for RESolar. Differ has already established offices in Oslo this summer. Company structure is shown in Figure 10. Differ will function as a parent company for RESolar where transfer of knowledge and competencies should flow easily.

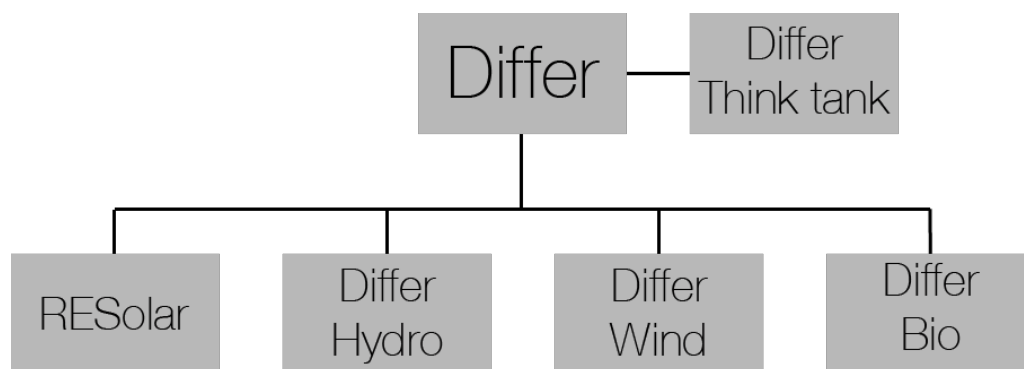


Figure 10 Organizational Chart of Differ

What core capabilities does RESolar need?

<i>Capability/Resource</i>	<i>Do we have it</i>	<i>Who has it/how will we acquire it</i>
CDM-application and acquisition	Yes	Jørund and Kristian has in-depth knowledge and network in this field.
Insight/Knowledge about the Kenyan market	No	Feasibility studies in the country, Strategic partnership with African Solar Designs, Asantys or the like.
Knowledge about the local regulatory environment	No	We need legal advisory
Legal regulations around FIT	No	Build network with the institutions in charge and get advisory from local legal experts
Building programme development and project management	Partially	This is part of Stian's Bachelor's degree, but we need an experienced manager. For building programming, we will hire a specialist to train the in-house work force. Building project management will be outsourced.
Project management	Partially	Stian has some knowledge from his education. We will hire a specialist to train an in-house work force, ref: Market plan.
Sales force management	Yes	Stian has knowledge and experience from prior start ups
Creating Financial Products	No	We are looking for partners that can contribute with this
Technical insight	Yes	Jørund and Kristian is in the process of hiring an executive from the Norwegian solar industry to work for Differ.

Risk Analysis

<i>Risk</i>	<i>Probability</i>	<i>Impact</i>	<i>Mitigation strategy</i>
We are not eligible for FIT	Medium	High	If we are unable to make the project work without FIT, we will need to change entry market
FIT are reduced or withdrawn	Low	High	Lobby through Norad and Norfund to reinstate FIT. Or threaten to withdraw our operations from Kenya or change our business model to function without FIT
We are unable to create financing solutions (No Norfund-support)	Medium	High	Financial solutions are an essential part of the product we deliver. Either Norfund or commercial banks will be a critical strategic partner. If we don't succeed here we will need to reevaluate the feasibility of the startup deliver. Either Norfund or commercial banks will be a critical strategic partner
Legislation implies we have to own power plants	Medium	High	If RESolar need to own power plants to retrieve CDM- and FIT-support, we have to reconsider our business model
Our upstream partners vertically integrate and snatch our customers after we have created their need.	Low	Medium	We have to stay close to our customers and make sure our value proposition is better than that our partners can offer our customers
We are unable to get a low enough price point for our customers when we outsource production and installation	Low	Medium	Reconsider if it might be financially viable to do more operations in-house and if this will lower the price point enough to attract more customers
The market is too small /We can't find enough customers	Low	Medium	Look for other markets or change our product so that we attract more customers
Trade with African customers has to be done through local partners	Low	Low	Build up an organization in Africa that enables us to trade properly
Our customers cut us out and goes directly to our partners	Medium	Medium	We have to stay close to our customers and make sure our value proposition is better than that our partners can offer our customers
New entrants arrive, with even more knowledge about FIT	Medium	Low	Partner up or outcompete them.
Uneducated market - they don't know their need	Medium	Low	The need is clear - to us. If the market needs to be educated - we will need more time to make sales
No willingness to pay	Medium	Medium	We need strong evidence that there is willingness to pay in the market before we undertake further costs. If such evidence cannot be found the project is not viable.

Several other companies are doing similar projects	Medium	Medium	We are differentiating on to key elements: Price, we need to be cheaper than most alternatives Turn-key solution, we will act as a property developer, leaving the customer with a complete solution, ready to use, with both FIT and CDM
Corruption	Medium	Low	We might miss some opportunities without bribes, but according to our values, as long as we keep our hands clean and we still can sleep at night, which is what matters in the end.

Exit strategy

We have not yet made any conclusions about possible exit strategies. This will be a discussion we have to take with the concept originators and investors. The management team finds it probable that if an exit is wanted the most likely option is to be acquired by either large investment companies like E+Co and Acumen Fund or multinational construction firms like Norwegian SN Power or other similar companies operating in Africa.

Financial plan

Main assumptions

RESolar's financial plan is based on the following assumption:

- Power plants are sold with a financial plan and RESolar receive full payment upon delivery.
- Inflation is partially accounted for, both in expenses and income.
- No tax benefits are considered
- Tax rate of 28% assumed
- Sales prices are estimated to increase 5% annually
- Product costs are estimated to decrease 2.5% annually
- CDM- and FIT is assumed to amount to 2000 NOK per kW installed each year
- Pilot customer covers prototype costs

Our income statement for the first six years of operations:

	2 012	2 013	2 014	2 015	2 016	2 017
Plants sold	1	9	16	24	32	40
Avg Selling Price	1 740 000	1 800 000	1 890 000	1 984 500	2 083 725	2 187 911
<i>Total plants built</i>	<i>1</i>	<i>10</i>	<i>26</i>	<i>50</i>	<i>82</i>	<i>122</i>
Income Statement:						
	2 012	2 013	2 014	2 015	2 016	2 017
CDM & FiT-income		120 000	1 200 000	3 120 000	6 000 000	9 840 000
Sales	1 740 000	16 200 000	30 240 000	47 628 000	66 679 200	87 516 450
Total CoGS	<u>1 740 000</u>	<u>15 660 000</u>	<u>27 144 000</u>	<u>39 698 100</u>	<u>51 607 530</u>	<u>62 896 677</u>
Gross Margin	0	660 000	4 296 000	11 049 900	21 071 670	34 459 773
CDM-application	1 000 000	200 000	0	0	0	0
Sales & Marketing	130 000	465 500	759 950	1 123 925	1 524 226	1 963 903
G&A	2 290 000	4 024 000	5 961 800	8 503 660	12 093 842	17 135 625
Total Operating Expenses	3 420 000	4 689 500	6 721 750	9 627 585	13 618 068	19 099 528
(EBIT) Operating Profit	-3 420 000	-4 029 500	-2 425 750	1 422 315	7 453 603	15 360 245
Interest Expense	0	0	0	0	0	0
Pretax Income	-3 420 000	-4 029 500	-2 425 750	1 422 315	7 453 603	15 360 245
Tax Provision	0	0	0	398 248	2 087 009	4 300 869
Net Profit	-3 420 000	-4 029 500	-2 425 750	1 024 067	5 366 594	11 059 376
Cumulative	-3 420 000	-7 449 500	-9 875 250	-8 851 183	-3 484 589	7 574 787

Sources of Funding

RESolar will initially be funded by the concept originators. Differ will invest seed capital of at least 1 MNOK in the first round of funding. We furthermore assume that they will cover eventual expenses or help with the fundraising above this before the next round of funding, due to their interest in making the project succeed.

Other possible sources of funding, especially for the second round, will be to search for new investors. Banks and government grants might also be a possible financing solution. In this round of funding there will be a need for 9 MNOK, and will most likely take place after proof of concept from our pilot customer. The current projections suggest that the total 10 MNOK gathered after this will be sufficient to scale the company and achieve a positive cumulative profit.

Sources of Revenue

RESolar's main source of revenue will be the sale of power plants. In the projections sales income constitute around 80% of the revenue. The last bit comes from FiT and CDM and gives us our competitive advantage and is the revenue source that "sweetens the deal".

Expenses and Cost of Goods Sold

Being a company dealing with infrastructure the main cost driver is the cost of the power plants. The total cost of goods sold amounts to almost 80% of our total expenses. The other 20% is then used on sales, marketing and general administration. For the first years of operations these expenses mainly consists of salaries and travelling expenses as both trips from Norway and around in the Kenyan markets will be important activities to develop the organization. Our head office in Oslo will be shared with Differ and will be fairly inexpensive. Legal advisory is also a considerable cost in the first two or three years of operations. We have to make sure that our assumptions about FIT and CDM are correct and it will also be crucial to create contracts that secure our future cash flows and reduces risk connected to the sale and financing of the power plants. Under no circumstances will we risk to become owner of several power plants in rural Kenya.

Cash flow

The cash flow is outlined in the market plan and business model and is further mapped in the financial appendices.

Sensitivity Analysis

We've chosen not to do a sensitivity analysis at this point in time because we still lack some market numbers and this is an activity we will have to do this fall.

Appendices

Appendix 1: Financial Appendix

Income Sheet

	2 012	2 013	2 014	2 015	2 016	2 017
Plants sold	1	9	16	24	32	40
Avg Selling Price	1 740 000	1 800 000	1 890 000	1 984 500	2 083 725	2 187 911
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Cumulative	-3 420 000	-7 449 500	-9 875 250	-8 851 183	-3 484 589	7 574 787

Balance Sheet

Balance Sheet						
	2 012	2 013	2 014	2 015	2 016	2 017
Cash	-3 218 333	-7 142 875	-9 702 104	-8 990 341	-3 972 833	6 626 551
A/R	217 500	2 025 000	3 780 000	5 953 500	8 334 900	10 939 556
Inventory	0	0	0	0	0	0
Other C/A	0	0	0	0	0	0
Total C/A	-3 000 833	-5 117 875	-5 922 104	-3 036 841	4 362 067	17 566 107
Fixed Assets	0	0	0	0	0	0
Acc Depreciation	0	0	0	0	0	0
Net Fixed Assets	0	0	0	0	0	0
Total Assets	-3 000 833	-5 117 875	-5 922 104	-3 036 841	4 362 067	17 566 107
Liabilities & Equity:						
Notes Payable	0	0	0	0	0	0
Accounts Payable	217 500	1 957 500	3 393 000	4 962 263	6 450 941	7 862 085
Accrued Expenses	201 667	374 125	560 146	802 299	1 134 839	1 591 627
Accrued Taxes	0	0	0	49 781	260 876	537 609
Total C/L	419 167	2 331 625	3 953 146	5 814 342	7 846 656	9 991 321
LTD						
S/E:						
Capital Stock	0	0	0	0	0	0
Retained Earnings	-3 420 000	-7 449 500	-9 875 250	-8 851 183	-3 484 589	7 574 787
Total S/E	-3 420 000	-7 449 500	-9 875 250	-8 851 183	-3 484 589	7 574 787
Total Liab & S/E	-3 000 833	-5 117 875	-5 922 104	-3 036 841	4 362 067	17 566 107

Cash Flow Sheet

Cash Flow:						
	2 012	2 013	2 014	2 015	2 016	2 017
Net Income	-3 420 000	-4 029 500	-2 425 750	1 024 067	5 366 594	11 059 376
Depreciation	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	-3 420 000	-4 029 500	-2 425 750	1 024 067	5 366 594	11 059 376
Change in W/C:						
A/R	-217 500	-1 807 500	-1 755 000	-2 173 500	-2 381 400	-2 604 656
Inventory	0	0	0	0	0	0
Prepaid Exp	0	0	0	0	0	0
A/P	217 500	1 740 000	1 435 500	1 569 263	1 488 679	1 411 143
Accr Liabilities	201 667	172 458	186 021	242 153	332 540	456 788
Accr Taxes	<u>0</u>	<u>0</u>	<u>0</u>	<u>49 781</u>	<u>211 095</u>	<u>276 732</u>
Cash Flow from Oper	-3 218 333	-3 924 542	-2 559 229	711 763	5 017 508	10 599 384
Financing /Investing Act.						
Fixed Asset Purchases	0	0	0	0	0	0
Sale of Stock	0	0	0	0	0	0
Bank Borrow (Repay)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net Financing/Inv Act.	0	0	0	0	0	0
Cash Flow	-3 218 333	-3 924 542	-2 559 229	711 763	5 017 508	10 599 384
Cash Beginning	0	-3 218 333	-7 142 875	-9 702 104	-8 990 341	-3 972 833
Cash Ending	-3 218 333	-7 142 875	-9 702 104	-8 990 341	-3 972 833	6 626 551

Product calculations

Part	Price	Income from solar production	\$/kWh	\$/year
Panels	\$ 101 177,00	Sales of power	0,7	\$ 87 721,90
Inverter	\$ 21 070,00	FIT	0,2	\$ 25 063,40
Solar tracker	\$ 30 000,00	CDM	0	\$ -
		Total income		\$ 112 785,30
Balance of system, equipment	\$ 22 020,00			
Installation labor	\$ 23 221,00	Protection and Service		\$ 20 000,00
Installer margin and overhead	\$ 24 996,00			
		Total yearly result		\$ 92 785,30
Permitting, Enviromental Studies	\$ 5 951,00			
Grid interconnection	\$ -			
Land	\$ 11 903,00			
Land Preparation	\$ 17 854,00			
Housing and protection	\$ 30 000,00			
Total Price	\$ 288 192,00			
This setup gives according to calculations in SAM				
	125 317,00 kWh per year			
Price asumptions				
Solar panels 1,7 \$ W				
Inverter 0,35 \$ W				
Solar tracker 3000\$ per 18 panels rounded down				
Rest of the numbers in SAM file				

Appendix 2: Quantitative data

Criteria for country selection								
Country	Population			GDP			Electrification rate	
	Total	Density	Rural %	Total	Per capita	Annual growth	Rural	Urban
Angola	1,85E+07	15,2	42,4	1,08E+11	5812,0	0,7	10,7	38,0
Bangladesh	1,62E+08	1263,0	72,4	2,30E+11	1416,3	5,7	28,0	76,0
Botswana	1,95E+06	2,5	39,7	2,61E+10	13384,5	-3,7	12,0	68,0
Ethiopia	8,28E+07	75,9	82,7	7,74E+10	934,4	8,7	2,0	80,0
Ghana	2,38E+07	107,0	49,2	3,70E+10	1552,4	4,7	23,0	85,0
India	1,16E+09	408,0	70,2	3,78E+12	3270,1	7,7	52,5	93,1
Indonesia	2,30E+08	128,0	47,4	9,66E+11	4198,8	4,5	32,0	94,0
Kenya	3,98E+07	71,8	78,1	6,26E+10	1572,6	2,6	5,0	51,3
Mozambique	2,29E+07	29,8	62,4	2,03E+10	885,2	6,3	6,3	21,0
Namibia	2,17E+06	2,7	62,6	1,39E+10	6410,1	-0,8	13,0	70,0
Nepal	2,93E+07	208,0	82,3	3,39E+10	1154,7	4,7	34,0	89,7
Nicaragua	5,74E+06	48,5	43,0	1,52E+10	2641,0	-6,0	42,0	95,0
Nigeria	1,55E+08	174,0	50,9	3,41E+11	2203,3	5,6	26,0	69,0
Tanzania	4,37E+07	50,8	74,0	5,76E+10	1355,7	5,5	2,0	39,0
Uganda	3,27E+07	169,0	87,0	3,98E+10	1217,0	7,0	4,0	42,5
Vietnam	8,73E+07	274,0	71,7	2,58E+11	2953,1	5,3	85,0	99,6

Criteria for country selection								
Country	Corruption score	Doing business rank	Solar radiation (kWh/m ² /day)	Overall economic freedom	Norwegian presence	Feed-in-tariffs	Rural electr. plan	
			Data uncertain					
Angola	1,9	163		5,5	46,2	9	4	8
Bangladesh	2,4	107		4,5	53,0	9	5	7
Botswana	5,8	52		6,1	68,8	5	2	7
Ethiopia	2,7	104		3,5	50,5	9	5	6
Ghana	4,1	67		4,7	59,4	0	0	0
India	3,3	134		5,2	54,6	0	0	0
Indonesia	2,8	121		5,8	56,0	0	0	0
Kenya	2,1	98		4,7	57,4	10	8	9
Mozambique	2,7	126		5,3	56,8	0	0	0
Namibia	4,4	69		6,2	62,7	0	0	0
Nepal	2,2	116		4,7	50,1	7	0	6
Nicaragua	2,5	117		4,9	58,8	0	0	0
Nigeria	2,4	137		5,5	56,7	0	0	0
Tanzania	2,7	128		5,5	57,0	0	0	0
Uganda	2,5	122		5,1	61,7	10	7	9
Vietnam	2,7	78		4,5	51,6	9	4	7

Kenya			
Population	Size	Denomination	Source
Total population	39802015	People	World dataBank
Population density	71,8	People/km ²	WolframAlpha
Rural population (% of total population)	78,1	Percentage	World dataBank
Urban population (% of total)	21,9	Percentage	World dataBank
Rural population	31085373,72	People	World dataBank
Urban population	8716641,29	People	World dataBank
Population growth (annual %)	2,64	Percentage	World dataBank
GDP	Size	Denomination	Source
Total	62591644028	Billion USD	World dataBank
Per capita	1572,57	USD	World dataBank
Growth rate yearly	2,59	Percentage	World dataBank
Electrification	Size	Denomination	Source
Total electrification	16,1	Percentage	World Energy Outlook 2009
Rural electrification	5	Percentage	World Energy Outlook 2008
Urban electrification	51,3	Percentage	World Energy Outlook 2008
National rural electrification plan	9	Rank 1-10	
Business situation	Rank	Denomination	Source
Corruption	2,1	CPI Score	TI CPI 2010
Doing business	98	Intl Ranking	Doing Business Rank 2011
Overall economic freedom	57,4	Intl Ranking	2011 Index of Economic Freedom
Norwegian presence	10	Rank 1-10	
Feed-in-tarifs	8	Rank 1-10	
Cost to import	2190	US\$ per container	World dataBank
Start-up procedures to register a business	94	Number	World dataBank
Procedures to build a warehouse	12	Number	World dataBank
Renewable energy situation	Rank	Denomination	Source
Annual solar radiation	4,7	kWh/m ² a	Swera RREX
Govt goals for renewable energy	7	Rank 1-10	
Norwegian Presence	10		
Embassy (0-3)	3		Embassy = 3, Consul = 2, Embassy i
Norwegian MNCs (0-1)	1		
Norwegian Foreign Aid (0-3)	3		Aid p.t. = 3
Norwegian NGOs (0-2)	2		
Norwegian StartUps (0-1)	1		