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HOW TO GET STARTED REDEFINING PRODUCTIVITY WITHIN ENERGY USE

A multiple case study of how large tech companies in Silicon
Valley get started with creating shared value initiatives
for improved energy efficiency

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Summary

Title: How to get started redefining productivity within energy use: A multiple case study of how large tech companies in Silicon Valley get started with creating shared value initiatives for improved energy efficiency

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Purpose: The purpose of this thesis is to identify the operational steps of how to get started with an energy reduction program. By identifying these steps, this thesis aims to develop the usability and depth of the creating shared value framework.

Methodology: This research followed a qualitative multiple case study design including eight case companies situated in Silicon Valley, California. The empirical information was gathered through twenty four semi-structured interviews with the people responsible for driving energy efficiency or sustainability at these companies. The empirical information was then analysed through a thematic analysis and compared to previous literature through pattern matching.

Theoretical perspective: To get started with a CSV-initiative previous literature suggests that companies begin with setting the right vision and deciding which key issue to focus on. Subsequently, they should initiate a search for ideas in areas where the company intersects with society. As ideas for disentangling the issue are identified they are also screened from an environmental and a financial perspective. The best ideas are chosen and launched as initiatives.

Empirical findings: To get started with an energy program, our empirical findings suggest that companies begin with ensuring that the right preconditions for energy efficiency are in place. These preconditions are executive support, an energy measurement system, a group of people being the driving force and an enabling company culture. Subsequently, the company should get started initiating the actual energy program, which includes finding, assessing and pursuing ideas to be presented to decision makers in hope for approval. Finally, to ensure continued work with energy efficiency our empirical information upholds the value of sharing the story of successful initiatives. This is particularly important in the beginning of establishing the energy program as it increases the program's credibility.

Conclusions: This thesis is concluded by an eight step strategy for how to get started with an energy program. The steps that make up the strategy are: 1) Get support from executive management, 2) Measure and understand your energy use, 3) Create a driving force, 4) Create a favourable culture, 5) Identify ideas, 6) Assess identified ideas, 7) Pursue and sell the ideas internally and, 8) Evaluate and market your success.

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1. INTRODUCTION

“We need to begin to manage this planet as if our life depended on it – because fundamentally, it does”

Jason Clay, Senior Vice President, WWF
(Cited in Kiron, Kruschwitz, Haanaes & Reeves, 2015, p. 2).

During the last decade sustainability has been a growing concern. Humans have since the beginning of the industrialization pushed their demands to unreasonable levels and the planet has for long been struggling to support our supernumerary lifestyles. Today, humanity’s demand on nature exceeds what the planet can replenish and many argue that our last chance to successfully do something about this is now.

The idea of sustainability is not new. Concepts such as sustainable development and corporate social responsibility dates back more than 30 years. Still, many of us have a long way left to go as the ambition to be sustainable often exceeds what is actually being done. A recent study conducted by MIT Sloan Management Review and the Boston Consulting Group shows that two thirds of business executives view social and environmental issues as important topics but only one tenth say that they do enough in their efforts to solve them (2013).

The reason why many companies fail to operate sustainably is multifaceted. The most famous explanation comes from professor Milton Friedman (1970) who in a New York Times article heavily criticised the concept of corporate social responsibility, stating that businesses’ only social responsibility is to increase their profits. Even though this criticism derives from quite long ago, there is still a strong association between CSR-initiatives and increased costs among managers (Jamali, Safieddina & Rabbath, 2008; Bockstette & Stamp, 2011, Jui-Ling & Meng-Cheng 2012; Schumpeter, 2014). Apart from the cost dimension, many other barriers prohibiting implementation of CSR-initiatives have been thoroughly explored in literature (Biondi, Iraldo & Meredith, 2002; Sweeney, 2007; Müller, Bihn, Keinert, 2008; Garavan, Heraty, Rock & Dalton, 2010; Murillo-Luna, Garcés-Ayerbe & Rivera-Torres, 2011; Laudal, 2011; Jui-Ling & Meng-Cheng, 2012; Ervin, Wu, Khanna, Jones, Wirkkala, 2013).

In 2011 a new concept called creating shared value by Porter and Kramer ascended. The purpose of creating shared value is to create “economic value in a way that also creates value for society by addressing its needs and challenges” (Porter & Kramer, 2011, p.64). In contrast to corporate social responsibility, creating shared value does not force companies to compromise on their profits. Instead, it encourages companies to look for areas where they alongside

with creating societal benefits also can increase their profits and competitiveness (Porter & Kramer, 2011).

One of the many things Porter and Kramer (2011) advice companies to do in order to create shared value is to review their energy use. By rethinking the ways energy is consumed they claim that companies can contribute to a more sustainable society at the same time as they increase their bottom lines. From the society's standpoint, the benefits of reducing energy consumption around the world are undebatable. For clarification, unless we change something in our usage patterns, OECD (2012) predicts that our energy consumption by 2050 will have doubled compared to 1990 levels, greatly impacting climate change with warmer temperatures and higher frequency of extreme weather. From an economical standpoint, a reduction in energy usage simply always translates into reduced electricity costs.

The theory of creating shared value has contributed substantially to the sustainable development field as it has opened up for a new way of framing sustainability issues. Instead of spending firm resources on CSR-initiatives companies can benefit from exploring sustainable business opportunities. However, even though the idea of creating shared value is mind blowing, the existing theories regarding creating shared value lack a lot of information about the practical steps and activities of how to implement CSV-initiatives. As with any emerging field there is a great need for empirical observations to further develop and refine the theory. Even Michael Porter himself acknowledges that the tools currently available to put CSV-initiatives into practice are in their infancy (Porter et. al, 2012). When aiming to be generic frameworks, theories sometimes tend to be too abstract to effectively be applied in reality.

What should you focus on? Where should you begin? How should search, prioritization and selection of improvement-ideas be carried out? By studying energy programs at companies at the frontier of energy efficiency in Silicon Valley, California, the goal of this thesis is to provide you with guidance in your pursuit to answer these, and many more questions regarding how to get started redefining productivity within energy use.

1.1 Purpose

The purpose of this thesis is to identify the operational steps of how to get started with an energy reduction program. By identifying these steps, this thesis aims to develop the usability and depth of the creating shared value framework.

1.2 Disposition

The first chapter introduces the topic of this paper.

The second chapter describes our applied methodology, which is primarily addressed to other researchers that want to assess or replicate this study. Other readers, such as businessmen / women and non-academics might not find this part as enriching as the subsequent sections in this paper.

The third chapter reviews existing literature with the purpose of presenting the creating shared value concept alongside with other sustainability theories well known to the corporate world. Further, the chapter examines the depth and operational level of how to get started with CSV-initiatives as well as the key learning points already presented in existing theories regarding energy efficiency.

The fourth chapter contains the main empirical findings spawned from the primary data collected by the authors of this thesis. In chronological order, the operational steps of how to get started with an energy reduction program according to our eight case companies are presented.

The fifth and sixth chapters enclose how our empirical findings refine existing theory by confirming, contradicting and adding to it. In the sixth chapter our final results containing the eight step strategy for how to get started with an energy program is presented.

Last, our seventh chapter outlines the theoretical and practical implications of this study.

2. METHODOLOGY

2.1 Research strategy

In line with our purpose to expand the knowledge within our intended research area, a qualitative research strategy was chosen. Qualitative research is characterized by generating and testing words and text rather than numbers and data, and focuses on how people interpret their social world (Bryman & Bell, 2011). The qualitative research strategy was considered more rewarding than a quantitative one, since the processes and strategies we are interested in better can be understood by interviewing key persons rather than analysing numbers.

Qualitative research is usually associated with an inductive approach (Bryman & Bell, 2011). Our research has however been characterized by both inductive and deductive elements, making the research partly iterative. The framing and testing of existing literature denotes the deductive part of our research, while the explorative gathering of new information makes up the inductive part. Since the purpose of this study is to generate new knowledge within a research area that is currently very abstract, the inductive approach has been the dominant strategy.

2.2 Scientific approach

The lens through which context, knowledge and methodology is evaluated makes up a study's scientific approach (Åsberg, 2001). The ontological considerations determine the elemental characteristics of the context in which the study object is embedded and does so describe the framework in which the findings have been created and further can be understood (Åsberg, 2001). Since our research is qualitative we have made some choices regarding social ontology, which can be divided into two main perspectives called objectivism and constructivism. Objectivism states that social entities exist independent of social actors while constructivism states the opposite and argues that social phenomena are continuously created and revised (Bryman & Bell, 2011). For this master's thesis constructivism was chosen as the contextual approach.

Epistemology is the theory that evaluates the validity of knowledge (Åsberg, 2001). The natural science epistemology is called positivism and argues that knowledge only can be obtained through observations and empirical testing of ideas (Bryman & Bell, 2011). The positivistic epistemology is often used for studying society, however, how appropriate it is have been questioned due to its harsh framing of social realities (Bryman & Bell, 2011; Ghoshal, 2005). An opponent epistemology is interpretivism that focuses on the subjective meaning of

social actions (Bryman & Bell, 2011). For this master's thesis interpretivism was chosen, as it aims to explain course and effects based on an interpretive understanding of social actions (Bryman & Bell, 2011).

2.3 Research design

The research design of a study describes the framework within which the study is conducted (Bryman & Bell, 2011; Yin, 2009). In large, the research design influences almost all parts of the study, from what question to study and what data to use, to the way the data is collected and then further analysed (Yin, 2009) The research design chosen for this project was the multiple case study design, which is the qualitative version of a comparative design (Bryman & Bell, 2011; Yin, 2009). In similarity with the description of multiple case study designs, our study contains more than two companies and a number of informants, as well as it includes some longitudinal elements (Bryman & Bell, 2011). The number of companies participating in this study is however a bit higher than what is normal for multiple case studies. Due to time constraints, the longitudinal element has only been achieved by retrospect interviews.

2.4 Research procedure

To get an overview of our research procedure, please view the steps presented below.

Step 1. Literature review containing sustainability related theories

Step 2. Descriptive analysis of empirical contextual factors from secondary sources

Step 3. Literature review on methodology

Step 4. Establishment of area of interest and purpose of the study

Step 5. Thorough literature review on creating shared value

Step 6. Development of theoretical framework

Step 7. Pilot study of empirical information from secondary sources

Step 8. Identification of relevant case companies

Step 9. Identification of informants

Step 10. Establishment of contact with case companies and informants

Step 11. Descriptive analysis of company information from secondary sources

Step 12. Development of interview guide

Step 13. Collection of primary data through semi-structured interviews in Silicon Valley

Step 14. Preliminary comparative analysis of field notes

Step 15. Transcription of interviews

Step 16. Comparative analysis of collected qualitative data

Step 17. Comparative analysis of theoretical framework and empirical findings

2.5 Choice of research area

The focus of this study is the creating shared value theory, due to its immense break-through and popularity. Even its most well known opponents, Andrew Crane and Dirk Matten, say that this theory has “done more to get corporate responsibility issues into the boardroom than anything else written in the last few years” (2014). Since it was first published, this theory has reaped great success due to the new lens through which it views sustainability initiatives. However, even though it has done much for awareness, the tools available to put this theory into practice are very limited (Porter et. al, 2012). It was upon finding out about these limitations our desire to further develop this framework was born.

To develop an operational strategy for how to get started with CSV-initiatives, it appeared only natural to begin with initiatives that are quick and easy to implement. After having read Porter et. al’s (2012) thoughts on the importance of measurability, we also felt that the initiatives reviewed in our study ought to have explicit and visible results. In line with the definition of creating shared value, the initiatives of course also needed to be both profitable and good for society. These delimitations made us focus on initiatives aimed at redefining productivity within the firm boundaries. Porter and Kramer’s (2011) model, presented in figure 6 in APPENDIX A, served as a preliminary foundation in our search for what type of CSV-initiative to include in our study. Past deep discussions and empirical investigations, we concluded that energy efficiency initiatives were the initiatives that best fulfilled our criteria. Energy efficiency is quite straight forward, and knowledge about it is assumed to be fairly transferable between countries, cultures and companies. As we later found out, also this area lacks studies regarding the practical steps of how a company gets started with an energy reduction program. Therefore, strategies for how to get started with CSV-initiatives regarding energy efficiency became the chosen research area of this paper, with a heavy focus on gathering new empirical information. Our study has been further narrowed down by mainly concentrating on facilities and equipment, so that companies at scale can benefit from our study. It is within the empirical information in this study the contribution of this paper lies.

2.6 Selection of sources for empirical information

2.6.1 Study object

The study objects of this thesis are the strategies, programs and processes implied to reduce energy usage within innovative tech companies in Silicon Valley, California, United States. The context surrounding our study objects was carefully selected. It is our belief that Silicon Valley could be a source of best practices within our area of interest. Why is elaborated on further in table 1.

TABLE 1

Why energy efficiency initiatives should be studied in Silicon Valley	
California	California has long been recognized as the leading state in improving building energy efficiency and it has among the lowest per capita consumption of energy in the entire United States (California Energy Commission, 2015). A mix of pressure and incentives programs force managers to constantly review their businesses' energy efficiency, for example California's Building Energy Efficient Standards that are updated on a three-year cycle (California Energy Commission, 2015), or the very desirable certificates available (Energy Star, 2015; Green California, 2015; LEED, 2015). California also has among the highest energy prices in the United States (U.S. Energy Information Administration, 2015) which impacts companies' bottom line.
Silicon Valley	It is stated by Porter and Kramer (2011) that innovative technology solutions are a big source of opportunities to create shared value within energy use. Silicon Valley, the southern region of the San Francisco Bay Area, is the frontier of the world's technology innovation and are honoured worldwide for its special culture (Porter & Kramer, 2011; Chawla, 2015).

2.6.2 Case selection

The eight companies studied in this paper, with one exception, are large technology companies with significant presence or headquarters in Silicon Valley. The one company that is not a technology company is the leading energy provider in California.

When it comes to multiple case studies, it is important for the external validity that the selection of cases follows a replication logic (Yin, 2009). In this study, every company was chosen on the basis of offering knowledge about the same processes and promising similar results. This was determined by an initial sustainability assessment that all potential case companies underwent. The following evaluation criteria were used in the assessment:

- 1) Presence in Silicon Valley:
 - i. Headquarters
 - ii. Significant presence
- 2) Commitment to energy reduction:
 - i. Has according to their webpage or sustainability report made successful changes in order to become more energy efficient
- 3) Commitment to sustainability organizations:
 - i. Sustainable Silicon Valley, and/or
 - ii. Silicon Valley Leadership Group
- 4) Energy efficiency certifications:
 - i. LEED, and/or
 - ii. Energy Star

In the process of assessing which companies should be included in our study, the most important criteria were, due to budget constraints, the presence in Silicon Valley. The commitment to energy reduction was the second most important criteria. The reason behind this weighing was that the companies' public commitments to energy reduction gave us the possibility to on beforehand assess whether the initiatives they had implemented would suit our study or not. Combined with the other two criteria, 40 companies was identified and prioritized among. However, it is necessary to elaborate on the fact that from the pool of 40 potential companies, the final selection of companies was made through a non-probability convenience sample. A convenience sample implies that the selection of study objects is based on its accessibility (Bryman & Bell, 2011; Denscombe, 2000). All companies that showed interest in our study were allowed to participate, independent of their ranking.

There are naturally flaws in a convenience sampling strategy. Often, a convenience sampling causes problems with generalising the findings to apply to a larger public (Bryman & Bell, 2011). The purpose of this study is however not to create an understanding of a larger population but rather to retrieve best practices from a well selected group.

For an overview of the companies participating in this study, please see APPENDIX B.

2.6.3 Selection of informants

The selection of informants was subjective in that sense that only people that we believed could give elaborative answers to our questions were contacted (Denscombe, 2000). Our ini-

tial approach towards finding informants was sending information to general email addresses, such as info@company.com or sustainability@company.com. This turned out to be both time consuming and unsuccessful, upon which we tried to call headquarters at the companies instead. Unfortunately, this approach was even less successful resulting in the process of finding informants took a lot longer than initially planned.

Success came as we began to contact the people we wanted to interview directly. The informants were identified through the advanced search function on linkedin.com and were sent an email based on that company’s particular relevance for our research. The advanced search included the information presented in table 2.

TABLE 2

Advanced search for informants	
Fields	Search terms
Current job title (variable field)	Energy Sustainability Environment/al CSR Community Climate Green EH&S Corporate social responsibility Corporate responsibility Social responsibility Facilities Social innovation Real estate
Company (variable field)	All 40 potential companies
Area (static field)	San Francisco Bay Area

Approximately 100 emails were sent out, with a response rate of 20% of which 50% were positive. Once the initial contact was established, we included more informants from the selected companies through snowball sampling. Snowball sampling is when a researcher contacts a small group within the relevant population and then uses these to get in contact with other potential informants (Bryman & Bell, 2011; Denscombe, 2000). In total, 24 informants participated in our study. For an overview of the informants, please see APPENDIX C.

2.7 Gathering of information

2.7.1 Secondary sources

To be able to conduct our research in a satisfactory manner, we conducted an initial, descriptive analysis within our area of interest including both theoretical and empirical studies.

Our theoretical analysis was initiated by an extensive literature study of sustainability articles and journals found through the platforms LUBSearch, Web of Science and Google Scholar. Only a mere fraction of all theories studied are included in this paper, since we dove into a much larger spectrum of theories than necessary. Still, this served as a method to gain better understanding of our chosen research field.

Once the focus on creating shared value and energy efficiency had been established we oriented ourselves in sustainability statistics from IPCC, WWF and OECD. This was followed by a pilot study of how large technology companies get started with energy efficiency initiatives, based on FSG¹ reports and publicly available company documents from Hewlett & Packard, Cisco and Intel. The key insight withdrawn from the pilot was that clear documentation of how these companies actually got started with their CSV-initiatives was more or less non-existing. Identifying this gap in our area of interest further strengthened our belief that there was a real need for new empirical data on the subject.

Three other empirical studies were conducted in association with our trip to Silicon Valley. The first two was precedent to the trip and contained a study of California and Silicon Valley with regards to energy culture and a deeper examination of various sustainability reports from the companies participating in our study. The third empirical study was subsequent to the trip and included a continued analysis of sustainability reports combined with a review of additional material provided to us by the companies during our visit.

2.7.2 Primary sources

Semi-structured interviews

The research instrument used to gather empirical information for this study has primarily been semi-structured interviews. Even though it potentially would have been interesting to study this through unstructured interviews, we believed that the risk of gathering irrelevant information was not compatible with our time constraints. In contrast, neither structured interviews

¹ FSG is a non-profit mission-driven consulting firm co-founded by Michael Porter and Mark Kramer, which mission is to create a large-scale social change by helping companies create shared value (FSG, About us, 2014)

would have been an appropriate tool since we then not would have been able to intercept parameters and ideas that are new to the research area (Bryman & Bell, 2011).

During the interviews we tried to create an atmosphere that allowed the informants to elaborate freely on the questions and did our best to avoid leading questions and body language encouraging or discouraging them to answer in a certain way (Denscombe, 2000). The interviews were always carried out during a visit to the case companies' facilities. It is our belief that the effect our presence might have had on the informants' answers were mitigated by this fact, since they were able to elaborate on our questions in their normal work setting.

Interview guide

Our semi-structured interviews were static in the way that they followed an interview guide. The interview guide was used to ensure that the right topics were being covered during the interview. In contrast to this static dimension, we were able to follow up interesting things that the informant said right during the interview by creating new questions as we carried through with the interview (Bryman & Bell, 2011).

A lot of work was put into the development of the interview guide. The initial draft translated the theoretical framework into dialogue, making existing theory the foundation for our qualitative data collection. This first draft was reviewed several times before it was sent over to our supervisor who added his remarks.

After reaching the point where we were satisfied with how the questions reflected the creating shared value framework we began to review each question to ensure they were all asked in the best way possible. Based on literature of how to conduct interviews², the interview guide was reviewed once more to make sure the questions followed a good structure.

Upon finalizing the interview guide, we conducted two pilot interviews via email with Matt Johnson at Company Y and Tetsuya Okuda at Hitachi. Based on their answers, the interview guide was once more reviewed and the final version was created.

For an overview of the interview guide, please see APPENDIX D.

Triangulation

Triangulation can be explained as using more than one source of information or method while collecting your qualitative data to be able to crosscheck your findings (Bryman & Bell, 2011;

² Such as *Business research methods* by Bryman and Bell (2011), *The questions you ask determines the answers you get*² by Andersson (1994) and *Case study research: design and methods* by Yin (2009)

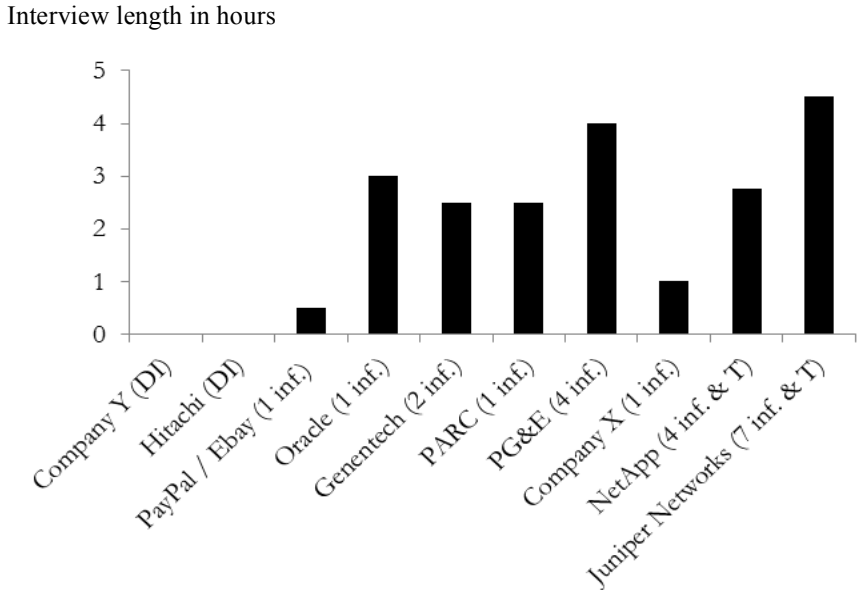
Yin, 2009). This was done on an ongoing basis during the gathering of empirical information, due to the interview guide’s overlapping structure.

Other research instruments

Even though the main research instrument used was semi-structured interviews, the way our qualitative data was collected differed a lot from company to company. Since the informants we were given the opportunity to meet with were very prominent, we had to conduct our information gathering in the way that best suited their preferences.

The length and structure of the interviews therefore varied a lot, for example from having a three hour single interview to having a one hour guided tour of the company’s facilities. This variation does have an impact on the credibility of our findings. In qualitative research, it is however quite common that interviews vary in length. Independent of length, all interviews can normally be seen as a great source of information and longer interviews are not necessarily inferior to shorter ones (Bryman & Bell, 2011). Nevertheless, we have done our best to mitigate the risk of presenting distorted results by bearing this mind while analysing the empirical information. For an overview of the spread in sources of information, please see figure 1 and APPENDIX C.

FIGURE 1
Overview of information sources



Denotation within parenthesis:
DI: The information was collected through digital interviews (via email)
X Inf.: Number of informants from that company
T: The company provided a tour around its facilities

2.8 Method for analysis

2.8.1 Transcription

All interviews were recorded and transcribed, with exception for the facility tours where we relied on our memory and field notes. Recording an interview of course has its downsides, as the informants might be alarmed by the fact that what they say will be put into ink (Bryman & Bell, 2011). However, the benefits in our case outweighed the downsides.

All the information that was relevant to the purpose of this study was fully transcribed. However, small talk and similar discussions were left out. This resulted in 233 pages (A4 format) of transcribed material.

The exercise of transcribing interviews was in itself also beneficial for our analysis since it helped us pick up on emerging themes. It also helped us get a greater understanding of our gathered information, which increased the validity of our results. The transcription process was initiated in Silicon Valley, California and finalized two weeks upon returning to our home university in Lund, Sweden.

2.8.2 Themes, coding and categorization

Past studying relevant methodology literature regarding qualitative data analysis³, our analysis process was initiated by developing a preliminary empirical framework based on our field notes. This preliminary empirical framework was developed on an ongoing basis during our visit to Silicon Valley, but was finalized upon our return when all field notes could be reviewed together. This framework was used as a foundation for analysis and instant categorization while embedding our analysis into the transcription process. To perform ongoing analysis like this is recommended when analysing qualitative data since the massive amount of information contained in transcriptions otherwise can be hard to take in (Bryman & Bell, 2011).

When the transcription process and initial analysis was finished, our qualitative data was further analysed through a thematic analysis. The thematic analysis is a type of coding which picks out emerging themes and patterns by breaking the information down to understandable components that on an abstract level represents a real-world phenomenon. Dependent on how well developed these categories are, they could act as a base for new theory (Bryman & Bell, 2011). This method for analysis fall within what is called grounded theory, which is one of the most widely used methods for analysing qualitative data. Due to its capability to capture

³ Such as *Business research methods* by Bryman and Bell (2011), *Case study research: design and methods* by Yin (2009) and *Reflexive Methodology* by Alvesson and Sköldbberg (2009)

complexity in areas unexplored by other researchers, this method for analysis is assumed to go hand in hand with the purpose of this thesis (Bryman & Bell, 2011).

The categories and patterns found through our empirical investigation were upon finalization compared to our initial theoretical framework in aim to revise and add to it. This method is by Yin (2009) called pattern matching and is often used to generate new theory.

2.9 Trustworthiness of the study

2.9.1 Reliability

The concept of reliability is used when the repeatability of a study is discussed (Bryman & Bell, 2011). The reliability is usually a problem when it comes to qualitative studies. This is partly due to its close link to replicability, which refers to the possibility to conduct the study in the exact same manner once more and get the same results (Bryman & Bell, 2011; Yin, 2009). Since qualitative research generally involve studying phenomenon in social contexts, it is important to acknowledge that these contexts are continuously changing (Bryman & Bell, 2011). When it comes to our study it is imperative to elaborate on the fact that the area within which we have gathered our empirical information is rapidly evolving. Within the field of energy efficiency there is an ongoing development of technologies and methods, which could change what is considered best practices within a near future. Even though we have tried to conceptualize our findings in a fairly high-level, it is possible that the results from a replicated study would look different from ours.

2.9.2 Validity

Internal validity and credibility

Internal validity concerns the issue of how well the result from a study can be used to answer its research question (Bryman & Bell, 2011). This type of validity is however most relevant when it comes to studies that tries to explain casual relationships (Bryman & Bell, 2011). Since our study explores more descriptive rather than explanatory dimensions, internal validity is not a large concern (Yin, 2009).

There might be a risk that the enthusiasm and optimistic attitude towards sustainability has impacted the answers given to us by the informants, creating a positive bias in our data. However, we do believe that our research process have been conducted in a way that still enables us to make strong recommendations with regards to our dedicated purpose.

External validity and transferability

The extent of external validity determines how well the results of the study can be generalized to a larger public outside of the research context (Bryman & Bell, 2011). Due to our use of multiple cases combined with the replication logic applied when choosing our companies, we believe that the external validity of this study is satisfactory. However, since the external validity often is a problem in qualitative studies (Bryman & Bell, 2011; Yin, 2009), we have dedicated a section in this paper to facilitate the use of our findings, called Transferability.

2.9.3 Transferability

Transferability is about how well a result extracted from a certain case will hold in the larger population or in a different context. In general, transferring something from one context to another is characterized with a lot of potential problems (Bryman & Bell, 2011).

We hope that our findings will be of use to companies all over the world. However, since both authors of this paper are Scandinavians, we have put some extra effort into mitigating the transfer problem for the Nordic countries.

Upon our visit to Silicon Valley we conducted an expert interview with Ali Mushtaq Butt, Director of Clean Energy & Technology Advisory at Innovation Center Denmark, with the goal to create a better understanding for the contextual differences separating Silicon Valley, California from Scandinavia. For more information regarding Ali Mushtaq Butt, or the interview guide we used, please see APPENDIX C and APPENDIX E.

Our general conclusion is that the two geographical areas in total are quite similar and that a transfer of best practices can be done. For more information regarding the comparison between Silicon Valley, California and Scandinavia, please see table 3.

TABLE 3

Comparison between Silicon Valley, California and Scandinavia		
Differences		
Factor	Silicon Valley	Scandinavia
Culture	Sharing and open culture	Closed culture
Institutional framework	Companies are highly independent from the government	Companies do to a larger extent than in the U.S. rely on the government
Company characteristics	Very large with a strong capital base	Large with a fairly strong capital base
Community	Innovative stakeholders, suppliers, start-ups, highly engaged utility provider, innovative payment models	Somewhat engaged utility provider, not as innovative eco-system

Similarities		
Factor	Silicon Valley	Scandinavia
Sustainability focus	High sustainability focus	High sustainability focus
Energy efficient technology	High	High
Energy prices	High	High
Energy awareness	High	High
Special characteristics for Silicon Valley, California		
Innovative spirit, strive and belief that they can be the best in the world at what they do		
Sharing, creative and accepting society		
Innovative business model thinking and no resistance towards combining sustainability thinking with profitability		
Very good at the processes that lays behind sustainability work since they have the right mindset		

2.9.4 Difficulties and method implications

As a final section concluding this methodology chapter, we feel the responsibility to alert the reader of the obstacles facing us in our research, alongside with the flaws these potentially have incurred. Firstly, our own personal attributes could have inflicted flaws in our analysis and results, primarily due to the fact that our previous experience from conducting research is very limited. Some of our actions were based on logical thinking, rather than rigid research methodology. Adding on to that, our results could possibly be altered due to none of us having English as our first language, and since all of the interviews were conducted with Americans. Secondly, the questions used while interviewing were very open, allowing the informants leeway in how to answer. Due to this, the interviews did not always cover the exact same things and every company was not always allowed to comment on every area. This also generated a large amount of empirical material rich on company specific details, which sometimes were hard to analyse and process. Finally, qualitative research always contains a large part of personal interpretation of the gathered information. In this type of research, misinterpretations can take place.

3. LITERATURE REVIEW

3.1 Sustainable development

The definition that we today use to explain sustainable development originates from almost three decades ago. In the Brundtland Report, sustainability was defined as “development that meet the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987, p. 6). The concept is often portrayed to include three specific dimensions; environmental sustainability, social sustainability and economic sustainability (Goodland, 1995; Goodland & Haly, 1997; Omann & Spangenberg, 2002; McKenzie, 2004; Maccari, 2014). Environmental sustainability focuses on the maintenance of natural capital and keeping the environment healthy (Johnston et. al, 2007; Redclift, 2005). Social sustainability examines the quality of life (Omann & Spangenberg, 2002) and economic sustainability mostly concerns filling the gap between rich and poor societies by improving the economical conditions for the people that are worst off, and ensuring sustained consumption (Goodland, 1995). The focus on environmental sustainability had its uprise already in the 1960s. Social and economic sustainability however, did not become a global concern until the 1990s (McKenzie, 2004).

Since the establishment of the definition in 1987, the concept has continued to evolve to suit an ample amount of different situations (Redclift, 2005; Johnston et. al, 2007). While some argues that the concept has become vague, others say that the concept’s way to include many different agendas is exactly why it has gained currency (Redclift, 1993).

In the years closing up to the millennium shift, there was a turning point with regards to the way sustainability was integrated into the world of business and environmental concerns became a central part of corporate governance. The reason behind this can partly be dedicated to the public relation benefits created due to increased customer awareness (Redclift, 2005). During the 21st century the awareness increased further, making sustainability one of the most frequently discussed research areas in modern time (Kiron et. al, 2015). Companies are today encouraged and sometimes expected to go beyond regulatory requirements to ensure a sustainable management of our planet’s resources (Torugsa, O’Donohue & Hecker, 2011).

Goodland did already in 1995 argue that “we cannot “grow” into sustainability” (Goodland, 1995, p. 5). The use of the word ‘grow’ is essential, as Goodland later elaborates on the difference between ‘growth’ and ‘development’. ‘Growth’ implies an increase in size, while ‘development’ implies change (Goodland, 1995). As our planet cannot grow, only develop, the economy has to adapt to avoid the draining of the planets resources. A change in line with

this statement has of late begun to show in the way corporate sustainability is carried out. A decade ago, focus lied on exploring opportunistic efforts separated from the companies' core business, often in close relation with the public sector. Today, companies' focus has shifted towards strategic transformations of entire business models and value chain processes (Kiron et. al, 2015).

3.2 Corporate Social Responsibility

Alongside sustainable development, the concept of corporate social responsibility has also been immensely discussed over the last decades (Campbell, 2007). The theories surrounding CSR stipulates how businesses should take responsibility for their footprint on society and contribute to the well being of the world.

Activities carried out by companies which in retrospect could be described as CSR dates back to the beginning of the eighteenth century (Heald, 1970). The first conceptualization did however not enter theory until the 1950ies, through Bowen's ambiguous argumentation for the necessity of more philanthropic initiatives within businesses. At that point, corporate social responsibility was defined as "the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society" (Bowen, 1953, cited in Center for Ethical Business Cultures, 2005, p. 10).

CSR has many definitions as an array of practitioners and scholars have tried to further conceptualize it (Center for Ethical Business Cultures, 2005). One of the most recent descriptions of CSR was made by the CSR Initiative and states "Corporate social responsibility encompasses not only what companies do with their profits, but also how they make them. It goes beyond philanthropy and compliance, and addresses how companies manage their economic, social and environmental impacts, as well as their relationships in all key spheres of influence: the workplace, the marketplace, the supply chain, the community and the public policy realm" (CSR Initiative at Harvard Kennedy School, cited in Moore, 2014, p. 3).

Despite its positive impact on society, CSR has over the years been criticized for not being aligned with the economic goals of a company. The most famous critique derives from Milton Friedman. In an article in the New York Times, Friedman (1970) famously stated that a business's only social responsibility is to increase profits as long as the company stays within the rules of the game, meaning complying with laws and regulations. Whether or not CSR is actually bad for a company's financial performance has over the last decades been examined by many (McGuire, Sundgren & Schneeweis, 1988; Waddock & Graves, 1997;

McWilliams & Siegel, 2000; Campbell, 2007; Cavaco & Crifo, 2014). However, the findings have varied and the correlation remains unclear at best.

During the 1990s corporate social responsibility, in similarity with sustainable development, successfully moved from ideology to reality due to the increased customer awareness. Alongside with this shift was a trend of recognizing social issues as business opportunities (Hack, Kenyon & Wood, 2014), with return on investment often being improved reputation (Porter & Kramer, 2006). By 1999 CSR had become one of the most used theories in practise and nearly 90% of Fortune Global 500 firms were mentioning their CSR-activities in their annual reports (Boli and Hartsuiker, 2001).

However, doing something does not always equal doing enough. In a recent study conducted by MIT Sloan Management Review and Boston Consulting Group, only one tenth of business executives think that their companies engage in enough activities to be viewed as truly sustainable (2013). Other consultancy firms such as McKinsey&Company also believe that traditional CSR is out-dated and fails to fulfil its core purpose (2013).

3.3 Sustainable development, CSR and creating shared value

Porter and Kramer (2011) explicitly state that creating shared value is different from both sustainable development and corporate social responsibility. These concepts are criticised by the authors for only addressing the pressing issues of society in the margin of what the company does, instead of truly incorporating it at its core (Porter & Kramer, 2011). Porter and Kramer argue that a company's engagement in its society should not be separate from the business, but a part of how the company operates (Moore, 2014). As a result, the gains should not be goodwill or reputation, but increased profit (Vaidyanathan & Scott, 2012).

All three theories stress the importance of acknowledging both the social, environmental and economic dimensions. However, they do it through very different lenses, with very different prioritizations. When it comes to sustainable development and corporate social responsibility, the economic dimension has always been given a lower priority than the other two. In corporate social responsibility for example, you are encouraged to take resources from the company and invest these in philanthropic actions (Moore, 2014). In contrast, Porter and Kramer (2011) argue that they want to reinvent capitalism and have a strong focus on return on investment and economic growth.

It has always been unclear how CSR relates to financial performance. However, it is very clear how CSV does. If a sustainability-initiative does not contribute to increasing the bottom line, it is not a CSV-initiative.

3.4 Creating Shared Value – A new management approach

3.4.1 Creating shared value

In 2011, a new management strategy by Porter and Kramer, called creating shared value, was incorporated into the sustainability research area. Its core essence is that businesses can, and should, increase their profitability by doing good (Greenway, 2014). The concept of shared value is by Porter and Kramer (2011, p. 66) defined as “policies and operating practices that enhance competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates”. For an illustration of this intersection, see APPENDIX F.

Shared value can, according to Porter and Kramer (2011), be created by rethinking the intersection of business and society. By addressing social and environmental needs, economic value can be created at the same time as value is created for the society. An important aspect of this concept is that creating shared value is not about sharing the value already created by firms (Porter & Kramer, 2011) which is the case in many other corporate sustainability theories. Instead, CSV is about initiatives that simultaneously creates economic and social value, and thereby expands the total value created by the company (Porter & Kramer, 2011). The value created by a CSV-initiative is by Porter & Kramer (2011, p. 66) defined as “benefits relative to costs, not just benefits alone”.

Shared value opportunities can according to Porter & Kramer (2011) be created in three different ways: by 1) reconceiving products and markets, 2) redefining productivity in the value chain, and/or 3) enabling local cluster development. These areas are described further below, where redefining productivity in the value chain is given more room than the other two areas since it lays the foundation for the focus of this paper.

3.4.2 Reconceiving products and markets

When companies are looking for ideas to innovate and reconceive their products or services, Porter & Kramer (2011) argue that they should be looking where society’s needs are the greatest. They further argue that companies, rather than non-profit organizations and governments, are better suited for getting consumers to adopt new products and services that are solving societal needs, which in turn should also generate greater societal gains. As well as redesigning its products to meet society’s most pressing needs, companies should better serve existing markets or find new markets by reviewing their distribution methods and by meeting the needs of underserved communities that are normally not recognized as viable. Under-

served communities may include developing countries and non-traditional communities in advanced countries such as poor urban areas (Porter & Kramer, 2011). In these ways new opportunities for innovation opens up and shared value is created.

3.4.3 Redefining productivity in the value chain

Opportunities to create shared value within the boundaries of the firm often emerge as a result of societal problems inflicting costs onto the company (Porter & Kramer, 2011). By improving societal conditions the productivity level within the company is likely to increase (Porter & Kramer, 2011). The areas where these mutual gains are most likely to be found are shown in APPENDIX A.

CSV-efforts initiated by the company can address many of these areas at the same time. Six specific areas are highlighted by Porter and Kramer (2011) where shared value potential should be searched for in the entire value chain: 1) Energy use and logistics, 2) Resource use, 3) Procurement, 4) Distribution, 5) Employee productivity, and 6) Location. For more information about these areas, see table 4.

TABLE 4

The six areas in which you can redefine productivity in the value chain	
<i>Energy use and logistics</i>	According to Porter and Kramer (2011) a re-examination of the energy usage in all parts of the company’s business model is a good way to discover areas where shared value can be created. For example internal processes, transportation, buildings, supply chains, distribution channels and support services.
<i>Resource use</i>	Utilization of water, raw materials and other resources often inhibits many shared value opportunities, for example within product design, packaging or recycling (Porter & Kramer, 2011).
<i>Procurement</i>	According to Porter & Kramer (2011) a common mistake within procurement processes is that companies try to drive down the prices from their suppliers as much as possible. Depending on how harsh bargaining skills the company has, the lower the prices will be. What is often overlooked in this scenario are the effects that this can have on quality. By rethinking the dynamics of this relation and share information at a larger extent, collaboration will drive adjustability and productivity.
<i>Distribution</i>	By realizing how new tools can transform the way we distribute information services and resources, shared value opportunities can be found. New distribution models can for example dramatically reduce usage of unnecessary materials (Porter & Kramer, 2011).
<i>Employee productivity</i>	By acknowledging the damage incurred on productivity by low wages, few benefits and off shoring shared value opportunities can be found. Potential ways to increase employee productivity is for example better working conditions, higher safety, fair wages and opportunities for advancement (Porter & Kramer, 2011).

Location

Sometimes companies fall in the trap of constantly chasing the location with the lowest wages or closest to the cheapest materials without realizing the high costs connected with dispersed production systems and the hidden costs of distant procurements. Using a CSV-mindset when choosing location can help avoid many concealed costs (Porter & Kramer, 2011).

Results

Porter and Kramer (2011) argue that many companies contain a lot of hidden value that could be unlocked by viewing issues and processes from a CSV-perspective. By improving the management of the internal operations, productivity can increase and risks can diminish within the areas displayed in table 5.

TABLE 5
Illustrative Business and Social Results by Redefining Productivity in the value chain
(Porter et. al, 2012, p. 3)

Level of shared value	Business Results	Social Results
Redefining productivity within the value chain	<ul style="list-style-type: none">- Improved productivity- Reduced logistical and operating costs- Secured supply- Improved quality- Improved profitability	<ul style="list-style-type: none">- Reduced energy use- Reduced water use- Reduced raw materials- Improved job skills- Improved employee incomes

3.4.4 Enabling local cluster development

According to Porter and Kramer (2011) it is important to acknowledge that companies do not exist independently from their surrounding. On the contrary, they are affected by it, for example when it comes to the availability of a skilled workforce, supporting companies and institutions, infrastructure and government regulations. As the region in which the company operates develops, so does the productivity of the company (Harvard Business School, 2015).

Firms can according to Porter and Kramer (2011) create shared value by enabling development of local clusters, since they in themselves by eliminating a lot of inefficiencies improves the inhabitant companies' productivity. Also innovations are strongly influenced by the development of an efficient cluster.

3.4.5 Evolvement of creating shared value

Even though the concept of creating shared value did not enter the corporate boardrooms until the year of 2011, following Porter and Kramer's HBR-article, the idea of shared value have been fluctuating in theories dating much further back in time.

According to Spitzeck & Chapman (2012) the idea of shared value originates from the concept of corporate culture. Already in the 1980s shared value was defined as "clearly articulated organizational values [which] make a significant difference in the lives of employees, as well as in their organization's performance" (Posner et al., 1985, cited in Spitzeck & Chapman, 2012, p. 500). The purpose of shared values here was to align different actors with corporate objectives (Spitzeck & Chapman, 2012). The first theorist to apply the concept of shared values to the business and society interaction was Sink (1991), who said that the strive towards developing shared values "[...] are primary tasks of the policy entrepreneur" (Sink, 1991, cited in Spitzeck & Chapman, 2012, p. 500). In large, the concept of creating shared value has emerged in the intersection of many other development theories, summarized by Spitzeck & Chapman (2012) in table 6.

TABLE 6

**Creating shared value as an emerging field in the intersection of other theories
(Spitzeck & Chapman, 2012, p. 500)**

- Development studies (Sink, 1991; Nelson, 2006; Zhang et al., 2009),
 - Strategy (Porter, 1980; Prahalad and Hart, 2002; Hart and Milstein, 2003; Porter and Kramer, 2011),
 - Stakeholder theory (Freeman, 1984; Freeman et al., 2004; Spitzeck and Hansen, 2010),
 - Innovation (Chesbrough, 2003; Ayuso et al., 2006; Hansen et al., 2009; Florin and Schmidt, 2011) and,
 - Measurable triple-bottom-line results (Elkington, 1998; Jamali, 2006; Maltz et al., 2011).
-

Some critics have accused the theory of creating shared value of being unoriginal since it adds little new to theory (Crane, Palazzo, Spence & Matten, 2014). The same critics also point out that the theory ignores the difficulties of combining social and economic goals, at the same time as it just presumes compliance to laws and regulations, which prevents the theory from providing a realistic picture of the phenomenon it tries to explain. Further, Crane et. al (2014) argues that creating shared value only motivates companies to "focus on the low hanging fruits of easy win-win projects instead of solving systematic social and environmental problems to which they are connected" (Crane et. al, 2014, p. 140).

In contrast to this critique, the theory has proven its worth in practice. The theory was early expected to be one of the top trends within strategy formulation (J.A., 2011). During the years since its publication, the theory has gained both credibility and legitimacy, leaning towards becoming a new momentum of how we should be doing business (Moore, 2014). In 2014, 28% of global CEOs had made changes in their businesses based this revolutionary way of strategic thinking (Greenway, 2014). Cadman and Bildfell (2012) describe the theory's progress accordingly: "There is a trend happening that will, in some way, shape the future of corporations worldwide".

3.5 Implementing creating shared value-initiatives

Since the HBR-article about creating shared value was published in 2011, the organization FSG has put down a lot of work into facilitating the use of the theory in practice. The information presented below is mainly based on articles and how-to-guides publically available on that company's webpage.

3.5.1 From start to finish

The process of implementing CSV-initiatives has evolved over the last few years. As we reviewed the literature available certain patterns became visible, which are presented below. In this section we give a high level overview of a CSV-implementation from start to finish.

The first step is ensuring board and senior leadership engagement and setting the right vision. A social purpose also needs to be embedded into the corporate culture (Bockstette & Stamp, 2011; Porter et. al, 2012; Pfitzer et. al, 2013). The vision should further be translated into a clear strategy focusing of the social issue that best suits the company's unique situation (Bockstette & Stamp, 2011).

When executing on the strategy, it is important to identify ideas and initiatives that would improve the targeted social issue (Bockstette & Stamp, 2011; Porter, Hills, Pfitzer, Patscheke & Hawkins, 2012; Vaidyanathan & Scott, 2012; Pfitzer et. al, 2013). The ideas identified should be evaluated from a business perspective with regards to profitability and unique company conditions (Bockstette & Stamp, 2011; Porter et. al, 2012; Spitzeck & Chapman, 2012; Pfitzer et. al, 2013). Based on this evaluation, a go/no-go decision on the idea is taken (Porter et. al, 2012). For the approved initiatives, goals are set and preconditions are evaluated (Bockstette & Stamp, 2011, Porter et. al, 2012, Ghasemi et. al, 2014).

Before launching an initiative, a few more things need to be prepared. First is allocation of necessary resources. In addition to that, the initiative needs to get support from the entire

organization (Bockstette & Stamp, 2011), including alignment with key stakeholders (Bockstette & Stamp, 2011; Ghasemi et. al, 2014).

Once the preparations mentioned above have been completed, the initiative is launched and executed. At this point, many authors stress the importance of tracking the process and instantly measure results (Porter et. al, 2012; Pfitzer et. al, 2013).

As you go along with the initiative, it is very important to evaluate the performance. The ongoing feedback loop of looking at measurements and using insights to unlock new value and validate the anticipated link between social and business results is crucial (Bockstette & Stamp, 2011; Porter et. al, 2012; Pfitzer et. al, 2013; Ghasemi et. al, 2014). Not only because it ensures that companies are on the right track and helps them find new opportunities, but also because it enables companies to bring successful efforts to scale. The instant tracking also enables companies to communicate the progress, which they are encouraged to do, both internally and externally (Bockstette & Stamp, 2011).

In figure 2, our overview of the process of implementing a CSV-initiative is presented.

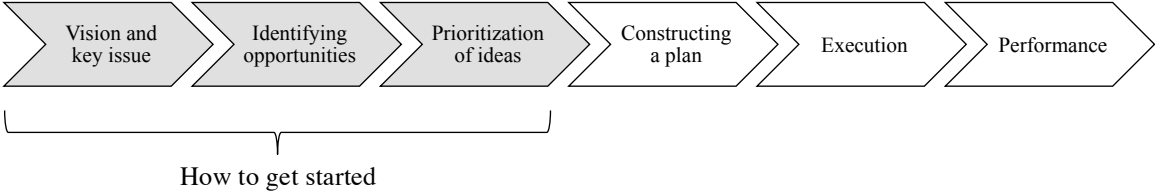
FIGURE 2
The entire process of implementing a CSV-initiative



3.5.2 How to get started

The steps that we include in our definition of how to get started are presented in figure 3. A deep dive in these areas will follow in the awaiting sections.

FIGURE 3
How to get started with a CSV-initiative



Terminology

Further on in this paper, we will divide the way we describe an opportunity to create shared value into two different terms; 1) as an 'idea' of how shared value can be created and, 2) as an 'initiative' to create shared value. Every action towards creating shared value starts out as an idea. Ideas further transform into initiatives when a go/no-go decision is made. The initiatives that are carried through by a company within a certain area do together make up a program. For example, an energy program consists of many energy reduction initiatives.

3.5.3 Vision and key issue

Vision

The starting point for companies that wish to engage in creating shared value is on a quite abstract and overarching level. Bockstette and Stamp (2012) says that it all begins with setting the right vision. They argue that "creating shared value starts with an explicit strategic decision by corporate leaders" since this decision sets the tone the organization needs (Bockstette & Stamp, 2012, p. 10). Pfitzer et. al (2013) describes it a bit differently, and say that the first thing companies need to do is to embed a social purpose into the corporate culture. Both of these descriptions are however sufficient to underline that before any specific initiative should be initiated there needs to be an understanding and acceptance of creating shared value throughout the entire organization, all the way from the board room down to the workers on the floor. This vision, strategic decision or corporate culture does according to these authors to a great extent influence the conditions under which ideas for CSV-initiatives are allowed to grow and prosper.

Having engaged leadership is for a lot of reasons described as being particularly important if an organization wishes to engage in creating shared value (Bockstette & Stamp, 2012). First of all, a committed top management team can be a source of inspiration to employees with regards to spreading the right culture. For example, Bockstette & Stamp (2012) mentions that the voice of the CEO can be a powerful tool, both when it comes to setting the culture internally, but also when it is necessary to find allies and partners externally. Having engaged leadership is also described as important in the quest of channelling the resources necessary to solve social problems. Without support from top management it is according to Bockstette & Stamp (2012) unlikely that the CSV-initiatives will assemble the required resources and further have the long-term focus it needs to make sufficient impact.

Selecting key issue to focus on

The second step is according to Bockstette and Stamp (2011) to narrow down the vision earlier established into a strategy or a limited set of CSV-initiatives, tailored to fit the company's unique characteristics and surroundings (Bockstette & Stamp, 2011). These should initially be quite broad focus areas, such as employee skills, worker safety, or energy use (Bockstette & Stamp, 2011). Porter et. al (2012, p. 4) comment on this process and further explain that the strive to create shared value is "an iterative process that is integrated with business strategy, not a one-time or periodic effort separate from measuring business performance". What Porter et al. (2012) mean is that the area that the company chooses to focus on should be linked to its core strategy and not be a new activity that is not in line with what the company usually does. Activities that are not integrated with what the business normally does are more similar to CSR-activities, and this is not something that Porter and Kramer (2011) promotes companies to do.

The endeavour to find and decide which social issues to target should according to Porter et. al (2012) not start with a search for business opportunities. Rather, it should start with a search for unmet social needs in the areas surrounding the company. The intention is to identify the social issues that carry opportunities to increase the company's revenues or reduce its costs (Porter et. al, 2012).

Vaidyanathan & Scott (2012) argues that opportunities to unlock shared value cannot be achieved through incremental change and that processes therefore need to be re-evaluated and changed at their very foundation. By doing what you always have done, simply improving your processes a bit is according to these authors not a source for opportunities to create shared value. To be able to identify these new, greater opportunities corporate leaders need to be open-minded, and be both willing and able to view old processes from new perspectives. When it comes to creating shared value, it is also important to have a local focus and look for emerging issues in the environment surrounding the company (Ghasemi et. al, 2014). Vaidyanathan & Scott (2012) adds to this and say that corporate leaders always should try to have their watchful eye on the areas where social needs are the most pressing since these often offer the biggest potential for value creation.

Pfitzer et. al (2013) describes how some companies conduct extensive research in order to understand their surroundings. When looking for shared value opportunities companies should try to develop a comprehensive view of the problems in their society as well as collect insights on the numbers and characteristics of the people affected by the problem. To achieve

success with an initiative, the companies should also in advance identify barriers blocking progress, what options they have besides driving change and what potential allies might be able to help them driving their cause. This process is according to Pfitzer et. al (2013) necessary to avoid the risk of pursuing inefficient initiatives.

3.5.4 Identifying opportunities

Search for ideas

Once a key social issue have been selected, the company needs to decide on what actions to take in order to address that issue. The process of looking for ideas should according to Porter et. al (2012) be conducted as a systematic, ongoing screening of social needs overlapping with the business. To find ideas, Vaidyanathan & Scott (2012) argues that the entire firm needs to be involved, mainly because it ensures that a lot of ideas from different angles surfaces. To unleash the energy and passion in every employee to look for ideas, it is however important that the vision is already in place, since this is a powerful tool in driving creativity all through the organization (Bockstette & Stamp, 2011).

3.5.5 Prioritization of ideas

Make the business case and evaluate social issues from a business perspective

The long array of ideas of how to create social benefits identified in the previous step is after identification screened from a business perspective (Porter et. al, 2012; Bockstette & Stamp, 2011). Both the identification and the prioritization process should according to Bockstette and Stamp (2011) be structured and controlled internally. The key reason for this is that it is done without pressure from any external forces and that it ensures that the company stays in control of their way of maximizing value. As the ideas are screened and assessed, ideas that create both social and economic value are listed and prioritized (Bockstette & Stamp, 2011; Porter et. al, 2012; Pfitzer et. al, 2013). Other ideas are sorted out.

A common problem in the process of selecting what ideas to pursue is that companies sometimes try to pursue all the ideas that are both socially and economically beneficial. Porter et. al (2012) argue that companies instead need to prioritize between the potential initiatives and sort out the ones with the highest potential value creation. Not all ideas should be carried through, even though they are good ideas (Porter et. al, 2012; Bockstette & Stamp, 2011).

Spitzeck & Chapman (2012) are two other authors that have documented how the screening and prioritization of CSV-ideas have been executed in practice. According to them, the

alternative ideas should first be evaluated based on the social or environmental value they create (Spitzeck & Chapman, 2012). Spitzeck & Chapman (2012) suggests that companies on beforehand should decide on considered parameters by which the company should evaluate the ideas, for example employees, future generations and consumers, raw material consumption, energy consumption and waste. Bockstette and Stamp (2011) adds that it is important to be aware of the company's unique situation during this evaluation, to be able to target the issues that the company can impact the most. It is also important that the ideas that are chosen suits the company's positioning, capabilities and competitive landscape.

In accordance to the chosen parameters, the initiatives should then be ranked based on social or environmental impact (Spitzeck & Chapman, 2012). For an illustration of how this should be done according to Spitzeck & Chapman (2012), see APPENDIX G. Once the first ranking is finished, the ideas with the highest value creation should be screened from a business perspective to ensure that improving the social issue also impacts business performance (Spitzeck & Chapman, 2012; Porter et. al, 2012). This should be done by specifying what activities and costs are involved for each idea, and then evaluating the business and social results relative to the costs required to achieve them (Porter et. al, 2012). Pfitzer et. al (2013) does not go into much detail of what this process looks like. Rather, they suggest that it ought to be quite iterative.

Spitzeck & Chapman (2012) labels the final assessment determining eco-efficiency, or socio-efficiency. At this stage, the social or environmental value created by each idea is mapped out in relation to costs and ranked on a scale from high to low efficiency. For an illustration of how this should be done, see APPENDIX G.

Based on every idea's potential value creation a go/no-go decision is made (Porter et. al, 2012).

Setting ambitious goals

To be successful with the selected CSV-initiatives, both Ghasemi et. al (2014) and Bockstette and Stamp, (2011) stress the importance of setting challenging goals. The purpose is to give the initiative direction and to guide the activities carried out in aim to solve the social issue. These goals also serve as a way to provide internal or external accountability. They should however not be set in a way that force managers to act in a certain way. Rather, they should allow managers some flexibility and room for individual thinking with regards to how to meet those goals (Bockstette et. al, 2011).

Following setting the goals is creating a clear plan for what you want to accomplish and how, to be able to measure the development in the end, and further develop strategies for how to create shared value in the future (Porter et. al, 2012). This step includes an operationalization of the chosen initiatives identified in the first step. The CSV-initiatives are broken down into specific targets, activities and costs. According to Ghasemi et. al, (2014) this is specified as preparing a roadmap for how to achieve the set goals as well as aligning goals among the company's different units. Ghasemi et. al (2014) also mentions the importance of benchmarking against the leading companies, to ensure that you are carrying out your initiative in the right way.

3.6 Energy efficiency

In today's society there is a proven energy efficiency gap, sometimes called the energy paradox, that declares that we often times do not choose to invest in the alternatives that would be considered the best ones, both from an energy and a cost efficiency standpoint (Brown, 2001). That an interest in energy efficiency investments therefore can result in discovery of win-win opportunities is agreed on by many (Rennings & Rammer, 2009; Woodroof, 2009; Porter & Kramer, 2011; Stankevičiūtė, Grunda & Bartkus, 2012). However, the amount of researchers that has tried to outline theories and strategies for how this can be done by companies are a bit fewer (Woodroof, 2009)

3.6.1 Increasing energy efficiency

Since every company is different, ideas for how to reduce energy consumption of course need to be adjusted to the specific characteristics of the companies aiming to become more energy efficient. However, a few strategies and tactics have been identified by Woodroof (2009) that can work as a good starting point for many.

The first thing Woodroof (2009) encourages companies to do is to brainstorm ways to eliminate energy consuming processes that the company does not need. He argues that a lot of energy is wasted in these types of processes and that these quite easily can be identified. A good way to do this is by engaging employees in questioning why the company do things the way it does and how processes could be made greener. Just like Vaidyanathan & Scott's (2012) thoughts on creating shared value, Woodroof (2009) argues that this can only be done by thinking differently. In further similarity with Vaidyanathan & Scott (2012), employees are described as a good source of ideas.

Once the unnecessary processes have been eliminated the next step is to reduce the energy consumption of the processes that the company does need. Woodroof (2009) recommends companies to identify where energy is being used and look for the quickest returns in these areas. Often times, simple paybacks come from stopping resources from consuming energy during the times when they are not in use. For example by configuring controls on lighting or HVAC systems.

According to Woodroof (2009) the savings from energy investments can be truly great when a company actually knows where to look for opportunities to become more efficient. After minimizing the waste of energy according to the above mentioned strategies, Woodroof (2009) therefore encourages companies to get a better understanding of their energy usage by measuring their consumption, which is in line with Porter et. al's (2012) argumentation for the necessity of measurements. Woodroof (2009) does not go into detail of how this should be done, but recommends companies to begin with an audit of their energy usage and gives many examples of organizations that do this for free.

In addition to the above detailed approaches on how to re-think the way a company operates, Woodroof (2009) also gives some other advices that are a bit more specific or tactical. First, Woodroof (2009) gives suggestions of quite low hanging fruit companies should pick. Many of these are contained within lighting, which has some of the quickest paybacks in the energy field. One of his advices is to always stay tuned to what happens within lighting technology, which continuously improves. Woodroof (2009) further recommends companies to once in a while look for energy quick wins by doing building commissioning and retro commissioning. As buildings get older and processes within the company changes, reparations and maintenance becomes necessary to avoid wasting energy on things that are not operating the way they should. His last advice regarding identifying opportunities to reduce energy use is to partner with energy professionals, since it is basically impossible for a company by itself to know about all the potential savings that are out there. The idea of pool learning, exchanging best practices and sharing knowledge between companies is not only supported by Woodroof (2009), but also by many companies in practice (Cowe & Mendiluce, 2014).

On a different note, Woodroof (2009) also suggests that companies should be more creative in their search for funding, for example by setting up green funds that employees can donate to or try to leverage utility and tax rebates. Further, companies are encouraged to look for power purchase agreements, which allow them to invest in energy reduction initiatives without upfront costs.

Last but not least, Woodroof (2009) argues that good energy work should be credited. When doing this, marketing can be a good tool. Internally it can both increase morale among employees but also help the energy engineers of your company get the next project approved. Publically, it can be framed as an authentic green initiative, which can contribute to improved profits.

4. EMPIRICAL FINDINGS

4.1 Why focus on energy efficiency?

As will be outlined by the extent of this chapter, energy use is definitely an area filled with opportunities to create shared value. Reducing energy consumption is naturally beneficial to the environment and the ways it benefits companies are numerous. Energy use is also a great area to begin the creating shared value journey. We have identified five main reasons why companies that are getting started with creating shared value should focus on energy efficiency instead of other areas of sustainability. It is the combination of all five reasons that make a strong case for choosing this area.

Firstly, as will be further described in theme 5, this area contains a lot of low hanging fruit, which means that it is often possible to start lowering energy usage at both low cost and low risk. The lower risk of energy efficiency projects is confirmed by George Denise, Director of Facilities (RWS), Director of Sustainability (HQ) at Oracle, who points out that they have almost never had an energy efficiency project go wrong. Jerry Meek, Senior Manager, Energy and Sustainability at Genentech, also support this by describing the hurdle rate they use on energy efficiency projects: “When we do energy projects [...] we have a much lower hurdle rate for justification, because energy efficiency projects have lower risk” (Interview, 2015-04-20).

Secondly, it is easy to measure energy usage and see the results of initiatives. These results can be used to increase credibility for future energy efficiency projects and for internal or external marketing. David Asplund, Director of Corporate Environment, Health & Safety at Juniper Networks, confirm this by explaining that energy efficiency programs are much easier to put an ROI on than many of the other sustainability programs they have worked with. The measurability of energy efficiency is further explained in theme 2.

Thirdly, there are relatively low barriers to begin reducing energy consumption and companies can do so without dedicating any new energy reduction personnel. As an example, some of the case companies in this study utilize their existing facilities or EH&S teams instead. Furthermore, there are both certifications and consultants widely available that can be used when learning more about lowering the energy usage of a company.

Fourthly, reducing energy usage is inherently both profitable and sustainable. Brian Glazebrook, Senior Global Sustainability Manager at NetApp, says that this is the reason why companies that are highly focused on profitability still have the possibility to focus on sustainability.

Fifthly, as further described in theme 1, many of the case companies in this study consider energy efficiency initiatives as a competitive advantage because they lower costs, increase productivity, attract and retain talent and are considered positive by both customers and investors.

4.2 Empirical framework

During our preliminary analysis, eight themes were identified in our empirical data. These themes culminated in a strategy that guides companies in how to get started with lowering their energy usage and creating shared value. Furthermore, these eight themes were grouped into three phases which represent different kinds of activities. Please see table 7 for an overview of our themes and phases in their chronological order.

TABLE 7

Themes compiled according to our empirical findings	
<i>Phase / Theme</i>	Further description
<i>Ensure the right preconditions</i> 1. Get support from executive management 2. Measure and understand your energy use 3. Create a driving force 4. Create a favourable culture	Ongoing activities until the preconditions are met
<i>Getting started with the energy program</i> 5. Identify ideas 6. Asses identified ideas 7. Pursue and sell the ideas internally	Activities that are iterated for each energy initiative
<i>Ensure continued energy efficiency work</i> 8. Evaluate and market your success	Ongoing activities until continued work is ensured

4.2.1 Brief description of each phase

Ensuring the right preconditions

Before companies actually start identifying ideas and implementing initiatives to lower their energy usage, they need to ensure that four preconditions are met. These preconditions include having executive support, making sure the energy use is measured and understood, having a force that drives ideas and initiatives and finally having a culture that is favorable to an

energy program. The activities presented in this phase are considered to be ongoing up until the point when the preconditions are met. However, some of the activities may be continued even after the company has successfully implemented an energy efficiency program in order to ensure a smooth continuation of the energy efficiency work.

Getting started with the initiative

When all preconditions are met, companies can use their measurement data and support from both executive management and employees to start the process of finding ideas and implementing initiatives to reduce their energy usage. The process starts with identifying ideas and is followed by an assessment where these ideas are evaluated on several decision criteria. The most suitable and beneficial ideas are pursued and sold internally in order to get a go/no-go decision from executive management. After this, the initiatives that get a go are launched.

Ensure continued energy efficiency work

After the implementation of an initiative it is important to track and evaluate results. The information from successful initiatives is then used to build credibility. This credibility is built by communicating the success both inside and outside the company in order to raise awareness and increase the support for future energy efficiency work.

4.3 Themes

4.3.1 Get support from executive management

It is important to have support of executive management in order to get the necessary authority, awareness, resources and time required to get started with lowering energy use. Claudia Rodas, Facilities Operations Director at Juniper Networks, agrees by saying that companies need to make sure to get executive buy-in. “I think we all agree that if you do not have that, you are not going anywhere” (Interview, 2015-04-23).

Five of our eight case companies initiated their energy efficiency programs as a result of an executive management decision, which indicate that it may indeed be preferable to start out the journey towards becoming more energy efficient with getting executive management support. As an example, Christopher Benjamin, Director of Corporate Sustainability at PG&E, explains that sustainability at PG&E was a top-down decision by the CEO: “Really, I think it was empathized by strong senior leadership, which was known within the company.

The CEO at the time, Richard Clarke, was a real champion for the environment and made it a priority” (Interview, 2015-04-21).

In contrast to the above five companies, Tyler Spalding, Global Manager, Stakeholder Engagement, Social Innovation at PayPal, explains that their sustainability thinking has always been embedded in the company DNA and that their sustainability focus was not born from an explicit decision by top management. Informants from Juniper Networks and Net-App, further say that their sustainability programs were built bottom-up rather than top-down. They define bottom-up as employees driving the sustainability initiatives rather than executive management, for example by creating employee led sustainability teams. However, as illustrated in the three quotes below, a top-down approach is even by some of these companies expressed as more preferable.

“You see a lot of organizations where it is sort of a grass root, and it goes from the bottom-up – there are green teams and workplace energy councils. [...] But at some point, you also need to have the top-down push, because I think the bottom-up push will only get you so far.” (David Asplund, Juniper Networks, interview, 2015-04-23)

“If you do not have executive support, everything you try to do in this area is much more difficult, and many things you will never get done if you do not have their support.” (Rick Turner, Senior Manager Site Operations at NetApp, interview, 2015-04-22)

“If we had more buy-in from the executives [...] we would be able to be more effective in our sustainability efforts.” (Jane Smith, Facilities Specialist at Company X, 2015-04-22)

It also seems that bottom-up efforts actually have the goal of eventually getting executive management support, as can be seen in the following quote:

“We are trying to educate from the bottom-up and as we get more information we are able to validate a lot of data. Then, we will get it to the top and they will be able to bring it back down.” (Claudia Rodas, Juniper Networks, interview, 2015-04-23)

The three main reasons for having executive support

In our empirical study, three main reasons for having executive management support were identified. These are resources, authority and awareness and will be introduced below.

Resources

“If you do not have the support to move forward for resources, that being people, time and money, you are not going to get anywhere.” (Jerry Meek, Genentech, interview, 2015-04-20)

Informants from NetApp, Genentech, Company X and Juniper Networks also agree with the above quote in that support from executive management is essential to get the resources needed for lowering the energy use in a company.

Three of the case companies, Juniper Networks, NetApp and Genentech, either have or are striving to create a fund of preapproved money earmarked for energy efficiency. This kind of fund has to be approved by executive management, which further proves the importance of their support.

Ann Camperson, Strategic Account Manager at PG&E, stresses the importance of getting executives to formally dedicate sufficient time to employees that work with energy efficiency. She says that “people working with energy efficiency often have other things on their plate as well” (Interview, 2015-04-21). That people have the energy efficiency responsibility on top of their other job is the reality in many companies. Especially in those cases, it is important to ensure that the employees get enough time set aside to work with energy.

Authority

The necessity for authority is outlined by Layla Monajemi, Energy Manager at Juniper Networks, when she describes that an employee dedicated to energy efficiency needs to be empowered. “The dedicated source has to be empowered. And you are not empowered if you do not have the executive’s support” (Interview, 2015-04-23). Rick Turner from NetApp, also supports the fact that executive management is vital for gaining the necessary authority.

Awareness

“Get support from the executive team on why and what you want to do. Then use them to buy off and promote energy savings within the company.” (Mike Szeredy, Senior Project Manager, Real Estate Workplace Services at Juniper Networks, interview, 2015-04-23)

According to Mike Szeredy, the executives can be used to inspire and set the tone in the organization. George Denise at Oracle further explains the benefits of creating sustainability awareness at the top by illustrating what happened when the CEO expressed his support for sustainability at a company where he was previously employed.

“Once the CEO came out and said how important it was, suddenly more people in the company at all levels were paying attention now that they understood that it was important.” (George Denise, Oracle, interview, 2015-04-17)

Benefits that will get executive management attention

It is very important to be aware of all potential benefits of being energy efficient when persuading executive management about energy efficiency programs. Most of the case companies indicated that the most important benefit that should be emphasized is dependent on what the management at each particular company value the most. However, there were a few particular areas that were especially highlighted by the companies in our study.

When trying to persuade executives that energy efficiency is beneficial and important, most informants concluded that highlighting the financial potential is the most important aspect. Scott Hiller, Facilities Operations Manager at Juniper Networks, indicate that other aspects could be highlighted as well, but underlines that money is what matters.

“It is great to reduce your carbon footprint and everything, but if we are going to be frank, it is probably driven by money.” (Scott Hiller, Juniper Networks, interview, 2015-04-23)

Since energy reduction initiatives are a great way to save money, it is not hard to understand why this is the main argument used when persuading executive management. However, opposed to only seeing energy program’s potential to reduce costs, informants from Genentech,

Juniper Networks, Oracle, PayPal, NetApp and PG&E have also identified energy efficiency programs as a source of competitive advantage. As an example, David Asplund from Juniper Network described how their sales department who never saw their sustainability program as a competitive advantage got very excited when they finally understood the benefits and could incorporate it in their marketing.

The same above mentioned case companies identified increased productivity and improved relations as two additional benefits from energy efficiency programs. We will further describe these two categories below. The first category is illustrated by the two following quotes from George Denise at Oracle and Ann Camperson at PG&E, when they describe how their companies' sustainability programs increased the productivity of their employees.

“If they [referring to the employees] have control over their heat, air and lighting they are going to be more productive. You almost cannot put a price tag on greater productivity. [It leads to] less sick time and happier employees.” (Ann Camper-son, interview, 2015-04-21)

“Simply stated, people that work in healthier buildings are going to be healthier and people who are healthier are probably going to be more productive than people who are not healthy. Stated in this way, it is so obvious, it almost seems silly to state it!” (George Denise, interview, 2015-04-17)

The second category, improved relations, could stretch both internally and externally if visualized and marketed correctly. Sustainability programs can have a positive effect on retaining current employees, attracting future potential talent and improving the company's image towards customers and investors.

The visibility has internal effects on your own employees, which is explained by Jason Dallas, Energy Manager at PG&E.

“There is a PR side of it as well, and visibility for the employees. We might do something that does not have a good return, but it gives you credibility because the public or your own employees will say: ‘Cool, you have nice LED-lighting that is energy efficient’.” (Jason Dallas, interview, 2015-04-21)

The following three quotes illustrate how sustainability programs may attract future potential employees.

“So, if we want to attract the best employees, we have to have a sustainability program which will make them feel like we are a company that is worthy of them coming to work here.” (Katie Excoffier, Sustainability Manager, Environment, Health, & Safety at Genentech, interview, 2015-04-20)

“All things being equal, when they [referring to young talent] see a company that they do not think is environmentally responsible, they might go somewhere else.” (Karen Cochran, Real Estate Sustainability Lead Manager at PG&E, personal interview, 2015-04-21)

“Google gets a lot of attention for their green operations and the things that they are doing [within this area]. [...] Another large company used to not be very green and they started getting a bad reputation for it. So, over the last few years they [referring to the same company] have been getting more and more [green]. And we are competing for the same employees coming out of grad school.” (George Denise, Oracle, interview, 2015-04-17)

Customers also value sustainable companies, as described by Ralph Renne, Director of Site Operations for the Americas at NetApp, in the quote below.

“We as an organization are compelled to do this [referring to having sustainability goals] because our customers are asking those kinds of questions, and potentially making decisions on purchasing our product based on those sustainability goals – so it’s moving up the chain of importance.” (Ralph Renne, NetApp, interview, 2015-04-22)

Informants from Juniper Networks, Genentech, PayPal and Oracle mentioned that energy efficiency programs are also important to investors. George Denise from Oracle emphasize this in the quote below.

“When the other companies are doing it [referring to sustainability work], you are forced, out of peer pressure, to do the same thing because there is a whole investor market. Twelve percent of the investor market only invests in companies they deem socially and environmentally responsible.” (George Denise, Oracle, interview, 2015-04-17)

4.3.2 Measure and understand your energy usage

“Start with collecting your data and finding out where you are. Also find out where your company’s own biggest impact area is.” (Brian Glazebrook, NetApp, 2015-04-22)

All of our case companies agreed on that measuring your energy use is the basis for creating and managing an energy reduction program. The phrase ‘You can’t manage what you don’t measure’ was repeatedly used by most of the informants and illustrate that measurement is vital when reducing a company’s energy usage. Moreover, all case companies agreed on that measurements should be used for finding out where you currently stand in terms of what energy saving potential the company has. It is also important to analyze and understand the collected measurement data because it can be used in many different situations and phases when doing energy reduction work.

“Metering is the basis for everything. You can not improve what you can not measure. Measurement verification starts from the very beginning.” (Jerry Meek, Genentech, interview, 2015-04-20)

The benefits of measuring

Firstly, most companies explained that measurement provides visibility, which is useful for decision making. This was clearly supported by Brian Glazebrook from NetApp who said that data is key for any decision regarding energy use. Furthermore, Jane Smith from Company X stated that measurement is necessary for tracking the progress and result of different energy efficiency initiatives.

Secondly, most case companies agreed on that measurement is necessary for finding potential areas of energy reduction. This is confirmed by Layla Monajemi from Juniper Networks who stated that companies “can not identify energy efficiency measures without know-

ing exactly how energy is being consumed” (Interview, 2015-04-23). She also pointed out that “it is important for every company to understand where their biggest impact on the environment is” (Interview, 2015-04-23), which is in line with much of what was said by informants from NetApp, PG&E, PARC and Oracle.

Thirdly, informants from PG&E, Oracle, PARC and Company X explained that measurement data may also be used for benchmarking. Jason Dallas from PG&E discussed benchmarking buildings against other buildings, while informants from the other aforementioned case companies discussed benchmarking against sustainability standards and certifications, such as the LEED certification. Moreover, Jason Dallas from PG&E mentioned that the results of benchmarking may be used for setting reasonable energy reduction goals.

How to measure

Tyler Spalding from PayPal said that the starting point of metering should be to measure energy usage on an aggregated, and overall level, which is in line with the opinions of informants from the other case companies as well. However, Genentech, PG&E, Oracle, NetApp, PARC and Juniper Networks also discussed that companies ideally should use so called sub-meters in order to be able to measure separate parts of buildings or equipment.

“The ideal would be to have separate sub-metering for each [referring to energy efficiency projects]. [...] The more information you have, the easier and quicker it is to make decisions on what to do.” (George Denise, Oracle, interview, 2015-04-17)

“All of that [referring to installing sub-metering] costs money and there is no immediate payback. Just like the speedometer on your vehicle or your gas gauge, it gives you information to help you make decisions that will save money, but it is not saving money in and of itself.” (George Denise, Oracle, interview, 2015-04-17)

As explained by George, sub-metering is a question of cost relative to benefits. Rick Turner from NetApp confirmed that sub-meters are expensive and that they, at the time of the interview, had a cost of between five to ten thousand dollars per meter. In addition to this, they were also expensive to put in.

Some of the case companies discussed more advanced forms of metering and control. Informants from Oracle, PG&E, PARC and Juniper Networks described that they had sub-meters that automatically fed measurement data into a central software system that analyses and presents it as actionable and easily interpreted information. Karen Cochran from PG&E called these ‘smart-meters’.

Rick Turner from NetApp further outlined the benefits for companies to have a building management control system in order to fully utilize the potential of sub-metering.

“Things I think that every company should have, large or small, however not tiny, would be a building management control system. [...] [With this system] you have a lot of flexibility to do things that can save energy at a very low cost. [...] I mean, I can go to a computer, I can change settings and I can change the sequence of operations of the building.” (Rick Turner, NetApp, 2015-04-22)

When analysing the data, PG&E, Oracle, PARC, Genentech and Company X considered benchmarking being a good tool. Furthermore, Jerry Meek from Genentech also practiced a common sense analysis where their energy reduction team relied on experience and common sense.

“We saw some immediate items where the energy consumption were quite large. When I started getting more and more data, [I saw that] the after-hour energy consumption for some of the buildings was just as much as it was during the day. [...] So with all that information I said, ‘why do we use so much energy when people are not on site?’” (Jerry Meek, Genentech, 2015-04-20)

4.3.3 Create a driving force

After getting executive support and having measured and understood the energy usage, companies need to have a driving force that push for actually reducing the energy usage. This driving force needs to be focused and thus optimally supported by dedicated resources and a clear direction. Jane Smith from Company X says that leadership is crucial in order to go in the right direction.

Dedicated resources

“Hiring somebody dedicated to focus [on energy efficiency] is key. Not having somebody that has many other roles, that just does not have the hours of the day to focus on energy efficiency.” (Scott Hiller, Juniper Networks, interview, 2015-04-23)

As the above quote indicates, one way of creating a driving force is to assign or hire people dedicated to working with energy efficiency. Jolene Tam, Global Environment, Health, & Safety Specialist at Juniper Networks, describes their dedicated energy manager as a compass that is leading the way forward and showing where to go next. Claudia Rodas from Juniper Networks noted that the process of getting an approval from executive management for a role fully dedicated to energy efficiency took Juniper Networks several years. As can be seen in APPENDIX C, only three of our informants are energy managers even though all of them work with energy efficiency. This indicates that having a dedicated energy manager is not an absolute necessity for being successful with lowering your energy usage. However, it is worth noting that all case companies do have someone in the company who is clearly responsible, although not always solely dedicated to energy reduction.

Champions of energy reduction work

Most of our companies considered it important to have someone to rally and lead the energy efficiency work. Informants from NetApp, Company X, PG&E and Oracle, explicitly defined this person as a ‘champion’. Champions “rise on their own” (George Denise, Oracle, interview, 2015-04-17) and is thus not always appointed.

Informants from PG&E and Oracle agreed on that it might be different persons championing an initiative depending on which phase the initiative or energy program is in. They also said that a champion might assume different roles throughout the execution of an initiative. Lastly, according to Brian Glazebrook from NetApp and Christopher Benjamin from PG&E, a champion should be embedded in the organization. This is important because it will put the champion close to those who can provide help or useful information. An example could be that the champion is embedded in, or close to, the facilities team who are normally responsible for the energy usage of company buildings.

Even though informants from PARC, Genentech and Juniper Networks did not explicitly use the term ‘champion’, we could identify that they described persons that were championing

energy reduction work at their companies. In other words, we believe that they had champions although they did not explicitly define them as such.

Table 8 outlines what our informants considered important characteristics for a champion of energy reduction work.

TABLE 8

Important characteristics of a champion of energy reduction work		
Trait	Description	Case companies in support
Salesman	Be able to package and communicate ideas and results both internally and externally. Some informants called this ‘being good at marketing’.	Juniper Networks, Oracle, NetApp and PG&E
Credible	Have credibility as a salesperson.	NetApp
Persistent	Be persistent when selling your energy efficiency ideas internally. Some informants called this ‘thick skin’, ‘patience’ and ‘diligence’.	Juniper Networks, PARC, PG&E and Genentech
Broad expertise	Have a broad expertise in different fields such as technology, sustainability and finance in order to be able to see the larger picture. Jason Dallas from PG&E also stressed the ability to be able to switch focus between your expertise areas depending on the situation and project phase.	PG&E, Company X, Juniper Networks and NetApp
Passionate	Be passionate about sustainability. Ann Camperson from PG&E also believed that it was important with a passion for saving money.	PG&E, Genentech and Oracle
Creative and open minded	Be creative with ways to reduce energy usage and be open minded to new ideas.	PG&E and NetApp
Analytical	George Denise from Oracle considers an analytical mind important since energy reduction work is getting more and more complex. Jane Smith from Company X also believes an analytical sense is needed to understand the financials associated with energy efficiency work.	Oracle and Company X

Change management

Champions should also be good at change management. Making sure that all people affected by an energy initiative understand and accept necessary changes in their behaviour or environment is important. Jerry Meek from Genentech describes it as particularly important in the initial phase of implementing an energy efficiency project that impacts the work of employees.

“We [sometimes] get pushback from the employees. It is hard to do things that make everyone happy. [...] We communicated it well [referring to a project of putting up window film in offices], but people still complained. [However, not because of the window film]. They complained that they had to come out of their office for an hour when someone was putting the window film up.” (Katie Excoffier, Genentech, interview, 2015-04-20)

The above quote and similar stories from most of the case companies confirm the importance of change management, especially since you are sometimes working with changing work behaviors or work environments. George Denise from Oracle and Jerry Meek from Genentech define a successful energy initiative as a project with low or no employee complaints.

Christopher Benjamin from PG&E sums up important abilities of a champion, which we believe are related to change management, as “the ability to collaborate, to work well with other people and the ability to communicate what you are doing and why that is important” (Interview, 2015-04-21). In line with the previous quote, most of our case companies also highlighted the importance of being able to communicate and collaborate. When actually implementing energy efficiency initiatives, NetApp, Juniper Networks and Company X mentioned that the champion also needs experience with standard project management. These case companies defined standard project management as building a team, resource planning, having meetings, scheduling, project leading, analytics and so on.

In conclusion, finding people with the above described characteristics and assigning them to reduce energy usage will set the foundation for them to become champions and a driving force of energy efficiency work.

Energy councils

Another way of creating a driving force is by creating councils consisting of managers from different company departments. The main objective of these councils is to gather and share information with the purpose of spreading awareness and creating support throughout the company. During the interviews with Juniper Networks and Genentech these councils were mentioned by various names, such as energy councils or sustainability councils.

Preapproved energy fund

Lastly, Katie Excoffier from Genentech explained that they had empowered their energy team, i.e. their driving force, with a preapproved fund of money. These resources could be

used to fund smaller energy efficiency projects without a time consuming approval from senior management. Informants from both NetApp and Juniper mentioned that they were looking into the possibility to create a similar energy fund.

A clear direction

“In order to get everybody focused on that same vision and rally around the same goal, it really helps if someone near the top says where we want to go and which direction we want to move.” (George Denise, Oracle, interview, 2015-04-17)

Christopher Benjamin from PG&E also emphasized the importance of strong senior leadership in order to give the company a clear direction as so on support the driving force. Moreover, we could see that most of the case companies also discussed the benefits of setting goals and having a vision.

Setting Goals

Informants from Juniper Networks, PG&E, NetApp, PayPal and Oracle believed that goals help drive energy reduction and are a good tool to keep you on track. It should however be noted that there are several types of goals. Karen Cochran from PG&E said that goals could be set for different time periods as she explained that they had five year, yearly and quarterly targets that kept them on track. Christopher Benjamin from PG&E made the distinction between public and internal goals, public goals meaning that they are disclosed to the public through, for example, a company sustainability report. He further believed that it is very important to have public goals since it makes the company publically committed to them. However, David Asplund from Juniper Networks argued that public goals may damage the company brand if you should fail to achieve them.

Our companies expressed that goals ideally should have certain characteristics. Claudia Rodas from Juniper Networks considered that goals should be realistic and purpose driven so people will believe that the goals are achievable and understand why they should be followed. Jason Dallas from PG&E mentioned that goals should tie in to larger corporate goals in order for them to be supported company wide. Lastly, Ralph Renne from NetApp believed that goals should be ambitious in order to really push the energy efficiency work forward.

Having a vision

Even though goals in many ways can benefit your efforts, it is, according to George Denise at Oracle, important to utilize them in the right way since there are several risks associated with being too centralized and only having goals that are set top-down.

“You could drive it harder centrally, but if you take on too much of the responsibility for designing and implementing the program from a central office, you run the risk of disenfranchising and alienating the regional managers. So it is better to create that vision, create that sense of values and what we are trying to achieve and leave each of the managers a certain amount of autonomy to pursue that themselves.” (George Denise, Oracle, interview, 2015-04-17)

According to George Denise at Oracle it is important to not alienate regional managers with goals that could be suboptimal for their local regions or offices. This is often a risk for large corporations, since they may have offices that operate in vastly different contexts. A possible solution for this is according to him to instead have a vision that guides local managers to find their own best solution given their own specific context.

In order to create a vision Jolene Tam from Juniper Networks believes that the company have to understand the ‘why’ of its needs to reduce energy usage. As an example the vision could be very different depending on if the main driver of energy reduction is sustainability or cost reduction.

4.3.4 Create a favourable culture

Creating a favourable company culture is about making employees at all levels understand that energy reduction and sustainability work is about doing the right thing. Christopher Benjamin from PG&E said that the company culture has a big influence on what and how you are going to do your energy reduction work. This is also in line with a statement from Jerry Meek from Genentech that said that “getting people involved in wanting to do the right thing” (Interview, 2015-04-20) is crucial. Most of our informants describe energy reduction work as ‘doing the right thing’, however, they still note that not all employees have the same understanding nor see energy reduction work in that way.

Christopher Benjamin from PG&E indicates that it is hard to outline a universal strategy for creating the right culture since “it has to be tailored to your own kind of circumstance”

(Interview, 2015-04-21). But we found that most of the companies strongly indicate that a great way to get started with fostering the right culture is by raising awareness and creating an understanding of the energy efficiency work and its many benefits. Informants from all case companies discuss their employees understanding and awareness in some way.

According to Claudia Rodas from Juniper Networks, employee awareness is really important when implementing energy efficiency initiatives that require behavioral changes. Brian Glazebrook from NetApp confirms this view by explaining that the wrong company culture and little or no understanding will lead to employees complaining enough to prevent your energy efficiency initiatives from being implemented. However, as we will describe further in this section, avoiding employee pushback and complaints is not the only benefit of having aware employees. Aware employees may also help actually pushing the energy reduction work forward.

Management awareness

Tyler Spalding from PayPal pointed out that the benefits of executive management getting an appetite to do the right thing will lead to them to better balance cost reduction and sustainability when evaluating potential energy reduction ideas. He also said that this awareness is making decisions regarding long term sustainability investments possible at PayPal. In the following quote, George Denise from Oracle also mentioned benefits of having executive management that is ready to the right thing:

“Some of the ideas did not have the world’s best payback, but he [referring to a Senior VP] simply wrote ‘sustainability’ in his [assessment] notes, meaning that they were worth additional consideration because of that fact. This year, sustainability was more important for him than it might have been in previous years. Our industry is changing and evolving, as it should, and we are evolving with it.”
(George Denise, Oracle, Interview, 2015-04-17)

How to raise management awareness

Most companies talked about raising management awareness in the same context as actually getting executive support for your energy efficiency work. You have to raise a certain level of awareness to get that support and therefore we believe that theme 1, could also work as a guide to increase management awareness.

Employee awareness

Claudia Rodas from Juniper Networks described how an educated or aware executive management may be able to bring this knowledge back down to their employees. However, we believe that this is no guarantee for employee awareness and that it is still important to directly target employees to raise companywide awareness.

Mike Szeredy from Juniper Networks outlines the importance and benefit of employee awareness by saying: “If they are not aware, they do not care. If they are aware of what we are doing, everybody buys in because they know it is good for them, it is good for the environment and that it is then also good for the company” (Interview, 2015-04-23). David Asplund from Juniper Networks also talked about their employees doing things outside the scope of their work description, because they really feel that it is about doing the right thing.

How to raise employee awareness

Informants from Juniper Networks described various ways of raising employee awareness by spreading information through different communication channels such as meetings, newsletters and internal social platforms. Layla Monajemi from Juniper Networks argued that the communication should be focused on explaining how much suboptimal employee behaviour is costing the business, both in terms of energy and money. Jerry Meek from Genentech also emphasized the importance of visualizing results and impact because “people like to focus on what they can see and what they are aware of, as opposed to [focusing on] what is behind the scenes” (Interview, 2015-04-20).

Green teams

According to most of our case companies one way of raising awareness and getting employees involved, is creating employee led green teams. Katie Excoffier from Genentech described a green team as an employee engagement organization and said that it “is a way to educate the employees and get them to be involved in energy efficiency” (Interview, 2015-04-20). George Denise from Oracle described green teams as voluntary committees and believes that they are also good for sharing ideas, solutions and discussing issues. Furthermore, Jane Smith from Company X highlighted that their green team is their main driver of energy efficiency at their company.

PG&E, Company X, PayPal, Genentech and PARC have green teams, while NetApp and Juniper Networks do not. Genentech has been very successful with its green team which has

more than a third of their employees as members. Katie Excoffier from Genentech, who runs their green team, outlines five advantages with it. First, the employees involved in the green team feel good about it and feel like they are actually making a difference. Second, green team members are more supportive of sustainability initiatives. Third, the green team members educate their fellow employees and tell them why sustainability initiatives are the right thing to do and why they should not complain about them. Fourth, executive management understand that all green team members really care about sustainability and they therefore start prioritizing sustainability matters. Last, the green team helps in attracting and retaining employees that are passionate about sustainability. Katie Excoffier from Genentech also explained that their green team started with just a few employees and was run by the EH&S department without there being any existing sustainability program, which indicates that creating a green team can be done in the early phases of making a company more sustainable.

There are, however, a few potential drawbacks with green teams which are the reason that NetApp shut down their green team. Ralph Renne from NetApp stresses the importance of having a positive balance of benefits versus costs when it comes to the green teams. Green teams are a source of a lot of ideas and suggestions and as thanks, green team members expect a response and an evaluation of their suggestions. Evaluating, considering and responding to these suggestions can consume a lot of resources for the decision makers.

NetApp are however not completely disregarding of green teams. Ralph Renne explains that green teams are preferred to be working in the realms concerning employee behavioral change and that they actually may do a better job than the facilities team in this regard. Brian Glazebrook confirms this by arguing that the energy or facilities department knows best when it comes to technological energy reduction initiatives. Ralph Renne from NetApp concludes that green teams should be used as change agents for behavioral change and not be involved in any large scale projects. Moreover, both Claudia Rodas from Juniper Networks and George Denise from Oracle point out that employees are not always the best source of ideas. Their ideas are often very basic, and are either not feasible or already implemented.

4.3.5 Identify energy reduction ideas

This theme describes categories of initiatives to reduce energy usage, complemented by additional information regarding which initiatives that should be focused on, depending on ambition and how energy efficient the company already is. The timing and implementation of different types of initiatives carried through by our case companies were identified to follow a

certain pattern and chronological order, presented in a model below. This theme also presents a large range of sources for ideas to reduce energy usage.

Technological versus behavioural initiatives

“[When talking about] reducing energy usage in our facilities, there is really two ways of doing that. You can make capital or facility investments [...] or you can engage your employees.” (Christopher Benjamin, PG&E, interview, 2015-04-21)

The above quoted division of different energy reduction initiatives by Christopher Benjamin from PG&E is in line with how most of our case companies chose to categorize initiatives. In accordance with them, we have named these two types technological and behavioral initiatives.

Technological initiatives include all initiatives that do not require behavioral changes of employees to be effective. All of our informants mainly associate this type of initiatives with capital or facility investments, reparation, automation and optimization of equipment. Some examples of these technological initiatives could be buying a new, more effective chiller for the office, installing variable frequency drives to be able to control and automate motors or automatically turning off the air conditioning when employees are not working.

Behavioral initiatives require employees to change their behaviors. They are often associated with how employees use energy and involve changing the suboptimal or wrongful behaviors that waste energy. A behavioral initiative could, as an example, involve encouraging employees to manually turn off their lights or air conditioning when they are out of their offices.

Informants from Company X, NetApp and PG&E considered that behavioral initiatives in general are not as profitable as the technological initiatives. Moreover, most case companies acknowledged that it is very hard to change employee behavior.

Large versus small investments and high versus low complexity

Furthermore, initiatives can require large or small investments in terms of how much resources they require, both in terms of time and money. Initiatives may also have a high or low complexity depending on their ease of implementation. For a full definition of ‘ease of implementation’, please see table 11 in theme 6. The complexity level is also closely related to how much resource that is necessary for a successful implementation. As an example, a very complex initiative might require a lot of external expertise which costs money. It is worth noting that we define complexity relative to the in-house expertise or resources of the compa-

ny in question. Thus, an initiative that is considered complex by one company might not be considered complex by another company.

Our energy efficiency initiative model

Our model covers the full range of possible initiatives that we have identified in our research. The initiatives are categorized based on type, complexity and size of the required investment. Four different types of initiatives are identified: 1) Low hanging fruit, 2) Big technology initiatives, 3) Small behavioral initiatives and 4) Complex behavioral initiatives. The model can be viewed in figure 4. The number within brackets in the model also illustrates the order in which initiatives within these categories should be sought out and implemented, number one being where you start.

FIGURE 4
Energy initiative model

Level of complexity and size of required investment	High	(2) Big technology initiatives	(4) Complex behavioral initiatives
	Low	(1) Low hanging fruit	(3) Small behavioral initiatives
		Technological initiatives	Behavioral initiatives

Type of initiative

Support for our energy efficiency initiative model

All case companies, except PayPal, have provided information that supports the structure and order of our model. Even though all case companies use their own concepts and phrases and describe them with different detail, they do not contradict our energy initiative model. The reason we cannot specify if PayPal is supportive or not is because we did not have time to cover this section during that particular interview.

Order of implementation

“First you do the low-hanging fruit, the easy technology investments. Then you do the more advanced ones. Then you reach a point when you do not really know how to become more energy efficient – then you focus on employees.” (Christopher Benjamin, PG&E, interview, 2015-04-21)

Informants from all case companies generally agree on that the starting point is picking the low hanging fruit and then moving up the tree. In other words, companies that are just getting started with energy efficiency work should start looking for low hanging fruit. When all low hanging fruit is gone the company should start looking at big technology investments.

All case companies agree on that behavioral initiatives are at the top of the tree and indicate that a search for various behavioral initiatives should be done first when the exploration of available technology initiatives has reached a satisfactory level.

Low hanging fruit

The definition of low hanging fruit is generally compatible across all case companies. George Denise from Oracle defines low hanging fruit as small investments with uncomplicated and short payback periods.

Informants from Company X, Oracle, NetApp and Juniper Networks exemplify low hanging fruit as shutdown of equipment that is unnecessarily operational and wasting energy. In sum, most informants describe low hanging fruit as initiatives that are based on automation, control, repairment, replacement and optimization. Buying new equipment is often not referred to as low hanging fruit.

Most informants pointed out that it is important to start small when getting started with energy efficiency, which could further be interpreted as starting by picking the low hanging fruit.

Big technology investments

Ralph Renne from NetApp said that “the next [step] would be energy efficiency through investment” (Interview, 2015-04-22). Consistent with this view, informants from Juniper Networks and Oracle defined these investments as ‘big investments’. In sum, most case companies described bigger technology investments as investing in new equipment or new control functionality that enables advanced automation and optimization. George Denise from Oracle

exemplifies by saying that big technology investments could involve "changing out large equipment, for example getting rid of the older and less efficient chillers for new and more efficient chillers" (Interview, 2015-04-17). Furthermore, Ralph Renne from NetApp confirms the increased complexity of big technology investments compared to low hanging fruit, by emphasizing that they often require a lot of experience, creativity and thus sometimes also external consultants. Ralph Renne also explained that a way of finding these initiatives sometimes meant exploring and evaluating new emerging technology. The combination of higher complexity and the fact that they often require investment in new equipment, lead to that these initiatives require more resources than low hanging fruit.

Small behavioral initiatives and complex behavioral initiatives

When your facilities and technological equipment is energy efficient and automated, the next step is changing employee behavior. Christopher Benjamin from PG&E called behavioral initiatives the new frontier of energy efficiency work. This seems to be the case since most case companies discussed technological initiatives rather than behavioral. However, it is clear to us that behavioral initiatives, like technological initiatives, can require different sizes of investment and have various levels of complexity. David Ham, Manager of Site Services at PARC, exemplified a small behavioral initiative as putting up posters in the restrooms to encourage employees to switch the lights off after leaving. PARC, Juniper Networks and Genentech further gave different examples of what, we believe, are more complex behavioral initiatives. These initiatives required their employees to actually change how they were working. This was much harder to implement and had a wide impact on a larger part of the company workforce.

Sources of ideas

Informants from all case companies said that they were always on the lookout for new ideas. Tyler Spalding from PayPal said that the search is continuous and considered that "it's always a journey to a better place" (Interview, 2015-04-16).

After a company understands what type of ideas they should be looking for the next step is actually finding them. In this section, we will outline all sources of energy efficiency ideas that we could identify in the interviews. To begin with, we found that all sources of ideas could be categorized as either internal or external.

Internal

The internal sources of ideas to reduce energy could further be categorized as either coming from employees with expertise in energy efficiency or from other employees. Whereas employees with expertise in energy efficiency were always described as a good source for ideas, consensus was not reached whether or not other employees could be viewed as it.

Employees with expertise in energy efficiency

People working with energy efficiency typically belong to EH&S, facilities or the energy department. Juniper Networks, PARC, Company X, Oracle, PG&E and NetApp support that these employees are a good source of ideas. In our case studies we managed to identify three main resources that employees with expertise in energy efficiency has access to, which makes them a good at identifying opportunities to reduce energy usage. How these resources should be utilized by these employees is described in table 9.

TABLE 9

Ideas from employees with expertise in energy efficiency		
Resource	Description	Case companies in support
Measurement data	Look at measurement data and use analytical tools or experience to find potential areas of improvements.	All case companies
Experience and knowledge	The case companies describe various ways of using experience and knowledge to find ideas by for example brainstorming, walking around the facilities and simply looking around you, integrated thinking and common sense analyses.	PARC, PG&E, Oracle and Genentech
Internal meetings or events	Having internal meetings, summits or other similar events where departments involved in energy reduction initiatives are present and can share ideas and thoughts.	Genentech and Juniper Networks

Other employees

Informants from Juniper Networks, PARC, Company X, Oracle, Genentech and PG&E have listed employees without expertise in energy efficiency as a distinct source of ideas. Company X and Genentech express that green teams, often containing employees from various departments, have many ideas regarding how to reduce energy usage. David Ham from PARC supports this and states that ideas could come from anyone: “It is anyone, everyone. It just kind of surprises you” (Interview, 2015-04-20). Furthermore, David Ham points out that it is not only about listening to employees but also about asking them for ideas.

In contrast to this, as already been elaborated on in this paper, the ideas from green teams and other employees vary a lot in how much they can contribute to the energy efficiency work carried out by the company. Both informants from NetApp, Juniper Networks and Oracle are sceptical towards using other employees as a source of ideas, since it is quite time consuming to respond to all ideas. At the same time, these ideas are very rarely useful. For further elaboration on why, please see theme 4.

From another standpoint, employees are described as a good source of ideas when being studied by people from EH&S, facilities or the energy department. For example, PARC and Genentech see employee complaints as a possible source of energy reduction ideas because these complaints indicate where inefficient processes or equipment might exist. Jerry Meek from Genentech gave an example of people complaining about the offices being too cold in the summer and too hot in the winter. This was caused by overutilization of temperature controls and wasted a lot of energy. As a result of the complaints, an automation system was installed and both employee happiness and energy consumption improved. While describing this, Jerry Meek pointed to an interesting relationship between complaints and energy consumption: “What is really interesting is that buildings that tend to have the most complaints also have the most energy consumption per square foot” (Interview, 2015-04-20).

External

The following quote from Jason Dallas from PG&E explains the importance of being up to date with what happens in the field of energy efficiency: “If you sit back and keep on doing what you have [always] been doing, you are eventually going to fall behind” (Interview, 2015-04-21). Keeping up to date often requires the usage of sources of ideas outside of the organization. There is a great variety of these external sources which is listed in table 10.

TABLE 10

External sources of energy efficiency ideas		
Source	Description	Case companies in support
Conferences, meetings, seminars and workshops	Going to various types of gatherings where you can get ideas from people outside of the organization.	Juniper Networks, NetApp and PG&E
Publications	Reading newspapers and subscribing to news feeds and email lists that are relevant for energy efficiency.	Juniper Networks, NetApp and PG&E
Your professional network	This includes using your existing professional network but also expanding it by for example joining sustainability, energy efficiency or facilities groups.	Juniper Networks, NetApp, PG&E, Oracle and Company X
Best practices	Looking at what other companies are doing and what various energy certifications or standards are advocating.	Juniper Networks, PG&E and Company X
Vendors and salesmen	“Do not let them [referring to vendors and salesmen] sell you something you do not need. But do not be afraid of them. They are all out there trying to come up with better ideas and better technologies, so they can sell. So listen to them and see what they have. If it makes sense, let them come in and make a presentation. If it still makes sense, do the numbers and see if the numbers still make sense, [if so] test it.” (George Denise, Oracle, interview, 2014-04-17)	Juniper Networks, NetApp, PG&E, Oracle and PARC
Third parties	Use third parties such as consultancy firms or firms conducting energy audits to find potential areas of improvement.	Company X and Oracle

Informants from NetApp, Juniper Networks and PARC agree on that external sources are very important for finding new emerging technologies. We believe that this strongly indicate that external sources may be more relevant when looking for big technology initiatives rather than low hanging fruit.

4.3.6 Asses identified ideas

Jerry Meek from PG&E and Jane Smith from Company X both described that they had long lists of ideas and that it sometimes was more challenging to assess these ideas rather than finding them. Given that companies have limited resources to carry through with initiatives, idea assessment is crucial. We have identified, categorized and listed decision criteria in table 11, based on how the case companies participating in this study usually assess ideas.

TABLE 11

Decision criteria		
Criteria	Description	Case companies in support
Financials	In sum, companies define this as looking at impact in terms of cost savings. The most common examples of calculation tools used by the case companies to assess the financials are the payback method and return on investment.	All case companies
Ease of implementation	The case companies does in summary associate easily implementable energy efficiency ideas with low complexity, quick implementation times, low coordination needs, low impact on customers, few necessary behavioral changes, few associated legal requirements and low risk.	PG&E, NetApp, Genentech, Oracle and Company X
Visibility	The case companies also described this as corporate citizenship, public relations and appeal to the public and future potential employees.	Oracle, PG&E, PayPal and PARC
Sustainability	How good the idea is for the environment and if it is simply the right thing to do. Some case companies related this to ideas with the biggest energy saving potential.	PARC, Oracle, PayPal and PG&E
Scalability	If the idea potentially could be used at more locations or in other similar projects in the future.	Genentech and Company X
Employee wellness	If the idea will increase employee wellness or productivity.	Oracle, Genentech and PG&E

Ranking of decision criteria

Jane Smith from Company X clearly considered financials very important by saying that “everything is about costs, payback and return on investment“ (Interview, 2015-04-22). We believe that the other case companies also prioritized financial performance the highest, since it was often considered a deal breaker. Jason Dallas from PG&E said that the main decision criteria were financials and ease of implementation and that the other decision criteria were secondary. Our analysis points to that this is how most of our case companies ranked the decision criteria, further supported by the fact that low hanging fruit is the initiatives that are prioritized first. However, it should be noted that some case companies described exceptions where sustainability and visibility were the primary decision criteria. In these cases financials did not matter as much, but these initiatives were, as already written, most often exceptions.

Furthermore, we identified that informants from PG&E, PayPal, Genentech and NetApp pointed out several unique company characteristics that could affect how a company should prioritize these decision criteria. They mentioned that specifically company culture, company objectives and available resources could affect the prioritization. As an example of different

prioritizations we identified that the maximum acceptable payback period varied between two to seven years among the case companies.

Pilot testing

Most of the case companies also stressed the importance of doing pilot testing to strengthen the reliability of the assessment, which means that they test ideas at a small scale before fully committing to them. Claudia Rodas from Juniper Networks said that they do pilot testing if they have time, while Ralph Renne from NetApp said that they always do pilot testing. Jerry Meek from Genentech explained that they always do pilot testing before implementing technology that has not been used before.

4.3.7 Pursue and sell the ideas internally

After choosing which ideas to go forward with, it is time to pursue and sell these ideas internally to decision makers. It is first once they have approved the ideas that the planning and launching of the initiatives can begin.

Most case companies mentioned long approval times and informants from both NetApp and PG&E gave examples where getting approval seemed complicated. We believe that these long approval processes is partly what is driving Juniper Networks, NetApp and Genentech to either have or strive towards having funds of preapproved money. The goal is to eliminate the approval process when possible. However, getting approval is often a standard part of pushing energy initiatives forward. Therefore, it is important to know when to pursue the ideas and how to package ideas in appealing ways.

Pursuing ideas at the right time

Informants from PG&E, Juniper Networks and PARC believe that a good timing for pursuing energy efficiency ideas is when there already is planned change in the organization, in the equipment or in the facilities. The change itself is already expected and will be approved, the trick is to make that change energy efficient. As an example, the chillers in a facility have broken down and needs to be replaced. This could be an excellent opportunity to not replace it with similar chillers, but it with more energy efficient ones. Claudia Rodas from Juniper Networks point out that the same principle of pushing through energy efficiency initiatives in times of change applies when building new facilities. She believes that it is less expensive to build a new energy efficient construction rather than retrofitting old ones, which is supported

by many other informants as well. Furthermore, informants from NetApp, PG&E and Genentech believe that a good timing is related to when the budget is being discussed.

Packaging the ideas

When the case companies used the term ‘packaging’, they often referred to creating a presentation with various tools, such as Microsoft PowerPoint. A statement from Jerry Meek from Genentech illustrated that the ideas should be packaged according to what drives energy efficiency at the each company, explaining that at Genentech “it’s a budgetary item because the budget drives a lot of this.” (Interview, 2015-04-20). A good rule of thumb is to focus on promoting the decision criteria usually prioritized by the company. Jerry Meek from Genentech and David Ham from PARC suggest that the content benefiting that decision criteria should be brought forward in the packaging and selling of ideas. As an example, if the financial decision criteria are the most important one, these benefits should be stressed when packaging and presenting the idea as well. Moreover, our case companies also outlined that the ideas should be packaged in a visually appealing way. Rick Turner from NetApp and David Ham from PARC also implied that credibility earned from earlier implemented initiatives is important to include as well.

Go/no-go decision

Based on how good the ideas are, and how well the above is carried out, the ideas are given a go or a no-go by decision makers. The ideas that receive a go are turned into initiatives that are launched and implemented.

4.3.8 Ensure continued energy efficiency work

The previous seven themes in this paper describe how to get started with an energy reduction program followed each other step by step. However, in between theme 7 and theme 8 ideas have turned into implemented energy reduction initiatives. Even though there is some time setting these phases apart, we believe that this last step is crucial to carry through with for companies that are in their starting phase of becoming more energy efficient. After having implemented the first energy efficiency initiatives, it is important that the energy reduction work does not fade out. Continued energy efficiency work can be ensured by post evaluation, measurement, marketing your success and building credibility.

Post evaluation and measurement

As theme 2 prescribes, constantly measuring and tracking your success is important. David Ham from PARC explained that it is important to save results and data because it can be used both as a reference to increase credibility and also to increase the precision of your future estimates of similar projects.

Market your success

George Denise from Oracle summarizes the main point of marketing your success as: “Show that it [referring to a successful initiative] did what it was supposed to do, or ideally that it did better than it was supposed to do” (Interview, 2015-04-17). However, before starting to market your success, David Asplund from Juniper Networks stresses that it is important to make sure that it is allowed to communicate through the internal communication channels.

“The hard part is that we have so many rules and regulations about what we are allowed to communicate. It used to be that anyone of us could send an email to anyone on campus, but you can not do that anymore because corporate communications want to look and see what you are going to communicate to everyone in the company.” (David Asplund, Juniper Networks, interview, 2015-04-23)

Moreover, Jason Dallas from PG&E also points out that the successful initiatives should be marketed both internally and externally. When marketing your success, Jolene Tam from Juniper Networks, indicate that numbers and data are not everything: “I do not think it is about the knots and bolts, it is rather about being able to tell that comprehensive story” (Interview, 2015-04-23).

Build credibility

Informants from PARC, NetApp and Company X say that proving your initial projections right is important to make decision makers at the company trust your future suggested projects and projections. Genentech also illustrate the importance of credibility by describing that it was hard to get approvals in the first two years of their sustainability efforts but that they now have momentum and are moving faster. David Ham from PARC emphasized that the best way of building credibility, is simply doing a good job and then saving the results.

5. ANALYSIS

5.1 Ensure the right preconditions

According to Bockstette and Stamp (2011), the journey to incorporate creating shared value into your business begins with a top-down establishment of a vision. However, the empirical information shows little signs of visions. Having the right vision is only shortly touched upon in theme 3 as a way to give a clear direction and flexibility for managers. The case companies did not emphasize the importance of setting a vision as a first step. In our empirical information, having the right vision per se does not seem to be as important as ensuring that some preconditions are in place. For example, when it comes to the necessity and importance of a favourable corporate culture and executive support, the empirical information is in line with what has been written by Bockstette and Stamp (2011), Pfitzer et. al (2013) and Woodroof (2009). But if these things are created through the right vision or through something else does not seem to matter that much.

Bockstette and Stamp (2011) describe that executive management support is important for two different reasons, as a source of inspiration to the organization and as an enabler of resources. In similarity, our case studies show that resources, authority and awareness are the greatest benefits of an engaged leadership. In conclusion, this information seems solid and correct.

Previous literature argues that getting started with a creating shared value initiative should be done top-down. Our empirical information, however, shows that an energy program can be created down-up, without executive support. Well in line with theory though, the informants from our study clearly indicate that the path towards reducing energy use within a company will be a lot easier and a lot more efficient if the executive support is in place.

In the endeavour to get executive support, a few recommendations were identified in the empirical information. First of all, money should be used as the primary argument to get the executives on your side. Further, other benefits from an energy program that could lead up to a competitive advantage should be used. These are for example higher productivity though happier and healthier employees and better relations with future talent, customers and investors. It is however important to keep in mind that the benefits that should be used when approaching executives can and should vary dependent on company specific characteristics.

In conclusion, it is fair to say that previous theory and our empirical information agree on the grave importance of executive support. Ensuring this support is therefore the first thing a company should focus on when getting started with CSV-initiatives within energy use.

The second thing a company should focus on according to our empirical information is to measure and understand how equipment and processes within the company consume energy. Putting in measurement systems is naturally not mentioned in the creating shared value literature, due to its specific link to energy efficiency, but the importance of instantly tracking results is still stressed by Porter et. al (2012). According to these authors, this information can be used both to validate the success of an initiative, but first and foremost to unlock further value, as looking at measurements is described as an ongoing feedback loop.

Woodroof (2009) on the other hand, writes specifically about measuring energy, stating that the “savings can be great when you know where to look” (Woodroof, 2009, p. 28). This quote might as well have derived from anyone of the informants participating in our study. According to our empirical information, data collected from measurements could be of great use, both right after being collected as well as after being benchmarked against other buildings, companies or certificates. Firstly, the measurements can be useful in the process of finding out where you are, in the sense of realizing what initiatives and investments that could and should be carried out first. In this endeavour, the energy initiative model presented in theme 5 can also be useful. Secondly, the measurements can be used as a further source of ideas for new initiatives. In general, measuring data can be described as both beneficial and necessary in the aim of making good decisions regarding energy efficiency.

In contrast to the theory discussed in this paper, our empirical information goes into a bit more detail regarding how the data should be collected and suggests installation of metering systems. On this note however, the information from our different case companies varies as some suggests more overarching metering while other suggests sub- and smart-meters. The natural recommendation stemmed from this variance is that companies need to install systems that fit their own, unique company characteristics. It is our belief that the engineering side of installing metering systems successfully can be explored in other articles that have a greater focus on the technical side of energy efficiency.

The necessity to create a driving force for the company’s energy reduction work is clearly expressed in our empirical information as the third thing companies should do when getting started with an energy program. However, this section of our empirical findings more or less lacks a resemblance in theory. Only gently does this section intersect with Bockstette and Stamp’s (2011) previously mentioned recommendation of establishing a vision in order to give direction. In this step, our empirical information brings forth a lot of new information.

According to the information gathered from our case studies, the best way to create a driving force is to simply dedicate someone to the purpose of reducing energy use, preferably

someone with the characteristics of a champion described in theme 3. Another way to create a driving force is to assemble an energy council. Furthermore, setting goals, establishing a vision or develop company values can give nourish to the force, helping it to grow and focus.

The final precondition that needs to be met before the real work with getting started with energy efficiency initiatives can begin, is to have a favourable culture. This should according to our empirical information be done by focusing on two different areas, raising management awareness and raising employee awareness. Once again, a good resemblance for this step in theory is absent.

Ensuring management awareness does in many ways tie back to theme 1, and confirms the same literature as getting executive support. These two sections refer to the people in the same positions and it can be argued that the need to mention this once more is unnecessary. However, we believe that it is important to point out that the culture includes the entire company, and not only the employees. Nevertheless, the information regarding employee awareness in this section is the important contribution.

Ensuring employee awareness benefits the organization by facilitating implementation of energy reduction initiatives. Employee awareness can according to our empirical information successfully be created in many different ways. A very successful way identified in practice by the use of green teams. Green team members are often very passionate about sustainability and help spread an acceptance and understanding for energy efficiency throughout the entire organization. In our empirical information, members of green teams are sometimes described as change agents, since they are specifically beneficial to the organization when initiatives that demand changed behaviour are to be launched. In these cases, green team members almost work as lobbyists for sustainability, which lower other employees' resistance towards new initiatives.

In summary, the theories found in previous literature have done a great job in pointing out the necessity for executive support. The empirical information of this study firmly agrees on its importance, as well as the benefits it has for sustainability work. However, existing theories lack a lot of information regarding the other preconditions that needs to be fulfilled by companies that wishes to become successful in their efforts to reduce energy consumption. The contributions of our empirical study therefore stretches quite far, as it refines existing theory with three new areas of importance.

5.2 Getting started with the energy program

Once it has been ensured that all necessary preconditions presented in theme 1-4 are in place, the focus of the company should shift towards getting started with the actual energy program. Firstly, Porter et. al (2012) argues that the search for ideas should be an ongoing screening of areas where social needs are present, which in this case resembles areas where energy is wasted or not used efficiently. All informants in our case studies agree to that the search for ideas to reduce energy usage is a continuous process. However, even though theory and practice seem to be in line in this regard, alignment is lacking when it comes to where good ideas come from.

According to Vaidyanathan & Scott (2012) the entire company should be involved in the search for ideas. On the contrary, the empirical information clearly states that the best source of ideas is a dedicated team of employees with expertise in energy efficiency. If all employees from all departments of the company are involved in the search for ideas a lot of administrative work will be placed on the shoulders of the employees working with energy efficiency. This will consume a lot of time for this valuable resource and in the end not be effective. Our empirical information does not contradict that it is important that all employees somehow are involved and care about energy efficiency, but it clearly states that employees as a big group are not the best source of finding solutions to problems regarding energy efficiency.

With regards to what kind of initiatives to implement first, Woodroof (2009) clearly states that it should be the low hanging fruit. The first two energy reduction strategies recommended by Woodroof (2009) is eliminating processes that the company does not need and that are consuming energy in vain, and minimizing energy consumption of processes the company does need. Woodroof (2009) argues that companies should look for the quickest returns, and further suggests companies to keep a close eye on what is happening within lightning technology since it contains some of the quickest paybacks in the energy field.

In line with Woodroof's (2009) recommendations, our empirical information confirms that companies that want to become more energy efficient should start with the low hanging fruit. In addition to proving Woodroof (2009) right about what to do first, our empirical information furthermore tells you what to do second, when the low hanging fruit is gone. According to our energy initiative model, the search for ideas of how to become more energy efficient should move in a chronological order through four different types of initiatives: 1) Low hanging fruit, 2) Big technology initiatives, 3) Small behavioral initiatives and 4) Complex behavioral initiatives. The chronology does not only give information of where to start,

but also of where not to start. The energy initiative model is also a helpful tool for companies when navigating in how their energy efficiency work should progress.

Just as ideas continuously are searched for, ideas should continuously be assessed and evaluated, which makes up the next step of how to work with ideas. Porter et. al (2012) does on this note state that companies should not try to pursue all good ideas at the same time, but sort out the best ones. Our empirical information agrees with this process and further explains that carefully assessing ideas when building an energy program is crucial.

Spitzeck and Chapman (2012) argue that the assessment of a creating shared value idea should begin with an identification of the social or environmental value the potential initiative would create. Once this value has been established, the initiatives with the greatest potential value creation are screened from a business perspective, evaluating how much each initiative would contribute to the bottom line. This specific way to assess ideas has however not been visible in our empirical information. Our empirical information does rather in contrast to this point at a reverse assessment process. Instead of an initial identification of the environmental value created, aka the energy saving made, the assessment process begins with determining the financial contribution of the idea. According to our empirical information, a lot of emphasis is put on an idea's return on investment. When assessing ideas, the two most important criteria are financials and ease of implementation, which points towards choosing to implement initiatives with large returns and short payback times. Even though our empirical information still state that the sustainability aspect of an idea is important, as it ranks number four in priority, we oppose the use Spitzeck and Chapman's (2012) methods in evaluation of potential energy efficiency initiatives. The only theory that in this section holds true is Bockstette and Stamp's (2011) argument to keep the unique company characteristics in mind while evaluating ideas for energy reduction initiatives.

Our empirical information further stands out in comparison with theory as suggests pilot testing of the ideas in advance of implementing the initiatives. This simply means testing the ideas in practice in a small scale. Conducting pilot testing is according to our empirical information very important, and should act as the final step of the idea assessment.

Once the best ideas have been sorted out, the final step of getting started with an energy program is to pursue and sell these ideas to decision makers. In this endeavor, the creating shared value literature offers no guidance.

According to our empirical information, it is very important to know both when and how these ideas should be sold to executives. First of all, pushing ideas in the right timing usually facilitates the process a lot. The best windows to push through initiatives to become more

energy efficient are when there is already planned change in the organization, when new facilities are being built and when the year's budget is being set. However, our empirical information states that it is not sufficient to only push the ideas during the right time, but also framing the ideas in the right way. In general, a lot of the information presented in theme 1 and theme 6 can be used when structuring the presentation of an idea to get executives' attention. The ranking of decision criteria presented in theme 6 is particularly useful. Basically, pushing for how the bottom line will improve is a good strategy. It is however important to remember that every company is different, and that the way decision makers rank different criteria vary. The optimal strategy for selling to executives is therefore to find this ranking and then use that knowledge to sell ideas back to them.

In summary, finding and assessing ideas for how to take action is presented as important steps in both the creating shared value framework and in our empirical information. However, theory and practice differ a lot in how these steps should be carried through as our empirical information contradicts nearly all of the methods suggested in theory. We believe that a part of the explanation behind this is the fact that energy efficiency initiatives are much more straightforward compared to the otherwise quite complex problems the creating shared value framework tries to tackle.

Furthermore, our empirical information refines existing theory with one new area of importance concerning how to pursue and sell the idea internally. As mentioned many times before, the creating shared value literature puts a lot of emphasize on having support from executives. We believe that previous literature simply by stating that a corporate decision is the first thing that should happen, presumes that the difficulties concerning executive support is avoided. Therefore, theory does not include information regarding how to create executive awareness or how to sell and pursue ideas. Even though a corporate decision at some point was made, we still believe that these other steps are too important to be left out. The time of the executives is very limited and their focus is shattered. Therefore it is important to know how they continuously can and should be reminded of the benefits of an energy program.

5.3 Ensure continued energy efficiency work

As a concluding section, theory and our empirical information commonly states that it is very important to take action to ensure continued energy efficiency work. Woodroof (2009) explains that good energy work should be credited and states that marketing is a good tool for building credibility, which further can help get the next energy efficiency ideas approved. The necessity to measure data and later use that information is also mentioned in theory by Porter

et. al (2012). These authors say that it is not only tracking results, but also understanding the results and using them to create more value in the future.

Our empirical information agrees on all things mentioned in theory and further elaborates on how this is done in practice. Companies can and should ensure continued energy efficiency work by post evaluating the initiatives it has implemented and market their success. By doing this, the employees that work with energy efficiency gain a greater understanding of which efficiency initiatives are the best. This further facilitates identification of ideas and unlocking of shared value in the future. At the same time, these steps build credibility for the energy program's capacity to benefit the company, which facilitates the approval process of upcoming initiatives.

6. CONCLUSION

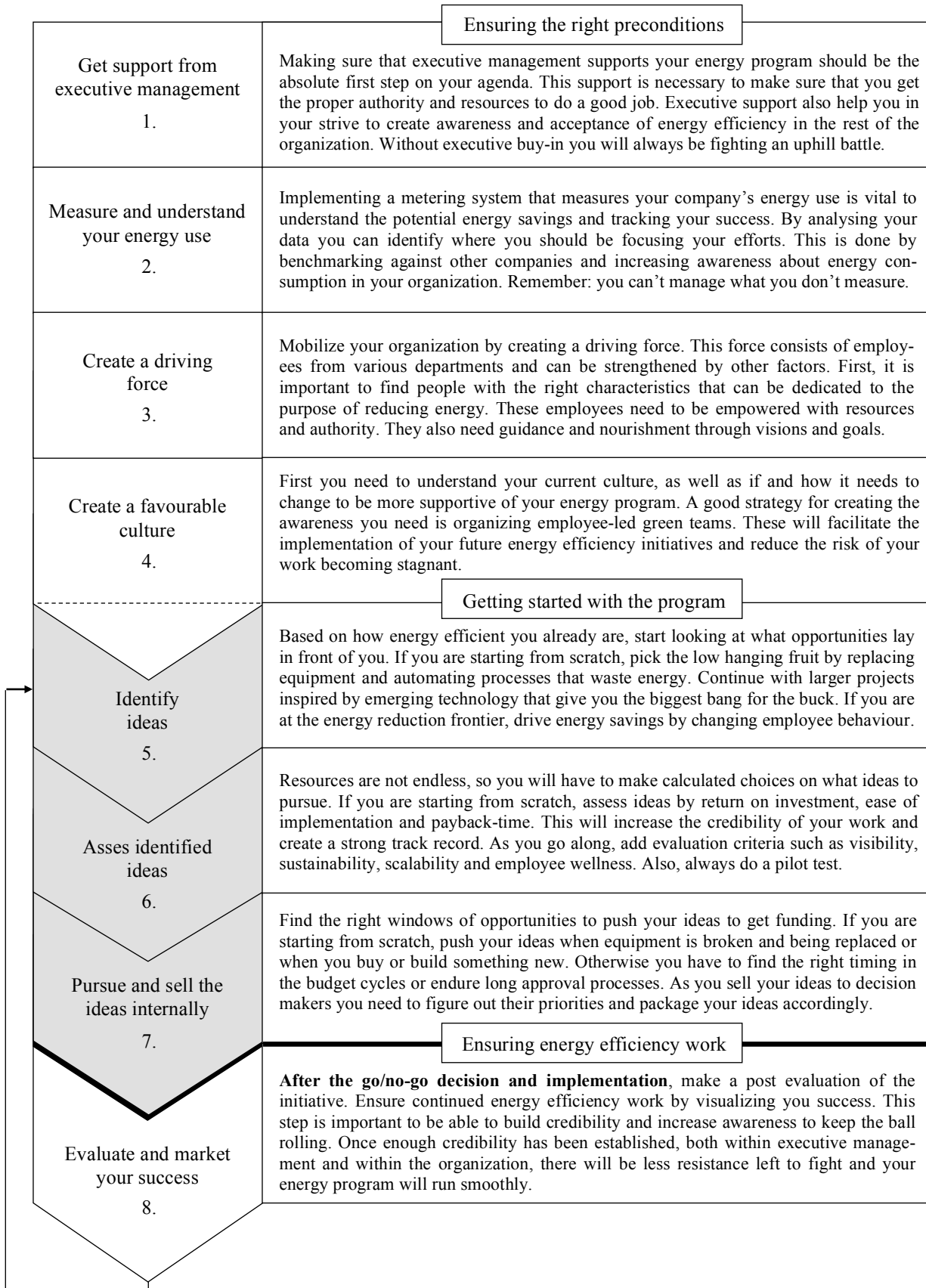
6.1 An eight step strategy for how to get started with an energy program

In our analysis, we have been able to both confirm and contradict some of the already existing theories surrounding how to get started with a CSV-initiative within energy efficiency. The center of gravity of this paper has however been to develop the creating shared value framework by adding more information to its gaps through an empirical study of best practices in Silicon Valley. Our analysis of the correspondence between theory and practice concludes that the steps identified by previous literature are valid when it comes to energy efficiency initiatives. Theory is then again not complete. Based on our empirical information, some of the steps of how to get started with an energy program have been modified and some steps have been added.

In conclusion, the identified operational steps of how to get started with an energy reduction program are presented in figure 5 on the following page.

FIGURE 5

An eight step strategy for how to get started with an energy program



7. DISCUSSION

7.1 Implications of our results

7.1.1 *Theoretical implications*

After comparing literature regarding how to get started with a CSV-initiative with how companies at the frontier of energy efficiency work does this in practice, it is clear that the creating shared value framework is far from complete. The focus of this paper has been to examine how companies in Silicon Valley get started with energy programs in order to develop the operational level of the creating shared value framework and to fill its gaps regarding this particular area.

On a theoretical level, this study has contributed to the creating shared value framework by identifying eight steps that companies should take to begin their journey towards creating an energy program. These steps are: 1) Get support from executive management, 2) Measure and understand your energy use, 3) Create a driving force, 4) Create a favourable culture, 5) Identify ideas, 6) Assess identified ideas, 7) Pursue and sell the ideas internally and, 8) Evaluate and market your success. Even though some of the information found in these steps can surely be accessed by studying other theories not included in the creating shared value research field, they are by today not known to be a part of this framework, as we believe they should. This thesis therefore makes a good contribution to theory since it points out where the creating shared value framework needs to be expanded and offers a suggestion to how this could be done. This thesis can further act as a launch pad for continued refinements and inspiration for studies that wishes to develop the creating shared value framework even more.

7.1.2 *Practical implications*

Beside its contribution to theory, this study also benefits companies in practise that today look for ways to become more energy efficient or sustainable. By not only offering information in an overarching dimension but also including details and operational steps, this thesis could work as a how-to-guide for companies that wish to get started with creating shared value.

One of the main goals of this thesis has been to transfer this knowledge from Silicon Valley, California to Scandinavia. In Sweden, for example, sustainability initiatives are to a large extent still being viewed as PR-activities without any follow-up, separate from the companies' core businesses, which makes the initiatives both inefficient and less credible (Johansson, 2015:a; Johansson, 2015:b). Even though it is our hope that companies all over the world will find our study beneficial, the survey by Johansson (2015:a) in combination with our re-

search clearly show that companies in Scandinavia definitely would benefit from it. As our eight step strategy stretches over many different areas, it is our belief that both employees with expertise in energy efficiency, executives or just passionate sustainability folks will find parts of this strategy valuable.

One of the main critiques against Porter and Kramer's (2011) creating shared value concept is that it motivates companies to focus on low hanging fruit and easy win-win initiatives (Crane et. al, 2014). When it comes to energy use, the companies in our empirical study however largely encourage this. By initially going for the easy money, every company actually have real bottom line incentives to get started with sustainability. When the low hanging fruit have been picked, it is our belief that the companies that have the resources and ability to further explore the energy initiative model will do so, at least as long as it is profitable. These companies have been exposed to the benefits of working with energy efficiency as well as invested time and resources doing so, at the same time as they have gained experience and knowledge regarding how that work could progress. At the very least, these companies should be more likely to continue with their energy efficiency work compared to companies that have not even started.

Even in the worst case scenario, when companies terminate their energy programs after only picking the low hanging fruit, it is our belief that this could still be a good thing. If companies on scale can be encouraged to pick the low hanging fruit in their own companies, the environmental effects will substantially contribute to the well being of our planet and a greener, better tomorrow.

7.2 Limitations of our strategy

Even though this study claims to help companies become more energy efficient, it has some limitations. This study only defines energy efficiency as actually reducing the energy consumption within the company's facilities and operations. It does not give any guidance in how companies could increase the energy efficiency in the products or services they offer, neither does it look at how a switch to renewable sources can be done. Furthermore, we have focused on initiatives that to the largest extent leave out third parties since this quickly increases the complexity. However, there may be many potentially good and valuable collaborations with third parties out there that we encourage companies to be open to.

7.2.1 Characteristics of companies benefiting from using our strategy

Even though there is something new to learn for all companies wanting to become more energy efficient in our eight step strategy, there are certain companies that benefit more from it than others. For our strategy to be particularly useful, the company should own at least some of its facilities and thus have the authority to measure, analyse and control the equipment and processes that drives its energy consumption. Furthermore, larger companies with more resources and at least 500 employees will be a lot better equipped to utilize the advices given in the eight step strategy, since the information originally was retrieved from companies with these characteristics.

There are a few more characteristics of the companies that are likely to have many benefits from following our advices. For example, these are having large energy consumption with no or few earlier efforts to reduce it, in-house technology knowledge, in-house dedicated resources such as a facilities team or an energy department and lastly, a company culture built on collaboration, openness and willingness to try new things. With regards to the community, it can be beneficial if the surrounding has a demand for sustainability efforts, e.g. from customers, NGO's, government, suppliers, shareholders, investor and future talent. Further, an engaged utility provider or other parties that offer help with energy efficiency can push success within energy efficiency forward.

7.3 Suggestions for further research

The lack of tools to put creating shared value into practice was pushing us to do research within energy use. The same purpose can be used to drive research within other areas. As have been identified by Porter et. al (2012) before, and confirmed by this study today, the creating shared value framework has a lot of missing pieces regarding its operational guidance. Consequently, the potential to further refine and expand this theory is enormous.

If researchers want to continue to build on the work we have done, we suggest two alternative ways to do so. The first one is of course to replicate this study and test our empirical findings to strengthen their accuracy and credibility. The second one is to conduct a study of how to get started with another sustainability area. We believe that a similar process of how to get started can be found when studying especially water use and waste handling.

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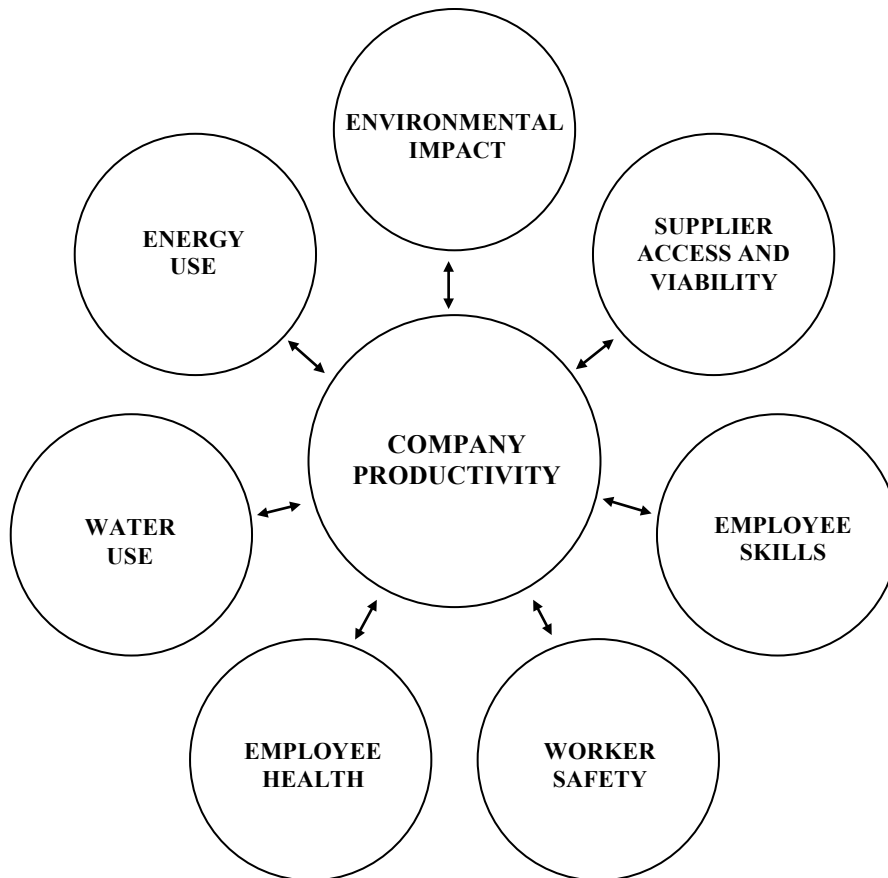
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APPENDIX A – THE CONNECTION BETWEEN COMPETITIVE ADVANTAGE AND SOCIAL ISSUES

FIGURE 6
The connection between competitive advantage and social issues
(Porter & Kramer, 2011, p. 68)



APPENDIX B – COMPANIES PARTICIPATING IN THIS STUDY

TABLE 12
Companies participating in this study

Company overview		Criteria fulfillment								
Name	Business	Revenue	Employees	1 i	1 ii	2 i	3 i	3 ii	4 i	4 ii
Company Y	Tech company which supplies programmable logic devices.	≈ \$2 billion	≈ 3 500	X	X				X	
Hitachi	Conglomerate serving eleven business segments reaching form IT systems to healthcare systems.	\$81 billion	320 725		X	X		X		
PayPal, part of Ebay Inc.	Tech company that enables buying and selling items online with several different services such as PayPal.	\$18 billion (Ebay)	35 000 (Ebay)	X	X		X	X	X	X
Oracle	Tech company developing hardware and software solutions.	\$38 billion	122 000	X	X	X		X	X	X
Genentech, part of Roche	Biotechnology company researching and developing medicines.	\$51 billion (Roche)	12 300	X	X	X	X		X	X
PARC, part of Xerox	Research and development center.	Not available	Not available	X	X		X		X	
Pacific Gas and Electric Company	Provider of electricity and natural gas.	\$17 billion	22 500	X	X	X	X	X	X	X
Company X	Supplier of both hardware and software networking solutions.	≈ \$2 billion	≈ 3 500	X	X	X		X	X	
NetApp	Supplier of data storage and data management solutions.	\$6 billion	12 500	X	X		X	X	X	X
Juniper Networks	Supplies and develops products and services for high-performance networks.	\$5 billion	8 800	X	X	X			X	X

(Source: Google Finance or company webpage. Information retrieved May 2015)

APPENDIX C – SUMMARY OF INFORMANT INFORMATION

tir – Time in role
 tic – Time in company
 I time – Interview time

TABLE 13

Summary of informant information								
Meeting	Date	Name	Title	Company	tir	tic	I time	Transcribed
Digital interview	13/4	Matt Johnson	Director, Corporate Quality	Company Y	3y	11y	n/a	n/a
Digital interview	16/4	Tetsuya Okuda	Chief Engineer, Environment Policy Division	Hitachi	7y	33y	n/a	n/a
Interview	16/4	Tyler Spalding	Global Manager, Stakeholder Engagement, Social Innovation	PayPal / Ebay Inc.	4,5y	2,5y	0,5h	Fully
Interview	17/4	George Denise	Director of Facilities (RWS), Director of Sustainability (HQ)	Oracle	16y	1y	3h	Partial
Interview	20/4	Jerry Meek	Senior Manager, Energy and Sustainability	Genentech	5y	19y	1h	Fully
Interview	20/4	Katie Excoffier	Sustainability Manager, Environment, Health, & Safety	Genentech	6y	8y	1,5h	Fully
Interview	20/4	David Ham	Manager of Site Services	PARC	23y	23y	2,5h	Partial
Tour of facilities	20/4	David Ham	Manager of Site Services	PARC	23y	23y	1h	-
Interview	21/4	Karen Cochran	Real Estate Sustainability Lead Manager	PG&E	8y	30y	1h	Fully
Interview	21/4	Ann Camperson	Strategic Account Manager	PG&E	6y	6y	1h	Partial
Interview	21/4	Jason Dallas	Energy Manager	PG&E	11y	5,5y	1h	Fully
Interview	21/4	Christopher Benjamin	Director of Corporate Sustainability	PG&E	10y	10y	1h	Fully
Interview	22/4	Jane Smith	Facilities Specialist	Company X	5y	1,5y	1h	Fully
Group interview	22/4	Brian Glazebrook	Senior Global Sustainability Manager	NetApp	8,5y	3y	0,5h	-
		Alex Mandrusov	Program Manager, WPR Site Operations	NetApp	4y	8y	-	-

Meeting	Date	Name	Title	Company	tir	tic	I time	Transcribed
Interview	22/4	Ralph Renne	Director of Site Operations for the Americas	NetApp	8y	8y	1h	Fully
Interview	22/4	Rick Turner	Senior Manager Site Operations	NetApp	9y	9y	0,75h	Fully
Interview	22/4	Brian Glazebrook	Senior Global Sustainability Manager	NetApp	8,5y	3y	0,5h	Fully
Tour of facilities	22/4	Alex Mandrusov	Program Manager, WPR Site Operations	NetApp	4y	8y	1h	-
Group interview	23/4	David Asplund	Director of Corporate Environment, Health & Safety	Juniper Networks	30y	8y	1h	Fully
		Mike Szeredy	Senior Project Manager, Real Estate Workplace Services	Juniper Networks	27y	11y	-	
Group interview	23/4	Jolene Tam	Global Environment, Health, & Safety Specialist	Juniper Networks	10y	3,5y	1h	-
		Joe Carson	Vice President of Operations and Supply Chain	Juniper Networks	8y	5y	-	
Group interview	23/4	Scott Hiller	Facilities Operations Manager	Juniper Networks	11y	11y	1,5h	Fully
		Claudia Rodas	Facilities Operations Director	Juniper Networks	1y	4,5y	-	
		Layla Monajemi	Energy Manager	Juniper Networks	9y	0,3y	-	
Group interview	23/4	Jolene Tam	Global Environment, Health, & Safety Specialist	Juniper Networks	10y	3,5y	1h	Fully
		David Asplund	Director of Corporate Environment, Health & Safety	Juniper Networks	30y	8y	-	
Tour of facilities	23/4	David Asplund	Director of Corporate Environment, Health & Safety	Juniper Networks	30y	8y	2,5h	-
Expert interview	24/4	Ali Mushtaq Butt	Director, Clean Energy & Technology Advisory	Innovation Center Denmark	10y	3,5y	1h	-

APPENDIX D – INTERVIEW GUIDE

1. Interview begins

- Smalltalk
- Is it OK if we record the interview?
- Is it OK if we use your name and title in the article?
- Is it OK if we send you follow up questions via email?

2. Background information

1. Is your title [title]?
2. How long have you been working as [title]?
3. How long have you been working at [your company] in total?

3. Information about our study

My name is [name], and this is [name]. We are here on behalf of the research programme Sustainable Society at Lund University in Sweden. This interview will be about the energy efficiency initiatives that [your company] has made. We are no experts in energy, our interest lies within processes. Our goal is to develop an operational strategy that other companies can use as a guide when they are in the starting phase of wanting to become more energy efficient in their operations. Please let your descriptions be as detailed as possible.

Does everything feel OK so far?

Description of the agenda of the interview and why the company was elected for this study.

Do you feel ready to start?

4. Company characteristics

4. Do you remember if a corporate decision was made to incorporate more sustainability approaches within your company?

If yes:

-> 4. A) When was this?

-> 4. B) How did you follow up on this decision?

-> 4. C) [If any changes in the organization were made] – Why?

5. When evaluating initiatives that reduce [your company]'s energy usage, is sustainability or profitability the most important deciding factor?

6. How do people in your organization react when talking about sustainability and cost reductions in the same context?

7. Are losses in profitability acceptable for gains in sustainability?

8. Where in your company do the people that are responsible for your sustainability work? Please specify in what country and what division.

9. Where in your company do the people that are responsible for your energy efficiency work? Please specify in what country and what division.

10. What benefits can you see in this organizational structure, with regards to working efficiently with sustainability initiatives?

11. What downsides can you see in this organizational structure, with regards to working efficiently with sustainability initiatives?

12. Who is responsible for sustainability at [your company]?

13. Has any specific person been the driving force behind your sustainability initiatives?

If yes:

-> 13. A) Why has this person been so important?

-> 13. B) What has this person done?

14. What characteristics should the person responsible for the initiation of a energy reduction project have?

5. The steps of how to reduce energy use

15. Do you have a written strategy for how you initiate and implement new initiatives?

If yes:

-> 15. A) Could you elaborate on what this strategy looks like?

If no:

-> 15. B) Would you then say that the process is random?

Identification of alternatives

16. How do ideas for how to reduce energy usually surface?

-> 16. A) Would you say that ideas mainly come from inside or outside of the company?

-> 16. B) Could you give some examples of sources of ideas?

17. Do you actively look for opportunities to reduce energy?

If yes:

-> 17. A) What does the process look like when you search for opportunities to reduce energy?

-> 17. B) How do you identify what activities within your company that consumes the most energy?

-> 17. C) When do you look for opportunities to reduce energy usage?

-> 17. D) Who is involved in the search for opportunities to reduce energy?

Prioritization among alternatives

18. Are there often many ideas on the table?

19. How do you assess these ideas?

20. On what criteria do you choose which ideas to actually implement?

21. Do you have any ideas that you have not carried through with?

If yes:

-> 21. A) Why?

22. Who is usually involved in this process?

23. Why do you prioritize among alternatives this way?

24. Who gives the final 'go' on the idea before the implementation begins?

-> 24. A) What does the approval process look like?

- 5 minute break -

6. Example project

General

26. Could you give me a short description of what type of initiatives that you have participated in to make [your company] more energy efficient within its own operations?

For example [...]

27. Which of these initiatives were the most successful one, in terms of saving energy and money as well as being easy to implement?

-> 27. A) Why do you think this the most successful one?

28. What was it was meant to accomplish?

29. Could you describe everything that happened, from identification of this opportunity to the implementation?

30. How would you categorize the critical steps up until the decision was made to implement this idea?

Identification

31. When was this project initiated?

32. Did the idea originate from within the company or from someone external?

-> 32. A) Where did he or she that initiated the project work?

33. Who else was involved in finding this idea?

-> 33. A) Why were these people involved?

Prioritization

33. How did you approximate the value of this project?

-> 33. A) What different criteria were used to evaluate and assess the potential of this idea?

34. What in the assessment process would you repeat when evaluating future energy-reduction project?

35. What in the assessment process would you leave out when evaluating future energy-reduction project?

36. Who gave the final 'go' on the idea before the implementation began?

-> 36. Could you elaborate on what the approval process of this project looked like?

Overall questions

37. How would you categorize the critical steps up until the decision was made to implement this idea?

-> 38. A) Which of these steps were easy?

-> 38. B) Which of these steps were hard?

39. Was any third party involved somewhere in the process?

If yes:

-> 39. A) Who was the third party?

-> 39. B) How and why was this third party involved?

40. What did not go according to plan with this project?

-> 40. A) What happened?

-> 40. B) Did you have any other problems or difficulties?

-> 40. C) Have these problems occurred when working with other projects as well?

If yes:

-> 41. D) Why do you think these problems happen?

42. How long did it take to implement?

-> 42. A) How long did the different steps in the initiation take?

43. What would you repeat if you had to do the project all over again? Why?

44. What would you leave out if you had to do the project all over again? Why?

7. Final questions

45. Overall, which are your three most important advices for other companies that want to get started with energy reduction projects?

46. As our final question, we would like to ask you if there is anything that you think that we have missed? Something that you thought that we were going to ask questions about but never did?

APPENDIX E – EXPERT INTERVIEW GUIDE

1. Interview begins

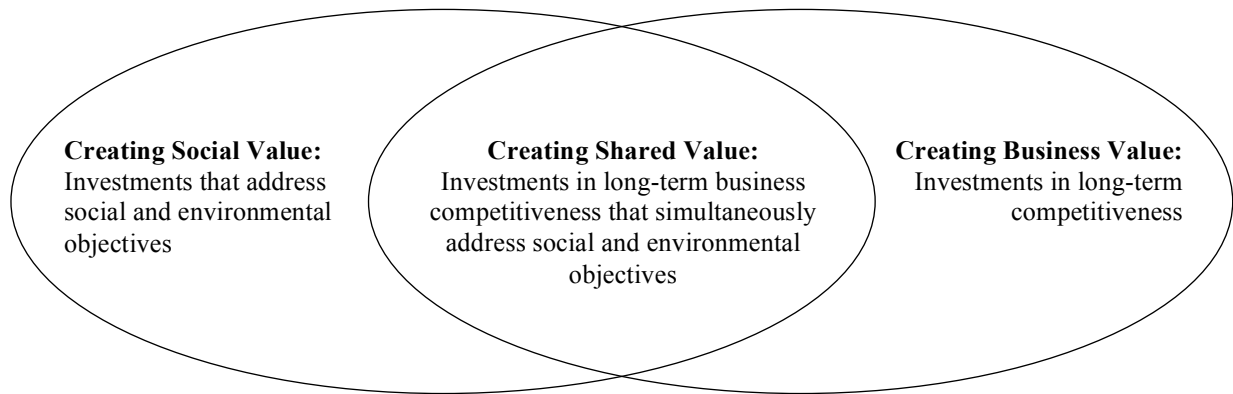
- Smalltalk
- Is it OK if we record the interview?
- Is it OK if we use your name and title in the article?
- Is it OK if we send you follow up questions via email?

2. General questions

1. What do you think is a good strategy for companies to use when they want to get started with reducing their energy use?
 - > 1. A) What actual steps should they take?
 - > 1. B) How should companies look for ideas?
 - > 1. C) How should companies prioritize among ideas?
 2. Do you think it differs between Scandinavia and California?
 3. What are the barriers against reducing energy use here in Silicon Valley, California versus in Scandinavia?
 4. What are the driving forces behind the will to reduce energy here in Silicon Valley, California versus in Scandinavia?
 5. What problems can you see in bringing back best practices from here in Silicon Valley, California to Scandinavia?
 - > 5. A) What are the contextual differences between the countries that make this hard to do?
-

**APPENDIX F – CREATING SHARED VALUE IN THE INTERSECTION
OF CREATING SOCIAL AND BUSINESS VALUE**

FIGURE 7
Shared value
(Bockstette & Stamp, 2011, p. 4)



APPENDIX G – EVALUATION OF IDEAS ACCORDING TO SPITZECK & CHAPMAN

FIGURE 8
Determining the environmental impact
 (Spitzeck & Chapman, 2012, p. 504)

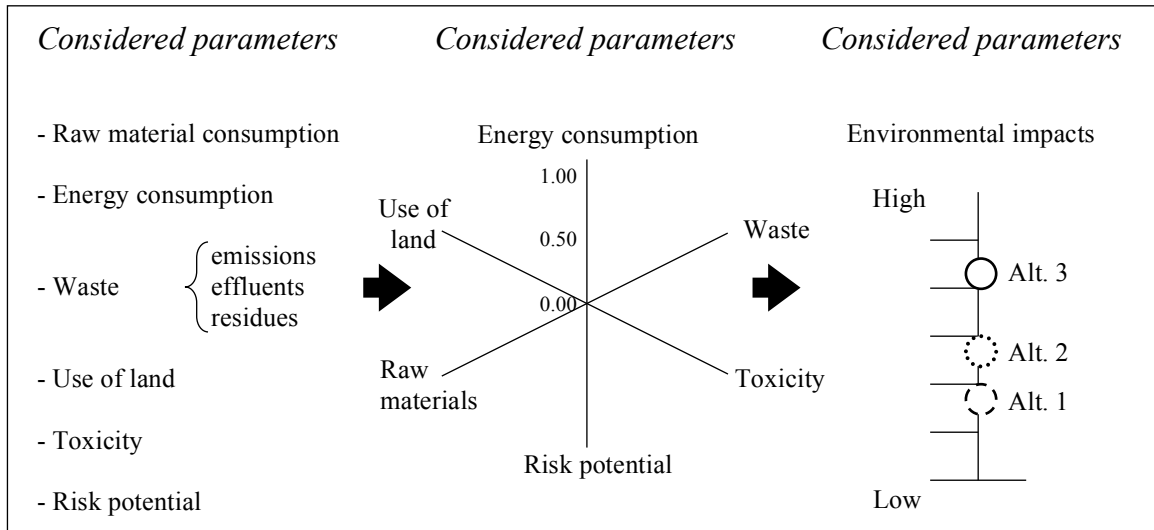
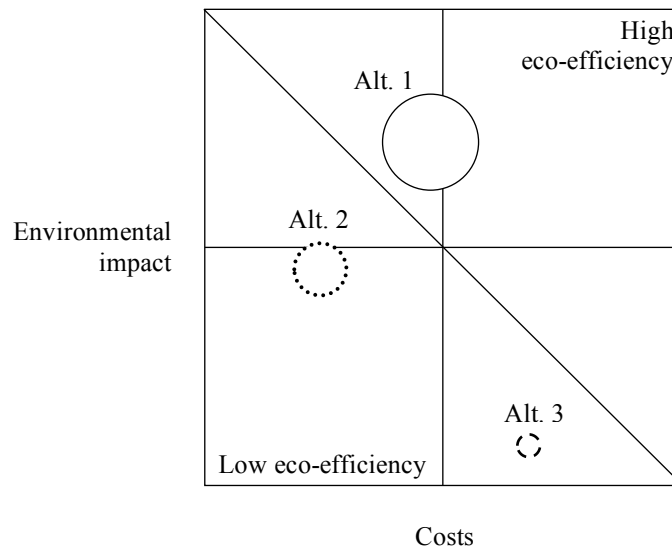


FIGURE 9
Determining eco-efficiency
 (Spitzeck & Chapman, 2012, p. 504)



HOW TO MAKE SUSTAINABILITY PROFITABLE

By Caitlin Bengtsson and Jacob Carlsson

Before the industrialization the human population had few needs and resources seemed infinite. Since then the human race have changed, every day becoming more and more greedy. However, as we have been spending the resources of tomorrow on the leisure of today, a growing wave of resistance has risen. In the epicenter of all this, some argue that it is up to corporations to shoulder the responsibility and drive sustainability forward. But from the look of today, they do a quite poor job.

Whether corporations should do sustainability or not has for long been debated. While some argue that it is an absolute necessity, others say that corporations solely should focus on profit and growth. The result of this is haphazard sustainability efforts and PR-projects.

In 2011, a new theory published by Porter and Kramer claimed to be the solution to our paradox situation. By screening the intersection between business and society, companies can find projects that increase their bottom line at the same time as they do good. The value created by these projects is called shared value. On the contrary to how it might sound, these projects are not about sharing the value already created by firms but rather about simultaneously creating economic value for the company and social value for the society. In other words, making money by contributing to the well being of our planet.

During the spring of 2015, we travelled to Silicon Valley to study this new phenomenon a bit closer. In the headquarters of billion dollar companies such as Oracle and Ebay the people responsible for driving energy efficiency and sustainability enlighten us in how sustainability can be made profitable.

Being energy efficient

Porter and Kramer (2011) explain that shared value can be created in a massive amount of ways. One of the easiest ones according to us is through energy efficiency. A reduction in energy consumption is naturally beneficial to the environment and does always translate into lower energy bills and a better financial performance. But this alone does not make up the entire reason for why energy efficiency

projects should be targeted by companies that want to become more sustainable. In addition, many of these projects are associated with little to no risk, they can successfully be tracked and evaluated, and they are easy to follow and understand. Failure is more or less impossible. In the long run, they will further result in a more productive and healthy work environment for the employees and to attract new talent. All this at the same time as these projects contribute to a more sustainable world.

How to get started with an energy program

All hours spent discussing this subject with the companies in Silicon Valley eventually culminated in an eight step strategy for how to get started with an energy program. It does not matter if you are a top executive manager or just really passionate about sustainability, the knowledge contained within this strategy will still be educating and interesting for you to read.

Step 1: Get support from executive management. Before actually building up the energy program, there are a few preconditions you need to make sure is in place. The very first thing that should be on your mind is making sure that your energy program is supported by executive management. Without their buy-in you will always be fighting an uphill battle. Having their support is necessary to give your future projects the proper authority and resources they need. At the same time, the executives can help you in your efforts to creat-

ing sustainability awareness and acceptance of energy efficiency in the organization.

To get their attention, a good tip is to use the same arguments as we did when we convinced you to read this strategy. Peak back at what was elaborated on in the section above. Do you think your executives would find these projects as interesting as you did?

Step 2: Measure and understand your energy use. Before deciding on where you are going, you need to understand where you are. Implementing a measurement system that meters your company's energy is vital to understand where you should be focusing your efforts. If it is sufficient to measure your energy use on aggregated level or by sub-meters is hard for us to answer since it largely depend on what kind of company you are running. However, some kind of measurement system needs to be in place. By analysing and benchmarking this data you will be able to understand where your journey to become more energy efficient should begin. Remember: you can't manage what you don't measure.

Step 3: Create a driving force. Before hitting the road, you really need to find someone to drive the car. We suggest that you mobilize your organization by creating what we decided to call 'a driving force'. This force may consist of employees from different departments and should be dedicated to the purpose of reducing energy use. In the companies in Silicon Valley, the driving force was made up by EH&S or facilities teams, energy councils or energy departments. These teams consisted of people that were good at communications, had thick skin and expertise knowledge in energy efficiency. They were on top of this open minded and passionate of sustainability, and did a great job in championing sustainability projects. The same type of people are surely hiding out somewhere in your company, waiting for the opportunity to bloom. Once you have found them, make sure that they are giving enough time and resources to actually do a good job. If you can, it further can hurt to give them some nourishment through visions and goals.

Step 4: Create a favourable culture. First you need to understand what your culture is, as well as if and how it needs to change to be more supportive of your energy program. The tricky part with employees is that if they do not understand why you are doing what you are doing, they will not be very willing to having things interrupting them in their work. And the more toes you step on, the more complaints you will have resting on your office table.

A good strategy for creating the understanding organization that you need is organizing employee led green teams. Green teams are voluntary committees of employees from different departments that care about sustainability. These green teams will facilitate the implementation of your future energy efficiency projects and act as your personal change agents. When other employees complain about not having access to the air-condition during an HVAC reconfiguring, the green team will be on your side doing their best to convince those unhappy employees that it is for a good cause.

Step 5: Identify ideas. Once all the above steps are completed it is time to get started with the actual energy program. Since you have been tracking your energy use for a while and have an aware management team and understanding organization, you no longer have to stop your empowered energy team from getting to work. If you are starting from scratch, search for the low hanging fruit and quickest returns. These could for example be replacing equipment and automating processes that waste energy. If you on the contrary have been doing energy efficiency work for a while, a little bit more complex projects awaits you. If you just finished picking the low hanging fruit, continue with larger projects inspired by emerging technology that give you the biggest bang for the buck. If you are at the frontier of energy efficiency, start looking for ways to drive incremental energy savings by changing employee behavior.

Step 6: Asses identified ideas. As we all know, resources are not endless. Therefore, you will have to make calculated choices on what ideas

to pursue. In the process of assessing the ideas identified in the previous step it is important to not get over excited and try to implement all beneficial ideas at the same time. Instead, you need to sort to the best ones, and start with them. If you are starting from scratch, assess the ideas by return on investment, ease of implementation and payback-time. This will help you pick initiatives that increase the credibility of your work and create a strong track record. In other words, these criteria will point you towards picking the low hanging fruit. However as you go along, you should add evaluation criteria such as visibility, sustainability, scalability and employee wellness. These criteria will guide you towards implementing the initiatives that will be the most beneficial to your organization.

In addition to only doing the more administrative assessment of the ideas described above, you should also conduct a pilot test. Pilot testing means trying out your ideas in a small scale before implementing it in the entire company. If you do not do that, you risk ending up with making very bad decisions. Totally in vain too, since you could have avoided them solely by following this recommendation.

Step 7: Pursue and sell the ideas internally. Even though you have sorted out the best ideas and decided on what initiatives you want implement, you can not do this until you have executives' approval, which sometimes is really hard to get. However, note that we wrote sometimes. If you are alert, there are shortcuts in this process. If you are starting from scratch, focus on pushing your ideas forward when something is broken and being replaced. For example it is a lot easier to convince decision makers to replace already broken chillers with more energy efficient ones, than it would be to just replace non-broken chillers. Otherwise, a good time is to push your ideas forward is when you buy or build something

new, or when other changes in the organization take place. That way, your project ties into a bigger project and does not have to have its own approval process. If your ideas do not fit any of these suggestions, the best advice we have left for you is to make sure you find the right timing in the budget cycles to push your ideas forward. In addition, you also need to figure out how your executives usually evaluate projects, what criteria they use and how they prioritize among these. Every company is different and the packaging of your ideas should be done accordingly. But to follow the same criteria that you use is not a bad tip. And just to be clear, never try to sell an idea to executives without having a clear picture of the financials.

Step 8: Evaluate and market your success. In the postlude of every initiative an evaluation of the success needs to be carried through. Yes, we know, we wrote postlude. That means that when you have reached this step, the go/no-go decision and implementation has already been made. We also know what is currently running through your mind. 'If the project is already implemented, why is this then part of a strategy that describes how to get started with an energy program?' The explanation is that this step is particularly important during the postlude of your first projects. Their success needs to be determined and marketed in order build credibility and increase awareness for the good work you are doing to keep the ball rolling. Once enough credibility has been established, both within executive management and within the organization, there will be less resistance left to fight and your energy program will run smoothly.

That's it! Now you have all the tools you need to get started with your energy program. Have fun increasing the profitability of your company and contributing to a greener, better tomorrow.

This study followed a qualitative multiple case study design including eight case companies situated in Silicon Valley, California. The empirical information was gathered through twenty four semi-structured interviews, conducted with the people responsible for driving energy efficiency or sustainability at these companies. The empirical information was then analysed through a thematic analysis and compared to previous literature through pattern matching. For more information regarding this study, please see our master's thesis "How to get started redefining productivity within energy use" at Lund University Publication's database (<https://lup.lub.lu.se/>).