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Article

The clash of business models in emerging economies: The case of wind energy industry in Africa

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The Clash of Business Models in Emerging Economies: The Case of Wind Energy Industry in Africa

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Abstract

With the rise of emerging economy EE as main engine of global growth, the intensified competition in the wind energy industry and internationalization to EE, enterprises need to rethink and innovate their business models in order to succeed. The overall purpose of this article is to increase our understanding of the drivers of business model innovation (BMI) in EE, particularly in the wind energy industry. Qualitative, multi-case design is applied, where three cases within wind energy industry in Africa are studied - Siemens (Germany), Suzlon (India) and Goldwind (China). The results show that there is a difference between “Developed-country Multinational Enterprises” (DMNEs), such as Siemens, and “Emerging-county Multinational Enterprises”, such as Suzlon and Goldwind, in the way they approach BMI in EE. To gain a competitive advantage in EE requires capabilities to deal with the specific EE related drivers of change: 1) fast growth and high demand combined with high uncertainty; 2) lower level of market-oriented socioeconomic development; 3) stronger governmental influence on the market; and 4) the need for simple, cheap and easy to maintain technologies. Therefore, it is important that managers position their enterprises in the EE first as local players and only then as multinationals. Our study indicates that future research should focus on the main elements and the drivers of change that would shape BMI by adding new variables, specifically related to EE.

Key words: business model innovation, emerging economies, EMNEs, DMNEs

1. Introduction

A report from 2012 by McKinsey points out that emerging economies (EE)¹ are likely to contribute more than 70% of the global GDP growth with annual consumption of \$30 trillion until 2025 (Atsmon, et al., 2012). It shows that EE would turn in the main engine of global growth, presenting enormous opportunities for enterprises. Therefore, there is an exponential interest in studying EE which can be associated with four issues: demand, supply, local environment, and global environment according to Drummound (2012). First, demand issue is related to the faster economic growth of EE in comparison with the one in the developed economies, where an increasing share of the revenues of many “Developed-country Multinational Enterprises” (DMNEs) come from. Second, supply issue denotes competition, i.e. enterprises from EE are turning into serious competitors for the DMNEs on various markets. “Emerging-county Multinational Enterprises” (EMNEs) have a faster growth rate than DMNEs, which persists even after controlling for the smaller base they start, and which also exists in developed markets (Atsmon, et al., 2012). Not surprisingly, recently, there are number of innovations originating from EMNEs which can be exploited both at home markets and abroad (Govindarajan & Ramamurti, 2011; Prahalad, 2012). The third issue, local environment, relates to the role of institutions in shaping social and organizational behaviour as well as to the much faster pace of change compared to the one in the developed economies. Finally, the fourth issue global environment underlines the importance of non-market strategies due to the strong influence of the EE governments into corporate decision-making regarding to, for example, the internationalization process. All four issues directly or indirectly hint that in order to capture the opportunities in these high-growth markets enterprises must make a radical change of their business models, i.e. their holistic approach of doing business must change.

Africa is the world second-largest and second-most-populous continent with countries which predominantly belong to the group of EE which are growing faster than anywhere else in the world (EIU, 2012). On the African continent there are 56 countries out of which 28 are expected to grow by more than 5% per year (e.g. Ghana, Ethiopia, Liberia, etc.) thanks to reforms, a fall in political risk, debt write-off and the well-documented commodity prices story according to a report from the Economist Intelligent Unit from 2012. The African wind energy market is still in its infancy and expected to grow at a rapid rate with adoption of renewable energy (e.g. wind energy) as discussed by Pellerin (2005) and

¹ Emerging economies (EE) are defined as low-income, rapid-growth countries using economic liberalization as their primary engine of growth such as the countries in Africa (Hoskisson, Eden, Lau & Wright, 2000).

also supported by Bloomberg (2011) which estimate that the largest growth in the wind energy industry is expected in EE- Latin America, India, Africa and the Middle East, with projected growth of 10-18% per year.

Global competition between wind energy enterprises has increased over the past 10 years with more enterprises entering the market. As of 2003 eight out of nine enterprises that held approximately 94.7% were European. The wind energy market has been largely characterized by regional segmentation with wind turbine suppliers mainly concentrating on their home markets (i.e. Suzlon in India, GE in the US and Gamesa in Spain) due to the high transport and construction costs (Poncin, et al., 2011). This regional segmentation is starting to change as the market shifts from developed economies markets and to EE, mainly due to the fall of restrictions in EE and the rapidly increasing need for power generation. This has resulted in dynamic changes, i.e. five of the top nine enterprises in terms of market share are Asian, while the leaders from 2003 have lost large market share (BTM, 2011). Our research shows that the Asian enterprises have experienced a strong growth due to their lower manufacturing costs and large home markets (Pataci, 2011) which makes their offers more attractive in the context of EE. The other enterprises, on the other hand, are finding it hard to compete with the low-cost strategies and with, for example, the cash availability that is secured for the Chinese enterprises from the state-owned banks (Green World Investor, 2011).

With the rise of EE as main engine of global growth and the intensified competition in the wind energy industry, resulting in internationalization to EE, enterprises need to rethink and to innovate their business models in order to succeed (Poncin, et al., 2011). This raises a number of questions. For example, what are the main drivers of change for business model innovation in general and more specifically in the context of EE. How do DMNEs and EMNEs approach business model innovation to reflect these drivers of change? Are there any specific variables that need to be considered as separate elements of business models adapted for EE? To this background and with those questions in mind, the overall purpose of this article is to increase our understanding of the drivers of business model innovation in EE. For the purpose of this research, enterprises within wind energy industry in Africa are studied - Siemens (Germany), Suzlon (India) and Goldwind (China). The specific research question of this article is what are the business models employed by EMNEs and DMNEs and what drives business model innovation in wind energy industry in Africa.

The remainder of this article is structured as follows. First, the recent literature on EE and business models is analysed as a base of our analytical framework. Second, the methodological choices are

presented and discussed. This is followed by a discussion of the results. The paper finishes with our conclusions, managerial and political implications as well as suggestions for future research.

2. Theoretical framework

This article aims to contribute to the recent avenue of research on business models (BMs) that addresses the questions of what drives enterprises to innovate their business models and what are the key factors to successful business model innovation (e.g. Johnson, 2010; Ostewalder & Pigneur, 2010; Mitchell & Cole, 2003; Markides, 2006; Chesbrough, 2007 & 2010; Santos, et al., 2009; Zott, et al., 2011; and Amit & Zott, 2012). This stream of BM research is seen to be “in its infancy” but at the same time “raises issues that require attention by both scholars and practitioners” (Lambert & Davidson, 2012, p. 9). One such issue is studying the transferability of business models to new markets (i.e. new contexts) and more specifically to the context of EE, i.e. how the extremely dynamic and uncertain context of EE can influence business model innovation, i.e. the nature of the BMs and the underlying factors explaining the type and degree of innovation required. Even though, such research is still scarce; a notable exception is the work of Sánchez & Ricart (2010). They compare and contrast business model innovation in EE, with business model innovation in developed economies and distinguished between two types of business models - interactive and isolated. However, the authors did not shed light on the question of how EMNEs and DMNEs approach business model innovation when starting their operations in other EE.

The existing conceptualization of BM is based on studies carried out in enterprises from developed economies in specific industry while studies of EMNEs in renewable energy industries, operating in other EE, and more specifically Africa/Middle East, have received only limited attention (Hoskisson et al., 2000; Lambert & Davidson, 2012; Richter, 2012; Boons et al., 2012; Loock, 2012).

Emerging economies

Hoskisson et al. (2000) explains that the existing studies on EE, use mainly three theoretical perspectives to analyse how enterprises' activities are influenced by this context – institutional theory, transaction cost economics and resource-based view. The institutional theory deals with the institutional forces (i.e. the systems surrounding the enterprises) which set the rules of the game and thus, shaping social interactions, bounding enterprises to series of formal and informal rules (North, 1990). EE are characterized by much stronger governmental and social influences translated in governmental support or restrictions than developed economies, therefore EMNEs have a specific managerial expertise

developed by dealing with institutional voids and derive rents in the process (Hoskisson, et al., 2000; Cuervo-Cazurra, 2011; Ramamurti, 2012).

The second theoretical perspective is the transaction cost economies. It studies the interface between the enterprise and the environment through a contractual or exchange-based approach (Williamson, 1975). In the context of EE, the usage of network contacts and personal relations is used to reduce uncertainty as well as to pool and coordinate resources leading to organizational learning and economies of scale and scope (Hoskisson, et al., 2000). Based on their study Chakrabarti, Vidal & Mitchell (2011) state, that EE are characterised with lower levels of enterprise competition, higher protectionism and barriers, greater reliance on political connections, and fewer independent enterprises. These characteristics distort the value of resources, increasing the value of enterprise's scale and scope.

The third theoretical perspective is the resource-based view. It mainly focuses on why enterprises differ and how they can pursue and achieve competitive advantage and growth (Barney, 1991; Penrose, 1959). Madhok & Keyhani (2012), for example, discuss that EMNEs possess asymmetric resources compared with DMNEs, and consequently aim towards competitive catch-up through learning and capability upgrading that involves the combination of advantages from their own resources with external ones (e.g. acquisitions). On the other hand, EMNEs might have already established specific capabilities in, for example, EE governmental relationship management, low-cost manufacturing and design, deep understanding of local customers as well as strong distribution system in their home markets, which can be transferred abroad to other EE and lead to valuable tangible benefits (Hoskisson, et al., 2000; Govindarajan & Ramamurti, 2011). In line with the resource-based view, Cuervo-Cazurra (2011) discusses in detail the impact of an enterprise's home country in relation to international business. The author distinguishes between the direct effect of the home country as a resource and indirect effect of the home country inducing the enterprise to develop specific resources. The direct effect of the home country denotes the existing perception of individuals and governments regarding the enterprise's home country and has implications on the operations of the enterprises in the host countries, especially when choosing entry modes, local employees hiring policies, etc. The indirect effect of the home country denotes the development of particular resources at home country to deal with specific realities of the environment there.

Development of the analytical frame

The "business model" (BM) concept puts focus on a system level, i.e. it is a holistic approach towards explaining how enterprises do business (Zott et al., 2010). Despite the interest in the BM concept,

researchers do not agree on a common definition and vocabulary and consequently there is an abundance of definitions which differ in their scope and conceptual focus. Osterwalder (2004) defines a BM as “an abstract conceptual model that represents the business and money earning logic of an enterprise” (p. 15). Johnson (2010) and Kamoun (2008) define BM as four interlocking elements via which enterprises create value. These are: value proposition, value creation system, value deliverance and value capture model. Based on these definitions, the working definition of BM in this paper is an abstract conceptual model representing the business and money earning logic of an enterprise, consisting of four interlocking elements - value proposition, value creation system, value deliverance and value capture model. This definition puts emphasis on four specific value-driven elements which can be purposefully used to attain a sustainable competitive advantage (Fig. 1). Any change in the BM elements is considered to be business model innovation (BMI) as Santos, et al. (2009); Markides, (2006) and Casadesus-Masanell & Ricart (2010) suggest.

The value proposition needs to be clear and denotes the added-value which the enterprise delivers its customers through its offerings (Amit & Zott, 2012; Johnson, 2010; Kamoun, 2008; Shafer et al., 2005). Research shows that the largest barriers enterprises encounter with this element of the BM are insufficient wealth, access, skill and time.

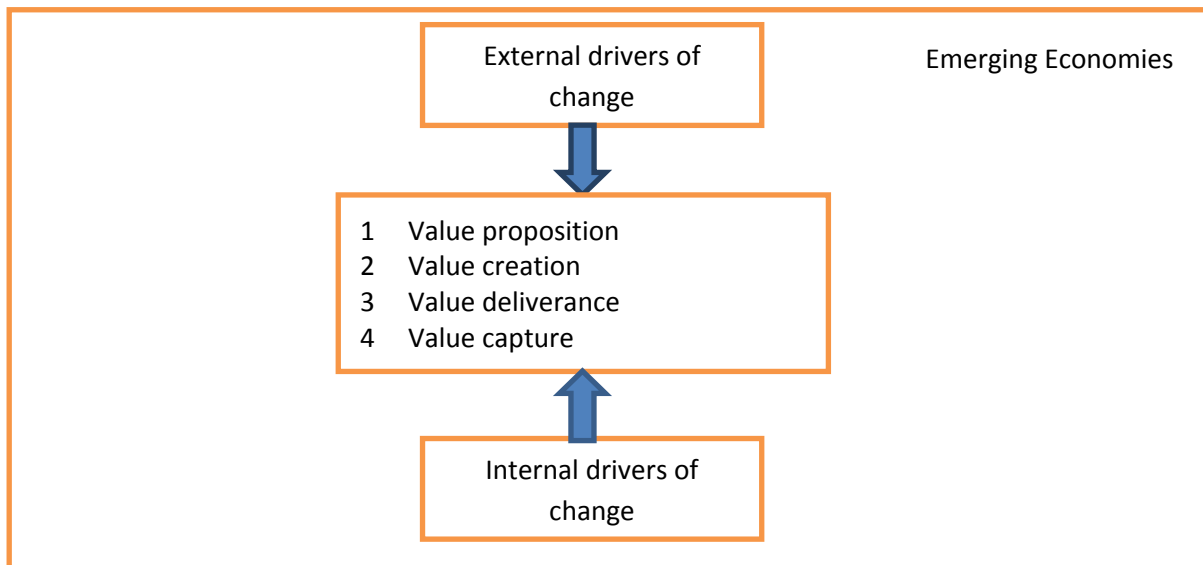


Figure 1: Visual representation of BM (based on Kamoun, 2008, Osterwalder, 2004, Johnson, 2010)

The term value creation system refers to any source that can contribute to enhancing the total value created by the enterprise and be used to exploit business opportunities. It consists of resources (e.g. financial, physical, human, technological, organizational), capabilities needed to coordinate these resources and value chain arrangements. Various combinations of these sub-elements influence the value-creation. The capabilities of an enterprise are the way in which they have developed a specific way of doing things that differentiate them from the competition and enhance value-creation. Value is also created on every step of the value chain via, for example, networking, interlinked activities, alliances with different actors, integration, timing and sharing. As Chesbrough & Schwartz (2007) state the potential for using co-development of BM is significant as none of the enterprises alone has access to all needed resources for capturing discontinuities that occur. Therefore, it is essential to bring together not only resources but also suppliers, customers, partners and other interested parties in order to enhance the value proposition of the enterprise.

Value deliverance denotes market segmentation, customer relationship and distribution channels (Kamoun, 2008; Gottfredson, et al., 2008). The market segment comprises of the different types of customers and geographic dispersion of the segment, i.e. it denotes the scope and nature of the market in which the organization competes. Customer relationship emphasizes on the type of links the enterprise established with its customers which will in turn influence level of loyalty which is a critical success factor for businesses. The distribution channel which enterprises use represents the way in which the enterprise transfers their products and services to the market place in order to enable customer to access them.

Value capture model refers to the way the enterprise generates revenue and handles its costs (Osterwalder, 2004; Amit & Zott, 2012; Kamoun, 2008). This element of a BM defines enterprise's pricing of its products for generating maximum revenues from its value proposition. For example, offering a bundle of product and services instead of a single product, enterprises can maximize their revenue. Additionally, managing the cost structure, i.e. the costs incurred by the enterprise to supply their product or service to the target market, influences the profit. Williamson (2010) emphasize that it is essential to deploy cost advantages to offer customers more value for less expenditure. This could be achieved in various ways such as streamlining the value chain, reengineering of products to improve the value for money, use of cheaper materials, restructuring staff, etc.

The analytical framework for the present research is presented below (Fig. 2). It reflects the dynamic aspects of BMs, i.e. BMs are innovated as a response to both internal and external drivers of change, instead of simply showing a static, snapshot-based view of a BM. This framework will be used to analyse the empirical data in order to identify specific drivers of change in the context of EE as well as to compare the business models of DMNEs and EMNEs for EE.

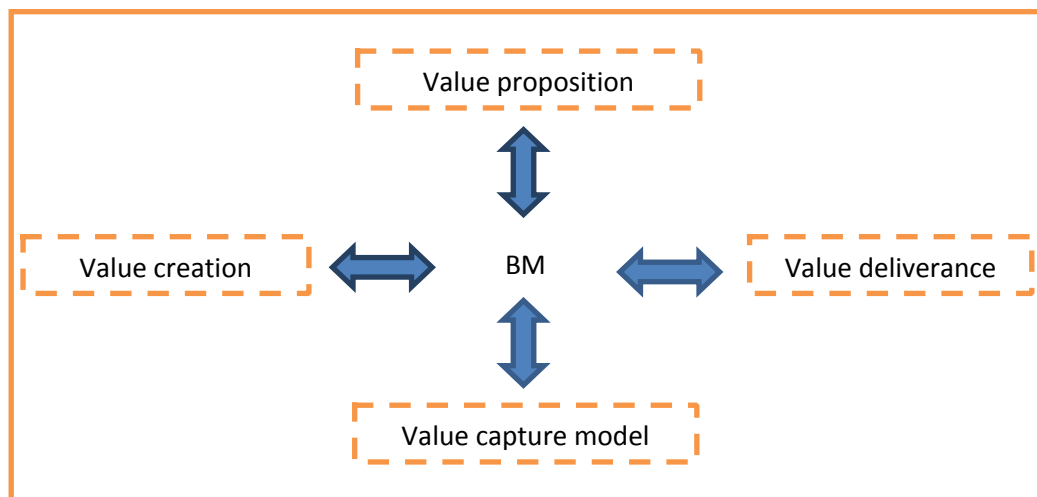


Figure 2: Analytical framework

There are various motives that drive enterprises to perform BMI which can be divided into internal and external drivers of change (Giesen, et al., 2009). Internal drivers of change consist of product/service innovation and resource availability. The first one, product/service innovation, refers to when new

products or services are being introduced to the market enterprises need to consider if there is a need, for example, of a new set of skills, change of its processes and pricing strategy in order to increase the value delivered to the customers (Giesen, et al., 2009; Johnson, 2010). The second one, resource availability, refers to availability of financial, physical, human resources as well as to organizational structure and organizational capabilities (Boulton & Dilbert, 2000). The resource availability affects all BM elements and influences how the enterprise can seize new opportunities or adapt to threats.

The external drivers of change that affect enterprises BMs refer to the changes in the external environment. The level of market-oriented socioeconomic development (i.e. capital markets, labour markets, legal infrastructure, and physical infrastructure), outlines by, for example, Chakrabarti, Vidal & Mitchell (2011). Additionally, Kamoun (2008) has distinguished between technology change, economic forces, social factors, legal/regulatory factors, competitive forces and changing customer demands as external drivers of change. Technological change denotes the development of new and improved technologies which create new market opportunities. The economic forces, social and legal/regulatory factors belong to market-oriented socioeconomic development. However, the economic forces also refer to the global conditions such as the current economic recession as well as change of the mind-set in terms of the role of private enterprises to the social development. Competitive forces can be divided into the thread of new entrants and the current competition which constantly challenge the current BM of the enterprise. The value proposition needs to reflect the increasing pace of changing customer demands which become more specific and sophisticated.

3. Methodology

Studying businesses in any context requires capturing complex social phenomena with multiple players involved and no clearly evident boundaries to their context, requires employing a qualitative approach (Yin, 2003). Qualitative research is seen as interpretive when the researcher needs to make sense of the subject and its meanings (Saunders, et al. 2012). It is useful in exploring implicit assumptions and examining new relationships (Weick, 1996), which explains the tradition within both BM and EE research to use qualitative studies and more specifically case studies (Lambert & Davidson, 2012; Hoskisson et al., 2000).

The scares prior theorizing about a topic makes case study approach appropriate choice. According to Yin (2003) “contemporary phenomenon within its real-life context is investigated” via case studies, “especially when the boundaries between phenomenon and context are not clearly evident” (p. 13). Multiple-case study approach has exploratory and explanatory applications and is based on on-going

comparison between three globally operating enterprises. It is considered to be more compelling and robust as well as particularly useful of early stages of research on a topic (Yin, 2003; Brown & Eisenhardt, 1997). This methodology fits with the purpose of this study: first, exploring what are the specific BMs of each in the three enterprises and what are the drivers of change for BMI in an EE; second, exploring how different types of enterprises (DMNEs and EMNEs) can create value in an EE through comparative analysis of the three enterprises.

For this study, three cases were selected for in-depth analysis - a European (Siemens Wind Energy), an Indian (Suzlon Group) and an Asian (Xinjiang Goldwind Science & Technology Co., Ltd.) enterprise, operating on the wind energy market in Africa. The cases selection was straightforward as currently there are a small number of enterprises operating² on the African wind energy market. Additionally, all three enterprises have recently won public tenures in Africa (i.e. in the period 2009-2011). Furthermore, all three companies are amongst the top ten turbine manufacturing enterprises in the world. The choice of cases was also motivated by the fact that analysing enterprises from different countries has a learning potential and can illustrate rich diversity when conducting an explorative research (Eisenhardt, 1989). Besides the learning potential and diversity, the three cases are chosen to enable comparison between the BMs of DMNEs and EMNEs in EE.

Both primary and secondary data was collected in the course of the study in order to provide insight and understanding in relation to our purpose and research question. For this study, semi-structured interviews were conducted with executives from all three enterprises who directly involved in the operations in an EE. In total three telephone interviews were carried out, complemented with follow up to clarify answers or get additional data. The respondents were directors or country managers. The secondary data for this study was gathered from various sources including: journals, reports from institutions, newspaper articles, enterprise reports and websites.

In order to facilitate the data collection and analysis we applied structured comparison of the three cases. The developed analytical framework (Fig. 2) was used to represent each of the cases which enabled obtaining of consistent and comparable results. Eisenhardt's (1989) recommendations are followed to start with a within-case analysis to become more familiar with the data collected, followed by cross-case analysis in order to deepen our understanding and explanation.

² Here, "operate" refers to already installed capacity and won public tenure(s) to install capacity for wind energy production.

Case enterprises

Siemens AG (shortened Siemens) is one of the world's largest providers of green technologies. In fiscal 2011, the number of employees was around 360,000 employees and generated revenue from continuing operations of about €74 billion. Siemens Energy, established in 2008, is part of Siemens AG and has about 82,000 employees worldwide. In fiscal 2011, the Sector generated total revenue of €24.9 billion and profit of €3.9 billion.

Siemens Wind Power is a division of Siemens AG and has been manufacturing wind turbines since the mid 1980's and is currently rated number nine in the world in terms of market share and is the number one in terms of offshore wind turbines. Siemens Wind Power³ currently employs 7800 people with an installed capacity of over 14000MW.

The Suzlon Group (shortened Suzlon) was founded in 1995 and since then has grown at a steady rate. Originally founded as a textile manufacturer, it is currently ranked as the world's fifth largest wind turbine supplier, in terms of cumulative installed capacity, at the end of 2010. The enterprise is operating on 6 continents in 32 different countries with an installed capacity of over 18000MW and employs over 13000 people in the different countries.

Xinjiang Goldwind Science & Technology Co., Ltd. (shortened Goldwind) has experienced rapid growth since its inception in 1998 and is now fourth globally in terms of wind turbine manufacturers with regards to market share. Goldwind currently has installed over 12GW of wind turbines and operates on 6 continents and employs close to 2000 people. Goldwind's drive for technological innovation was rewarded in 2011 by being voted as one of the top 50 most innovative enterprises through their wind turbines that have been adapted for specific conditions (Technology Review, 2012).

4.Results and discussion

A report from EIU (2012) starts with the fact that Africa is not a single country, but a continent with 56 counties if South Sudan is taken into account. It means 56 different regulations, governments and around 2000 languages. It contributes to a very complex business environment with high communication barriers across the different countries and cultures, combined with high political risk, increasing corruption at many levels and underdeveloped infrastructure. It implies that every enterprise

³ Siemens would be used to denote Siemens Wind Energy throughout the text.

operating in Africa needs to navigate in this complex environment and counteract the challenges and risks with BMI.

External drivers of change

Since the external drivers of change are identical for all three cases enterprises, the discussion in this section is relevant for Siemens, Suzlon and Goldwind.

According to EIU (2012) countries in Africa are experiencing fast growth rate. According to EIU's report from 2012 this growth is mainly driven by four factors. First, despite the fact that Africa is still considered to have the highest political risk factor in the world, peace has been slowly establishing. This can be seen as a start of a process to improve the level of market-oriented socioeconomic development by shifting the focus to strengthen the legal infrastructure, capital and labour as well as physical infrastructure. A higher level of market-oriented socioeconomic development would mean that there is a better support of the business activity and might attract enterprises to enter the African market (Chakrabarti, et al., 2011). As EIU's (2012) report points out overall all countries on the continent strive towards achieving faster growth, job creation, black economic empowerment (BEE)⁴ and correcting social imbalances via their policies. This, however, might lead to distorted balance in the governmental decision-making between political and economic motives. Despite these efforts, as the report states, the institutions are very weak, bureaucratic and cumbersome. Additionally, African countries lack financial infrastructure (Atsmon, Kloss & Smit, 2012). Another market-oriented socioeconomic development factor is the high unemployment and generally weak labour market, complemented with demands for higher pays and stricter labour laws by trade unions. This factor is limiting the availability of flexible and skilled work force which is a major problem for business activities. As for the legal infrastructure, EIU (2012) emphasizes that even where the regulations are satisfactory, local officials may not know how the regulation contains. These realities in Africa create prerequisites for asymmetrical information in the market exchange and limited access to capital as described in the exiting literature on EE. Additionally, it also translates in high scarcity of key inputs, such as skilled labour, power, which leads to underestimation of the true cost of doing business as well as hindering of business activities.

The second factor for the African growth is a fast urbanization which causes rapid change in the demographic picture on the continent, which leads to concentration of the population in the cities (EIU, 2012). It leads to a rapid rise of energy demand in all countries on the continent, and more specifically

⁴ It is a law which states that a certain percentage of the business must be owned by a black South African.

renewable energy, to address the shortfalls in the supply of electricity. More specifically, the installed capacity of wind energy production is slowly developing in North, Southern and East Africa, where there are most suitable conditions (Make Consulting, 2011). However, the significant potential of renewable energy sources is hampered by the lag in the legislative framework (EIU, 2012). For example, every wind park development is initiated by the local governments which publish public tenders which illustrates the high level of involvement of the government on the energy market. This is in line with the EE literature and more specifically the institutional theory which discusses the much stronger governmental influence through support and restrictions compared with the governments in developed economies (e.g. Hoskisson, et al., 2000).

The level of legislation related to wind power specifically varies between the different countries. While in some countries there is lack of feed-in-tariffs (e.g. Ethiopia, Namibia), other countries, such as Kenya, have just recently introduced feed-in-tariffs (Ethiopia Forums, 2011). Additionally, in some countries such as Namibia there are import duties on technology for renewable energy production and the financing of the whole project is expected to be made from the winning bidder (Ndhlukula, 2009). Furthermore, for example, in South Africa, bidders need to comply with stringent rules in order to be successful such as job creation, manufacturing plants and local assembly, knowledge transfer, BEE as well as further social development (African Clean Energy Developments, 2012). The above snapshot shows the high involvement of the government on the market combined with underdevelopment of the legal and regulatory infrastructure, which according to Chakrabarti et al. (2011), is a major hinder for entering and operating in the wind energy industry in Africa.

The third factor contributing to the growth in African countries is the increasing share of trade where Europe is Africa's largest partner along with increasing share of China in the recent years. China is seen to have a dominant presence in the trade of the continent compared with other Asian countries due to the Chinese investment in Africa. The prominent place of China as a trade and an investment partner for Africa creates prerequisites for favourable attitude from the African governments towards MNEs from China (e.g. Goldwind) which operate on the African market, i.e. Chinese enterprises have a competitive advantage. Already in 2009 Frost & Sullivan have recognised the Asian increasing influence, especially of China, in the sub-Saharan African electricity production industry. The same picture is also captured by the report from EIU (2012). This observation is in line with the findings of Chakrabarti et al. (2011) that in countries with weak level of market-oriented socioeconomic development governments might tend to prioritize political goals over economic ones. It also means, as Cuervo-Cazurra (2011) discusses, that

the various African governments might give preferential treatment to Chinese enterprises due to the perception that China in general is bringing needed investments and resources in Africa.

The fourth factor for the growth in the African countries, according to EIU (2012), is the rise of technology (i.e. mobile phone penetration, fibre-optic network, etc.) and the subsequent improvements in the physical infrastructure as a result of that. This have not only started to facilitate the establishment of the Internet and telecommunication markets but also created opportunities for development and investment in other industries, such as wind energy production, railways, roads building, etc. According to the EIU (2012) a substantial amount of work has been done in the last decade with the help of Chinese investment in all above mentioned areas. Furthermore, all African governments are setting as requirements in the public tenures that the winning enterprise/bidder needs to make investments in collective goods and boost the local economy by, for example, localization of manufacturing, investment in physical infrastructure and education, which poses a big financial burden for the businesses. This indicates that enterprises, operating in EE need to also focus on non-market strategies in order to succeed. For example, Siemens had to commit an investment of \$260 million to boost local manufacturing and strengthen its sales teams in Africa (Harding, 2012). Additionally, Siemens has recently created a Wind Power Centre of Competence in South Africa to serve the African market and boost the skill level of the local work force (Siemens Innovation, 2012). Another example is that Suzlon had to create a partnership with BEE enterprises, train local workers and create local content through assembly and construction activities in order to satisfy the South African government's legislation regarding independent power producers (ACED, 2012). Furthermore, Goldwind Africa is owned 20% by a local firm to meet the requirements of BEE and is offering traineeships, participating in social development projects to educate locals about wind power.

The competition, another external driver of change, on the wind energy market in Africa is generally lower. Based on the data that was gathered, we assume that there are 14 wind turbine manufacturers that were represented on the African market⁵. The majority of these enterprises are amongst the top 15 world wind turbine manufacturers according to BTM (2011). It is interesting to note that approximately half of the global top 15 enterprises are Chinese, which shows the global dominance of the Chinese enterprises and might explain the indication for better positions of these enterprises in the African wind energy market.

⁵ Note, presently we are not aware of a reliable source for data about which enterprises operate on the African wind energy that we can use; therefore there is a risk that we have missed to an actor on the market.

The countries that have most suitable conditions for wind energy production are located in North, East and Southern Africa (Make Consulting, 2010). First, the North African countries of Egypt and Morocco are ahead of the rest of the African countries in wind energy development with 97% of the installed capacity in the whole of Africa in 2010 (Global Wind Report, 2010). Enterprises such as Gamesa, Vestas and Siemens operate on this market. Second, the Southern African countries of Namibia, South Africa and Lesotho have the most suitable conditions for wind energy production in this region (Economic Commission for Africa, 2006). The competition in this region is much more intense where enterprises such as MinYang Wind Power of China, Suzlon, Sinovel, Goldwind, Sumitoto, Vestas, Nordex and Siemens are represented on the market. Most recently, the Asian enterprises have done better on the market by winning the largest public tenures (i.e. Suzlon and Sinovel) announced by the South African government (Stromsta, 2011). Finally, the East African countries of Kenya and Ethiopia have started to slowly explore the underdeveloped potential for wind energy generation in this region (Ethiopia Forums, 2012). Enterprises such as GE Wind, Vestas, Vergnet of France and Goldwind are represented on the market.

The internal drivers of change and the elements of the BMs are enterprise-specific; therefore the following sections analyse them for each enterprise separately.

Siemens

Internal drivers of change

Siemens is a technology integrated enterprise and has a long history of technology excellence, innovation and quality. The enterprise is one of the largest in the world, offering green technologies. Siemens major competitive advantage in the wind energy industry comes from its engineering and R&D where it has vast experience stemming from its overall industry experience in the energy sector. Some recent examples of Siemens emphasis on innovation in the wind energy industry are: 6MW turbines, the Direct Drive turbine and floating off-shore turbines (Siemens Innovation, 2012). Siemens has a wide and deep portfolio of technological capabilities, which influence the BMs of the enterprise as well as determines the trajectory of the future technology developments.

Siemens intentionally and proactively works on their BMs in relation to entering different markets for each of their industries (Siemens Innovation, 2012). Specifically for the EE, Siemens emphasizes on the SMART principles which are to a large extent inspired by the four elements, suggested by Prahalad & Hart (2002). “S” and “M” denote creating simple solutions, i.e. robust, simpler-design products that can work and be maintained in different conditions with low skilled workers. “M” denotes maintenance

friendly solutions. “A” denotes affordable price both for the product and the maintenance in line with the buying power of the customers. “R” denotes reliable products that live up to Siemens brand reputation of high quality. Finally, “T” denotes time to market through improving access by the distribution system and low transport costs.

Siemens has a long history and good reputation on the African continent. From the transaction cost economies perspective, this is advantageous for Siemens as it is well connected with important local actors and governments. The enterprise also has a good knowledge of the socioeconomic context in Africa. As Chakrabarti et al. (2011) states large and diversified companies in EE can gain to a greater extend from nonmarket benefits (e.g. contacts and connections, gains from business and technological capabilities transferred from developed markets, etc.)

Siemens Business Model

For Siemens the entrance into the African market has not posed any significant challenges due to their long presence in the market within other industries. The enterprise has made minor changes to their BM (Fig. 3). This could be explained with the legacy of Siemens core technologies, prior investments, existing mind-set and BMs, which constrain and predetermine the degree of innovation that the enterprise makes in their BMs when entering a new market (Govindarajan & Ramamurti, 2011; Ramamurti, 2012). Additionally, as Chesbrough & Rosenbloom (2002) argue, existing BMs serve as mental maps which preclude the way new ideas are perceived which also explains the small degree of change in Siemens BM for the African market.

Johnson (2010) made clear that the value proposition needs to be precise and clear. Siemens value proposition has not changed since entering the market. The enterprise has decreased the range of wind turbines it offers in order to mitigate the shortage of qualified labour force and low wealth. Additionally, Siemens offerings for the African market are in line with the main principles (i.e. SMART) that the enterprise follows in their BMs for EE.

Siemens value proposition is termed a “one-stop-shop” and includes a bundle of products and services that cover the whole life cycle of a wind energy capacity installment (Amit & Zott, 2012). Siemens offering includes: preparatory services (e.g. site hunting, wind assessment, land lease agreements etc.); finance (e.g. financing, insurance and legal arrangements); wind turbines (e.g. manufacturing, assembling, transportation, erection, training and warranty); balance of plan (e.g. civil works, electrical infrastructure, grid connection, etc.); operations and maintenance (e.g. monitoring, spare parts, training, etc.). This offering harnesses the full range of Siemens existing business and technological capabilities. It allows Siemens not only to generate higher revenues but also to create more value for their customers.

In the context of EE, offering finance and the main product (Direct Drive turbine) as a part of Siemens value proposition are seen as particular strengths and a way to create buying power and creating solutions as formulated by Prahalad & Hart (2002). The Direct Drive turbine, the main product of Siemens for EE, has half the amount of parts a normal turbine has and therefore is simpler and requires less maintenance (Siemens, 2011). Additionally, dealing with legal arrangements adds value to their offering due to the weak level of legal infrastructure where legal arrangements can be cumbersome and often confusing (Chakrabart, et al., 2011).

The value creation system refers to the enterprise's resources, capabilities and value chain arrangement (Shafer, et al., 2005) and is used to enhance the total value created by lowering costs or increasing revenues (Amit & Zott, 2012). Over the years Siemens has built a strong global brand of offering high quality products and services. Siemens constantly invests in innovation in line with their existing strategy order to create new or enhance the existing engineering solutions, which means that the enterprise is in a way locked into a certain path of development due to its history and existing technologies. This explains why Siemens has decided against specifically developing even simpler technologies than the Direct Drive Turbine for EE and subsequently not changing their main offering for Africa and instead removing from their offer some of the more technologically-sophisticated products.

Due to the weak labour market in Africa translating in limited availability of skilled workforce, Siemens has invested in training local staff to meet its needs in the region. For example, Siemens has established Wind Power Centre of Competence in South Africa because through the training of local workers, Siemens are saving costs in the long-run on employing overseas workers and at the same time meeting the legal/regulatory frameworks of the markets they are operating. Furthermore, Siemens is also contributing to building collective goods (i.e. improving education) in order to enhance social development and increase Siemens reputation on the continent. This approach of intentionally extracting Africa's potential by engaging, transforming and appropriating Africa's resources (intellectual and physical) is seen as essential for success in EE by Zaheer & Nachum (2011) and Prahalad & Hart (2002).

Siemens has put a large emphasis on balancing their supply chain and not becoming too vertically or horizontally integrated. In Africa Siemens works to achieve a split 60/40 in favour of local sourcing, in order to, not only cut costs, but also fulfil the legal requirements of enhancing local manufacturing. This is achieved through locally sourcing of low-added value, heavy items (e.g. turbine mast), while the core, high added-value components of the turbine (e.g. control systems and blades) are manufactured at centres of excellence in Germany, Denmark, China and the USA. This approach allows achieving

economies of scale, taking advantage of the skilled workers and exploiting their key technological capabilities. By doing this Siemens creates cost efficiencies, quality in production and a secure supply for their turbines.

The value deliverance system is made up of the market segment, customer relationships and the distribution channel (Kamoun, 2008). Siemens has divided the African market in three geographic market segments (North, East and South) and has adapted its value deliverance accordingly. Siemens customers are made up of Independent power producers, utilities companies and the different governments in each of the regions that Siemens has collaborated previously with in other international projects. Siemens has relies on certain criteria when choosing their partners/customers. For example, there need to be a previous collaboration with Siemens as the partners understand the quality Siemens brings even if the cost is higher. Additionally, Siemens is quite selective regarding which projects it will bid on because the enterprise does not follow “offer the lowest price” approach but rather would like to be involved in projects where the customer is thinking more long term and is technically capable. Siemens approach is to establish strong customer relationships through creating loyalty by delivering a high quality products and services as suggested by Gottfredson, et al. (2008). As Siemens has been in Africa for a long time they have already built up strong relationships with governments and their respective utilities enterprises which can be exploited to and become a major advantage over the competitors. This could be seen as Siemens approach to decrease uncertainty and pool resources by relying on already established relationships with local actors and governments which is seen as one of the main prerequisites for success in EE through the transaction costs economies perspective (Hoskisson, et al., 2000). Due to these long relationships Siemens understands and is already aware of the legal/ regulatory laws and the social factors that govern the different regions in Africa. The customers know that Siemens provides a safe investment in better quality rather than simply a lower price. On the other hand, non-partnering with new enterprises can be perceived as lack of flexibility due to rigidity of Siemens business structures which might turn into an obstacle to Siemens operations in Africa in the future (Govindarajan & Ramamutri, 2011).

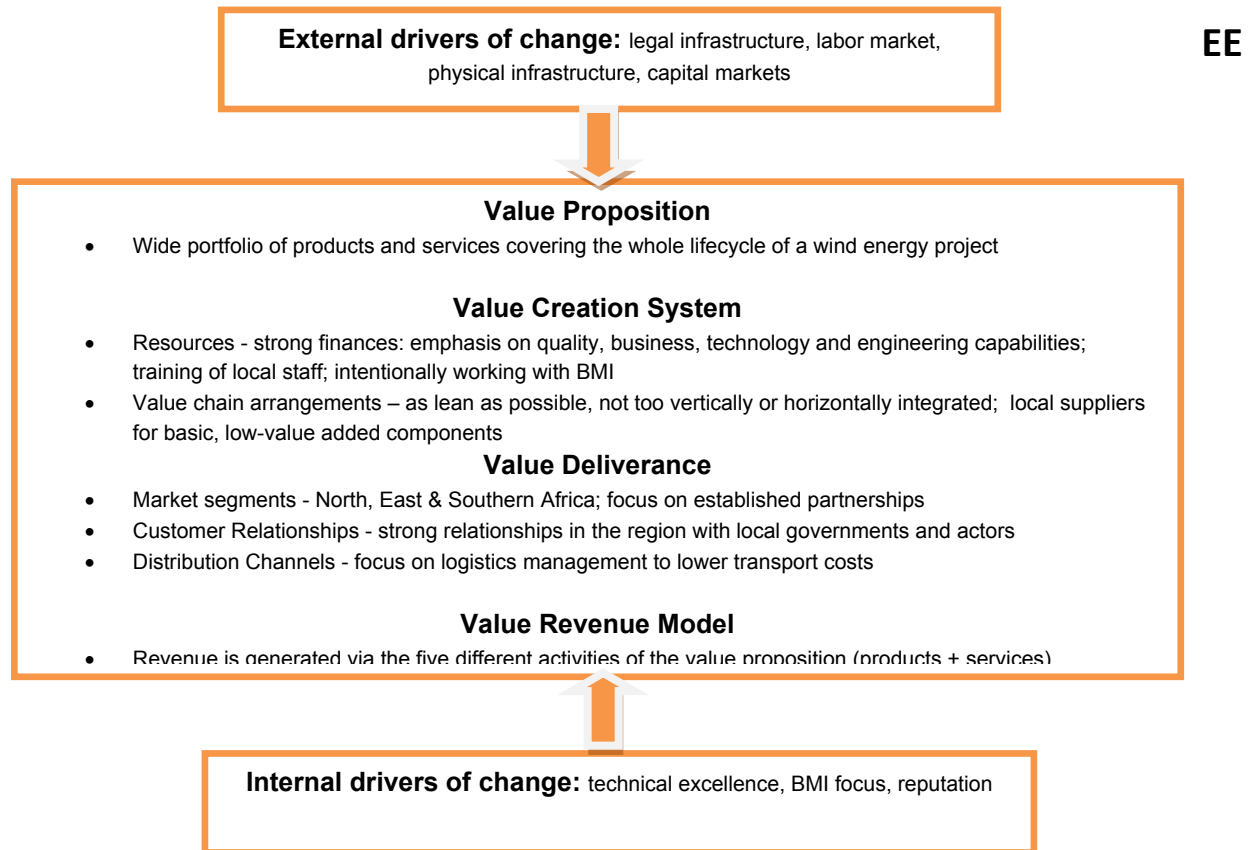


Figure: 3 Siemens Business Model

In relation to distribution channels, Siemens has put an extra emphasis on logistics in Africa as the continent's physical infrastructure is underdeveloped and the turbines are large in size which is in line with both Zaheer & Nachum (2011) and Prahalad & Hart (2002) for improving access by creating collective goods in order to establish a better distribution system.

Siemens value capture model works in two different streams, revenue generation and cost structure. The enterprise's main source of revenue is through the sale of wind turbines and this is supplemented through the variety of services they offer and the feed-in-tariffs provided by the governments for the supply of energy. Although Siemens do have higher cost structures than many of their competitors the enterprise still looks at ways to reduce costs by creating a leaner supply chain and through using local enterprises to manufacture basic items of the turbines. Siemens also understands that the Asian enterprises follow a low cost strategy which further encourages it find ways to keep costs down without affecting the quality. Siemens profits are reduced due to the legal requirements to create collective goods to enhance social development.

Suzlon

Internal drivers of change

Suzlon is established later than Siemens, but has been rapidly growing to become amongst the largest global manufactures of wind turbines. Suzlon made two key acquisitions of Hansen Transmissions (Belgium) which is the second largest wind gear box manufacturer and RE Power (Germany) which has given Suzlon a greater presence in Europe (The Economist, 2008). From a resource-base view perspective, these acquisitions of enterprises from developed countries could be explained with the fact that EMNEs possess asymmetric resources compared with DMNEs. As Madhok & Keyhani (2012) emphasize EMNEs strive towards competitive catch-up through learning and capability upgrading that involves a fusion of the advantages of internal and external resources, which makes them much more flexible and adaptable in comparison with DMNEs. It also translates in faster growth rates of EMNEs compared with DMNEs, no matter if they operate in developed or developing markets (Atsmon, et al., 2012).

Suzlon offers a bundle of products and services that cover the whole life cycle of a wind energy capacity installment (Amit & Zott, 2012). Due to the competitive catch-up approach, Suzlon has placed a large emphasis on innovation and is one of the few wind energy enterprises with a fully vertically integrated value chain (Suzlon, 2008). This allows Suzlon to have shorter lead time to production and fewer bottle necks. Additionally, Suzlon has better control over the cost, time and quality of products (Suzlon, 2008). The largest market for Suzlon is their home market India which also falls in the group of EE. Serving their home market Suzlon has develop specific capabilities such as low-cost manufacturing, design, deep understanding of the customers from EE as well as EE governmental relationship management. These capabilities can give valuable benefits and can be transferred abroad to other EE (Hoskisson, et al., 2000). Suzlon is an example where EMNE has adopted the latest technologies and developed advanced capabilities in the wind turbine manufacturing, motivated by the large demand on the home market. Additionally, Suzlon does not have to deal with core rigidities due to the legacy of prior adopted technologies, prior investments or market positions in comparison with Siemens for example.

Suzlon Business Model

Originating from an EE itself, Suzlon did not have to make significant changes in its BM for Africa (Fig. 4). Suzlon value proposition is a bundle of products and services encompassing the whole project life cycle of the wind farm and especially suited for EE. Suzlon does not aim to own projects on completion but hand them over to the independent power producers as turn-key projects. Suzlon is working with simplifying the turbine in order to meet the requirements for easier and cheaper maintenance as well as the lack of qualified personnel. It follows the strategy of Amit and Zott (2012) of adding complementary products/services to create more value. Suzlon's value proposition includes conceptualization of the project through land sourcing and wind assessment; infrastructure development (e.g. roads, power lines and grid connection); manufacturing; and services (e.g. project development, installation and operations and maintenance). This offering is to a large extent similar to this of Siemens. However, Suzlon does not offer any financing and insurance for the projects it has won, i.e. the financing for the Cookhouse wind farm that Suzlon is involved in would be provided by African Clean Energy Developments (ACED).

Suzlon have adapted their value creation system in a number of ways due to various external factors that are unique to Africa. Due to the legal infrastructure in Africa, Suzlon had to employ different strategies to win government tenders. For example, Suzlon is collaborating with local suppliers in order to source some lower value-added components. Additionally, Suzlon had to provide training to increase the technical skills and be able to build up local teams who will provide the service and maintenance.

Similarly to Siemens, Suzlon's business activity is burdened with the costs that the investment in collective goods (e.g. education, infrastructure, etc.) brings. However, EE literature sees this as one of distinctive characteristics of EE (e.g. Prahalad & Hart, 2002).

Suzlon is also purposefully working to understand what technologies work better in the African conditions and consequently adjust the technology to suit the market better. Additionally, due to the vertical integrated, Suzlon has manufacturing facilities in the USA, India and China. However, Suzlon is currently looking for suppliers of higher added-value parts (e.g. blades) in South Africa so the enterprise can meet the legislation and at the same time further decrease the costs.

The capabilities of the enterprise in Africa are related primarily to the capabilities that the company has developed in its home market India and that are transferred in Africa namely as low-cost manufacturing, design, deep understanding of the customers from EE as well as EE governmental relationship management.

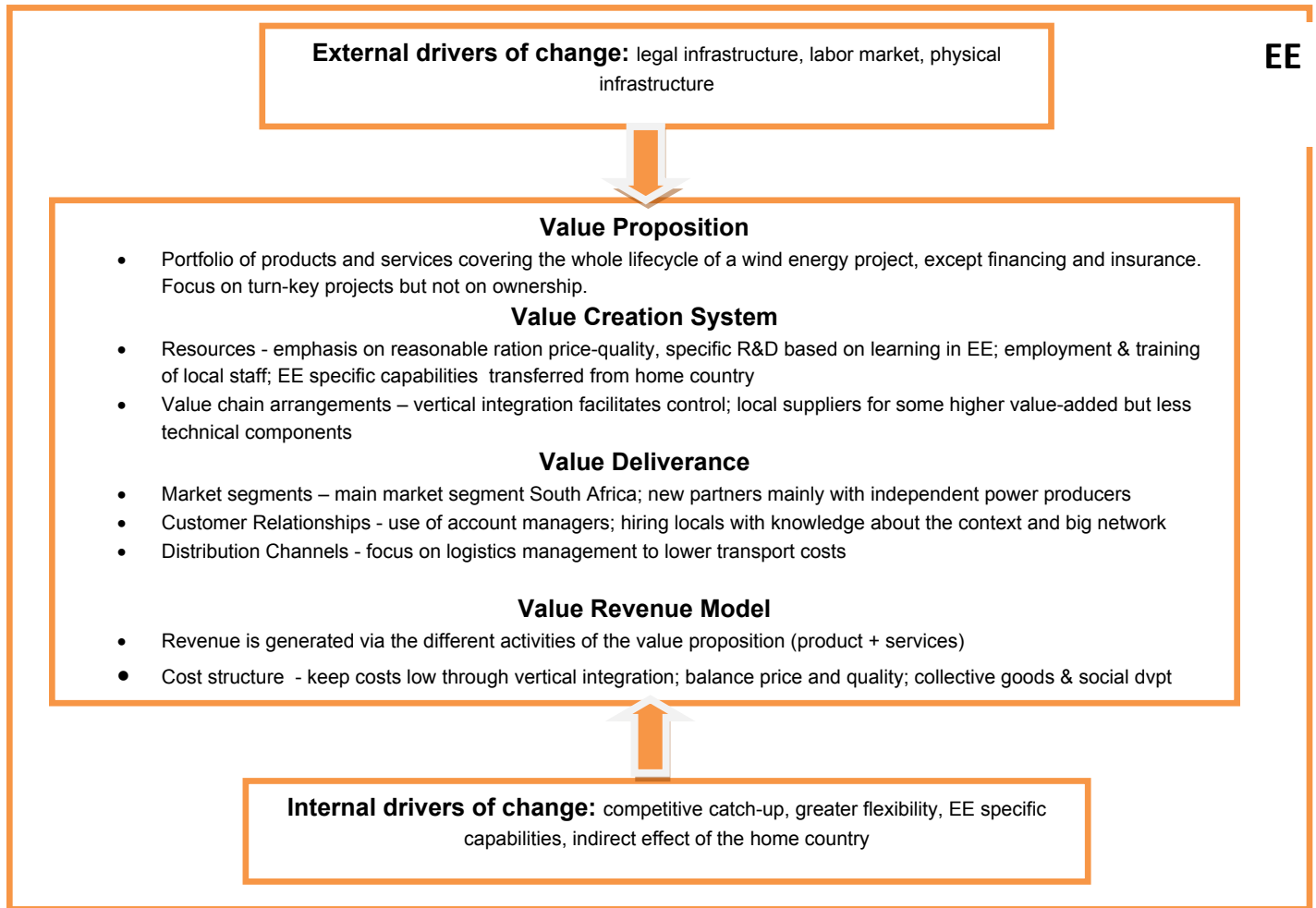


Figure 4: Suzlon Business Model

When entering new markets enterprises always have to change the way in which they deliver value and Suzlon is no different. On their entrance in Africa, Suzlon have specifically targeted South Africa due to the effort the government is making towards renewable sources of energy which means greater demand. Once Suzlon is established on South African market it plans to enter the neighbouring countries.

Relationship management is of primary importance of Suzlon, therefore it is looking to employ local people with knowledge and well networked with the main actors in the energy sector in Africa. In line with the EE literature and both transaction costs economies and the resource base view perspectives, networking is seen as essential so the enterprises that enter EE can gain a greater foothold in the market and reduce uncertainty (Hoskisson, et al., 2000). Additionally, the intentional effort to find employees with wide network is an expression of Suzlon's specific EE capabilities and understanding of the importance of networks to navigate in the EE. For example, Suzlon has appointed an African CEO who has over 20 years of related industry experience in Africa and understands the different market forces and the actors in the market. Furthermore, Suzlon is also working establishing new relationships with independent power producers, which means that Suzlon is in a more disadvantageous position compared with Siemens which has already well established relationships with their partners. Additionally, Suzlon is working with customer relationship management by using key account managers. Their role is to specifically liaise with customers on projects to make sure they are satisfied with Suzlon's product and service.

The distribution channels Suzlon uses to transfer their products to the market requires a great understanding in logistics due to the size of the turbines. The projects in South Africa Suzlon is supplying are close to a major port which makes the logistics and transportation less challenging.

The value capture model Suzlon focuses on keeping costs low and employing cost advantages. The enterprise's main source of revenue is through the sale of wind turbines and complementary services to independent power producers. Similarly to Siemens, the revenue streams are decreased with the costs that Suzlon needs to make to create collective goods and social development as well as fulfilling the Black Economic Empowerment regulation. Suzlon are also engaged in creating social programs to enhance the livelihood of people in the region and educate them on wind energy, thus shaping aspirations as suggested by Prahalad & Hart (2002). By staying as vertically integrated as possible Suzlon have managed to keep their costs as low as possible with regards to labour, materials and transport and they are pursuing the same strategy in Africa by sourcing some of the less technical components of wind turbines from local manufacturers. In his article on cost innovation Williamson (2010) highlights Suzlon to be the cost leader within the turbine manufacturing industry and one of the most successful enterprises to offer high technology to global customers at a low price.

Goldwind

Internal drivers of change

Goldwind is also established later than Siemens, but has been rapidly growing to become amongst the largest global manufactures of wind turbines. It is state-owned and was the first Chinese turbine manufacturer to export abroad (Lema, et al., 2011). The enterprise initially focused on intellectual property acquisition and in-house R&D to enhance its absorptive capacity. Goldwind made an acquisition of Vensys (Germany) which owned a technology that has reshaped wind turbines. Thanks to this acquisition Goldwind has developed a Permanent-Magnetic-Direct-Drive (PMDD) turbine which takes away the need for a gearbox in the turbine. This technology allowed significant cost reduction, increased reliability, and decreased need of service and maintenance (Wang, 2012). By leveraging their financial strength with core competencies via the acquisition of Vensys, Goldwind has created a disruptive position on the price/value curve which has led to fast growth turning Goldwind into one of the largest players on the global market. Similarly to Suzlon, from a resource-base view perspective, the acquisitions of enterprises from developed economies are an expression of the competitive catch-up behaviour of EMNEs in order to compensate for the more asymmetric resources in comparison with DMNEs.

Due to the fact that Goldwind is a state-owned enterprise, implying that the Chinese government has a strong influence into its corporate decision-making regarding, for example internationalization, non-market strategies play an important role for the enterprise business activities (Drummond, 2012). From a resource-based view perspective, it means that there will be both direct and indirect effects of Goldwind's home country in relation to their business in Africa (Cuervo-Cazurra, 2011). First, the direct effect reflects the positive perception that African governments hold for Chinese enterprises which might result in preferential treatment in winning public tenders. A report from EIU (2012) is pointing out that China is actively investing in Africa. According to the report, this investment is driven by China's long-term policy of "going out", based on the need to develop consuming markets that will buy Chinese goods and services. It means that Chinese government has given strong support to its firms entering Africa. One expression of this support is the strong relationships that Goldwind has with Chinese financial institutions which allow them to indirectly provide credit to projects that might not be financed by financial institutions due to the low reputation and lack of record of the accomplishment of Chinese turbines (Lema, et al., 2011). In the case of Africa, this is combined with underdeveloped capital markets which make offers for financing wind farm project extra attractive along with the active involvement of the Chinese firms in large infrastructural projects and trade (see the discussion on external drivers of change in this section).

Similarly to Suzlon, Goldwind also benefits from the indirect effect of the home country due to the fact that it is used to deal with the realities of an EE, such as political risk, high corruption, underdeveloped institutions, and subsequently has developed specific resources to deal with these realities which can be transferred to Africa and result into a tangible benefit.

Unlike many wind turbine manufacturers, Goldwind completely outsources the majority of its manufacturing, while keeping only core components and assembling in-house (Poncin et al., 2011). By focusing just on their core components Goldwind are able to improve and strengthen their core competencies. Goldwind has a horizontal supply chain with strong relationships to ensure manufacturing and delivery of components in a timely manner. Currently, Goldwind is working to further reduce costs in order to enhance its business in EE through expanding the scale of sales, better geographic distribution to lower transport costs, increase in-house design and manufacturing of core components and improve higher quality control measures (Goldwind IPO, 2008).

Goldwind Business Model

Goldwind have just slightly innovated their BM on entering the African market (Fig. 5). Goldwind's value proposition is integrating a variety of activities that support their main business of wind turbine manufacturing and follows the strategy of Amit and Zott (2012) of offering complementary services. Goldwind's value proposition includes three parts and covers the whole life cycle of a wind park project such as preliminary services (e.g. wind assessment, project financing, industry analysis); project services (e.g. structure design, logistics, construction); and post-construction services (e.g. training, service and maintenance, spare parts support).

A very attractive part of the Goldwind value proposition for many independent power producers and governments alike is the project financing. Goldwind are not only looking to be suppliers but offer debt and equity financing for projects which they see as another source of revenue. Additionally, the PMDD turbine is well suited technical solution to the African market due to its lower costs, simpler design, higher reliability, easier maintainability and better grid connection.

Goldwind's value creation system in Africa has been adapted and expanded to capitalize on the enterprises resources mainly. Goldwind's access to credit lines combined with their recent listing on the Hong Kong stock exchange raised an extra \$900 million which will be used to finance investments in Africa amongst others (Chinese wind-turbine maker targets Africa growth, 2011). Goldwind's strong relationships with the state-owned banks in China give them extra financial muscle. Additionally, Goldwind are currently the only wind turbine manufacturer to use a turbine without a gearbox which is well suited for the EE. Goldwind owns the intellectual rights for this technology and has developed specific capabilities related to it.

Goldwind is collaborating with local actors on the market which combined with their horizontal supply chain, have enabled the enterprise to lower its costs (Goldwind IPO, 2008). Goldwind is planning to make a bigger commitment in Africa as the market grows and build a local manufacturing plant in order to create a more localized value chain. Additionally, similarly to both Siemens and Suzlon, Goldwind is searching for local suppliers to basic, higher value-added but less technical parts of the turbine (e.g. blades). Combined with that, to fall in line with government regulations in South Africa, Goldwind are training local workers to be in charge of the technical aspects of wind farm development as well as to secure the service and maintenance for their projects.

Goldwind's approach to delivering value on the African market is by identifying the most attractive market segment - South Africa. However, Goldwind has operations in East Africa and is currently looking to expand into other countries if or when the right project arises. Similarly to Suzlon, Goldwind is working to create new partnerships with independent power producers and governments on projects

due to Goldwind's strong financial resources which allow them to take ownership of wind farms. By displaying their willingness to use local enterprises and incorporating those into their business structures Goldwind will create stronger ties with local governments due Goldwind's willingness to localize. Goldwind has employed strong management with experience in EE which is working both with the local governments and with customer relationship management by establishing a close, daily-based contact with their customers. Furthermore, Goldwind are building relationships with new partners in Africa as well as utilizing international partners who they have worked with different projects in other markets. Goldwind is also putting a strong focus on logistics in order to reduce costs.

Goldwind have had to adapt their value revenue model on entrance to Africa. Goldwind's main revenue stream is based on the components in their value proposition – i.e. selling of turbines, supplemented by the different services and feed-in-tariffs. Goldwind is constantly pursuing a low cost strategy to further reduce costs involved in the manufacturing and supply of turbines.

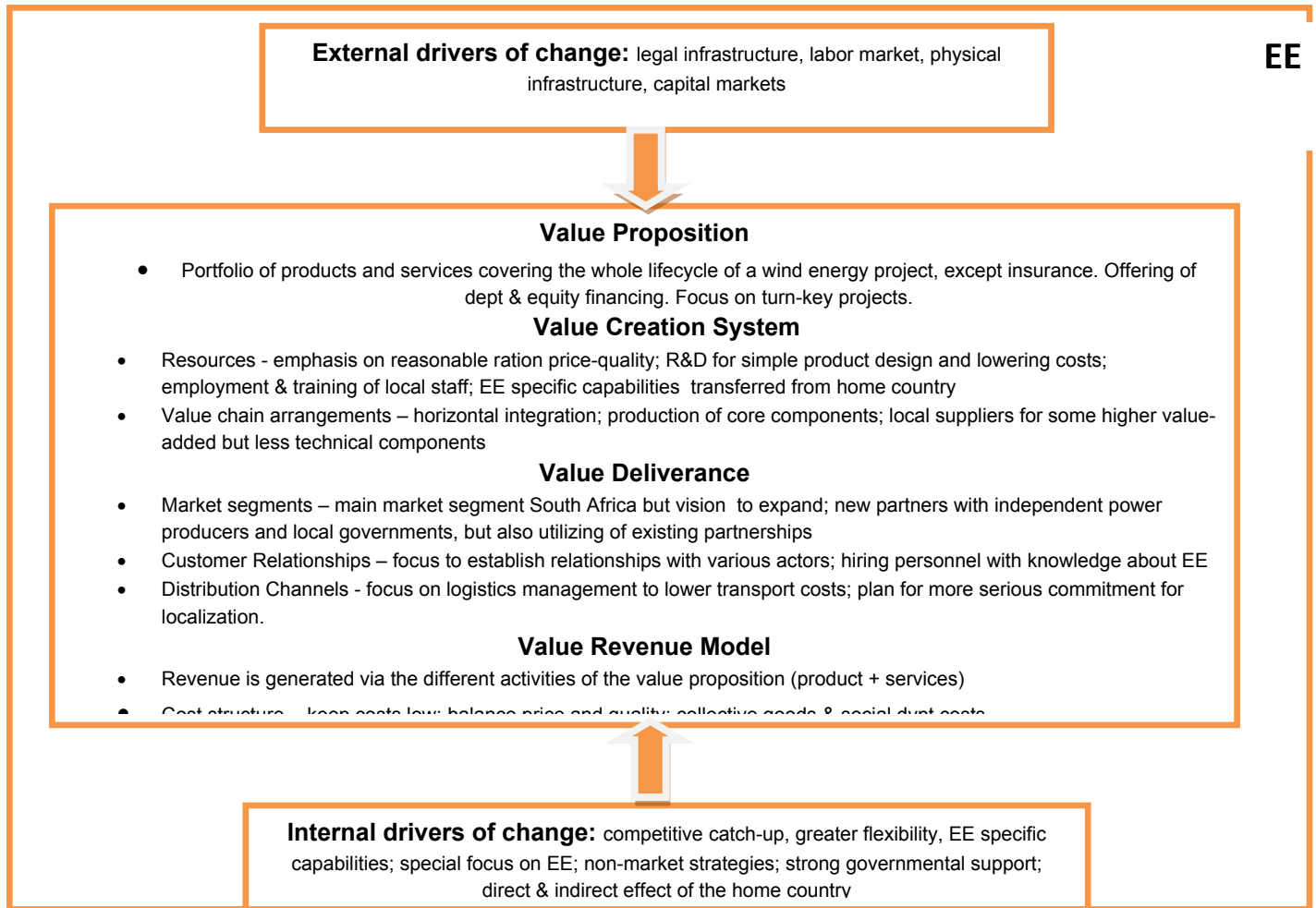


Figure 5: Goldwind Business Model

Due to government regulations in South Africa the enterprise is now 20% owned by a black economic empowerment enterprise and a community based investment scheme. Goldwind has to contribute creating collective goods (education, roads) and to social development projects (e.g. educating ordinary people for wind power). This burdens Goldwind business activity in Africa and decreases its revenues.

However, it is perceived as acceptable by the company due to the fast growth of the market. Additionally, it enhances the enterprise's relations with local markets and shows a willingness to adapt, which is seen as important in the context of EE.

Comparative analysis of BMs on the African wind energy market

This section offers a discussion and a comparison (Tab. 1) between the BMs that Siemens, Suzlon and Goldwind employ in Africa how they deal with the drivers of change, highlighting the specific EE drivers of change. As outlined in this paper, EE are characterized with fast growth despite the global economic crisis, increasing demand but low willingness to pay, combined with low level of market-oriented socioeconomic development. All three enterprises address these challenges through their BMs. However, Siemens seems most conservative in its BMI. It relies to its already established resources and capabilities, i.e. a simpler, but already available technology, is offered, and already established relationships are utilized. In that sense Siemens is aiming to increase the efficiency of their production factors in order to reduce its costs (i.e. local suppliers, lean value chain) as well as to exploit their established reputation on the market to get its set price. It is a reflection of what Govindarajan & Ramamutri (2011) found to be advantageous for DMNEs, i.e. wider and deeper portfolio of technologies, greater financial resources and reputation. On the other hand, both Asian enterprises serve the market with lower-cost products. As Atsmon, Kloss & Smit (2012) pointed out EMNEs seem to aim their R&D investments at EE adapted products (simple, cheap and easy to maintain), as opposed to DMNEs which tend to rely on brand recognition and higher end technologies. Originating and having as home markets huge EE with similar level of market-oriented socioeconomic development, means that the solutions that Suzlon and Goldwind have developed initially for their home markets have a good potential in Africa too. Therefore, in order to innovate their BMs for another EE context, both Suzlon and Goldwind BMs have different logic of not only focusing on cost reduction, but also on increasing willingness to pay, by for example, i.e. adapting even more their technology for the context of Africa, establishing new relationships with local actors, showing a willingness for long-term commitments by planning to build production facilities as well as, in the case of Goldwind, taking ownership in the wind farms. It is evident that, EMNEs do not suffer from core rigidities such as commitment to a certain technology and set of partnerships and are thus more flexible to adapt to the specific requirements of host market. Due to the great demand in their home markets they have adopted the latest technologies and have fast taken leading positions on the global market. Additionally, both Suzlon and Goldwind have developed capabilities to operate in EE and understand the need of having the right relationships and in-depth

knowledge about the local market. Therefore, they have hired local employees with extensive knowledge and network for their management teams.

The low level of market-oriented socioeconomic development is also translated in higher costs of doing business in Africa due to the costs for creation of collective goods and social development projects that all three enterprises incur. However, incorporating non-market strategies and using social motivation as a source of BMI is an important in the context of EE as Sánchez & Richart (2010) point out. Putting emphasis on contributing the market-oriented socioeconomic development facilitates the relationships with the government which has a strong influence on the market by deciding which company will win the public tenures as well as counteracts the risk of prioritization political goals over economic ones. For example, enterprises from China can be chosen because of the investment policy of the Chinese government in Africa as well as the long term commitment that Chinese enterprises (e.g. Goldwind) do in form of ownership. Our findings indicate that EMNEs seem to have a competitive advantage due to the fact they understand the context of EE much better than DMNEs.

	Siemens	Suzlon	Goldwind
Value	Covers the whole lifecycle of the wind	Covers the whole lifecycle of the wind	Covers the whole lifecycle of the wind

proposition	energy project. Financing and insurance. Simpler technology. Quality over cost.	energy project. No financing. Turn key projects but no ownership. Balance btw price-quality.	energy project. Strong financial possibility. Turn key projects with ownership. Simpler technology. Balance btw price-quality.
Value creation system	Strong finances, business, technology & engineering capabilities. Intentional work with BMI. Lean value chain. Local supply for low value-added parts.	R&D based on learning in EE. Employment & training of local staff. EE specific capabilities transferred from home country. Vertical integration. Local supply for higher value-added, but less technical parts.	Strong financial resources. R&D for simple design & lower costs. Employment & training of local staff. EE specific capabilities transferred from home country. Horizontal integration but production of core parts. Local supply for higher value-added, but less technical parts.
Value deliverance system	Strong existing relationships in Africa. Work with technologically advanced partners. Focus on logistics to cut costs.	Establishing new relationships. Use of account managers. Hiring locals with knowledge and network within the market. Focus on logistics to cut costs.	Establishing new and utilizing existing relationships. Hiring personnel with knowledge about EE. Plans for more serious commitments for localization. Focus on logistics to cut costs.
Value revenue model	Higher costs, quality over costs. Costs for collective goods.	Known for focus on low costs via high-level of vertical integration. Costs for collective goods & social development projects.	Focus on low costs. Costs for collective goods & social development projects.
Internal drivers of change	Technical excellence, BMI focus, good reputation	Competitive catch-up, greater flexibility, EE specific capabilities, special focus on EE, indirect effect of the home country.	Competitive catch-up, greater flexibility, EE specific capabilities, special focus on EE, non-market strategies, strong governmental support, direct & indirect effect of the home country.
External drivers of change	Legal infrastructure, labor market, physical infrastructure, capital markets.	Legal infrastructure, labor market, physical infrastructure.	Legal infrastructure, labor market, physical infrastructure, capital markets.

Table 1: Comparison of business model elements and drivers of change

As Cuervo-Cazurra (2011) states EMNEs are more likely to choose to enter countries with similar to their home country realities as they have already developed specific capabilities to deal with them which can be transferred to the host country and turn into competitive advantage. Additionally, EMNEs are used to poorly developed institutions and are more likely to become the dominant investor over enterprises from countries that originate from regulated industries as our research also indicated.

Four EE related drivers of change that have a stronger influence on BMI for EE of both EMNEs and DMNEs. First, EE are characterized with fast growth and high demand, but also high level of uncertainty. As the rest of the world economy is slowing down in its development due to the economic crises, EE continue to grow. It makes them attractive for both DMNEs and EMNEs as an opportunity to expand their business. The level of BMI when entering EE for both groups of enterprises is not dramatic but rather incremental. EMNEs seem to better understand and adapt to the EE context due to the direct and indirect effect of their home country, while DMNEs seem to use more or less the same BM that they have for developed counties but with limited product range (less sophisticated technologies) and rely on their existing reputation, business and technological capabilities.

Second, the lower level of market-oriented socioeconomic development translates in higher costs for doing business which are difficult to predict. Enterprises entering EE need to have sufficient resources to meet this challenge, especially when they initially enter the market (Atsmon, et al., 2012). Purposefully incorporating aspects such as building of collective goods and social development in a BM, might be in itself part of the value creation, specific for EE, i.e. creation of BM that peruse both profits and societal wealth simultaneously are needed. It is essential to be helpful and relevant to the local economies rather than just extracting profits by providing a product or services in order to gain a sustainable competitive advantage (Sánchez & Richart, 2010; Thompson & MacMillan, 2010). This point is also strongly supported by the findings of a recent report from McKinsey, where success in Africa is determined by the investment in socioeconomic development, investing in the communities where the enterprise does business by creating jobs, providing skills and business opportunities for the locals (Atsmon, et al., 2012).

Third, EE are characterized with stronger governmental influence and a risk of prioritization of political goals over economic ones. This is a reality which EMNEs are better suited to operate in due to their better understanding of the customers and handling the governmental influence. Additionally, EMNEs might be treated beneficially due to the positive perception of the local governments tied to their home country. Furthermore, the home governments are strongly supporting EMNEs with financial resource (e.g. China) which is an integral part of their BM and results in a competitive advantage.

Fourth, there is a need for simple, cheap and easy to maintain technologies. EMNEs seem to be better positioned to offer such due to their overall low cost strategy and intentional R&D investments to develop lower-cost technologies that serve both their home and host markets. By creating a low cost position and making the value proposition more affordable, EMNEs create more buying power and thus capture a larger portion of the market. Additionally, although EMNEs are generally late-comers into the industry, they have acquired and exploit strong technological capacity from developed markets. By combining this technology with their knowledge of the EE they seem to have better suited BMs for this context, compared with DMNEs.

5. Conclusion, implications and future research

The main purpose of this paper was to increase the understanding of the drivers of business model innovation in EE by studying enterprises within wind energy industry in Africa. More specifically, we explored the business models employed by EMNEs (i.e. Asian such as Suzlon and Goldwind) and DMNEs (i.e. European such as Siemens). We found that these two groups of enterprises differ in the way they

approach BMI as a result of various drivers of change. Our analysis indicates that Siemens BM is developing a balanced model of supply chain control relying on a 60% local supply and 40% on global sourcing, they offer fewer product variants due to lack of competence among available labour force, however with high focus on product quality. On the other hand, the Asian enterprises seem to have adopted different strategy. Suzlon has a more fully integrated supply chain, enabling it to have a complete control through the entire supply chain, focusing on reducing cost level and optimizing and shortening the lead-time, having fewer bottle-necks and more rigid control over their products. Goldwind has adopted high level of outsourcing among their home suppliers keeping only core components and assembly in-house. Through high level of collaboration with suppliers they succeed to manage the entire supply chain. Their major advantage seems to be the financial management, and willingness to invest in more than wind energy systems. Their strong financial situation enables them to take an ownership position as well as a supplier of systems. Our findings indicate that EMNEs seem to have a competitive advantage than DMNEs in EE but this competitive advantage is not purely technology- or product-based. This competitive advantage depends mostly on their capabilities to deal with the four specific EE related drivers of change – 1) fast growth and high demand combined with high uncertainty; 2) the lower level of market-oriented socioeconomic development; 3) stronger governmental influence on the market; and 4) the need for simple, cheap and easy to maintain technologies used in their products.

What we have observed in our research is a clash of BMs used by Siemens, Suzlon and Goldwind. Obviously these three enterprises use their BMs differently. Based on the existing information and our analysis we have reasons to consider that the Asian enterprises have developed and applied a more market-adapted BMs in the African EE compared to the European enterprises. The major difference is the deep knowledge, experience and understanding of the conditions in EE and their capability to use this competitive advantage and create value for the EE customers. Particularly interesting is the Chinese Goldwind's financial capability to make investments and support their operations in EE.

This study has several managerial implications related to BMI in emerging economies. Managers will be only able to recognize and capture opportunities in EE if they are able to understand the context and the dynamics of its evolution, and adapt their offerings accordingly, instead of using the same approach as in developed economies. Simple, cheap and easy to maintain offering is essential for success in EE. This could be achieved with special focus on R&D for lower-cost solutions as well as localization of the supply chain (Sehgal, et al., 2010). This goes with Prahalad's (2012) recommendations for awareness, affordability and availability. Additionally, knowing the market-oriented socioeconomic environment

well and shaping the BMI accordingly is essential when enterprises create solutions for EE. Building relationships with governments and society as a whole through contributing to collective goods and social development is equal to success in EE, which is in line with Prahalad's (2012) recommendations to create access. Enterprises that succeed in EE, succeed because they are not looked upon as foreigners and put an emphasis on social development and have integrated local partners in their business structures (Hollaway & Sebastiao, 2010; London & Hart, 2004). It means that the enterprise needs to position itself first as a local player and second as a multinational as Jacko Maree from Africa's largest financial institution suggests (Atsmon, et al., 2012).

This research also has important policy implications. Due to the higher growth rate in EE than in developed economies, EE offer significant business opportunities for both EMNEs and DMNEs. In order to counteract the negative effect of prioritization of political goals, home governments need to establish conditions and initiate cooperation agreements with potential host countries which might save a lot of unnecessary costs. This course of actions is especially important for governments in developed economies because countries such as China have already established a strong support for their enterprises. Additionally, by intensifying and opening the cooperation between developed and emerging economies, it would become possible to create societal wealth by raising the level of market-oriented socioeconomic development and subsequently the buying power and the living standard of people from EE.

Based on the findings in this article, it seems plausible that future research should focus on extending the existing theory on BM, its main elements and the drivers of change that would shape BMI by adding new variables, specifically related to EE and the influence of the enterprises' home country. As a continuation of the present study, explanatory and predictive research can be undertaken especially when young and fast-growing industries are in focus as Lambert & Davidson (2012) suggest. Special attention need to be taken on how the low level of market-oriented socioeconomic development might be turned from a liability into an input for BMI as well as how BM in emerging economies change over time as the enterprises become more established on the market and the market-oriented socioeconomic development improves (i.e. longitudinal studies).

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