

A Work Project, presented as part of the requirements for the Award of a Masters Degree in Management from the NOVA – School of Business and Economics.

INCLUSION OF DISABLED PEOPLE IN SIEMENS AG'S ENERGY  
MANAGEMENT DIVISION

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#1718

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## **1. Abstract**

This work project is a business plan for a project regarding corporate social entrepreneurship that will be developed by Siemens Switchboard Factory in Corroios. The main purpose of this project is to understand the viability of a partnership between Siemens AG's and CERCISA in order to include disabled people into Siemens AG's Energy Management Division, with the goal of achieving social and economic impact by insources activities while complying with the law<sup>1</sup>. The produced output, a business plan, aims to study and understand the practical suitability and feasibility of the concepts and propose a sustainable project that can be replicated, starting with a pilot testing and validation period.

## **Key words**

Corporate Social Entrepreneurship, CERCISA, Siemens

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<sup>1</sup> Law nº 38/2004, August 2004, article 28º, nºs 1 and 3

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## **1. Introduction:**

Living in a global world, in which multinational companies are being pressured by the value chain to implement social responsibility programs, Siemens, being a civic and socially responsible company, realized that is important to follow the trend. Currently, Siemens is acting in three different areas: society, environment and education - looking for sustainable solutions to the neglected problems of society that can drive towards positive externalities; this is called Corporate Social Entrepreneurship. The concept of the project is a business plan for a partnership that will promote inclusion of people with disabilities in a manufacturing environment. The implementation of this project will result in an economic viable solution, which will provide the opportunity to buy local products instead of buying from an international supplier. Additionally, the company is contributing to positive social externalities, increasing its reputation on local communities and positioning itself on front line, as it is already exists a stablished quota system to hire a certain percentage of disabled people even if the majority of companies are not applying it<sup>2</sup>.

The work project idea emerged from the interest to seek new opportunities in the market aligned with a personal interest in the social sector. Having a background in management and after attending the social entrepreneurship course at NovaSBE, I understood that a topic which brings both, social impact and economic benefits to the company will reap benefits for both sides. Siemens, already being a social responsible company and already employing disabled people in other factories around the world, implementing this process will pursue a competitive advantage as it will be pioneer

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<sup>2</sup> INR. 2011. "Sistema de quotas de emprego para pessoas com deficiência". <http://www.inr.pt/content/1/73/sistema-quotas-emprego>

project for Siemens in Portugal. The project is being supported both by the Chief Executive and Financial Officers of Siemens switchboard factory in Corroios.

The present work project starts with an introduction about the parties involved on the process: Siemens and CERCISA<sup>3</sup>. Following with a literature review on corporate social entrepreneurship, business plan for social entrepreneurship and an overview on the existing directives about inclusion of people with disabilities at work and the benefits it brings to the company. Afterwards, will be conducted a market research and developed a business plan presenting the overall process, finishing with conclusions and recommendations.

With the purpose of evaluating the project, specific criteria were considered as crucial to the decision to proceed with project implementation. The project should contribute to both social and financial impacts and product quality of the goods produced must be guaranteed.

## **2. Organizations**

### **2.1.Siemens**

Siemens AG is a German multinational conglomerate, founded in 1847 in Berlin and is known by being one of largest and recognized electronics and electrical engineering companies in the world. Electrification, automation and digitalization are Siemens' core business, with healthcare being another distinct business. As a socially responsible company, Siemens is acting responsibly for a successful future aligning this strategy with sustainability and company values - responsibility, excellence and innovation.

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<sup>3</sup> Glossary - CERCISA

Economic, environmental and social aspects are the pillars to construct a sustainable future and Siemens has been recognized by its commitment. Last year, it was distinguished by Dow Jones Sustainability indices for being the most sustainable company in its industry group<sup>4</sup>.

In Portugal, Siemens is represented by headquarters located in Alfragide, offices in Freixieiro and by the switchboard factory in Corroios.

The Siemens switchboard factory in Corroios was founded in 1995; it produces low and medium voltage switchboards, employing nearly 100 people. On the production floor, women are responsible to electrification and men to the switchboard assembly. The main competitive advantage of the factory and what it distinguishes from its competition is delivery reliability, competitive prices and high quality. The majority of projects are to external markets, around 90% exports to Europe, Middle East, Africa and Americas.

## **2.2. Association of persons with disabilities - CERCISA**

In order to select the association to work with, contacts were made with various organizations. As the CEO of the factory already has a network to CERCISA<sup>5</sup> Peniche, their support was requested. It was explained to CERCISA Peniche what the selection criteria was and it was suggested to schedule a meeting between Siemens and CERCISA, which belongs to the same group as CERCISA Peniche but it is located in Corroios. After the meeting it was agreed that CERCISA would be the best option. The following factors were crucial in the decision process: **proximity** to the factory that

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<sup>4</sup> Siemens. 2015. <http://www.siemens.com/about/sustainability/en/sustainability/reporting/rankings.htm> (April 26)

<sup>5</sup> Glossary - CERCISA

allows regular visits from a technical expert once a week; and being a registered **association for disabled people**. Alongside these requirements, CERCISA has other elements that worked in its advantage: **knowledge** in working with others factories; **internship funded by IEFP**<sup>6</sup> which will allow to test the pilot without a commitment of hiring an employee (trainees will be doing an internship as part of the course they are attending at CERCISA) in which, they learn the basic requirements how to perform at a work environment.

CERCISA was founded in 1975 in Corroios, by parents of disabled people who felt the need to have an alternative from the official special education for people with mental disabilities (slight, moderate and advance)<sup>7</sup>. The association's mission is to provide a service of quality that stimulates skills development, enabling equal opportunities for vulnerable groups and their families. Currently, CERCISA has six different valences: education center, professional training, occupational activity center, early intervention services, residential home and autonomous residence.<sup>8</sup> This work project will focus on professional training valence, which are courses funded by IEFP lasting two years, directed to people between 18 and 30 years, with approximately 20 students. The main areas covered during courses are: gardening, laundry, maintenance operator, community and service support. Other complementary areas are: integration, technological and working environment training as well as psychological, social and socio-professional support.

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<sup>6</sup> Glossary - IEFP

<sup>7</sup> Appendix 1 – Mental disability

<sup>8</sup> CERCISA. 2015. <http://www.cercisa.pt/contactos/>. (April 26)

### **3. Literature Review:**

#### **3.1. Corporate Social Entrepreneurship**

According to Austin, Leonard, Reffico, and Wei-Skilern (2006), corporate social entrepreneurship, is the “process of extending the firm’s domain of competence and corresponding opportunity set through innovative leveraging of resources, both within and outside its direct control, aimed at the simultaneous creation of economic and social value”<sup>9</sup>. Corporate social entrepreneurship emerged from two concepts: corporate entrepreneurship and social entrepreneurship. Corporate entrepreneurship is the “presence of innovation with the objective of rejuvenating or redefining organizations, markets, or industries in order to create or sustain competitive superiority”, Covin and Milles (1999). Social entrepreneurship is the process “involving the innovative use of resources to pursue opportunities to catalyze social change or address social needs”, Mair and Marti (2006).

Entrepreneurs are typically known by their enthusiasm to look for new opportunities. The challenge lies in finding an opportunity that can have potential to bring positive social impact. Some frameworks help analyze the idea potential and how to transform into an opportunity. In line with some researchers from the center for the advancement of social entrepreneurs<sup>10</sup>, Ayse Guclu, J. Gregory Dees, and Beth Battle Anderson, find that entrepreneurs generate a promising idea and this idea could be developed into an attractive opportunity, by a framework<sup>11</sup>. Commonly, ideas are generated through personal experience, social needs or assets or even by a need for a change. To prove if a

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<sup>9</sup> Austin, James; Reficco, Ezequiel. 2009. “Corporate Social Entrepreneurship”, Harvard Business School

<sup>10</sup> Guclu, Ayse; Gregory Dees, J.; Battle Anderson, Beth. 2002. “The process of Social Entrepreneurship: Creating Opportunities Worthy of Serious Pursuit”

<sup>11</sup> Appendix 2 - Framework

promising idea could be converted into an opportunity, it is important to associate both social impact theory<sup>12</sup> and the business model.

The difference between entrepreneurship and intrapreneurship must also be mentioned. The last is considered a sub-field of entrepreneurship (Antoncic and Hisrich; 2003: 7). It is entrepreneurship “practiced by individuals inside founded organizations (Shetty; 2004: 21)”<sup>13</sup> the theme of this work project.

Another important distinction is between social and commercial entrepreneurship as they have different purposes and are measured in different ways. According to scholars such as Davis who stated that an organization does not need to focus only on one but could have both - they are called “Hybrid” organizations<sup>14</sup> as they “combine the social logic of a nonprofit with the commercial logic of a for-profit business”<sup>15</sup>.

### **3.2. Business plan for social enterprises**

A business plan is a “document specifying the business details prepared by an entrepreneur prior to opening a new business”.<sup>16</sup> It should be attractive in order to appeal to investors’ attention and interest to be part of the project.

This work project will be based on a business plan oriented to social enterprises<sup>17</sup>, which is not only concerned about financial goals but also about social impacts. In this case, a business plan was created instead of a strategic plan, as a strategic plan concerns describing a certain objective of a company and the strategy needed to reach it in a

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<sup>12</sup> Appendix 3 – Social impact theory

<sup>13</sup> Ezgi CEVHER. “Intrapreneurship enablig organizations to drive innovation”

<sup>14</sup> Trevis Certo, S.; Miller, Toyah. 2008. “Social entrepreneurship: Key issues and concepts”. Kelley School of Business, 269

<sup>15</sup> Blanding, Michael. 2013. “‘Hybrid’ Organizations a Difficult Bet for Entrepreneurs”. Harvard business school

<sup>16</sup> Richar L. Daft; Martyn Kendrick, Natalia Vershinina. 2010. “Chapter 6”. In Book Management. Page 216

<sup>17</sup> Teyssedre, Anne-Helene. “Business Planning for social enterprises”. SE UK - Birmingham

certain period, by prioritizing available resources<sup>18</sup>. This is not the case for the study at hand.

## **4. Disabled people**

### **4.1. Directives for work inclusion of people with disabilities**

Discrimination and barriers still exists when it comes to people with disabilities. In Europe, they represent one-sixth<sup>19</sup> of the EU's overall working-age population. The European Commission has developed a framework, called European disability strategy 2010-2020<sup>20</sup>, where the Commission commits to improve the situation of people with disabilities focusing in eight main areas: accessibility, participation, equality, employment, education and training, social protection, health and external action. According to the Commission "persons with disabilities have the right to participate fully and equally in society and economy. Denial of equal opportunities is a breach of human rights". In the framework, the responsibility to accomplish each of these objectives and to follow the law are delegated the EU members. This is not only a European phenomenon, as for example in Brazil, according to Law n° 8.213, decree n° 93<sup>21</sup>, companies with more than 100 workers, are obliged to have the following percentage of rehabilitated or people with disabilities working in company: 100-200 workers, 2%; 201-500, 3%; 501-1000, 4%; more than 1001, 5%.

In Portugal, according to the law n° 38/2004, August 2004, article 28°, n°s 1 and 3 which stablishes employment shares to disabled people, up to 2% in private companies

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<sup>18</sup> Forbes. 2011. "Five steps to a strategic plan". <http://www.forbes.com/sites/aileron/2011/10/25/five-steps-to-a-strategic-plan/>

<sup>19</sup> European Commission. 2015. "Persons with disabilities"

<sup>20</sup> European Commission. 2015. "European Disability Strategy 2010-2020"

<sup>21</sup> Presidência da República. Julho 1991. "LEI N° 8.213, DE 24 DE JULHO DE 1991."

and at least 5% on public administration,<sup>22</sup> besides for private companies, this law is not regulated yet, and it is seen as a general guidance<sup>23</sup>. Siemens is an example of a private company in this sphere; in Portugal it employs three people with disabilities with levels of invalidity that vary from 60% to 80%, which corresponds to 0,25% of total employees.

Besides respecting requirements of the law, companies could also have some benefits by hiring disabled people, such as, social security contribution rate decreases from 23,75% (workers without disability) to 11,9% (workers with disabilities)<sup>24</sup>; funds from the government to adapt employee workplace and access inside the company; internship supported by IEFP<sup>25</sup>; increase companies' image and reputation, some companies might be publicly recognized which might be an advantage to win contracts as those companies are considered social responsible. Additionally, social responsibility creates a better image on consumers and companies mind, as a result, people will prefer to buy products from this company instead of another with no intervention on society; lastly, usually "people with disabilities are more educated, more engaged, more productive and more loyal to their employers than the general workforce".<sup>26</sup>

#### **4.2. Disability in Portugal**

As stated by the law n° 38/2004, August 18, "It is considered a person with disability a person that, by loss or anomaly, congenital or acquired, of body functions or body structures, including the psychological functions, present particular difficulties which

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<sup>22</sup> Assembleia da República. Agosto 2014. Lei n.º 38/2004. DIÁRIO DA REPÚBLICA — I SÉRIE-A

<sup>23</sup> INR. 2011. "Sistema de quotas de emprego para pessoas com deficiência". <http://www.inr.pt/content/1/73/sistema-quotas-emprego>

<sup>24</sup> Expresso emprego. "Emprego para portadores de deficiências"

<sup>25</sup> IEFP. 2014. "Estágios de Inserção para Pessoas com Deficiência e Incapacidade"

<sup>26</sup> BMO Financial Group, 2013. "Canadian Businesses Slow to Hire People with Disabilities: BMO"

may, in conjunction with environmental factors, hinder or limit their full and effective participation on an equal basis with others”.<sup>27</sup>

As many critics affirmed, last census was not conclusive about disabled people in Portugal<sup>28</sup>. For this reason, findings were based on census 2001<sup>29</sup> for a population of 10.356.117, which concluded that 636 059 people have any disability, representing 6,1% of resident population. Disabilities are divided into hearing (13,2%), visual (25,7%); motor (24,5%); mental (11,2%); cerebral paralysis (2,4%) and others (23%).<sup>30</sup>

Being more specific, the number of disabled people with 15 years or older was 601 583, from which 29% are employed and 71% without economic activity.<sup>31</sup> From the 71% of disabled people without economic activity, only 18,5% were people permanently unable to work.

Concluding, unemployment rate of disabled people is an important and neglected problem with negative externalities for society as a whole. It is significant because 71% of disabled people have no activity and 52,5% of them are capable to work. It is a neglected problem because employers and the society are not aware and conscious about difficulties of this group to be hired and besides law requirements, discrimination still exists. The problem's solution will drive to positive externalities for society such as: decreasing of unemployment rate, resulting on more economically independent people who will need less social support. Being economically independent contributes to change social image as well as raising the level of self-esteem by being capable,

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<sup>27</sup> Assembleia da República. 2004. Lei n°38/2004. Diário da República – I Série - A

<sup>28</sup> Jornal de notícias. 2011. “Censos 2011 ignoram realidade das pessoas com deficiência”

<sup>29</sup> Miranda, Manuel. 2013. *Autonomia para a inclusão*. Lápís de memórias

<sup>30</sup> Appendix 4 – Total number of people with disability

<sup>31</sup> Appendix 5 - People with disability on working age

productive, and integrated people into society. Additionally, being independent is also a requirement to start relationships and build a strong family - those are the main reasons why its solution is urgent.

## **5. Methodology**

The main purpose of this business plan is to evaluate project costs and the potential benefits from its implementation. In order to accomplish it, a specific methodology was followed. The methodology consisted on short interviews with stakeholders in order to understand their opinion about the project. A market research was conducted by developing a PESTEL analysis to evaluate the current national situation and stakeholders' map. Then, to evaluate the current situation of the players in the market a benchmarking analysis and lastly a SWOT analysis of CERCISA was prepared. Additionally, exchange of experiences with Siemens' employees from other departments and factories in order to gain ideas regarding how the process was executed. After gathering all relevant data, the business plan was developed as a support on decision making.

### **1. Market Research**

#### **1.1.PESTEL**

The PESTEL<sup>32</sup> framework helps to understand external factors: political, economic, social, technological, environmental and legal that might affect the environment in which the project is executed.

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<sup>32</sup> Appendix 6 – PESTEL Analysis

Regarding political factors, Portugal was under an European Union and International Monetary Fund plan completed in May 2014, due to its economic and financial performance. The IMF had already left the country as Portugal was declared stable, besides some tensions derived from political and economic aspects. The next government election will be between September and October 2015 - and concerning people with disabilities, the government has subsidies in order to give support: adapting workplace, quota system, social security, healthcare, education and housing acquisition<sup>33</sup>.

In relation to economic factors, the global economic and financial recession has influenced aspects such as the reduction on inflation rate, low disposable income to the families, which directed families and people to request support to the social sector. On the other hand, some factors are already improving, GDP grew<sup>34</sup> 0,9% from 2013, a fact which has not occurred in the last 4 years. Also, the unemployment rate is decreasing, in 2013 it was 16,2% and in 2014 decreased to 13,9%.<sup>35</sup>

Currently, it is common that companies create social responsibility programs and promote it on a global scale. In general, citizens and the society are more concerned about social issues. As a consequence of the global economic recession, families are having less support from the government and facing an increase in tax burden. Regarding demographics, population is aging and emigration rate is increasing mainly between qualified people.

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<sup>33</sup> Publico. Conheça os apoios que existem para pessoas com deficiência.

<http://www.publico.pt/economia/noticia/conheca-os-apoios-que-existem-para-pessoas-com-deficiencia-1637518>

<sup>34</sup> Trading economics. "Portugal GDP Growth Rate"

<sup>35</sup> Pordata. 2015. "Taxa de desemprego: total e por sexo (%) – Portugal"

The internet and technology are expanding and as a consequence, communication between people and communities is not a barrier anymore. It is common to have online courses and all the learning process and information access is created with ease.

Regarding environmental factors, the majority of companies try to accomplish environmental regulations which are being even more controlled.

Finally, it is on the article n°71 of the Constitution the rights of citizens with disabilities, existing also some directives and laws deepening these rights, for example, about disabled people protection and inclusion on the work environment.

Concluding, external factors are contributing to incentivize companies to hire disabled people and be more social responsible by providing subsidies as well as making it a requirement by law.

## **1.2. Stakeholders Mapping**

In this section, groups (or people) will be evaluated that might affect or be affected by the overall process and ranking them according to their interest and power will take place. The main purpose of this analysis is to develop cooperation between stakeholders and the team in order to launch a successful project. First, the stakeholders were divided into groups<sup>36</sup>: internal, connected and external. The internal stakeholders are individuals of the organization such as the board of directors, employees, line managers, and the supervisor. Connected stakeholders are those with a contractual or commercial relationship with the organization such as disabled people and their parents, association

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<sup>36</sup> Appendix 7 – Classification of Stakeholders

and fasteners suppliers. External stakeholders include competitors, society, local communities and media.

In order to better understand each stakeholder's expectation and power, Mendelow's Power-interest<sup>37</sup> matrix was used. Stakeholders with lower level of interest and power on this project are competitors, society and local communities. This group is the one which requires less effort to monitor. Both employees and media have high level of interest but low influence (only some information should be given about the project). The ones with high level of interest and power are the board of directors, line managers, supervisor, disabled people and their parents, association as well as fasteners' supplier. The current supplier belongs to the group of low interest and high power, as the company can influence production if he rejects to supply the factory.

Concluding, the most important group is the one with people with the highest level of interest and power, so it should be present and considered in decision-making. It is also essential to define a strategy about current supplier in order to avoid future problems and missing material on production.

### **1.3.Stakeholders Interviews**<sup>38</sup>

During first part of the project, interviews were conducted to understand stakeholders' opinion about the project and realize how the current process is established. The interviewees were board of directors, line managers from purchasing, quality, logistics, technology and production and also CERCISA. All of them agreed with this project and thought that it is an advantage comparing with current situation but some potential risks

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<sup>37</sup> Appendix 8 - Mendelow's Power-interest grid

<sup>38</sup> Appendix 9 - Survey

should be considered and contingency plans implemented. Inside the factory, survey was sent to 6 people (line managers) who all of them agreed that doing a partnership with an association is an added value to the factory. Comparing current situation, buying from fasteners' supplier or integrating a trainee at the factory, 80% prefers the last. The main reasons are: lower price (50%), company reputation (33%), delivery time (50%) and social impact (83%). 75% agreed that in order to perform this task is important to know how to read and write and 25% think taking the bus alone and be independent also indispensable. Additionally, also a survey was sent to a colleague in Germany, who is the responsible for the social programs at one of the factories in Germany. According to his opinion, the main reasons to work with disabled people are: lower price, social impact and law requirements. Disabled people perform better repetitive and monotonous tasks and it is important to have basic education, reading and writing skills as well as being able to take transportation alone. Furthermore, the main advice is that "Take time to bring the d. persons in the business. The first try may fail. You need to be patient". Additionally, one important fact to keep in mind to accomplish reliable work results is having a good supervision of a non-disabled person.

Concluding, the majority of stakeholders agreed about start working with disabled people mainly because of social impact and lower price, due to the fact that company will only have costs with raw material.

#### **1.4.Competitors / Alternatives**

Before changing a process, it is important to benchmark and compare with the current situation and other alternatives in the market. In the table below, indicators<sup>39</sup> that are

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<sup>39</sup> Appendix 10 – Indicators from Benchmark

usually taken into account on purchasing benchmarks were chosen and compared between project alternative, current supplier and a local supplier alternative.

<b>Factors</b>	<b>Project “inclusion”</b>	<b>Current Supplier</b>	<b>Local Supplier</b>
<b>Price</b>	++	-	+
<b>Quality</b>	-	+	+
<b>Delivery time<sup>40</sup></b>	++	-	-
<b>Minimum order quantity</b>	+	-	--
<b>Financial benefits</b>	+	-	-
<b>Social Responsibility</b>	+	-	-
<b>Extra Costs</b>	+	-	-
<b>Local supplier</b>	+	-	+

**Table I - Benchmarking between project and alternatives (++/+/-/-)**

The current supplier has a good quality but Siemens is importing material from Germany, so the price is more expensive than any other alternative. Delivery time might be compromised and it is requested to have a minimum order quantity which increases factory stocks. Additionally, some extra costs might occur if it is required an urgent transport. Concerning social responsibility and financial benefits, Siemens will not intend for it.

A local supplier which supplies this material (but not in packages), has good quality and a competitive price, although, some disadvantages such as minimum order quantity, extra costs in case of an urgency exists (because delivery time might vary). Moreover, Siemens will have no financial benefits and will not being contributing to social inclusion.

Lastly, the project inclusion of disabled people could be a competitive advantage and some risks mitigated. One disadvantage is product quality, although Siemens already

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<sup>40</sup> Glossary – Delivery time

has a quality control system implemented in order to detect any defect. By implementing this project, Siemens will benefit from a competitive price and reduce costs from urgencies, as people will have material available as soon as it is needed. Requirement of minimum order quantity will not be an obligation because work will be done internally and managed according to factory needs. Financial benefits and factory reputation will increase as Siemens is contributing to social inclusion of disabled people.

### **1.5. SWOT analysis**

In order to evaluate the strengths, weaknesses, opportunities and threats involved in the project, a SWOT analysis<sup>41</sup> was developed.

By project implementation, prices will be more competitive, more reliable delivery time and as Siemens already has a process of quality control, quality of the product is guaranteed. Siemens is also known by its commitment on the social sector. Additionally, CERCISA already has experience to work with other factories and knowledge about companies' requirements. It will guarantee that trainees are independent people and able to take the bus alone. These people will be doing an internship as they belong to a course funded by IEFPP, for that reason, Siemens will have no costs hiring someone during trial period. On the other hand, the quality of the product could not be equal or better than the current product, but this quality issue could be mitigated by quality control process. As a layout of the factory already exists, some adjustments will be needed in order to include a new activity and a new process. Disabled people could have difficulties in the beginning to understand tasks, therefore

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<sup>41</sup> Appendix 11 – SWOT Analysis

supervision will be necessary in order to guarantee that inclusion and work will be done properly. CERCISA already has a program to accompany its trainees at work at least once a week.

This project also brings opportunities to the factory. After the process of implementation, other similar activities could be insourced instead of buying from external suppliers and sold to other factories that are using the same material. Additionally, Siemens will be recognized by its best practices by other Siemens clients and communities, as a result, increasing brand reputation. As already implemented in other European countries and stated on decree law, companies should hire up to 2% of disabled people. With this practice, Siemens is acting early and getting knowledge in this field. If the current supplier and alternative supplier decrease their prices and improve conditions for Siemens, the financial impact will not be too high.

## **2. Project**

### **2.1. Mission and Vision**

The mission and vision define the goals and objectives of the organization. The vision of the project is to become a more socially responsible company aware of disabled people exclusion and to be a reference at national level.

The project mission is to do a partnership with CERCISA by giving the opportunity to disabled people to do an internship, contributing both to social inclusion at work environment and cost reduction by insourcing some activities.

### **2.2. Segmentation and Targeting**

In order to select the target, segmentation was developed, which means, splitting potential customers into distinct homogeneous groups who have similar needs, characteristics or behaviors. In this way, subgroups based on disability level were created. Afterwards, it was analyzed what type of work they are capable and oriented to perform. Additionally, a survey was done to employees in order to understand their opinion about which type of disability could bring risks to the factory and to the employee. Also, information was requested to CERCISA in order to evaluate which target will be selected to perform this job.

According to survey, people with the following disabilities are not able to perform the tasks: motor (25%), slight mental (25%), moderate mental (75%), advance mental (75%), visual (75%), hearing (25%), muteness (25%) and cerebral paralysis (75).

Taking into account the greater picture, the most suitable target, being aligned with other colleagues opinion, is people with motor disability, slight mental, hearing, and muteness. CERCISA's courses are mainly for people with mental disabilities, so, in this case, people with slight mental disability are the target.

### **2.3. Management Team**

Management team will contribute to project implementation and its success or not will depend on their support.

Trainee – will be a person that is attending a course at CERCISA and will undertake an internship at the factory with duration of 3 months. In the beginning, the person will be present at the factory two times a week but as soon as the factory's sales increase, more work will be needed, so the time will be adjusted. The main tasks will be to check the

list from logistics with current needs and fill in the bags according to it. Afterwards, the bags should be delivered to quality control.

Factory supervisor – one person from the factory, preferably from production, will be responsible to ensure that integration is done properly and will be the contact person with CERCISA. During the first month, visits to trainee will be done twice a day in order to verify product quality. Additionally, this person will be responsible to give training and every time there is a request from logistics, this request should be delivered to the supervisor and the work prepared together with the trainee.

CERCISA supervisor –one person from CERCISA will be required, who will be the contact person between the factory and association. The main responsibilities are to give training to the trainee and explain the main activities that will be performed and ensure that integration is done accurately. This person will help with integration and once a week will visit the factory and will evaluate the trainee's psychological and work behavior.

Logistics – a person from logistic should contact the supervisor from the factory with any request for needs from a logistics perspective.

## **2.4.Systems & Operations**

In this section, the overall process will be explained, from material acquisition until customer delivery. As the factory layout is already drawn, some changes will be needed to take place on the production plant such as a workbench (that already exists in the factory) and all the materials needed to perform the task.<sup>42</sup> As this process is not part of the production line, the location is not important and for that reason the workplace will

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<sup>42</sup> Appendix 12 – Layout including workbench

be located where it does not create confusion. In the beginning, in order to have material available, an order will be placed taking into consideration the consumption from last year. After receiving the material, logistics will place material where task will be executed.

As this is a stock item and not produced according to customer needs, after logistics evaluation about stock amounts -and if necessary- a manufacturing order will be issued with the part-numbers that are needed. This order will be delivered to the supervisor who will evaluate and plan the work together with the trainee. The workbench will be organized according to the material that is needed in order to avoid material exchange. From 25 bags onwards, the supervisor will choose a sample and confirm if the quantities are correct. After the trainee fills in the bags, he/she will give it to quality control who will choose some samples to verify if it is correct or not. If everything is according to request, material is given to logistic operator, who put it on stock and arranges on the shelves and as soon as is placed an order from a client, this material is commissioned and delivered to the client. On the other hand, if material is not according to requirements, material is rejected and registered, and all the work needs to be done again. This will not be wasted material, as bags could be opened again and filled in fasteners in new ones<sup>43</sup>.

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<sup>43</sup> Appendix 13 – Fasteners bags

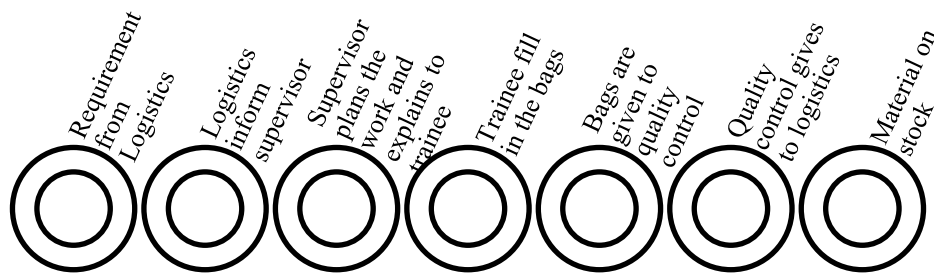


Figure I – Logistics process

## 2.5. Impact Measurement

The purpose of impact measurement is to monitor the performance of the partnership by both financial and non-financial aspects. This is crucial to take decisions and evaluate which activities are being efficient and which ones should be improved. The output from this project is that positive externalities should arise for all stakeholders and its impact should be measured. On the company side, the outcomes with this project are: increasing reputation, cost reduction and increase of social responsibility programs. On association side, outcomes are: increase the number of internships per course, decrease the number of people on the association and increase the number of autonomous people. For the society as a whole, the outcome is decrease of the unemployment rate of disabled people. According to the selection criteria on taking the project or not, this process will focus on the following outcomes and how they will be evaluated, as they are the most important and the ones that are crucial to the project implementation.

Stakeholders	Criteria	Outcomes	Indicators	Data
Company	<ul style="list-style-type: none"> <li>- Financial impact</li> <li>- High quality assurance</li> </ul>	<ul style="list-style-type: none"> <li>- Cost reduction;</li> <li>- Do not increase the number of defective material</li> </ul>	<ul style="list-style-type: none"> <li>- % of CNI (Contribution to net income) before and after one year of project implementation;</li> <li>- Ratio between number of defective material recorded on year before project implementation and number of defective material one year after</li> </ul>	<ul style="list-style-type: none"> <li>- Data exported from a tool with current purchase prices;</li> <li>- Non conformity costs records</li> </ul>
CERCISA	<ul style="list-style-type: none"> <li>- Social impact</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the number of internships per course</li> <li>- Increase the number of autonomous people</li> </ul>	<ul style="list-style-type: none"> <li>- % of internships before and after project implementation</li> <li>- % of people that are hired after attending the course</li> </ul>	<ul style="list-style-type: none"> <li>- Gathering data from CERCISA</li> <li>- Gathering data from CERCISA</li> </ul>
Society	<ul style="list-style-type: none"> <li>- Social impact</li> </ul>	<ul style="list-style-type: none"> <li>- Decrease unemployment rate of disabled people</li> </ul>	<ul style="list-style-type: none"> <li>- % of trainees that are hired after internship</li> </ul>	<ul style="list-style-type: none"> <li>- Data collection from human resources</li> </ul>

Table II - Impact measurement

## 2.6.Chronogram

In order to launch this project, it is important to prioritize the activities. The following table can be observed as the main activities that need to be followed to implement the project.

		2015 →											
Phase	Description	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Phase One "Gathering data"	Meeting with CEO and CFO												
	Meeting with association												
	Meeting with other stakeholders												

		2015 →											
Phase	Description	Fev	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Phase Two "Project preparation"	Business plan development												
	Training plan development by the technical team of the Institution												
	Presentation of training plan to family and company responsible												
	Agreement between parties												
	Prepare workplace												
	Meeting with all intervenients on the process to explain new workflow												
	Training plan preparation together with CERCISA												
	CERCISA training sessions directed to work environment												
	Welcome session + Training about health and safety at work												
Training trainee on the factory													

		2016 →			
Phase	Description	Jan	Fev	Mar	April
Phase Three "Project implementation"	Internship				
	Weekly Visits of CERCISA				
	Decision about hiring employee				

Table III - Chronogram

## 2.7. Financial Planning

Financial planning determines whether a project will achieve its purpose or not. In this case, the current situation will be evaluated against the forecast situation by project implementation and its potential savings. In order to compute, it is assumed that the consumption from last year will be kept the same although it is expected that the quantities will increase. Additionally, no extra costs will occur by this project implementation, as the trainee is attending a course funded by IEFP this benefiting also from professional scholarship, insurance, food and transportation subsidy; supervisor from the factory is already a person from production who has the main task to control work done by employees and no additional investment will be needed on workplace level. Additionally, quality control is a system already implemented for material coming from current the supplier, so no extra costs will occur.

For this analysis, only material, labor and transportation costs were considered. Others costs that influence purchasing decisions were not taken into account such as: minimum order quantity, delivery time, quality and other extra-costs with urgencies. All those factors have negative impact on the current situation.

Part-Number	Quantity (2014)	Current Price (€/unit)	Insourcing cost (€/unit)	Current Volume	Insourcing Volume	Potential saving %
AA	100	2,97 €	2,58 €	297,04 €	257,95 €	-13,16%
AB	100	5,68 €	5,13 €	568,30 €	513,06 €	-9,72%
AC	100	7,81 €	7,04 €	781,16 €	704,39 €	-9,83%
AD	100	9,69 €	8,96 €	968,95 €	895,73 €	-7,56%
AF	200	2,68 €	2,56 €	536,72 €	512,77 €	-4,46%
AG	200	1,85 €	1,61 €	370,83 €	321,95 €	-13,18%
AH	100	1,69 €	1,44 €	168,74 €	143,68 €	-14,85%
AI	700	0,59 €	0,63 €	416,18 €	443,67 €	6,60%
AJ	200	1,35 €	1,30 €	269,69 €	259,23 €	-3,88%
AK	100	0,84 €	0,85 €	84,49 €	85,29 €	0,95%
AL	100	1,10 €	0,95 €	109,56 €	94,74 €	-13,53%
AM	100	3,18 €	2,85 €	317,86 €	284,83 €	-10,39%
<b>Total</b>				<b>4 889,53 €</b>	<b>4 517,29 €</b>	

Table IV - Financial analysis

From the table above, it can be concluded that with the implementation of the project, costs will be reduced for Siemens. Corroios factory will have savings of 372 euros, considering quantity from last year. Although, it is important to mention that besides these part-numbers exists others that shall be added to the process.

### **3. Recommendations**

This business plan covered the overall process in order to implement the project. After project implementation other topics should also be considered, turning this project even more attractive and profitable to the company.

Firstly, implementing the same process to others activities that are being bought to external suppliers should be analyzed. According to the answers from line managers, other tasks could be included after pilot validation, concluding that project resulted in a financial and social impact and quality was ensured, such as: wire cutting, crimping terminals, simple pre-assemblies, printing identification labels and measuring productive time.

Secondly, Siemens Corroios could benefit from pooling its quantities with other Siemens factories that are also buying fasteners, from the same supplier. Initially, it should be evaluated if more suppliers could source the same material to all factories with the same characteristics as current supplier. If affirmative, a request for quotation should be sent for several suppliers and after receiving the offers, trigger an e-bidding for the global volume thus stimulating competition will result on more competitive prices.

Thirdly, in an option which might cause some risk – low quality products – as so, in order to mitigate this risk, factory should implement a self-control plan by trainee which consists on comparing the average weight each bag should have (mentioned in a table) and the real weight the bag packaged by trainee actually has. Trainee will weigh 25% of packaging and register. If any deviation means that material introduced inside the bag is not the correct and in this case, work must be done again.

Lastly, after the internship has been concluded, be scheduled a workshop with a steering committee, composed by board of directors, line managers, factory supervisor and CERCISA supervisor, with a duration of half a day, where should be discussed and evaluated strengths and weakness of the pilot with the purpose of process improvement as well as sharing new ideas about other opportunities to be evaluated.

#### **4. Conclusions**

The project's main purpose was to develop a business plan describing the overall process of a partnership that will provide disabled people inclusion at the working environment and at the same time lower costs with material acquisition. As could be concluded, the purpose was met, and both Siemens and CERCISA will benefit with the partnership. CERCISA will guarantee that people who are attending the course will do an internship at Siemens, contributing to their self-development and get in contact with the real work environment, enhancing its future. Siemens will reduce costs and be even more social responsible fulfilling with law requirements, even if it is not regulated at the moment, but will be ready for the future as the process will already be established. It is important to keep in mind that is possible to make the difference, learning by doing, evaluating situations and improve when it is needed without giving up.

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## 6. Glossary

CERCI – Social Solidarity Cooperatives (Cooperativas de Solidariedade Social)

CERCISA - Cooperativa para Educação e Reabilitação de Cidadãos Inadaptados de Seixal e Almada

IEFP – Employment and Professional Training Institute (Instituto do Emprego e Formação Profissional)

Delivery time<sup>44</sup> – “the amount of time that it takes for goods that have been bought to arrive at the place where they are wanted”.

Delivery reliability – Ratio between number of deliveries received without mistakes by total number of deliveries

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<sup>44</sup> Cambridge dictionaries