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

Promoting Portuguese Exports to Germany:

A Hand-on Approach for the Machinery and Equipment Sector

Vânia Rita Moço Gomes da Cruz

#1367

A Project carried out on the Management course, under the supervision of:

Alexandre Dias da Cunha

17, January 2014

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Abstract: This work project had as a starting point a study developed by the consulting firm Roland Berger on how to boost the economic relations between Portugal and Germany. This paper aims to focus on a specific sector: *Machinery and Equipment for a special purpose,* and identify and describe concrete ways on how to increase the Portuguese export quota to Germany. The analysis results evidence that firms face different internationalization barriers depending upon their international focus. Nonetheless common barriers rely on a high emphasis on production to the detriment of sales and a lack of a cooperative mind-set among firms. A brief literature review is presented in regards to the former topic. Recommendations are suggested at three levels: governmental, sectorial and company level. At the individual company level, firms were organized in homogeneous groups depending on: (a) the willingness to export to Germany; (b) the stability of the business in the internal market, which is a proxy to assess the readiness to approach new markets in terms of production and financial health; (c) the active or passive attitude towards internationalizing.

Index:

1   Context

1.1   Client – German-Portuguese Chamber of Commerce

The German-Portuguese Chamber of industry and commerce (from now on mentioned as CCILA) is the main entity responsible to strengthen the business relations between Portuguese and German partners. In order to achieve its goal, this entity provides a broad set of services such as legal and tax advisory, internationalization consulting, professional qualification and fairs support and promotion. All of these services converge on its purpose, to create an efficient platform that supports and leverages the exchange of commercial relations between the two countries. Broadly speaking, this exchange can take two main forms: exports and foreign direct investment, where the former consequently influences the first one.

The starting point of this paper relies on a project developed and promoted by CCILA named PORTUGAL PLUS. The aim of this initiative was to increase Portuguese exports and attract German direct investment by identifying and joining potential business partners and also by promoting the image of Portugal as an entrepreneurial country. However, the result of such initiative was not as successful as expected, and the main reason for that was the lack of an exhaustive and meaningful analysis and preparation from the Portuguese companies to approach the German potential clients. Nonetheless, to better assess the main difficulties of the Portuguese companies on the approach of the German market, a thorough study was conducted by the consulting firm Roland Berger (RB) to rethink the strategy of attracting German direct investment and the Portuguese internationalization.

1.2   Market Overview

The Portuguese government defined a target of 40% for the export/GDP for 2020.To accomplish that, either the GDP decreases (which is not desirable) or the export rate increases 6% to 8% given current data. For that growth to occur, Portugal needs to focus its efforts to target 'sophisticated' markets that can afford the purchase of high value added solutions, as it cannot be competitive in price mainly due to lack of scale. Given that, Germany seems to be an intuitive choice on helping Portugal to re-establish its negative balance of trade. However, data evidences a residual 0.6% of Portuguese

national quota in Germany[1]. On the other hand, Germany has a relevant position for Portugal being its second destination market with a 12.3% weight, only overtaken by Spain with 22.5%. Another way to analyse Portugal's performance is comparing its German export rate with its main competitors: Poland, Czech Republic, Spain, Hungary, Slovakia, Turkey, Ireland and Romania. This analysis shows that Portugal exports to Germany are inferior in comparison with the abovementioned countries with 5.6B (EUR) − 1.6% less than the second last country of this ranking. On top of that, looking to the CAGR of these countries, Portugal growths less than average, with 3.4% against an average of 4.3%.

Another relevant conclusion of the RB study is the positive and direct relation between German FDI and exports, meaning that countries with higher German investment evidence higher export rates to Germany. In Portugal this applies mainly to technologically based products: an estimation shows that more than 90% of Portuguese exports to Germany in the automotive sector come from German factories; 80% to 90% for machinery and electrical equipment; and 50% to 60% for mechanical machinery and equipment. This analysis leads to the inquiry of the external-orientation level of the Portuguese SMEs since it composes 90% of the Portuguese business structure, where data reveals once again Portugal in disadvantage towards the EU27: only 14% of Portuguese SMEs export in comparison with an average of 25%. O'Brien points that Portuguese law 'encourages' companies to stay small due to the regulation and corruption, which in turn limits their international exposure and do not 'shape' them for demanding markets like Germany. The interviews conducted by RB confirms it by presenting the main barriers of the Portuguese SMEs: the sales process, production capacity and access to big distribution channels.

1.3   The project challenge

Given the average size of the Portuguese companies, the RB study proposes a solution that relies on a cluster's rational, congregating efforts to overcome the problems that arise from the lack of size and visibility. This implies the sectorial associations taking the leading role of those clusters and the promotion being done jointly. In parallel, a deep knowledge of the market opportunities, distribution channel and sales processes should be acquired.

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[1] Roland Berger Study: PORTUGAL PLUS (see bibliography)

This paper's purpose is to take RB study one step further and describe concrete ways to promote Portuguese companies' exports to Germany. Therefore, a pilot sector was chosen for the sake of the recommendations' viability, nonetheless it is desirable to design ways that can be transferable to other sectors. The targets of this paper were defined by layers: governmental entities, sectorial associations and the companies from the selected sector.

2   The Project – A Reflexion on the process

2.1   Sector Selection and overview

The choice of a pilot sector followed some criteria that are worth to clarify, given its influence on the final results. First of all it should be a sector with demand from the German side; secondly it must have potential to add value and the possibility to incorporate technology; lastly, the target should be composed by Portuguese companies on its majority. These criteria with no additional constraints, led to the choice of the moulding industry, however, this sector evidenced an advanced development as a cluster where most of the objectives of this paper have already been accomplished and so it was used as a best practice example for this paper.

One step back was then taken, and a more gradual selection process was adopted. Looking at the German imports by product group, *Machinery, Mechanical Appliances and Electric Equipment*, the first group of the ranking has both the highest volume and CAGR[2]. In parallel, this same group is the one ranked at first among the Portuguese exports, though there is a significant gap between the two countries in terms of volume: while the maximum value for the German imports surrounds the 240B, the Portuguese exports reaches a maximum value of 7,6B. As this remained in a too broad level, the same reasoning was applied within this category, where it was concluded that there was more potential for the Machinery and Equipment (M&E) from the German side. This logic of reasoning from a broader group (*Machinery, Mechanical Appliances and Electric Equipment*) to a narrower, by comparing the demand from the German side with the supply from Portugal (to guarantee capacity, and also taking in consideration the potential to add value through technology), was followed until reaching the *Manufacture of Machinery and Equipment for a Specific Purpose* category. Yet, within

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[2] Source: United Nations Trade statistics database

this category, there are several subcategories[3] that vary a lot industry wise, so three were chosen as one would not allow to gather a significant number of answers during the field research phase. *Agricultural and Forestry, Metal-Forming Machinery & Machine Tools and Machinery for Mining, Quarrying & Construction* were the chosen ones, as they are the top three most imported by Germany within the subsector of M&E.

Characterization of the Metallurgy and Metalworking Sector (M&M)

The M&M sector is highly heterogeneous and is present in most of the value chains of the manufactured goods, which puts this sector in a central position in the economic growth of the modern economies. Data from AICEP states that the sector accounts for 23 thousand companies, 223 thousand employees, an 18% weight on the national GDP and it is responsible for one third of the exports within the transforming industry, where the exports contribute for 45% of the revenues. The majority of these companies are SMEs, which contributes to a highly fragmented sector that, on one hand presents difficulties in getting mass production and consequent scale whereas, on the other hand gives them competitive advantages in terms of adaptability, flexibility, customization and opportunities to add value to the client. Comparing to other national sectors, this one presents higher productivity rates, yet lower than its European congeners[4]. Another weakness of this sector is its limited access to key distribution channels and its insufficient cooperation between R&D centers and companies. The imminent increase in quality and the typical competitive prices from China and Eastern Europe are a serious threat the companies must take into account. As a result of the analysis taken on this sector, a strategic vector arises pointing to a competitive advantage based on differentiation that should be built through a cluster's logic as stated in a study made by the consulting firm Augusto Mateus & Associates[5].

The choice of the three aforementioned subsectors (*Agricultural and Forestry, Metal-Forming Machinery & Machine Tools and Machinery for Mining, Quarrying & Construction*) within the section of Manufacture of specific-purpose machinery did not allow to reach all of the proposed deliverables as some were industry-specific. For instances, the choice of the most appropriate distribution channel, in order to

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[3] Consult appendix 3 for a better understanding
[4] AICEP data – Portugal Global
[5] Study made by the consulting firm on the M&M sector, ordered by the industrial association: AIMMAP (see bibliography for full reference)

successfully export highly depends on the industry at stake, but if the investigation had relied on only one of the subsectors, the risk of not getting enough data to be considered significant would have been too high and consequently it would have neglected the requirement of the transferability of the results, which was in the team's opinion more important.

2.2   Methodology/Approach

The approach followed in this project was a gap analysis between German requirements and Portuguese offerings in order to design recommendations to maximize that match. The analysis of both countries was done by field research that included direct and indirect interviews to several relevant entities and industry experts. Every time it was possible 'face to face' or telephone interviews were recorded for the sake of the transcript accuracy.   On the German side it was crucial to comprehend importers expectations from suppliers in terms of product and services requisites; how their supplier selection process work and what is their image regarding Portuguese producers. When it comes to Portugal, the research was designed in order to assess matters like their internationalization's ambition regarding Germany; their main strengths and weaknesses; what kind of support activities would they benefit to increase their international competitiveness; what kind of cooperation relations do they have with other value chain entities and their R&D orientation[6]. Concerning the structure of the recommendations, these were thought to be organized in three levels: Governmental institutions; Industry associations and Individual companies. In parallel, an industry benchmark was done using the moulding sector in Portugal due to its exports' success (particularly in Germany by being the first export destiny with 21% of national production), its highly 'clusterized' structure with high levels of cooperation and dynamism between entities.

The data gathering among companies was done using questionnaires with open questions, which by one hand contributed with more insights for the investigation but, on the other hand, brought additional obstacles to the analysis, specifically in the organization of the information and its quantification. This difficulty was overcome by investing time on forming homogeneous groups for answers and allocating the answers to the respective groups. Another difficulty, nonetheless more predictable, was the

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[6] Consult appendix 1

scepticism from companies in general to cooperate for the study. This was particularly extreme in the case of the German potential buyers. The strategy to identify them was through their German associations and also using privileged contacts from the CCILA established during the PORTUGAL PLUS project.

2.3 Data Analysis

2.3.1 Portugal

a) Main Barriers

Facing research results, it was noticed that companies face **different internationalization barriers depending upon their international focus and capabilities** – finding that puts at stake the initial work approach. If, until then, the recommendations were thought to be split in an industry logic, data showed common barriers between subcategory that are related with the companies' level of international focus. Enterprises with **domestic or Iberian scope** face barriers like the limited capacity and resources; lack of product investigation and innovation; lack of investment in production and human resources; maladaptation to high customer requirements. These same companies also state to have difficulties from a managerial nature: insufficient knowledge regarding the internationalization process; lack of strategic thinking and willingness to develop and expand the firm; and the absence of initiative to approach new markets. However, when the companies already evidence a **well-developed international** focus, the main barriers they face report to insufficient local market presence like trade fairs and sales representatives; and they also regard a high level of bureaucracy when applying to governmental incentives. These high international focused firms also meet obstacles concerning the high centralization of tasks within a company, which represses the development of ideas; the access to international innovation networks is another strain for these companies to internationalize successfully.

In spite of the gap between these two types of firms, there are common barriers that both point out. The first one has to do with the lack of capabilities and resources related to Customer Relationship Management (CRM) and marketing. Most of the companies put a high emphasis on production matters and **overlook and underinvest during the selling phase**. A second block diagnosed is the **lack of a cooperative mind-set among**

the firms. It is not a normal practice for companies to establish alliances and to proactively search for mutual interests, which avoids the union of efforts when approaching new markets. The third common barrier is related with this sector's high requirement **of local presence** to provide after-sales services and maintenance, condition which companies find hard to meet. Lastly, the lack of an **image** that associates the country with technology and machinery in general constitutes an incremental obstacle.

b) The Framework

The division mentioned on the previous paragraph marks a significant shift on this research project's structure. Graphic 1 visually explains the framework that emerged in order to establish a logic to organize the companies into categories as homogeneous as possible.

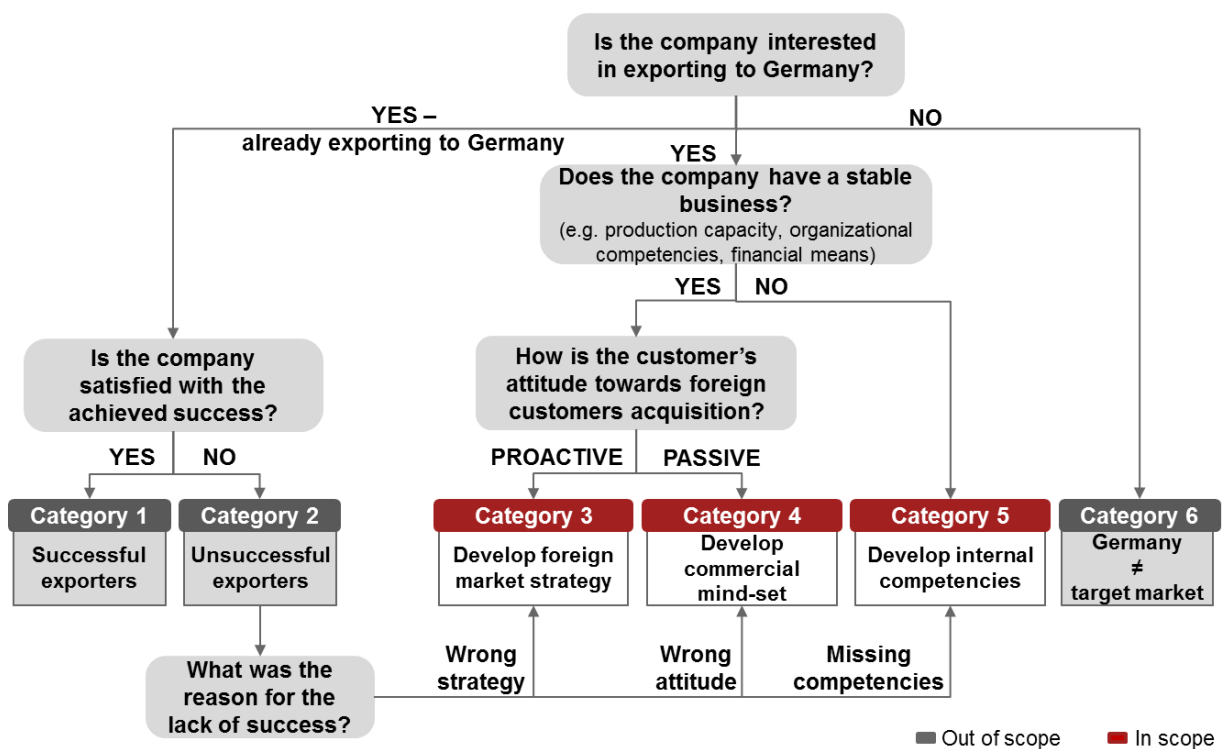*Figure 1 - Company diagnosis model[7]*

A parallel made with the *Resource based approach* by Collis and Montgomery is highly relevant to comprehend the genesis of this model. According to these authors, a company possesses a competitive advantage (or not) depending upon how valuable their resources and competencies are. And the bridge to this project is made here: a

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[7] Source: Team Project Material

successful internationalization process, besides other several factors, relies on the (in)existence of competitive advantages. Thus, if this project's purpose is to boost companies' internationalization to Germany, recommendations should be built around companies' resources and capabilities. The analysis of those lead to the conclusion that the main problems of the firms are not industry-specific but rather with their **development stage regarding internationalization**. In turn, the former depends on: (a) the willingness to export to Germany; (b) the stability of the business, which is a proxy to assess the readiness to approach new markets in terms of production and financial health; (c) the active or passive attitude towards internationalizing.

This model follows an evolutionary logic as one moves from category 5 to 1 (Category 6 is excluded here since companies comprised in this group do not have Germany as a target market as it will be further explained). It represents a simple way for companies to diagnose where their current situation in regards to their internationalization stage is, and their consequent needs to evolve to the next stage. It is important to note that each case is unique and one company will fit better than another in a certain category as there are cases that will be diagnosed in-between categories, nonetheless the *Company-Diagnosis Model* is an effective tool for a first scanning of the companies. This framework will also allow building recommendations having in consideration the specific needs of each category.

Category 1

The companies from this category are considered successful exporters and had a *best practice* role in this project. These companies possess a stable and ongoing sales activities to this market, either by one big client or several. To reach such level, these companies evidenced an ongoing competitive analysis that allowed them to be up-to-date with the latest market trends and industry competitive dynamics. Another component these companies did not overlook has to do with customer relationship management and the importance of the service component within this sector.

Category 2

This category includes companies that already sell to this market but exports only represent a residual sales percentage. That might have been caused by several reasons, blocking the progressive growth of the internationalization process. It might have been for instance a client that contacted the company for some special circumstance,

therefore this case must be revaluated to be re-categorized, for this specific case into the category 4. In this specific sample, the re-categorization lead the majority of the firms to the category 3, in which the debilities rely mostly on their foreign market strategy.

Category 3

These firms already have a stable business and have a proactive attitude towards approaching new clients, nonetheless the obstacle for them to take the leap is the lack of a comprehensive company and target market analysis. The support that should be given to this group should promote the awareness regarding existing entities that can help this companies at this stage; a deep internal and external analysis to detect concrete opportunities to pursue any gaps on the market the firm might have potential to fulfil; and finally a design target positioning and appropriate mode of entry. This kind of preparation (or lack of it) is the root of the majority of the unsuccessful cases. This was the main cause for PORTUGAL PLUS not to reach the initial expectations. This problem asks for an increase of awareness in regarding to a previous intense preparation for the firm to know exactly what to sell, what product/service adaptations are needed, to know to whom they should sell it and how to do it. Given the attractiveness of the German market and the consequent numerous solicitations, the first opportunity is most of the time the only existing one.

Category 4

This group already has the internal competencies developed, however it lacks a proactive attitude towards seeking new markets. The main block for the progress of these companies is the absence of a long term vision and strategic mind set. Understanding the benefits of the internationalization, but also the consequent investments and efforts that came along with it are crucial insights this group must acknowledge to evolve to category 3.

Category 5

This group is the one which is more far away from a successful internationalization to Germany. Before thinking about approaching such a demanding market, these should aim at a healthy and stable business, within the domestic market or to other countries. Indicators such as financial stability, availability of capacity, knowledge about the company's competitive advantage and the competencies and resources that are needed to expand the business should be settled. Only after assuring these factors these

companies can aim selling to Germany, where credibility and success examples are key aspects.

Category 6

Data from the conducted 78 interviews showed that a majority of 68% of the companies from this sector did not export to Germany, being that only half of those are interested in approaching that market. The remaining half do not have Germany as a target market for several reasons, being the main one, with 48% of the answers, the lack of demand on the product they sell. The remaining reasons, with equilibrated percentages, include the highly competitive environment that characterizes the German market (16%); the lack of production capacity in terms of resources to meet the potential demand (12%); the lack of initiative from the Portuguese suppliers in approaching potential clients (12%); and finally the lack of knowhow and technology (12%) is another reason for Portuguese companies to not approach this market. This category was considered to be out of scope as the crucial prerequisite of willingness is not respected.

c) **Portugal M&E[8] Value Proposition**

Selling machines, of any kind, to a specialist market as Germany requires strong competitive advantages from Portuguese companies justifying transport costs. Competing in costs is a 'dangerous battle' to fight against China and Eastern Europe. In terms of high quality Germans do not need to import, and if they do they go to Italy, Japan or South Korea[9]. Given that, Portugal gains its competitive advantage in terms of **flexibility and customization, at a good quality-price relation**. The results from the sample used indicate that 31% of the companies sell due to its favourable quality-price relation; and 27% due to its flexibility in terms of product and service requirements and by having the ability to offer highly customized products. The remaining competitive advantages, with equilibrated percentages are related with after sales services (10%), R&D and innovation (8%), advanced technology (8%) and CRM (5%). Plus, German buyers tend to be very loyal to their existent suppliers, especially of standardized products, meaning that Portugal cannot aim to sell standardized products as there is no need for it, and even if there is, it is not justifiable by the geographical distance. Generally, mass production is also not the way due to obvious reasons of lack of scale. Given that, Portugal can only add value in this sector if it focus on **single piece or small**

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[8] Machinery and Equipment
[9] Based on interviews answers and German imports statistics

batch productions of non-standardized M&E. Taking this positioning allows to leverage from the high levels of flexibility as well as the limited production capacity.

2.3.2 Germany

a) Relevance of the Market

Germany is a very attractive market to sell to due to several reasons. In terms of population, it is eight times bigger than Portugal, its GDP is sixteen times superior, and its balance trade is excessively positive, with imports surrounding the 906B. In the machinery sector it was world export leader of global M&E trade with a share of 16.8% in the year of 2011. It possess 25% of the world's mechanical engineering patents and it spends over 13B in R&D annually[10]. Plus, in terms of business relations, there are several key advantages on establishing relations with them. Despites being difficult and time consuming to establish a strong relationship with Germans, once it happens, it tends to last long due to their loyal attitude. Having a German firm as a client implies that they will involve their suppliers in their growth strategy by educating and training them for mutual benefit. Lastly, having Germany as a market destination is a proxy for credibility amongst other potential buyers, implying beneficial publicity for the company.

The German analysis for this project had as a main purpose to assess the requirements needed for a supplier in the M&E sector. This projects' data results were divided into product and service related, and also soft skills. Product requisites comprise the offer of a value-adding product with differentiation potential; properly tested; ongoing improvement and evolution; certifications and the product and marketing documentation coming in German and not in English. Regarding the second type of requirement, service related, Germans demand quick response times; interaction with the appropriate persons; a highly responsive after-sales service; a German speaking person that has both sales and technical expertise (especially when the client is an SME); having a web site in German is also a plus. In terms of soft skills, the Portuguese supplier must be able to be adaptive to their culture, by understanding the importance of being straight forward, transparent, cooperative and patient.

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[10] Ixpos data – The German Business Portal

b) Distribution Channels

The main difference within the value chain of Portuguese M&E producers is related to their distribution channel choice. The choice of the appropriate distribution channel was one of the stated deliverables for this project, nonetheless the way it evolved did not allow to fully meet this objective. As well as the choice of the right fairs to attend, the distribution channel highly depends on the industry at stake, but the study did not focus on studying the details of each industry for time and scope matters. As aforementioned, the analysis was done in a resource development view rather than an industry specific one. Thus, the possible achievement was to point out the non-industry specific factors determining the choice of a distribution channel. These factors can be divided into product characteristics and company resources. The first one includes customization level, technology's complexity and the importance of after sales service. The former one is concerned with the level of investment/risk one is willing to take, and the level of involvement the company is willing to have. Depending upon those factors, one can sell through a wholesaler, a commercial agent, directly or even by establishing a local institution with a subsidiary. The following scheme shows the relation between the aforementioned factors and the appropriate channel.

	1. Product characteristics			2. Company resources	
	Customi-zation	Complexity of technology	After-sales service	Investment / risk	Company involvement
Subsidiary	High	High	High	High	High
Direct export	High	High	Medium	High	High
Commercial agents	Low	Medium	Low	Low	Medium
Wholesalers / trading companies	None	Low	Low	Low	Low

Figure 2 - M&E Distribution Channels in Germany[11]

2.3.3 Industry Benchmark – Moulding Industry

The moulding industry was an obvious choice when the criteria for the project involved a) a technologically based product, b) potential to add value, c) German demand and d)

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[11] Source: Team Project Material

Portuguese capacity. But during the research phase, it was noticed that it is such a remarkable success case, especially in Germany (being the first market destiny with 21%) that that was little space for improvement so it was chosen to be an industry benchmark.

After analysing the factors that make this industry so successful internationally, it makes sense to split these factors into the ones that happened naturally and therefore hard to extrapolate, and the ones that were developed through time.

This industry was born global, starting to export since the beginning due to external demand, which made the companies grow according to international and demanding standards. Secondly, this sector is geographically concentrated into two main areas: Marinha Grande and Oliveira de Azemeis. This proximity allowed collaborative dynamics to arise and the exchange of knowledge to be spread mainly though spin offs of existing firms.

However, the success of this case should not be fully attributed to natural factors. For it to persist, it was required a **joint effort and cooperative work** between companies, clients and industry associations. The first component present in this niche that can be and should be developed in the M&E sector is the development of a strategic plan with long term and short term well defined objectives. The second factor that should be replicated to the M&E sector in order to build a *cluster* is a strong network that forms opportunities for cooperation and joint activities. Thirdly, the industry possess a collective brand: *Engineering and Tolling,* which allows a coherent image that reflects values to which companies relate to. Furthermore, through this brand the industrial association publicizes propaganda material and promote a whole industry through one single name. Another success factor of the moulding industry is their offer of integrated products and services, which adds the most value to products. This implies the involvement of the client from early stages and a high level of customization, which matches with the Portuguese M&E value proposition. Lastly, even the new-born firm that arises in this industry understands the need of being up-to-date in terms of technological trends to ensure its sustainability. This awareness should be part of a sensitization process in an industry where a large amount of companies still uses the same technology for the last 10 to 15 years.

2.4 Guidelines

2.4.1 Guidelines for companies

The progress of this project followed a 'funnel' logic, and by this stage only broad guidelines were designed. These focal issues were separated into different areas: Strategic Positioning; Product and Service related; Soft-skills; Marketing and Commercial linked. Given that this is still the 'top of the funnel' there are focal issues that can be applied to two or even to the three categories. Later on, more specific recommendations, derived from these focal issues will be exposed.
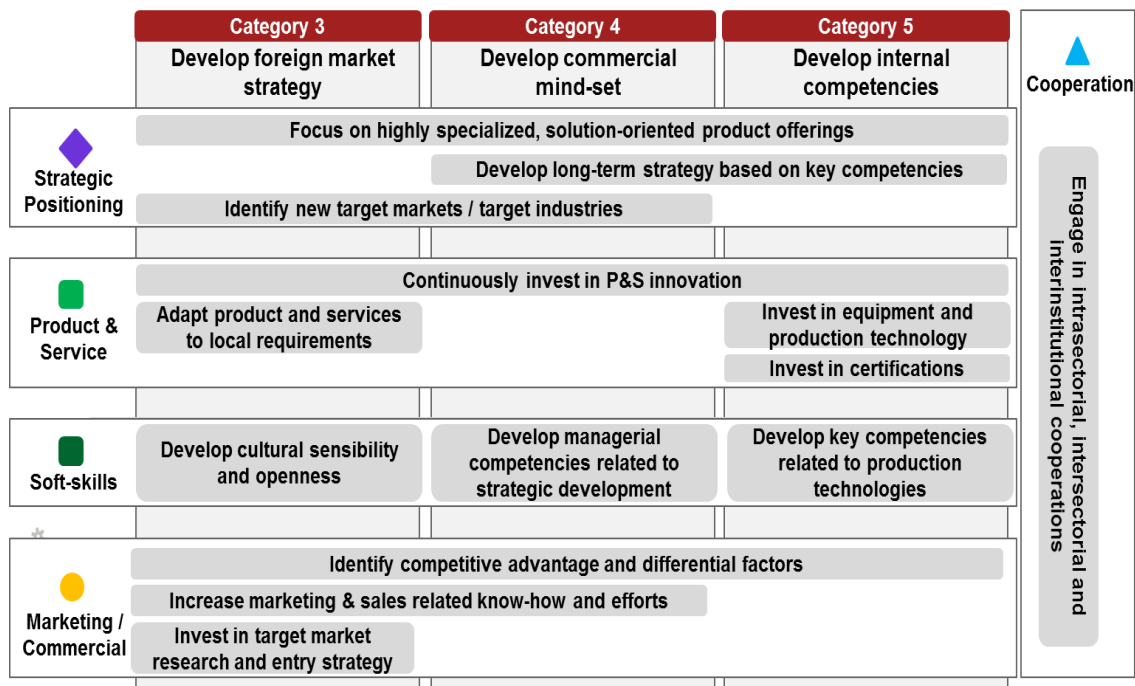
Figure 3 - Individual companies focal issues[12]

Recommendations for companies

Strategically, most companies should follow the value proposition based on highly specialized and solution oriented offers. Nonetheless, this won't be as easy to apply to the reality without a major consolidation of the business network of this highly **fragmented** sector that is M&E. Some of the companies, that add little or no value to the market, will only have a chance to internationalize if they consider forming **alliances**: *Mergers and Acquisitions; Joint Ventures.* Secondly, companies need to do an **exhaustive internal and external analysis** in order to specifically identify their target, positioning and potential markets to enter. Lastly, the **automatization of internal processes** to optimize communication within the company and with other

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[12] Source: Team Project Material

players from the value chain should not be overlooked: *CRM[13], ERP[14], Inventory software, etc.*

In terms of products and services, there is a transversal need for continuous innovation: incremental and disruptive. Companies from category 3 though, need to understand the importance of **adapting** their offer to market specific requisites. But companies from category 5 need be alerted to the investment in certifications and in new tech and equipment; plus, **strengthening the quality systems** and measures by upgrading the control department is also crucial to adapt the company to German standards.

The needs of each category concerning the soft skills needed, are pretty straightforward. While companies from Cat. 5 should have a focus on production matters; Cat. 4 must develop their strategic and long term vision and Cat. 3 is lacking sensitization related to commercial approach. But all of these needs can be fulfilled by **management professionalization/education.**

The category that accounted for more companies from out database was category 3 with special needs on marketing and sales skills. It was noticed a major emphasis on the production stage and a continuous overlooking of the marketing strategies. Therefore, these companies should be sensitized for an investment in a **target market research** to choose the most **adequate entry strategy**. Plus, taking into account the importance of fairs in this sector, it is of extreme importance for companies to do the proper preparation and consequent follow ups in order to take the most of this promotional activities. This can be assured by, for instances, the development of a **check list** that systematizes all critical tasks to do in what regards presence in fairs. Note that this should be developed with the support from an industrial association with sufficient expertise in the area, in this specific case AIMMAP or ANEME.

Still within the marketing thematic, companies should be ***customer oriented* in opposition to *product oriented*** as Theodore Levitt suggests on his article *Marketing Myopia.* If they incur on such myopia they risk to wrongly define the industry they are in. For instance, there was this company that had a machine to cut ornamental rocks, but with some adjustments it could cut other materials[15].That was exactly what the shoe

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[13] Customer Relationship Management
[14] Enterprise Resource Planning
[15] Example taken from an industry expert interview

industry did with it. Thus, this company should not assume to be in the 'cut of ornamental rocks business' but in the 'cut business' instead. This mere changing on the industry definition will certainly make firms leverage their resources and capabilities.

2.4.1 Guidelines for Industry Associations

Naturally, at a broader institutional level the focal issues tend to be more transversal between categories, nonetheless the subsequent activities in which these guidelines will be materialized should be more segmented.

Figure 4 - Governmental and Industry Associations focal issues[16]

To achieve the goals presented on Figure 4, Industry Associations (AIMMAP, ANEME, IAPMEI, CATIM, CENFIM, PRODUTECH) should play an active and leading role on getting together their associates in order to develop a **joint strategic plan,** following the same path taken in the moulding industry by CEFAMOL. Still regarding the strategic positioning and an activity that benefit transversally all categories is a **partnership between PRODUTECH and CCILA**. This union will allow to unify the profound knowledge about the German market and the technical expertise from the row of the technology producers. Finally, AIMMAP and ANEME should take a leading position on creating systems/activities that **build a cooperative network**.

Category 4 and 5 should be approached by associations through the **dissemination of success stories** to promote a more active attitude in regard of approaching new markets. Still in terms of soft skills to help category 3, CCILA should be the main responsible to build awareness among the associates in what regards to cultural adaptation.

Concerning marketing and commercial efforts, the target should be Cat. 3 and 4, in the short/medium term. At this stage the most relevant entity to help companies (at the sectorial level) is CCILA. At the time this work project is being done, this entity is still at an early stage of their advisory services (which started 5 months ago), which imposes limitations to give recommendations to this entity. Based on the information given, CCILA is receiving a high number of solicitations, with no need at this stage for an active promotion of their services. Nonetheless, when this one reaches a dimension that allows to take more clients, it should form alliances with sectorial associations (AIMMAP and ANEME) in order to sensitize their associates for the importance and advantages of the German market, and also to promote their services on helping companies. CCILA can also leverage its privileged knowledge by offering a service that informs its members of business opportunities and market gaps they can fulfil.

2.4.2 Guidelines for Governmental Institutions (AICEP, IAPMEI, CEIE[17])

At a governmental level, the recommendations are naturally more transversal. One of the common barriers for the M&E producers in Germany is the negative or inexistent **image** of Portugal in this field, which should also be a responsibility of the government. Given the level of complexity, this theme is out of the project's scope, nonetheless it deserves a reference due to its importance on the internationalization process.

Reduce bureaucracy and simplify the applications for governmental incentives should be another aim of the government as in comparison with homologous European incentives, these are considerable more time consuming.

The feedback received from companies regarding AICEP's services varied a lot. Being that it was not possible to exhaustively and accurately assess their work. Nonetheless, it was a common opinion that their market information is too broad and superficial. Thus, this should be revised and a deeper analysis is required from them in order to **publish meaningful information** to companies. Secondly, their website is not as intuitive as

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[17] Conselho Estratégico para a Internacionalização da Economia – Strategic Counselling for the Economy Internationalization

desirable, constituting another point of improvement. Lastly, in terms of services, this institution should also identify and **disclose business opportunities** from foreign markets that Portuguese companies can take advantage of.

In regards of IAPMEI (QREN), it should continue to **support innovation and the acquisition of new fixed assets** like machinery. In addition, this supportive frame should also create a 'line' to incentivize, through funding, the **consolidation of the fragmented market**. If mergers and acquisitions do not occur, several companies will become obsolete to the market if they continue with the same strategy. Therefore, the increase the overall efficiency and the creation of synergies through funding must be supported.

Methodologically it was proposed to attain a series of objective guidelines as those presented. These guidelines aren't industry specific, therefore it will be required a future serious commitment in the elaboration of concrete recommendations, initial activities and major role-players for the producers of *Machine Tools* for CCILA.

3   Cooperation – A brief literature review applied to the case studied

The Roland Berger previous study to this project suggested the 'development of sectorial clusters in order to congregate efforts between companies and sectorial stakeholders'. Porter (1990;1998) defined clusters as a set of industries, horizontally and vertically related that have interactions that result into greater levels of productivity. The moulding industry case, used as a benchmark in this work project, confirms studies that correlate the geographical proximity with local wealth, foreign investors' attractiveness, and the internationalization process of the companies (Felsenstein and Taylor 2001). However, the pilot category chosen for this paper: *Machinery and Equipment for a special purpose;* does not benefit from such local proximity. Nonetheless, Felsenstein and Tylor's view did not incorporate the influence of technology, informatics and social interdependence that lead to a better externalisation of activities (Brown and McNaughton 2002). This latest finding does not demand the existence of local proximity but it does not exclude a crucial component that is **cooperation**.

Cooperation is defined as 'complementary actions taken by firms in interdependent relationships to achieve mutual overcomes over time' (Anderson and Narus 1990).

Firms can take several advantages from cooperating: (1) Increase competencies by leveraging complementarities; (2) Ease access to extensive technological knowhow; (3) Improvement of sectorial image; (4) Provides the basis for self-evaluation and strategic development. But cooperation can no longer be faced as a mere option for a company that aims to be internationally successful. Morgan and Hunt (1994) stated that an effective competitor in the global economy requires cooperation and networking between firms.

Cooperation can be (1) *Intrasectorial:* horizontal and vertical cooperation with companies within the same sector; (2) *Intersectorial:* cooperation between firms from related sectors, (3) *Inter-Institutional:* cooperation between stakeholders with activities related to the same sector. These partnerships, in this specific sector of M&E producers can be technological / knowhow related: development of new technologies; technology transfer in between sectors; transfer of organizational competencies; and development / training of human resources. Concerning operational cooperation, it can be the development of new products/services; subcontracting to reach scale; and bundled sourcing / transportation sharing. Commercially, companies can do joint promotional activities (i.e.: fairs); and combine the sale of complementary products/services.

The main question to take into account is how a genuine **cooperative environment** can be developed in a sector where it did not born naturally. The answer to this question finds its starting point in industrial associations. 'Institutional aspects, formal organizations such as trade associations and the presence or absence of social capital, may play a critical role in creating the right environment and then influencing the climate for cooperation in regional clusters' (Holbrook and Wolfe 2005 in Felzensztein and Gimmon 2008). That being said, AIMMAP and ANEME should play a crucial role in the promotion of cooperation in the M&E sector, what Porter called as being the 'social glue'. The majority of the companies studied in this project were members of these associations, even so data showed little openness, knowledge and dynamics between firms with potential complementarities. This leads to two additional and related concepts that must arise to lead to meaningful cooperation: (a) trust and (b) social networking. Trust is a 'key element in the development of a cooperative relationship' (Hoang and Antonic 2003 in Felzensztein and Gimmon 2008). Trust assures the enforcement of the assumed commitments and holds of the 'free-rider' problem. But this component doesn't come out of thin air, and formal institutions alone will unlikely

succeed in such task. Huggins (2000) defended social groups as an effective initial informal structure to form networks that consequently lead to trust building. Allowing for potential partners to know each other's existence, needs and capability requirements (Gulati, Nohria, and Zaheer 2000).

A great obstacle that might well be blocking the emergence of a cooperative spirit is the high level of uncertainty avoidance that characterizes the Portuguese population according to Hofstades' model[18]. This inner avoidance of the unknown might be holding companies to search for new ways of doing business and relate with each other, thinking that the incremental gain does not cover the incremental risk attached to (mis)trust.

Another perspective that is worth including in this discussion is the type of relations the value chain will have if the aim is attracting German clients. According to the definition of Chang et al (2010) this is the case of a **downstream network dominance**. Cooperation might well be also a way to avoid German opportunism given their superior negotiation power. But previous to that, cooperation is needed in between M&E competitors in order to establish a coherent positioning based on customization and flexibility under a positive quality/price relation. Afterwards, the cooperation should be installed between seller and buyer through information and opinion sharing in order to build an amicable relationship where the Portuguese supplier is seen as a self-reliant partner in contrast with a mere submissive supplier. If Portuguese suppliers cannot establish this amicable relationship and equilibrate the power, it is probable that Germans will try to diminish the suppliers' profit margin until unsustainable values as it was referred in several interviews conducted.

4   Reflection on learning

4.1   Previous knowledge: Masters content applied

The acquired knowledge and theory 'consumption' during the master's degree was fundamental for the development and results of this paper. The first influence noted was during the analysis phase. In almost every work produced for the university, an analysis had to be conducted, and in its majority using 'real' information. The familiarization with the value chain concept also facilitated its application. Nonetheless, there were

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[18] Hofstede's cultural dimensions theory is a comprehensive framework that helps explaining the behaviour of a society based on their values (see bibliography)

some challenges regarding this specific case given the complex dynamics that characterize this sector, where intra-sectorial sales and buys are above normal. To avoid a circular and too complex design it was important to think what kind of practical information one could extract from that tool. Another course that impacted in a different, but not less important, way was the consulting classes concerning the slides construction: the use of a consulting type of layout, and the choice of the most appropriate graphics to efficiently transmit an idea.

However, and probably the most important influences from the masters are not so easy to highlight and isolate. Articles read and taught contents, as for instance the ones aforementioned on this paper: *The Marketing Myopia* from T. Levitt and the *Resource Based View* from Collis & Montgomery, contributed for a reasoning that was in the origin of the framework elaboration. The Hoftade's model, also a content from a course taken, added value to the cooperation discussion on topic 3.

4.2   New knowledge: new methodologies and frameworks used

This project added an extreme important component for the masters as a complete learning experience by adding obstacles with a non-theoretical nature. One of them has to do with direct research, more specifically with running interviews and the validation of the data gathered. The field research phase allowed to develop competencies in regards to designing questionnaires; conduct interviews and develop skills that allowed to gather deep and meaningful information. This was also possible due to Roland Berger's advice that alerted for the risk of obtaining broad answers in an interview. Another important skill this project brought is also related with the veracity of the information collected. It is crucial for the accuracy of the results to listen to different perspectives in a certain issue given the natural biases of each one.

Dealing with imperfect information in contrast with the theoretical exercises was another important challenge. It is crucial to learn and to face as something natural to make assumptions and use shortcuts in order to deal with information and time constraints without compromising the accuracy of the final results. This was particularly significant during the analysis phase, where the European and the Portuguese statistics classifications did not match, which compromised the quantitative data. On the top of that, the abundance of information represents an actual challenge that is of major

importance. This project helped to develop some techniques that avoid the loss of focus while searching for a certain topic.

An extra difficulty this project brought was thinking about recommendations that can actually be applied, taking into account the execution obstacles. Plus, to give recommendations for institutions that are working on this topic for much longer added a sense of responsibility but, at the same time, testifies the importance of looking at a problem from a fresh point of view – something I was very reluctant about at the beginning of the project.

4.3   Personal experience

In regard to my personal features, what added value to the project was my resilience and capacity to overcome difficulties without demoralize. The capacity to connect practical issues with theories as mentioned above also contributed for the richness of the content and its methodology. Lastly, my capacity to adequate the language used and to create empathy facilitated the interview phase and the collaboration of the companies to the project.

When it comes to my main difficulties, they all surround the same issue that is some anxiety associated with a complex problem to solve and the tendency to 'rush' the process. But I have been overcoming this propensity by systematizing the process and by developing some techniques of prioritizing.

4.4   Benefit of hindsight

What in my point of view added more value to this project was the group dynamics between me and my partner. Different backgrounds, experiences, and points of view contributed to face this major challenge through a fresh and rich perspective. In parallel, the commitment and the motivation for the theme marked a high threshold.

If would I start this project again, with the acquired new learnings the data gathering process would have been different in the sense that it was hard to process the information with open question questionnaires. In an initial phase, open questions are extremely important to add insights to the research, but afterwards is important to give limited options of answer to facilitate the quantitative data analysis. Nonetheless, this would only have been possible with extra time to the field research phase. It was extremely hard to obtain answers and interviews from the companies.

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Index of images:

Appendix 1 - Companies' Questionnaire

Questionnaire

Company:		Name:	
Adress:		Position:	
		Telephone:	
		Email:	

I. General Information

1.1 Foundation year:

1.2 Sector of Activity:

    Agricultural and Forestry Machinery

    Metal-forming Machinery and Machine Tools

    Mining, Quarrying & Construction Machinery

    Other:

1.3 Number of employees:

1.4 Sales Volume(€ / 2012)

1.5 Client industries:

1.6 Supplying industries:

II. Export Classification

2.1 Do you export to the German market

Yes / No
If yes, please continue with no. 2.2, if not please go to no. 2.4

2.2 Starting year of exports to DE?

2.3 Exported products

2.4 Other export destinations:

Only answer this question if you DO NOT export to Germany.
2.5 Which are the reasons that you are currently not exporting to Germany? If you stopped to export to Germany please mention why.

___

2.6 Are you interested in exporting to Germany in the futur?

        Yes   Please answer questions 3.3, 4.2 as well as the sections 5 and 6.

        Não   Please answer section 5 and 6.

3. Export Experience to Germany

3.1 What were the main reasons for you to start exporting to the German market? Which process steps did you followed before starting the export activity?

___

3.2 What kind of distribution channels to you use in Germany? (e.g. agents, distributors, direct sales etc.)

___

3.3 Which were the man barriers and difficulties when starting the first export relations to Germany?

___

3.4 In your opinion, which are the main key success factors when exporting to Germany?

___

4. Export Support Activities

4.1 What kind of support activities of incentives did you use in the past? (e.g. from governmental institutions or industry associations? Which were the most important ones?

___

4.2 What kind of support activities would be required by your company in order to improve or increase your export relations to Germany?

___

5. Industry Competencies

5.1 What is the competitive advantage of your company? How do you add value for your customers? Please be specific.

5.2 Who are your main competitors? From which countries are they and what are their competitive advantages?

6. Cooperations and Recruitment

6.1 Do you have established cooperations with other companies or sectorial entities? (Universities, technological centers, industry associations, etc.)

6.2 When it comes to recruitment of qualified resources, which recruitment channels do you use?

Appendix 2 – List of Institutions

AICEP Portugal Global is the Agency for Investment and Foreign Trade of Portugal. This agency's mission is to increase Portugal's competitiveness and reputation by giving a boost to structural investment and making companies international in scope, with special emphasis on small and medium-size companies. Aicep's role involves support services, counselling and consulting to the enterprises, as well as coordinating contacts between potential investors and Portuguese entities.

IAPMEI is the **Institute for Support to Small and Medium Enterprises and Innovation.** The main intervention areas of the institute are advising, counselling, entrepreneurship and innovation stimulation, financing facilitation, and qualified investment induction within the scope of QREN.

PRODUTECH is an association that aims at promoting the development and internationalization of the manufacturing technologies. This cluster is constituted by machinery, equipment and systems' manufacturers, systems' integrators, computer applications' companies, engineering firms and industrial consulting. The pole emerges from the need of common efficient strategies in terms of innovation, qualification and modernization. It has an action plan that is divided into cooperation, innovation and internationalization.

CEFAMOL is the Portuguese association for the moulding industry. It aims at promoting the cooperation, the technological investigation and the technical and professional training within the industry.

AIMMAP is the Portuguese association for the metallurgical and metal mechanic's industry. This association gives a variety of services to its associates, specifically legal, economic, fiscal, collective agreements, business development, professional training, environmental and internationalization related.

CATIM (Technological support center to the metal mechanical industry) is a private institution founded by AIMMAP, INETI and IAPMEI. Its mission is to contribute to the innovation and competitiveness of the national industry of metal mechanics and complementary sectors. It includes services like material and product testing, calibrations and measurements, and responsibilities related to the national and European normalization, qualification and metrology systems.

**CENFIM (Vocational Training Centre of the Metal Industry)** aims at promoting professional guidance and improvement in the metallurgical, metallomechanical and electromechanical sectors. It has 13 training centers in Portugal that provide training and certification services to individuals and integrated services to enterprises, which include diagnosis, evaluation and impact scrutinizing, technical and organizational support.

Appendix 3 – The Classification of Products by Activity (CPA)

Section 28 - Manufacture of machinery and equipment

2810	Manufacture of general-purpose machinery	
2820	Manufacture of other general-purpose machinery	
2830	Manufacture of agricultural and forestry machinery	
2840	Manufacture of metal forming machinery and machine tool	
2890	Manufacture of other special-purpose machinery	
	2891	Manufacture of machinery for metallurgy
	2892	Manufacture of machinery for mining, quarrying and construction
	2893	Manufacture of machinery for food, beverage and tobacco processing
	2894	Manufacture of machinery for textile, apparel and leather production
	2895	Manufacture of machinery for paper or paperboard production
	2896	Manufacture of machinery for working soft rubber or plastics

Appendix 4 – Company Structure of the analysed firms

Source: INE, figures as of 2010/2011
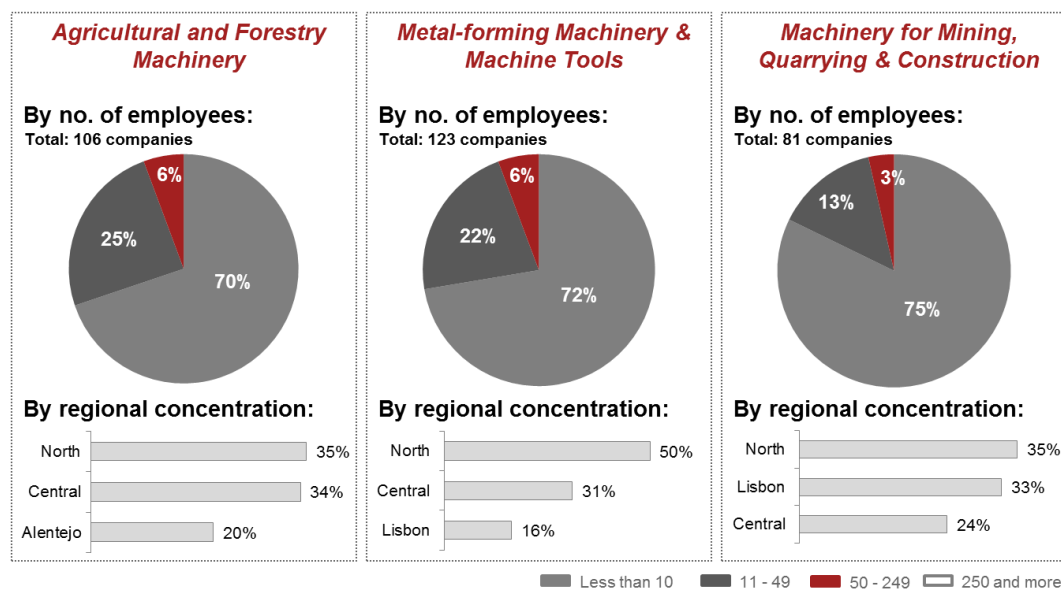
Appendix 5 – Value Chain of the Machinery and Equipment Sector: Direct Sales
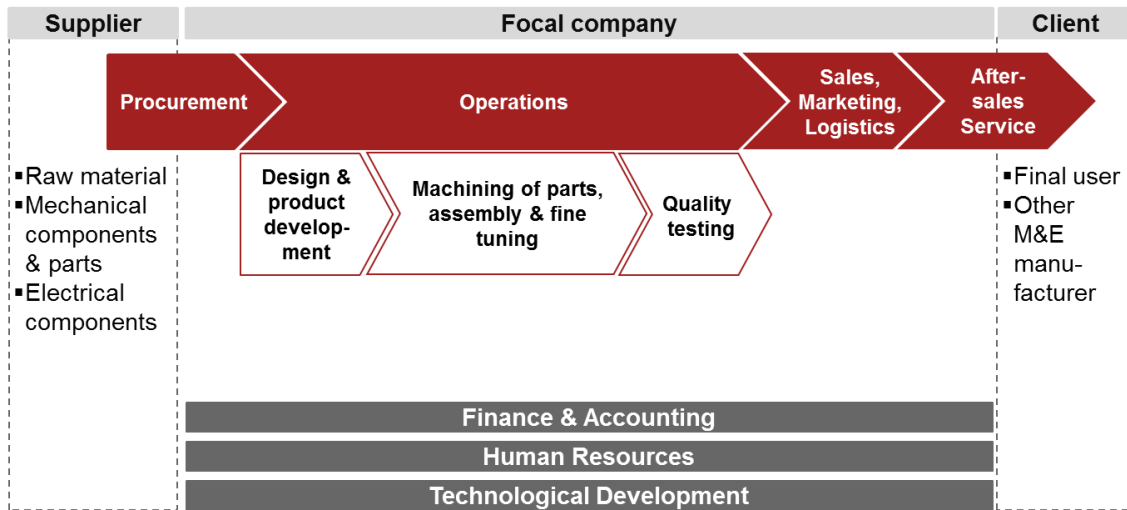
Appendix 6 - Value Chain of the Machinery and Equipment Sector: Indirect Sales
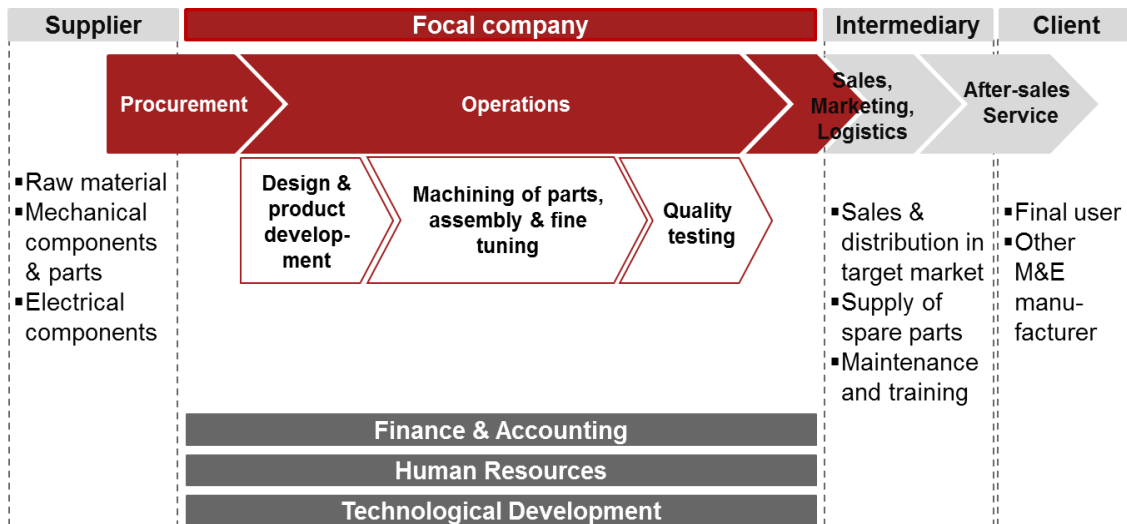
Appendix 7 – Portuguese Companies/Entities Database

Target Group	Name	CPA
Governmental Institution	AICEP - Agência para o Investimento e Comércio Externo de Portugal (Portugal)	n/a
Governmental Institution	IAPMEI - Instituto de Apoio às Pequenas e Médias Empresas e à Inovação	n/a
Industry Association	AIMMAP - Assoc. dos Industriais Metalúrgicos, Metalomecânicos e Afins de Portugal	n/a
Industry Association	ANEME - Assoc. National das Empresas Metalúrgicas e Electromecânicas	n/a
Industry Association	CATIM - Centro de Apoio Tecnológico à Indústria Melalomecânica	n/a
Industry Association	CEFAMOL - Associação Nacional da Indústria de Moldes	n/a
Industry Association	CENFIM - Centro de Formação Profissional da Indústria Metalúrgica e Metalomecânica	n/a

Industry Association	CCILA - Câmera de Comércio e Indústria Luso-Alemã	n/a
Other	Koppensteiner Technologies, LDA	n/a
Producer	A. Antonio S. Coelho Lda	28,4
Producer	Abílio Carlos Pinto Felgueiras, Lda.	28,92
Producer	Adjust Machines - Equipamentos Industriais Lda.	28,4
Producer	Afonso O. Costa - Fábrica de Máquinas Agrícolas e Florestrais, Lda.	28,3
Producer	Agriduarte - Manuel Rodrigues Duarte, Lda.	28,3
Producer	Agro Ramoa - Indústria Metalomecânica, Lda.	28,3
Producer	Agrotécnica - Fly in Earth Lda.	28,3
Producer	Aldage, Comercio e Industria de Maquinas Lda.	28,3
Producer	Alfacomer - Equipamentos Agricolas e Industriais Lda.	28,3
Producer	Aluport - Matrizes de Portugal, Lda.	28,4
Producer	Anacleto & Filhos, Lda.	28,4
Producer	Arcen Engenheria, S.A.	28,92
Producer	Arsopi - Indústrias Metalúrgicas Arlindo S. Pinho S.A.	28,9
Producer	Aviagro - Equipamentos e Servicos Agropecuarios, S.A.	28,3
Producer	Azevedos - Industria, Máquinas e Equipamentos Industriais S.A.	28,4
Producer	Bermarthor, Lda.	28,3
Producer	Bombave - Bombas Centrifugas e Hidraulicas do Ave, Lda.	28,3
Producer	Broca D'Aço - Equipamentos de Perfuração Lda	28,92
Producer	Calibrafruta - Equipamentos Hortofrutícolas, Lda.	28,3
Producer	Camponesa - João Lopes & Cª, LDª	28,92
Producer	CCE Sondametal	28,4
Producer	Cormol - Cortantes e Moldes Lda	28,4
Producer	Cunhol - Indústria de Mecânica de Precisão, Lda.	28,4
Producer	Domifer - Máquinas e Ferramentas, Lda	28,92
Producer	Dormak, Lda.	28,3
Producer	Durit Metalurgia Portuguesa do Tungsténio Lda.	28,4
Producer	Edaetech - Engenharia e Tecnologia, S.A.	28,4
Producer	Fábrica Metalúrgica da Gandra, Lda.	28,3
Producer	Fecocivil - Ferramentas para Construccao Civil, S.A.	28,92
Producer	Felino - Fundição e Construções Mecânicas, S.A.	28,9
Producer	Ferneto – Equipment and items for the food Industry, S.A.	28,9
Producer	Fialho & Irmão, Lda.	28,3
Producer	Fravizel - Equipamentos Metalomecânicos, SA	28,92
Producer	Galucho - Indústrias Metalomecânicas, S.A.	28,3
Producer	Iberfer - Equipamentos e Construcoes Técnicas, S.A.	28,3
Producer	IMAC - Ind. Máq.Construcao Civil Gemunde, Lda.	28,92
Producer	Irbal - Fábrica de Máquinas para a Construcao Civil, S.A.	28,92
Producer	Irmãos Tavares 2 Co.	28,92
Producer	J. Cristiano Lopes Lda	28,92
Producer	Joper - Indústria de Equipamentos Agrícolas, S.A.	28,3
Producer	Leirimetal - Equipamentos Metalurgicos, Lda.	28,9
Producer	Lena - Máquinas Agrícolas S.A.	28,3
Producer	Louritex Lda.	28,3
Producer	M. J. Branco - Indústria de Mecânica Fina Lda.	28,4
Producer	M.J.Amaral - Equipamentos Industriais Lda	28,9
Producer	Martinho Campos & Filhos Lda.	28,4
Producer	Mecânica Exacta, S.A.	28,4
Producer	Metalcértima - Indústria Metalomecânica, S.A.	28,9
Producer	Metalogalva - Fabricante de estruturas metálicas	28,9
Producer	Metalomarão - Equipamentos Para A Indústria Extrativa, S.A	28,92
Producer	Metalúrgia da Seixa Lda.	28,3
Producer	Metalúrgica do Tâmega de Teixeira & Torres, SA.	28,92
Producer	Mgsi - Acessórios Para Industrias Lda	28,92
Producer	Mostratuarte, Lda.	28,3
Producer	Motofil - Robotics, S.A	28,4
Producer	Motomac - Motores e Máquinas Para A Construção Civil Lda	28,92

Producer	Ns - Máquinas Industriais Lda.	28,4
Producer	OSM - Oficinas de Metalomecanica Lda	28,92
Producer	Oxisamoras - Indústria Metalomecânica Lda	28,92
Producer	Rebometal - Metalomecânica, Limitada	28,92
Producer	Rico - Tomás Castro Silva Lda	28,4
Producer	Rocha - Pulverizadores	28,3
Producer	Safa - Construções Electromecânicas Lda.	28,4
Producer	Simoes & Gil, Lda.	28,92
Producer	Soprete - Sociedade de Precisão e Técnica, Lda.	28,4
Producer	Tecnimol - Fábrica de Moldes Lda	28,4
Producer	Tomix - Indústria de Equipamentos Agrícolas e Indústrias, Lda.	28,3
Producer	Urmi - Unidade de Reparações de Máquinas Industriais SA.	28,92
Producer	Venancio Dias, Lda.	28,3
Producer	Vieira Cordeiro, S.A	28,92
Producer	Vinomatos, Lda.	28,3
Producer	Zipor - Equipamentos e Tecnologia Industrial, S.A.	28,9

Appendix 8 – German Companies/Entities Database

Target Group	Name	CPA
Governmental Institution	Germany Trade & Invest - Gesellschaft für Außenwirtschaft und Standortmarketing mbH	n/a
Industry Association	BMEnet GmbH - Bundesverband Materialwirtschaft, Einkauf und Logistik	n/a
Industry Association	CDH - Centralvereinigung Deutscher Wirtschaftsverbände für Handelsvermittlung und Vertrieb e. V.	n/a
Industry Association	IHK Kassel, Köln, Offenbach, Ostwestfalen zu Bielefeld	n/a
Industry Association	VDMA - Verband Deutscher Maschinen- und Anlagenbau e.V.	n/a
Industry Association	VDW - Verein Deutscher Werkzeugmaschinenfabriken e.V.	28,4
Producer	Aebi Schmidt Deutschland GmbH	28,3
Producer	Altek Gmbh	28,3
Producer	Amazonen-Werke - H. Dreyer GmbH & Co. KG	28,3
Producer	Beinlich Agrarpumpen und -maschinen GmbH	28,3
Producer	Belimpex Handels GmbH	28,3
Producer	Flottwerk H. J. Dames GmbH & Co. KG	28,3
Producer	Franz Eisele & Söhne GmbH & Co. KG	28,3
Producer	Herbert Dammann GmbH	28,3
Producer	Kammerlander KML GmbH	28,92
Producer	Paul Beier GmbH - Werkzeug- und Maschinenbau & Co. KG	28,4
Agent	Agrartechnik Vertrieb Sachsen GmbH	28,3
Agent	Blank Landtechnik OHG	28,3
Agent	Buchen GmbH	28,3
Agent	Duffner Landtechnik GmbH u.Co. KG	28,3
Agent	Jasper Land- und Erntetechnik GmbH	28,3
Agent	Justus Becker GmbH	28,3
Buyer	Alltech Dosieranlagen GmbH	28,00
Buyer	ASC Armaturen GmbH	28,00
Buyer	B. Braun Melsungen AG	28,4
Buyer	Bentec GmbH Drilling &	28,00
Buyer	Bosch Thermotechnik GmbH	28,00
Buyer	Dautel GmbH	28,00
Buyer	Deguma-Schütz GmbH	28,00
Buyer	Deutsche Bahn AG	28,00
Buyer	DNS-Denzel Natursteinschutz GmbH	28,00

Buyer	Ecolab Engineering GmbH	28,00
Buyer	Edscha Holding GmbH	28,00
Buyer	Elementar	28,00
Buyer	ESM Holding GmbH & Co. KG	28,00
Buyer	GKN Walterscheid GmbH	28,00
Buyer	Grammer AG	28,00
Buyer	Grohe AG	28,00
Buyer	HP Pelzer Holding GmbH	28,00
Buyer	K+S Aktiengesellschaft	28,92
Buyer	KAMI GmbH	28,00
Buyer	Leopold Kostal GmbH & Co. KG	28,00
Buyer	Robert Bosch GmbH	28,00
Buyer	Rodenstock GmbH	28,00
Buyer	SMA Solar Technology AG	28,4
Buyer	Vaillant Deutschland GmbH & Co. KG	28,00
Buyer	ZF Friedrichshafen AG	28,00