Mittelstand and International Business
How Mittelstand companies are using China do maintain stability of respective business

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The purpose of this paper is to gain a better understanding of the success factors of the German Mittelstand and how they differ from certain North American practices. In doing so, we understand how critical the Mittelstand is to Germany's economic success as an export economy. The German companies to be discussed are often defined differently depending on sources. IfM Bonn's definition has been used to derive the quantitative definition. The qualitative characteristics have been procured from various expert sources. The technological revolution that is taking place currently, Industrie 4.0, as well as global hypercompetition, has forced these firms to be dynamic within their niches. German companies have recognized Asia as a major business opportunity to expand their niche markets and have taken an incremental approach to expansion due to cultural differences and concerns over the safety of their supply chain. Two cases studies will look at how this expansion differs between two *gebohener* Mittelstand firms, followed by a brief discussion as to how North American managers can utilize the information protection practices in their expansion decision-making. With this in mind, North American managers should consider the trade-offs between protecting proprietary knowledge and protectionism as this decision can have a great impact on ROI. The first Case also looks at how DELO has focused on customer satisfaction to increase firm performance. Methods of analysis for this paper include gathering research on the influence of the Mittelstand on the German economy, profiling the cultural characteristics that influence business decision-making, and utilizing the work of Mittelstand experts, particularly Dr. Bernd Venohr.

INTRODUCTION
The German Economy
It is important to understand the historical context of the Mittelstand in Germany before focusing specifically on these companies in the 21st Century. The unification of the modern German Republic happened in 1871 when the Germanic States were able to come together under one elected official for the first time. The Mittelstand at this point consisted mainly of artisanal firms that sold locally and moved products throughout Europe. Although the industrial revolution came late to Germany, Carl Benz's invention of the motorcar in 1885, a product of the unified Germany, can be seen as a step toward Germany's placement as an innovative world leader. By the turn of the century, Germany had become Europe's largest economy.

The two World Wars had a profound impact on shaping the future of the German economy. After the division of the country, West Germany experienced the "Economic Miracle" or *Wirtschaftswunder.* Chancellor Konrad Adenauer and Finance Minister Ludwig Erhard championed the implementation of the ordoliberal social market economy. This allowed the government to intervene when the economy was not performing as expected. The German economy continues to use this system as a basis today.

East Germany's economy was constrained by limited freedoms as a Soviet controlled socialist state. Existing firms became owned by a central government. A mass exodus of people from East to West was the result of the differing opportunities presented. The effects of socialism are still being felt today in the East where unemployment, GDP, consumption, and productivity are all significantly lower than in the West.

The reunification of Germany in 1990 introduced a relatively volatile time for the German economy. The economy stagnated in the early 2000s until the Hartz IV labour market reforms and the highly successful 2006 FIFA World Cup stimulated the country. The reforms allowed German businesses better access to inexpensive labour while incentivizing work and keeping German unemployment low. The World Cup signified a change in both external and internal perceptions of German identity as the event acted to unify a nation that had suffered from a divisive 20th Century. These two factors helped lead Germany through the 2008 recession and successfully into the next decade. Germany's GDP at Purchasing Power Parity has followed an upward trend ever since (see Exhibit 1).

Germany's recent re-emergence as a global leader would not have been possible without the stability of the Mittelstand. These firms employ the majority of the German working population. During the 2008 recession, Mittelstand managers helped the economy by negotiating with employees to have fewer hours and lower wages to avoid increased unemployment rates (Ames, 2013). GDP by PPP dropped by less than two thousand USD and were back to pre-2008 levels by early 2010.

Quantitative Definition
English language literature available is unclear as to what actually defines a Mittelstand firm. This can create skewed statistics that make some misrepresentation apparent in the form of over or underestimating the significance of the Mittelstand. Part of the reason arises from the fact that the Mittelstand has no direct English translation. The lack of clarity is most obvious when discussing the quantitative characteristics of the Mittelstand. The definition provided by the Federal Ministry for Economic Affairs and Energy (using Institut für Mittelstandsfoschung Bonn's (IfM) findings) will be utilized in this paper. This characterizes classical-Mittelstand companies as having less than €50Ml. annual turnover, and under 500 employees. There are around 3.7 million of these companies in Germany (99.6% of total registered firms). They account for 59.4%, or roughly 15 million, of Germany's employees (that collect social insurance) as well as four out of five apprenticeship programs[1], and 31.43% of total exports. These figures signify the importance of classical-Mittelstand firms to the German economy.

The above definition is acceptable in terms of defining classical-Mittelstand firms quantitatively. However, there are many more firms in Germany that exhibit some definitive qualitative characteristics of the Mittelstand. To further explore the qualitative side it is helpful to expand our definition to include "upper" sized Mittelstand firms (*gebohener)*. These firms have revenue between €50Ml. and €1Bn., represent 0.34% of registered German companies and 36.88% of total exports (Venohr, et al., 2015). Typical *gebohener* Mittelstand firms include fischerwerke gmbh, famous for their S-plug for fastening masonry screws, and Otto Bock, a company that is a leader in prosthesis innovation.

The third category to be considered is large companies that have outgrown the typical quantitative characteristics of the Mittelstand but continue to exhibit qualitative characteristics to varying degrees. These companies account for 0.02% of total registered companies in Germany and 31.69% of total exports (Venohr et al., 2015). These include Volkswagen, BASF, and Siemens, but also Miele, producer of high-end appliances, and Herrenknecht, an innovator in heavy-duty tunnel boring machines.

Qualitative Definition
Ludwig Erhard summarized the need for a qualitative definition best, when asked about defining the Mittelstand he instead emphasised more qualitative characteristics as [the Mittelstand] is "… much more of an ethos and a fundamental disposition of how one acts and behaves in society." (Venohr et al., 2015, p.6).

Due to the practical difficulties of settling on a consensus definition of Mittelstand firms in a qualitatively manner, we will utilize IfM Bonn's definition as a starting point: "an enterprise where up to two natural persons or their family members have at least 50 % ownership of the company and where these natural persons are also involved in the management of the company."

Family ownership is a central tenet of the Mittelstand. However, it is important to expand the definition from IfM Bonn's. Mittelstand companies exhibit a long-term focus, invest heavily in innovation, and are niche oriented.

[1] Figures from 2012, include Self-Employed citizens.

Other prevalent characteristics include: developing outstanding relationships with customers as well as employees, a global focus, and often a long-standing history in the towns where these firms are headquartered (Anonymous, 2014). Exhibit 2 summarizes the key characteristics of the Mittelstand to be used in this paper.

Hidden Champions

These companies are often large by all statistical parameters. However, they continue to exhibit characteristics similar to classical-Mittelstand companies. These companies are defined by a few criteria. First, they must be the leader or number two in the segment they occupy, or the leader in the European component of their segment. They generate less than €800Ml. in revenue. Finally, these firms must have low public visibility (Venohr & Meyer, 2007, p.6).

The Hidden Champions grew in prevalence after the reunification of Germany. By 2006 there were 1,130 of these companies.[2] A study tracing revenue growth rates of Hidden Champions from 1994-2004 showed that these companies outperform most German companies, including those on the DAX (Venohr & Meyer, 2007). These Hidden Champions provided stability and growth during a volatile time, again showing their importance to the German economy. But what is it about these companies that enables them to be so successful and what can North American managers learn from this model?

As we can see, the definition of the Mittelstand can easily take different shapes. The rest of this paper will examine issues faced by the Mittelstand today and the presence of German firms in Asia, followed by two brief case studies that look at how two Hidden Champions compete and operate in a globalized world and how North American business leaders can use this information.

ISSUES FACED BY THE MODERN MITTELSTAND

Cultural Differences

Of the Hidden Champions mentioned previously, 71% have a subsidiary of some form in China (Venohr et al., 2015)**.** When entering the Chinese market, German managers are often faced with a very different business environment than they are used to. As seen in Hofstede's cultural dimensions, Germans and Chinese have some severe differences in Individualism, Power Distance, and Uncertainty Avoidance. German managers also have to deal with government regulations and tax systems that often favour the local competitors of the Mittelstand. A further difficulty can be navigating the Chinese business environment that so often is influenced by *Guanxi*[3]. To mitigate these issues, German managers have used a variety of measures: establishing a relationship with a local who acts as a guide while entering markets, selling products first followed thereafter by entering the market incrementally, and having a major focus on the development of mutually beneficial supply chain relationships in an effort to increase innovation and reduce costs (Beating China: Germany's Mittelstand, 2011). German managers also have an advantage when compared to those from other countries due to well-established trading relationships, as reflected by Germany's share of total imports to and exports from China, which has remained close to five percent for the past 20 years (OEC, 2016).

Competition and Globalization

It is well known that Germany is a global leader as an export economy. In 2015 it was only behind the United States and China despite having 25.3 and 5.9 percent of the respective populations (CIA, 2016). As mentioned in the definition sections above, classical and upper-sized Middelstand firms account for just over 68% of Germany's total exports. This means that the hyper-competitiveness of globalization is something that has to be navigated by these firms. Competition can be used to help explain the niche focus of these companies. This can be explained largely by the ability of multinationals to access large amounts of capital in their respective markets. German Mittelstand managers prefer to avoid "dancing where the Elephants play" – meaning there is a tendency to stick to the products and services these firms excel in, and invest heavily with a narrow focus (Mittel-management,

[2] 2015/16 estimates range from 1300-1500

[3] The Chinese phenomenon that puts a high-value on interpersonal relationships in the business environment.

2010). Mittelstand managers also tend to prefer financing operations without using debt or equity, which leads indirectly to a culture of frugality (Venohr & Meyer, 2007). The threat of Chinese competition and different approaches to dealing with it will be discussed further in the two cases.

Expanding into Emerging Markets

Dealing with contextual differences of subsidiaries in a dynamic business environment is something that a lot of German companies have to deal with. Although Germany has a well-developed modern domestic market, Mittelstand companies have become increasingly forced to adapt to dynamic global competition; many firms now sell and service their products, some even produce abroad. Mittelstand firms realized decades ago that emerging economies have enormous growth potential and so have embraced globalization as a new opportunity. However, certain industries should undoubtedly be avoided. In China for example, extremely well capitalized firms, aided by the government, champion industries deemed strategic by the government like photovoltaics and construction machinery. The economies of scale of Chinese firms in these types of industries are often difficult to compete with. However, there still is room for success in China. German Mittelstand firms that have moved into and developed their niche are able to supply the Chinese market with high value-added products and services where quality is valued over price. Chinese firms may be the world's factories, but Germans are building them (Venohr et al., 2015).

Industrie 4.0

"SMEs are lacking confidence in information security and data protection. Without this confidence, the transformation of business and manufacturing processes threatens to stall – and Germany could fall behind in the fourth industrial revolution." (Sommer, 2015, p.1515)

Industrie 4.0 is another issue faced by the Mittelstand. This phenomenon involves the move from automation and computers towards a more complex environment where products interact with automated processes via RFID tags or barcodes. Industrie 4.0 is a move toward higher productivity per employee as well as future cost savings. Mittelsetand firms are lagging behind in this most recent revolution (Sommer, 2015). This may be due to the relatively risk averse nature of German managers as well as their long-term disposition. There is a lack of understanding amongst managers, and many Germans, as part of a fiscally conservative society, have yet to invest in and implement new systems and practices. Furthermore, there is a lack of financial as well as managerial resources available to German companies. Some German managers can expect negative long-term consequences if they choose to be overconfident in the perceived value of their narrow product line (Sommer, 2015, p.1528). Because of Germany's placement as an export driven economy, firms may suffer from the inability or unwillingness to accept the adaptation needed. However, the ordoliberal construct in the country may provide the opportunity for the federal government to intervene and make technology developed by large German companies, like those on the DAX, available to smaller companies (technology sharing).

Demographics

Population is expected to slightly increase in Germany over the next decade, however population decline is expected shortly thereafter. The expected ageing population, combined with a low fertility rate will lead to a decreased domestic workforce supply (Chervyakov, 2015). Typical Mittelstand firms are expected to combat this issue in two ways: vocational training that is paid for by companies, as well as the government, which helps create employee loyalty, and the recruitment and training of high-skilled immigrant workers. This investment into training also creates a general disposition of Mittelstand companies to treat their employees well, leading to low turnover (2.7% yearly average compared to 7.3% across all German firms and 33% in the US. (Audretsch & Lehmann, 2016). These two efforts look to be beneficial to the Mittelstand but will need to continue to be developed as retaining highly skilled employees will increase in importance as the population decline approaches.

THE MITTELSTAND IN ASIA

Cultural Differences and their Effect on Business Decision Making

Germany's success in the 21st Century can be attributed to some extent to the success of Mittelstand firms in Asia, China in particular which is Germany's fourth biggest trading partner[4] (Statistisches Budesamt, 2016). The success is reflected by Germany's growing export surplus, €24.4Bn. in 2016, which is much different than America's 36.44Bn. USD deficit (Trading Economics, 2016). Part of the reason for this difference is Germany's necessary development as an export economy due to its relatively small domestic market size.

When utilizing Hofstede's Cultural Dimensions as a reference point we can see some significant differences in countries of interest. It should be noted that China and Singapore are not being used as a generalization of Asia's cultural make-up but are relevant to the case studies to be discussed later and for the purpose of simplicity.

Cultural differences have significant implications for international firms. Some differences found in Exhibit 3 can be attributed to China and Singapore's classification as Asian developing countries and Germany and America's placement as Western developed nations. However, a massive difference is found in Long Term Orientation (83 Germany, 26 USA) (Geert Hofstede, 2016). This helps to explain why the majority of Mittelstand firms choose to maintain core business functions in Germany. This is contrasted by large job losses in the United States to outsourcing in China. Estimates suggest 3.2 million jobs have been lost from 2001-13, three quarters of which were in manufacturing (Kimball & Scott, 2014). A cause of this may be the attitude of American managers of realizing the maximization of short-term gains while sometimes ignoring or not being fully aware of the long-term implications. It should be noted that Germans align very closely with China and Singapore (87, 72) in this category.

Another cultural difference can help to explain some characteristics of the German Mittelstand that are not replicated to the same extent by SME's in America. Uncertainty Avoidance (UA) is much higher in Germany (65) than in the U.S. (46). This may help to explain the niche focus and incremental innovation that are often key success factors of the Mittelstand. UA reflects the extent to which society attempts to cope with anxiety by minimizing uncertainty (Geert Hofstede, 2016). Mittelstand firms tend to focus on what they have historically found success in while investing in making it better instead of investing in expanding product lines, therefore minimizing the uncertainty of what a firm's ROI will be for a new project or venture. See Exhibit 2 for a breakdown of Cultural Dimensions discussed above.

Presence

The previous section briefly touched on Germany's presence in Asia using China as an example. A significant proportion of literature available on German firms in Asia focuses on China. This is due to the nature of Chinese economic growth in the past few decades. A recent survey of 80 managers of Mittelstand firms in Asia found that 15% of these firms have China as their biggest market. Another 46.5% of firms found China in the top 3 global markets in terms of profits (Venohr et al, 2015).

It is well known that other emerging economies in Asia have experienced tremendous growth. ASEAN countries[5] have recently become more of a major focus for German companies. Using FDI as an indicator, ASEAN countries were the second most important partner for German firms in Asia in 2014 (China €48Bn., ASEAN €25.2Bn.) (Venohr et al, 2015).

Asia as a whole accounts for an estimated 20% of total Mittelstand revenues (Venohr et al., 2015). Due to the nature of the majority of the Mittelstand's product, these companies tend to have representatives present in Asian markets. This is not a foreign concept to North American managers as it tends to be seen as good business

[4] By turnover, imports + exports. Only trailing USA, Netherlands, and France.

[5] Indonesia, Malaysia, Philippines, Cambodia, Thailand, Singapore, Brunei, Laos, Myanmar, and Vietnam

practice. German representatives are able to custom tailor their services to the needs of Asian markets by creating a cooperative environment with local partners.

Differing Approach to Expansion

A significantly different approach that Mittelstand companies take in their expansion to Asia is found in the way new operations are opened. North American firms have tended to outsource operations to Asian countries, driven by cost savings. German firms use a different method. They tend to try and replicate operations in Germany by using an incremental approach to expansion (Bruche & Venohr, 2015, p.15). Furthermore, German firms tend to avoid splitting of their supply chain. Risk aversion as well as a long-term outlook could be the explanation for these differing tendencies. American firms, in a true capitalist system, are encouraged to maximize shareholder wealth therefore sometimes sacrificing long-term stability whereas German firms tend to be held privately and so have fewer legal obligations, which allows them to take an incremental approach (Beating China: Germany's Mittelstand, 2011). This method of expansion allows the German firms to continue to improve and innovate at home while also gaining knowledge from their new locations. Another advantage, related to technology and Industrie 4.0, is the ability for German firms to keep Intellectual Property (IP) and proprietary knowledge in their home base, which helps to reduce the risk of some less than stringent IP laws in Asian countries. American firms have experienced this issue in the past. For example, American software producer Microsoft's revenue in China was just 5% of that in America in 2011. This low number was partially due to lax Chinese piracy laws. It is possible to be able to purchase a $100 version of Microsoft's most up to date software for just $2 or $3 on Chinese street corners (Carbaugh, 2016, p.213).

The incremental approach to expansion is perhaps surprisingly contrasted by German managers' prospective outlook. More than half of German leaders expect revenue in Asia to increase by 10% over the next three years. German hired staffs at Mittelstand firms are also expected to increase significantly in areas like sales, services, and marketing. Increases in in areas like logistics, research, and product development are expected to lag behind (Bruche & Venohr, 2015, p.26). Keeping much of the supply chain in Germany reflects the incremental approach of these firms when expanding operations

LESSONS FROM ASIA

Case 1: DELO Industrie Klebstoffe GmbH & Co. KGaA

DELO is a German manufacturer of industrial adhesives, dispensing systems, and LED lamps. This Hidden Champion was founded in Windbach, a small town near Munich, in 1961. It started with a small section of industrial adhesives such as epoxies. The original founder's lineage is no longer relevant in the company today, however the company is owned and operated by a husband and wife and still characterizes the ethos of the Mittelstand. Wolf-Dietrich and his wife, Sabine Herold bought out management of the company in 1997 and have been running it ever since (DELO, 2016B). DELO has won numerous awards in areas like innovation, employee wellbeing, and firm performance (DELO, 2016C).

The company can be classified as a small *gebohener* Mittelstand-type. Revenues in 2015 were around €80Ml. from the company's 500 employees, 30 of which are located on the Asian continent. The company's presence in Asia, in the form of sales engineers, predates the opening of "own-offices" in Singapore and Shanghai in 2004/05. The own-offices represented the beginning of strong growth patterns. In 2008 the company reached €30Ml. revenue for the first time (210 employees) (Venohr & Bruche, 2015, p.39).

In 2012 a wholly owned subsidiary was founded in Singapore, followed the next year by a subsidiary opening in Shanghai. By 2013 the company reached revenues of €51Ml., followed by the opening of representatives' offices in South Korea and Malaysia. Since 2004/05 DELO's revenue has quadrupled, with Asian revenue contributing 40% of the total (Venohr & Bruche, 2015, p.38). All of this expansion and growth was enabled by the construction of a new production facility in Windbach. DELO has chosen to keep all manufacturing and production in Germany. The subsidiaries and representatives offices are strictly for sales, service, and technical support. The decision not to relocate researching, developing, and manufacturing products “protects [DELO’S] know how” (Venohr & Bruche, 2015, p.39). Furthermore, retaining key components of the supply chain allows DELO to maintain and improve its domestic employee and support base.

Another key to DELO’s international success is found in their decision to liaise with local distributers (Venohr & Bruche, 2015). This particular company chose to utilize one distributor per country entered. This allows for a simple approach and enables DELO to focus on relationship development with just one distributor. These local allies have become some of the most important strategic partners for the company. This strategy helps DELO combat business issues related to new cultures and common practices in each foreign country.

A large focus on R&D is another common characteristic of Mittelstand firms. DELO is facing increased competition from global players as well as developing local competitors. To help maintain their competitive advantages, the company invests 15% of gross revenue to R&D, much higher than the industry average (DELO, 2016A). This is a significant and necessary investment as it helps to maintain an advantage over firms with smaller revenue while remaining a niche leader in an area that is not large enough, volume wise, to attract large firms with far superior resources (Venohr, & Bruche, 2015, p.40).

As a B2B company, owner Sabine Herold understands the importance of remaining dynamic and flexible when providing service and expertise for her European customers. Incremental expansion into Asia happened within the previous 10 years for this company. This was caused by DELO’s customer base lowering manufacturing costs by moving the entirety, or parts, of production to Asia. The company did not originally intend to move to Asia, but was forced to by its dedication to customer wellbeing. The placement of employees in Asia allows DELO to react quickly and positively to customer demands. Sales engineers provide technical support and help customers adapt and develop their manufacturing demands to make best use of DELO products.

This company has also received numerous awards regarding employee satisfaction. It is regarded as one of Germany’s best places to work. Dedication to customer satisfaction and employees is one of the common characteristics of Mittelstand firms and are easily reflected by DELO’s actions.

Customer satisfaction and its relation to firm performance has been reasonably well studied in business literature. Customer satisfaction is related to the fulfillment of customer needs by the products and services provided by a firm. The most widespread indicator of this relationship is importance-performance analysis (IPA). The Kano Model of attractiveness and must-be attributes expands on IPA (Tontini & Dagostin Picolo, 2013, p33) and can be seen in Exhibit 3. This model looks at three major different attributes and how they impact customer satisfaction: the first is *must-be attributes* which are assumed to exist by the customer, *one-dimensional attributes* have a direct positive correlation to customer satisfaction, and *superior attributes* exponentially increase customer satisfaction when their performance is high (Tontini & Dagostin Picolo, 2013, p.34). DELO’s product line can be used as an example. The must-be attributes are simple; DELO’s products must adhere, or help in the adhesion process (LEDs). The one-dimensional attributes can be seen in product performance compared to competitors. DELO supplies technologically advanced high-value added products to other businesses’ manufacturing processes. The specialized products have been of high enough perceived-performance to their customers (as indicated by the quadrupling revenue in the past ten years). The superior attributes of DELO’s product line arise from the heavy R&D investment of the firm. More than 30% of the firm’s products in use are less than three years old. The Kano model also shows that product excitement leads to greater customer satisfaction, which could be one of the main drivers of DELO’s large yearly investment into R&D. Using the Kano Model and its relationship to customer satisfaction, we can see the benefit of DELO’s effort to ensure their customers are treated well. The example can be seen as an indirect effort by management to increase firm performance through high levels of customer satisfaction.

Case 2: Pepperl+Fuchs GmbH
Walter Pepperl and Ludwig Fuchs founded the company in 1945 in Mannheim, Germany. In 1988 the sons of Pepperl and Fuchs took over as owners of the firm. What started as a small radio workshop has evolved to become a global company specializing in electrical explosion technology and industrial sensor systems. This is another typical *gebohener* Mittelstand company as well as a Hidden Champion due to its prominence in the markets it occupies. The company's success was launched by the invention of the proximity switch for automatic doors. Revenue in 2015 was €540Ml. from its 5700 global employees spread out among more than 40 subsidiaries worldwide (Bruche & Venohr, 2015, p.54). Subsidiaries in Asia are found in the following countries: Singapore, Indonesia, Vietnam, China, India, South Korea, and Japan

In the 2014 fiscal year, 25 percent of Pepperl+Fuchs (P+F) revenue came from its Asian subsidiaries. This firm is admittedly a bit unique in its makeup in that it operates manufacturing, logistics, and procurement from its Global HQ in Mannheim but has opted to decentralize its R&D, product development, product management, sales and application engineering in a move to separate their electrical explosion and industrial sensor technology divisions (Bruche & Venohr, 2105, p.54). A further unique characteristic of P+F is the location of their employees; 50 percent are based in Asia (Pepperl+Fuchs, 2016).

The decentralized nature of P+F can be seen as an advantage in this case. By moving some core functions of the firm closer to customers, P+F is able to adapt more quickly and accurately to changing demands. RFID tags and sensor systems can be used as an example in this case. As mentioned previously, many firms of different natures are experiencing a new revolution in manufacturing - Industrie 4.0. As the manufacturing process becomes more reliant on automation and data exchange, companies are looking to implement new technologies. P+F makes "tailor-made manufacturing solutions" that include all required components: readers, tags, control interfaces, and cables. Their systems are advertised as being adaptable for all control systems in use. P+F is able to advertise and promote their systems as being easily compatible partly due to their widespread global network of experienced and knowledgeable service experts in their subsidiaries (Pepperl+Fuchs, 2016).

It should be noted that this firm has been able to avoid some of the issues faced by firms expanding into China by setting up its first Asian production facility in Singapore in 1979. A further measure was to avoid the use of joint ventures, preferring to open wholly owned subsidiaries and regional headquarters (Pepperl+Fuchs, 2016). These precautions are important due to the decentralization of R&D and production at the firm. It should be noted that IP legislation is changing in China as, in 2011, China had more patent filings than any other countries. Filing for patents creates vested interests from businesses with valuable IP. Those interests have influenced lawmakers and will continue to do so into the future, but the infrastructure to combat IP threats is still far behind in China when compared to Singapore.

Supply Chain Lessons
The two cases discussed presented us with two very different organizational supply chain structures. DELO has chosen to maintain a heavily centralized make-up while P+F has decentralized the majority of its core functions. Both of these choices represent a trade-off in multiple ways. The first was discussed previously: the ability to adapt to customer requests quickly while potentially sacrificing the ability to protect proprietary knowledge. The second trade-off again risks the loss of proprietary knowledge but with a new proposed benefit. Decentralizing the supply chain and partnering with local agents can reduce transaction costs, promote learning, and foster collaboration within the supply chain (Fredendall, Letmathe, & Uebe-Emden, 2016, p.138). Firms that have relationships where proprietary knowledge is potentially at risk have to choose to sacrifice short-term benefits (information sharing (IS), collaboration, mutual learning) or long-term benefits (maintenance of proprietary knowledge through protectionism).

Implications for Managers Considering Asia

Mittelstand managers that have entered the market in Asia have benefited significantly from hiring an inside agent to develop markets and liaise with potential customers (Venohr et al., 2015). These agents also act as experts of cultural norms in Asian markets. Firms that have gained better insight into cultural differences in Asia, China in particular, have become more skeptical about the benefits of discussing proprietary knowledge with Asian partners (Fredendall et al., 2016, p.148) which could explain DELO's choice to maintain centralization of core business functions. Firms tend to become more skeptical about the security of their proprietary knowledge as their understanding of the Chinese domestic market increases (Fredendall et al., 2016). This could be due to the aforementioned cultural differences as well as the influence of *Guanxi*. As cultural knowledge increases, firms begin to question how IS will impact their long term competitiveness as China has been working to develop the high value-added manufacturing sector that Mittelstand managers are mainly situated in.

Managers must act to maintain the knowledge that leads to their competitive advantage. However, protecting proprietary knowledge tends to lead to a negative effect on a firm's return on investment (Fredendall et al., 2016). Possible explanations of this phenomenon for managers to consider:

- Managers miscalculate the trade-off between reducing transaction costs and protecting proprietary knowledge.
- Some companies have been able to protect their proprietary knowledge while also acting to increase IS (P+F).
- Other companies cannot do what P+F have done and become protectionist in their IS practices (DELO).

It should be noted there are two different types of IS. The first is standard practices that can improve processes. The second is technical and product know-how that is more important to protect as it can easily be transferred to other companies via employee turnover. However, it is difficult to separate these two types of IS, which influence the functionality of companies, when looking at how centralized core functions usually are (Fredendall et al., 2016).

CONCLUSION

Germany's re-emergence as a global economic leader can partially be attributed to the success of the Mittelstand. Although SMEs exist all over the World, no other developed country is influenced as significantly as in Germany. The cultural make-up of Germany, specifically Uncertainty Avoidance and Long-Term Orientation, have contributed to the success of the Mittelstand and are attitudes that American managers should consider when regarding operations in Asia. The social and political landscape of Asia is not the only issue that the Mittelstand is forced to deal with. The implications of an aging population, Industrie 4.0, and increasing competition all have influenced German decision makers and will continue to do so. The presence of and revenue generated by German firms is expected to continue to grow as emerging markets (ASEAN countries, India) continue to develop. This is expected to present new, and expand existing cultural, legal, and economic issues in those markets. Mittelstand companies will have to choose how to address these issues. We saw how DELO has opted to maintain a highly centralized firm structure and how P+F contrasted that setup with its decentralization of core functions. North American managers should consider the regulations regarding IP when deciding IS practices in their subsidiaries. These considerations should also influence the setup of supply chain, as well as choices regarding the degree to which a firm will maintain centralization. Overall, this report showed that North American managers can utilize some of the long-term success factors of Mittelstand firms in Asia.

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APPENDIX

EXHIBIT 1: German GDP by PPP trend since unification. (Trading Economics, 2016).

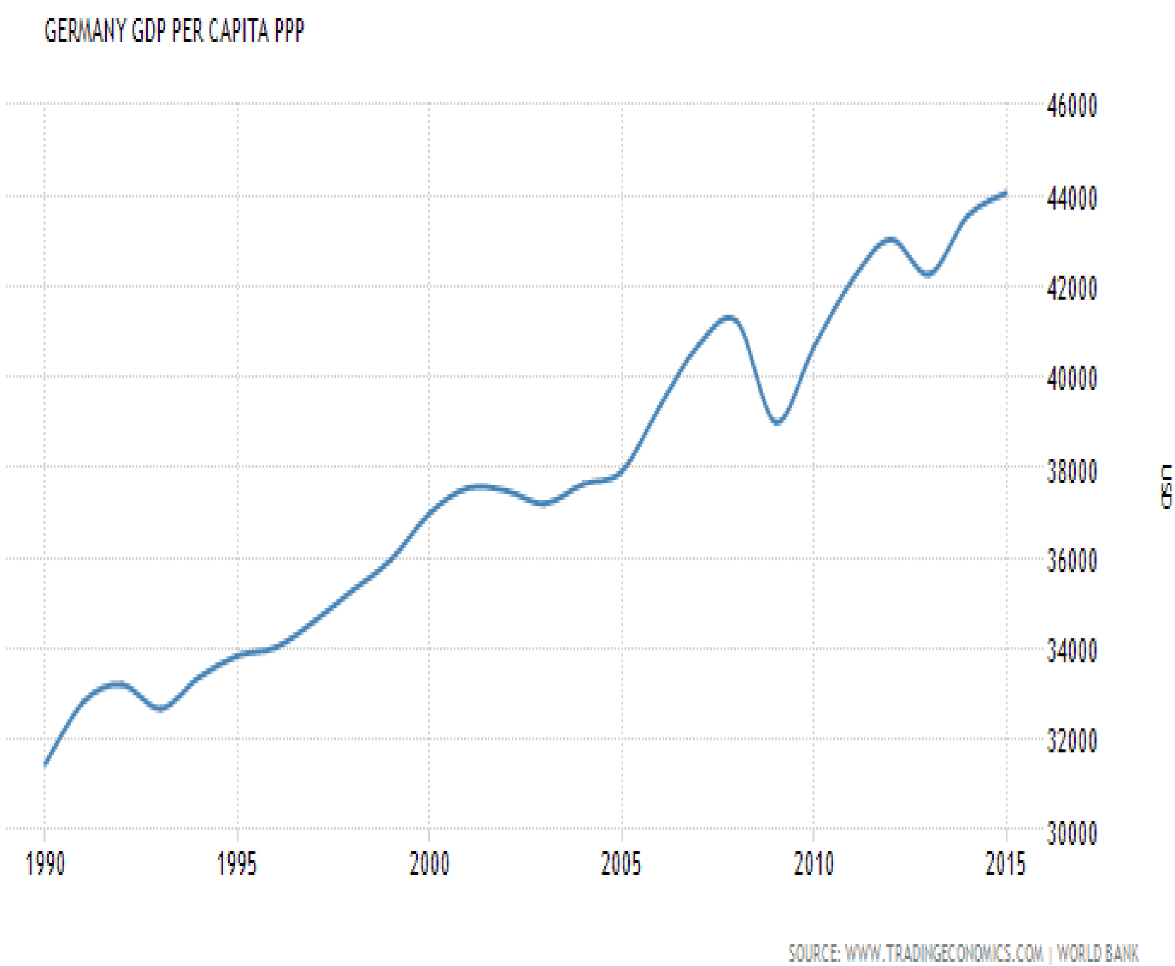

EXHIBIT 2: Quantitative & Qualitative Characteristics of the Mittelstand.

Quantitative

Classical (small)	<€50Ml.	<500	99.6	31.43
Gebohener (medium)	€50Ml. - €1Bn.	>500	0.34	36.88
Large	>€1Bn.	>500	0.02	31.69

Qualitative

These are generalizations and do not apply to all Mittelstand firms. All information has been taken from References used in this paper.

- Historical family focus
- Entrenched in town of origin
- Outstanding relationship with employees and customers
- Heavy investment into R&D
- Long-term focus
- Niche oriented
- Prefer to avoid financing with equity
- Incremental approach to improving and expanding business

EXHIBIT 3: Cultural Dimensions of China, Singapore, Germany & USA. (Geert Hostede, 2016).

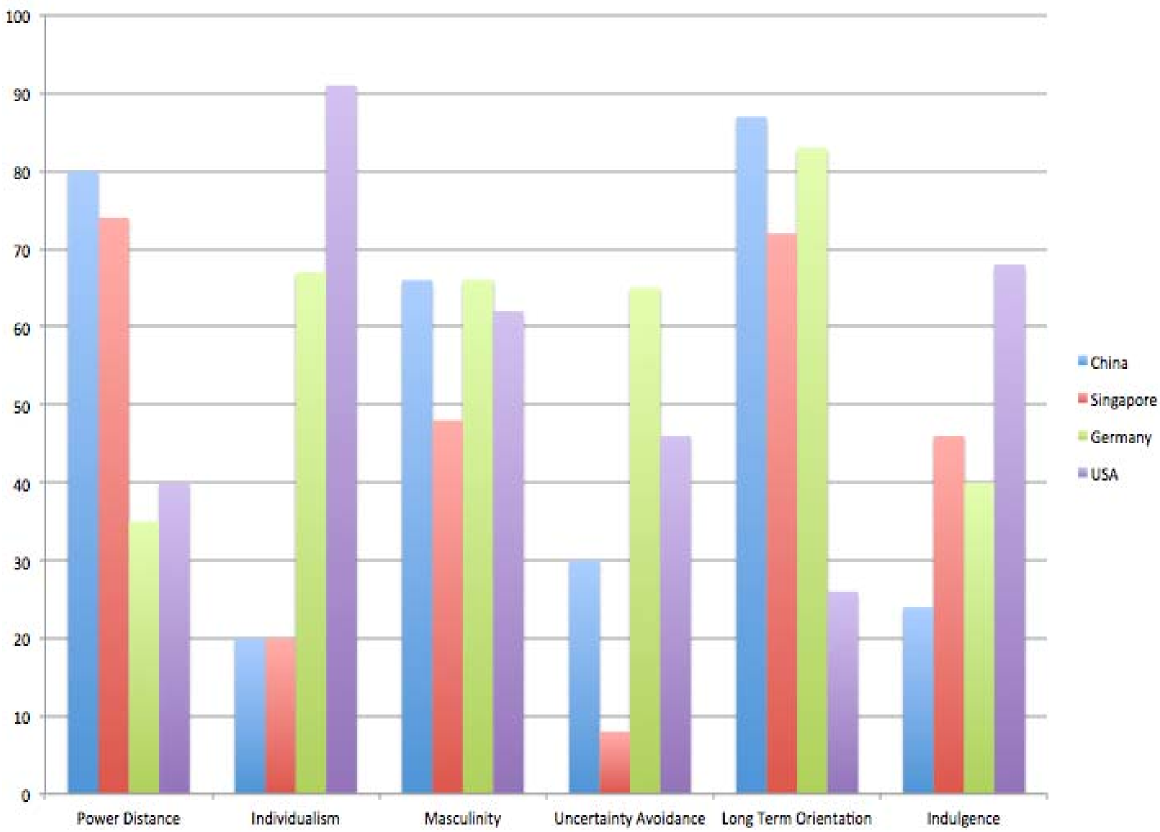

EXHIBIT 4: Kano Model of Attractiveness (Tontine & Dagostin Picolo, 2013).