



INTERNATIONAL OPERATIONS

International Innovation Assessment B

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Introduction

The following report will explore the prospects of globalising manufacture for Griffiths & Hughes and recommendations for implementing manufacture, marketing, and distribution of their products. Particular consideration will be made for three strategic manufacturing locations, from a continental perspective these locations are South America, Asia and Africa. Within each continent three strategic locations are under consideration, the strategic location will be recommended based upon several key factors.

Strategic locations:

South America

- Puerto Allegro, Brazil
- Montevideo, Uruguay
- Buenos Aires, Argentina

Asia

- Shenzhen, China
- Mumbai, India
- Taipei, Taiwan

Africa

- Durban, South Africa
- Bulawayo, Zimbabwe
- Tunis, Tunisia

Key Factors:

- Logistics & Transportation
- Government Policies and Political aspects
- Skills & capabilities of the local workforce
- Manufacturing & Production
- Cultural & Social implications
- Marketing & Business Engagement

South America

The ports of Montevideo, Puerto Allegro, and Buenos Aires are all major south American ports and have the infrastructure to support large scale import and export of goods. Each month 25 Billion US dollars worth of goods are exported from Brazil's ports (ceic data, 2022), compared with 7 Billion USD from Argentina (ceic data, 2022) and 700 Million USD from Uruguay (ceic data, 2022). This considerable difference is to be expected considering Brazil is amongst the world's leading economies in terms of value, with a Gross Domestic Product (GDP) value of 1.44 Trillion USD in 2022 (global PEO services, 2022). This places Brazil as the 12th highest value GDP, amongst world leaders such as Canada and Australia. Given that the South American manufacturing location for the Griffiths

and Hughes expansion would be the most geographical suited to supply the key markets the large markets of the USA and Canada, this location needs to be equip to handle considerable shipping volumes, and whilst Brazil is certainly equip for that, it also brings social, environmental, and political risk.

In October 2022 the Brazilian workers party led by Luiz Inácio Lula da Silva won 50.9% of the vote compared to 49.1% for the ousted conservative party leader Bolsonaro (Otis, 2022). Following the election violent outbreaks occurred between supporters of the opposing parties and left Bolsonaro forced to seek refuge in the US (Lapper, 2023). Social divides are also extreme in Brazil, this inequality can be measured using the Gini Coefficient. The Gini coefficient is a number between 0 and 1, where 0 corresponds with perfect equality, where everyone has the same income, and 1 corresponds with perfect inequality, where one person has all the income and everyone else has none (CIA.gov, 2022). Of the three South American countries of interest, Uruguay scores lowest with 40.2%, followed by Argentina at 42.3%, finally followed by Brazil with the worst income inequality of the three at 48.9%.

All of these three South American Countries heavily export raw materials and commodities such as metals and agricultural food products and although Brazil has the highest value GDP, Argentina's manufacturing sector as a % of GDP eclipses both Brazil's and Uruguay's by a substantial margin at 16.6%, compared to Uruguay at 10.65%, and Brazil at 9.65% (Trading Economics, 2022). This is an important metric because the higher percentage indicates that the industry is of a higher priority to the economy and therefore likely justifies more policy incentives for the sector as well as a higher skilled labour force. In fact, Argentina's manufacturing sector employs over 13% of the country's overall labour force meaning that more than 1 in 10 workers have skills or experience in the manufacturing sector (IMF.org, 2022).

In consideration of skilled labour and an educated workforce Brazil stands out as being less desirable than Uruguay or Argentina. A statistical report published by SEDLAC, the Socio-economic database for Latin America and the Caribbean, analysis the % of population enrolled into education based on age group and area type, such as rural or urban areas. With particular attention paid to the 13-17 year old and 18-23 year old age groups in urban areas, it is possible to determine what % of the population in urban port cities will finish high school education and also go on to higher education. The higher this percentage amount, the more each country would be expected to have a younger workforce with better developed skills. The report shows that the % of 17 year olds expected finish high school are 97% in Brazil, 96% in Argentina and 89% in Uruguay (SEDLAC, 2022). Brazil and Argentina both have a high score here but when accounting for those who go onto higher education the rate in Brazil is much lower than the other countries having 39% compared the Uruguay at 49% and Argentina which has the best rate at 56% (SEDLAC, 2022). This would indicate that Argentina has a higher percentage of their workforce which are able to carry out the technical and skilled roles required to successfully support a large manufacturing operation.

Finally, the overall economic development of the countries has a big impact on the performance and marketing ability of the business expansion. Consider for example the level of access that the general population has to television, radio, internet and smart devices etc. All of these platforms provide essential marketing and measurement outlets in modern business marketing and data capture. The metric for analysing the breadth of internet users in a country or region is referred to as internet penetration. South America as a region is lagging behind other major regions such as Europe, Africa, and Asia with an overall internet penetration of around 65%, though Argentina, Brazil and Uruguay do trend above the majority of other South American counties at around 75% (kemp, 2021). Much of the infrastructure including utilities, commercial access, road and rail ways are based

on the Atlantic coast are dominated by the shipping industries. In this sense all 3 locations are similar in their development.

Asia

China is quite obviously the power house of Asian trade, with the 2nd highest value economy in the world, second only to the USA, China are the largest exporter of goods in the world. It would be easy to assume China would be the clear favourite for a Global expansion location considering the standing on the world stage and the supply chains available, but Taiwan are also a considerable exporter, particularly of high value products, famed for supplying the majority of electrical device semi-conductors around the globe. India's economic growth has been impressive and they are set to surpass China as the highest populated country in the world in the coming years.

Rather than use overall GDP to make a comparison between China, India and Taiwan, because the sizes of their economies are very different, it is best to use GDP per capita. GDP per capita is the GDP value divided by the population, i.e. GDP per person. This is helpful when comparing economies of significant size difference, for example mainland China is home to 1.4 billion people, whereas Taiwan is home to only 23 million people. As the size of China's population is 58 times greater than Taiwan's but it's GDP is only 10 times greater, on an average, every person in Taiwan is 6 times more productive than each person in China (Juneja, 2022).

India's GDP is 3.176 Trillion USD and with a population of 1.4 billion people it's GDP per capita is 2,256 USD (world bank, 2022). Compared to China which has a GDP per capita of 12,556 USD (world bank, 2022), India has a much smaller economy. As part of developing, rather than developed, Asia, there is significant risk attached to the implementation of operations in India, i.e. under developed logistics, supply chains, and challenging labour laws contribute to an under-skilled workforce and a lower level of control around quality standards. Initiatives like 'Skill India' have been started to improve the skill level of the workforce but reluctance of banks to lend to industrial activity hampers the sectors growth and in turn the application of skills. Additionally, where China spend over 2% of their GDP on Research and development, India spend just 0.7-0.9% (IAS Express, 2022).

When considering Taiwan as a viable alternative to China it is important to consider the quality of life and cost of living, this can be roughly compared using the minimum wage. For example, Taiwan is more productive but it's labour rates are more than that of China. The minimum wage is typically three times higher in Taiwan than it is in China (country economics, 2022), but considering based on the GDP per capita being six times higher for Taiwan the extra labour cost for operation negates some of productivity benefits.

Another way to drive down costs, particularly labour cost, is to employ automation where possible. The adoption of new technologies is important in all industries but particularly in manufacturing where competition can create a 'race to the bottom'. Automation provides the opportunity to reduce cost in manufacturing whilst maintaining or improving the quality of the product. A study by New Tech Adoption Index (NTAI) on 2019 showed that Asian countries have emerged as the most enthusiastic adopters of new and innovative technology products globally, fuelling market value growth of related product categories by at least 35 percent in a single year, with China being the leading country in the region (Growth From Knowledge, 2019).

A point for serious consideration is the current political tensions between China and Taiwan. There is a risk that operations either in China or Taiwan could be disrupted due to conflict between the two

countries, and then between China and the US if it were to escalate further. Should this happen then the supply chain disruptions would be critical and it may not be possible to operate from this facility for a period of time.

Africa

Africa is the second-most populous and second-largest continent in the world, second only to Asia. The continent is one of the world's fastest-growing regions but is not without challenges, especially in the business sector. Relative to its population and sheer size the continent has a weak infrastructure, and movement between countries can cause significant disruption to supply chains (Sodiq, 2022). Due to the developing nature of sub-saharan Africa, much of the infrastructure supporting the countries is also still developing.

The sustainable supply of electricity both to domestic and business outlets in Zimbabwe and South Africa is very unreliable. South Africa relies on a suite of coal fire power stations, managed by the state owned company Eksom, to provide electricity to its grid. But 15 years after construction started, these plants are only delivering around 50% of their 9,600 MW combined capacity because of breakdowns, technical defects, completion delays and accidents (Ziady, 2023). Zimbabwe's coal power stations are aging and now also output only 50% of their previously capacity, and therefore it relies mainly on hydroelectric power from the Kariba Dam. Although the power distributors operate separately, the dam's water capacity is shared by both Zimbabwe and Zambia. Not only is the dam shared but the water level from which the energy is sourced has been depleted by heavy drought, limiting the usage further (Kuhudzai, 2022). Because of these challenges both Zimbabwe and South Africa currently experience lengthy periods without electricity, making them both a considerably risk place to set up manufacturing operations.

Considering potential market value, Africa's market potential is just a fraction of Europe's. For example, Europe exceeds the GDP of Africa over 15 times, it's clear then that the Africa based outlet for Griffiths and Jones must focus it's supply on the European continent, and with the cost of manufacturing significantly lower in Africa than in the UK, the HQ of Griffiths and Hughes in the UK could be best suited to run as a research and development centre, rather than a manufacturing centre. It would be imperative then, that the African location can supply goods to Europe, therefore, the ease of export and distribution of goods must be carefully considered. In particular Bulawayo, Zimbabwe poses a logistic challenge being that it is set inland and any good would first need to be transported by road to port for shipping.

It's possible to compare elements of doing business using the ease of doing business index, which ranks economies from 1 to 190, with first place being the best. A high ranking (a low numerical rank) means that the regulatory environment is conducive to business operation (World Bank, 2022). As a sub-region, sub-Saharan Africa is ranked particularly low in the ease of doing business. Of which both Zimbabwe and South Africa are included (World Bank, 2020). Both countries score low in and 'trading across borders', a key element required for the successful distribution of manufactured goods (World Bank, 2020).

Another shipping consideration is that routes from the sub-saharan countries of Zimbabwe and South Africa to Europe head around the east African coast and the horn of Africa. No place in the world is more renowned for pirating than the seas around the horn of Africa, and although piracy has seen a decline in recent time it is still a significant feature of international trade (Akar, 2022). In addition the shipping route itself requires passage through the Suez Canal. The Suez canal,

controlled by Egyptian Authorities was established in the early 17th century and to this day provides a conduit for almost all trade into Europe from the east, seeing over 12% of all global shipping traffic per year. The Suez Canal has lacked expansion relative to the volume of traffic it sees and delays because of ships run aground or simply queuing to make passage is a regular occurrence (Robert Hart, 2023). The city of Tunis, on the other hand is well situated on the north coast of Africa with easy access to European ports. As a result of this Tunisia Ranks in the top half of countries for trading across borders (World Bank) and is already an well-established supplier to the EU, trading over 10 Billion Euros in goods in the year 2021 (European Commission, 2022).

Conclusion

After considering many elements that contribute to the successes and challenges of global operations, the recommendations for the expansion of Griffiths and Hughes are as follows.

South America

Of the three South American locations, Buenos Aires, Argentina is the best place to supply the Markets of, South America, Central America, USA, and Canada. Argentina already has well established import and export relationships through the Americas and move goods between these markets through the Port of Buenos Aires. The economy is already weighted favourably towards the manufacturing sector and coupled with better education and equality metrics than the other two locations, Buenos Aires is the most sustainable place to employ skilled staff and sustain productive operations.

Asia

Considering China's global footprint on the exportation of manufactured goods, it's difficult to justify setting up an operational outlet anywhere else. The developing economy of India brings supply chain risk and complications of doing business. Also Taiwan is more productive, it's also more costly to set up operations there and initiatives by countries such as Germany and the USA to bring production of micro processors to their own countries Taiwan's market share could start to see a steady decline over the coming years. Because of the world's reliance on Chinese export it's likely that conflict between Taiwan and China would impact the Taiwanese economy heavier than the Chinese economy and China's infrastructure for manufacture and exportation is unmatched around the globe. For these reasons Shenzhen, is the place of choice to supply the Asian market.

Africa

Due to the instability and logistic challenges of doing business in sub-saharan Africa it's difficult to justify setting up operations in South Africa or Zimbabwe. As a developing economy there are opportunities to capitalise on the potential market growth in Africa, but even so the European market far exceeds the potential of the African Markets and supply to the EU from Tunisia make far more strategic sense. Tunisia does not have the same supply chain, energy and logistics risks that are true for the other locations and with Tunisia having good export relations with Europe, supplying the EU with a much lower cost of operations would give Griffiths and Hughes a strategic option to move all European supply to Tunisia and invest those group profits into Research and New Product Development.

The Impact of International Innovation Standards

Innovation is widely recognized as being a key factor in driving economic growth, development of society and increased well-being. Despite good intentions and successful pilots, organizations often struggle to make innovation an enduring and sustainable part of their business (UNIDO, 2022). The concept of innovation is commonly misconceived as a moment of inspiration, the 'light bulb moment', however, any innovative organisation who has remained a leader in their field can attest to dedicating management, resource and continuous improvement in a systemic fashion. Typically, companies which employ a system type of innovation rather than an adopted or incremental approach make a more radical impact on their industry (Taylor & Levitt, 2003).

The innovation in a company which is systemic is often instilled within the culture and subsequently allows innovative leaders to naturally drive innovation throughout the business. Take the US Digital Marketing giant Adobe for example, who feature on Fast Company's top 50 most innovative companies in 2021 (Fast Company, 2021) and at #13 on Forbes' top 100 innovative companies in 2022 (Forbes, 2022). Adobe's CTO, Abhay Parasnis was named on Fast Company's list of "Most Creative People in Business" in 2020 (Fast Company, 2020), and is regarded as one of the world's most renowned innovative leaders. Parasnis is celebrated on the list category of "finding new (and sometimes better) uses for things," sparked by his efforts in applying ever more sophisticated AI to new challenges. But Parasnis himself attributes his successes to the innovative culture within Adobe, suggesting that this enables him to fulfil his potential, Parasnis says "Innovation is the lifeblood of every company, and at Adobe we've continuously and successfully innovated for nearly 40 years. The blending of art and science is deeply embedded in our DNA, and it drives us all every day to innovate" (Adobe Communications Team, 2020).

Adobe as a company has a 40 year history of innovation in Digital Products, which they refer to as "innovation and reinvention". This engrained innovative culture has allowed innovative individuals to thrive as Adobe empowers their employees to be curious and reimagine the future of digital experiences (Adobe Communications Team, 2021).

The ISO 56002:2019 is an innovation management system which focuses on de-risking innovation and embedding innovation into the business in support of the company's strategic goals. Essentially directing innovations in favour of sustained strategic business development and continuous improvement. ISO 56002 is designed to work with its attributed family of standards (ISO, 2019), which includes the following:

- ISO 56000 - Innovation Management - fundamentals and vocabulary, which provides essential background for the proper understanding and implementation of ISO 56002
- ISO TR 56004 - Innovation Management Assessment – Guidance, which provides guidance for organizations to plan, implement and follow-up on an innovation management assessment.
- ISO 56003 - Innovation management — Tools and methods for innovation partnership — Guidance, includes subsequent standards provide guidance on tools and methods to support the implementation of the innovation management system.

At the beginning of 2022, less than 100 companies in the world had adopted the ISO 56002 Innovation management systems accreditation, but some of those which have are already demonstrating the positive impact of systemic innovation on their organisations. One of the few who have and the fewer who have been awarded for consecutive years is the South American company Atento (Atento, 2021). Atento service is provided completely remotely, employing and developing virtual and digital tools to provide a seamless global service in process outsourcing and

customer relations management. To stay ahead in their field, Atento focus on continuously and relentlessly improving their customer service, stating that they “act fast and fail fast” in order to “Learn, Improve and evolve rapidly” (Atento, 2023). In 2022 Atento were recognised as Market Leader in their field and CEO Dimitrius Oliveira projects a continuing upward trend in the coming years, as online consumer experience becomes even more immersive, through augmented reality, virtual reality, mixed reality, computer vision and artificial intelligence (Atento, 2023).

Summary

The ISO 56000 series has the potential to lay the foundation within business that are not yet serial innovators, those foundations can then enable creative individuals within the business to adopt and develop their innovative nature, incrementally changing the cultural landscape of innovation throughout the organisation to the point where it becomes systemic and self-empowering.

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