



Future of manufacturing **KristallTurm –** **Value chain case study**

Born globals and their value chains

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1. General identification of the born global enterprise and the global value chain members

1.1. Description of the born global enterprise: KristallTurm

KristallTurm has its only business location in Lenggries, a small town of approximately 10,000 inhabitants in the south of Bavaria (Germany). It produces and constructs customisable high ropes courses for fun and sports purposes, which are suitable for indoors as well as outdoors sites, including for urban spaces. The construction system is inspired by the hexagonal structure of ice crystals. This is also where the company's name stems from. Equilateral triangles constitute the basic constructional modules and can be combined to a broad variety of shapes. The courses are free-standing and therefore not tied to existing trees. KristallTurm offer their high ropes courses in multiple size categories: the smallest one requires a floor area of 8 x 14 metres (112 sqm), can hold up to 20 climbers at one time, and is suitable for indoor use in shopping centres, large hotels, on cruise liners or as a temporary installation at events. The largest one is up to 20 metres in height, can hold up to 160 climbers at one time and requires an area of 28 x 32 metres (900 sqm).

There are many add-ons available such as giant swings, rope slides, tube slides, pole walks, abseiling stations, climbing walls, pillow jump, slacklines, event platforms at the top of the structure, flood light systems, sound systems, sun protection, and access control systems. While some of these are produced in-house, others are purchased from specialised suppliers. The high ropes courses can also be designed to reflect a particular theme. For example, the ropes course built in Moscow uses decorative features related to aerospace and the structure built in Cuba uses features related to sugar cane, cigars and flamingos. Each ropes course is designed as a unique attraction. The structures can also be designed for different aspiration levels and visitor groups, such as for the use by families and children or for sports and training purposes.

The high ropes courses are planned and built according to the European standard EN 15567 and each structure is being certified by the German TÜV prior to operation. KristallTurm also holds a TÜV type approval for its structures. Therefore, the ropes courses meet the highest quality and safety standards.

The main materials used for the structures include weather-resistant larch wood, galvanised steel poles and frames, screws, steel and polyester ropes, and climbing safety systems (visitors are secured with the so-called CLiC-iT system). The vast majority of materials are sourced from German suppliers. With high quality materials and components, KristallTurm seeks to keep maintenance requirements for the operators of their ropes courses as low as possible.

The KristallTurm construction system is a registered trademark and protected by a patent.

KristallTurm's clients include various kinds of public and private leisure facility owners or operators such as adventure and amusement parks, sports facilities, hotels, shopping centres, and even sea cruise companies. They may use the ropes courses as a stand-alone attraction or integrate them into a diverse range of other facilities. Some of the client companies are very small firms.

KristallTurm offers their clients a complete service package in relation to their high ropes courses, including in particular:

- Initial consultation on the project;
- Site analysis regarding feasibility of the project;
- Financing and leasing options, including reference to possible subsidy programmes for operators;
- Advice regarding the operator model, permits, insurance, etc.;

- Detailed construction planning;
- Visualisations of the project for presentation to sponsors and decision makers;
- Production and delivery of the components;
- Complete assembly at the site of operation;
- German TÜV approval according to the EN 15567 standard (also for constructions built outside Germany);
- Delivery of safety equipment;
- Training of the operator's on-site personnel (guides) and maintenance personnel;
- Manuals for operation and maintenance of the ropes course;
- Advice for marketing strategy;
- Arranging obligatory annual inspection and maintenance according to TÜV standards;
- Follow-up delivery of safety equipment if needed; and
- Online platform that facilitates the exchange of experiences among ropes course operators worldwide.

The production of the components of a ropes course structure requires at least three months. This mainly includes manufacturing of the basic steel structures and wooden components, which is all done in-house at the premises in Lenggries. The required steel and timber are ordered from suppliers only once the contract is signed with the client.

The time of assembly of the prefabricated parts on the site of operation depends on the size of the tower and its add-ons and usually takes between two and five weeks. KristallTurm's staff, sometimes assisted by local workers, does the assembly work on the construction site.

Next to their high ropes courses, which account for the majority of total turnover, KristallTurm also offers some other products such as:

- Playground equipment;
- Low ropes courses (where visitors do not need to be belayed);
- Climbing and bouldering walls; and
- Fitness courses (such as wall bars, pull-up bars, hurdles and balancing beams).

KristallTurm was founded by Heinz Tretter in 2010. Mr Tretter, a trained and certified master carpenter, owned and managed a small carpentry business and a skiing school since 2001. For the school's off-season from spring to autumn, he developed the idea of constructing a climbing park close to the skiing slopes. The prototype was completed in 2007. In the first year of operation, his ropes course drew in almost 10,000 visitors. Other leisure and fun park operators soon found out about Mr Tretter's innovative construction. In 2010, he was finally awarded the first contract to build a high ropes course in Berlin. In the same year, he applied for a patent for the constructional system and established the company KristallTurm.

During the first three years, the company sold just one or two projects annually and employed only a handful of people. From 2013-2014, they started to offer more diverse variants and size versions of the ropes course, mainly adding smaller size categories to the portfolio in order to offer solutions for smaller floor areas. From then on, demand for KristallTurm structures constantly increased. The company has been continuously enhancing the constructional system to improve efficiency of production and assembly and the portfolio of add-ons has been constantly enlarged, too, as offering innovative attractions is seen as a key success factor in KristallTurm's industry.

As of 2018, the company is still owned by Heinz Tretter, who also acts as the company's CEO. Since 2016, Christine Berry is the second CEO, but does not hold shares in the business. In total,

KristallTurm employs 34 staff, consisting mainly of metalworkers and welders for manufacturing the steel components; carpenters and joiners for fabricating the wood components; and administrative staff. The share of administrative staff is relatively high (about 50%) due to the significant organisational tasks related to export activities. This includes marketing and sales, logistics, purchasing, after sales support, accounting, etc. KristallTurm's workers are quite young; most of them are under 40 years of age and most of them come from the surrounding region. Production and technical staff are mainly male, while there are many women among the administrative staff.

KristallTurm is a certified steel construction company of the execution class 2 (EXC 2), according to EN 1090. It can be assigned to NACE Rev 2 C 25.1 (Manufacture of structural metal products).

1.2. Description of global value chain member 1: HPS Middle East

HPS Middle East was established in Dubai (UAE) in 2008, and offer customised playgrounds and adventure spaces to operators of leisure parks and similar facilities, including hotel chains, in the Middle East region and beyond. They have a wide portfolio of attractions of a multitude of suppliers (manufactures) from all over the world in their programme, such as ropes courses, steel slides, climbing walls, freefall devices, trampolines, or water play facilities. HPS Middle East combine these into customised turnkey solutions for their clients.

In particular, their services comprise:

- Project consulting;
- Planning and design of the spaces, including visualisations;
- Supply of equipment from manufacturers, including shipment and delivery to the construction site;
- Installation of facilities;
- Training of operator's staff;
- Inspection and maintenance services; and
- After sales services.

HPS Middle East is managed by CEO Thomas Mitmannsgruber, a native Austrian, with 17 years of experience in the leisure industry. Since their establishment, HPS Middle East have been expanding rapidly, driven by projects for large prestigious clients. They started with only two employees and three or four European suppliers and as of 2018 they have 33 staff and about 35 different product suppliers. The team includes designers, salespersons, assemblers and an after sales team, among others. By the end of 2018, they expect to reach a total of 40 staff. The expansion is driven by the dynamic demand for leisure and amusement facilities in the region, which is much stronger than in the saturated European markets. A significant part of HPS's turnover comes from after sales services. Around 80% of clients return after a couple of years to have their facilities renewed or extended in order to be up-to-date to latest developments and offer the most innovative attractions to people. HPS may be assigned to NACE 93.

1.3. Description of global value chain member 2: Fusser Enterprises

Fusser Enterprises was established by Kai Fusser, a native German, in Orlando, Florida (USA) in 2000. It is a two-person enterprise run by Mr. Fusser and his wife. They carry out a variety of business activities in the fields of leisure and sports. Kai Fusser developed several leisure park facilities as a consultant in the USA and Mexico; they have been working as a USA sales representative for the German company Rixen, a producer of water-ski and wakeboard cableways; and they are running a fitness centre for the golf sport. As of February 2018, Fusser

Enterprises is developing an own adventure park on a rented plot of land in Orlando together with a Canadian and a French partner. Amongst other facilities, that park will be equipped with a water-ski cableway from Rixen and a high ropes course from KristallTurm. Fusser Enterprises is also carrying out various marketing activities for KristallTurm in the USA. The company may be assigned to NACE 93.

2. Internationalisation activities of the born global enterprise

2.1. Overview of the international activities of KristallTurm

After only two ropes course projects implemented in Germany, KristallTurm received its first orders from abroad, namely from Switzerland and Hungary, in 2012.

Presence at relevant international fairs and exhibitions around the world is one of the most important ways for KristallTurm to find (new) international clients. Since 2012, KristallTurm is participating in the International Association of Amusement Parks and Attractions (IAAPA) Expo held in Orlando, Florida, the world's largest trade show in the amusement and attractions industry. They are also participating in the Asian Attractions Expo and the Euro Attractions Show. Together these exhibitions cover the most important global markets. In some cases, KristallTurm were able to sell their exhibition towers straight from the trade show floor. In general, word of mouth in the industry is very important for attracting and getting new clients.

In KristallTurm's international business, there is usually a long lead-time (of one year on average) from the first client contact to the signature of the contract. This period includes exchange of information on options, conditions, technical and economic feasibility, and making up of a final decision about the project. Sometimes, interested operators need to find a suitable site¹ or site owners need to find a future operator for the ropes course in parallel. Obtaining necessary building permits may also extend the negotiation period. In some cases, KristallTurm staff members need to travel to the envisaged location abroad to assess the situation and provide advice on the spot. The ropes course constructions often need to be adapted to country-specific requirements, such as different average body heights.

Once a project is precisely defined and the contract is signed, KristallTurm starts purchasing the required materials (steel, timber) and manufacturing the components at their premises in Bavaria. KristallTurm strives to do as much as possible of the manufacturing work, including all structural components, at their premises in Germany. This is mainly for quality reasons and because of the staff skills needed. In international business, KristallTurm usually request 100% pre-financing by the client (part of it into an escrow account) in order to reduce the risk of payment defaults. The pre-fabricated construction components are then shipped to their destination abroad in standard containers.

A small team (about five to 10 workers, depending on the project size) of KristallTurm then travels to the site abroad and takes care of assembling the components, sometimes assisted by local workers of the client. This usually takes a few weeks depending on the size of the ropes course. Finally, KristallTurm staff train the client's staff on the spot in operating and maintaining the construction.

Another important acquisition method is a global network of sales agents who actively explore and canvass potential clients in their regions. Local sales agents often do a significant part of the contractual negotiations and communication work up to contract signature. The sales agents work on the basis of a sales commission which varies according to how much preparatory and negotiation work they do for a project. The conditions are laid down in contracts which usually run for one year and are automatically extended unless cancelled by one of the parties. Sales agents are often one-person businesses. They are not necessarily systematically searched for by KristallTurm, but are often found through other networking activities, for example at exhibitions or in the context of implementing projects for clients (see also sections 3.2 and 4).

For KristallTurm, another way of exporting is through dealers or resellers located abroad. These companies act as developers of leisure sites: they buy entire ropes courses from, and have them

¹ For example, it took Fusser Enterprises about four years to conclude the deal for the location of their adventure park.

erected by, KristallTurm and then resell them to an ultimate operator, often as part of a package of multiple leisure park facilities. In these cases, KristallTurm would not have any direct contractual relations with the ultimate operator of the ropes course. Resellers can purchase KristallTurm ropes courses on the basis of defined standard price lists and are granted the exclusive right to sell them in their markets. As of February 2018, KristallTurm is cooperating with resellers in Japan and Dubai (HPS Middle East) and is negotiating cooperation with another reseller.

KristallTurm also used licensing as method of internationalisation. In 2013, they made a licensing arrangement with a partner in Canada, who was responsible for exclusively serving the US and Canadian markets. Based on the licensing arrangement, the Canadian partner produced the constructional components in Canada and carried out the assembling for clients in their target markets. However, the licensing partnership was cancelled in 2017, amongst others because of problems related to producing the components in Canada according to the same cost-quality standards as in Germany. This does not mean, however, that licensing could not be an effective internationalisation approach for KristallTurm in general.

KristallTurm's website is geared towards an international market and is available in German, English, and Spanish. A website in Russian language is under preparation. In addition, product brochures are also offered in Italian, French and Chinese language.

2.2. Importance of internationalisation activities for the born global: main served markets

As of 2017, some 40 high ropes courses have been installed in 20 countries, including the USA, Canada, Cuba, Japan, Australia, Nigeria, the UAE, Qatar, Dubai, Israel, Russia, Norway, Turkey, Spain, Hungary, Austria, and Switzerland. Out of the 40 structures, only six were implemented in Germany, KristallTurm's home country, while seven towers were realised in North America. Furthermore, the first ropes course in China is about to be completed in the first half of 2018.

Overall, the share of exports in KristallTurm's total turnover is more than 85%.

The importance of internationalisation and exports to KristallTurm is also reflected in various relevant awards the company has received. KristallTurm was the winner of the Bavarian Export Award 2017, category 'crafts' and also won the Global Connect Award in the 'newcomer' category in 2016, which honours excellent entrepreneurial achievements in foreign business. Global Connect is Germany's biggest business platform for export and internationalisation. KristallTurm also received the Bavarian State Award for Innovation in 2011.

2.3. Reasons to go international and for the target market selection

High ropes courses constitute a small niche market. The German market alone would be too small to allow production and construction of these facilities at an efficient scale. Serving international markets is therefore almost a necessity for KristallTurm.

A major factor further driving KristallTurm's international/global activities and ambitions is the fact that European markets for climbing facilities are already quite saturated. Growth prospects in Europe are seen to be limited for KristallTurm. This is why they look out for non-European markets in particular.

A side effect is that international activities also trigger more innovation impulses. The requirements, requests, preferences and suggestions received from a more diverse range of clients and environments result in new ideas and technological developments for the products.

For KristallTurm, the main future growth markets include North America and Asia. In the USA, the availability of innovative, high-safety carabiner systems contributed to reduce liability concerns of operators and resulted in increasing demand for climbing facilities in general. In

addition, American people are more willing to spend money on using such facilities than Europeans are.

The quality and effectiveness of local partnerships also determine the success of specific target markets and influences KristallTurm's country focus. Local partners definitely facilitate access to clients, understanding local business practice, and help to generate international business.

Since 2016, KristallTurms works with the German Außenhandelskammern (Chambers of Commerce Abroad) to select interesting target markets in a more systematic and strategic way, based on information, analyses and local business contacts available from the chambers. Criteria for promising markets include:

- Consumers with sufficient income and purchasing power to visit and use climbing facilities (or leisure parks in general);
- Appropriate climate conditions which allow for long periods of use; and
- Countries with a well-developed tourism industry and strong incoming tourism in general.

2.4. Main obstacles/challenges to engage in internationalisation activities and solutions adopted by enterprise to solve/face these obstacles/challenges

KristallTurm faces several challenges in their international business activities. One issue is the existence of different technical standards and regulations which operators in foreign countries need to comply with in order to get a permit for the facilities, and which therefore need to be respected by KristallTurm when constructing the ropes courses. Examples include technical standards for stairs, the height of hand rails or minimum load weights. In order to avoid any risks in that context, KristallTurm determines in their contracts the foreign client's responsibility to provide information on all relevant technical standards (and translations if needed) before the start of the components' planning and production. On top of that, serving global markets also requires adapting the construction components to different climate conditions. For example, sites close to the ocean require special protection and resistance against the impact of salty air.

Apart from technical standards, private contract law also differs in every country and contracts need to be adapted accordingly. This is particularly relevant for the USA with respect to liability regulations.

Moreover, transportation and logistics are more demanding for international projects. This refers to the shipment of construction components and tools as well as to the missions of KristallTurm's assembling team. For some countries, specific visas or evidence about adequate wage payment and insurance need to be organised for the posted team members. Information on local work safety requirements, which assembling workers have to respect, needs to be obtained as well. Regarding transportation of components, the sharing of risks of and responsibilities for shipment between the client and KristallTurm depends on the destination and is organised on a case by case basis.

The willingness to go on missions abroad for several weeks is different among KristallTurm's workers. In order to reduce the burden for workers they change the assembling team from project to project, sometimes even during one project. The assembling teams are generally recruited from all of KristallTurm's technical staff, so there is no specialised team focussing only on the assembling work on site. Using local workers based in the foreign country for assembling to a significant extent has not turned out to be a successful alternative so far, mainly because they lack the required experiences and skills, coordination is more difficult, and assembling would eventually take much longer. However, on the local labour market KristallTurm is generally

perceived as an attractive employer exactly because they are doing international business, which is rather rare in the rural region they are located in.

Financing is another critical issue in KristallTurm's export activities and often constitutes an important obstacle in international business. Many small operators need to search for and secure investors or other financing in the first place to be capable of acquiring a high ropes course. In addition, in order to reduce the risk of payment defaults, KristallTurm needs to request 100% pre-financing by the client. Other suitable and cost-efficient financing solutions or financial support instruments that could ease the financing hurdle have not been identified so far (see also section 6).

In relation to cooperation with sales agents, the main challenge for KristallTurm is getting regular reporting on developments in the agents' markets, the agents' activities and outcomes.

Limited language capabilities constitute a company-internal factor constraining KristallTurm's international business activities. As of February 2018, KristallTurm staff can work only in German and English and the interviewed CEO believes that their inability to communicate and negotiate in Spanish is a main reason for not having any business with South America yet. She made the experience that South American business people are not comfortable with concluding detailed agreements in English. Therefore, in order to widen their range of languages, KristallTurm recruited an employee speaking both Spanish and Russian and another one speaking a Chinese language in March 2018. They will support KristallTurm's sales and business development team.

In order to tackle the language obstacles KristallTurm have also developed an English and Spanish website and produced product brochures in English, Spanish, Italian, French, and Chinese.

3. Global value chains of the born global enterprise

3.1. Identification of global value chain(s) of the born global

From the viewpoint of KristallTurm's suppliers, namely from an upstream perspective, the company mainly participates in the value chains of steel and wood/timber. These constitute the major input materials KristallTurm uses and processes further. These materials are basically sourced from suppliers within Germany.

From the viewpoint of KristallTurm's clients and ultimate users of the high ropes courses, namely from a downstream perspective, the company participates in the value chain of leisure and tourism. The company's products are mainly exported to and used in foreign countries.

KristallTurm delivers to operators of climbing facilities either directly, sometimes with support from sales agents, or indirectly via resellers (leisure park developers) that may deliver the high ropes courses as part of multiple amusement facilities (see above). Resellers usually offer their clients (park owners or operators) a package of various types of facilities from different producers, KristallTurm being one of those.

3.2. Main roles/tasks of the born global enterprise and its partners, fields of activity and governance issues

The roles and tasks of KristallTurm, and its German production premises, within the value chains can be summarised as follows:

- Planning and designing the high ropes courses;
- Manufacturing of the basic steel structures of the ropes courses;
- Manufacturing of all wooden components of the courses;
- Shipment of components and add-ons to the site of destination;
- Assembling the components with own staff at the site of destination;
- Providing training to the client's staff on how to operate and maintain the ropes course; and
- After sales services such as yearly inspections, adding extensions.

The most important partners of KristallTurm and their roles/tasks in the value chain are:

- Operators of leisure facilities: They purchase and run KristallTurm's high ropes courses, namely they offer the facilities as a leisure attraction to visitors, usually on a commercial basis. The purchase is based on a sales contract between KristallTurm and the operator.
- Sales agents in foreign countries: They identify, inform and contact potential clients/operators, liaise with players in the local leisure industry (including visits to and representation at trade fairs), and communicate and negotiate with clients in the pre-contract phase. Their work relations with KristallTurm are based on and governed by contracts which amongst others define the agents' sales commission and whether or not they have an exclusive right of representation in a given market. An exclusive right is usually connected to minimum levels of sales. In some cases, operators of KristallTurm facilities may also become sales agents; they have the advantage of knowing the product very well and being able to show it to potential clients.
- Resellers in foreign countries: They buy high ropes courses from KristallTurm and resell them to leisure park operators. They usually also offer a broader set of leisure facilities from other producers than KristallTurm. Resellers purchase the high ropes courses based on standard price lists and are granted the exclusive right to sell them in their markets. Some resellers (such as HPS Middle East in Dubai) may also carry out the assembling of

the ropes courses at the site, with KristallTurm sending only one or two supervisors. Taking over this task would usually require KristallTurm and the reseller jointly assembling a few projects in the first place.

- Suppliers of steel and timber: These are based in Germany and supply the main raw materials used for the high ropes courses. KristallTurm usually places orders for steel and timber only once they have signed a contract with a client, meaning they do not stock up with steel and timber in advance.
- Finally, an Italian company occasionally helps with assembling on the site if KristallTurm is short of staff capacity for assembling work. However, contracts with that company are concluded on a case-by-case basis; there is no written long-term framework contract.

KristallTurm's development and commercial success depends very much on their network of foreign sales agents and resellers because a significant share of the requests from clients and of the projects they are selling comes through them. KristallTurm could not do the same level of marketing and acquisition work just from their headquarters in Germany.

Next to e-mail and telephone communication, there are regular meetings in person with sales agents and resellers and every second year KristallTurm organises an event at their headquarters, gathering all sales agents and resellers, plus interested operators and potential clients, for information and exchange on new developments and experiences. Furthermore, they also run an online platform for the exchange of experiences among operators and partners.

4. Cooperation between the born global and its selected international partners in value chains

4.1. Brief history of the cooperation(s) and reasons for initiating them

In 2013, Dubai-based HPS Middle East was developing a project for IMG Worlds of Adventure, the world's largest indoor theme park situated in Dubai. Amongst other things, the client requested a high ropes course. KristallTurm was already known in the community and so HPS approached them to explore the possibility of integrating their high ropes course in that project. They agreed a deal and HPS Middle East purchased the first KristallTurm facility. HPS then added KristallTurm's ropes courses to their general programme of leisure park facilities and another four joint projects in the region have been realised since.

Fusser Enterprises, located in Florida, has previously been representing the German company Rixen, which produces water-ski and wakeboard cableways, in the USA. Since KristallTurm and Rixen – both active in the leisure facilities industry - met and cooperated at several occasions, they also came to know US-based Kai Fusser from Fusser Enterprises. Heinz Tretter, the owner of KristallTurm, and Kai Fusser met for the first time at the IAAPA Attractions Expo in Orlando in 2013. KristallTurm initiated the operational cooperation by asking Fusser Enterprises to assist them with their presence at the IAAPA (see below).

4.2. Roles of the born global and the selected partner(s) within the value chain

HPS Middle East is a reseller for KristallTurm. HPS develops leisure parks for operators in the Middle East region and where appropriate they integrate KristallTurm ropes courses into their overall concepts, order them from KristallTurm based on agreed standard prices, and then resell them, as part of the entire package of park facilities, to the operator. The shipment of components from KristallTurm to the construction site is usually organised by HPS. Furthermore, HPS is the only reseller who does the assembling work on the construction site, the training for operators and regular maintenance mainly with their own staff. Here KristallTurm sends only one or two supervisors to the site and supplies the operation manuals. HPS Middle East generally seek to perform as many as possible of the tasks related to leisure park construction themselves.

Fusser Enterprises has a twofold role for KristallTurm. First, as clients: they are building an attractions park in Florida together with other partners and have purchased, next to facilities from other manufacturers, a high ropes course from KristallTurm. They actually bought the facility that KristallTurm showcased at the IAAPA Attractions Expo in Orlando in November 2017 and have ordered some extensions in addition. KristallTurm staff will assemble the ropes course in spring 2018. Second, Fusser Enterprises support KristallTurm in accessing the US market, especially with organising and preparing KristallTurm's presence and representing them at the IAAPA Attractions Expo in Orlando. A dual role of being a client/operator as well as a sales agent is not necessarily an exceptional case as another client of KristallTurm in Melbourne is also considering becoming a sales agent for the Australian market.

4.3. Governance issues and formalisation of the cooperation

In the case of reseller HPS Middle East, the high ropes courses are ordered from KristallTurm on the basis of a long-term framework of standard prices. Based on that a specific sales contract is then concluded for each order.

In the case of US-based Fusser Enterprises, the purchase of the high ropes course is based on a regular sales contract, while Fusser's marketing activities for KristallTurm are agreed and paid for on a case-by-case basis. There is no formal framework agreement for Fusser's marketing activities.

Moreover, both partners participate in the communication and exchange methods outlined in section 3.2.

4.4. Evolution of the cooperation over time

See sections 4.1 and 4.2.

4.5. Results of the international cooperation for the different enterprises

For KristallTurm the general purpose of both partnerships is to get more clients and business and to extend their networks globally. More specifically, the advantage of cooperating with HPS Middle East as a reseller is that KristallTurm are negotiating and communicating with the same partner and based on similar work procedures for multiple projects and very different operators. This makes doing business much easier and more efficient over time for KristallTurm. Their longstanding relationship made it possible that HPS Middle East at some point took over the assembling of the ropes courses on the spot, making the projects more cost-efficient and competitive. Also, KristallTurm can profit from HPS's excellent global network in the leisure industry. Therefore, HPS is a valuable partner in the Middle East region and could not be replaced easily.

Through their partnership with KristallTurm, HPS Middle East have access to high ropes courses of high quality and of high interactivity. KristallTurm is seen to offer the best product in the area of high ropes courses. This is important as trustworthy products are highly appreciated in Arabian markets. HPS have also benefited from KristallTurm's network of business partners. For example, through KristallTurm they found a new Austrian supplier of self-rescue systems.

With respect to the partnership with Fusser Enterprises in the USA, apart from Fusser's own order for a high ropes course no additional concrete projects/sales emerged so far. However, for KristallTurm a key benefit of the partnership with Fusser Enterprises is their close location to the IAAPA Attractions Expo in Florida, which increases the possibilities and effect of personal networking among the many representatives from the leisure industry who regularly congregate there. Florida can actually be regarded as a global hot spot of the adventure park industry.

For Kai Fusser, knowing attractions suppliers such as KristallTurm and Rixen from representing them in the US market has clearly facilitated the development of his own adventure park. In addition, cooperation with KristallTurm ensures he gets facilities of the best possible quality for his adventure park.

In general, the longer a partnership lasts the more difficult it is for KristallTurm to replace that partner.

5. Main obstacles/challenges to engage in international cooperation activities

5.1. External and internal-to-the company barriers/obstacles

In addition to the main external/internal-to-the-company barriers and obstacles identified in previous section 2.4 for KristallTurm, some additional barriers can be identified for the two global value chain partners. As regards Dubai-based HPS Middle East, the main challenges associated with their international activities refer to:

- Managing the rapid growth of the business: This means constantly creating and adapting organisational structures and work procedures.
- Technical standards and specifications: Dealing and complying with the manifold and ever-changing standards is extremely time-consuming. There are often significant differences between (Arabian) countries. The fact that the majority of HPS's product suppliers are based in the EU, with again another world of standards, makes coordination even more difficult. This needs to be addressed by developing detailed and comprehensive competencies in the field, as if one is competent in that area, this can be turned into a competitive advantage over others.

For US-based Fusser Enterprises, the main obstacles and challenges in their international business activities include:

- When working with Europe-based attractions suppliers (such as KristallTurm) there is a considerable cost risk associated with the USD-Euro exchange rate fluctuations. Fusser Enterprises experienced cost increases of 15%-20% due to currency fluctuations.
- Pre-financing of goods to be imported constitutes another challenge. Especially US-based organisations are usually very reluctant to make advance payments to other countries.
- Structural specifications are different between US federal states and it may be demanding for European suppliers to comply with them.
- Furthermore, international business activities are much more demanding in terms of administrative work and red tape and this is particularly difficult to cope with for very small enterprises. Partnerships and providers of support services are important to manage these tasks efficiently.

5.2. Solutions adopted by enterprise to solve/face these obstacles/challenges

See the discussion already presented in section 2.4 for KristallTurm.

6. External support to internationalisation and international cooperation

6.1. Main identified needs for external support

For KristallTurm, most need for support is in the area of financing. It would be particularly helpful if foreign clients could be offered cost-efficient financing instruments of (German) banks or public support agencies, because raising finance constitutes a major challenge for many international clients and many projects fail for that reason. There is also a need for getting information on potential foreign business partners and on (legal) framework conditions in foreign markets. According to Dubai-based HPS Middle East, financial support for participation at exhibitions and trade fairs would be very helpful. Furthermore, they would wish to see a free trade agreement between the European Union and the Gulf Cooperation Council (GCC) countries² in the future.

6.2. Use of external support by the enterprises

Since 2016, KristallTurms is working with the German Außenhandelskammern (AHK; foreign trade chambers), which run a wide network of foreign offices, to select interesting target markets based on information and market analyses available from the chambers. The chambers then further assist KristallTurm with identifying potential business partners and local business contacts in the selected countries. Since 2017, they are working together on exploring and entering the South American market. The chambers also provide information on legal regulations related to, for example, customs, posting of workers or visa rules. KristallTurm very much appreciates the quality of information received from the AHKs. AHK services are fee-based and can generally be used by any company.

KristallTurm also used a Bavarian support programme for SMEs called ‘[Go International](#)’ where they received subsidies for costs related to trade fairs, translations of company and product presentations, and costs of external information services. These subsidies are certainly very helpful (up to 50% of costs) and the programme was accessible without too many administrative hurdles.

KristallTurm also explored the possibility of using credit insurances (an insurance against payment defaults) and export guarantees of Euler Hermes. The [export guarantees](#) are managed by Euler Hermes on behalf of the German federal government and using federal budgets. The guarantees step in in case of payment defaults of foreign importers. However, the insurance or guarantee fees were too expensive for KristallTurm (and their clients respectively), and still part of the risk would have remained with KristallTurm. Because of that, KristallTurm has not used these instruments so far. US-based Fusser Enterprises and Dubai-based HPS Middle East have not used any public support so far.

6.3. Assessment of this external policy support

While KristallTurm appreciates the support received from the AHKs and from ‘Go International’ (see above), their experience is that the conditions of available export-financing instruments from banks or the German government are not sufficiently attractive. The associated costs of guarantees or similar instruments cannot be passed on the clients. For this reason, the company did not use any of these instruments yet. There seem to be more financing options for German clients, including leasing options, than for foreign clients. The most significant gap in support policies is therefore seen in respect of export financing instruments.

² Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

7. Concluding remarks

7.1. Future plans regarding internationalisation and international cooperation

Since the licensing partnership for the North American market was cancelled in 2017, KristallTurm now needs to develop a new marketing strategy for that market. This will be a key activity in the near future as North America is seen to have significant growth potential. Different strategic options are being considered, including founding an own subsidiary in the USA. In this context, US-based Fusser Enterprises are also interested in being more involved in marketing and distribution activities for KristallTurm in the future.

Another focus will be put on developing the Asian markets, which are also seen to have great growth potentials for KristallTurm.

Cooperation with resellers will also be further developed, enabling them to increasingly take over from KristallTurm the assembling work at the sites, the training for operators' staff, and the regular maintenance of the constructions. This would reduce the overall costs of the projects and make KristallTurm ropes courses more competitive on price.

HPS Middle East will focus on further developing the African markets. They have recently started to implement some projects in South Africa and are considering setting up a separate company for that market. Another strategic consideration refers to the manufacturing of steel components in Dubai instead of importing them from the foreign suppliers. This would lead to efficiency gains in several respects. In Dubai, raw steel is less expensive than in other countries such as Germany, shipment and transportation costs would significantly drop, and the duration of projects would be shorter. This would eventually make HPS's leisure park facilities more competitive on price. Some products – such as steel slides – are already being produced locally.

7.2. Conclusions and lessons learned

From the viewpoint of KristallTurm, important factors supporting their success in international business are:

- The uniqueness of KristallTurm's products; especially the flexibility and adaptability to the clients' needs and to different purposes of use, and the manifold innovative features, constituting a clear competitive advantage over other suppliers;
- The excellent worldwide reputation of the quality of German products and the 'Made in Germany' label.

HPS Middle East underlines the importance of networks for developing their international business. Their large supplier network developed mainly on the basis of word of mouth and recommendations from other players in the industry's community. Prestigious key projects for renowned international clients are another important factor, which can raise a company's visibility at an international scale and boost international business.

For US-based Fusser Enterprises, their German background has clearly shaped their international activities. The common language and way of doing business have strongly facilitated the collaboration with German-based suppliers such as KristallTurm or Rixen. In addition, German products enjoy high reputation in the USA, which is certainly supportive to Fusser's international business activities with German suppliers. More generally, however, sales and marketing competencies are seen to be key for success in international markets.

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