

Global players in the world's construction market

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Abstract

Global players need global markets. Companies that understand themselves as global players use a geocentric perspective for their business. They standardize their products or performances, they use worldwide branding, and strive for economies of scale. There is seemingly no way to associate the construction industry with such a market behavior. Typically, construction markets are characterized as local, not global markets and still there are companies that do business in many countries around the world. To bring order to this confusion we can distinguish between six different markets (regional, national, international, multinational, global, and transnational). On all of these markets specific products (or performances) are demanded by specific clients from specific construction companies.

By looking at archival data of national and international construction activities it is possible to establish an allocation of companies to one of the six market strategies. From interview data collected on two types of mega-projects it is also possible to determine what characterizes a global player in construction.

Keywords: Global players, international construction, multinational construction, global construction, transnational construction.

1. Introduction

Markets are defined as economical (not physical) places of transactions where prices are formed through the interaction of supply and demand for a good [1]. This theoretical observation set aside, there is no simple and practical definition of a market. Industrial organization theory approaches the problem from the perspective of goods by defining them as a bundle of characteristics such as quality, location, time, availability, consumers' information etc. and then differentiates markets according to a limited subset of characteristics of these goods [2]. Regulation practice in the USA follows the 5 percent rule to determine a market. Here, it is assumed for a theoretical market that all suppliers raise their prices for one good by 5 percent. If then the profits increase, there exists a market for this good. Otherwise there are some substitutes competing on the same market [3]. A third view is proposed by Porter who determines markets by the competition which he sees as a function of suppliers, substitutes, competitors and consumers [4]. A fourth very pragmatic alternative

is to look where consumers buy certain goods or where certain suppliers offer their goods. We will take this approach to market definition from the perspective of suppliers.

So the question for the construction industry becomes: What different marketing strategies employ construction companies that allow us to define separate markets? This perspective will enable us to differentiate between six markets with different geographical extents.

2. Market strategies in construction

The construction industry has in principal the choice between six different market strategies: regional, national, international, multinational, global, and transnational. A synopsis is given in table 1.

Table 1. Options for market strategies in construction [5]

Market strategy	Orientation	Behavior	Segments	Organization
Regional	Local network	Local	Few segments, specialized	Local headquarters
National	Many local networks within the home country	National	Many segments, diversified	National headquarter, local subsidiaries
International	Many local and some international networks	Ethnocentric	Many national segments, few international segments, diversified at home, specialized abroad	National headquarter, local subsidiaries, overseas department
Multinational	Many local and many international networks	Polycentric	Many national and international segments, diversified	National headquarter, local subsidiaries, overseas department, int'l acquisitions
Global	Global network	Geocentric	Standardized products, specialized	Global headquarter, int'l subsidiaries
Transnational	One global and many international networks	Geo- and polycentric	Many international segments, diversified	Global headquarter, int'l subsidiaries, int'l acquisitions

2.1 Regional market strategies

Construction goods have mostly (with the exception of prefabrication) the character of real property and this implies construction activities on a regional level. A multitude of interactions between client and contractor require their presence on site. Materials are bulky and transports are expensive so that a network of suppliers around the site is a competitive advantage. In addition construction activities are concentrated around civic or economic centers. For these reason, construction is centered around local markets and all construction companies must have a regional market strategy. Local markets cover an area with a radius of about one hundred kilometers [6].

The local company concentrates on the local networks, is specialized in those networks and often also in some major segments such as building or some trades. In general they do not bid for heavy civil engineering works.

In Germany there were in 2000 roughly 80,000 construction companies. 78,500 of these had fewer than one hundred employees. If we accept this figure to be indicative of local companies, then 99% of all companies on this national market are local companies [7]. In the USA, there are more than half a million construction companies in the market and this market is highly fragmented. So what applies to Germany also is true in the USA [8].

2.2 National market strategies

Once a company has established a regional presence it can add additional networks in other areas. At the end of such a process the company becomes a national competitor by being active in most of the important regional markets of a country. Since activities on the national market are the sum of regional activities, there can be no national strategy without regional activities. Since construction projects cannot guarantee continuous employment, most national companies diversify in order to ensure continuous production. National construction markets are defined by the building rules and regulations of the country. These form a barrier to entry.

National companies have a headquarter and many local subsidiaries. Intra-company services are concentrated at the headquarter, the contact with the client is mostly looked after on the regional level although there are also some national clients. Other than the regional company, the national company has gained the competence to grow into other markets, albeit this is limited within the set of national culture and regulations.

While there are no data on how many national companies are active on such a market, it can be said with the same reasoning as above, that it should be less than 1% of all companies. There will be variations to this order from country to country, yet the picture will not change dramatically.

2.3 International market strategy

An international strategy is characterized by a large share of the revenues being generated in the home market and some additional activities in selected foreign markets. Construction services offered on foreign markets are specialized and limited to a small range. The number of countries served is also small. The behavior of the company is ethnocentric with a limited amount of knowledge of foreign markets. The international activities are coordinated from the national headquarters through an overseas department. Despite all limitations, international companies must have the possibilities to form and manage the networks around their foreign sites responding to differences in culture and regulations.

There are few figures available for international activities, but in 1993 there were in Germany as many construction companies as in 2000 (ca. 80,000) and of these 249 were active in international markets, which is equivalent to 0.3%. 35 companies (or 14 %) had a share of 90% of this market. The volume of international contracts were a mere 1.5% of the volume of the German market. The conclusion is that very few of all regional construction companies are interested and capable of leaving their home market [9].

A look at the international revenue of the top German inter- or multinational construction companies allows us to estimate the size of each of these groups (cf. table 2). Without looking at the organization of each company, it is hard to determine which of these companies is an international and which a multinational company.

Table 2. The top six German international contractors [10]

Int'l Rank	Company	Int'l Revenue
2	Hochtief	10,001 mill. euros
10	Bilfinger Berger	2,991 mill. euros
73	Züblin	250 mill. euros
82	SKE Group	194 mill. euros
90	Bauer Spezialtiefbau	164 mill. euros
140	Wiemer & Trachte	44 mill. euros

A look at the structure of Wiemer & Trachte reveals that the company has two affiliated companies on foreign markets (Saudi Arabia, Poland) and manages around five large construction projects through the overseas department, the total revenue amounting to less than 50 mill. euros [11]. The conclusion is that Wiemer & Trachte is rather an international company and that in Germany there are at most five multinational construction companies

2.4 Multinational market strategy

If the activities in foreign countries contribute a larger share to a company's revenues and if these contributions come from many different foreign markets, then the company can be

called multinational. Ethnocentricity is replaced by a polycentric behavior with strong orientations towards the different host countries. This, of course, implies a decentralized organization of the company with many top managers in the host countries having a local origin. Besides coordination of the international activities through an overseas department, the company will acquire foreign companies. A multinational company has many foreign subsidiaries (cf. table 3 for the German company Hochtief [12]).

Table 3. Affiliated companies of Hochtief (Germany)

Continent	Affiliated Company	Country
Africa	Concor Limited	South Africa
America	Hochtief Argentina S.A	Argentina
	Hochtief do Brasil S.A.	Brazil
	Aecon Group	Canada
	The Turner Corporation, Kitchell Corporation	USA
Asia	Leighton Asia Ltd.	Hong Kong
Australia	Leighton Holdings	Australia
Europe	Hochtief AG	Germany
	Hochtief (UK) Construction Ltd.	UK
	Hochtief Luxembourg S.A.	Luxemburg
	Hochtief Polska Sp.z o.o.	Poland
	Hochtief Russia	Russia
	VSB a.s.	Czech Republic

The ability to work in foreign environments and to build up networks in a score of different cultures is the main competence of the multinational company. Through its polycentric behavior such a company is prepared for and at ease in foreign environments.

2.5 Global and transnational market strategies

Global companies are not simply active in more foreign countries than the multinational company but they use standardization of their products to achieve the highest possible economies of scale. They profit from a network spanning the globe to organize production. Managers come from countries around the globe, products are bought where cheapest, production is set up where labor costs are low. The orientation of the company is not tied to any one national culture, it is global, the behavior is polycentric. The headquarter coordinates the activities of a multitude of affiliated and owned companies around the world. The important point for this strategy to work is, however, that the products can be standardized. It is out of question that the products of the construction industry can be standardized around the world. So global markets seem to be no option for this industry.

A global strategy is marred by all the problems of standardized goods: they are not to everybody's taste and in some industries such as construction they do not exist. So the question arises if the advantages of the lowest production cost could not be combined with a

production geared towards the tastes and requirements in different countries. This is what a transnational strategy tries to achieve: to balance the benefits of standardization and diversification. The global company takes its bearings with regard to the strongest global competitor while the transnational company pays attention not only to the strongest global but also to each of the strongest national competitors.

The six described markets form a hierarchy. Any multinational company is still rooted in a multitude of local markets, it is active in a number of national markets. One of these is the home market, the others are foreign or international markets. Projects and companies in many foreign as well as one home country characterize the multinational company.

2.6 Summary of markets

If one summarizes the data presented up to now for the German construction market, then international or multinational construction companies are small in number. However, the international revenue is by no means small, it amounts to 20 % of the home market revenue and five multinational companies have a share of 68 % of the total international revenue (cf. table 4: $19.9 / 13.6 * 100 = 68 \%$). International construction is very concentrated from a national perspective.

Table 4. Construction markets in Germany (2000)

Market	No. of Companies	Percentage	Revenue	Percentage
Regional	80,000	100 %	98,643 mill. euros	100 %
National	> 800	1,00 %	98,643 mill. euros	100 %
International	~ 250	0,30 %	19,900 mill. euros	20,1 %
Multinational	~ 5	0,01 %	13,600 mill. euros	13,8 %

3. International construction

3.1 Construction spending and revenue

The total value of construction spending has been estimated to be around 3.9 trillion US dollars for the year 2002 [10]. In the same year the top 225 international contractors had a revenue of 117 billion US dollars from overseas operations, which is equivalent 3.4% of construction spending. While nobody knows how much revenue is generated by smaller companies, it cannot be a big sum. The last five companies in that list all have only an international revenue of one million US dollars each. In 2002 construction revenue in Germany amounted to 100 million US dollars, which means that the whole international market is roughly of the same size as the market in Germany.

The interpretation of these data is clear: About 95% of the global construction spending is allocated on local markets to local and national contractors. It definitely shows that the

construction market is not a global market. Whatever happens in China is of very little interest to most construction companies in the US.

In table 5, the ten companies with the largest international revenue are shown (2002). The sum of the international revenue of these ten companies amounts to 56 billion US dollars which is 48% of the worldwide international revenue (117 billion US\$). Therefore we can conclude that the international market is very concentrated not only from a German national but also from a global perspective. Yet the market share of these ten companies of all national markets is merely 1.4% ($56 / 3,900 * 100 = 1,4 \%$). This tells us that there are no global players in construction holding a recognizable market share.

A closer look at the top ten companies shows different types of multinational companies. With the exception of Vinci and Bouygues all companies have a much larger share in international than in national revenues. Technip-Coflexip has almost no home market.

Table 5. Revenue of the top ten multinational construction companies (2002)

No.	Company	Land	Int'l revenue (in bill. US\$)	Total revenue (in bill. US\$)
1	Skanska	Sweden	\$11.520	\$13.951
2	Hochtief	Germany	\$10.010	\$11.959
3	Vinci	France	\$6.841	\$16.595
4	Bouygues	France	\$6.449	\$15.169
5	Technip-Coflexip	France	\$4.619	\$4.654
6	Kellog, Brown & Root	USA	\$3.888	\$5.144
7	Bovis Lend Lease	UK	\$3.625	\$4.658
8	Bauholding Strabag	Austria	\$3.544	\$5.032
9	Amec	UK	\$3.017	\$5.184
10	Bilfinger Berger	Germany	\$2.991	\$4.293

3.2 International competition

To find out the strength of competition we look at different geographical markets. Anecdotic evidence from discussions with multinational construction companies is that they not often compete for the same projects among each other. A reason could be that they prefer different markets or different types of projects. In table 6 the top ten multinational contractors are grouped according to their revenue in six larger markets. The markets have the following sizes according to international revenue in 2002: Europe (33 bill. US\$), USA (23.1 bill. US\$), Asia (22.6 bill. US\$), Africa (11.1 bill. US\$), Middle East (9.7 bill. US\$), Latin America (9.6 bill. US\$) [13].

Only in the two biggest construction markets, the USA and Europe, eight of the top ten multinational contractors are active among the top ten for that market. Even on the next most important market Asia, we find only four companies among the top ten.

Table 6. Market competition in different regions (2002)

Middle East	Asia	Africa	Latin America	Europe	USA
1.Technip 4.Hochtief	1.Hochtief 5.Bilfinger 8.Bovis 9.Bouygues	1.Bouygues 2.Kellog 4.Bilfinger 7.Technip 8.Vinci	2.Kellog 7.Technip 10.Skanska	1.Vinci 2.Skanska 3.Strabag 4.Bouygues 5.Kellog 6.Amec 7.Technip 9.Bilfinger	1.Hochtief 2.Skanska 3.Bovis 4.Bouygues 5.Amec 7.Technip 8.Vinci 10.Bilfinger

The same picture emerges when comparing the different types of projects where the international revenue is generated. The idea is clear, there is not a very strong competition among the top ten multinational companies that after all share 48 % of the market. The importance of different types of projects is: building (33.4 bill. US\$), industrial/petroleum (30.6 bill. US\$), transportation (28.7 bill. US\$), power (8 bill. US\$), manufacturing (3.4 bill. US\$), and water (3.5 bill. US\$) [13].

Table 7. Market competition according to project types (2002)

Building	Ind./Petrol.	Transport	Power	Manufacturing	Water
1.Skanska 2.Hochtief 3.Bovis 4.Bouygues 5.Vinci 6.Amec 7.Bauholding 9.Bilfinger	1. Technip 2.Kellog 10.Hochtief	3.Skanska 5.Bauholding 9.Bilfinger 10. Bouygues	5.Skanska 7.Vinci	5.Hochtief 6.Skanska 7.Bilfinger 9.Amec	4.Skanska 8.Bilfinger 10.Bauholding

Combining the geographical and type of construction information (cf. tables 6 and 7), there are clear indications that except for the markets in Europe and the US the direct competition among the big multinational companies is rather limited geographically. The statement also applies to types of construction with the exception of buildings. A deeper explanation is also at hand: Hochtief for example participates through Turner in the building market of the USA and by being there the international number two it has a considerable international revenue. Yet the building market in all countries is large, fragmented, and local. No wonder that the big ten only are in competition from time to time.

This signalizes again that there is no global construction market where companies compare themselves with the global leader. Since a transnational market is a step beyond the global

market (diversification after standardization), it follows by logic that no construction company competes in transnational markets.

3. Global players in construction

“The buyer generally doesn’t know what he wants when he starts to buy it, no-one can actually be sure that what he requires can be produced, the production capacity to produce it doesn’t exist at the time of commissioning and there are a large number of bodies and official whose job it is to stop you getting what you want... In summary the building industry and its professionals sell a production service, not buildings.” [14] This quote humorously describes the quality of construction goods: At the time of transaction they are complex contract goods that are described through incomplete contracts [15]. Construction companies sell their performance potential on markets and sellers look for indicators that signal just the required potential.

If it is true that construction companies sell their performance potential, another question could be if there is a potential that is demanded by a global market. So the idea would be to look no longer at markets from the supply side but from the demand side. A tentative answer to the question whether there is a global demand for a specific construction potential is yes and this with regard to international mega-projects. This answer grew much more out of interviews with managers of construction mega-projects than from the quantitative data presented below.

In 2000 ENR has published a list of international projects and they claim that this list is rather representative for the market. In total the list comprises 147 projects with an average size of 401 million US dollars (see figure). Even if the ten biggest projects are excluded from the mean, the average project still has a volume of 226 million US dollars.

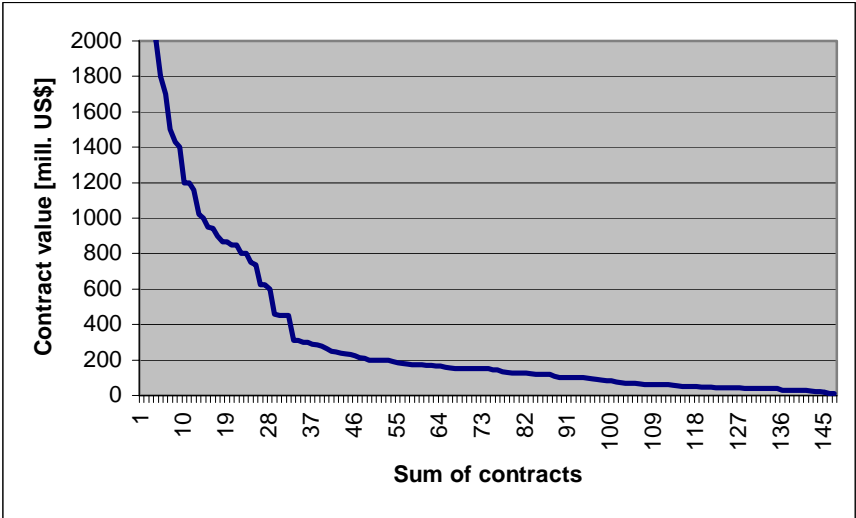


Figure 1. Contract values of typical international construction projects

The conclusion is that a subgroup of international projects as demanded by the clients are on average large scale engineering projects [16]. Not on the list is the multitude of big or midsize projects in the category “buildings” as described above for Hochtief.

Mega-projects still differ from international projects. Miller/Lessard have studied mega-projects around the world and the average contract size in their sample is 985 mill. US dollars. As such they form another special subgroup of all international projects. In addition they require cutting-edge technology. Structures included in the sample are hydroelectric projects, thermal and nuclear power projects, urban transport, roads, tunnels, bridges, tunnels, oil projects, and technology projects. Not included are buildings and manufacturing structures as in table 7. Besides the technology the companies involved in mega-projects need the ability to deal with the extreme complexity of such projects which includes the ability to establish the necessary network around the project in any part of the world.

Now, if the performance potential for mega-projects is different from international projects, there is the question whether we can find evidence of performance specifics. In a study of several infrastructure mega-projects in Thailand (expressway system) and in Taiwan (high speed rail) we found indeed some striking evidence of globalization. There are four indicators of such specifics: The perception of complexity, the goals of the companies, the type of organization, and the use of constructs. The interviews were conducted with managers from the USA, the UK, Germany, the Netherlands, Australia, Japan, Thailand, Taiwan, Korea.

Regardless of the different national and company backgrounds the interviewees described the overwhelming project complexity as the main characteristic of mega-projects. This corresponds with findings in the literature on mega-projects [17], [18], [19].

Regardless of the differences, they described their goals in unison as being mainly to generate a profit and to eliminate all obstacles that endanger this goal. Customer satisfaction is for example not seen as a goal per se but as a stepping stone to profit. Even Japanese managers point out that they will most likely work only once for this mega-project client and then customer satisfaction serves no purpose

Regardless of the findings in literature [20], there are no differences in organization. Decentralization was seen by all managers as the only option to deal with the inherent project complexity. One Korean joint venture set up a hierarchy and found that it did not work. Even a construct such as trust was seen by all interviewees in the same way as a tool to decrease complexity [21].

All these indicators point in the same direction as the archival data: There is a select group of companies engaged in global projects around the world. They standardize across cultures and organizations what they offer on this markets, their potential to execute mega-projects. Such companies are the global players in construction. They are not yet transnational companies since they only start to standardize. Once they have completed this step by making full use of

economies of scale by drawing on global resources, they can from this platform then try to adopt again to their host nations.

Conclusions

- Construction companies follow five out of six different market strategies: regional, national, international, multinational, and global. They do not follow a transnational strategy.
- While the regional and national markets are highly fragmented, there is a small group of companies active as international contractors. 10 companies share almost 50 % of all international revenue.
- As international contractors they still compete against national and sometimes regional competitors on local markets and therefore their market share on any one market – defined by area and project type – is small.
- Only in the competition for mega-projects, construction companies standardize their performance potential that they offer on this market. There is a select group of companies with the ability to manage mega-projects. The routines and constructs used by companies from different countries in mega-projects are surprisingly homogenous.

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