

AC 2010-2429: GLOBALISATION FROM A SMALL COUNTRY PERSPECTIVE

Gabor Bojar, Graphisoft

Gábor Bojár (60) was one of the very few entrepreneurs of Central-Eastern Europe to succeed in global business already in the years of state-socialism. With a degree in physics, obtained at the Eötvös Loránd University in 1973, founded his own software development firm in 1982.

Graphisoft grew rapidly and in a decade became one of the top three software vendors of the sector globally. Claiming the most prestigious awards of the trade, Graphisoft's leading product, ArchiCAD® is used by hundreds of thousands of architects all over the world. Graphisoft had been introduced to the Frankfurt (1998) and the Budapest (2000) stock exchange and was purchased by Nemetscheck Gmbh (Germany) in 2007. Mr Bojár remains Chairman of Graphisoft's board of directors. In 1996, Mr. Bojár founded a real-estate development company to re-cultivate a run down industrial site on the bank of the river Danube and to turn it into a state-of-the art science park, accommodating the research units of corporations including Microsoft, SAP, Apple Servier and others, becoming Budapest's prime revitalization project and the recipient of several awards and recognitions. Mr. Bojár was distinguished by numerous national and international awards for scientific and business excellence, including Szechenyi Prize (1997), Order of Merit (2002) and Ernst & Young's Entrepreneur of the Year in 2006. An invited speaker of several prestigious events (including the Davos World Economic Forum), Mr Bojár is adjunct faculty member of Central European University Business School, offers guest lectures internationally and has published several articles of general interest as well as a book exploring the "Graphisoft story" with an analytic perspective.

Engineering diversity

Globalization from small firms' perspective

Gabor Bojar Founder of Graphisoft and
Aquincum Institute of Technology (<http://ait-budapest.com>)

The beneficiaries of globalization

Globalization in the 20th century appeared to be the exclusive privilege of the largest multinational companies, possessing the marketing and financial power to conquer the world with their products. The 21st century, however, is very different in this context. The Internet became the main avenue of marketing for all companies regardless of size, and the Internet is global by nature. In other words, even the smallest companies will spread the word about their products globally, regardless of whether they want to or not, and we can see more and more small and medium size enterprises (“SME”) appearing on the global marketplace. An interesting, and at a first glance surprising pattern can be observed, however, in terms of the geographic origins of the global SMEs. While most of the global giants have emerged in countries with large domestic markets, most of the global SMEs are coming from relatively small countries. It appears that the limited domestic market hindering the enterprise development in the past may become a unique competitive advantage for SMEs in the 21st century.

The financial benefit of the geographic diversification depends on the proportion of development cost on the one hand, and manufacturing / multiplication and shipment expenses of the actual product on the other. The larger the relative development cost, the greater the economic benefit of selling it all over the world. From this perspective, the software industry seems to be the major beneficiary of globalization, as the physical manufacturing and shipment expenses are negligible compared to the development cost. And as the Internet is reducing the difference between the costs of local vs. global marketing, access to the global market for SMEs seems to be the easiest in the software industry.

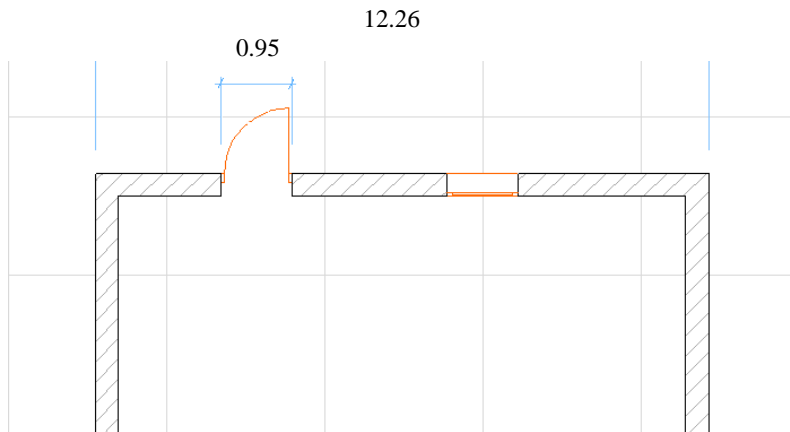
There is an obstacle, however, to selling a software (or any other IT) product on a global scale: The credibility threshold is relatively high. When buying an IT product, the expected compatibility is a critical factor in the decision to purchase, because being isolated from the rest of the world is a real danger. Therefore the more people using a product, the more secure we are if we buy the same. In other words, we prefer to buy from the expected market leader, rather than from those who offer the best. And the two are not necessarily the same. Ironically, a market leader in IT products is probably the worst on the market, because the only possible reason for the others to still be alive, is that they are better than the market leader.

This purchase pattern leads to the establishment of “global standards”, and only the largest companies have the credibility of imposing their own standard worldwide. A small software company may compete successfully with international giants only by better serving special local needs. As a consequence, even if the physical barriers of selling a software product globally are relatively low and it would be possible even for a small company to overcome them, the credibility threshold is high enough to limit the access to the global market to the largest and strongest players, and to motivate the small ones to focus on the specific local needs of their local market.

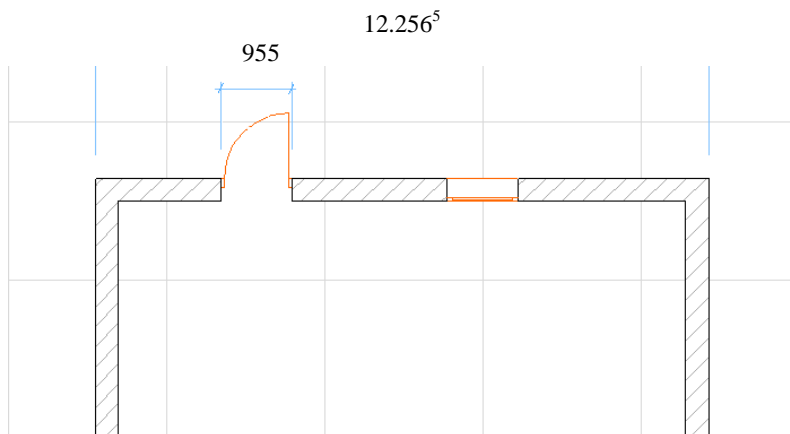
How an SME can be global

The only way for SMEs to become *global* is by becoming *local* everywhere. Rather than “thinking globally and acting locally” (as the large ones do) thinking *and* acting locally everywhere. Rather than trying to establish global standards (i.e. selling essentially the same product everywhere), embracing the cultural diversity of the world and fitting the products to the different cultural environments.

As an illustrative example about country-specific variations of a software product, let's see the floor plan dimensioning feature of Graphisoft's architectural design software, ArchiCAD®. The software was initially sold in Italy and France, where dimensioning floor plans with centimeter precision (i.e. two decimal digits in metric system) was perfectly appropriate:



German architects, however, require more precision in their design, we therefore set the display of dimensions in the first German version of ArchiCAD® to 3 decimal digits, i.e. to millimeters. Our German partners, however, warned that the German “DIN” standard requires floor plans to be dimensioned for half-millimeter precision. We thought the fact that we can display 4 digits if necessary would solve the problem, but this was not accepted either, because it would suggest that the design precision is one tenth of a millimeter, which is not the case, it is “only” half-millimeter. According to the rigorous DIN standard, dimensions should appear either in whole millimeters, or, if the size is closer to a half-millimeter, then a small “5” should appear as superscript. To make things even more complicated, if a size is more than a meter, then it should be displayed in meters with 3 (plus half) decimal digits, but if it less than a meter, it should be displayed in millimeters (plus the half sign if necessary), i.e. without a leading “0.” as it would be expected in a consistent metric system.



And there are dozens of similar nuances in the DIN standard not required anywhere outside of Germany. Large software companies, having the credibility to be or to become the market leader can easily find local partners to create at their own risk the local extensions for their software, because they can be certain to find enough customers for those extensions. A small company, however, cannot hope for this. It will either do it itself or forget the foreign markets with very specific and diversified local requirements. Large country SMEs traditionally choose the latter option, because their domestic markets provide enough growth potential for the foreseeable future.

The challenge of small countries’ SMEs

For software companies started in small markets, on the other hand, it is not an economic option to be confined to their domestic market, even in the early phase of company development. Therefore the relevant skills of intercultural adaptation are more readily available in smaller markets, where the pressures for accommodating diverse needs and demands have always been strong. In order to survive and thrive, entrepreneurs from countries with small markets must learn to adapt to each specific market they enter. Lacking scalable markets in place, they have always been required to develop products adjustable to culturally and geographically diverse demands. This inherent interest in the cultivation of openness and literacy about diverse markets and cultures becomes today a critical competitive advantage for SME from countries with small local markets.

In the age of rapid globalization, however, being confined to any domestic market, regardless of its size, is nonviable any more. Even large country SMEs cannot miss the globalization opportunity in the longer run. Engineering graduates must therefore acquire the skill for intercultural adaptation, because the majority of them will be employed by smaller firms, or else will start their own companies without the power to set global standards. And the most effective way to do this is to go to a study abroad program in a small country with strong engineering traditions.

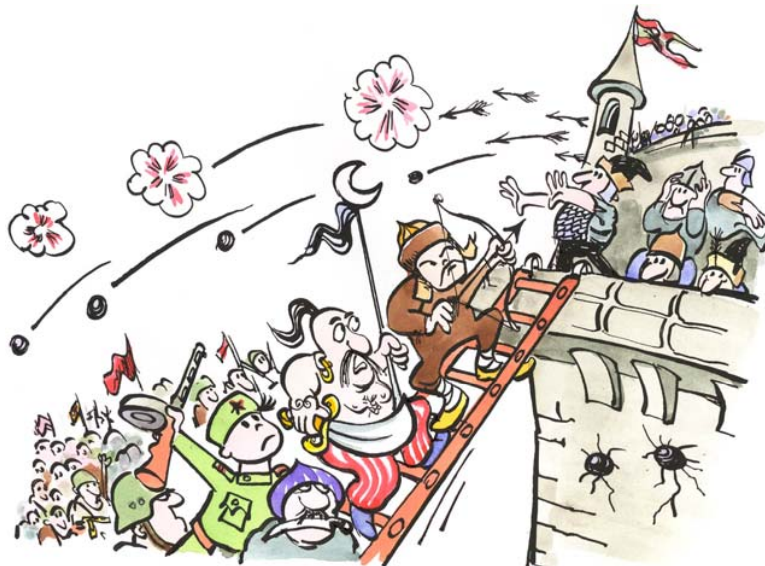
Hungary as the optimal destination for study abroad engineering

Among small countries, Hungary may be considered as the optimal destination for several reasons, originating on one hand from the geographic location of the country and on the other hand from its unfortunate history.

First, Hungary lies at the crossroads of the four major European cultural streams, having profound influences from all of them:



Second, partly relating to the same point, Hungary has been occupied by many different great powers in its stormy history, from Mongolians to Turks, and from Germans to Russians most recently, and Hungarians had to learn their cultures in order to survive.

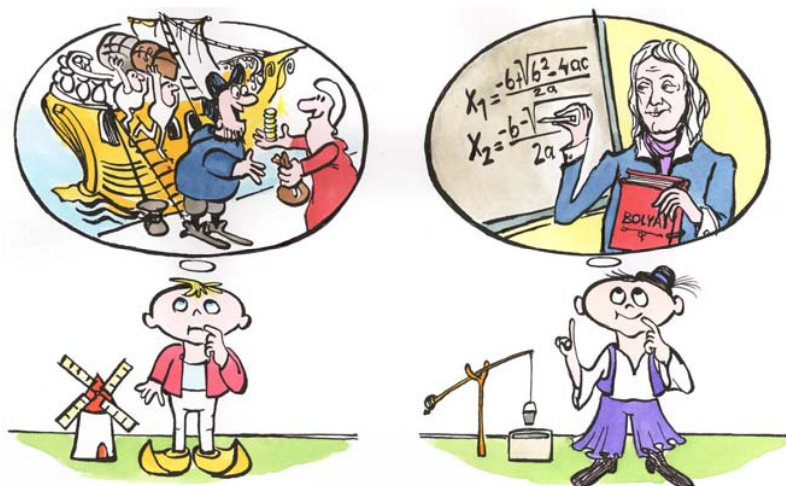


The Turkish occupation, in particular, is connected to another historic trend started about 500 years ago: the growing importance of the seas to economic development. The spread of the Ottoman Empire cut off the trade routes that had previously crossed through Central Europe; this circumstance led to a rapid increase in shipbuilding and, in turn, the discovery of America and the increased importance to the world economy of the Western half of Europe. Hungary, due to its landlocked location was excluded from this development, but this historic and geographic handicap may turn into an advantage today.

A Math- and Science-Friendly Culture

We Hungarians are generally believed to be good at math – most of us believe this as a matter of course. We are proud of Bolyai’s geometry; The famous “Erdos number” of mathematicians; Neumann’s seminal contribution to digital computation; Rubik’s Cube; the chess genius of the Polgár sisters; and the fact that Hungarians lead the world in per-capita Nobel Prizes. We *are* good at math, but why?

I find the answer not in genetic predestination, but rather in cultural roots. It may sound startling, but I believe that Hungary’s mathematical culture is related to the discovery of America, and even to the series of occupations that Hungary has endured. We can assume that the proportion of math geniuses is the same in England and Holland as in Hungary. But while parents in those countries encourage their children to excel in business (for a facility with numbers is indeed important in business), there is little scope for business success in Hungary; what is left is math and science. Foreign occupations of Hungary also are connected with a respect for math, which is obviously a subject independent of the political powers-that-be; a parent wanting his or her child to excel will naturally steer the child toward the math and sciences. In other words, while our commercial and political development was stalled (and this is all too obvious), our math and science development continued unhindered, partly as a substitute.



Aquincum Institute of Technology - Budapest (AIT)

Fostering student creativity has been a hallmark of mathematics and science education in Hungary for centuries; John von Neumann, who developed the principles of stored-program digital computers, Andy Grove, longtime leader of Intel, and Charles Simonyi, father of Microsoft Office, all got their start in the schools of Budapest. Aquincum Institute of Technology (www.ait-budapest.com), following these traditions, provides unique study abroad experience for US undergraduates majoring in engineering, computer science and related disciplines. AIT brings together globally-acclaimed scholars, entrepreneurs and designers to provide an academic program based on small and interactive classes, close collaboration of students and faculty, and hands-on work through group projects.

The main areas covered in AIT’s program are IT entrepreneurship, design, software ergonomics and mathematical foundations. AIT also offers a hands-on introduction to cutting edge uses of information technology in research (computational biology) and industry (architectural design, navigation, film and media, and others). These are the areas in which achievements of Hungarian researchers and entrepreneurs have been the most remarkable.

AIT's distinguished faculty includes Erno Rubik, inventor of Rubik's Cube; and many representatives of the Hungarian software industry. The program is supported by lecturers like network theorist Albert-László Barabasi; Charles Simonyi, inventor of WYSISWYG; and Wolf Prize recipient mathematician László Lovász.

AIT's Advisory Council provides continuing collaborative advice and makes suggestions about the curriculum and related aspects of the Program with respect to American students. The Founding Members of the Advisory Council includes representatives of Harvard University, Harvey Mudd College, Northeastern University, Olin College of Engineering, Princeton University, Rensselaer Polytechnic Institute, Smith College, Swarthmore College and Williams College.

Budapest and AIT campus

Budapest, Hungary's historic capital is a vibrant European metropolis. Traversed by the famed River Danube and featuring several world heritage sites and architectural treasures, Budapest offers a great opportunity to get acquainted with the traditions of a cosmopolitan center known for its innovative and creative spirit.



The AIT campus is located on the banks of a picturesque bend of the Danube, in a state-of-the-art industrial science park hosting the Hungarian headquarters of Microsoft, Apple, SAP, Servier, AMRI, Canon, Graphisoft, Thales Nano and many other high-tech R&D firms from the IT and pharmaceutical industries.



AIT opened its doors on June, 2010.