

KNOWLEDGE MANAGEMENT AS AN IMPORTANT PART OF STRATEGIC MANAGEMENT

Ivo Formánek, Prof.

ivo.formanek@vsp.cz

Ostrava Business School, Czech Republic

Abstract

It can be relatively easy to prove that one of the most important resources of the company is knowledge of employees. The way how we create, store and share the knowledge frequently determines the company's success or failure in the market. This study presents some of our practical experience we gained at global projects of technology transfer we participated in. The projects are very good examples how to find appropriate region and manage effectively and efficiently enough transfer of knowledge and skills of senior engineers and managers.

Key words: technology transfer, knowledge management, strategic management, high-cost countries, low-cost countries, low-cost country sourcing.

Introduction

An interesting phenomenon of the current global economy is a transfer of research, development, engineering and manufacturing capacities and technologies from high-cost countries⁶ (HCC) to low-cost countries⁷ (LCC). While “hardware” technology transfer can be quite well described and controlled (e.g. Speser 2006; Keřkovský 2006), in case of transfer of knowledge and skills (e.g. Leonard et al. 2014; Petřiková 2010) the situation is completely different. For this reason knowledge transfer is usually the most demanding and the most critical part of all technology transfer projects.

⁶ Countries like USA, UK, Canada, Australia, and West European countries with high costs of living, expensive labour forces, expensive facilities and infrastructure etc.

⁷ Countries like China, India, Indonesia, Bolivia, Brazil, Russia, Mexico, and East European countries with low costs of living, cheap labour forces, cheap or cheaper facilities and infrastructure etc.

From the perspective of LCC, the transfer brings new opportunities and new challenges. Low-cost country sourcing (LCCS) means a strategic process or processes when companies from HCC are sourcing in LCC where labour, material, manufacturing, and operating costs are significantly lower than the same in HCC. Apart from the low costs, the LCC or their regions (suitable for LCCS) should also offer transparent and stable political and economic environment, good infrastructure, acceptable legal system and enough amounts of available well-educated and skilled human resources. As an example of these countries or regions ideal for LCCS is the Czech Republic, especially its Moravian-Silesian Region (MS Region) with its advantageous geographical position.

The MS Region, like the whole Czech Republic, is characterized by advantageous geographical position in the middle of Europe. From the economic point of view, the MS Region has currently been facing modernization and reconstruction of its heavy and coal mining industry. This modernization and reconstruction also releases a large amount of cheap labour sources of good quality which is good for LCCS.

The paper offers some practical experience we gained by the building up of low-cost engineering capacities in the MS Region for customers in Germany, Switzerland, Sweden, etc. Transfer of knowledge and skills was the most important part of the strategic project.

1. The LCEC project in the MS Region

As mentioned above, there can be a lot of reasons for LCCS: lower material costs, lower labour costs, lower operating costs, pressure from customers, shorter distance to final customer's markets, etc. Also types of industries may be different: automotive, chemicals, food & beverages, transportation/logistics, IT, electronics, etc. It means there cannot be the only one best solution for everybody.

The project of LCCS we are speaking about is focused on electrical and process automation engineering activities. The project outcome is efficient and effective low-cost engineering centre (LCEC) well integrated into global engineering environment of a global company. The project makes good use of MS Region's opportunities and was implemented in the city of Ostrava. The project is successful and long-term sustainable. Due to a limited scope of the contribution, we will concentrate just only on the three following steps to the project's success: proper region selection, right integration of the LCEC into global engineering environment and well-designed remote engineering concept.

Region selection

It is quite logical that the first key step to success of LCCS is the right area selection. This step should be well thought out and well discussed. In case of the LCEC we made a lot of analyses which takes more than one year. There were following factors in favour of the LCEC in the MS Region:

- advantageous geographical location of the Czech Republic;
- Czech Republic is a member of North Atlantic Treaty Organization (NATO);
- Czech Republic is a member of the European Union (EU);

- Czech Republic is a member of the Schengen Area;
- the average salaries of project engineers in the MS region are about 20% lower than the salaries of the same project engineers in Prague (the capital of the Czech Republic);
- rents and services are approximately 10% lower than in Prague;
- good accessibility of Ostrava by air, by train, and by car;
- high unemployment in the MS Region (from a long-term point of view somewhere between 12 to 14%) and consequently good availability of skilled labour;
- sufficient background of universities of technology and computer science type with approximately 35 000 students every year.

Except for the points above, there were tens of other facts that had to be considered properly. For example, good availability of labour forces was evaluated with perspective of 10 years. The LCEC headcount evolution is presented in Table 1. We can see there that the biggest headcount grow were 5 or 7 years after the beginning of the LCEC existence. So, it's a good example why the right region selection is so important for LCCS. The same goes for the planning of other operating costs.

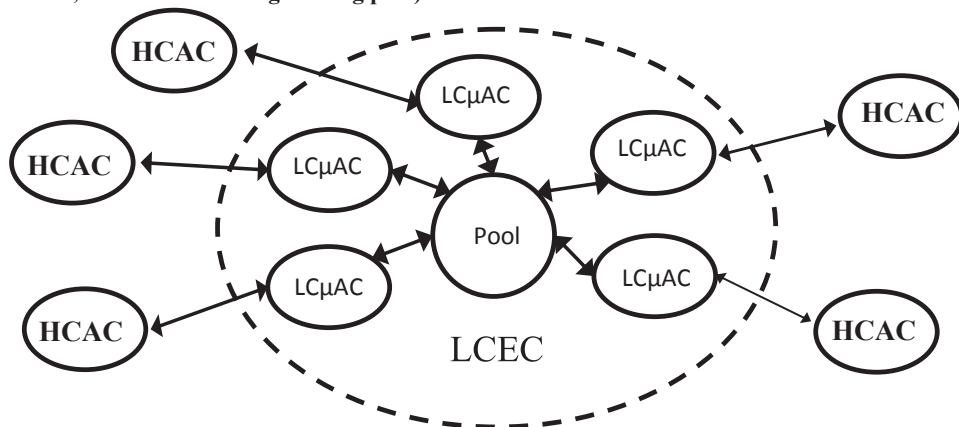
2. Integration of the LCEC into global engineering environment

The basic principle of the successful integration of the LCEC into global engineering environment is simply illustrated by communication model in Figure 1. The basic parts of this integrated engineering environment are high-cost application centres (HCAC) and LCECs. In LCECs, the following sub-units can be also recognized: low-cost micro application centres (LC μ AC) and engineering pool (Pool). The LC μ ACs keep know-how of the HCACs and serves as an interface between HCAC and LCEC, resp. Pool.

Table 1. The LCEC headcount evolution from 2001 to 2013

#	date	[heads]	#	date	[heads]
1	January 2001	1	8	December 2007	cca 110
2	December 2001	5	9	December 2008	cca 110
3	December 2002	5	10	December 2009	cca 119
4	December 2003	9	11	December 2010	cca 127
5	December 2004	21	12	December 2011	cca 150
6	December 2005	51	13	December 2012	cca 180
7	December 2006	100	14	December 2013	cca 200

Figure 1. Integration of LCEC into global engineering resources. (HCAC – high-cost application centre, LCEC – low-cost engineering centre, LCμAC – low-cost micro application centre, Pool – low-cost engineering pool)



Source: own elaboration.

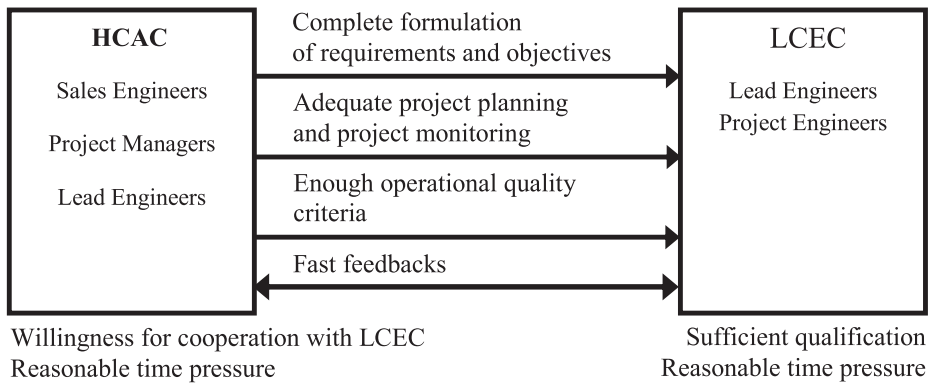
The LCEC remote engineering concept

Proper and effective function of the LCEC is conditioned by the right concept of remote engineering. The basic principle of this concept is illustrated in Figure 2. We can see there that the HCAC keeps just only the following roles: Sales Engineers, Project Managers and Lead Engineers; and the LCEC keeps only: Lead Engineers and Project Engineers. As a key part of this concept is also communication of very good quality.

3. The LCCS impact on the MS Region

Global and multicultural environment of multinational companies puts on the workers significantly higher demands than local companies. If the regions in LCCs want to take advantage of globalization and technology transfer, they must be able to offer well-educated and skilled enough labour forces at reasonable and acceptable cost. This is also the reason why the regions in LCCs must improve systems of education with special emphasis on quality. The LCEC project clearly proved that HCC are short of technically oriented (i.e. good in computer science, and in electrical and mechanical engineering) and flexible enough (i.e. ready for long-term travelling) engineers. And it's the real challenge for the regions in LCCs.

Figure 2. Pre-conditions of successful remote engineering concept. (HCAC – high-cost application center, LCEC – low-cost engineering center)



As far as the MS Region is concerned, there are many things that should be improved. But the most important area for the improvement is the Region's educational system (Zamarský, Formánek 2011). Let's mention the following issues as an example:

- the MS Region authorities should popularize the technical education because too many young people prefer humanistic studies today;
- current structure of the MS Region's education system is not convenient for the global companies;
- special emphasis should be laid on the improvements of MS Region's vocational education system;
- language skills of the MS Region's inhabitants are not good. Language education should be improved at all types of schools.

Conclusions

This study presented a couple of aspects of the project we participated from 2001 to 2009 and from 2010 to 2012. Especially it presented a good example of knowledge transfer. Basically we can say that it is possible to transfer any knowledge to everywhere - even to another continent. But the transfer effectiveness and efficiency is a big challenge, and willingness for cooperation and know-how transfer are the most factors in this process. There must also be the proper pressure, proper resolution and full understanding of the people needs and their feelings. Therefore the project which is presented here may be regarded as a very good example for everybody who is interested in practical experience with the technology transfer.

References

1. Butler, J., Gibson, D. (2011), Global perspectives on technology transfer and commercialization: building innovative ecosystems, Edward Elgar, Cheltenham, UK, Northampton, MA.
2. Keřkovský, M., Vykypěl, O. (2006), Strategické řízení, C.H.Beck, Praha.
3. Leonard, D., Swap, W., Barton, G. (2014), Critical knowledge transfer: tools for managing your company's deep smarts, Harvard Business Review Press, USA.
4. Petřiková, R. et al. (2010), Moderní management znalostí, Professional Publishing, Praha.
5. Speser, P. (2006), The art & science of technology transfer, John Wiley & Sons, New Jersey.
6. Zamarský, V., Formánek, I. (2011), Moravskoslezský kraj - nejvyšší čas pro inovace, Journal Kvalita pro život, Vol. 1.
7. Zamarský, V., Formánek, I. (2011), Moravskoslezský kraj - nejvyšší čas pro změny, Association of Innovative Entrepreneurship, Ostrava.