

# On Software Development Export from Lithuania

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**Abstract.** In this communication we address software development export (SWDE) from Lithuanian IT companies. Step by step, they acknowledge the increasing role of export in their business development. The paper aims to boost a discussion about export in the recent years and future. From the analysis perspective, we aim to identify the key factors of SWDE.

## 1 Introduction

It's time to discuss software development export (SWDE) from Lithuania. Borzovs et al. in 1999 [1] analyse SWDE from the Baltic States with emphasis on a sister country Latvia. Detailed estimations are presented in [2]. It's time to evaluate the forecasts that have been made several years ago. In our communication we aim to identify the problems and to boost a discussion. Each remark in the communication may be a topic for the discussion.

Export is primarily a business activity. Thus a managerial approach is applied to develop a business plan for a software exporter. However, in the communication, we aim to apply an analytic approach. Our goal is to identify key factors, which currently influence SWDE from Lithuania. We aim at the conceptual model of SWDE. The readers are supposed to be involved in business development in software branch.

## 2 The Context of Export

Potential software development exporters in Lithuania (population 3.5 million) are small and medium-sized enterprises. Since the restoration of independence in 1990, the conditions in Lithuania have changed; for SWDE too. Export geography turns from the former USSR to the West. The effects of global economy are taken into account. Globalization imposes new requirements on software services export.

There is no cookbook for SWDE. General guidelines of exporting include such activities as the identification of a product and market. General rules can be comprised by export guides. However, each enterprise is characterized by unique

skills, positioning, export market view, marketing plan, and other factors. Thus each company acts according to its own heuristics. The export development plan is company-specific.

When discussing the need of a common Nordic and Baltic market, a feasible assumption is that the Baltic countries have more differences than commonalities. Therefore it makes sense to analyse SWDE with respect to specific features of each Baltic State.

## 2.1 Experience in the Past

In Soviet times, traditional SWDE market from Lithuania was the USSR. This was in accordance with the research and development policy of the USSR. The export volume from Lithuania was significant. This market began to transform in 1990s. The detailed analysis of the transform extends beyond the scope of this communication. The shrinking of Lithuanian export to New Independent States is worth to mention. Lithuanian producers started to face global competitors. One of the reasons of SWDE shrink is that the main export product was programming services. In the global market of software, programming services form only a part.

But the good news associated with the globalization is the emergence of potential markets world wide. However, the benefits and winners are multi-parametric. For example, brain draining to the West has to be taken into account.

## 2.2 Programming Services as a Product for Export

Programming services are treated currently as a primary product to offer by Lithuanian companies in the foreign market. Lithuania is not unique in this sense. Offshore development is also offered by all the Baltic States, NIS, India, Pakistan, and other countries.

Transforming of programming services into a software product requires much effort. Few companies succeed.

## 3 Managing SWDE

The export of programming services to the West requires new management skills. The offshore development in the Baltic States constitutes a traditional scheme. A question is “Why the Baltic States should be preferred to India or Central Europe”?

In order to execute a sub-contracted project software companies have to consider the factors including:

- trust,
- project management,
- quality assurance.

Switching the export markets from the East to West, requires the new ways of communication. Cultural differences are worth to mention. New languages have to be used to represent the agreements above. Team members have to use the same concepts in their communication. The Internet is vital.

Quality certification contributes to all the factors above. ISO 9001 certification dominates currently in Lithuania. However ISO 9001 is a too general standard. Some later standards may contribute to the quality even more seriously than ISO 9000-3, which is oriented to the software process. It is worth to aim at the assessment according to software standards, e.g.:

- Capability Maturity Model (CMM),
- ISO 15504 Software Process Improvement Capability dEtermination, SPICE.

## 4 Labour Cost

The labour cost of IT professionals in the Baltic States is lower than in the EU countries. However, not so much lower that to treat it cheap. Therefore in the future, the essential SWDE factors will be determined by capabilities, not the cost difference. The positioning of software exporters will be an emerging factor.

Highly skilled IT labour is in great demand in Lithuania and also in the whole world. Therefore it sounds paradoxically to speak about export under the labour shortage. However this is a paradox only from the first glance. The export model is multi-parametric. Labour is characterized by one set of parameters whereas export necessity — by another one, almost orthogonal. Labour education for future needs has to be considered seriously. IT projects in Lithuania are jeopardized by the shortage of skilled labour. The high cost and the shortage are related factors.

## 5 Software Industry and Education

The following entities are included in a very simple model of exporting:

- companies,
- universities,
- the state (government).

Their relations are well known. Software exporters are primarily companies. They need skilled labour force. The labour is educated by universities. The companies pay state taxes. The government issues regulations for the companies to pay taxes and for universities to use taxpayers money for education.

The contradictions between the short-term and long-term goals of the above listed entities are worth to mention.

A question about IT education at the universities is “Who do we educate: cannon fodder for programming or software branch leaders of the future”? The maturity of university departments may be evaluated by their understanding of values and their role in the society.

SWDE practice requires both software development and management skills. Project management is included in computer science curricula within certain courses, e.g., software engineering. The in-depth understanding of the project management is not easy for students. The reason is that management is about different concepts than programming. In relations between the universities and software industry in Lithuania, we would like to mention the following circumstances:

- Local capital companies are not rich enough to pay the universities a substantial part of labour education costs. Profit is the companies' primary aim.
- Foreign capital companies are not active yet in investing substantially in the universities. However they are active in attracting the graduates.
- The burden of education is loaded on university teachers as individuals.

Some items of the education burden are too difficult to carry for the universities and teachers. Therefore the load is partially being moved to the companies. Some activities are combined. For example, students work in the companies and are mentored this way. Alternatively, company staff members instruct in the universities.

## 6 Conclusions

SWDE is conditioned by the contradictory factors. In order to succeed, the players should pursue a win-win game. This requires investments that are multi-parametric. The return of investment is multi-parametric, too.

## References

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