

# Best practice for SMEs – Prominent experiences for the future

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**Abstract** The support of SMEs has been recognised as one of the most difficult and demanding actions within the OMI area of the 4 Framework Programme. To provide this support reasonably and effectively in view of research and development activities with the objective to increase the SMEs' global competitiveness and market shares, three User Support Networks (USNs) were defined and put in operation. As one of the USNs, the PrOMInent consortium has gained experience on SMEs needs and the problems they met during the proposal process. In this paper the focus will be on the experiences made of the companies proposing OMI demonstrators and improvements to be considered in order to meet the goal of improved SME support in the 5<sup>th</sup> framework programme.

## 1. Introduction

The Open Microprocessor Initiative (OMI) domain of ESPRIT supported three user support network projects in 1996 and 1997. These aimed at promoting and assisting the creation of best practice within OMI through a special dedicated demonstrator task in the OMI work programme [1]. In particular, the demonstrator projects aimed at involving SMEs into demonstrating the applicability of open systems technologies and OMI technologies in embedded systems. This paper will discuss the implementation of the successful SME support within OMI and try to address the positive effects on the companies proposing projects that did not make it through the evaluation.

The three User Support Networks (USN) consisted of individual nodes each covering a confined geographical region. These nodes provided firstly a free technical assessment of the systems developed by the SME, and if the company was ready to apply for an OMI demonstrator, the USN guided and assisted the preparation of a project proposal. Usually it took about 6 months of preliminary discussions before the company decided to seek OMI support for their developments.

About 1 of 5 submitted demonstrator proposals were accepted for funding allowing the companies to execute a larger project than national support mechanisms could allow and in an international context. The companies will present their experiences from these projects themselves as part of their result dissemination process. In the following this paper will try to analyse the emotions, strategies, and experiences of the companies behind the rejected project proposals.

The presentation is based on the Scandinavian and Austrian proposals since the interest was largest in these regions due to well known local support nodes and, predominantly for Scandinavia, available national funding which mitigated the SMEs' risk. Generally even the proposal preparation was useful for the companies. Through this work the company went from an unstructured technological possibility to a well-structured project programme. Being central to the core strategy of the company, the programme will in many cases be crucial for their future product range and competitiveness, either for attracting venture capital, loans or when addressing other public funding possibilities. The purpose of this paper is to return to the submitted projects and summarise the local nodes' and the companies' own experiences from the OMI exercise and their future plans for their projects.

It is our opinion that through the application process all companies, both funded and rejected, were given valuable help in analysing their market situation and a better structure for the development project to target their users needs.

## **2. The local node approach**

All the SMEs submitting proposals used the local nodes for guidance and support on how to write a successful proposal. The local node's advantage was the knowledge of the EC project proposal process as well as technical expertise. Through the nodes the SMEs could get help in identifying the best possible solution to their problems.

The focus of the PrOMInent project was on raising local awareness and promoting the support possibilities offered by OMI through small demonstrator projects. This included

- Selection and visits to local SMEs
- Producing and distributing information material tailored to SMEs in the target area
- Arranging information days
- Articles in local relevant journals
- Extensive use of local and national support organisations as multipliers providing information on the OMI possibilities on PrOMInent's behalf.

To establish a dialog with SMEs, the nodes needed to be proactive. Seldom did the SMEs have time to read through distributed written information and those who did rarely respond. Information days that accommodated time for individual discussions between the SME and representatives of the OMI node were proven to be successful as a first step. An iterative process followed, stretching over months before the project idea was materialised into a demonstrator task proposal. As a result of this process, a structured project plan was developed, which was the major benefit to SMEs.

Even with the extensive support from the local USN node, preparing an ESPRIT proposal took significant investments on behalf of the company. Some countries, like in Scandinavia, had national seed funding available covering most of the cost of writing a proposal, thus minimising the risk for the SME. In most other areas of Europe no such additional support existed, and the companies had to take all investments and risks themselves. This fact is reflected in the number of proposals submitted from the different regions of Europe.

An open attitude from the Commission, recognising the difficult task delegated to the nodes, was highly appreciated. Without this support the nodes would have been unable to assist the SMEs up to the point of submitting a proposal. The nodes also appreciated the genuine good will by the Commission in advising and assisting the inclusion of SMEs into the framework program.

### **3. SME's experiences with OMI Demonstrator Projects**

#### *3.1 SMEs' Benefits of European Collaboration*

Small and medium sized companies often operate locally and seldom collaborate with anyone geographically distant. This isolation limits the contact with possible European partners and leaves few collaboration opportunities to be found. There may be language barriers and a preference to co-operate with partners with whom they can communicate easily. The involvement by the SMEs in external collaborations is very much limited by travel costs and distance. Often their embedded systems are applications aimed at local markets with its local needs, thus with solutions developed locally using whatever competence is available. This isolationist tendency has been recognised for SMEs in general.

Preparing a proposal for a demonstrator project resulted in increased knowledge, which may not have been gained otherwise. SMEs have little knowledge on how to manoeuvre in the information flow coming from the European RTD-programs. They lack the vocabulary and have little or no experience working with European project proposals. All this can make companies reluctant to participate in European collaborations, an attitude that over time may erode their technical basis and, on a larger scale, their competitiveness. Through the proposal process, all the proposers gained familiarity with the proposal process. If some of the companies decide to apply for European funding at a later stage they can use the knowledge they gained from this process.

Through participation in European projects, the SMEs will broaden their horizons and communicate with both companies and research institutions all across Europe. In this manner they can learn new ways of thinking and obtain innovative approaches to old problems and, at the same time, they will gain the experience of using English as a working language. This skill can give the company a competitive advantage in the long run.

#### *3.2 Proposal structure*

Comparing the funded and rejected proposals, it is interesting to note that all the accepted proposals seem to have a broad impact on society, with a clear benefit for the final user and with industrial relevance.

- Two of the accepted projects produce equipment for disabled persons.
- One project is developing a power measurement system for rotating shafts, which in turn may save fuel and reduce CO<sub>2</sub> emissions.
- One company will develop an advanced programmable controller for use in a control system. The old system was designed 15 years ago and has been reliable. There is however demand for greater flexibility, which will be obtained by the use of microprocessors. This is a perfect "best practice" project, where the company has no internal competence in software development but will maintain and further enhance the system in the end. It is a common situation for SMEs to buy development expertise and then take over competence in one missing aspect of a product. The project is a good example for other companies in similar situations.
- Another accepted project will develop an embedded fingerprint recognition processor system and demonstrate its potential by interfacing it with stand-alone security systems like electronic safes and point-of-sales terminals.
- The last successful 5.16 project is a new generation of energy metering devices that will help reduce energy consumption. By reducing consumption of non-renewable resources, it will have a positive effect on the environment. What should also be

mentioned is that the proposal expressed the company's will to exploit results from previous OMI projects through an already initiated co-operation with an ARM controller licensee.

Most of the SMEs thought the proposal structure was too large and complex. They did not have much experience in writing proposals, especially in another language. Second, the dimension and size of the proposal was larger than expected which forced the SMEs to allocate more resources than planned to the project. However, they all said that they learned much from the process and that the planned product development was speeded up.

### *3.3 Project planning*

It was not normal practise for SMEs to plan their projects in the manner required for a European funded project. Therefore the SMEs did not know how to make detailed project plans nor have much experience in following up large projects with many subcontractors. Some of the SMEs already had contact with possible partners and subcontractors, but many of them also used the local nodes for partner search and project planning. For many of them, new technology entailed a decisive competitive advantage. However, the human and financial investment needed in order to acquire this technology was such that the SMEs were forced to co-operate with research bodies and one another. The local nodes had contact with national and international industry and research institutions, therefore they were able to find project partners and subcontractors for the SMEs. At the same time, the local nodes had experience with European projects and were able to guide the companies through the project proposal process.

For the proposals rejected, the result of the process was a finished proposal and a project plan that could be used even though they not received financial support from the Commission. Today, these companies have a defined and thoroughly prepared basis for developing their products and many of the companies are planning to use at least parts of the project plan in the future. They have spent time and resources on their plans and feel that although it is good, it will be necessary to revise and adapt some of the plan according to their clarified situation without external funding.

### *3.4 Exploitation plan*

Persons with technical background direct most of the SMEs, and technological issues are therefore important even for the management. There are few employees with administrative competence and management normally has little competence in developing good marketing plans and strategies. Often they start the company because there is a need in the market for a special product. They know the technology they are going to use, but they do not have in-depth knowledge on the market they are entering.

Another issue observed by the nodes is that there is often a certain fear among SMEs of the obligation to hand out sensitive information through the project application process in connection with international co-operation. SMEs need support and advice from trusted co-operation partners to alleviate these concerns. The nodes were positioned locally as a vital resource for the companies and the SMEs used them as consulting partners. The nodes were close enough for the SMEs to visit, competent enough to understand their problems, and provided guidance in the most cost-efficient solution.

### *3.5 Knowledge of the market and industrialisation*

The SMEs had little information on their potential markets, national or international. There was no in depth market analysis and they did not know their markets possibilities and

problems. This meant that the market potential was unknown, they did not know how to reach the customers or who the competitors were, nor did they have any numbers to illuminate their market situation. Through the proposal the companies were forced to analyse their market situation and, in this way, broaden their horizons seeing new possibilities and markets. Often the local nodes helped the companies with their market studies, many of which are being used today in their planning.

The products' road to market was unclear for most of the companies. There was often a long process for companies to find a strategy to get their product to the market. This was a useful process that never would have happened if not for the complex proposal.

### *3.6 Technology use*

Many SMEs have tried to adopt standard solutions to minimise cost and risk. By using microcontrollers and FPGAs within their systems, they have realised that the only way to stay competitive in the long term is through continued innovation and product development.

In the proposal process most of the SMEs had a clear idea of the technology they wanted to use in their project. There were high quality personnel working with the project possibilities but, as a problem with SMEs, they did not have time to be updated on state-of-the-art technology. Therefore they used the local nodes as consultants on technical choices and possibilities when it came to embedded system construction. The local nodes had the necessary competence and gave the SMEs access to their technical expertise and assistance in making the correct technological choices for their next generation products.

Even if the companies did not get funding, they felt their concept and technological development was just as crucial for their products as the ones that got funding. For each company the technology is necessary for their product to survive. Because they still feel the need for the technologies they planned to develop, most of the companies have decided to carry out at least part of their projects. The size of the projects will depend however on the amount of the funding they can attract.

### *3.7 Evaluation, Selection and Funding*

For the companies with accepted proposals the European funding had a considerable effect. It made it possible for them to start projects they otherwise could not have started. The funding was also higher than the funding most national support mechanisms are able to give. Six of the twenty-four proposals developed through the PrOMInent network were accepted for funding: four of them Norwegian, one Swedish and one Austrian. All these proposals initiated through the PrOMInent network were prepared with assistance from the local nodes.

It was hoped that approximately half of the companies advised by the local nodes to apply would have received funding. Tempted by the funding possibilities, the SMEs put their trust in their local node hoping that its guidance and expertise in proposal technicalities would see them through the evaluation process. However, neither the nodes nor the Commission could foresee that budget constraints would reduce the acceptance rate to an unsatisfactory level when starting their operation. This caused the nodes to be overly optimistic when presenting the funding possibilities to the SMEs, which in turn got disappointed realising that the majority of the submitted proposals could not be funded.

One of the reasons for the moderate acceptance rate might be that the companies and nodes misinterpreted the guidelines and had a limited understanding of the evaluation process. One of the companies submitting a proposal applied twice with the same project. The first time the project was almost accepted. Therefore it was decided to apply a second

time and rewrite the proposal to try to improve on the aspects of the proposal receiving the lowest marks. The proposal was rewritten according to the comments made in the evaluation report and hence presumably improved. In the last evaluation the proposal received a lower overall assessment than the first time, and chapters with a high assessment the first time got a low assessment the second. This randomness can be expected as the evaluators differ from one evaluation to another, thus putting their personal judgement differently. However, seen from the company's point of view this was frustrating. The guidelines should be precise to avoid ambiguities in order to achieve a higher predictability of the outcome of the evaluation process. This is an important observation from the first phase of user support activities within OMI, and should be properly accommodated when designing the SME supporting mechanisms in the forthcoming framework programme.

The local node's assistance to the companies was an interactive process that, together with the proposal evaluation, took several months. The long lead-time caused problems for many of the SMEs and resulted, in many cases, in several months' delay in the development of needed products. This situation is difficult, especially for small companies. As one of the managers said "We are going to develop the product anyway, but because of the long process from start to finish of the proposal it will be finished at least 6 months later than planned". For another company this was decisive to an important contract in Japan. The companies could have tried to get financing other places or could have run equivalent projects in the period, but none did. They all hoped for the process to be short and to get help from the nodes; none of them knew the dimensions of the proposals.

In Scandinavia all the companies received national financial support for the development of their proposals. This enabled the companies to pay the local node for consultation in the project proposal process, which in turn probably increased their chances of funding from the Commission. Without this funding it would have been difficult for the SMEs to allocate necessary time and resources to finish the proposals and the local node could not have given them much support. The SMEs' own contribution was the internal time they used in the application process. Today, the Norwegian Research Council (NFR) has received applications from all the companies that did not receive funding from the Commission. Unfortunately the NFR budget has also been reduced lately and the prospect for getting funding from them within a reasonable time is low.

#### **4. Conclusions**

Six of the twenty-four companies that applied OMI demonstrators were accepted for funding and were able to start their projects in an international context. For these companies the funding was higher than the companies could have expected to receive from the national support mechanisms. Even though the proposal process was larger and longer than the companies expected, the process had a positive impact on the companies and their project plans. This was true even for the companies that did not receive funding. They all were able to structure their projects and to develop project plans. Since the SMEs generally were operating locally, the concept of European projects forced them to broaden their contact network and use collaboration partners in other European countries. This will give the SMEs experience in how companies work in other countries, how well-known problems are approached in other countries and how to use English as working language. Through the proposal process, the companies also obtained knowledge on the operation of the European Union's research programmes and the proposal process. These are invaluable competencies for the future.

It was crucial for the SMEs to use the local nodes for guidance and support to write a proposal since the nodes knew the proposal structure and process. The companies involved

in demonstrator proposals had never planned their projects in such detail as required, and had no experience on how to make detailed project plans including market surveys and exploitation plans. Many of the companies had to write the proposals in a foreign language, a new barrier to break. The SMEs generally thought the proposal structure was too large and complex. They were uncertain of their abilities to fulfil the demands for a successful proposal. Therefore they used the nodes as consulting partners. The nodes had the necessary knowledge of European projects and complex proposals. Even if the proposal structure was complex, the companies involved in the proposal process all learned how to plan a project. If the companies would like to take part in the 5<sup>th</sup> Framework Programme they now have the necessary knowledge to do so. The companies also gained knowledge of their market and their products' road to this large and important market. Normally SMEs are most concerned about the technological solutions, but the demands of the proposal forced them to find a strategy for getting their product to the market and to analyse their competitors. This strategic knowledge can give the companies a competitive advantage in the longer run.

#### *4.1 Recommendations*

- The open attitude from the Commission in understanding the nodes difficult task on helping the SMEs and the Commissions good-will in advising and assisting the SMEs of the framework program was important for all the proposals and project plans that came out of the process. It is prerequisite for the companies' success in getting funding that the Commission continues the open dialogue with the companies and their partners in the proposal process.
- It is necessary to shorten the time span from idea to project, which includes the size of the proposal and the evaluation time. At the same time it is important that there is local guidance available that understands the process and has all the necessary information for writing a successful proposal.
- Another general recommendation is to simplify the entire application and proposal preparation process. Companies find the effort and cost for preparing good proposals too high compared to the anticipated proposal outcome. This is why SMEs are hard to convince that engagement in European RTD does pay off. Because companies today find the proposal process costs "prohibitively high" there should be simplifications in the process and the risk must be minimised by national economic support, or an efficient exploratory awards mechanism at the European level.
- Experience shows that evaluation criterion and other important pre-conditions relevant to companies in the process of proposal preparation are dynamic. There is no easy way especially for SMEs to obtain this information. Therefore it is important to strengthen the flow of information among the Commission, local guides and companies to make it flexible and easily accessible.

#### **References**

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