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Creating a successful technology spin-off



From research to business: the emmtrix story

Can successful companies arise out of European projects? The example of emmtrix Technologies would suggest so. Here, emmtrix founders Timo Stripf, Frederik Riar and Professor Juergen Becker explain how it started and provide first-hand insights into founding a tech company.



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How it all began

The emmtrix spin-off is a product of excellent-rated research in the EU project ALMA (ALgorithm parallelization for Multicore Architectures), which set out to solve the programmability problems of embedded multicore systems. ‘Computer architecture is becoming increasingly complex, meaning that systems need to be programmed by experts. ALMA developed technology to program embedded multicores based on the well-established, widely used Scilab (www.scilab.org) and MATLAB (<http://bit.ly/mathworks-MATLAB>) languages. By supporting these languages, we enable seamless integration of our parallelization product emmtrix Parallel Studio (ePS) into existing workflow processes and at the same time reduce the risks and costs involved in implementing new programming environments,’ explains Timo Stripf.

The technology developed during ALMA was successfully demonstrated on several test cases, including ones in the telecommunication domain and image processing for Fraunhofer, an application-based research organization. ‘Our test cases show that we can automatically parallelize applications for different multicore architectures,’ says Timo. ‘In addition, our tool chain takes out the complexity of programming, saves critical development time and reduces costs of parallel software development by over 50%,’ he adds.



The idea of founding a company came up during the project. On the way back from a highly successful project review in Brussels, Professor Juergen Becker, head of the Institute for Information Processing Technologies at the Karlsruhe Institute of Technology (KIT) and ALMA project coordinator asked Timo: ‘What do you think about creating a spin-off based on ALMA technology?’ At first they thought of it as a bit of a joke; however, following further discussion, they realized that there was a real market need for this technology in Europe and potentially worldwide.

After receiving his PhD, supervised by Professor Juergen Becker, Timo assembled a team consisting of himself, computer scientist Michael Rueckauer, electrical engineer Oliver Oey and economist Frederik Riar from the prestigious business school WHU-Otto Beisheim School of Management, who brought in the business perspective. The spin-off emmtrix (short for embedded matrix) was born. The newly formed team managed to acquire significant and highly competitive ‘EXIST-Transfer of Research’ seed funding, provided by the German Federal Ministry for Economic Affairs and Energy and the European Social Fund.

Target market and business model

‘emmtrix offers technology that significantly simplifies embedded multicore programming and reduces the overall development effort, thereby closing the productivity gap between singlecore and multicore processors. Our customers are companies that develop software for embedded multicore systems using MATLAB or Scilab. Typically, these companies are in areas such as the automotive, image processing, industrial automation and telecommunications domains,’ Timo explains.

emmtrix uses a licence-based business model in combination with integration and support services, as well as offering training and consulting: ‘Future embedded systems will need more and more cores. As a consequence, multicore programming is becoming increasingly complex and requires resources and expertise that are not always available within companies,’ says Frederik. He adds: ‘Companies with internal R&D teams can use our parallelization tools and solutions, while our embedded software

developers can solve individual parallelization challenges for companies who don’t have such teams.’

How to start a spin-off

Timo highlights the importance of making the decision to create a spin-off out of a research project as early as possible. ‘It is crucial to apply for seed money early,’ he says, expressing the hope that instruments provided by projects such as TETRACOM will take root and help more potential entrepreneurs get access to capital. Timo further advises ‘talking to potential customers who are not involved in the project: this helps to evaluate whether the problem being solved in the project applies to a real market’.

Here, Frederik suggests, ‘startup teams should focus on what makes them unique and how they can grasp their opportunities in the best and fastest way’. He adds ‘Europe has its success stories and great programmes. Entrepreneurs should not just look for capital; they should also take into consideration which potential programme, investor or partner can give them easier access to well-established companies, especially in a business-to-business setting. It can be tough for a startup to speak to the right contact in large multinational corporations. In Silicon Valley, for example, entrepreneurs are brought together with top managers



Frederik Riar (left) and Timo Stripf



A team with complementary skills is essential

and experienced engineers by professional accelerators to solve problems in close collaboration. This is very important for tech companies like us: the sooner technology is applied in the real world, the earlier one can identify problem-solution fit and incorporate feedback or, if necessary, make a pivot or strategy shift.'

Timo supports this argument: 'It is very important to speak to potential customers in order to understand their needs, especially when going from proof-of-principle to proof-of-concept. He explains that the emmtrix 'strategy is to create demand at the R&D level so that embedded engineers or parallel software developers will go to their superiors and tell them about how emmtrix can solve their problems.' Frederik adds: 'When talking to potential customers, it's essential to adapt the message to the audience. Hence we explain to embedded software developers how our products will make their day-to-day jobs more convenient, for instance by improving usability or helping them keep tough deadlines. On the other hand, we show middle and top management how our technology increases the overall efficiency of software development and enables them to stay competitive through faster time-to-market and shorter reaction time to constantly changing customer demands.'

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Perhaps more important than any training or accelerator programme is shifting from a research perspective to a business mindset early on, bearing in mind that these two areas require very different approaches and priorities. 'It's important to assemble a team with complementary skills and backgrounds and to find a business professional as soon as possible,' says Timo.

'Many startups fail due to differences in the team, so it's important to have a transparent decision-making process and a healthy discussion culture,' Frederik suggests. 'Another important aspect during the market entry phase is to keep customers as close as possible to have access to latest information about forthcoming technology and organizational changes,' he continues. When it comes to recruiting high-potential employees, Frederik emphasizes that 'start-ups should maintain a non-hierarchical culture where the best idea wins. We can't compete with large corporations on salary, but we can offer responsibility from day one and steep learning curves'.

Supporting tech transfer through HiPEAC

How can HiPEAC support researchers to transfer technology successfully? Timo and Frederik suggest organizing best-practice workshops, such as the 'Transfer to Industry and Start-ups' session at the 2016 HiPEAC conference, and extending these over several days. Workshops from business experts on how to develop a business model or sales and marketing strategies would also be very beneficial.

'HiPEAC could for instance set up mentoring programmes for potential spin-off teams,' says Timo. He concludes: 'HiPEAC already provides an important place for new companies to get their message out; it's allowed us to make valuable contacts in both industry and research. We need more success stories to motivate people to take entrepreneurial action, as well as more examples of spin-offs emerging out of European projects; here, HiPEAC can play an important role by helping to establish a start-up culture in academia.'

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visit the emmtrix website: www.emmtrix.com

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