



First-hand Experience

MANAGING A RESEARCH PROJECT IN UKRAINE

by A. L. Bimman, P. Eng., R.P.A., President of Toronto-based Bimman Inc. - a technology firm providing contract research, technology transfer and search services for manufacturing companies in North America.

When a major U.S. client engaged our firm to develop specifications for a new machine, we went to our database to search for the best R&D team to carry out the research. The machine in question had to wipe liquid zinc from metal pipes, manufactured in a 'continuous', or 'on-line', process.

Three of the four experts we found capable of heading up the research were based in Kyiv. Well-known as the 'breadbasket of the East', Ukraine is less well-known for its strong R&D capabilities. Yet in 1990 (the last year for which reliable statistics are available), 28% of its GNP was defence-related, and more than 48.7% of its 98,000 scientists were working on defence-related projects.

Our field of research focussed on magnetics as the relevant process. Together with material sciences, optics, engineering hardness and elasticity, guidance and control, and genetics and cellular biology, magnetics represented an area where Ukrainian scientists have accumulated a large body of extensive basic research. Much of this research is basic or fundamental, and much needs to be done to translate it into applied technology -- a product or a process.

THE HOW TO'S

The choices we were facing were: to hire a group from one of many research institutes (160, with another 100 pilot production centres); to hire a private firm; or, to hire selected specialists, who had previous experience in working together on projects, and to manage them.

Based on our previous experience in the NIS, we chose the last option. To manage the project on site, as our Site Manager, we hired a recently retired air force colonel, a 'voenpred'. The 'voenpred's', or 'customer representatives', as they were formally known, are Ministry of Defence representatives at a defence contractor's facility. Generally they are military officers with

engineering training. Feared and loathed by scientists and engineers, they have the power to stop or discontinue payment or bonuses.

Our Site Manager had extensive experience in managing Air Force and space-related R&D programs in Ukraine. However, we insisted that he go through a period of training and re-education to adjust to Western methods and tools of project management and reporting. Daily INTERNET-based communication, his military discipline, and a Toronto-based Technical Director trained in both North American and Ukrainian engineering practices made the process possible.

BAD HERITAGE, HAPPY ENDING

The major obstacles in running the project were the prejudices and paranoia resulting from the Cold War. For example, while we identified the US client to the team and arranged joint meetings, for a long time the researchers were convinced that we had another, more lucrative market for their research, which we were hiding from them! The researchers did not just think about it, they acted on their convictions. In perfect Soviet science tradition, they obscured the real direction of their research from us, and produced falsified reports. Alerted by the Site Manager, we hired a competing, 'shadow team', to critique the reports. As the 'shadow team' began putting questions to the 'main' team, the caliber of the former was quickly acknowledged by the main team, who soon came on-line with us. An unexpected outcome was the development by the shadow team of an alternative design for the machine -- on their own initiative.

Our client was well pleased with the results of more than seven months of research -- thoroughly-reported, and in fact *two* submitted designs for the machine. Most significantly, we passed the ultimate test: at a Design Review meeting at the client's U.S. facility, our team

successfully defended its research before another research body which the client had unilaterally hired - a major US defence laboratory!

LESSONS FOR FUTURE PROJECTS

Overall, the quality of research was on par or higher than that available elsewhere. The ability to do more with less, cultivated during the years

of Soviet shortages of computers, special equipment and so on, was very effectively used to increase this R&D project's 'payload'. To do so, however, required very strong, unconventional management - a combination of Japanese-style *kaitetsu* management and the methods of a boot-camp sergeant. Many pitfalls still await the R&D customer with no experience in this part of the world. But practical, results-oriented managers can achieve very high payback in these days of reduced R&D budgets, driven in turn by demands for results-oriented science: the key is in hiring NIS scientists. Major software companies are doing this already, and the word is spreading. The key issue is, as always, management.



Technology transfer. A. Bimman (l) displays part of a plasma gun to Dr. P. Rocket of Sandia National Laboratory.

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