An Example of the Importance of Commercial Issues to Technical Research

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Abstract: There is benefit to a researcher if technical research can be associated with a user who is prepared to pay for it – the commercial aspects of the research. The benefit may be reaped in a number of ways that include employment and financial. This paper shows the unexpected route that this technical research took, during consideration of commercial aspects, which could lead to the creation of a new market.

The Concept

A Doctorate course implies pioneering work, novelty and maybe patents. Standards suggest that something is well established, so there is not an obvious link between them, in fact they would appear to be diametrically opposite. However, a further look at standards may reveal closer ties than may be immediately apparent, it may well cost less than a patent and be eminently suitable for a student to introduce as a useful commercial artefact. However it's done, if the new research builds on something that is well established, it can simplify the step to capitalising on the research. Reaching this back to a standard provides a bridge to an existing market.

Why bother

There are two values to research; the first is the satisfaction in undertaking it. The second is the on-going value that can be derived from it, not least of which is financial. This is generally realised by a career step, the researcher joins the sponsoring or another company based upon the relevance of the research to that company. Alternatively, straight commercial exploitation may be possible without the researcher's career being involved; this would, for example, be achieved by the sale or licensing of a of a patent. Patents are difficult to obtain in the sense that they are time consuming to prepare and cost money. They also cost money to defend and if they are useful, they will be challenged. This paper looks at a way that is a little time consuming but will probably cost nothing. It does not replace the patent route but in some ways complements it. The main advantage is that having the research material related to a standard does add to its attraction because it can be commercially exploited based upon the areas to which the standard applies.

An example

This research is related to simulation and modelling. There are many simulators around but the research area of interest is in those that are used for military sensors; radar; infrared; sonar and the like. These simulators are generally built to meet

specific applications and for a particular military project; the development of a new aircraft or ship for example.

The main user in the UK would be the Ministry of Defence, for example in its sensor platform developments.

To explain of the difficulties in contacting the potential users of the research within the MoD, there are 11 Directorates of Equipment Capability with around 100 Capability Working Groups between them. There are approximately 150 Integrated Project Teams of which around 80 report to the Defence Procurement Agency and the remaining 70 report to the Defence Logistic Organisation and other agencies. The structure is something like that shown in Figure 1, and is difficult to penetrate. The Defence Industry Strategy[*ref 1*] encourages companies to make contact with these organisations to put forward ideas; the practicality of this is daunting. Another point of entry needs to be found.

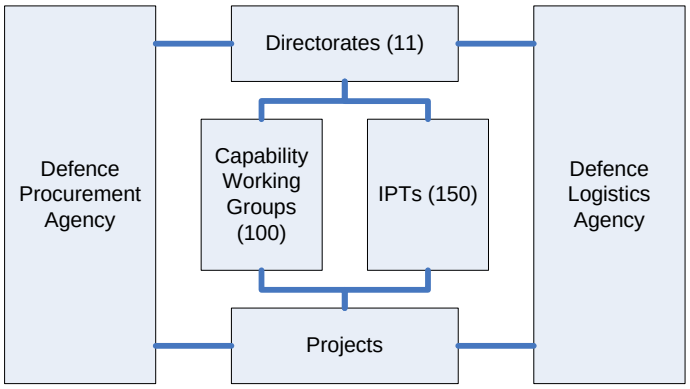

Figure 1 – MoD Project Structure

Modelling of this sort involves the combination of environmental factors and 'targets', that is anything that can be seen by the sensor. This is done in a variety of ways that are specific to each manufacturer and each application. Improving this is an aspect of this research. However, there was concerned that anything that might be developed would join the legions of obsolescent work that already exists. As soon as one system appears, it triggers another to overcome the short-comings of the first.

The attempt at circumventing this problem revolved around incorporating currently defined standards and developing the new techniques to improve overall performance. This soon lead to a realisation that there are no standards for the way a target is defined (for example) so each manufacturer is free to do this as they please. Changing the data sets that represent the objects being modelled does not seem reasonable. A further downside, as well as making it difficult to compare one simulation system with another, is that if a target changes, for example a ship gets a new rocket launcher fitted, its visual, IR and radar profiles change. Each manufacturer then needs to change their model, naturally at the expense of their users.

When the situation was discussed with potential customers, it provoked an interesting response. They were reluctant to make purchasing decisions because of the cost involved if it later transpired that features they require were not available with a particular product.

The counter argument from suppliers might be that it is this that locks-in a customer to a supplier and therefore gives the supplier a market advantage. Surprisingly, there were very few proponents of this argument. Suppliers felt that the market was 'difficult' and more players would benefit them all. Furthermore, those customers that

were won were costly to support because the small volume of sales made the products close to bespoke in nature.

This would not occur if a standard existed for representing these data types. Market forces would focus all manufacturers to comply, the market would be perceived as ‘open-standard’ and there would be less reluctance to purchase. The PC market is a prime example of this – if only this market were that size!

What to do next?

There were three possible ways forward. The first would be to stop the technical research – a better mouse-trap isn’t much use unless the mouse we want to catch can be defined. The second way would be to join the other trappers in their stagnant pool. Alternatively, if no standard exists but having one would stimulate the market, there is the option to create a standard.

The company sponsoring the research chose to initiate the introduction of a standard, thereby protecting their investment. The initial results are encouraging with around 30 very senior players in the market drawn from all sectors; suppliers, users and project sponsors (‘customers’ in the traditional sense), supporting the activity.

Potentially there is a major spin-off from this because new markets can be created. Not only the creation of new models and the conversion of proprietary ones to the new standard, but also the control of versions and distribution to users are new markets that appear. This may not be a high technological activity, other than generating the models, but none-the-less it could be a lucrative market sector that currently does not exist.

It should be appreciated that obtaining concurrence necessary to create an acceptable standard is a very time consuming task., so is its adoption by a recognised Standards Body. The basic research to establish whether or not a standard exists is much less time consuming and was worth doing in this case, it may also be worthwhile in other cases.

Conclusion

The main conclusion from this experience is to look wider than the technical issues of the research. It is more attractive to the sponsoring company if research can be fully exploited.

References

[1] J. Reid, "The Defence Industrial Strategy - Defence White Paper" , HMSO, CM6697, Dec.2005.