

## VI. SUMMARY

The intent of Congress has essentially remained the same for many years: in licensing DoD technologies, industry can gain access to DoD technologies and further develop them into commercial products from which economies of scale can be realized, resulting in lower cost DoD components for military applications. The licensing of DoD inventions is one means of achieving this intent.

The purpose of this study was to gain an understanding of what is being accomplished through the licensing of DoD technologies and how well DoD is prioritizing and marketing its patented technologies. In achieving this goal, a selection of PLAs was evaluated and a number of patent marketing approaches were reviewed. Three significant benefits that licensing brings to DoD and three findings on DoD licensing and patent marketing emerged from this study. In addition, there were a number of insights deduced on licensing and patent marketing approaches. These benefits, findings, and insights are presented below.

### *Benefits of Licensing to DoD*

- Licensing can result in COTS products available for purchase by DoD.
- Licensing can lead to the fostering of new working relationships with private industry resulting in furthering R&D. Sometimes these new relationships are solidified via a CRADA.
- Licensing generates revenue back to the laboratories.

### *Findings on DoD Licensing and Patent Marketing Approaches*

- The inventor is the best resource for marketing DoD patented technologies.
- Technologies licensed from DoD are relatively immature and typically require additional resources and time to bring to commercialization.
- Start-up companies are sometimes established to license DoD technologies and bring them to commercialization.

### *Insights on Licensing and Patent Marketing Approaches*

- There is a mix of opinions on the benefits of having patent attorneys located onsite at DoD and non-DoD research institutions.
- Established practices for patent prioritization and invention evaluation are ad hoc in the DoD laboratories.
- DoD laboratories and academic research institutions have had limited success with finding licensing partners via technology exchanges.
- Using brokers as middlemen to match technologies with potential licensees is being considered by some.
- Technology transfer alliances are becoming a valuable resource for marketing DoD patents.
- Performing technology assessments is not widely practiced.
- Listing technologies available for licensing on laboratory web sites is a passive approach to marketing.
- It is not widely known that Montana State University TechLink has had an appropriations budget line, so there is no cost to the DoD labs for using this PI.
- When DoD negotiates a license for the manufacture of a product, it does not always lead to production for a broader use.
- Some inventors perceive that large companies, who have the resources, have the ability to license DoD technologies for competitive reasons.
- Some inventors are concerned that DoJ does not prosecute DoD patent infringement cases; therefore, industry may believe it is unnecessary to license DoD technologies.
- DoD medical R&D laboratories may benefit from leveraging the services provided by the NIH Office of Technology Transfer.

Due to budget constraints, particularly those that exist in the funding of technology transfer at the DoD laboratories, active marketing of DoD technologies is limited. ORTAs sometime consist of one person and even that one person may have multiple responsibilities outside of the technology transfer duties. Typical efforts by these offices to market technologies such as advertising in trade journals, attending trade shows in relative technology areas, and posting technologies on laboratory web sites are passive approaches that have brought limited success in the licensing of DoD technologies.

One means of enhancing patent marketing activities in the DoD laboratories is to centralize the licensing activities by either Military Service, command, or technology area. Limited budgets make it difficult to support a significant operation at each of the laboratories to effectively provide all the required services in the patenting, licensing, and marketing of DoD technologies. This centralized approach would provide services to the respective DoD laboratories that would include supplying patent attorneys and experienced licensing staff to streamline the patent and licensing activities. This licensing staff would be experienced in specific technology areas and have business backgrounds. This model is similar to that of NIH and the MSU TechLink as well as many of the academic models evaluated in this study.

Johns Hopkins University School of Medicine as well as Harvard Medical School have offices of technology transfer that are distinct from those of their respective universities. In addition to a separate technology transfer office for their medical school, Johns Hopkins University also has a separate office for their Applied Physics Laboratory. These universities are quite diverse in their

scientific R&D. Distinct technology transfer offices provide focus in specific technology areas. These medical school models suggest that the licensing of medical technologies involves a specific client base and unique processes (i.e. FDA regulatory considerations) that are unique. Although the Army Medical Research & Materiel Command and the Naval Medical Research Institute have consolidated the licensing activities of their medical laboratories at the command level, staffing and resources are limited. Therefore, DoD medical R&D laboratories could consider either further consolidating their licensing resources and activities or leveraging, at the command or local level, an established entity such as NIH where the nuances associated with licensing medical technologies can be addressed in an effective manner. NIH has been very successful and has an experienced staff and established contacts that could be leveraged by DoD. It would not be prudent to reinvent the NIH model at the individual medical laboratories, for the ORTAs at these laboratories do not have the resources required to develop such a capability at each location.

Now that technology transfer legislation has been in existence for over 15 years, more and more businesses are looking to DoD for technological expertise. As legislation increasingly encourages the licensing of DoD technologies, licensing activity will increase, thereby increasing royalty revenue back to the laboratories. It is possible that this increase in revenue will enable the ORTA functions at the various DoD laboratories to become cost reimbursable. As permitted and outlined in the DoD Directive and Instruction, this revenue stream can not only assist in enhancing technology transfer activities, but can also enhance partnering with industry and provide additional funding for those technology areas in which industry is most interested.

In some of the PLAs reviewed for this study, the licensee has further matured the DoD technology leading to commercialization of a product. However, in many of the PLAs reviewed, the licensees are still making progress to that end. It can take significant resources and many years of further development to transition a DoD technology to a commercial product.

In the future it would be interesting to track the path of a number of DoD technologies through the marketplace and determine how many of them find their way into DoD acquisition systems, for this would be an indicator of the return on investment DoD is realizing from licensing. However, for a study of this kind, a large sample size would be necessary to result in a relevant number of PLAs where the information would be available and accessible. The POCs from the federal and licensee sides would need to be available as well as individuals with knowledge of the various hand-offs that occur throughout the commercialization process. There are fewer Federal scientists and engineers with experience in patenting technologies, for these individuals, who are perhaps more innovative than the norm, are leaving the Federal Government for private industry. In addition, it would be interesting to track PLAs by year to determine, on average, how long it takes for a DoD technology to become a commercial product. Perhaps this timeline varies by specific technology area. It would also be interesting to determine the percentage of PLAs that result in commercial products and the percentage of PLAs that are negotiated for internal research purposes.