

CONTACT INFORMATION

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1. What are the **core Federal technology transfer principles and practices** that should be **protected**, and those which should be **adapted or changed**?

The three core Federal technology transfer practices are to share technology through licensing, patenting, and Cooperative Research and Development Agreements (CRADAs). There are some other technology transfer mechanisms such as: Presentations at conferences, workshops, and inquiries • Utilization of guest researchers and facilities users • Outreach to trade and technical media • Technical publications and other reports • Development of Standard Reference Materials • Development of Standard Reference Data • Development of documentary standards • Material transfer licenses • Calibration services • Collaborative research agreements (e.g., Memoranda of Understanding (MOU), Clinical Trial Agreements).

Before addressing any of the core practices, the first area that should be addressed with Federal technology transfer is the inconsistency across agencies in tech transfer. While, there are those who argue that there are differences because of the differences in the nature of the work across agencies, the key thing to emphasize regarding this point is that tech transfer is a process. Processes/ procedures can and should remain the same across the board. If there are truly any exceptions, then those can be made on an as needed basis. Therefore, the fact is that NIST is responsible for the oversight of all the agencies and the first key step should be simplifying and unifying the process.

Of the three core practices that allow for transfer of Federal Technology, we at Loci, Inc., believe that while all aspects could be updated, it is the patenting process that needs to be most significantly changed. Though the United States Patent and Trademark Office (USPTO) has made great strides in reducing the time it takes to grant a utility patent, it still takes years to be granted a utility patent. Certainly the USPTO needs adequate time to review and grant patents and this is not a process that should be hurried up at the expense of a quality review, nevertheless there are ways that the review time could be shortened. In a world where information is disseminated and absorbed in real-time, a multiyear to wait on a review is not only too long but also stifling for innovation. The lengthy

wait causes ideas to become obsolete quickly because technology changes at an exponential rate and inventors are more likely to move forward without the protection of a patent.

2. What are the **issues that pose systemic challenges** to the effective transfer of technology, knowledge, and capabilities resulting from Federal R&D?

We at Loci, Inc. feel that there are five systemic challenges that need to be solved for the effective transfer of technology.

In our response to the first question, we shared that the long patent processing times tend to stifle innovation. We reiterate that point here as the first systemic challenge. As stated above it takes too long for the USPTO to grant an utility patent with the current processing. However, the complexity and time intensive nature is not just restricted on the side of USPTO in reviewing patent applications. It is also an arduous and expensive task for the applicant to prepare the application for a patent. Both sides of the patent processing are an area where USPTO could assist in improving efficiency by improving the application process.

The second challenge is the lack of access to previous innovation projects. By this we mean the intellectual property (IP) that was never advanced to the patenting phase for whatever reason be it feasibility, time, or money. The IP that is shelved and set aside to be dealt with otherwise could still have value and potential for future innovations, however without standardized access to the information/ data for the orphaned IP no more innovation can come from it. Therefore, it would be important to have improved access to orphaned IP projects.

The third challenge is understanding the true novelty of an idea during the early stages of research. Some of the orphaned IP is a result of not being able to determine IP value early enough. Herein is a challenge faced by all inventors/ researchers, which is determining whether what they are researching/ creating is truly innovative or not. Is the concept worth pursuing? Without exhaustive searches of patent databases and prior art, there isn't an answer to the question of novelty, which leads to waste in funds and time.

The fourth challenge is the fear of losing ownership or sharing trade secrets when collaborating for research and development. This is where the Federal government can follow the example of the private sector and use the many secure apps or other technologies for collaborating with others in a secure way. Utilizing blockchain technology, for example, could provide proof of ownership that could also secure collaboration.

The final problem that needs to be solved is reducing the layers of bureaucracy. Innovation requires taking a risk, which includes looking at and exploring ideas that come from all levels. Innovation also requires transparency, whereby transparency means that information is easily accessible. Adding to the complexities, is the lack of standard procedures across agencies, which makes reporting the results of the research and development a complicated task. The multi-layered complexities that are added with different agencies, different processes, a secrecy that shrouds projects there are all key factors in creating an environment that does allow for innovation to flourish.

3. What is the **proposed solution for each issue that poses a systemic challenge** to the effective transfer of technology, knowledge, and capabilities resulting from Federal R&D?

The first problem that needs to be resolved is the current patenting process. There are two sides to this problem. The first is collecting the information necessary to file the patent application. While this process is completed by the inventor/researcher the complications associated with it are frustrating and expensive. The second part of the problem is the review time needed to grant the patent.

Technologies and information search methodologies exist that could facilitate a streamlining of the search process. Loci has significant experience in this field. Loci's product, Loci Search, a context based search tool which streamlines the search process in intellectual property by drawing information from an expansive database that combines a vast array of resources and information provided by inventors directly, thus enabling inventors, entrepreneurs, patent attorneys, and anyone else in the intellectual property industry to use the results and propel innovation further. By using Loci Search, inventors and researchers can cut down the cost and time associated with prior art searches that can simplify the patent process. Loci Search can also help with the second part of the problem in the patenting process. By providing clear, comprehensive, and up-to-date information to all of its users, Loci Search can help shorten the review time by the patent examiners especially if the USPTO would directly look over the searches and research conducted using Loci Search during filing.

Loci Search also offers a solution for the orphaned IP. By adding that to the tool, it becomes available to other users and could spur new innovations. In addition, by utilizing Loci Search, the creator of the IP can stake ownership of it on the Ethereum Blockchain and be able to trace its use throughout future innovation. Loci has the technology to improve the challenges faced by inventors and patent examiners and, by adding more data within the datasets that Loci Search

already gleans from a variety of sources, can become more robust and offer greater clarity and specificity for those who are using the system. Furthermore, Loci Search offers an additional process called Invention Analysis to its users.

Invention Analysis offers inventors a novelty score, identifies the Cooperative Patent Classification categories, relevant keywords prevalent in their text, and other keywords that aren't mentioned but could be related. The Invention Analysis helps the inventor refine his ideas prior to submitting it for patenting and really helps create successful pre-patent data. Loci, is working to further develop the Invention Analysis tool so that instead of providing only a novelty score, through natural language processing learning, artificial intelligence, and other Loci patented backend algorithms, Invention Analysis will be able to provide a true IP value score. Loci's Invention Analysis solves the problem of determining whether IP is novel or not and allows for revisions to be made at a significantly earlier time. Over time, this would limit the amount and time spent on IP that turns out to be unusable.

The final two problems that were highlighted in the answer to the second question, security of trade secrets and transparency, are solvable through Loci Search because of the integration of the platform with blockchain technology. Blockchain technology has the potential to solve a lot of issues related to ownership and transparency. It provides an immutable, digital trail of transactions, which can be used to verify the integrity of data rather inexpensively. What this could mean for IP ownership and protecting IP is that if the information is disclosed on the blockchain, then the ownership of the IP could remain protected thereby solving the issue of trade secrets being stolen. Additionally, disclosure on blockchain also means that there is transparency of information. Integrating blockchain into the processes for reporting the results of the research and development being conducted can also remove layers of bureaucracy because the technology can provide veracity for the information.

In conclusion, we at Loci believe that there are solutions to the systemic challenges that are prevalent in the existing technology transfer methods and protocols. In some cases, companies like Loci are building solutions to the problems identified in the RFI. Our mission at Loci is to change how the world invents and values ideas. We are champions of innovation and want to make it possible for everyone to capitalize on their ideas and inventions but in a way that it benefits everyone as a whole. Loci Search is an easy, efficient, and inexpensive way for inventors/researchers to validate the novelty of an idea and find a secure home for their ideas and inventions on the Ethereum Blockchain.

4. What are **other ways to significantly improve transfer of technology, knowledge, and capabilities** resulting from Federal R&D to benefit U.S. innovation and the economy?

The most radical way to improve upon transfer of technology, knowledge, and capabilities is for government to update its technology systems and processes in general. Compared to the private industry, government agencies are significantly behind in the use of the newest technology. So many of the limitations, especially those relating to arcane processes, can be solved with the use of new and ever evolving technological solutions. Through the updating of technology, government would also match the private industry ability to more effectively and expeditiously share information. This leveling of the playing field would mitigate the disadvantages the agencies have compared to the basic state of the art business and research practices. Some areas in which, government should especially improve its technological systems and overall processes to bring about immediate change are:

- Centralizing and standardizing Tech transfer processes and data. NIST is already leading the agencies in this effort, however this should be an immediate area of improvement.
- Set policies that allow for data sharing across agencies and with industry, after ownership and security is assured.
- Help industry with easier access to data, like NASA has done.
- Show the value of ideas that come from the government and help to improve innovation in the U.S