

# The Southern Paradigm: Communications around the Production of Invention Disclosures

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Academic technology transfer is generally perceived as the process that conveys useful intellectual properties from academe to the larger community, thereby providing optimal utility to the economy. One key step of technology transfer is the new invention disclosure process, and the successful technology transfer program yields the optimal number of high-quality disclosures. Good disclosures are the beginning of successful patent prosecution, effective marketing, licensing, and dissemination of university innovation.

This article provides a method and organizational plan that has heretofore been informally known by its proponents as the *southern paradigm*. We have used this term to refer to an approach to technology transfer that includes proactive technology disclosure mining and aggressive marketing techniques. We believe that Bob MacWright (University of Virginia Patent Foundation), David Dey (University of Florida), and the University of Texas system have used some of these techniques.

The invention disclosure process has been recognized as an important aspect of the technology transfer process because it represents the key point of contact, the presentation of the germ of the technology, and the initiation of the transfer from idea to commercial product. Quite simply, experienced technology management professionals view new disclosures as the lifeblood of the successful program. Over the past decade, the growth rate of new technology disclosures as a function of research funding has been marginal (see *AUTM Licensing Surveys*™, 1995-2005); and there is an opportunity to do better.

To meet the need, a new method of mining, marketing, and managing technologies, known as the *southern paradigm*, has emerged. The methodology has been developed

by technology transfer professionals in universities of the Southern tier of the United States over the past fifteen years. It has proven to generate an increased number of new invention disclosures. More important, those disclosures are of better quality and, thus, a better experience for faculty inventors as well as for technology managers.

This chapter presents a detailed methodological description of the new approach as it pertains to mining intellectual assets to garner more and higher quality disclosures. Proven technology transfer manager Patricia Weeks has said that technology transfer is essentially a relationship-building process, but the key to success is to take a planned and disciplined approach.<sup>1</sup> As with all sales and marketing activity, a predictable percentage of the activities will lead to a predictable flow of deals. The southern paradigm approach provides a well-managed, highly interactive flow of information between the faculty inventor and the technology transfer manager.

We present here a scheduled series of interactions over a timeline of days, weeks, and months. The program includes a series of specific tasks, a timeline of interactions between faculty member and technology transfer manager, and anticipated time-labor demands. These assist in effective planning and will allow both the program director and technology transfer manager to measure and report their success. We focus on tactics, but digress at the outset to describe the underlying strategy.

## **How the Southern Paradigm Works: The Strategy**

The basic underpinning of the southern paradigm is that there must be a close alignment between the science and technology embodied in an academic invention and the two other aspects of technology transfer: intellectual property (IP) protection and commercialization. The applicability and utility of university inventions are shaped to a great extent by the flow of information from industry back to the university research system, rather than a purely outward flow of scientific and technical knowledge. The resulting challenge for the technology management professional is to closely integrate the sales and marketing function with the academic faculty client's work. A series of communications are set to

- inform faculty members of the technology transfer process,

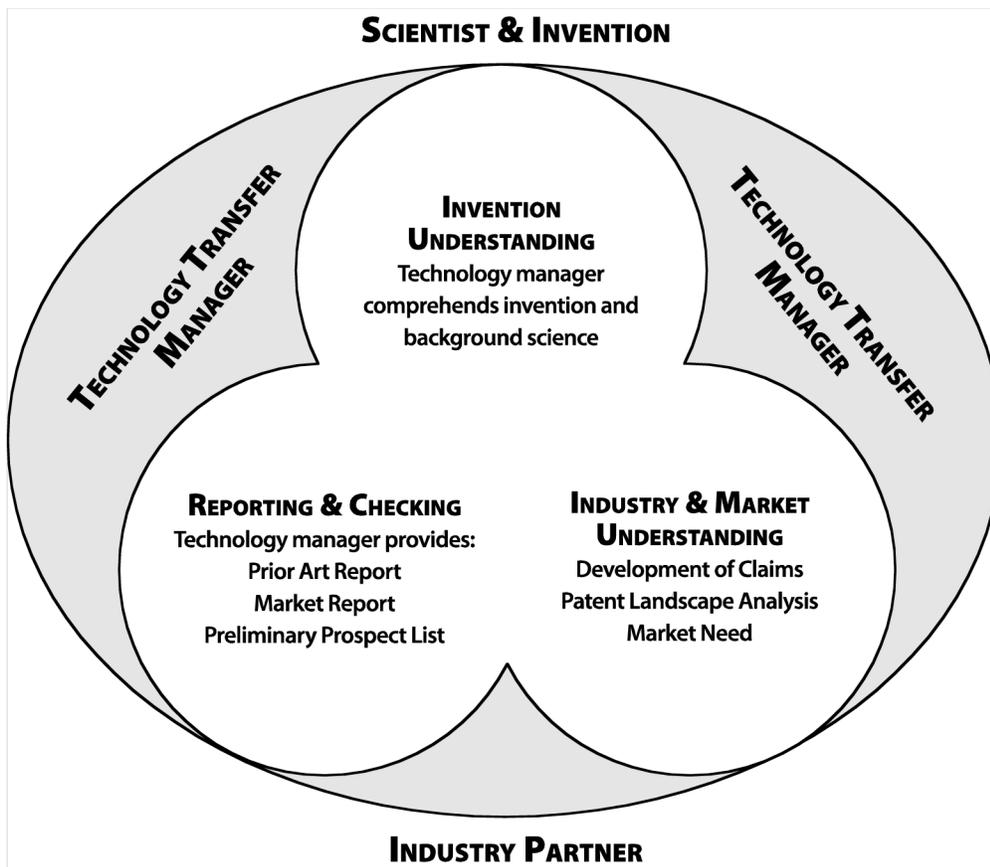
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- allow the technology manager to understand the technology invention knowledge (as akin to product knowledge of marketing parlance),
- allow inventor and technology manager to work together to navigate the IP landscape, and
- allow the technology manager to investigate and report market data to the inventor.

The southern paradigm therefore integrates the invention, IP protection, and marketing activities. Figure 1, presented as a cycle, describes the bi-directional information flow by which the technology manager understands the invention thoroughly and then relates back to the inventor the IP landscape and the state of the industry. The proper flow yields the most viable and valuable patent claims, a true prior art report, and a real prospects list.

*Figure 1: Bi-directional Information Flow Management*



## Patent Prosecution Issues

Behind the southern paradigm method is a specific approach to patent prosecution. The close cooperative work builds on the concept of intellectual property as a developing process rather than an individual and static asset. Each technology is viewed as part of a developing patent family in which claims will evolve over time with ongoing research. Viewed in this way, the technology manager must understand and report to the researcher about the IP landscape and prior art. This can only be achieved by a collaborative ongoing approach.

At early stages of discussion it is worth informing academically oriented researchers of the meaning of publication patent bars and to tell them how patenting and publishing can be, with a small degree of planning, highly compatible. At a more detailed level, researchers can benefit from technology managers conducting patent searches, or at a greater level of sophistication, it may involve deciding on laboratory experiments aimed at providing information needed to broaden claims or to find ways to publish some negative results to forestall possible obviousness difficulties.

## Market Considerations

Technology management professionals understand that market opportunities are just as important as patentability considerations when investing in IP protection. As with the IP landscape and prior art issues, the technology manager's analysis of industry's commercial needs can shape some aspects of ongoing research and new claims in follow-on provisional and continuing patent applications. This information can guide inventors.

For example, researchers pursuing novel discoveries in intracellular signal pathways may profitably consider industry's need for "druggable targets." Or they may keep in mind the relatively greater value of small molecules compared to biologics. The ongoing feedback and interactions with the faculty member gives the technology manager deeper insight as to the best commercial market prospects, and he or she gives the inventor new ideas about shaping the research to meet the greatest challenges and best opportunities in industry.

This works best if the technology manager has a chance to conduct—and report back on—market research rather than trying to accomplish the whole exchange at once. A draft market report is an invaluable focus of discussion.

### **Just-in-Time Technology Transfer**

The southern paradigm is consistent with the just-in-time model of academic technology transfer, as suggested by MacWright.<sup>2</sup> In this deal-based model, the relatively inexpensive provisional patents are marketed aggressively long before they are converted to PCT (Patent Cooperation Treaty). That way the costs are transferred to the licensee, and it gives the licensee more input as to the claims structure of the patent. The just-in-time approach requires that the marketing activities happen quickly and efficiently.

The just-in-time model results in a greater number of technologies returned to the inventor (i.e., abandoned prior to PCT). Since the faculty member is so closely involved in the process, there is less of a negative surprise at this outcome. Instead it can be understood as a positive part of the invention process because the inventor has likely been directing scientific and technical energies at improvements and refinements that become the subject of follow-on disclosures. And the ongoing science is better informed by the patent landscape. This engages the researcher and leads directly to the next and the better disclosure. Truly the southern paradigm begins and ends with the scientist and the science.

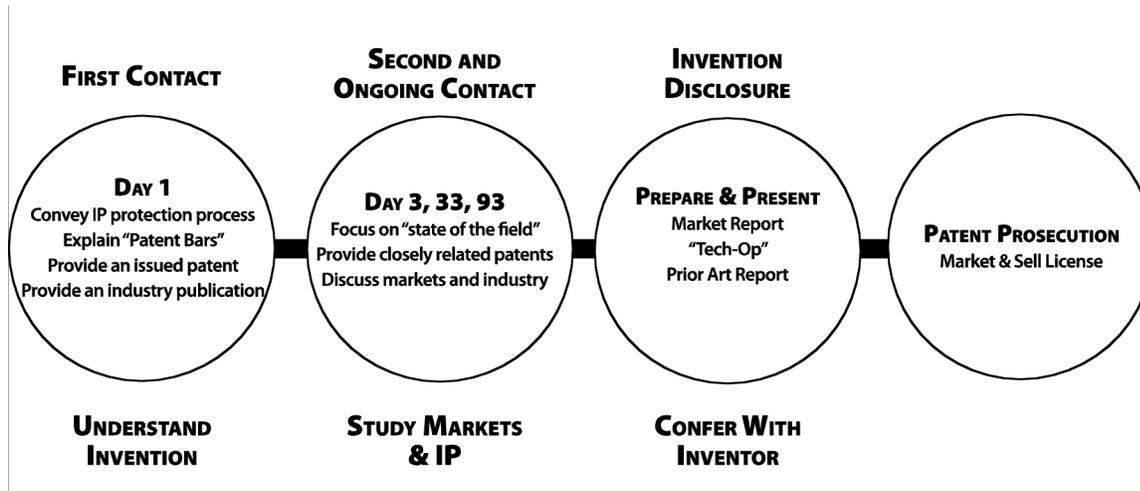
### **How the Southern Paradigm Works: A Description of the Process and Timeline**

The southern paradigm is an interactive process that is conducted by technology managers and faculty-clients in a scheduled manner over days, weeks, and months. Figure 2 depicts the specific activities that are included in the new paradigm and a schematic of the labor demands on a technology manager (and intellectual property program) who adopts the new paradigm.

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*Figure 2: Flow of Specifically Scheduled Actions by the Technology Manager*



As you observe, at first blush, the new paradigm seems to track traditional technology transfer practices. However, on closer examination, it becomes apparent that the new paradigm is more iterative, requires more direct, one-on-one communication, and places new service demands on technology managers involved in the process (and, on technology transfer offices).

The iterative aspect of the process reflects the basic value of the southern paradigm in promoting the two-way flow of information, mediated by the technology manager, between industry and the academic scientist. Also, by providing a schedule of planned actions and time investment (Figure 3), the paradigm aids in planning, monitoring, quality management, and consistent reporting of effort.

## Schedule of Steps

### *Day 1*

The technology manager schedules a one-hour face-to-face interview: On first contact with the faculty member, the technology manager provides information about the university technology transfer program and provides an overview of the concepts of technology transfer, with particular attention to the IP protection process and

*Figure 3: The Labor Demands*

<b>Labor Demands</b>		
1st Contact	2nd Contact	Invention Disclosure
5 hours	5 hours	10 hours

patent bars. The technology manager prepares for the meeting by researching the individual faculty member's background and should provide a related issued patent as an example and, also, based on an estimate, a relevant industry publication.

Technology managers should prepare for this first interview by considering the faculty member's specific scientific interests through a review of publications and through other sources. The disclosure process begins with this first meeting—a personal interview usually, and, preferably, in the faculty member's laboratory or office. During this meeting the technology manager seeks to understand the faculty member's field of study, specific scientific interests, publication history, academic standing, teaching responsibilities, and research budget.

Incidentally, while the faculty member may be aware of industrial applications of his or her work, there is much to be gained by asking about his or her academic peers (leading lights or even competitors) in the field. During this conversation, the technology manager provides the faculty member with an accurate description of the technology transfer processes, realistic expectations (including elements of quality), and a description of the mode of operation of the ongoing interactions for this professional relationship.

Further, the technology manager describes the steps involved in the just-in-time model of technology commercialization, including the fact that, while the technology transfer office invests in provisional patents, many technologies must be returned to the inventor after that first year of patent prosecution in favor of new developments. Behind Figure 1 lies the abovementioned mantra that the technology transfer process begins and ends with the scientist and science.

It should be noted that some important issues are relatively easy to discuss at this early point. Important groundwork is laid for the future challenges, under these relatively casual conditions, such questions as co-inventorship and royalty distribution expectations are explored. The just-in-time patent prosecution approach will result in the return or abandonment of a percentage of the new disclosures, this fact is much easier to explain and discuss right at the outset.

### *Day 3*

Immediately after the initial interview (certainly within 72 hours), the technology manager will provide a specific article, reprint, published patent, or reference that directly relates to the specific scientific interest discussed earlier as an initial service to the faculty member. This may be in the form of a follow-up meeting or a communication. The information allows both parties to establish a commonality around an understanding of the central topic/science. If a misunderstanding exists, this is the appropriate time for a correction. This technology-related dialogue will be replicated many times over the next few months.

### *Day 33*

As in day 3, the technology manager provides a contemporaneous article, reprint, reference, or preferably, issued patent that provides value to the faculty member and his or her associates. Again, this process of tracking technological development in the specific field of interest has the tendency to lead to critical thinking (compare-and-contrast exercises) related to a technology field and the latest technological development. At this point, the new paradigm suggests a focus on publication searches directed at the most active inventors and leading lights in the field, as well as key potential companies and key patents.

The combination of these patent searches and publication searches can effectively track the development of technology in broad (and narrow) fields of interest.

### *Day 93*

A follow-up meeting is scheduled, located at the faculty member's office. As in day 33, the technology manager provides a current-day article, reprint, reference, or preferably, issued patent that provide value to the faculty member and his associates. Typically, at this point, the technology manager and the faculty member have established an understanding of the field, a good communication pattern, and the mutual respect that derives from (a) an expressed interest in the faculty member and her field of interest, (b) a relationship based on service, and (c) a notion of ongoing communication.

Beyond a basic service to faculty, it is predictable that, over time, inventive faculty members will produce new ideas and technologies that stem from this increasingly shared view of the state of the field. And, in our experience, when faculty members present these invention disclosures, the technologies tend to be

- distinct from prior art;
- clearly defined;
- more complete, with the information required of a quality specification;
- targeted at specific companies in the field; and
- marketable.

### *Disclosure Day*

The actual invention disclosure can happen at any point during the background process. At this point the technology manager must, within days, produce the following.

1. A prior art search: This is a comprehensive review of the patent databases and is based on key-word, inventor, and assignee databases.
2. A market review: This perspective may include data from secondary and tertiary sources, market studies that are produced by consultants with experience in the field, and an internally constructed model.

Now, the technology manager has the necessary knowledge of the technology and the markets to make the strongest possible patent application, with commercially attractive claims. Also the technology manager has the product knowledge needed to begin the successful technology sales process. The faculty member is apprised of general progress and is involved again with industry presentations, industry visits, and the license process.

## Labor and Time Management

The use of a timeline outlined below accomplishes two aims. First, a fast follow-up maintains the proper level of involvement and, second, it is a feasible time management method for the technology transfer manager. Under the just-in-time method, the technology manager typically sees 25 or more invention disclosures a year (with an aim to ten deals a year), so it is feasible to plan the work schedules along the schedules presented in Figure 2. This results in about 75 days of work, or one-third of the 240 work days per year; a proper balance with other sales, patent prosecution, deals, and license management duties.

The proposed times reflect the proper depth of effort for each step. It is all too easy to spend far too much time on “market analysis” while spending not enough time on personal faculty interviews.

## Summary: Advantages of the Southern Paradigm

As has been noted above, initially, the new paradigm appears to be labor intensive (and, expensive). However, consider that

- we are meeting with relatively large numbers faculty members who have not been clients of the technology transfer program,
- we are investing in time-consuming explorations of diverse technology fields, and
- we are maintaining this rather-casual relationship over time.

However, in our experience, when that invention disclosure is produced, the technology manager is exquisitely prepared to move forward with alacrity. Much of the anticipatory work has been completed (and is perceived by the faculty client as faculty service), and the technology manager proceeds directly to secure intellectual property protections (with an understanding of the prior art) and promotion of the technology (with some knowledge of the competitive landscape of the marketplace).

The basic underpinnings of the southern paradigm: the efficient flow of information through iteration will continue to guide the technology transfer process from here. The process of investigating the scientific literature, the market review, and the prior art

searches will, if done properly, necessarily provide a sophisticated understanding of the invention.

The faculty meetings at which this progress is reported and discussed will further solidify in the technology manager's mind the product knowledge without which effective commercialization cannot happen. This includes knowledge needed for effective patent prosecution, well-focused marketing, and then selling the licenses. And this goes on the future ongoing work with the commercial licensee.

This process has produced:

- new levels of service (of a different scope) to faculty,
- an increased number of invention disclosures,
- faculty satisfaction,
- an accelerated technology promotion,
- office efficiency/economy in the long-term, and
- improved productivity.

Finally, the successful technology transfer office, and the successful manager will keep documented summaries of their results; numbers of faculty contacts and calls; how many disclosures result; and the percentages of disclosures leading to patents, deals, and dollars. The southern paradigm provides a structured series of actions and steps to maximize successful disclosures—the first and basic step of successful technology transfer.

## Notes

1. The disclosure process should, as with any successful sales effort, be strongly oriented to clear, meaningful metrics, and the southern paradigm provides the basis for measuring the time and effort involved in garnering new disclosures.
2. MacWright, R. S., Esq. A Pragmatic, “Just in Time” Business Model for Academic Technology Transfer. *Les Nouvelles*, December 2007, pp 615–620. See also MacWright, R. S., Esq., “The University of Virginia Patent Foundation: A Midsized Technology Transfer Foundation Focused on Faculty Service, Operated Using a Deal-Based Business Model,” *AUTM Technology Transfer Practice Manual*, 3rd Edition, Vol. 2.