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A Production View on Patent Procurement

Ian C. Schick

When we think of a "production environment," a law firm patent practice is not usually the first thing that comes to mind. But why not? Patent practices are highly process-oriented, and they certainly involve "manufacturing" work product, primarily in the form of new patent applications and office action responses. This article discusses how, with a production view on patent procurement, exploiting the principles of lean production can be a compelling way to adapt to tough issues presently roiling the patent ecosystem.[1]

The idea of commercial manufacturers providing completely handcrafted products went out the window, for the most part, during the industrial revolution (the first one). To be sure, examples of prideful handiwork can still be found today, like with Amish woodworking or specialty items like, say, Rolls Royce automobiles. Speaking of cars, Rolls Royce and BMW both had record sales last year.[2] Rolls Royce automobiles are assembled by hand and are of the finest quality.[3] BMW automobiles are also very high quality, but manufactured by employees, automation, and OEMs working in concert.[4] Rolls Royce sold 4,107 vehicles in 2018[5] (0.082 vehicles per employee), while BMW sold over 2.12 million vehicles[6] (15.7 vehicles per employee). If these car companies were law practices and the cars were patent applications, which one would you want to model your own practice after?

We all know the Rolls-Royce approach to patent procurement—more or less the way it's been done for the past 100 years. In today's hyper-competitive patent market, however, having a more BMW-style practice may prove key to prospering (or even to survival in some cases). So what would a BMW-style patent practice look like? More specifically, how can patent practices modernize through lessons learned in traditional production industries—where decades of intense competition has resulted in process optimization evolving into a science?

Some of the most successful patent firms today are leveraging ideas from "lean production" to maximize their competitive edge.[7] Lean production is a convenient framework for thinking about operations and possible improvements. It is a school of thought that originated in the Japanese automotive industry in the 1990's.[8] The basic idea is to maximize the creation of value for customers while eliminating waste. Here, "value for customers" means any action or

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[1] Ian Schick, *What A Maturing Patent Bar Means For The Industry*, THE FASTER PATENTS BLOG, (July 5, 2019), https://blog.specif.io/2019/07/05/what-a-maturing-patent-bar-means-for-the-industry/.

[2] *BMW Group Sees Best-Ever Sales Figures in 2018*, DUPONT REGISTRY, (Jan. 11, 2019), https://blog.dupontregistry.com/bmw/bmw-group-2018-sales/.

[3] *The Pinnacle of Bespoke*, Rolls Royce, https://www.rolls-roycemotorcars.com/en-US/bespoke.html#.

[4] *Manufacturing Production Process*, BMW Group, https://www.bmwusfactory.com/manufacturing/production-process/assembly/.

[5] *Rolls-Royce Holdings PLC (RR.L)*, CITYWIRE FUNDS INSIDER, (Sept. 10, 2019), https://citywire.co.uk/funds_insider/share-prices-and-performance/share-factsheet.aspx?InstrumentID=2703.

[6] *Employees in Numbers*, BMW Group, https://www.bmwgroup.com/en/responsibility/employees.html.

[7] *John Harrity*, CLAUSE 8 PODCAST, (June 10, 2019), https://harrityllp.com/john-harrity-clause-8-episode-11/.; *See also* Steve Lundberg, *Innovation & Automation in the IP Law Firm*, SCHWEGMAN LUNDBERG WOESSNER: INNOVATION IN IP (Jul. 2, 2019), https://www.slwip.com/innovation-automation-in-the-ip-law-firm/.

[8] JAMES WOMACK, ET AL., THE MACHINE THAT CHANGED THE WORLD, (1990).

process that a customer will be willing to pay for. Parts of the production process that do not add value are considered waste.

Several interrelated concepts are central to the lean production ethos. They include minimizing waste, just-in-time production, kaizen (continuous improvement), and cell production. Each of these is explained below in the context of patent procurement.

MINIMIZING WASTE

Waste in patent procurement can take on many forms. At a high-level, however, waste can be categorized as overprocessing, overproduction, or defects.

Overprocessing

There is a waste of resources if an expensive resource (e.g., an attorney, a patent agent, a paralegal, a secretary, etc.) is used for a task when another resource could complete the task just as well. At first blush, this sounds a lot like the classic mantra of law firm leverage. However, there are things that can be done besides delegating talks to lesser-trained individuals to avoid overprocessing. For example, tasks can be decomposed into subtasks and those subtasks can be examined for further delegation even if the larger task is traditionally handled entirely by the more expensive resource. Also, in some cases, emerging technologies in automation may present alternatives to delegation. Where automation can be utilized instead of human labor, tasks are often performed cheaper, faster, and with less errors.[9]

Overproduction

In the law practice context, overproduction means generating more work product than is needed to meet a client's needs. Take patent application preparation, for example. How does a drafter know when a patent application is done? In traditional practices, it's often done when the budget is exhausted. What if, instead, the drafter stopped working on the application when it (1) provides sufficient backup positions that might actually end up in the claims during prosecution, (2) provides sufficient enablement for the initially-claimed and potentially-claimed embodiments, and (3) conforms to any and all requirements from the client. Law firm clients expect work product that satisfies official and strategic requirements, not a treatise on the field of invention.

In order to cut out overproduction, practice management will need to align their own incentives with those of the practitioners doing the drafting work. One easy change, for fixed-fee projects, is to give practitioners a fixed billable hours credit for completing the project, regardless of whether it came in under the budgeted time. Rather than just hours worked, which encourages overproduction, this ties performance more closely to revenue generated.

[9] Heidi Alexander, *Easy Automation: Automating certain tasks can save you time and expand your practice*, AMERICAN BAR ASSOCIATION: LAW PRACTICE DIVISION (Jul. 1, 2019), https://www.americanbar.org/groups/law_practice/publications/law_practice_magazine/2019/JA2019/JA19Alexander/.

Defects

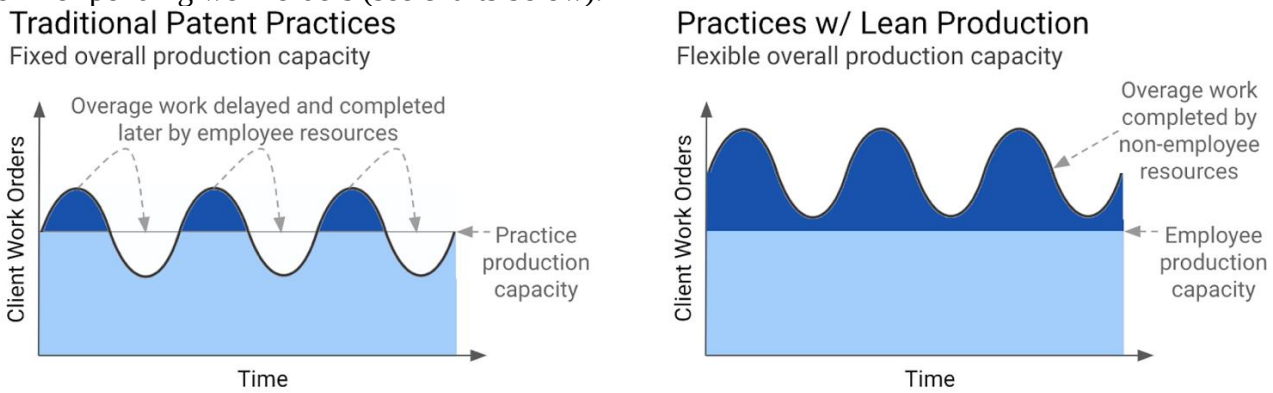
This includes any mistakes that occur in the patent pipeline, whether they be clerical (e.g., errors in filing forms), more substantive (e.g., curable § 112 issues), or procedural (e.g., incurring extension of time and other unforced fees). Defects-type waste can lead to additional cost in the form of penalties and legal fees for curing mistakes. Prosecution can also be delayed while defects are addressed, meaning even more waste.

Adjustments in processes and leveraging technology can effectively reduce defects. For example, getting religious about the "four-eyes principle" (i.e., having two people review each document before it leaves the firm) can have a drastic impact in catching errors, but perhaps at the expense of efficiency. Today, there are many automated patent proofreaders available that, in just seconds, can thoroughly review a patent application or office action response for common errors.[10]

JUST-IN-TIME PRODUCTION

In general, the focus of just-in-time production is on reducing inventory waste. That is, products are not stockpiled, but rather produced "just in time" to meet orders. With minimal stockholding, producers can be more flexible. For example, they can switch to make new products without having to get rid of much stock, meaning they can act quicker to add value.

Inventory in the law-practice context is work that has been requested by clients (i.e., "work orders") but not yet completed. In traditional practices, where a stable headcount means production capacity (i.e., full utilization of all employee resources) is essentially fixed, completion of any overage work (i.e., work orders above and beyond what employees can process at a given time) is delayed until work orders dip below the production capacity of the practice. A goal of this conventional approach is to compensate for the ebb and flow of work coming in so that practitioners keep as close as possible to their individual capacities (e.g., 35-40 billable hours per week). The inherent side effect of the traditional model, however, is the stockpiling of inventory in the form of pending work orders (see charts below).



To realize just-in-time production in a patent practice, flexible production capacity is required. Practices should be able to handle bursts in work orders without having to delay completion for lack of available resources. This is done by incorporating non-employee resources into patent workflows. Non-employee resources can include automation tools, contract patent professionals, and/or domestic or offshore outsourcing services. These are resources that can

[10] Ian Schick, *Top 10 Ways PatentTech is Disrupting Patent Procurement*, THE FASTER PATENTS BLOG, (May 5, 2019), https://blog.specif.io/2019/05/05/top-10-ways-patenttech-is-disrupting-patent-procurement/.

effectively be turned "on" and "off" as needed such that overage work is completed on pace with client work orders while keeping employee resources at their production capacity. All of the undulations in work orders are absorbed by non-employee resources, thus sufficient resources are always available to meet production needs, but the practice is never punished by having to pay for unused or underutilized resources.

For work orders that come today, when is "just in time" to complete them? For a variety of reasons, conventional wisdom says filing by client deadlines (e.g., a product release), non-statutory deadlines (e.g., three-month deadline for office action responses), or statutory deadlines (e.g., on sale bar) should not be the goal. Instead, with a lean production approach, work should be completed as expeditiously as possible to minimize inventory, i.e., the time between the client requesting the work and the work being finished. With the rapidly expanding range of available non-employee resources, be it automation or outsourcing, it has never been easier to find right-fit services for patent production.

KAIZEN (CONTINUOUS IMPROVEMENT)

This is really process optimization, but in an incremental fashion, and in a way that involves all members of a patent practice, top to bottom.[11] The philosophy of kaizen relies on a continuous effort to improve production. To be effective, a decentralized organizational structure is required with regular team meetings to identify and implement small, often quite simple, improvements to processes and activities. Discrete steps may be eliminated, combined, automated, outsourced, or made more efficient in other ways. Providing training to practice members to help them be more analytical may boost results.

Another requirement for effective kaizen is that efficiency among practice members must be incentivized. As with overproduction, the traditional billable-hours model for assessing practitioner performance can be counterproductive for kaizen. Here again, tying compensation to revenue generated may often get closest to aligning the interests of management and other practice members. One way to do this, as mentioned previously, is awarding practitioners the full balance of the hours budget for fixed fee projects even when they come in under.

CELL PRODUCTION

According to lean production thinking, processes should be viewed as a series of separate but interlinked subprocesses.[12] Each subprocess is then delegated to the most efficient resource. Traditionally, in manufacturing, each process is assigned to a "cell" or group of production workers. In patent processes, a cell could be comprised of one or more employee resources, one or more non-employee resources (i.e., automation tools, contract patent professionals, and/or domestic or offshore outsourcing services), or combinations thereof.

Processes large and small can be decomposed and optimized in this way. At one end of the spectrum, the "process at issue" could be an overarching process (e.g., "starting with an idea, procure a patent"). In fact, some leading practices have one group of practitioners who draft new patent applications and a completely separate group of practitioners who prosecute pending

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[11] Masaaki Imai, KAIZEN: THE KEY TO JAPAN'S COMPETITIVE SUCCESS, (1986), New York: Random House.

[12] William Feld, LEAN MANUFACTURING: TOOLS, TECHNIQUES, AND HOW TO USE THEM, (2001), Boca Raton, FL; Alexandria, VA: St. Lucie Press; Apics.

applications before the USPTO. As the process at issue becomes more granular, however, the opportunity is enhanced to squeeze out more value and eliminate more waste.

To illustrate, if the process at issue is preparing a patent application, subprocesses may include something like (a) invention download, (b) drafting claims, (c) assembling a first draft of the specification with baseline § 112 support, (d) bolstering the draft specification with strategic additions for future prosecution and litigation, (e) preparing formal drawings, and (f) finalizing the application ahead of filing. An attorney can certainly perform all of these subtasks, like in a Rolls-Royce-style practice, but it involves a significant amount of "overprocessing," in the lean production sense. A more BMW-style practice would find the most efficient solution to each subprocess in order to maximize the creation of value for customers while eliminating waste.

CONCLUSION

With changing demographics among practitioners, challenging economics in the patent market, and exciting new technologies designed for patent practices, it is imperative that practices evolve their operations to remain competitive. To some, transitioning an operating patent practice to incorporate the tenets of lean production may sound like repairing a car while driving down the highway. But it can be done, it has been done, and an incremental approach will keep the changes relatively painless.