Beyond **"See No Evil" Performance Measures**

The current budgetary and economic crises facing the United States mandates that we must maximize the impact of technology transfer in both the public and private sectors if we are to remain competitive in the 21st century. This is a topic that President Obama has outlined in a recent Presidential Policy Memoranda addressed to the federal laboratory system, and in the Administration challenge for our research universities to commit themselves to fully support commercializing technologies they create using taxpayer dollars.

With billions of dollars invested in R&D at stake, improving the end-to-end management of technology is of critical importance to global political leaders. At present, more than $60B is spent annually on university and federally supported intramural and extramural research in the U.S.

Yet identifying how to improve technology transfer output and outcomes on a consistent and predicable basis remains an ongoing challenge with little consensus on best practices. Unfortunately, most of the recommendations provided do little to address these underlying problems. To find a way out of the thicket, we need to step back and determine exactly what it is that we're trying to do. Merely running faster if you're going in circles isn't productive, just exhausting and discouraging. We need to make sure that we are aligning our measurements of success with our ultimate goal.

While working with some of the world's leading companies and universities, we've had the fortune to associate with top tier technology transfer professionals, thus gaining insight into best practices in the field. These people are unbelievably smart! They regularly seek to have unparalleled performance; constantly looking to identify new management frameworks to raise their productivity to new levels of efficiency, effectiveness and, ultimately, impact. Yet performance management is one of the key areas that remain one of the most difficult for leaders to address. This is not surprising given the gamut of different approaches that have been created over the years.

There have been over 40 performance management frameworks commonly used for technology transfer over the last 20 years. While each has merit and an interesting theory behind it, those developed thus far are founded on principles that no properly managed organization or leadership team would ever adopt. Why? Fundamentally, leadership teams seek ***balanced*** performance frameworks that align with the following core principles:

a) "Are we focused on the right things?" (*effectiveness).* Focusing on the right things drives desired output and outcomes. For example, this can come in the form of scrutinizing the portfolio to ensure that R&D dollars are going toward products that will create the most shareholder and company value
b) "Are we doing them well?" (*efficiency)*. Once you're focused on the right things, do them well. This typically means you get the most out of resources spent. For example,

what do you get out of every dollar you spend? What do you get out of each full time equivalent (FTE) you have?

c) "How fast do we innovate?" (*innovation speed*) The rate of improving both effectiveness and efficiency
d) "What is the result?"(*overall performance)*:
    a. Measure outputs, for example, how many products made it into successful product launches? How many jobs were created? How much follow-on capital was raised? What is the survival rate of the start-up companies in the marketplace?
    b. Measure outcomes, for example, how many people are healthier as a result of taking your drugs?
    c. Other: additional metrics to capture how the strategy of the organization is being fulfilled, e.g., impact on human health.

The term ***balanced*** is very important here, because it is critically important to have the right metrics in all the categories. Using a performance management framework short of the items outlined above could lead to a "**see no evil"** approach ignoring the real obstacles limiting improvements while measuring activities merely because that's what has been done in the past.

For example, if we measure an organization just by "effectiveness," typically, people will focus on the right things, but it will be very expensive and the ROI will be low. If we measure an organization just on "efficiency," licensing professionals might be very fast at processing things like patents, but produce no results, with a high transaction cost. A blend of both efficiency and effectiveness performance management metrics drives optimal behavior with strong results.

The conclusion: a new approach to performance management is pivotal for the technology transfer industry to truly produce optimal results.

One recent article attempts to put forth a new way of thinking about performance management. The article is called "An Index-based Measure of University Technology Transfer," by Melba Kurman. Ms. Kurman makes the case for a more meaningful way to measure technology transfer performance. She correctly points out that it's not volume that matters, but the efficiency in processing the volume (although volume of federal funding, publications and invention disclosures were emphasized in her prior article "Who does it best? Comparing universities by ***number*** of papers, inventions and industry research funding"). Unfortunately, she does not address several key factors that must be considered by any organization sincerely looking to improve its portfolio management performance.

In her new article, Ms. Kurman recommends measuring the three metrics outlined below:

1. Commercialization health index - measuring revenue per patent
2. Jobs created health index - measuring number of startups and associated FTEs
3. Licensing speed health index – measuring speed of licensing – from disclosure to license

Analyzing these recommendations in more depth offers a good opportunity to take a critical look at many of the traditional approaches to measuring technology transfer performance, while offering a new way to look at the problem.

Leading Practices for Performance Benchmarking:

In benchmarking performance, there are a few leading practices that are critical to employ during the analysis process. These leading practices enable one to create meaningful outputs from which one can make decisions.

Leading Practice #1: Ensure you take a multi-year approach as one year does not provide a view of performance consistency. It is unclear how many years of data Ms. Kurman uses to calculate these metrics.

Leading Practice #2: Compare your data set to similar organizations in order to extract an "apples to apples" analysis. In the Kurman article, there is no mention of controlling the data set to elements such as: age of the technology transfer office, size of the office, overall research expenditures and/or licensing income, the type of technologies in the portfolio and number of "one hit wonders" that skews the data, etc. It is not appropriate to compare the efficiency of university investing less than $50 million in research with one that invests over $400 million. Why? Most people would assume the $400 million research university would have more opportunities and inventions, but with more investment there is typically more complexity in processing transactions such as start-ups and managing personnel performance. With both universities starting 5 companies (which is a reasonable target these days) the efficiency is skewed, interestingly, toward the smaller university.

Let's look at another example at why controlling the dataset is important. Portfolios in the biomedical space usually have big hits; portfolios in high tech will have a broader distribution of hits; however portfolios in agriculture may have a lot of small, but consistent hits. Melba Kurman's "commercialization health index" rewards a broad distribution and penalizes those organizations that steadily produce patents with relatively flat income as well as those organizations that have big hits - therefore discriminating against portfolios in the biomedical and agriculture space.

Leading Practice #3: Ensure a comprehensive set of balanced metrics in each category of metrics you are measuring. For example, to measure FTE (full time equivalents) efficiency, it's important to understand licenses per FTE; disclosures per FTE; patent applications per FTE, etc.

The foundation to good performance benchmarking is to make sure the information being measured is crystal clear. For example, Ms. Kurman uses "speed of licensing" with no definition of the time frame. Is she measuring the time between when:

a) A connection is made with a potential licensee and the deal is closed?

b) The licensee is "validated" and has shown interest in the technology and the deal is closed?

The licensee has either proposed or received licensing terms and the deal is closed?

Obviously, whichever option is selected makes a great deal of difference in measuring how long it takes to close a licensing deal.

Furthermore, are licenses that are withdrawn or terminated within one year eliminated from the data set, as these deals potentially don't really constitute a meaningful transaction?

It's worth noting that in a recent article by Dr. Scott Shane, titled "Academic Inventions Generate More Income than Government Ones," some of the same errors outlined above are made. Shane states that licensing income in the academia world "earn nearly three times" more than in government. While this data point might be accurate in isolation for a broad set of data, this metric is not indicative of overall performance. Also, the metric is simply inaccurate if you take the apples to apples approach. RHT Consulting recently created a benchmark of a federal agency versus university biomedical peers and found a different result.

A Specific Assessment of Kurman's Performance Measures:

Effectiveness: The commercialization health index metric ("revenue" per patent) is attempting to measure whether an organization is focused on the right thing, so we characterize it as an effectiveness measure. First, it's not clear what "revenue" is in Ms. Kurman's model. Does it include settlements that might skew the measurement? Next, this metric is potentially misleading because, at times, licenses are created on technologies ***that have not been patented***. In addition, this measure doesn't evaluate the ***cost of the patents*** relative to the income they produce. Finally, the metric misses the holistic view of effectiveness, for example, the following items are omitted:

- Patents issued from patent applications, which is a metric that needs to be measured over multiple years of data given it may take several years for a patent to become issued
- Licenses and startups as a result of patents issued

Financial Efficiency: Metrics in this category would typically include items such as the number of licenses, options and startups per $1 million in research expenditure; patents issued per $1 million of research expenditure, etc. Ms. Kurman doesn't have any metrics that cover this category.

FTE Efficiency: The closest metric Ms. Kurman has to FTE efficiency is "speed of licensing." This is indeed an interesting metric, but doesn't capture all the other FTE efficiency metrics. Metrics such as licenses, startups and options per FTE; licensing income per FTE; patent applications per FTE, and disclosure per FTE are important metrics in this category. Another complication with "speed of licensing" is that this metric may drive the wrong behavior. People can become very fast at licensing and lose significant value given the low quality of the license. Ironically,

increasing speed and decreasing effectiveness could be positively rewarded using Ms. Kurman's commercialization health index coupled with her speed of licensing index.

Innovation Speed: As outlined above, this category rates improvement of efficiency and effectiveness. One metric in this category is patents issued based on newly filed patent applications. Kurman doesn't have any metrics in this category.

Performance: Ms. Kurman's job creation index could fit into this category given it is being measured in her analysis as an outcome of startups. This metric has merit, but has been debated given the 80-98% failure rates in start-ups and the subsequent lack of taxpayer returns. For technology transfer, the best performance guideposts are two metrics that actually have reliable data sources:

- Licensing income per $1 million in research expenditure
- Licenses, startups and options per $1 million in research expenditure

Please note, there typically are additional overall performance metrics necessary to track specific technology transfer organization's strategies. ***Also, there are many other metrics we'd love to measure such as win rate (discussed above as the number of licensing transactions performed that are not withdrawn or terminated within one year). Another metric we'd like to use is the number of products produced as a result of licenses.***

Other Issues:

There are some additional issues regarding Ms. Kurman's model. Some of the metrics will drive unintended consequences. For example, the commercialization health index may force organizations to patent everything just so that it could be measured, which would reduce financial efficiency and has an opportunity cost as it relates to where people should focus their time.

Summary:

While Kurman's and many of the other metrics articles are indeed interesting, unfortunately, the performance measures recommended are imbalanced and not comprehensive. For Kurman, the most significant issues are that two categories of metrics aren't covered at all, and those that are covered are incomplete.

At the end of the day, to be successful, ***all technology transfer organizations***, regardless of the mission statement, need a balanced approach to measuring and driving performance. This is important not only to the organization in question, but to a nation facing serious economic headwinds.

Given President Obama's newly issued Memorandum focusing on driving higher levels of performance in technology transfer, one final valuable consideration pertains to the technology transfer budget climate and how this may impact performance. Leaders should not try to starve an organization of appropriate funding and support in an attempt to get "more out of the resources," especially in technology transfer. This will backfire ***every time*** as no one measures the impact of unintended consequences such as reduced productivity given fragmented personnel, turnover, brand value deterioration due to lack of proper client service, etc. In fact, the Obama administration and Congress should be very wary of cutting the technology transfer budgets if they truly want more commercialization output. The principle consideration is to be smart with resources. Getting more with less takes a surgical approach, not a meat cleaver.

It's time to chart a new course by accurately understanding current performance, where we should go and, then determining how we can get there, and what performance framework supports these objectives. With that it's easy to see whether your efforts are taking you on a successful voyage, or merely around in circles. **It's important look at your current situation with new eyes.**

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Rosemarie Truman is the CEO and President of RHT Consulting whose specialty is helping companies grow. RHT Consulting has significant breadth, from identifying growth breakthroughs for the largest companies across industry sectors to working with emerging companies to select the right portfolio and optimizing their ability to attract capital. RHT's clients have cumulatively enjoyed ~$20B in Operating Income. Recently, Rosemarie has completed leading the creation of a technology transfer strategy, roadmap and blueprint for one of the world's most respected biomedical institutions. Previously, Rosemarie held Innovation and R&D Strategy leadership positions in PRTM and IBM. Rosemarie has also led the formation of multiple "incubator" models and associated due diligence frameworks focused on identifying and developing growth breakthroughs.

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