# PART
# ONE

## Operational Analytics

CHAPTER **1**

# The Innovation Index

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● **WHY AN ORGANIZATION MIGHT TRACK THIS**

## Questions Answered

- Are creative people attracted to an organization like ours as possible employees?
- Does our culture reward creativity and risk taking?
- Do we hire creative people versus those who always follow the rules?
- Do we have work processes for encouraging creativity?
- Do we have multiple mechanisms for people to submit ideas for new things and improve old things?
- How much of our financial success can be attributed to innovation?
- Do we have efficient processes for operationalizing innovations and getting them to market quickly?

## Why Is This Information Important?

If you look at most fields, the most successful companies in those fields are the innovators. Southwest Airlines is a true innovator in the airline business, coming up with a different strategy for an airline that remains successful years later in spite of many copycat airlines that have attempted to rip off their strategy. United has twice tried to come up with their own version of Southwest and both are gone. Remember United Express or Ted? United Express still exists, but it is no longer a direct

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competitor to Southwest. Coming up with a great and innovative idea is certainly a good way to start a new business, but it often does not take long for a competitor to come along and copy your product or approach. Bose is a company I worked with that is really good at innovation. Some of their products, such as the little cube speakers, the noise-canceling headphones, and the Bose Wave, are still successful and were considered major innovations in audio when they first came out. Other companies have similar and lower-priced products in all of these categories, but most of us still prefer the original—Bose. I almost considered a Samsung Galaxy when my iPhone 4 was in need of replacement, but I ended up sticking with Apple and going for the iPhone 5, which I love. Once again, the innovator won out over the copycat.

Innovation is elusive. Some organizations have a number one hit and never have another one. They come out with one good product that runs its course and are never able to come up with another hit. In the music business, it is hard enough to get one chart-topping song, but doing so year after year for decades is close to impossible. For every Beatles that comes along there are thousands of one-hit wonders. They may even get a Grammy for Best New Artist, and by the next year we have forgotten all about them. For every Monopoly there are hundreds of games that get discontinued after the first season. For every Ralph Lauren or Giorgio Armani who have had more than 30 straight years of success in fashion, there are hundreds of designers whose collections never even make it beyond one short season. Watch for their latest fashions at your local TJ Maxx selling for pennies on the dollar.

Like any other dimension of performance, innovation needs to be precisely measured and managed. Managing costs is pretty straightforward. Managing production or delivery is pretty straightforward, as is measuring these two functions. Measuring and managing innovation is incredibly difficult. Like human capital and some of the other performance dimensions discussed in this book, there are some dimensions of organizational performance that everyone agrees are linked to growth, revenue, and profits, but no one can agree on how to measure them. This does not stop organizations from trying to measure and encourage innovation, however. Most of the metrics I've seen miss the mark. They either are not good measures of innovation or they are good measures but we can't trust the integrity of the data.

## WHAT IS IMPORTANT ABOUT INNOVATION?

**People**. When you look at organizations known to be really good at innovation, you often find that a huge part of their success is based on hiring the right people. Think of the value of Steve Jobs at Apple, and how a single person can make a big difference.

Imagine if you had 2,030 Steve Jobses or potential Steve Jobses? Google and Microsoft both focus on hiring smart people. People with degrees from Stanford, Harvard, MIT, and other top universities are probably really smart, but not necessarily creative and innovative. On the other hand, some smart people find college boring and drop out. You also find that some very creative people never went to college, let alone MIT. You would probably also find that some really creative people don't score well on intelligence tests and perhaps were C students in school. Any measure of innovation surely needs a people component to it, but rarely is this the case. If there are people measures at all, it is something dumb like the percentage of people who attended your three-day innovation workshop. I am not sure creativity and innovation are even trainable. I guess you could take a completely noncreative person and make them a notch or two better with some training, just like I could take any 20 of your employees and teach them basic guitar skills in a few days. However, none of them are likely to become competent guitar players, and among the thousands of competent guitar players out there, very few can write a good song, and one in a million can write a hit song. Rather than hire smart but not necessarily creative people, it makes more sense to hire people who already have a high degree of creativity and have already written a hit song, or at least have the ability to do so.

**Environment**. If you visit all the usual benchmarks like Google, Pixar, Apple, Amazon, and Facebook, you will see that their work environments tend to differ from the typical cubicle farm in the middle of each floor with offices around the perimeter. You will see open workspaces, meeting spaces without traditional conference rooms, bright colors, lots of flipcharts and whiteboards scattered about, bulletin boards for posting visuals and ideas, small workspaces tucked in random corners, pool tables, Wii consoles, and all sorts of other things that would look a little out of place in most corporate environments. You might also get the feeling from being in an environment like this that the company really embraces diversity. In other words, there are a lot of different types of people working here, and they all look different. In fact, some of them are downright weird. You might also see an

environment where a sense of humor seems to be part of the atmosphere. You might actually hear lots of laughing at work. Both my brother and sister-in-law work for companies like this. My sister-in-law works for Google and has done so for most of her career, and my brother Paul works for a Silicon Valley firm called Duarte Design that puts together major PowerPoint presentations for big meetings. Nancy Duarte's claim to fame is the presentation she developed for Al Gore on global warming, "An Inconvenient Truth." Her firm helps other organizations develop compelling visual-based presentations like this. Both companies (Google and Duarte Designs) have work environments that do not look anything like what I was seeing when working with big traditional companies in New York or Chicago. This type of workplace design is actually quite common in Silicon Valley, however, starting with leading companies like Fairchild and Intel. Hire the right people and put them in a creative environment, and you are already at least 50 percent there in creating an innovation-friendly workspace.

**Culture**. Related to environment but different is your organization's culture. I talk about how to measure culture in Chapter 18, and some of that information may be relevant here as well. Some organizations have a culture that rewards risk taking and creativity and some do not. Hiring creative people and putting them in a loft with bright colors and no offices will only lead to innovation if the culture encourages this. I remember working with IBM years ago at their old 590 Madison Avenue building in New York City. The company was in the process of trying to change the work environment to encourage more innovation and get salespeople to spend more time with customers. Several floors of the building were converted to an open environment where employees could sign in, plug in their laptops, and use a workspace, but no one had assigned offices. Meetings occurred in informal conference rooms and the latest furniture from Herman Miller was scattered about in bright colors and retro designs. The place looked really cool and modern. The problem was that it was still IBM. This was after top management had relaxed the blue suit, white shirt dress code, but it was still IBM. IBM is certainly known for some great innovations, but it is also known for being very conservative and kind of stodgy.

New furniture and a loft office space by themselves will not change the culture. Few companies I have worked with embrace failure as an opportunity for innovation. In fact, the culture of most companies is that you are one bad decision or failed project away from the unemployment line. Part of having an organization that is good at innovation is having a culture that encourages it. That means it is okay to fail. How many times did that Dyson guy say he redesigned his vacuum before settling on one that works? How many failed inventions did Thomas Edison have compared to successful ones?

**Processes**. Organizations that are good at innovation are also not bogged down with committees, procedures, approvals, and lawyers whose main focus is to prevent the company from taking a risk. Managing risk is certainly important, and I outline how you might go about measuring risk in Chapter 5. However, speed is usually a major factor. While working with Ericsson back in the day when it made cell phones, I recall that the new product development cycle took about twice as long as Nokia's. By the time Ericsson came out with a new phone it was old news. Seen many Ericsson cell phones lately? It sold its cell phone division to Sony years ago, but I don't recall seeing many Sony cell phones lately, either. Processes have a huge bearing on innovation and the ability to get products to market quickly. Organizations known to be good at innovation have work processes that make it easy for employees to submit ideas, get feedback on those ideas, and perhaps turn the ideas into prototype new products and services. Rapid innovation is an important business trend right now, because you have to jump on opportunities quickly before the market window closes or some competitor gets there before you and scoops up the market. Part of work processes that relates to innovation is focus. One of the big points of Steve Jobs's approach to running Apple was that the company had a singular focus. The iPad consumed almost all of the employees' attention and resources for new products until the products were released. Apple does not try to release 20 to 30 new products each year like some technology companies do. It tends to do one big one every year or two and make sure it is a game changer. The new iPhone 5 with personal assistant Siri is a pretty big improvement

over the 4 or 4s versions. However, the first iPhones were the real game changers. There was nothing remotely like them at the time. Focus is part culture and part processes. Some companies just have focus as part of their DNA, whereas others always seem to struggle with this. My clients that grapple with focus seem to be afraid they won't succeed if they don't continue working on 25 new things at once.

## TYPES OF ORGANIZATIONS WHERE THIS METRIC IS APPROPRIATE

There are a lot of organizations that do not need an analytic measure that looks at innovation. For many successful companies out there innovation is not a key success factor. Copying someone else's business model or strategy and doing it cheaper can be a very effective approach. A lot of smaller companies, for example, wait for the big corporations to do their market research and start building a new store or location before competitors start building one nearby without having to pay for any market research. I read that this is how Motel 6 builds new motels. It waits until Holiday Inn or a low-end Marriott property starts construction and then Motel 6 finds its own site nearby. There are a lot of organizations that just need to do their job and not worry about being creative or innovative. Innovation certainly has its place in health care, and there have been many innovations in recent years in treatments. However, if you are running a chain of 20 urgent care clinics you probably don't need to start measuring innovation. Just become more efficient and effective at seeing and treating patients.

The organizations that need this metric are certainly technology companies, creative businesses like advertising, publishing, filmmaking, architecture, music, or even software. Many traditional manufacturing businesses probably need to measure innovation as well. Even a pet food company like Purina gets a big percentage of its revenue and growth from new products. Automobile companies certainly need innovation, as do aircraft manufacturers, hotels, restaurants, and even some health care providers. Research organizations and retail stores certainly need to be innovative, and many successful

franchises came from some pretty important innovations. In short, there is a much longer list of organizations for which this metric is needed than those who don't need it.

## HOW DOES THIS IMPACT PERFORMANCE?

Like many of the analytics described in this book, the impact of innovation is huge. Look at Henry Ford's assembly line. This innovation changed the world, as did the light bulb, microprocessor, phonograph, telephone, computer, and iPhone. Innovation is thought to be one of the major factors that fuels the U.S. economy. Americans certainly did not invent all the good products that have come out in the last 50 years, but we did invent a lot of them, and continue to do so. Some cultures, like those in Indonesia, the Middle East, and China, that are good at manufacturing struggle with how to get their industries to be more innovative. Innovation is the difference between success and failure in many industries. HBO is almost always the winner of stacks of awards for TV programming because of great and innovative movies and series like *The Sopranos*.

Innovation clearly impacts revenue, since many companies get a big chunk of their sales from new products and services. Innovation has a major impact on stock prices. Hearing about a new drug that your company has in Phase II testing can make stocks soar if results are positive and the drug is a game changer. Innovation impacts employee engagement in a big way. If people are encouraged to be creative and come up with new ideas, and the company actually listens to some of their ideas, work can be a lot more rewarding. Innovation often has a big impact on market share and profit as well. What percentage of the market do you think Apple has with its various iPods compared to other manufacturers of portable music devices? Remember when Sony first came out with the Walkman? Everyone bought one of those as well, and no one wanted a knockoff Walkman, even if it was cheaper. How about Viagra? Pfizer had 100 percent market share, and because there was no competition the company could charge whatever it wanted for many years. How about Trader Joe's? It created an entirely new category of grocery store, and many of its innovative products cannot be purchased anywhere else. Trader Joe's continues

to grow by leaps and bounds, and has no real competition. They don't try to be Kroger, Publix, or Safeway, or Whole Foods, either. The worst thing that happened to Safeway/Vons in Los Angeles is that it let its workers stay out on strike for many weeks. Consumers who had never considered shopping anywhere else tried Trader Joe's, loved the products, and loved that they could get four bags of groceries for the price of three at Vons. Many never went back and became loyal Trader Joe's customers.

Innovation impacts just about every other measure on your scorecard if you are an organization that depends on it for your success.

## MOSTLY WORTHLESS INNOVATION METRICS

As with culture, human capital, and customer relationships, innovation is really hard to measure and manage. The measures that are objective and easy to count are the ones I usually see, but they are always lagging indicators. The typical innovation metrics include:

- Sales number from new products or services
- Percent market share from new products or services
- Growth in revenue from new products or services
- Number of new products or services launched
- Profit amount and percentage from new products or services
- Innovation premium

According to *Forbes* magazine, the innovation premium is a measure of how much investors have bid up the stock price of a company above the value of its existing business based on expectations of future innovative results (new products, services, and markets).[1] This one sounds a little shaky to me, since it is not possible to determine if news of future innovations is the single factor that drove up stock price.

These are all good lagging financial measures that are worthy of consideration for inclusion in an innovation index. However, relying on only these measures is foolish, because they are all backward-looking metrics and you can't manage the past. Realizing this, some

companies have made attempts at measuring some leading indicators. Some of the less useful ones I have seen are:

- **Attendance at innovation training**. There are a couple of problems with this one. First of all, I am not sure creativity and innovation are trainable. Second, measuring training by counting butts in seats is not a measure of whether people learned anything.

- **Innovation teams**. Counting the number of teams working on developing new products, services, or processes does not tell you anything except that you have a lot of meetings and teams.

- **Milestones met on innovation projects**. This one could be okay if schedules are aggressive and focused on getting something to market or implemented quickly. Sadly, this is not often the case. Project managers set their own milestone dates and get measured on the extent to which they hit their own self-imposed deadlines. Ericsson always looked really good on this one when they were taking twice as long to design new phones as Nokia.

- **Ideas submitted by employees**. Companies like Toyota have gotten a lot of press for a culture of having each employee think of a way to improve the company or products every day at work. The company must get thousands of ideas every day and I bet most of them end up in the trash. However, there are probably a few gems in there as well. My concern is that with so many ideas submitted every day, the gems are a lot more likely to be missed. Easier to find a needle in a small pile of hay than a big one.

## COST AND EFFORT TO MEASURE

The cost of constructing a good innovation analytic in most companies is low. Many of the variables that go into an innovation index are already being tracked somewhere in the organization. Most of the financial measures of sales and profits from new products and services are certainly being measured, as is a set of research and development (R&D) metrics like patents, successful product launches,

consumer feedback regarding new products and services, market share, and other lagging output and outcome measures. What do not exist that might take some effort and cost to measure are things like the extent to which you are hiring innovative people, the degree to which your culture encourages innovation, and how effective and efficient your processes are for driving innovation. These factors could drive the cost and scale of effort up to a medium level. However, I recommend starting with a fairly simple analytic and making it more sophisticated with time as you learn which variables best predict your overall success.

## HOW DO I MEASURE IT?

As with some of the other analytics I discuss in this book, a good way to think about what metrics to include to measure innovation is to make sure they are a mix of leading and lagging indicators. The lagging indicators all tend to be objective, important, and easy to count, and that is true for innovation measures as well. I like to further sort the leading measures into:

- **Inputs**. The major inputs to the innovation process are market research, customer feedback, competitor data, information on new technologies or findings, tools, equipment and resources, goals, and information on company direction. Other inputs for innovation might be problems or specific requests brought to R&D to solve by marketing, engineering, manufacturing, and other departments. For example, when Pfizer found out the-number of people who suffer from chronic pain, the top executives learned a lot about the size of the market for an effective pain drug. When they also found out that the average person sees many doctors and tries four to six different treatments for their pain, they learned that there was a huge need in the marketplace for an effective pain treatment. Another major category of inputs for the innovation analytic is people. Hiring smart, talented, and creative people is a huge input that needs to be measured. Assessing a possible hire for creativity or innovation should be done via a combination of behavioral interviewing, review of past accomplishments at previous jobs

(e.g., painted 18 works that sold for over $25,000 each and were exhibited in major New York City and Paris galleries), and any kind of creativity instrument testing you feel has validity. Both the hiring and retaining of creative people need to be measured. It is important also to update your data on existing employees. We all know people who were incredibly creative in their younger years, but who have settled into middle age and a secure job, and may have lost that creative edge they once had. This does not happen to everyone—look at Bob Dylan or Paul McCartney—but it does happen to a lot of people. Assessing an existing employee on past innovations from 20 years ago is worth something, but what have they done for you lately?

- **Processes**. A number of processes go into the innovation function: coming up with new ideas, evaluating ideas, writing proposals, making presentations, attending meetings, conducting research, developing prototypes, testing and evaluating, documenting findings, preparing publications, developing project plans, communicating and deploying new technologies, and obtaining funding. All these processes could be excellent and very efficient, or just the opposite. One of the key process measures that should be part of your analytic is cycle time. This is what killed Ericsson's innovation process—it took too long. Measuring the total cycle time as well as the cycle time from point A to point B and point D to point E are important. Another key process metric that might be considered is the extent to which the innovation process has been followed. This is more important in some industries than others. In the pharmaceutical industry there is strict protocol for Phase I, Phase II, and other types of trials and testing that must be done before a new drug is released to market. This is important for the Food and Drug Administration (FDA) to ensure that the product is safe. Several pharmaceutical firms have almost gone out of business because of liability lawsuits from drugs that had a negative impact on some patients. Following a regimented and disciplined process for developing and testing new products is a type of metric worth considering for inclusion in your innovation analytic.

- **Outputs**. R&D produces a number of outputs that can be measured, including patents, papers, publications, prototypes, study results or data, project plans, grant applications, proposals, new products, and new knowledge or technologies. Depending on the nature of your business, innovation outputs might also include counting things like new products introduced, new services, renovated products or new versions of old products, new markets penetrated, new uses for products developed, and so on. Outputs are things that you can count that relate to the innovation process. Some are more leading indicators like patents, and some are more lagging indicators like new products sold, but both are types of outputs that could be counted. For an existing product an output metric might be the number of new features added. If you compare the 2003 Corvette with the 2013 Corvette, you are likely to see a number of new features. Another output metric might be the number of times you are first in the industry to include some feature in your product or service. Being the first airline to let you book a ticket online might have been a pretty innovative accomplishment years ago. Being the first airline to let customers comment on their flight experience via Twitter versus a long and complicated survey might be an innovation as well. An output metric might be the product/service differentiation index discussed in Chapter 12.

- **Outcomes**. Outcomes are things the organization values that usually involve the behavior of those outside the organization. Outcomes are certainly all the key financial metrics mentioned earlier like sales and profits from new products. Market share for new products is also a key measure that looks at the impact of your product or service in the marketplace. Outcomes could also be greater loyalty from your customers or a strengthening of your relationship. See Chapter 13 for more information on measuring the strength of the relationship you have with your customers. Outcomes might consist of awards or rankings done by prestigious publications or organizations. Outcome measures might also focus on nonfinancial measures such as cost reductions, improvement in product or service quality, improved efficiency, or greater yield.

## FORMULA AND FREQUENCY

The overall formula for an innovation index is that it consists of leading (input and process) and lagging (output and outcome) indicators and that the leading indicators have been proved to link to the lagging ones. In other words, avoid superstitious input and process measures that may look logical but are unproven. The straw man to begin with is as follows:

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| Input metrics | 30% |
| People | 15% |
| Market data | 10% |
| Opportunities | 5% |
| Process metrics | 20% |
| Cycle time | 10% |
| Process discipline | 10% |
| Output metrics | 20% |
| Number of units sold | 5% |
| Patents or new intros | 5% (number of new products or services developed) |
| Differentiation | 5% |
| Number of new customers | 5% |
| Outcome metrics | 30% |
| Revenue—new stuff | 7% |
| Profit—new stuff | 8% |
| Market data | 8% (market share, customer loyalty, etc.) |
| Internal | 7% (cost reductions, improved quality, improved productivity, etc.) |

## VARIATIONS

As with many of the analytics in this book, there are a wide variety of ways to calculate an innovation index depending on the level of sophistication of your business and the type of industry you are in. The previous model is still a good overall design that balances predictive and lagging indicators, but variations occur in the individual

metrics under each category and their weighting. At one company, for example, the outputs they count are innovations (new products) and renovations (old products that have been reinvented). The degree of renovation is also measured so that it counts more to completely redesign the product than just improve the packaging. Another good outcome metric I have seen is the number of game-changing products. Viagra or the iPod would both be good examples. These products created an entirely new category of product that did not exist before. Another outcome measure that could be considered is the one suggested by *Forbes*: an innovation premium that looks at the impact of innovation on stock price.

## TARGETS AND BENCHMARKS

Targets for both the overall index and the individual submetrics depend on many factors, but the most important is the degree to which your industry and organization is dependent upon innovation for its success. What I find not useful is setting targets for the number of innovations. If you set a target for 10 new products per year you will get 10 new products and all of them could have marginal value. I prefer setting overall outcome targets and letting the R&D, marketing, and other people figure out how to meet those targets. For example, if you set an overall target that 30 percent of sales comes from new or improved products, achievement of that target might come from one breakthrough blockbuster new product or from 15 slight enhancements to existing products. Setting quotas for the number of ideas or new things does not tend to work well. Many musicians never have another hit after they get a record contract stating that they need to come out with a new album every year.

## BENEFITS OF DATA

Innovation is a performance factor that is vital to a lot of a companies' success. It is something many organizations invest millions in and have only lagging indicators to measure its effectiveness. Drug companies spend literally billions researching and testing new drugs, only to sometimes find out at the very end that the product has too many side

effects and won't be approved by the FDA. Innovation is a dimension that is extremely difficult to measure and manage, but doing so can have a dramatic impact on the bottom line.

## NOTE

1. Hal Gregersen and Jeff Dyer, "How We Rank the World's Most Innovative Companies," *Forbes*, September 5, 2012, www.forbes.com/sites/innovatorsdna/2012/09/05/how-we-rank-the-worlds-most-innovative-companies.