Innovation Metrics

We know innovation is a complex topic. It’s an important word, used frequently in business as a distinguishing factor related to vitality and success, but it seems there are hundreds of meanings and application of the word. So how do you measure it?
About InnoCentive

InnoCentive is the global pioneer in crowdsourced innovation. We help innovation-driven organizations solve their critical business, scientific and technical problems by crowdsourcing ideas and solutions, either from our global network of highly educated problem solvers or from their own internal networks. By accessing vast virtual workforces with InnoCentive, organizations have been able to innovate faster, with less risk, and at a lower cost. We offer our proven Challenge Driven Innovation™ methodology, unrivalled network of over 380,000 problem solvers and purpose-built technology, as well as accompanying training and program management services. To date, InnoCentive have conducted over 2,000 external Challenges for organizations including NASA, DARPA, Thomson Reuters, AstraZeneca, GSK, Anheuser-Busch InBev, and Ford Motors.
Introduction

This white paper was written from one practitioner of innovation to others with the hope of helping our community grow the expertise of effectively measuring innovation and its value. I intend to introduce several frames of mind that will help focus metrics thinking, and reference best practice examples learned from over 15 years in innovation.

I view this paper as a mentoring activity. As though I — the war-weary practitioner veteran - am sharing hard-won knowledge with the new recruit. So I'll start with a mindset of introducing the innovation metrics topic as though we were starting afresh.

You Can’t Measure Something You Don’t Understand

We know innovation is a complex topic. It’s an important word, used frequently in business as a distinguishing factor related to vitality and success, but it seems there are hundreds of meanings and application of the word. So how do you measure it?

Today the word “innovation” is thrown around frequently. I'm reminded of the “quality movement” in the USA of the 1980’s. We were obsessed with improving the quality of American business and industry, fearful of decline and not being able to compete or even survive in a changing world. Examples surrounded us, like the loss of Detroit to Japan as the world's automobile capital. The word “quality” started appearing everywhere: in vision statements, manifestos, and advertisements. If you lived through that era you'll never forget “Ford: Quality is Job 1”. I truly believe the quality movement had a lasting effect improving business practices but the word itself became so ubiquitous that it became meaningless.
This story resonates with our topic both in the way our hopes today are tied to innovation to help us survive and thrive in the current changing world — but even more importantly to our topic of measurements. “Innovation” is overused today. It is applied for so many different expectations that we run the risk of it becoming meaningless. Disconnects frequently occur between one faction — like leadership, the people providing funding for an innovation program expecting one output, and other factions - like employees with great ideas, or the group running the innovation program expecting other results.

I’ve seen Innovation Teams in hot water and nearly fired for this kind of disconnect. And I believe the capability of innovation is too important to dismiss. Expectation setting is critically important: agreeing on what innovation is expected to deliver and how its value is measured.

Questions and Suggestions To Help Frame Innovation Measurement Thinking

**QUESTION:** Are you new to the world of measuring complex activity?

**SUGGESTION:** Explore established metrics examples to gear your mind towards innovation.

If you are new to the area of producing metrics I recommend looking into disciplines that have had success. Viewing how they determined metrics — especially for complex or hard to grasp topics - can be most helpful. Observe the metrics that work for related or similar programs and adapt their metrics to your measurement of innovation.

Is your innovation focus like other programs in your organization? Is the desired effect and overhead similar perhaps a quality or safety program? Could you compare the complexities of the working environment in which you enact innovation to your organization’s technical systems management process or human resources program?

If you can’t find programs in your organization, look outside. It’s often very impactful to see how competitors measure things. But be careful to adapt the language you’ll use to make sure it works in your organization.

Metrics for programs are often established using measurement framework concepts such as capability maturity models and balanced scorecards. A metrics team I managed found Robert S. Kaplan and David Norton’s “The Balanced Scorecard, Translating Strategy into Action” especially helpful.
QUESTION: Is your innovation focus a part of your organization’s Research and Development (R&D) initiative?

SUGGESTION: If so, leverage the metrics history of the R&D group. Consider reapplying best metrics methods from R&D — but be careful to measure innovation’s distinguishing factors such as speed or disruption control.

Innovation is often bolted to a Research and Development group. But while research and development cycles often have the luxury of time — 3-5 years in many groups and longer in some industries like pharma and energy — innovation is usually expected to have a quicker cycle, a faster track to allow rapid response to an emerging need. Speed is often a distinguishing factor and should therefore be measured. Speed examples might include: time from concept to decision pilot, or volume of those failing fast and number of lessons learned.

Managing disruptive, breakthrough concepts can be another distinguishing factor for innovation. Metrics might include measuring the potential value of high risk, potentially highly profitable but disruptive/breakthrough ideas, and measuring the protective management of those ideas through the process.

Formalized R&D has been a part of business for a very long time. Leverage the metrics history of your organization’s R&D group by asking questions and adapting findings to your innovation focus. How does the R&D department express the value of their activities: the value of an experiment or the value of key information like a failure? How does R&D measure return on investment?

QUESTION: Is your innovation focus responsible to produce innovative products or are you expected to develop a process that enables the organization to be more innovative?

SUGGESTION: Start thinking of the innovation for which you are responsible as a noun or a verb.

Understanding the answer to this simple, but profound framing is one key to level setting expectations — and therefore key to getting innovation metrics right. A couple of times in my innovation career our sponsoring managers stated the directive for our programs as something like “it’s simple - we want more innovation”. After living through resulting nightmares of missed expectations I have learned to respond with clarifying questions based on a table of options that include nouns and verbs.

Innovation can be a noun — a tangible thing like a new product or service. And innovation can be a verb — the process used by innovators to produce Innovations, or perhaps the process used to grow more
innovators or grow our reputation to be more “innovative”.

Be careful to set expectations straight. Is your performance success measured as the group who produces the next breakthrough “thing” (noun) — or the group responsible for enacting the environment that enables (verb) more innovative “things”?

The rest of this paper will explore innovation metrics from the framing of innovation as a noun and innovation as a verb.
I am a Principal of IVI (the Innovation Value Institute). Our Innovation Management Working Group researched best methods for managing innovation programs across industries and looked at the way innovation output was viewed. We discovered an important key in understanding expectations for innovation — related around the concept of “posture”. “Posture” depicts the mode of operation of an organization. We found organizations fall into four postures, as depicted in the following diagram.

When most people think of innovative organizations they typically think of the posture depicted in the right hand column: Value Center. Google, Apple or other companies admired for their innovative products or services usually come to mind, and this posture is what most visionary leaders think they want from an innovative organization. After all, who wouldn’t want to be described as an on-fire organization like Google? Who wouldn’t want to lead the industry in breakthrough products like Apple?

Value Centers produce innovative products and services that are
the output of organization. Innovation is obvious in this type of organization and it's comparatively easy to measure innovative output. But not all organizations are Value Centers. They can fall into three other modes: Cost Center, Service Center and Investment Center. Cost Centers provide things like the internal management of an organization. Service Centers provide key services to the organization's Value Centers. Investment Centers explore key areas of value to the organization's future.

The vital key to remember is that innovation takes place in any posture, but the output — the NOUNS produced by innovation look very different in each.

Another important mindframe with this model is to realize that many organizations are complex and may contain several postures. My first innovation program took place in a complex IT organization that had 12 departments. All postures were represented, from Cost Center — with the 24x7 Operations Group; to Service Center — Customer and Tech Support; to Investment Center — with Research and Development; to Value Center — with applications development.

We quickly learned to correct our metrics for the program. It was unfair to expect our Cost Centers to meet goals for nouns like Patents. Yes, we had some metrics where we measured goals across the organization, in every group. But they tended to be VERB oriented, like our measures of participation in the programs that collected ideas or developed innovation processes. More on that later.

Use the posture framework to understand your organization(s) and its goal(s) for the nouns of innovation, the production output. Here are some examples...

**Cost Center**

Cost Centers provide things like the internal management of an organization and are concerned with things like efficiencies, cost savings and cost avoidance. You know you are working in a Cost Center posture when the top deliverables measure cost reduction or doing more with less.

**Cost Center Innovation Metric Example: Dollars Reduced to Manage Processes**

One of the most innovative organizations I've ever seen was a Cost Center, an IT Operations group that had a challenge to drastically reduce their cost in six months or be outsourced. The group's leader creatively addressed the challenge through innovation, involving
all employees in innovation campaigns, focus workshops and other
innovative thinking practices.

The group was successful, exceeding goals to cut costs within the
timeframe.

Of the hundreds of concepts applied to address and overcome the
challenge, one of my favorites involved the reduction of time and
resources required for a key operational process. By looking at the
process from new perspectives, combining ideas and reapplying
efficiencies from other processes, they cut the costs to run the process
by many thousands of dollars.

The metrics for this and similar output were calculated with standard
operational algorithms for process efficiency. For this specific example:
Cost Saving = (T x N) S, Where:

T = the time (in hours) saved from eliminating process steps, multiplied
by the number of process runs required in a year
N = the number of people involved in the eliminated process steps
S = average cost of an employee per hour

We found Douglas W. Hubbard's “How to Measure Everything, Finding
the Value of the 'Intangibles' in Business” a valuable source of ideas for
our metrics.

**Service Center**

Service Centers provide key services to the organization’s Value Centers
and are concerned with service reliability, predictability and service
management process effectiveness. You know you are working in a
Service Center environment when the key deliverables measure service
level commitments.

**Service Center Innovation Metric Example: % Reliability
Improvement**

The examples I’ve seen of Service Center innovation metrics are similar
to those I’ve seen in Cost Centers mostly due to the process nature of
both environments. I watched a group use creative thinking approaches
to solving complex problems affecting database availability. The
innovation was not in the output metric: increased reliability, but in
the creative process to think out of the box about the challenges and
solutions.
**Investment Center**

Investment Centers explore key areas of value to the organization’s future and are concerned with exploration’s risk, potential return on investment and alignment with strategic business objectives.

**Investment Center Innovation Metric Example: Increased Knowledge of Strategic/Emerging Programs**

I worked in a Technology Management group that identified 12 strategic emerging technologies that had strategic value for the company’s future. They invested in research, investments, exploration and creative testing for each technology — all with the goal to increase the knowledge and application of the strategic technologies.

Innovation metrics centered included the number of:

- Experiments
- IP (Intellectual Property) filings
- Consortium presentations (sharing learning with peers)
- Technical partnerships

**Value Center**

Value Centers produce innovative products and services that are the output of organization. They produce what the organization's customers use or want — or with innovation even things they don’t know they want YET, and they are concerned with product/service improvement, new product/service opportunities and the capture of new ideas that have potential value to the organization’s revenue and effectiveness.

**Value Center Innovation Metric Example: Number of New Product Patents**

“More patents” is probably the most understandable innovation metric. I don’t even have to tell a story about it. People just get it because it’s about identifying something that's new and has potential value.

Corporations invest a lot of money into the patent process itself, enabling the legal department to understand the concept, risk and extrapolated value of the ideas involved.

Often innovation groups play a role in enabling the patent process, partnering with the company’s legal department to train employees on the IP and Patent filing processes.
A thorough understanding of the stages involved a patent process is recommended for advanced Innovation Practitioners.

**For Innovation’s Most Formal Process — Patenting — Let’s Explore**

If I ask a group to brainstorm solutions to a problem, the likelihood that I’ll receive common ideas is high. And if you combine idea fragments into logical groupings you get multi-faceted concepts from various perspectives. And with this in mind, who gets the patent?

This is where Idea Management methodologies, processes and tools are invaluable, like the Challenge Driven Innovation™ platform and methodology from InnoCentive. Their platform enables you to go from idea creation to idea generation to solution management — tracking raw ideas with ownership and date from ideation, through concept formalization, to approval and beyond.

Use of Idea Management tools can provide your innovation group with a ton of metrics, including numbers of:

- Challenges (Campaigns to get ideas on topics)
- Participants — and participant demographics
- Ideas generated
- Concepts approved for IP

This is a natural transition to the VERB side of Innovation Metrics.
The best method I’d recommend to get your mind around measuring the process of innovation is the Innovation Management Capability Maturity Framework (IM CMF). I am most familiar with the IM CMF produced by IVI, mentioned earlier when I discussed the posture model.

CMF models allow you to measure your organization’s capability to innovate. I like the concept of a capability, as it implies establishing something that will exist after a program concludes, something that eventually has a life beyond the life support of an innovation program team.

IVI’s IM CMF looks across the various dimensions of a model Innovation Management program, including elements that fit into the headings: Strategy and Management; People and Culture; and Processes, Tools and Metrics.

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And it enables a group to assess the maturity of each component, assessing if processes exist and how fully they are deployed, using a five-tier scale: 5: Systemic, 4: Managed, 3: Defined, 2: Sporadic, 1: Ad Hoc.
A capability assessment can provide a group with a great set of process (verb) metrics. It allows you to quantify elements of an innovation practice in a way that’s easy to understand — with numeric metrics that allow data-based decisions. For example, this spider diagram shows an innovation practice’s current maturity in each dimension, its target maturity (2-year goal for the organization depicted in this generic example), and the importance level of each area.

**Verb Examples using mindset of a CMF (capability maturity framework)**

**Level 1 — Ad Hoc Innovation**

A group would be given a maturity score of “1” if their innovation activity is not defined, where innovation occurs in a haphazard or ad hoc way. Innovation occurs in the organization, but not with organized direction or support. Often innovation occurs through heroics — with dedicated people introducing innovation regardless of the barriers that might get in the way.

**Ad Hoc Innovation Metric Suggestion: Collect anecdotes**

I observed an innovation group having great success by collecting testimonials, quotes, stories and simple peer recognition of innovation heroics achieved.

They found it was very important to include descriptions of the process used to create and implement the innovation. The most effective anecdotes contained:

- A description of the innovator
- A description of the innovation
- A story about the innovation’s effect on the business
- Indications from the innovator about the process they used to allow the innovation to live.

**Level 2 – Sporadic Innovation**

A group would be given a maturity score of “2” if their innovation activity is available in pockets of the organization, but not in others.

**Sporadic Innovation Metric Suggestion: Best Method Sharing**

One Innovation Management group had success with their goal to increase maturity through level 2 by collecting all the best methods across the organization and posting it on a shared site. We started a kind of competition between the various groups to be the best practice
In this organization we had a goal to improve a problem around risk aversion — a common focus of many groups. The organization's employees were afraid to speak up and challenge the status quo. They were afraid to make mistakes, and self-edited their ideas for fear of failure.

One group in the organization developed a simple but effective process based on findings from John C. Maxwell's book “Failing Forward” which, very simply summarized, advances the premise that there is no failure from an experiment if there's learning involved. The group trained their employees using key learning's from the book. They set out a simple reward and recognition program around “Failing Forward”:

1. Peers submit to their Team Lead simple written examples of their neighbors’ successes with Failing Forward — for weekly recognition
2. Team Leads forward best examples to Department Managers — for monthly recognition
3. Department Managers forward best examples to Division Leadership staff — for quarterly recognition at the Division level

We shared this best practice and found it adopted by other parts of the organization.

**Level 3 – Defined Innovation**

A group would be given a maturity score of “3” if their innovation activity is defined and leveraged across the organization.

**Defined Innovation Metric Suggestion: Measure the Participation in All of Your Processes — But Don’t Stop Here!**

When an Innovation Program has successfully introduced a suite of training, tools and processes to enact innovation it's very easy to collect a ton of metrics similar to those discussed with Idea Management Tools earlier in the paper, including the number of:

- Innovation training events, and number of people trained
- Innovation tools and processes
- Participants and utilization of innovation tools
- Campaigns, and the number of ideas generated per campaign
- Ideas by phase of the idea management process
- IP filings and patents generated

Achieving this level is wonderful for the innovation practitioner who has implemented a program. It shows a living environment that's
involving a lot of people.

But I encourage you to not stop here. Ultimately the goal is to understand the value derived from all of this activity — which is achieved in maturity levels 4 and 5.

Level 4 – Managed Innovation

A group would be given a maturity score of “4” if their innovation activity is fully defined and is leveraged as part of the strategic management of the larger organization.

Managed Innovation Metric example: Innovation Capability Development — Technical Expert Program

Using a capability management assessment, a technical group identified the need to develop a technical expert program that would ensure the future longevity of strategic technical skills, and enable identified experts to mentor junior technologists. They used the logic that a technical organization cannot be innovative without this kind of program. (Transpose the words related to “technical” to any functional expertise to apply this concept to your organization).

The program employed metrics about the effectiveness of:

- Development tracks
- Mentoring and coaching
- Conferences and showcases designed for knowledge transfer
- Targeted IP development

Level 5 – Systematic Innovation

A group would be given a maturity score of “5” if their innovation activity is fully defined and is leveraged as part of the strategic management of the larger organization.

Systemic Innovation Metric Example: Strategic Influence Through Key Partner Projects

A group with the goal to become a strategic business partner leveraged its innovation program and measured the engagements it had with critical programs that were identified as key strategic drivers for the corporation. Metrics went far beyond the number of engagements and included all kinds of project management, deliverable and commitment measures, and most importantly the projected value of end states. An important key learning was to state the innovation effects in the voice of

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the key strategic partner. Nothing proved more important than having the partner express the value of the innovation partnership in their terms.
This white paper was based on an InnoCentive webinar featuring Jack Anderson, a Senior Innovation Capabilities Strategist at Chevron. Below are several questions asked during the session:

Q: Should I test many innovation concepts at once? If I only test one idea and the results are poor what then?

Often, we are concerned that if we don’t quickly act on ideas we might miss something. But what if we invest in the testing of one concept and it turns out that another contained the success we need?

Some immediate thoughts about testing multiple concepts: develop effective criteria to evaluate the potential of ideas. Make sure you have the time, infrastructure and people to test multiple ideas. In most environments the ability to prototype ideas and test concepts has limitations. So we are responsible to evaluate ideas and select those in which we have some confidence in success for investment beyond ideation. During this evaluation step be sure to rank concepts so you can quickly test the next in line as appropriate.

Another thought is optimization: you may be able to set up a test for similar concepts, enabling you to have the infrastructure for all of the ideas and test nuances as appropriate.

Looking at this from a high-level perspective it’s very important over the long-term to evaluate, measure and improve the criteria that is used to select or reject ideas.

And this relates to another question raised during the webinar:

Q: “For the ideas not selected for advancement, how do you capture them for potential future use (regardless of type: Radical, Reapplied or Incremental)?”

Most ideas that surface in workshops, challenges and campaigns are not selected for advancement through the idea management process. It is very important to have some kind of archival system that allows you to store ideas for potential use in the future. Tools such as InnoCentive's @Work software platform allows this kind of archive. Metadata around the idea is extremely important for future reference. The name of the person submitting the idea, a reference to the campaign in which the idea was generated, the date when the idea was submitted, other important information must be collected — for a variety of reasons including properly crediting idea ownership.
I’ve seen this kind of archive used in various ways. A problem resurfaced and we reviewed ideas already collected. We were interested in further applications of a technology, and searched through the archive to review all the various ideas submitted that referenced it. We reviewed the archive to combine common ideas related to improving a business process from a cost-efficiency viewpoint.

Q: “Do you apply metrics for the different types of Innovation ideas (Radical, Reapplied, or Incremental)?”

A couple of times in my innovation career it has been very important to measure innovation by type. In one case we had a goal that 75% of the solutions coming from the innovation practice would be Reapplied Ideas. In another case we only selected Radical Ideas. In another we set goals for all types: 5% Radical, 85% Reapplied, 10% Incremental.

We trained participants about the idea types and asked them to identify the appropriate type as ideas were submitted. If the idea was reapplied we asked the submitter to acknowledge the source of the original idea — and to explain how it needed to be adapted to work in our environment. We looked at the idea-type metrics for all submitted ideas and adjusted our training and workshops to get more of the type of ideas we desired.
For more information on how you can run your own Challenges to rapidly solve problems and accelerate your innovation outcomes:

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