

Establishing a Center of Excellence to Scale and Sustain Open Innovation

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Key words: Center of Excellence, open innovation, crowdsourcing, change management, culture change

Abstract:

Organizations face many issues in scaling and sustaining successful pilot programs in open innovation. This paper describes a set of recommendations to accelerate these practices in order to develop a Center of Excellence (CoE) that can increase adoption. The experience of the Human Health and Performance Directorate (HH&P) at the NASA Johnson Space Center spanned more than seven years from initially learning about open innovation to the successful establishment of a CoE; this paper provides recommendations on how to decrease this timeline to three to four years. Organizations must anticipate success with initial pilot programs and conduct many future activities in parallel to achieve the recommended timeline. Simultaneously, organizations must develop strategies to overcome the internal resistance and cultural barriers to finding novel ideas and solutions to fully realize the potential of open innovation.

Introduction:

In the last ten years many public and private organizations have started to use open innovation (OI) approaches, in the form of internal and external challenge competitions, to find breakthrough solutions to a range of problems. While many of these pilots are quite successful, too often the efforts fizzle out after the first intense burst of activity. The original innovation managers get reassigned, or the operating managers cannot find budget or resources to fund cross-cutting innovation programs that rely on “outsiders” for solutions. Our experience, over the last decade, in running numerous challenges in partnership with several research and development organizations (example: NASA and Harvard Medical School) leads us to recommend that a Center of Excellence (CoE) needs to be established to help promote and fully utilize open innovation as an organizational problem-solving tool and is necessary to scale and sustain open innovation efforts after the initial pilots are complete. These centers can help companies continually sustain institutional knowledge about open innovation within organizations, mitigate the risk of prematurely stopping competitions after a few pilot projects, and advance a culture of innovation. Many organizations need the skills, innovation strategy and roadmap to successfully scale pilot activities to sustained use by the entire organization. In particular, we are creating ways for industry and other partners to learn how to adopt these lessons to expedite the creation of an innovation center of excellence.

This paper will use the experience of the Human Health and Performance Directorate (HH&P) at the NASA Johnson Space Center in establishing and utilizing a CoE.¹ The HH&P experience spanned more than seven years from initially learning about open innovation to the successful establishment of a CoE and mechanisms to scale and sustain the OI offerings throughout NASA and across the federal government. In the NASA HH&P case, the journey to move from one experiment to another, from pilot challenges, to adding capabilities, establishing the Center of Excellence for Collaborative Innovation (CoECI), and developing teaching tools for the workforce (Davis, Richard and Keeton 2015) (Tushman, Lifshitz-Assaf and Herman 2014) was seven years; however, after conducting a thorough retrospective analysis, we can condense the timeline and navigate swiftly around potential barriers. Lessons learned included the importance of grounding innovation initiatives in the business strategy, how to assess the portfolio of work to select problems most amenable to solving via crowdsourcing methodology, how to frame problems that external parties can solve, thinking strategically about early wins, using prizes as an incentive to launch challenges, budgeting both prize-based activities and managerial time and effort, selecting the right platforms, developing criteria for evaluation and implementation, and the criticality of effectively communicating the innovation initiative to employees and senior management and rewarding success to scale and sustain workforce engagement.

Given the various steps needed, we propose that the timeline from learn to sustain could be reduced to three to four years. The organization must be prepared to build upon the success of their experiments and plans for follow-on contracts and competitions, develop a CoE and

¹ The NASA HH&P experience has been captured in journals and in a Harvard Business School case that will be referenced throughout this paper.

effectively recruit champions, and develop training and communications outreach. Many activities can be conducted in parallel. In addition, the organization needs to prepare for the cultural barriers and resistance that will be met by introducing a novel problem-solving mechanism with the attendant perceptions of personal and organizational risk, the “not invented here syndrome,” and budgets and reward systems that are not aligned to implement OI into the organization.² Our aim to provide guidance on the time required for each phase and recommendations for how to proceed will provide useful overall guidelines for an organization to fully implement OI through a Center of Excellence.

What Happened: The Learning Phase – 18 months

In 2007, the Space Life Sciences Directorate (now the Human Health and Performance Directorate - HH&P) at the NASA Johnson Space Center³ developed a strategy to embrace collaborative innovation as a means to address human system risks for space flight, including finding novel methods for solving technical problems (Richard 2007). The initial process before launching challenges required several stages of investigation and gathering knowledge including learning about existing theories and application areas. The concept of open innovation was adopted in 2008 after exposure to this problem-solving approach at the Harvard Business School through *Leading Change and Organizational Renewal* in March of 2008 (Lakhani 2008). Several

² A timeline with recommendations is included in appendix A and will be a reference throughout this paper.

³ The NASA Space Life Sciences Directorate (SLSD) was renamed the Human Health and Performance Directorate (HH&P) in 2012

follow-on learning projects followed including Dr. Karim Lakhani teaching the “Threadless” business case to the HH&P directorate in August of 2008 (Lakhani and Kanji 2008) as a first exposure to open innovation. In January 2009, Dr. Gary Pisano discussed his paper, “What Kind of Collaboration is Right for You?” (Pisano and Verganti 2008), with HH&P leadership that determined a workshop would be needed to find technical problems within the directorate that mapped to the concept of open innovation methodology. This workshop was conducted in July 2009 and 12 technical problems within HH&P were selected as candidates for open innovation challenges. The 12 problems had been selected through portfolio analysis of the HH&P’s 30 human system risks and were important problems for which a solution had not yet been found.

While these projects were occurring, the HH&P sought to obtain funds to pursue pilot projects in open innovation and these were obtained in the summer of 2009. After a competitive procurement, HH&P initiated contracts with InnoCentive and yet2.com in the fall and start the pilot phase.⁴ In addition, technical experts were identified as the leads for the pilot projects who had identified important problems to be solved through OI. If solutions were found, these experts were prepared to implement valid technical solutions to solve problems in the technical portfolio. It is imperative in crowdsourcing to have evaluation criteria and implementation strategies to be outlined prior to the launch of contest. Even in cases proof of concept cases, establishing a benchmark can help create similar or fair comparisons to alternative ways of getting the work accomplished.

⁴ InnoCentive is a crowdsourcing platform of 380,000 members that solve problems in chemistry, life sciences, engineering, statistics, information technology, food and crop science and business. Yet2.com is a global technology marketplace that specialize technology search and technology transfer.

What You Can Do to Accelerate: Reducing the Learning Phase from 18 to approximately six months

In each section of “What you can do to accelerate” we recommend conducting several activities in parallel rather than in the sequential nature of the NASA experience, which was in itself one end-to-end experiment culminating in a Center of Excellence in Open Innovation (CoECI).

Small member teams may be needed to accomplish these tasks in parallel:

1. Know What’s Out There

a. Literature review – A team can quickly mine the resources cited for insights into successes and failures in open innovation including cultural barriers and resistance to be anticipated. A rich literature exists regarding the implementation of open innovation in organizations (Guinan, Boudreau and Lakhani 2013) (King and Lakhani 2013)(Lakhani 2008)(Lakhani, Hutter, Pokrywa, and Fuller 2015)(Lakhani, Lifshitz-Assaf, and Tushman 2013) (O’Reilly and Tushman 2016) (Smith, Lewis and Tushman 2016)(Tushman, Lakhani, and Lifshitz-Assaf 2012)(Tushman, Lifshitz-Assaf and Herman 2014). The Laboratory for Innovation Science at Harvard (LISH) has recently launched a literature guide that houses OI cases and methods.

b. Attend executive training courses and workshops in open innovation: in particular, these offerings including organizational culture change, strategy, identifying problems, distinguishing between internal and external platforms, and platform selections.

c. Find others in the industry and conduct benchmarks – A key component to success is finding others who have gone through the process and can routinely provide advice and insights into the more difficult aspects of integrating OI. While these partners may not share the same cultural barriers or types of technical problems, they possess roadmaps to navigating through tough spots.

2. Have a Plan

Develop an innovation plan aligned with the key elements of the business strategy and organizational goals. Strategies should take into account the support needed for top-down and bottom-up execution.

3. Portfolios and Problem Assessments:

Review the organization's portfolio of work to select high-priority problems for possible solutions through OI. Consider a formal methodology for determining if problems are amenable to open innovation challenges (portfolio analysis). This is an important step to identify real problems in the organization's work so that if a solution is found, it will be significant. In addition, there are other critical questions to ask before going to the crowd. Can the problem be defined and abstracted for an external solver? Are they able to understand the inherent

requirements of the task at hand? Can the data and tools be made accessible to solvers? Can the outcome be objectively evaluated? Have other methods been used to solve this problem (grants, contracts, etc.) Does the in-house expert have the budget to conduct the challenge and integrate the solutions or learnings from the solutions? This latter assessment will provide a critique of whether the problem to be proposed fits an open innovation mall for solution and whether the organization has the budget and technical means to assess *and implement* the solution.

4. Value Proposition & Exploration Pilots:

Develop a value proposition for senior management to request funds for running open innovation pilot projects. This proposal can be scoped modestly to include both internal and external challenges. We recommend running internal challenges first, then external challenges to enhance adoption and reduce resistance to adoption of OI. Pilots are meant to be proof of concepts and communications to senior leaders must emphasize that the pilots may not be complete solutions. While running pilots can occur quickly, very few will be deployed or implemented. When selecting problems for pilots, the challenge owners must define the criteria for success.

Assessing value can serve as a key complement to moving stale projects forward. Organizations that often fail to innovate are continually doing the same activities the same way without making progress. The value of open innovation often brings not only brings new insights, but also helps get the most out of existing “on the shelf” projects.

Consider running several external challenges on more than one external platform as well as several internal open innovation challenges. Ideally, pilot phases are the right time to explore the

use of different contest types and should include ideation, point solution, creative content and data science.⁵ Organizations should consider running pilots with subjective measures like marketing (e.g., a video or logo contest), and with technical merits (an artificial intelligence or machine learning challenge). The length of these contests should be weeks (versus lengthy traditional tools) to conduct analysis and provide feedback to the organization quickly. Part of the value proposition needs to include mechanisms to implement the innovations that are found via open innovation. This can be accomplished by assuring that budget and technical expertise is available to implement solutions once found. These questions can be asked and answered before embarking on the pilot projects.

5. Find the Right Platforms:

Many different platforms exist today and benchmarking with other organizations or users may assist in selecting one or more platforms to conduct the pilot projects. The organization will need to determine the type of challenges to run (optimization algorithms, point solutions, co-development to name just a few) and the scope of the pilot projects (number of challenges to be conducted in the pilot phase). This preparation will greatly facilitate the acceleration of the pilot phase. While those who operate and run these platforms are familiar with their potential solvers, they may not be the right partner to be an “all-in-one” solver. The organization must determine based on historical information which platform is best suited for the pilot problems.

6. Collaborate internally with business functions

⁵ Ideation contests yield many submissions. An organization will need to think through the evaluation criteria for initial screening. Often platforms are good guides for initial pilots and help filter unqualified submissions.

Collaborate with internal business units of legal, procurement and human resources at the start of the projects so that the organization can quickly gain approval to conduct competitions. Begin to identify and recruit staff to serve as challenge owners and champions for the innovation initiative. Champions are pivotal to both the success of early wins and to communicate results throughout the organization (peer teaching). Champions help validate the product and the process, especially when success is achieved.

What happened: The Pilot Phase – 13 months

After selecting 12 technical challenges to be considered for open innovation competitions from the July 2009 workshop, the HH&P initiated contracts with InnoCentive and yet2.com after a competitive procurement. HH&P determined the need for training in open innovation for a larger set of directorate personnel including writing challenge statements. This training was conducted by InnoCentive and yet2.com in two separate sessions.

Following the training, the first challenges were posted in December of 2009 and the last set was posted May of 2010 for a total of 13 challenges on InnoCentive (7) and yet2.com (6). A 14th challenge was conducted by Harvard on the TopCoder platform (Davis, Richard and Keeton 2015). In a subsequent pilot project, 20 internal challenges were conducted within all 10 NASA centers using a platform named NASA@work (InnoCentive platform) from June to October 2010. This latter pilot project demonstrated the concept that the NASA community could

propose both technical and business solutions proposed by any problem owner within the NASA system.

The results from the pilot challenges produced several noteworthy results (Davis, Richard and Keeton 2015). Competitions through yet2.com yielded many new organizational contacts for problem owners for possible collaboration previously unknown to NASA. The TopCoder challenge demonstrated that the contents of a space flight medical kit needed for a specific NASA mission could be proposed by the community. These results have been written about extensively and the reader is encouraged to read more (Davis, Richard and Keeton 2015) (Tushman, Lifshitz-Assaf, and Herman 2014) .

Based on the positive results from the pilot projects, HH&P determined to implement the capability for conducting OI challenges as an ongoing capability for solving technical problems.

What You Can Do to Accelerate: Reducing the Pilot Phase from 13 to approximately six months

The next most important step is for the organization to partner with one or more platforms to conduct challenges and to put in place the personnel to effectively run the challenges and champion the overall OI effort. The pilot can be greatly accelerated if the organization does the preparatory work in the Learn phase to determine the type and scope of the challenges to be run and identifies the platform(s) it needs for the pilot phase. We recommend conducting both internal and external challenges.

Once the platforms are acquired, training the organizational personnel in implementing OI challenges is critical for both continued demonstrative success and adoption. Many resources exist for this training today and benchmarking with other organizations may assist in determining the appropriate training needed. The training should result in the ability of organizational personnel to write good problem statements so that effective and successful OI competitions can be conducted.

We recommend conducting internal challenges first. This approach will familiarize technical and management personnel with writing challenge statements and using the OI platforms; internal competitions can award winners with recognition and cost very little to implement. Internal problem solvers will gain experience with OI platforms and this can smooth the adoption of running external challenges. Resistance to the use of the OI capability needs to be anticipated as problem solvers will question why the organization wants them to look outside.

Expectations for the results should be set with management including successful outcomes. The results for a difficult technical problem may not be a complete solution but rather increase knowledge, gain new professional contacts that did not previously exist, or identify emerging technology not yet in production as examples.

Many of the OI challenges can be run in a few weeks once posted on the OI platform (InnoCentive 2010). To achieve the acceleration of the pilot phase then, challenge competitions should be staffed by adequate technical and management personnel and run in parallel. This will

provide a sufficient number of results for the organization to determine when and how to scale the OI capability. Technical (is it a good idea) and management (is it a good investment) evaluations should be conducted for the pilot challenges. This approach can produce solid rationale for the organization to scale and sustain OI as an ongoing capability for the organization.

The organization should anticipate success with the pilot challenges and develop a follow-on acquisition for longer-term OI platform contracts toward the end of the pilot phase. This will greatly reduce the gap between completion of the pilot phase and the start of the phase to scale OI throughout the organization. Working collaboratively with the business team will greatly facilitate a smooth transition to acquiring the OI capability for the organization as a newly available problem-solving tool for the workforce.

Promoting the use of OI as a new tool for problem solvers to use, and recognizing the efforts and successes of the challenge owners during the pilot phase is important for overcoming cultural barriers to OI adoption. Although there will always be resistance to change, an effective communications program will help disseminate results and speed adoption.

What Happened: The Scale Phase – 27 months

After the successful pilot phase, the HH&P procured platforms for internal and external challenges that could be available for several years to the NASA workforce and played a critical role in building the capability to teach and disseminate practices to the broader workforce. The

length of time to obtain new contracts can be greatly reduced by anticipating success in the pilot phase and starting the follow-on contracting process early.

To prepare for using the new OI capability, a peer-to-peer training workshop for approximately 60 HH&P personnel was conducted in January of 2011. Several of the challenge owners from the pilot phase presented their results. Despite the results and peer teaching, the use of OI was met with a great deal of skepticism by the broader workforce who did not see the application to their work (Davis, Richard and Keeton 2015).

Many in the workshop expressed deeper concerns about the expected shift in their roles, which can be described as a change from being problem solvers to solution seekers, threatening their very identity (Lifshitz-Assaf 2016). NASA work processes and project management requirements tend to be highly structured. While the HH&P had a long history of innovating internally or teaming with familiar external partners, it had always been the NASA technical experts who were recognized as the innovators. However, by celebrating the outcome of the OI challenges and attributing the success to an external problem solver rather than acknowledging the role of the NASA challenge owner in finding the solution, HH&P had inadvertently threatened the identity of the those who were drawn to NASA in the first place because they wanted to be the innovators who solved the difficult problems.

HH&P had engaged in communication efforts starting in the pilot phase to increase awareness of and generate interest in OI across the directorate, conducting organizational briefings on OI, distributing electronic newsletters about pilot successes, and bringing in speakers for an

Innovation Lecture Series. However, the communications did not emphasize the critical value of the challenge owners to the success, and skepticism persisted.

Despite the resistance within HH&P, the success of the OI initiative was met with great enthusiasm by NASA Headquarters and many outside of the agency, resulting in press, blogs and internal memos about the “spectacular results” of the open innovation experiment (Tushman, Lifshitz-Assaf, and Herman 2014), (Lifshitz-Assaf 2016). As a result, NASA developed and implemented the Center of Excellence for Collaborative Innovation (CoECI) in November of 2011 at the request of the White House Office of Science and Technology Policy to serve as resource for the entire NASA community and other federal agencies to advance the use OI capabilities for problem solving. The initial staff for CoECI was hired during this phase.

What You Can do to Accelerate: Reducing the Scale Phase from 27 to approximately 18 months

Starting the platforms acquisition process early will greatly reduce the time spent to scale the OI capabilities across the organization. The organization can also consider expanding the number of platforms in scope and size from the pilot phase to add capabilities for the organization.

Addressing cultural issues is of equal importance to successfully scaling an OI initiative.

Innovation in large enterprises is difficult, whether in the corporate, government, academic or nonprofit sector. Consistent with the NASA experience, a University of Cambridge report (Centre for Technology Management 2009) based on interviews with 36 firms in six industries

identified cultural issues and resistance to change as the top obstacles to successful OI implementation. This is particularly true for the R&D and product development functions that are most often involved in OI implementation because scientists and engineers often feel more threatened by OI activities than other functions like corporate ventures or blue-sky research that are designed to be open.

Critical to managing resistance to change and advancing a culture of innovation is effective communication. Establishing a communications plan that acknowledges the value and need for organizational technical experts to conduct portfolio analyses, define problems, evaluate solutions, and implement winning solutions (i.e., to be solution seekers who enable the process), and recognize the successes of the challenge owners and their contributions rather than the OI problem solver is key. The tendency when running a challenge is to focus solely on winners and what they bring to the table; however, we recognize that the challenge owners have risked much to expose the problem at hand and have acknowledged that their own groups have had difficulty finding viable solutions. Furthermore, organizations must reward these challenge owners for their willingness to participate in this new way of working. Keep in mind that many inside the organization are still contemplating whether or not they should nominate a problem. They are watching to see what credit or response will be given to the challenge owners.

To address both the technical and cultural issues associated with scaling OI, we recommend establishing a Center of Excellence (CoE). The CoE can serve as a learning center that provides support and guidance for those employees new to OI, offer trainings and tutorials, can maintain the OI contracts for the organization, and can standardize the development of effective OI

challenges. It's important to note that this standardization is meant to enhance the development of effective challenges and not serve as an organizational bottleneck to running challenges – the business unit responsible for the problem should own and run the OI challenge. This is consistent with surveys of organizations achieving digital maturity in the form of a CoE and dispersed business unit capabilities (Ringel et.al. 2018). The CoE may start within one unit, but can provide guidance to other units as needed.

The organization should also strongly consider formalizing the use of OI capabilities, engaging the human resources functions to propose modifications of performance plans and reward systems to include the use of OI capabilities, and to recognize and reward employees for finding solutions (whether solutions are obtained internally or externally). Finally, as mentioned in the Pilot phase section, we recommend training in writing effective problem statements and using OI capabilities in project management and other training. Training programs need to adapt to teach these new problem-solving capabilities so that the workforce becomes familiar and comfortable with their use and OI becomes part of the problem-solving “toolkit” for the organization.

What Happened: The Sustain Phase – 28 months

With more resources on hand, and based upon the staff request for more guidance on how and when to use OI, HH&P developed a knowledge management and decision-support tool called the Solution Mechanism Guide (SMG) to educate employees about the use of all available problem-solving mechanisms including using OI challenges. The contents of the tool were developed by an expert working group that included the NASA HH&P technical disciplines and business team,

and was intended to provide a mechanism to incorporate use of OI into ongoing work processes. Criteria for the use of different problem-solving mechanisms were developed and an alpha version was tested with focus groups using a single query question.

The feedback from the alpha version was very positive and users indicated they would use the tool if available. The beta-version was developed through a series of competitions on the TopCoder platform in 2014 and the number of questions were expanded that could query the SMG contents. Feedback was again positive and the tool was rolled out to the HH&P workforce in 2015 for widespread use. More directorates at NASA also tested and used the SMG (Keeton, Richard and Davis 2017).

The CoECI team conducted a third procurement to expand the number of platforms available for OI challenges to 10. This expansion added the capability to run a greater diversity of types of OI challenges to address the needs of diverse technical personnel. They also added staff and capabilities to further the adoption of OI throughout NASA, conducting awareness and training workshops at all ten centers. The CoECI team now has a success rate for challenges of over 90% and is approaching 300 challenges conducted for NASA and other federal agencies.

What you can do to accelerate: Reducing the Sustain phase from 28 to approximately six months

The organization should assess development or acquisition of a decision support tool (the NASA SMG as an example) and plan for the rapid development, prototyping and deployment of the tool which can enhance adoption of OI and greatly save time in this phase.

Requiring the consideration of OI in performance plans or establishing the use of OI as policy from the C-suite level may enable faster adoption and deployment within the organization. Additional senior management support can include the provision of a budget line item for running OI challenges so that project managers and problem owners do not have to replan existing budgets to run challenges.

It is also important to assess the success of and continue to evolve and execute a communications plan aimed at advancing a culture of innovation to sustain the OI initiative. This includes tapping a cadre of OI champions to conduct peer to peer communications, and highlighting the successes of those technical experts who have embraced becoming solution seekers.

Finally, the organization should consider developing comparative metrics for success, cost, and return on investment for OI challenges versus grants, contracts and for any other commonly used tool for internal and external problem solving. Going beyond the traditional “make” or “buy” paradigm, OI processes and products will come with a different cost and evaluation structure. Organizations will need to adopt new ways of thinking through cost estimates and capture savings. OI challenges hold the promise of faster execution, lower cost and higher success rates based on the published literature.

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Appendix A
Accelerating Innovation through a Center of Excellence

NASA HH&P Timeline		Proposed organizational Timeline	
Learn	18 months	Learn	approximately 6 months
<ul style="list-style-type: none"> • Conducted OI (Lakhani) and Portfolio Management (Pisano) workshops • Solicited pilot funds through a senior management value proposition • Legal and procurement were engaged early to facilitate a competitive acquisition of platforms • Technical experts were selected as challenge champions to run competitions; owners were prepared to implement solutions if found 		<ul style="list-style-type: none"> • Attend training, conduct benchmarks, review open innovation and crowdsourcing case studies and methodologies • Conduct portfolio analysis to identify problems amenable to solving via crowdsourcing • Create value proposition for senior management; obtain pilot funds and plan for mechanisms to implement solutions (budget, technical) • Engage legal and procurement experts • Identify OI platforms to run challenges 	
Pilots	13 months	Pilots	approximately 6 months
		<ul style="list-style-type: none"> • Procure platforms for OI challenges identified in the Learn phase 	

<ul style="list-style-type: none"> • OI training – for approximately 45 people by InnoCentive and yet2.com November 2009 • First 3 InnoCentive challenges were posted Dec 2009 • External (14 from Dec 2009 – May 2010) – 7 InnoCentive, 6 yet2.com, 1 TopCoder (through Harvard) • Internal (20) from June-Oct 2010 on NASA@work (InnoCentive platform) 	<ul style="list-style-type: none"> • Train workforce in conducting pilots • Identify champions for advancing OI throughout organization • Set expectations for management • Conduct internal challenges first, then external challenges • Anticipate success and develop follow-on procurement • Include HR along with legal and procurement experts throughout process • Communicate Pilot successes emphasizing role of technical experts as collaborative innovators
<p>Scale 27 months</p> <ul style="list-style-type: none"> • Peer teaching and leadership team meeting (January 2011) • New follow-on contracts (April 2012) • Field study by HBS PhD student – Hila Lifshitz-Assaf 2009-2012 – led to understanding the identity threat to individual problem solvers • Established Center of Excellence for Collaborative Innovation (CoECI - November 2011) • Recruited staff for CoECI – ongoing) • Initiated decision-support tool – the Solution Mechanism Guide (SMG) 	<p>Scale approximately 18 months</p> <ul style="list-style-type: none"> • Execute follow-on OI provider contracts and expand number of providers– 12 months • Establish and execute communications plan that recognizes technical experts as solution finders • Recruit dedicated group for CoE • Develop website for CoE • Add use of OI to performance plans and base reward systems for being solution finders not just problem solvers • Add OI to project management training • Recruit multiple business units to participate • Implement CoE – 6 months
<p>Sustain 28 months</p> <ul style="list-style-type: none"> • Solution Mechanism Guide (SMG) development to teach workforce 	<p>Sustain approximately 6 months</p> <ul style="list-style-type: none"> • Develop comparative metrics for problem solving tools (grants, contracts, prizes, other)

<p>(January 2013 – July 2014)</p> <ul style="list-style-type: none"> • SMG testing and deployment <p>(July 2014 – June 2015)</p> <ul style="list-style-type: none"> • Expanded OI platforms (May 2015) • Add CoECI staff and capabilities <p>Total: 7 years</p>	<ul style="list-style-type: none"> • Propose policy for use of prizes at C-suite level • Add funding line in budget for prizes (apply for grants, direct funding) • Develop and deploy decision support tools to incorporate OI into day to day project management 6 months • Assess and evolve communications to effectively advance cultural change goals <p>Total: approximately 3-4 years</p>
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