Translating Technology Capabilities
into Business Possibilities

The Tek-Inova™ "Innovation Management" Methodology

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TekNirvana promotes a "partnered innovation" methodology called Tek-Inova™ (short for TekNirvana Innovation Management) to ensure continuous and proactive evaluation of innovations from both the public and private sectors to add value to our customers by supporting evolving technology and solution needs. Rather than evaluating piecemeal or currently "trending" innovations which may or may result in tangible benefits over the long run, Tek-Inova takes a holistic approach by focusing on what we call the entire "Innovation Management Lifecycle". We define Innovation Management as the management of innovation processes to systematically identify, analyze, evaluate, recommend, and introduce mission relevant tools, technologies, best practices, methods, systems, and processes to improve efficiency, reduce costs, and/or boost productivity. We focus on both product and organizational innovation. Contrary to popular or accepted beliefs, innovation is not merely relegated to R&D but involves workers at every level in contributing creatively to customer's mission goals and objectives. By focusing on the entire innovation lifecycle, Tek-Inova allows this necessary participation, collaboration, and partnership across all levels within the organization and systematically evaluates potential innovations in the context of a total solution to customer needs thereby promoting a continuous "*optimize, modernize, and innovate*" cycle. **Exhibit A** illustrates this concept and forms the gist of our Tek-Inova methodology focusing on continuous optimization, responsiveness and agility. TekNirvana, is a recognized thought leader in Innovation Management, and has successfully leveraged its Tek-Inova methodology to work with leaders in both the public and private sectors to identify and incorporate innovations within their environment. As a subcontractor on a DOD project, TekNirvana provided guidance on innovative ways to consolidate 65 datacenters into one. At an Atlanta-based commercial financial services company, TekNirvana has led the implementation of innovative IT solutions as part of the company's strategic IT modernization initiatives as part of an overall PCI compliance program.

Exhibit A: TekNirvana's Tek-Inova Innovation Management based Methodology CONOPS
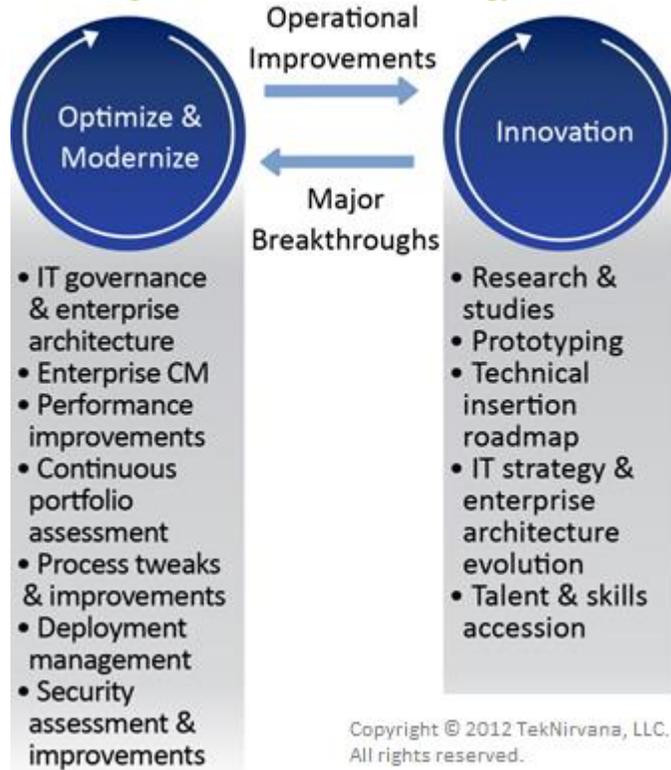
A fundamental tenet of our Tek-Inova methodology is that innovation does not equal to spending more money. Many innovations, such as those identified using Lean Six Sigma techniques, can and are specifically targeted at reducing both short-term and long-term costs. Other innovations might require an initial investment but are backed up with solid business cases that can demonstrate a positive Net Present Value and a payback period of 2–3 years. Tek-Inova provides a systematic approach and

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structured organization (described later) that enables us to perform an ongoing study that tracks trends, technologies, and innovations that could influence, or be leveraged as part of, next-generation systems within a 3- to 5-year horizon. These include evolving guidance from the OMB, CIO Council, USDA, and customer CIO Office on IT strategy and changes in budgetary priorities. New technology and best practices typically include:

- New software, specifically the latest commercial, off-the-shelf software products or middleware products.
- New systems, specifically leading-edge hardware platforms and new operating systems that take full advantage of those platforms.
- New major versions of existing software or hardware.
- New or significantly increased functionality leveraged in an existing hardware or software product.

Our Tek-Inova methodology acts as a catalyst for facilitating improvements in every aspect of management, engineering, and service provision. The resulting outcomes from these efforts not only hold down costs but they also accrue over time, resulting in streamlined operations, reduced overhead, better quality, less re-work, improved productivity, and enhanced overall performance.

As part of our implementation of Tek-Inova, we encourage the establishment of a Technology Advisory Board (TAB) composed of SMEs with relevant customer experience and experts from a range of technology disciplines (e.g., mobility; cloud computing and virtualization; information and knowledge management; telecommunications, collaborative platforms, etc.). The TAB is chartered with the primary responsibility of evaluating new and emerging technologies; analyzing customer needs through benchmarking and risk reviews; and interacting with the staff and ongoing initiatives. Ultimately, the TAB ensures that all innovations are focused on customer needs rather than simply the latest host new technology in the market. The Technical Assessment Board (TAB) helps ensure appropriate infusion of the latest technical advances and guides the research and activities and conducts virtual meetings regularly to discuss these topics and assign actions. The TAB meets with the customer on a regular basis to report on topics of interest to customer such as cloud computing techniques, BYOD, big data, and other cutting-edge technologies.

Tek-Inova consists of two major phases: scanning of new technologies and incorporation of approved innovations into the work or contract. This is exhibited in **Exhibit B** on the following page and described below.

Phase 1: Scan New Technologies and Make Recommendations

As needed the TAB forms technology exploratory working groups comprised of SMEs with relevant NRC experience and experts from a range of technology disciplines (e.g., network engineering, systems administration, telecommunications/VOIP, mobility; Cloud computing and virtualization; and information and knowledge management). At the direction of the TAB, these working groups perform an ongoing study and report back to the TAB trends, technologies, and innovations that could influence, or be leveraged as art of, next-generation systems within a 3- to 5-year horizon. Labeled as "New Technology Triggers" in Exhibit B above, these include evolving guidance from the OMB, CIO Council, USDA, and NRC CIO Office on IT strategy and changes in budgetary priorities. This continuous "identify-evaluate-analyze" loop is shown in Exhibit B. Our team establishes regular "technology debriefs" with relevant customer stakeholders to educate and discuss latest trends, findings, and concrete

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recommendations on not only keeping up with, but staying ahead of, the technology curve to optimize mission objectives. We analyze state-of-the-art approaches for information resource/knowledge management and present concrete recommendations to the COR.

Exhibit B: TekNirvana's Tek-Inova methodology takes a two-phase approach for evaluating and introducing innovations
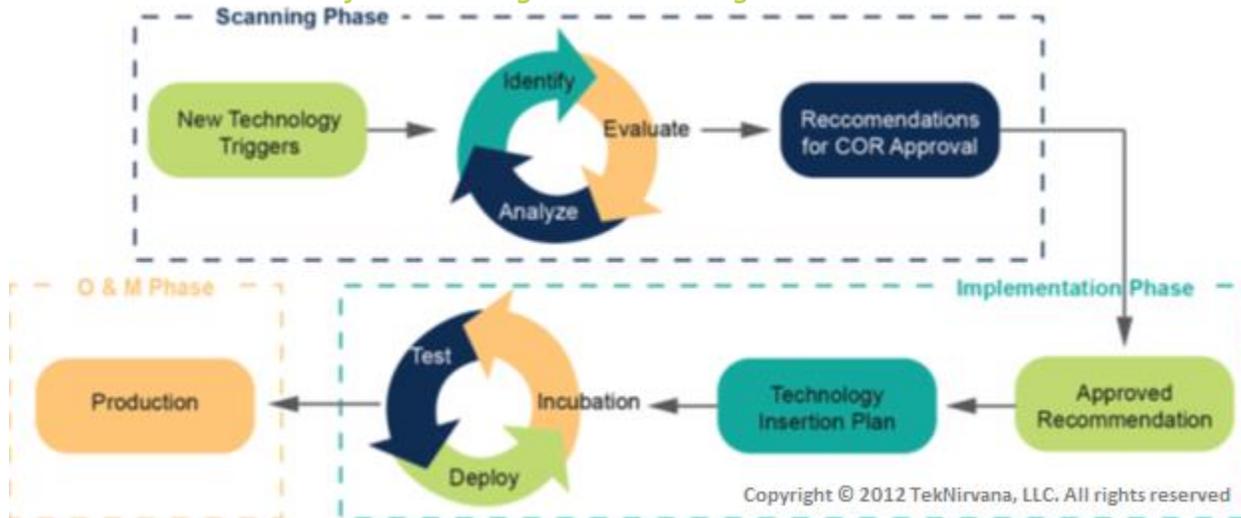
Phase 2: Incorporation of Innovation into ongoing contract work
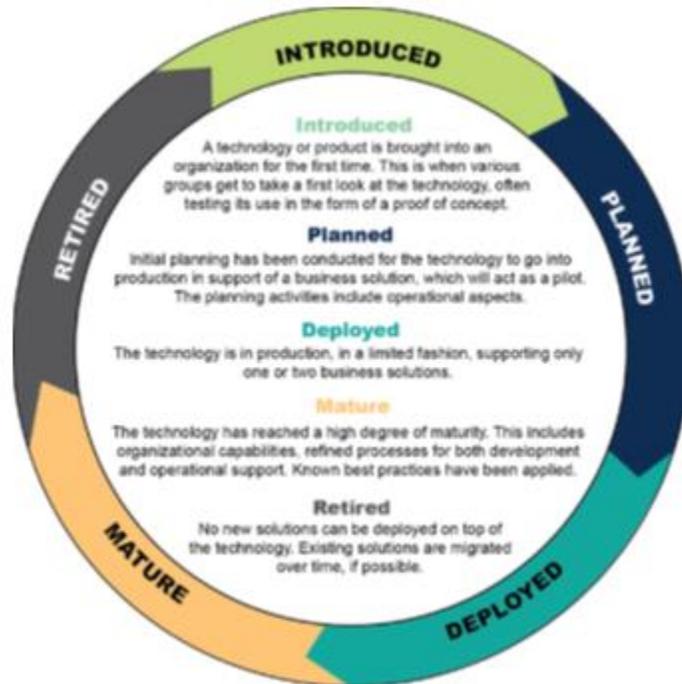
Once the TAB identifies an innovation, it is communicated to the appropriate customer representative(s) (such as a Task Order Manager [TOM] or a Contracting Officer [CO/COR]) and briefed at the appropriate customer control boards. Upon approval we work with the customer to incorporate the innovation in the existing environment/work. Our experience has shown most agencies struggle with the following major difficulties and problem areas as they implement new technologies into their environment:

- Organizational barriers and/or resistance to change. New technology often serves as a catalyst for change and potential disruption.
- Existing business processes constrain levels of automation
- Lack of an adequately defined process to handle new technology
- Operational characteristics are considered late or not at all.

Based on experience and research conducted by TekNirvana, organizations often struggle with technology adoption because there is usually no defined process to perform for handling new technology. Too often, the effort of bringing a new technology into production is mostly tied to the regular development and deployment lifecycle (that is, the activities that are performed for any new business solution). Making matters worse is the fact that critical operational characteristics are considered too late or not at all. These characteristics include factors such as monitoring, capacity planning, problem determination, and backup/restore procedures, none of which deal with creating a new solution but, instead, deal with operating and maintaining it. The key point to remember is that a new technology may bring new requirements that didn't exist before. The Tek-Inova methodology alleviates these risks by establishing a process that formally defines steps that are required whenever a new technology is introduced to the customer's IT landscape. We plan and implement the approved

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recommendations based on a "technology maturity lifecycle" process for technology and best practice planning and insertion as depicted in **Exhibit C**. Within such a process, we help ensure that the operational aspects are defined and executed as early as possible. As part of the planning for the new technology introduction, we analyze impacts to existing interfaces, interaction with other deployed and mature technologies, integration with key customer Software Development Lifecycle (SDLC) processes, and currently deployed technologies that might be candidates for retirement. This analysis is a critical input into our project plan for the new technology rollout that documents all rollout related activities, dependencies, resources, and timelines.

The Tek-Inova methodology recognizes the critical role of training and outreach with stakeholders, users, and affected programs before, during, and after the introduction of new technology. We educate stakeholders of the benefits of the new technology in achieving their mission, minimize disruption to existing programs, and ensure that end users are

Exhibit C: TekNirvana's Tek-Inova leverages a Maturity Lifecycle for Planning and Implementing New Technologies

INTRODUCED

Introduced
A technology or product is brought into an organization for the first time. This is when various groups get to take a first look at the technology, often testing its use in the form of a proof of concept.

Planned
Initial planning has been conducted for the technology to go into production in support of a business solution, which will act as a pilot. The planning activities include operational aspects.

Deployed
The technology is in production, in a limited fashion, supporting only one or two business solutions.

Mature
The technology has reached a high degree of maturity. This includes organizational capabilities, refined processes for both development and operational support. Known best practices have been applied.

Retired
No new solutions can be deployed on top of the technology. Existing solutions are migrated over time, if possible.

quickly comfortable and productive with the new technology. Early education and outreach is critical in overcoming organizational inertia and barriers/resistance to change.

Finally, our experience has shown that an essential consideration is often overlooked as new technology is adopted is rigorous technology testing before the rollout. As mentioned earlier, the introduction of new technology is often embedded in the process of developing and deploying a business application, and this includes all testing steps. Although these tests include non-functional and operational testing, there are no steps specific to the fact that new technology is being introduced. For example, new ways of monitoring (plus appropriate alert and report definitions) might have to be established, possibly along with using new tools for monitoring; or, new operational procedures might be needed to ensure high availability; or, performance tests have to be run to determine initial benchmarks. We realize that all these aspects have to be thoroughly tested before the first production rollout.

Conclusion

TekNirvana's "partnered innovation" methodology, Tek-Inova™, ensures a continuous and proactive evaluation of innovations from both the public and private sectors by taking a holistic approach that focuses on the entire "Innovation Management Lifecycle". A key benefit of this that innovations are not evaluated in a piecemeal or seemingly haphazard manner. Rather, Tek-Inova focuses on a systematic approach in which all potential innovations are evaluated in the context of a total solution and upon approval, are introduced within the environment using a maturity lifecycle approach to optimize benefits over the long run.

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