

**SECOND EDITION**

# **Leading & Managing Innovation**

What Every Executive Team Must Know  
about Project, Program &  
Portfolio Management

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**Russell D. Archibald**

and

**Shane C. Archibald**

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## Innovations are Achieved through Projects

### ***Importance of Innovation***

**Innovation** is the process that transforms new ideas into commercial or other value. It is a vital capability in business, entrepreneurship, design, technology of all kinds, health care, engineering, construction, manufacturing, transportation, communications, economics, sociology – and project management.

**Innovation means change** – something new and improved – in 1) a business or creative *process*, and/or 2) the *output or product of a process*.

Forward looking executives want and encourage their managers to be innovative and to continually improve their processes, products and services.

**Innovate or die!** In this Digital Age of technological explosion in every field all types of human organizations must continually innovate to improve and change both their products and services (their reason to exist) and also the ways they operate – their business processes.

Continual innovation in both of these dimensions is required for continued success.

### ***Innovation is:***

- ***Vital to all organizations.***
- ***Accomplished through projects and programs.***

### ***All Executives need to know what is in this book to:***

- ***Govern & manage innovation.***
- ***Effectively direct the project management function.***

# Innovate and succeed!

## *Systemic versus Incremental Innovation*

Systemic innovation differs from incremental innovation which can be accomplished within a single firm context or within a discrete project context.

Prieto (2011) points out that “Systemic innovation is that form of innovation that requires ‘multiple specialist firms to change their process in a coordinated fashion.’<sup>1</sup>

“Examples of systemic innovation in the engineering and construction industry include:

- Integrated supply chain management.
- Prefabrication of building systems.
- 3D CAD virtual design and construction tools.
- Building Information Models (BIM).
- Project Finance Initiatives (PFI) and Public Private Partnerships (PPP).
- Modularization.

Many of these are characteristic of successful large programs.”

Prieto refers to systemic innovation in the largest industry in the world, the engineering construction industry. In the USA this industry accounts for 9% of the GDP.

Systemic innovation is also required in large, multinational companies as well as large governmental agencies.

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<sup>1</sup> Taylor, John E. and Raymond Levitt, “Modeling Systemic Innovation in Design and Construction Networks,” Center for Integrated Facility Engineering;, CIFE Technical Report # 163. Stanford University, October 2005

In smaller organizations systemic innovation can also produce useful results, but it is more likely that incremental innovation is more frequently used in most situations.

## ***Creativity and Innovation***

Innovation obviously depends on creative ideas. This book does not explore the sources of new ideas, but rather focuses on how to transform those ideas into desirable benefits.

As Michael Ray and Rochelle Myers state in the introduction to their 1989 book **Creativity in Business**: “One of the main problems in U. S. business today is that there are too many ideas, not too few. Dozens of solutions appear and disappear in chaotic piles of data, crowds of expert opinion, and a jumble of contradictory statistics and reports on every aspect of every issue. The pressure of limited time is increased by indecision and, beneath it all, the nagging suspicion that others will find your efforts insufficient and the results poor.”

### **Innovation Means Change:**

- In a business or process.
- In the output or product of the process.

## ***All Significant Innovations are Achieved through Projects***

We hope to persuade the reader of this book that this is a valid statement. When that persuasion occurs then it is obvious that all executives in every kind of human enterprise need to know the characteristics of projects and how best to govern and manage projects, programs, and their portfolios.

Some notable characteristics of innovation are:

- The starting point for innovation is the generation of creative ideas. Innovation is the process of taking those ideas to market or to usefulness.

- Innovation concerns the search for and the discovery, experimentation, development, imitation and adoption of new products and services, new processes and new organizational arrangements.
- Innovation is the conversion of knowledge and ideas into a benefit, which may be for commercial use or for the public good; the benefit may be new or improved products, processes or services.
- Innovation is the process that transforms ideas into commercial value.

**A Project is:**

A temporary endeavor undertaken to create a unique product, service, or result.

- Innovation = Invention + Exploitation.

**A Program is:**

A group of related projects.

The generally accepted definition of a project is “a temporary endeavor undertaken to create a unique product, service, or result”<sup>2</sup> Programs are “a group of related projects”<sup>3</sup> but in recent years the concept of strategic transformational programs<sup>4</sup> includes both projects and operations (or other activities) within their scope.

**A project is the best – perhaps only – method of achieving innovation.**

***Structured, Well-Managed Innovation***

The alternative of simply throwing an idea on the table at a staff meeting and seeing if anyone will start making it happen will not get the job done.

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<sup>2</sup>PMIA 2008 p. 442.

<sup>3</sup> Ibid.

<sup>4</sup> See Chapter 2 for further discussion of strategic transformational programs.

Innovation begins in every case with an idea generated by an individual, or sometimes by a small group of people collaborating to solve a problem, develop a new product or service, or create and satisfy a customer need.

Transforming that idea into the reality of something new – a new or improved process, service, or product, or even a new enterprise – is rarely if ever the result of one person's effort, even though one person will lead the effort as the project manager.

This transformation requires a structured approach to bring together all the skills and other resources needed in a structured team and to define the resulting project in terms of its objectives, scope, cost and other resources, and its schedule for completion.

This is project management at the basic level.

**Project Management at the Basic Level:**

- Uses a structured approach.
- Brings together all the skills and resources needed.
- Defines the Project in terms of objectives, scope, cost, resources, and schedule.
- Delivers the intended results and value.

***Steve Jobs, the Computer Mouse, and Innovation through Project Management***

Thirty-four years ago Steve Jobs introduced the Macintosh computer with the mouse. Jobs is a great example of an effective innovator and project manager -- even though he was sometimes described as tyrannical and cruel to many on his staff – and also a genius.

In fact, Jobs was truly Apple's Chief Projects Officer/CPO (discussed in Chapters 2 and 5.)

The transformational innovation of the computer mouse (with several other innovations introduced in the Macintosh at the same time) was not invented by Jobs, however.

As reported by Gladwell<sup>5</sup> (2011), Engelbart had the mouse idea, which was then developed by Xerox PARC up to a point, and then made practical and marketable by Jobs and Apple Computer with the help of an industrial design firm and a creative team of people within Apple.

**Sometimes Innovation  
Involves Multiple  
Parties and Steps:**

- Engelbart had the idea.
- Xerox PARC developed the idea.
- Jobs 'finished the job' with the help of an industrial firm and internal design team.

The computer mouse development and market introduction exemplifies the need for effective project management when it comes to implementing innovation.

Gladwell's 2011 article in the New Yorker Magazine is titled "Creation Myth – Xerox PARC, Apple, and the Truth about Innovation," and the truth he presents is this: it takes a project with a good project manager to achieve significant innovation.

## ***How DARPA Achieves Its Significant Innovations***

"Over the past 50 years, the Pentagon's Defense Advanced Research Projects Agency (DARPA) has produced an unparalleled number of breakthroughs. Arguably, it has the longest-standing, most consistent track record of radical invention in history. Its innovations include the internet; RISC computing; global positioning satellites; stealth technology; unmanned aerial vehicles, or "drones"; and micro-electro-mechanical systems (MEMS), which are now used in everything from air bags to ink-jet printers to video games like the Wii. Though the U.S. military was the original customer for DARPA's applications, the agency's

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<sup>5</sup> Best-selling author of *The Tipping Point* and *Outliers: the Story of Success*.

advances have played a central role in creating a host of multi-billion-dollar industries.”<sup>6</sup>

According to Regina Dugan and Kaighan Gabriel, Director and Deputy Director of DARPA from 2009 to 2012, “The DARPA model has three elements:

“**Ambitious goals.** The agency’s projects are designed to harness science and engineering advances to solve real-world problems or create new opportunities. At Defense, GPS was an example of the former and stealth technology of the latter. The problems must be sufficiently challenging that they cannot be solved without pushing or catalyzing the science. The presence of an urgent need for an application creates focus and inspires greater genius.

“**Temporary project teams.** DARPA brings together world-class experts from industry and academia to work on projects of relatively short duration. Team members are organized and led by fixed-term technical managers, who themselves are accomplished in their fields and possess exceptional leadership skills. These projects are *not* open-ended research programs. Their intensity, sharp focus, and finite time frame make them attractive to the highest-caliber talent, and the nature of the challenge inspires unusual levels of collaboration. In other words, the projects get great people to tackle great problems with other great people.

“**Independence.** By charter, DARPA has autonomy in selecting and running projects. Such independence allows the organization to move fast and take bold risks and helps it persuade the best and brightest to join.”

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<sup>6</sup>Dugan, Regina E., and Kaighan J. Gabriel, ““Special Forces’ Innovation: How DARPA Attacks Problems.” **Harvard Business Review**, October 2013.



Obviously DARPA, with the word ‘projects’ in its title and using this business model, recognizes and practices project management as a core competence. But can the successes of DARPA be reproduced outside of the U.S Department of Defense? These authors go on to say:

“Not surprisingly, in recent decades there have been many attempts to apply the DARPA model in other organizations in the private and public sectors. All those efforts—or at least the ones with which we’re familiar—have had mixed results or failed. These disappointments have led people to conclude that the successes of this extraordinary agency simply can’t be replicated outside the Department of Defense.

“We disagree. We led DARPA from mid-2009 until mid-2012. Since then, we have been implementing the agency’s model of innovation in a new organization—the Advanced Technology and Projects (ATAP) group at Motorola Mobility, which was acquired by Google in May 2012. We believe that the past efforts failed because the critical and mutually reinforcing elements of the DARPA model were not understood, and as a result, only some of them were adopted. Our purpose is to demonstrate that DARPA’s approach to breakthrough innovation is a viable and compelling alternative to the traditional models common in large, captive research organizations.”<sup>7</sup>

Contributing to those failures we believe is the widespread lack of sound understanding of project, program, and portfolio management at the executive level in most organizations.

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<sup>7</sup> Ibid.

## ***What All Executives Must Know about Project Management***

This book provides the executive reader with a sound understanding of both the characteristics of projects and programs and of the principles to effectively manage them.

It clearly and concisely explains to the executive reader the important differences in:

- **Project management** compared to on-going **operations management**,
- **Transformational** compared to **delivery projects**, and
- **Project-driven** compared to **project-dependent organizations**.

Chapter 2 summarizes the basic concepts underlying project and program management.

In Chapter 3 we provide needed understanding about the wide range in the categories and characteristics of projects and programs that exist.

Chapter 4 discusses the capability required to manage projects and programs within portfolios.

Chapter 5 conveys an understanding of the value and need for establishing Project Management Offices (PMOs) as well as the various responsibilities that can be assigned to those offices.

Chapter 6 briefly describes the heart of good project management, namely the methods used to manage each individual project.

Based on the knowledge conveyed in those chapters, Chapter 7 provides executives with a list of what they must demand of their executive and management teams in order to achieve effective project, program, and portfolio management within their enterprises.

Chapters 8 and 9 provide useful background for executives: Chapter 8 discusses achieving and measuring maturity in project management and benchmarking their organization's capabilities in this area against their competitors, and Chapter 9 conveys an understanding of the overall importance today of the discipline of project management around the world. Chapter 10 provides a concise summary of these nine chapters.

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Our purpose is to provide executives and senior managers with the information necessary to understand, utilize, and gain a competitive advantage in the process of transforming ideas into real innovation.

**“A nation’s ability to build and sustain its innovation capacity depends on developing and maintaining project management skills....”**

**Naughton and Kavanagh, 2009**