Spiral
Development:
Lean Vs Stage-Gate

Too often, companies choose innovation methodologies in the same way they choose religions, irrationally pursuing an ALL or Nothing approach. The pendulum has swung toward Lean and Agile methodologies sometimes casting Stage-Gate aside. Optimal results are derived from the best of BOTH worlds as part of an integrated Best practice Innovation Toolkit...

Effective Innovation Management

There are two primary goals of Effective Innovation Management:

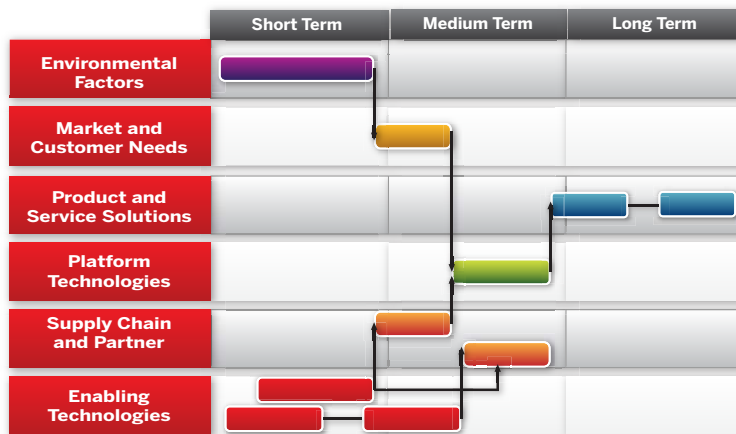1. **Doing the Right Things and**
2. **Doing things Right**

To expand on these concepts, "Doing the Right Things" has several core practices including:

1 **Effective integration between Business and Innovation Strategy:**
This defines Strategic Arenas of Innovation Opportunity or Focus which matter significantly to your customers.

2 **Effective Long Range Strategic Road-mapping:**
Inform the Business, Innovation and Technology Strategies on multiple dimensions:

	Short Term	Medium Term	Long Term
Environmental Factors			
Market and Customer Needs			
Product and Service Solutions			
Platform Technologies			
Supply Chain and Partner			
Enabling Technologies			

3 **Effective "Voice of the Customer" and Consumer Insight Methods**:
Ensure the alignment of new products and services with un-met customer needs.

4 **Effective Portfolio Management Methods**
These establish and monitor the relative innovation investments in each Strategic Arena – your Portfolio Imperatives.

5 **Effective Ideation Methods**
Capture and define product and service opportunities within each Strategic Arena and evaluate and prioritise these against portfolio objectives.

6 **Effective Stage Gate Methods**
Apply the Go/Kill/Hold/Recycle decisions to prioritise your investments in the Innovation Funnel.

Effective Stage Gate

Effectively applied, Stage-Gate is where the "Rubber Meets the Road" – It is where Strategy is made real by approving, resourcing and accelerating projects which enhance strategic priorities AND also by killing, or de-prioritising weaker projects.

Through effective Gate Keeping, Stage-Gate processes enable the decision making required to **"Do the Right Things"**.

Stage Gate also supports **"Doing things Right"** by providing guidance, checklists, templates and examples of the work required within each stage.

SPIRAL Development

The greatest variance between an "Agile" methodology and "Gated" Innovation Management relates to the development of product and service specifications. Traditional "Gate" based development methods advocate the creation of a "Detailed Product Charter" OR "Integrated Product Definition". The emphasis in this approach is on the clear and full definition of the product BEFORE development begins.

In an Agile world, emphasis shifts toward the high level definition of the "What" and "Why" dimensions of the product specification, rather than the "How". Iterative, fast paced development explores the best methods of "How" to best deliver the desired functionality and "How" to best meet the customer need. Frequent, iterative consultation with the customer is used to ensure alignment of the developed solution with the customer need.

A key advantage of Spiral Development Methods including Agile, is that the iterative development process is well suited to areas of increased uncertainty, higher technical risk and more complex development projects.

LEAN Product Development

"LEAN" is both a philosophical and a tactical approach to Product and Service Innovation.

At its core, LEAN has two primary objectives:

1. Maximising Value and
2. Minimising Waste.

Too often, the very word "LEAN" conjures up a frugal, mindset focused only on cost reduction and waste minimisation. This is also partially attributable to its origins in Lean Manufacturing where improvements in cost, efficiency and speed are paramount.

In practice, "Lean Product Development" is mostly applied at a tactical level and in conjunction with the Stage-Gate methodology applies primarily to the way development work is completed **within** the Stages.

The origins of Lean in the context of Product Development are founded in studies of Toyota's product development systems which delivered dramatic improvements over the methods used by their traditional competitors. Rather than a detailed step-by-step process, they have a simple project plan which identifies key dates and responsibilities. In contrast with their American competitors, Toyota's development methods deliver vehicles with:

- **Higher Quality levels**
- **Four time the productivity per engineer**
- **Half the development time**
- **More innovation and Reduced Risk**

Toyota applies tremendous rigour to how they capture learning, they study BOTH what works and doesn't work. They document it fastidiously and disseminate it broadly.

This practice of reviewing past projects to capture the determinants of success and failure is a key to the success of the Toyota system. At the beginning of the project Toyota do not set tight specifications but rather move from the broad to the specific as they progress through their development.

Adoption of methods from the software world have seen the emergence of "Agile" and 'Scrum" as a methodologies for iterative development, aligned with the "Plan – Do – Check – Act" cycle developed by Walter Shewhart and popularised by Demming.

According to Lean development expert, Don Reinertsen - using Lean methods in Product Development requires insight as to which management practices impede Flow. Success in Lean Product Development requires:

- **Understanding the cost of delay**
- **Managing variability and queues**
- **Reducing Batch size**
- **Controlling Flow**
- **Accelerating Feedback**
- **Decentralising control and**
- **Finding Waste**

If we expand our Lean thinking from the Tactical to the philosophical we can look at the way in which we implement Stage-Gate seek to achieve Lean outcomes.

Making Stage-Gate Lean

One of the common mistakes in Stage-Gate implementation is to blindly adopt the 5 Stage process for all businesses and for all projects. Processes need to be aligned to the level of risks in projects and while new to world or new to company projects may require the rigour of a 5 stage process, this is not always the case.

Many companies, who adapt products for local markets or pursue a market follower rather than a product leadership position, require at most a 4 stage process model.

For the vast majority of companies, there are far more projects which are tweaks and enhancements to existing products than there are truly new products.
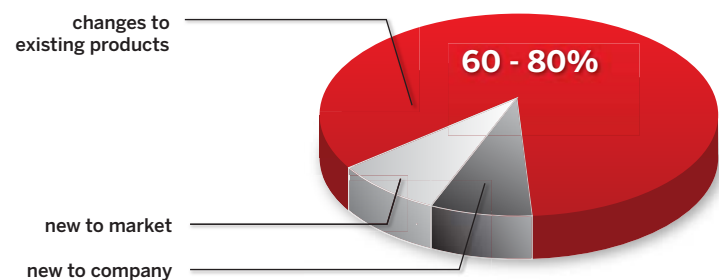
This balance makes absolute business sense for most companies since the re-investment in existing products is required to extend their market life – keeping the cash cows alive for longer.

Product change and product deletion processes require a simplified Stage-Gate process with a reduced number of Stages and Gates.

In keeping Stage-Gate lean it is critical to establish discrete process models aligned with project risk and also to establish tiered responsibilities of Gate Keepers so that the decision making responsibilities are aligned with the level of business risk.
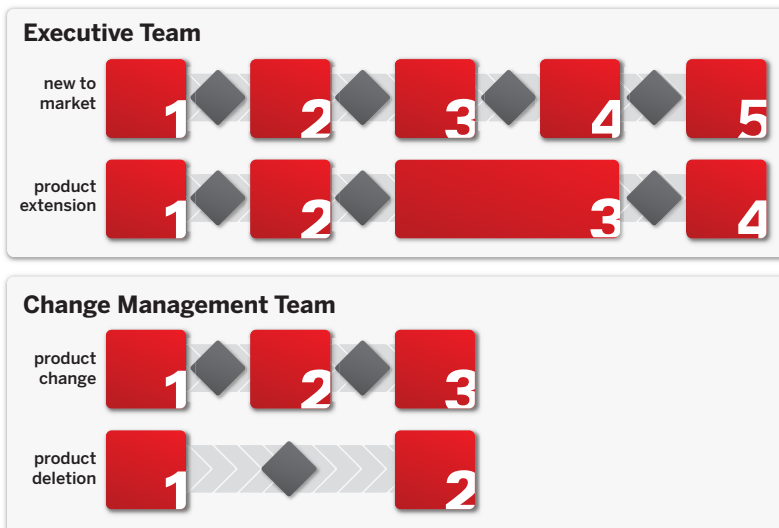
The Best of Both Worlds...

A common goal of both Lean Product development and Effective Stage Gate Management is to kill weak projects and to divert resources to stronger projects which maximise the value of the Innovation Pipeline.

Researchers (Boehm and Turner) have identified that: "Future projects will need BOTH agility and discipline, which can be implemented by containing the Agile Development Model within the Gate Model".

In seeking the "Best of Both Worlds" (Karlstrom and Runeson) have identified key issues for more effective development methods involving Agile methods including:

• Involving developers early in the product development

• Adapting the project planning to accommodate for agile micro planning in combination with macro project planning

• Identifying critical feedback loops and make these as short and fast as possible

• Striving to make an early version of the actual product as quickly as possible using technical tools for technical coordination

• Making the customer-developer roles and interactions as clear end effective as possible

• Working chiefly with management attitudes to accommodate uncertainties

Summary

In summary, there are benefits of integrating Agile thinking into traditional Stage-Gate models. Key issues must be addressed to derive the key strengths from both processes. The biggest mistake is to focus on which tool is best rather than on when to use each tool and in what combinations to optimise business outcomes.

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Reference List:
1. Karlstrom, D. and Runeson, Per. (2005) Integrating Agile Software Development into Stage-Gate Managed Product Development.