

Innovation @Westinghouse

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Agenda

- Westinghouse
- What is innovation?
- High-level innovation process
- The importance of documentation
- Infrastructure needs

Our Place In Nuclear Energy History



Exploration

1937-1956



Development

1951- present



Implementation

1957- present



Renaissance

2008 and Beyond

**We are the leaders of a new global generation
of clean nuclear energy technology in future!**



Westinghouse in the Nuclear Industry

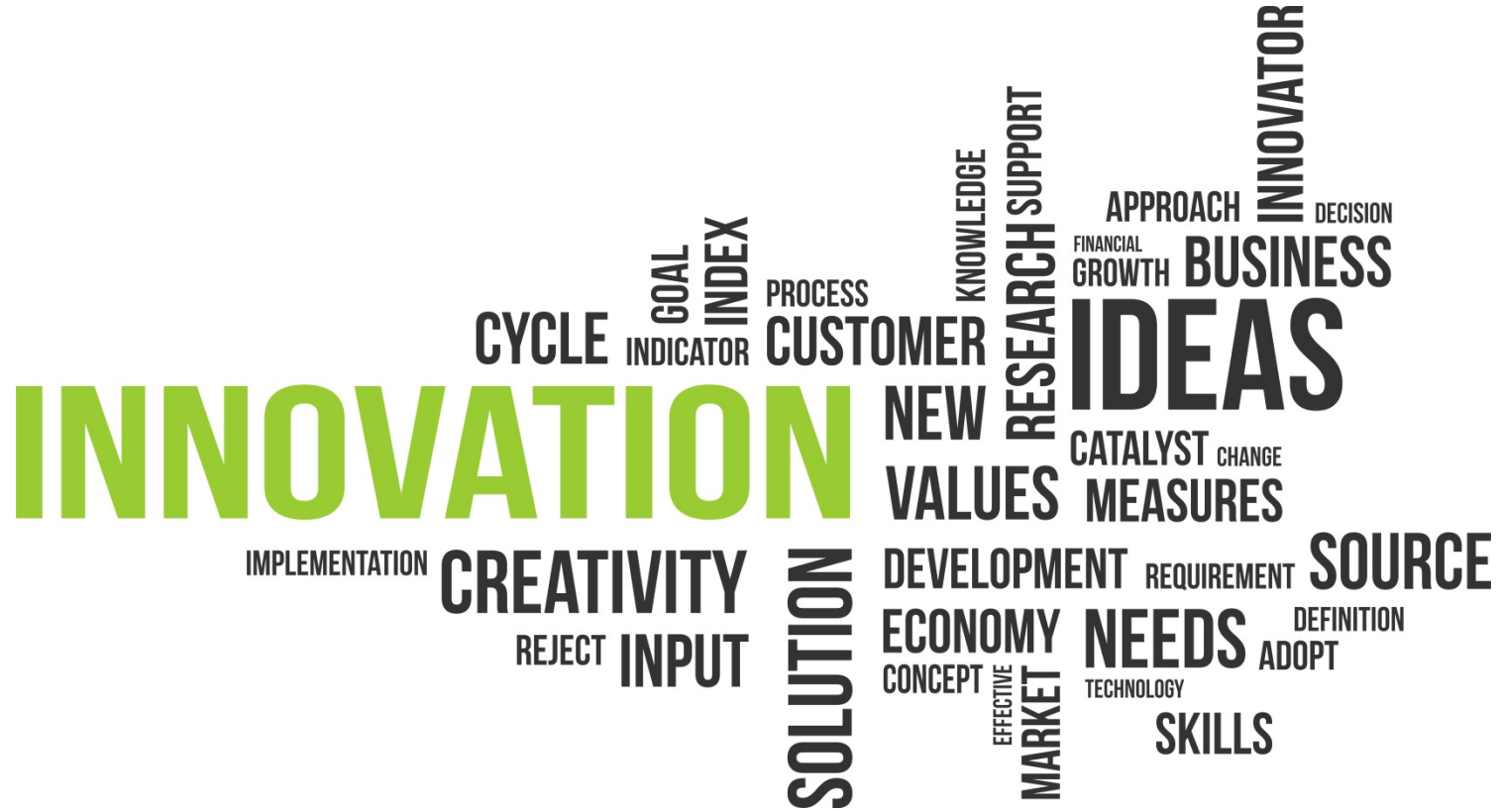
- Pioneered and engineered nuclear technology
 - 60% of reactors in the United States
 - 50% of the world
- Supports all aspects of nuclear power: design, licensing, operations and plant maintenance
- Provides over 50% of the nuclear fuel in the US, as well as a significant share of the world market



Westinghouse and innovation

- Westinghouse values innovation highly
 - Westinghouse started with air-breakers for trains
 - Now we do large nuclear plants
 - Tomorrow? We are working on it!
- Nuclear is a highly regulated industry and documentation is a norm on everything we do
 - It brings discipline and helps knowledge management

“Innovation is the *discipline* to transform creative ideas into opportunities that *could bring value* to the market and the company.”



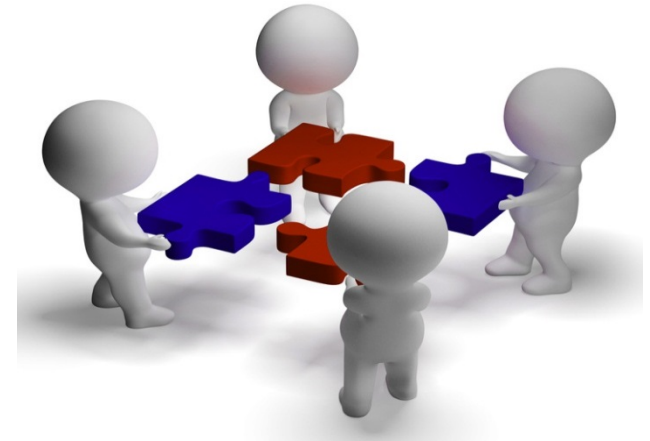
Good Innovators have the right mindset

Innovation requires critical processes and tools, *and* promotes a mindset that is....

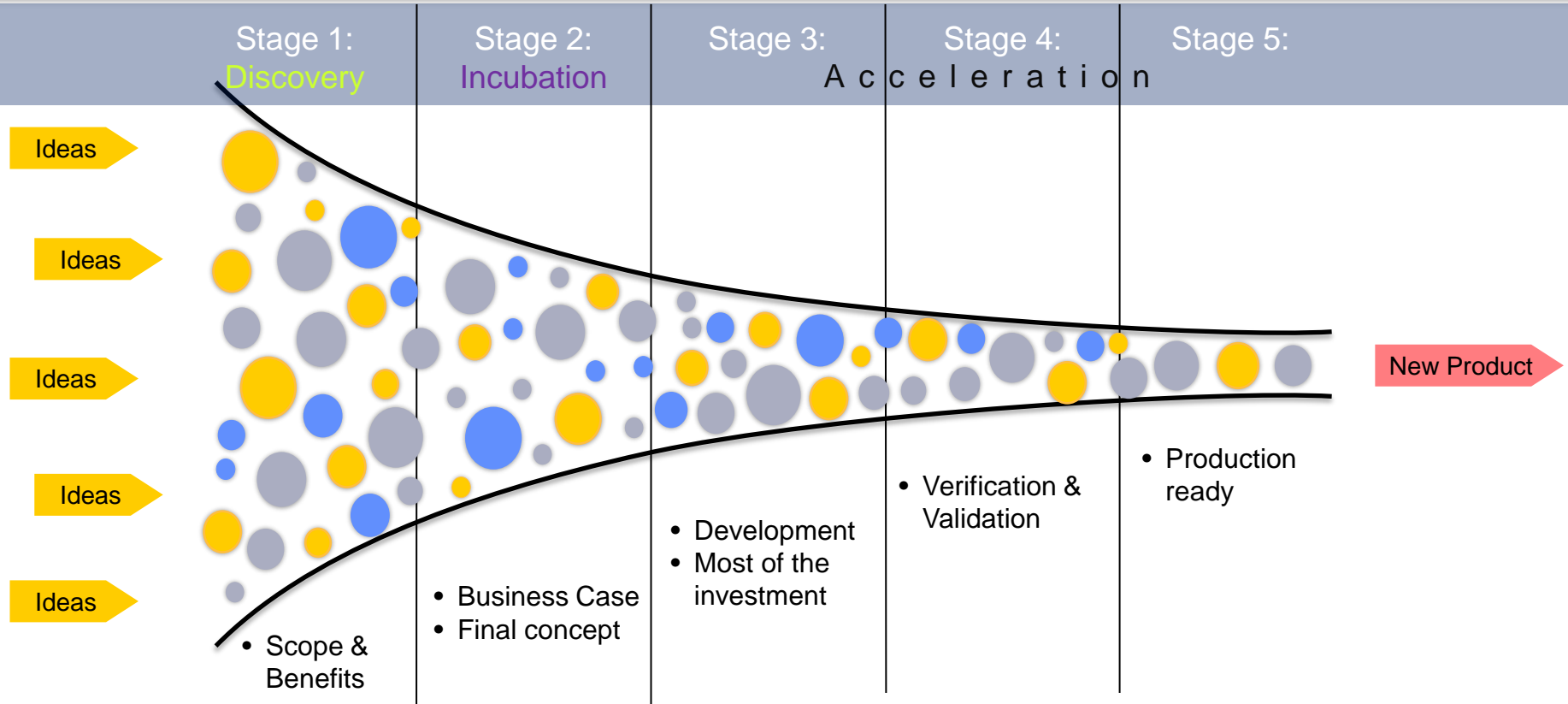
- conducive to creating new business concepts;
- reducing technical, market, resource, and organization uncertainties through progressive learning; and
- building cultural bridges between the innovation learning environment and the dominant culture of operations.

High-Performing Innovative Companies have....

- **Innovation Strategy:**
 - driven by business goals & market needs.
- **Portfolio Management:**
 - is the means to ensure alignment of resources with the strategy.
- **Idea to Launch Process:**
 - is the system to develop the idea “end to end”.
- **Culture of Innovation:**
 - supports teams & leaders to foster cross-functional development.



Innovation Process – 5 Gates & Stages



Discovery = Conceptualization

The Scoping Challenge: Think Bigger & Identify TMRO Uncertainties

IDEAS TO OPPORTUNITIES
CREATING THE BUSINESS VISION



Incubation = Experimentation Reduce TMRO Uncertainties

MANTRA #1:

“LEARNING PER DOLLARS SPENT”

MANTRA #2:

“GOOD ENOUGH”



Acceleration: Product Development & Commercialization

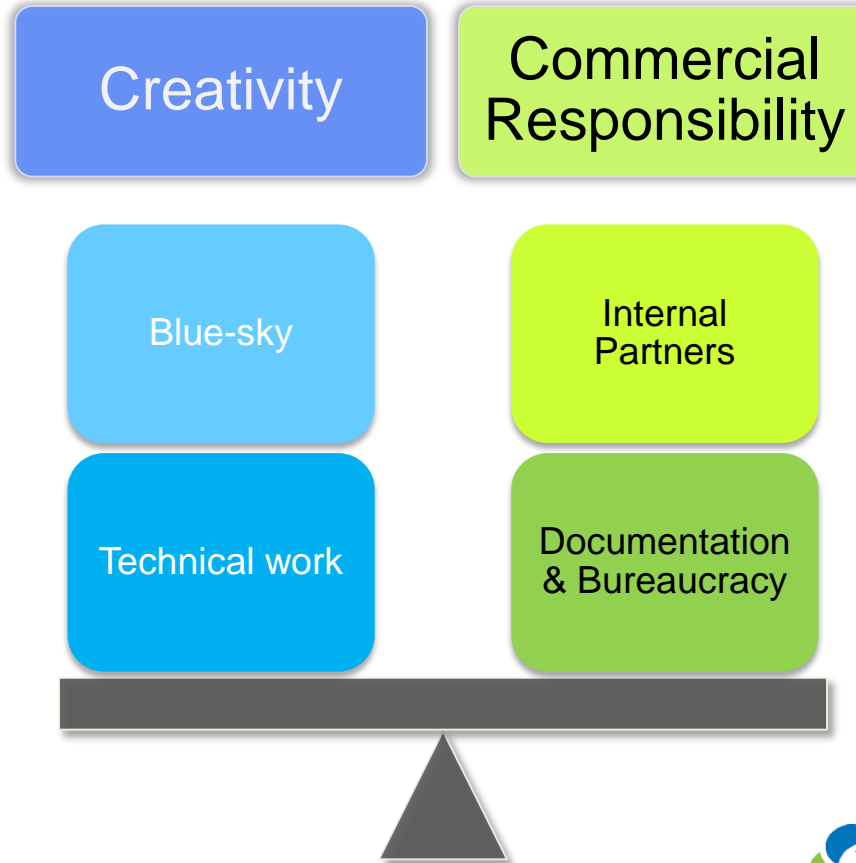
- ✓ Finalized conceptual design
- ✓ Business and technical assumptions are valid
- ✓ Business case acceptable



**TIME TO COMMIT AND INVEST
REMEMBERING THE BUSINESS VISION**

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The Innovation Process Balance



Disciplined approach ensures return on innovation

Program Plan

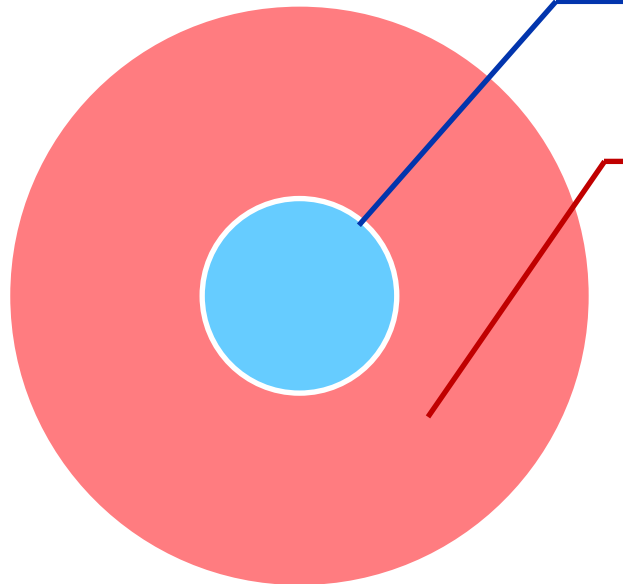
- Written for core people whose job is to manage innovation projects on a daily basis – very detailed

Work Procedure

- Written for any person at Westinghouse to read quickly and understand how everything works

Both documents explain:

- How the process work
- What to do at each step in the process
- Who does what
- Deliverables and expectations



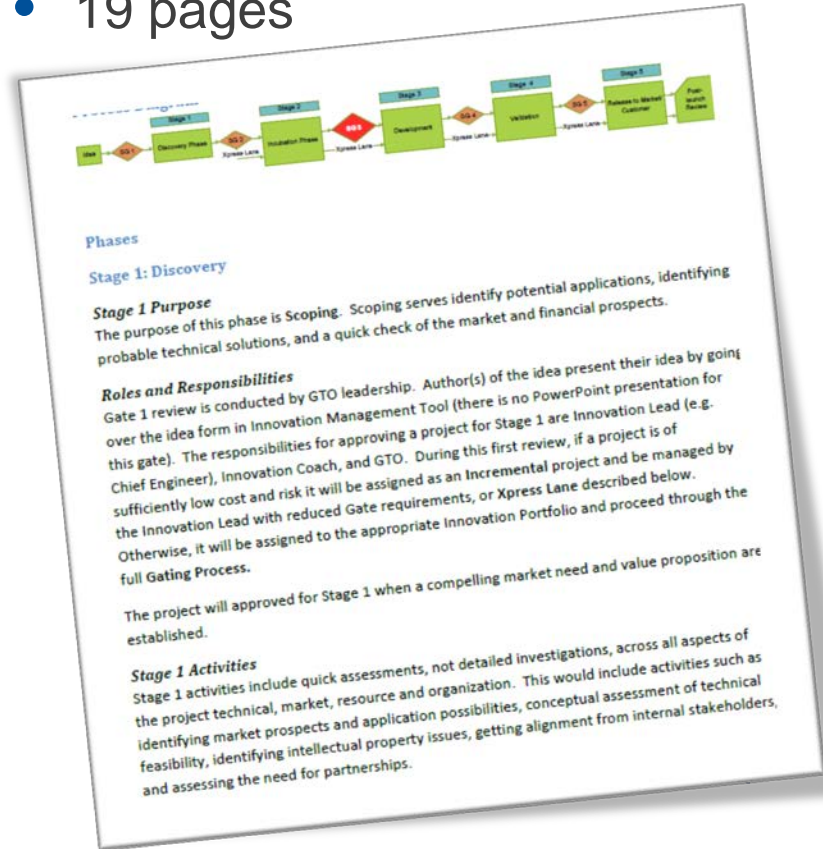
Work procedure



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- Updated annually
- 19 pages



Program Plan

Westinghouse Proprietary Class 2
WESTINGHOUSE ELECTRIC COMPANY LLC

Program Plan Number RT-TR-15-24	Revision 1	Page 1
Program Plan Title A Guide to the Westinghouse Innovation System	Total No. Pages 48	

Program Plan
Title: A Guide to the Westinghouse Innovation System

- 48-page, very detailed document
- Updated when necessary



Stages and Review Gate Process for Innovation Projects
(See Appendix A: Innovation System RASCI (Responsible^{RI}), Accountable, Support, Consult, Inform) for additional responsibilities)

Event	Who's Responsible	Activities	Notes
Gate 1 Review Meeting preauthorization work on Stage 1 activities	Innovation Coach	<ol style="list-style-type: none"> With the information from Stage 0, the Innovation Coach calls for a Gate 1 review meeting via the Innovation Gate Review Request form. The Gate Review Coordinator will schedule the Gate 1 review. The Innovation Coach ensures all "Voting Members" are present (or send a proxy) and Additional Members are at least informed. The Innovation Analyst will report the following results of the meeting in an e-mail to the attending Project Teams: <ol style="list-style-type: none"> Names of all Gate meeting attendees High level summary of the meeting and any actions taken (actions should have owner and due date) Decision on Gate (move forward into Discovery or stop project), indicating reason for decision Funding requested and authorized to complete Discovery activities Points of Contact (POC) list / Recommended Next Steps Checklist (add George Hyperlink) Planned Gate 2 review meeting date, to be within 2-3 month time 	<p>This step will determine whether to enter DISCOVERY.</p> <p>If project is approved, Financial Analyst will supply a charge number.</p> <p>No slides or presentations are required; the presentation will be made from the data generated from the Idea Form.</p>

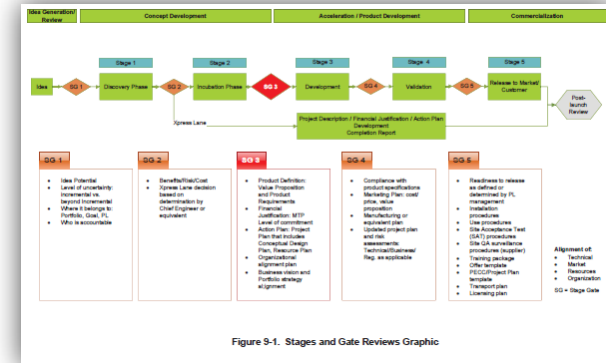


Figure 9-1. Stages and Gate Reviews Graphic

Infrastructure is Critical to Success

Resources: to lead and manage the projects

- Innovation Leads (aka Coaches)
- Innovation Project Managers

Database: to receive, store information, and track projects

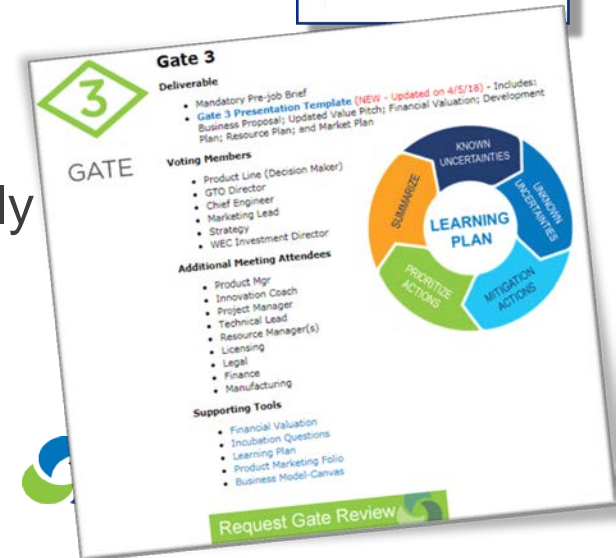
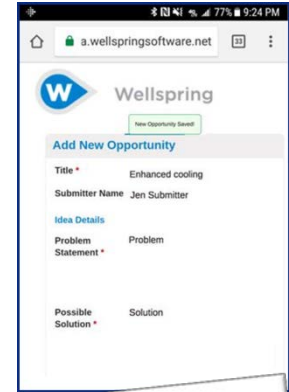
- Easy and simple idea collection
- Easy and simple to use (no excuse not to use)

Standards and templates: to be consistent

- Monthly reports
- Gate presentations
- Gate deliverables: Financial valuation, marketing, etc.

Innovation project discipline: to manage effectively

- Budgetary
- Project management
- Flexibility within boundaries
- Make decisions: stop, continue, or accelerate



Benefits of written process and standard templates

- Takes the guessing game off the table
 - Engineers know, or learn easily, what needs to be done
- Helps to speed up execution of the projects
 - Clear expectations on what and when to deliver while allowing flexibility (pivoting) when needed
- Makes it easier for the management team
 - If you don't deliver, you don't get funding

“Love *the problem*... Not your *solution*!”

Thank you

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