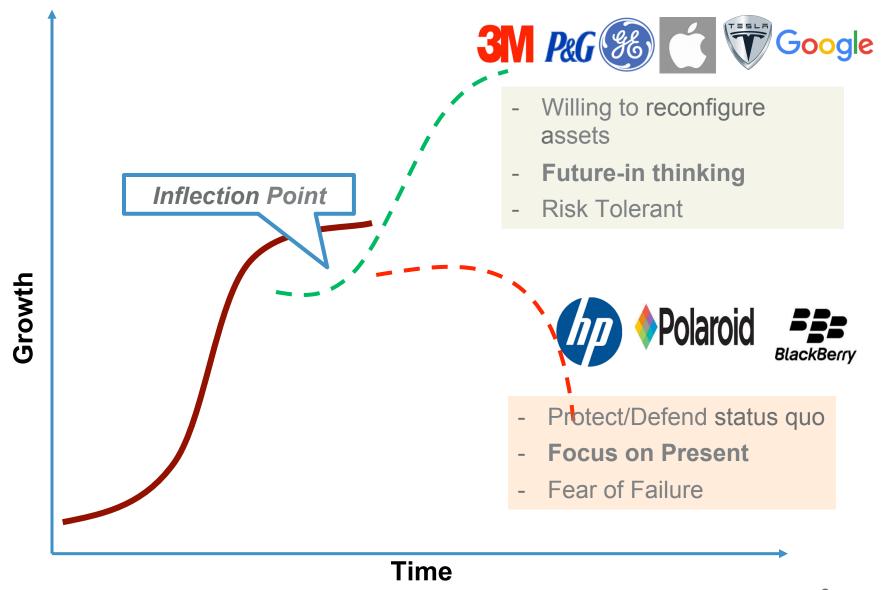
Liberating Your IQ: Creating a Culture of Innovation Partha S Ghosh December, 2016

Agenda

- 1 Innovation: The Essential Requirements
- 2 Cultivating the right environment: Case studies
- Engaging with the Possibilities ahead?

What really drives Innovation?



Agenda

1

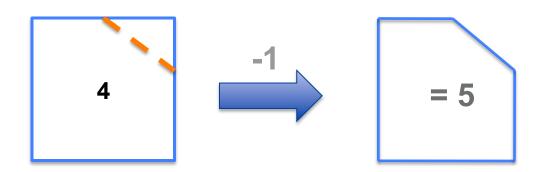
Innovation: The Essential Requirements

Just to get warmed up.....

Let's think of a situation where:

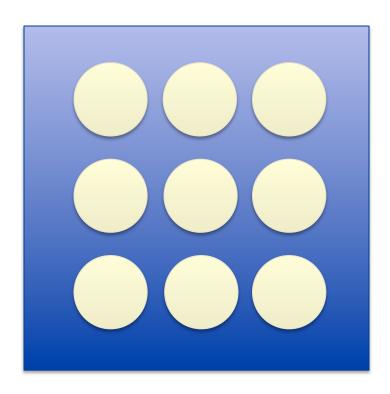
$$4 - 1 = 5$$

• If you cut a corner off a piece of paper with four edges.....?



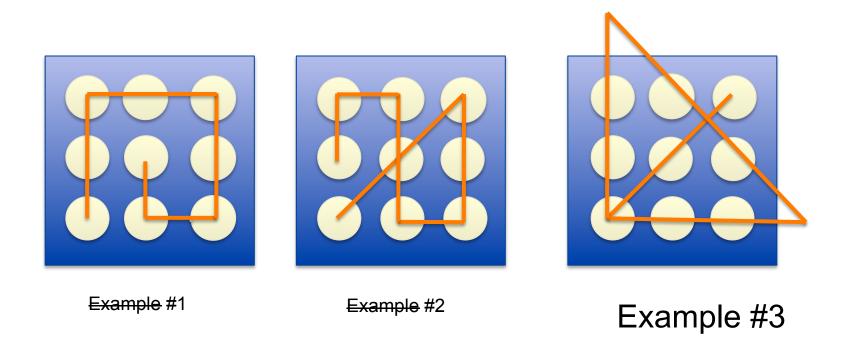
Let's Continue to Experiment

Is it possible to go through through every circle with only *four* connected straight lines?



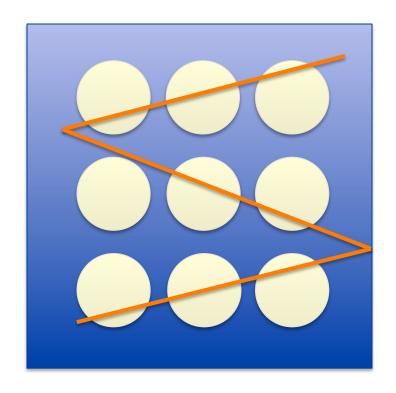
What is Meant by "Thinking Outside the Box"?

• As an illustrative example, draw *four* connected straight lines that go through every circle



Let's continue to Experiment

• Is it possible to go through through every circle with only *three* connected straight lines?

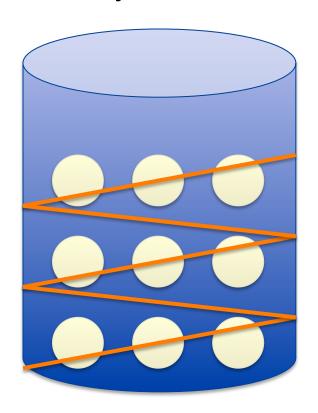


Let's Think Way Outside the Box

- Is it possible for only **one** line to pass through all the circles?
 - -Yes, you can succeed in more than one way. Nothing in the problem defines how thick the line is. With a line as thick as the whole array, one swipe of a paintbrush solves the problem.
 - -However, if the thickness of the line can't exceed the diameter of a circle, then what?

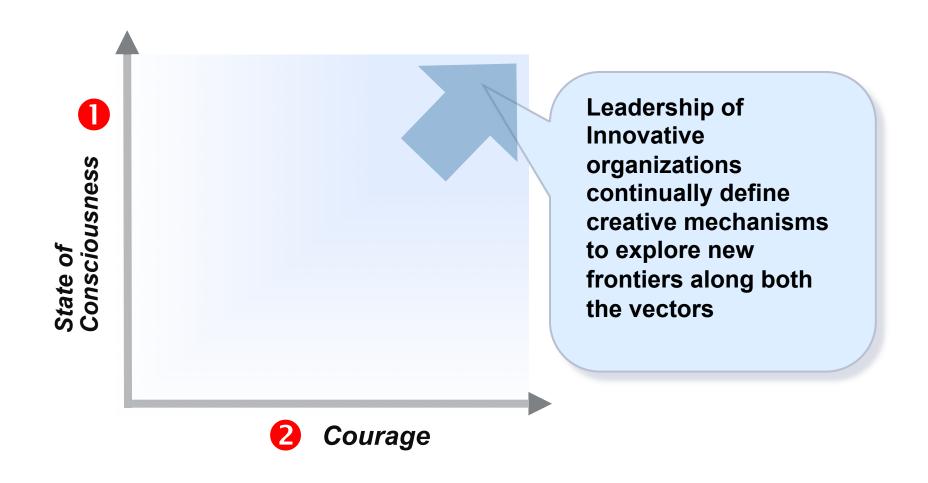
Thinking Way Outside the Box

• If you break out of this constraint, a solution is possible. If the circles are are on a cylinder, **one line** that spirals around the cylinder can touch each circle.



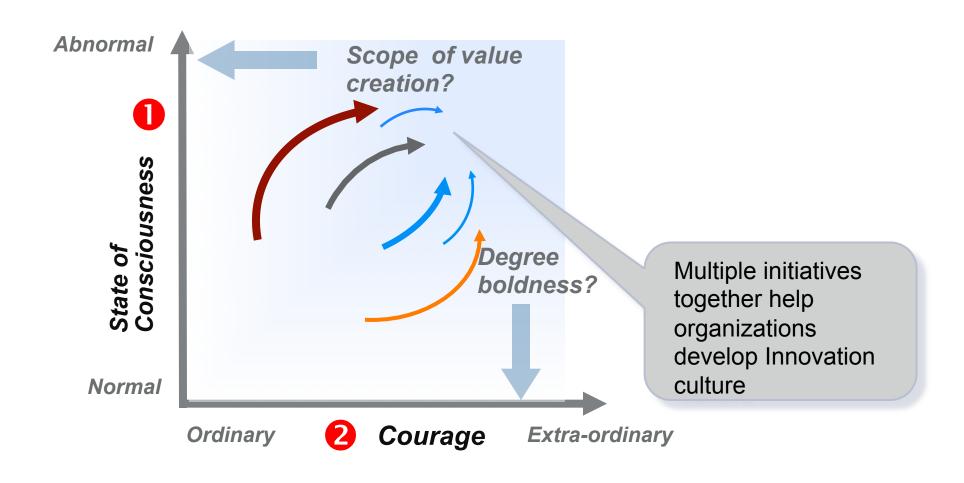
Innovation: Essential Requirements

The Two Critical Vectors



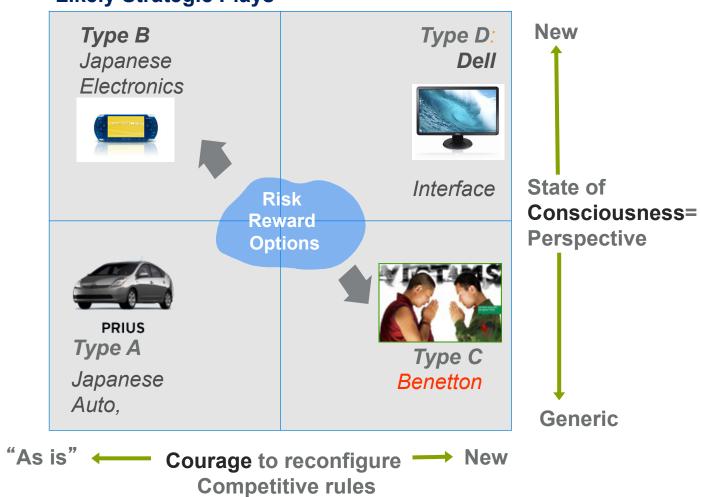
Innovation: Essential Requirements

The Two Critical Vectors

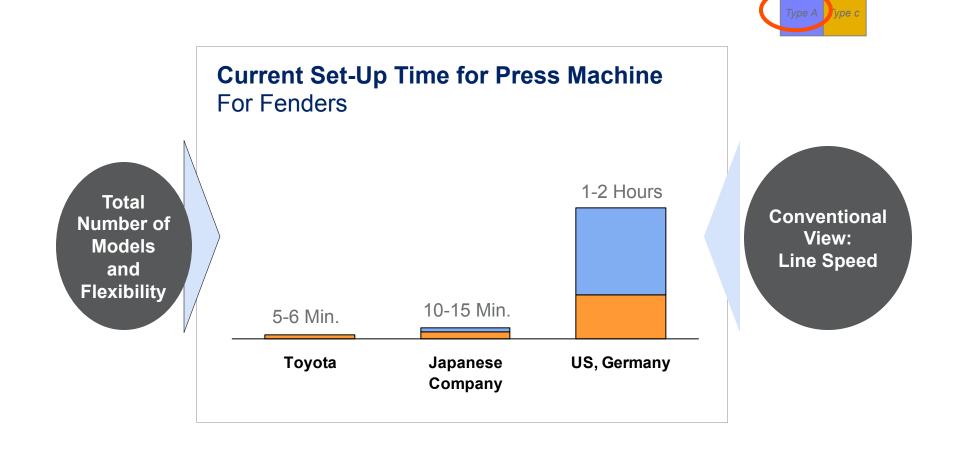


Innovation Framework will explore and enable multiple possibilities

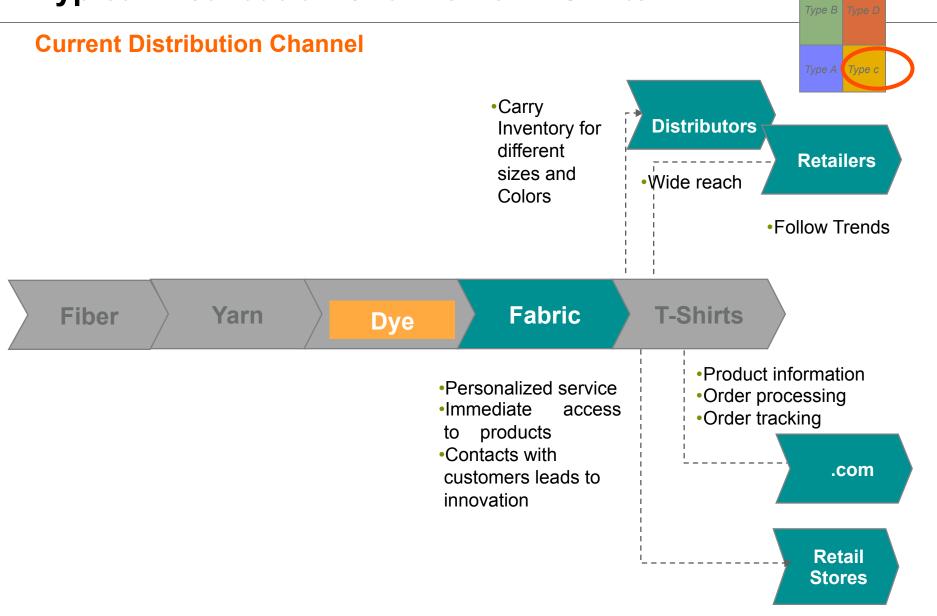
Innovation Game board: Likely Strategic Plays



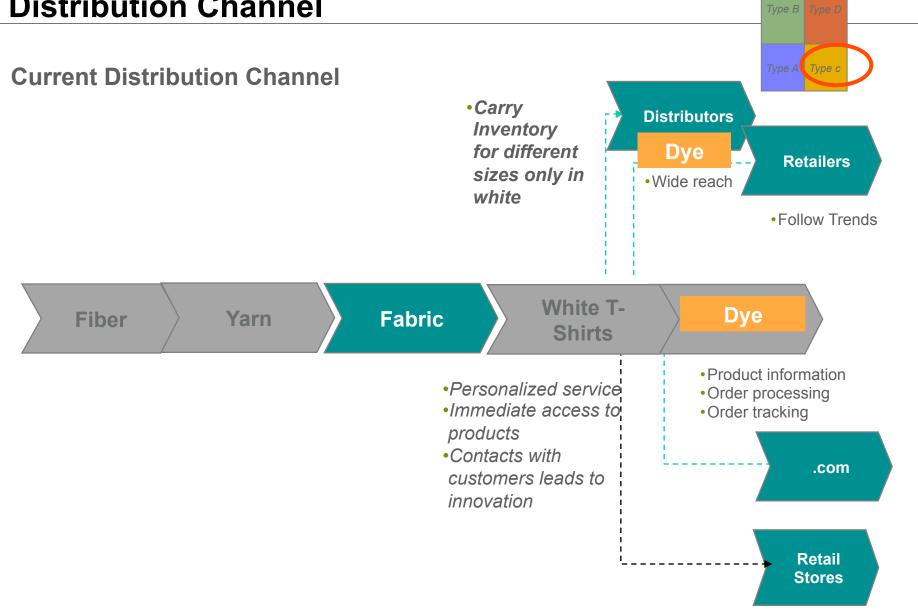
When Conditions change (?).. Opportunities are <u>created</u>..



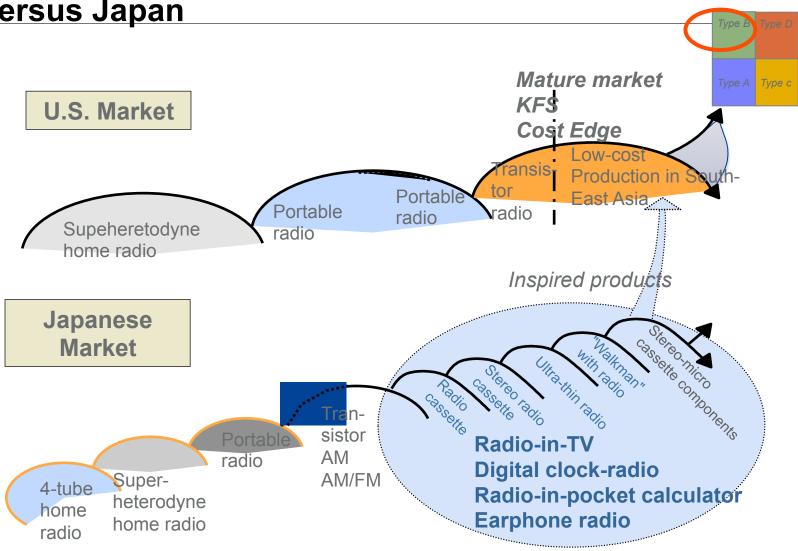
Typical Distribution Channel for T-Shirts



Benetton: Creating More Value out of the Distribution Channel



Product-Development History of Radio: US versus Japan



Process Simplification & Re-sequencing = Network Manufacturing: Capital Efficiency Advantage

Type A Type c

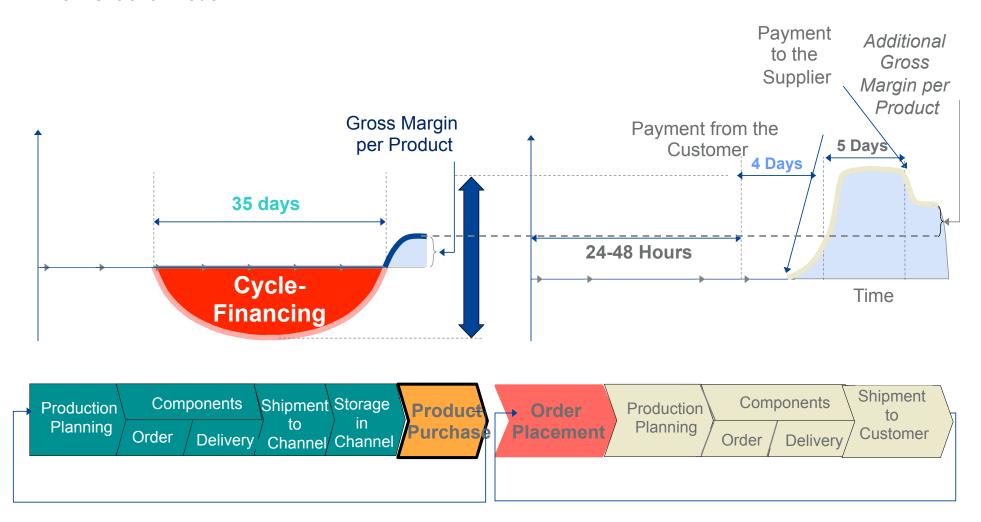
Illustrative

Financial Flow/Production Cycle Dollars

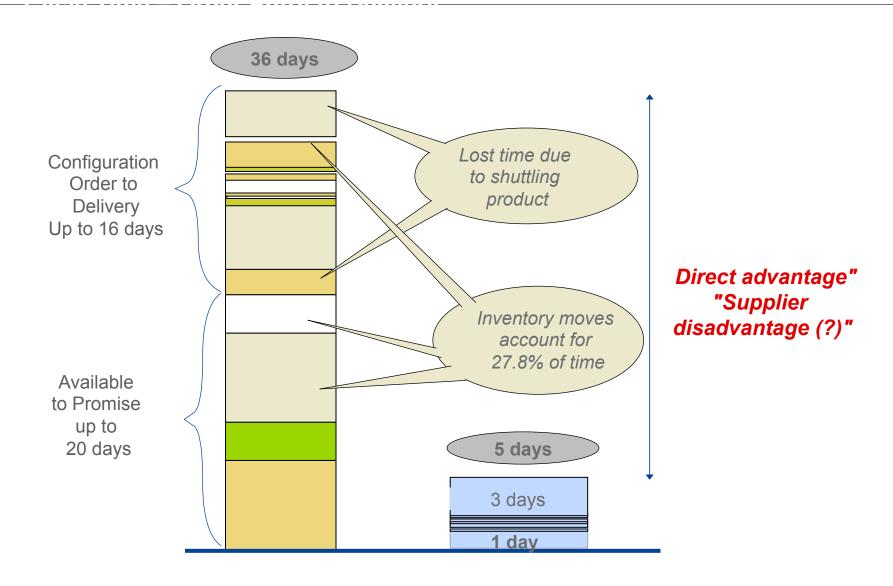
Financial Flow/Production Cycle Dollars

Conventional Model

Direct/Internet Model

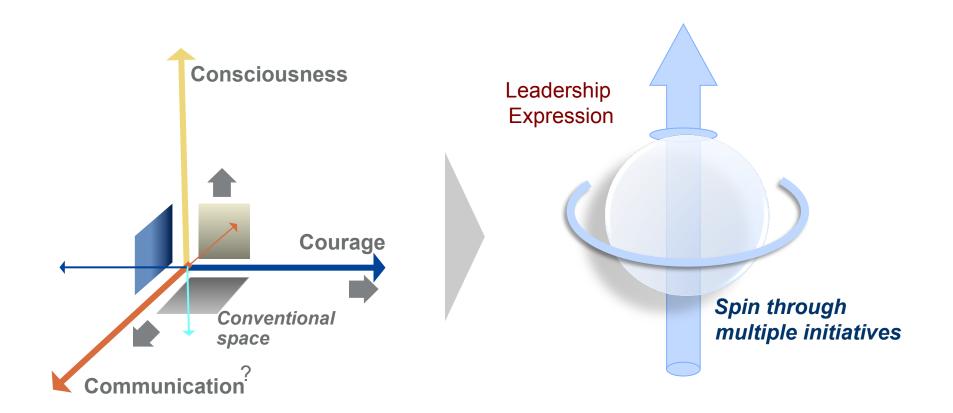


Cycle Time was dramatically reduced

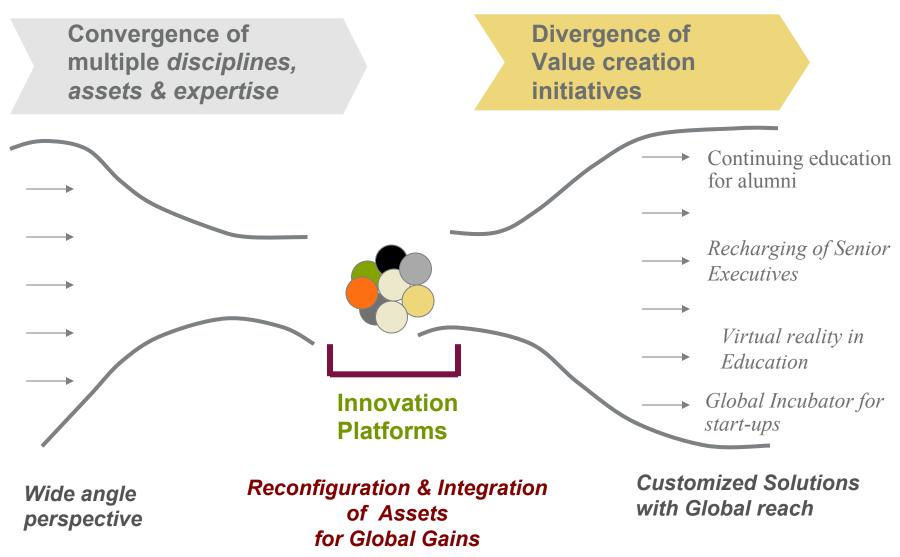


Then the Third vector

Expanding Strategic Space



In the process innovative organizations manage flow of imagination....

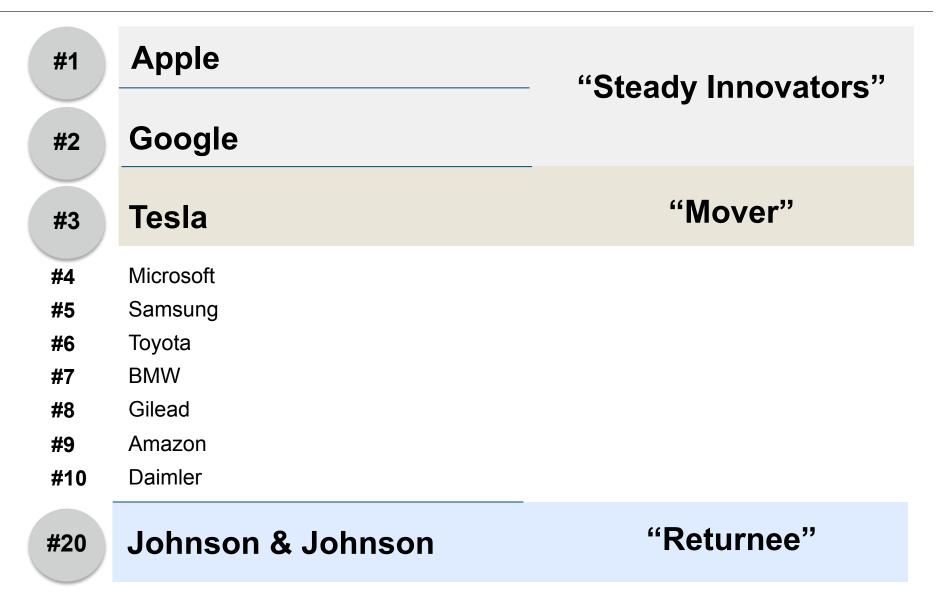


Source: Partha S Ghosh Innovation Framework

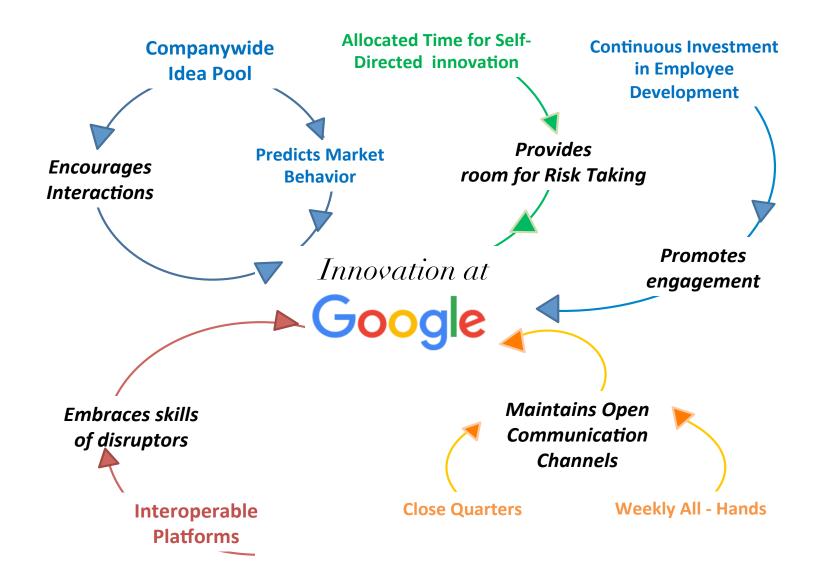
Agenda

- 1 Innovation: The Essential Requirements
- 2 Cultivating the right environment: Case studies

Innovation Dominated by a Few Key Players



For example at Google multiple initiatives are at work to stimulate Innovation



Similarly Innovation Engine at 3M is driven by multiple initiatives



Capital sparks
Possibilities

Monetary Support for Internal New Ventures, across and outside business groups

Annual Genesis Grants to support disruptive innovations

Embracing skills of disruptive innovators & risk ...

Interactions Multiply Knowledge Impact

Internal Knowledge Sharing and Networking Forums

800+ technical forum events globally and 30+ active special –interest chapters

Encouraging interactions....

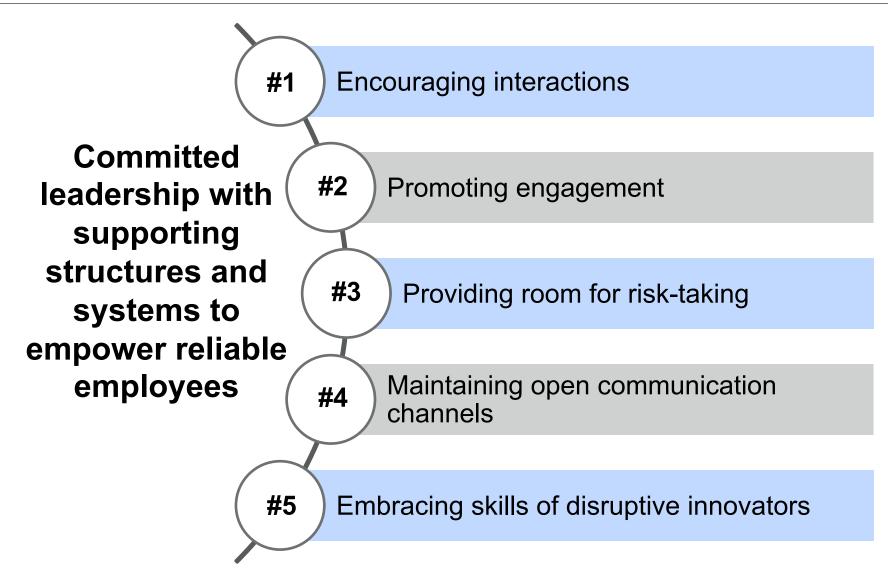
Recognition
Underpins Norms

Dual career ladders open growth potential to all

Innovation celebrated and honored by the Carlton Society

Promoting engagement...

Key Success Factors for an Innovative Culture



Success in Promoting Collaboration Internally

Encouraging interactions

Promoting engagement

Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills

IDEO's **Weekly Innovation Challenges (WIC)** Challenge **Description** Complete a set of puzzles Puzzle Build tallest table using Newspaper newspaper to support a ream of paper Pitch improvements to Gmail Gmail Creativity = Ideas Judged by novelty Innovation = Ideas + Action Judged by both novelty and usefulness

Fig. 1. Three concepts - Creativity, innovation and entrepreneurial mindset

Entrepreneurial mindset = Ideas + Action + Value
Judged by novelty, usefulness, and value proposition

Source: Work in Progress: Weekly Innovation Challenge, Parks College of Engineering

Open Concept as a Way of the Future

Encouraging interactions

Promoting engagement

Providing room for risk-taking

Maintaining open communication channels

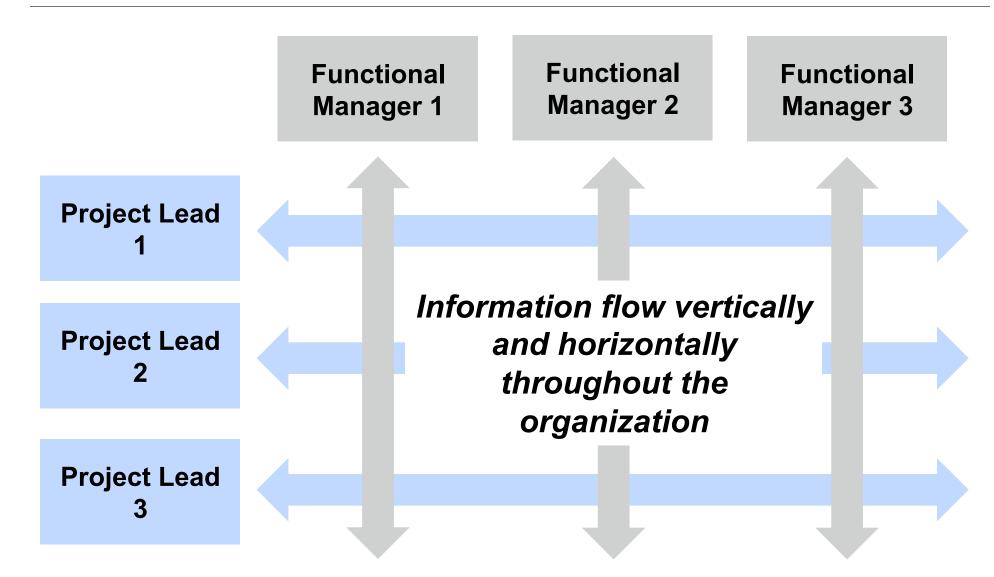
Embracing disruptive innovator skills

Google's Open Offices & Cafes



Google, Ireland

Matrix Organizations Foster Networking Opportunities



Two-Fold Approach to Engagement

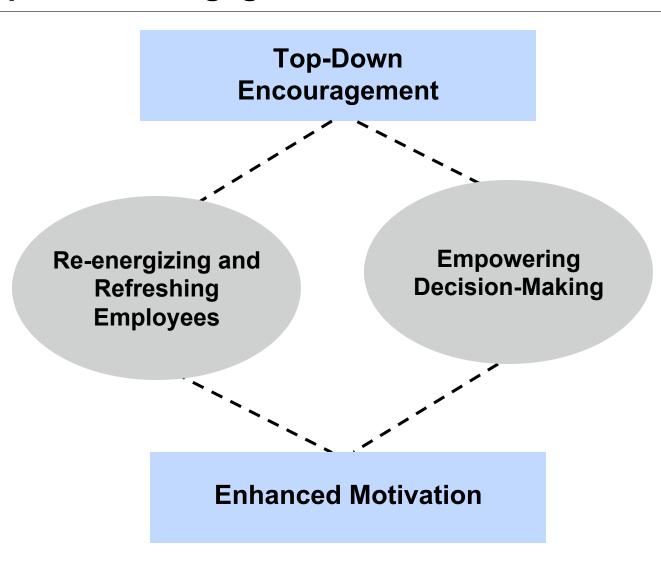
Encouraging interactions

Promoting engagement

Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills



Engaging Employees While Empowering Decision-Making

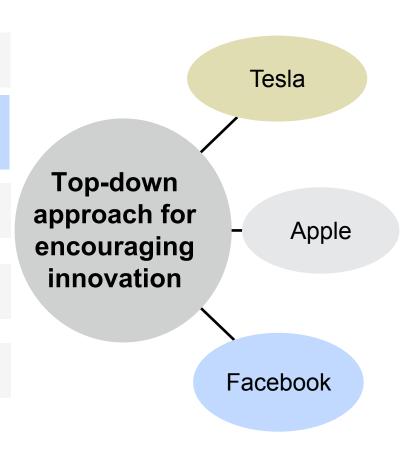
Encouraging interactions

Promoting engagement

Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills



Tesla's Feedback Approach

Looks to employees for feedback and input on decisions

Facebook's Hackamonth

Encourages employees to work on a different team for a month

- Generates new perspectives
- Re-energizes employees

Encourage Employees to Challenge the Status Quo

Encouraging interactions

Promoting engagement

Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills

3M's 15% Time

Time to engage new risky ideas



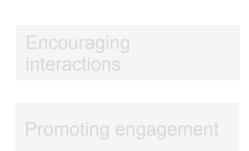
Google's FixIts

24-hour problem-solving sprints



- Give talented people time and resources to prove the worth of their ideas
 - Promote and reward intrapreneurship

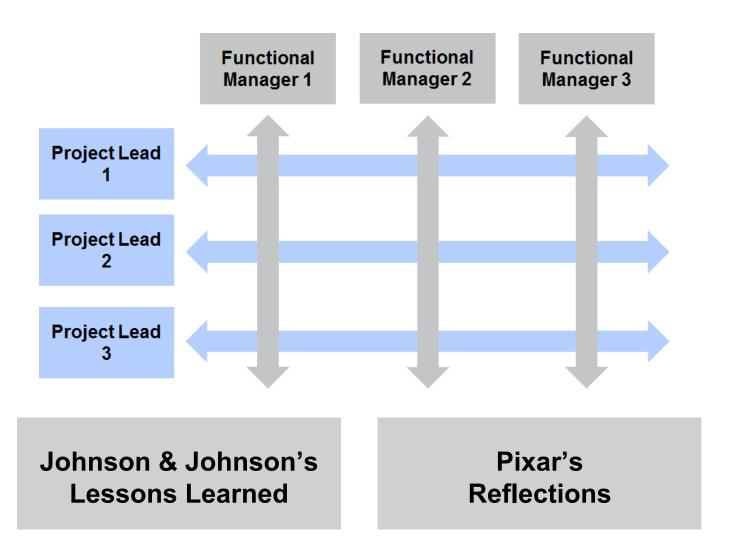
Cross-functional Team Structures Provide New Insights



Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills



Sparking Authentic Discussions

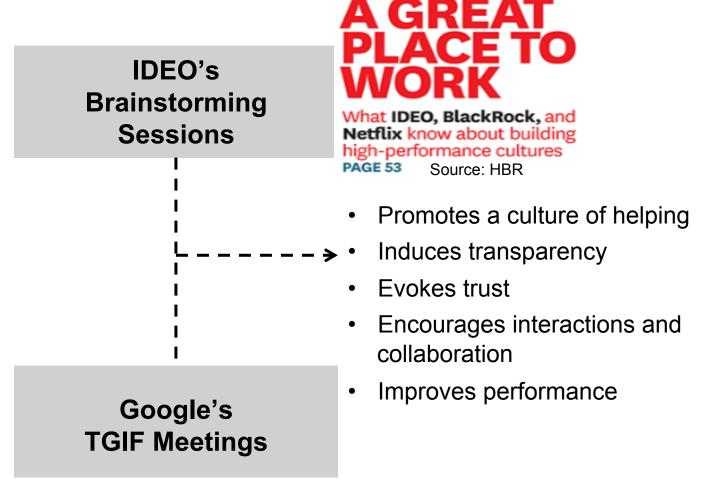
Encouraging interactions

Promoting engagement

Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills



"Our team is split across multiple time zones which is killing us. We're up at crazy hours all the time"

The Key to Success

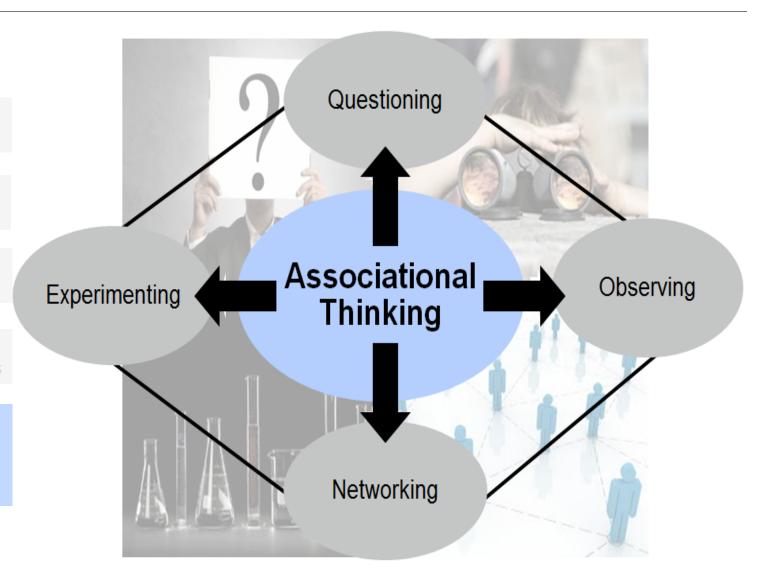
Encouraging interactions

Promoting engagement

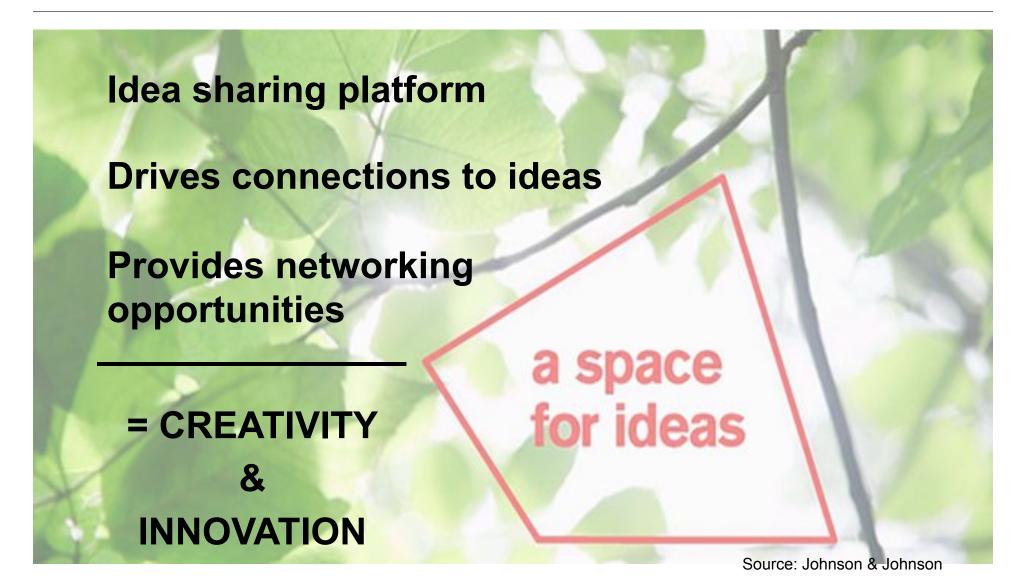
Providing room for risk-taking

Maintaining open communication channels

Embracing disruptive innovator skills



TED Style Events Help Improve Associational Thinking



Power of Interactions...



"Connect & Develop: P&G's model for innovation through external partnerships"

Identify business needs

- How can we grow our business?
- What do our customers need?
- How can we leverage our strengths to meet customer needs?

Leverage Networks

- Leverage Suppliers, Customers. Universities. Government & **Industry Networks**
- 70 senior managers act as scouts for new ideas globally

Distribute & Screen Ideas

Document ideas obtained from networks/ scouts & distribute to businesses for screening

Promote Openness to External Ideas

Incentives for speed of new product development. Employees prefer to use external ideas due to greater speed, arising from initial R&D time saved

"Connect & Develop: Creating a blockbuster product"























"Basotect" developed by BASF for soundproofing/ insulation in construction & auto industries

LEC, a Japanese company, markets Basotect as a household sponge in Japan

In 2001. P&G scout in Japan comes across product in Osaka grocery store. Send samples to R&D group

research in Cincinnati. Buys Basotect from BASF. Establishes research partnership with BASF (shared research labs)

P&G conducts

In 2003. Basotect is packaged as Mr. Clean Magic Eraser & launched in US & Europe

P&G and BASF continue research partnership. Continue developing Magic Eraser line of products

Source: Harvard Business Review

Similarly GE which has successfully created an innovation ecosystem by leveraging external partnerships with start-up companies

(LM) LOCAL MOTORS

Joint Venture

Local Motors taps into online community of car enthusiasts (engineers, mechanics & designers) to design new vehicles

 GE to use Local Motors' crowdsourced workforce model to design new projects, initially for **GE** Appliances



Crowd-sourced innovation

- Innovators submit ideas. which are voted on by community
- by Quirky's designers &



platform for connected home products

 Promising ideas are refined engineers

kaggle

Partnership

Community of data scientists

GRABCAD

Partnership

Crowd sourced manufacturing

GE used GRABCAD to redesign

& mechanical properties

Participants from 56 countries

was an Indonesian engineer

metal jet engine, making it 30%

lighter while preserving its integrity

submitted 700 designs. The winner

(reduced weight of bracket by 84%)

design

- GE obtained algorithms to optimize airline flight paths and reduce delays. ultimately improving air travel overall
- Source: Harvard Business Review



Corporate VC Group

- Operates in Silicon Valley
- Annual investment budget of \$150M
- Also forms technical & commercial collaborations with startups in energy, health, software & advanced manufacturing

© Partha S Ghosh 2016

Leverage *mutually* beneficial relationships with startups to develop innovation ecosystem

Benefit to GE

- Access to entrepreneurial mindset & talent
- Helps grow core business
- Enables disruption in business practices

Benefit to Startups

 Access to GE resources. expertise, customer relationships & scale

Agenda

- 1 Innovation: The Essential Requirements
- 2 Cultivating the right environment: Case studies
- Engaging with the Possibilities ahead?

Innovation Process Framework

"XYZ & Σ model": A Partha Ghosh Framework

Advancing Imagination through cross currents of inquiries & cross fertilization of ideas in enabling multiplier effect on germination of knowledge





Creating Economic Value though strategic synchronization of X, Y and Z at all levels of decision making and across organizational units

Structuring choices to enable dynamic *natural fusion and fission* of projects for technological & commercial possibilities

Allowing for *zig zag* routes to specific R & D initiatives within boundaries to capture direct and adjacent opportunities – both planned & serendipitous

X: Knowledge creation through Cross Fertilization of Multiple lines of inquiries and disciplines

External Technology Platforms

(e.g. Service providers, vendors & Universities)

Internal Technology Platform

(e.g. Corporate & BU R&D centers)

Fundamental Scientific & Technological Ferment

Competitiveness of Knowledge Germination & Knowhow Circulation

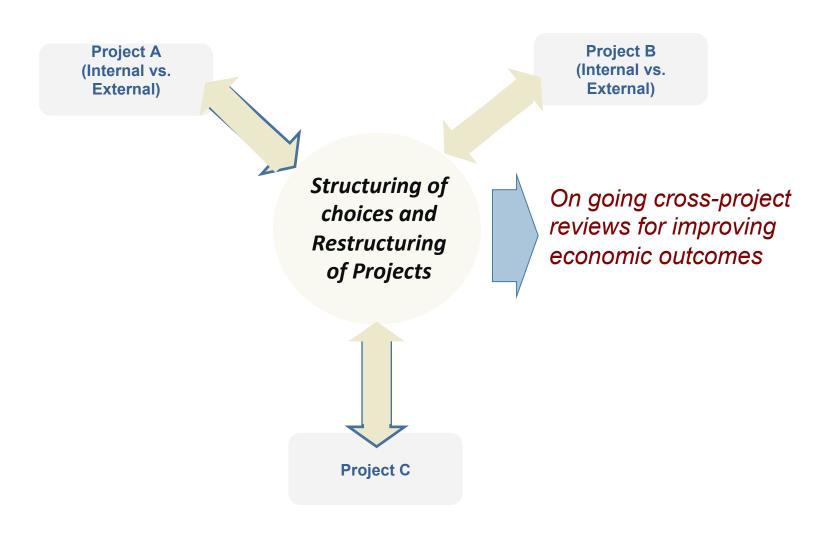
Larger Ecosystem

(e.g. Research Institutes, Industries not directly related)

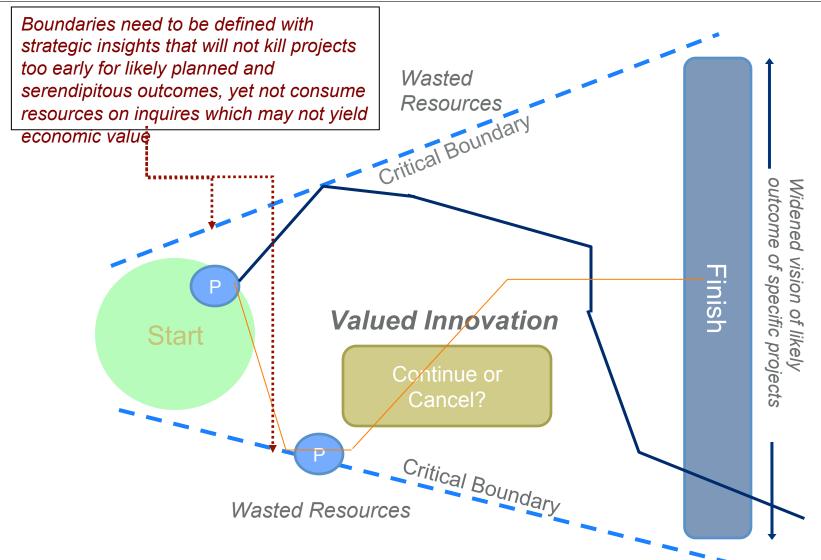
Market/Asset requirements

(e.g. Lead applications, Technically challenged assets)

Y: Regular structuring of Choices to enable dynamic rescoping of projects to improve likely economic outcomes

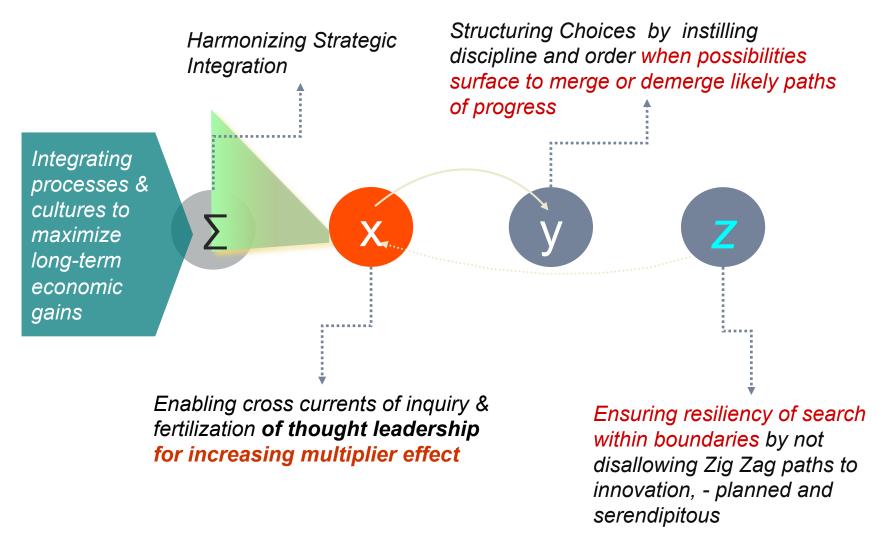


Z: Zig- Zag Path of research within certain boundaries to capture planned or serendipitous outcomes

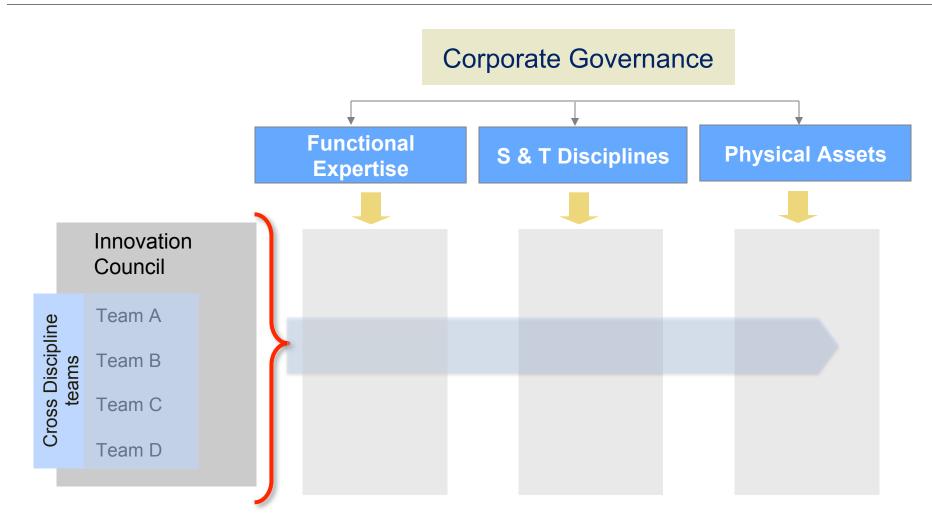


Uncovering New Pathways to Innovation

Innovation Culture = Σ of X+Y+Z



New Framework for Innovation Governance



Quality of Governance = f(View, Sensing, Action)

Key Activity: Innovation week will enable high level of engagement across the organization



- Four days of innovation-focused events
- Focus on raising the profile of innovation and engaging employees from across the organization

Physical Presence

- Visible, innovation-themed decoration in rotunda
- Innovation information session
- Presentations on innovation-related topics in auditorium by:
 - Academic Researchers
 - Industry Leaders
 - Emerging Innovators

Online Presence

- Online innovation quiz on STRATA
 - Winners to be recognized during EPIC
- Leadership articles highlighting Columbia's commitment to innovation
- CEO Video Release: Video highlighting Devon leadership's commitment to innovation
- Launch of communication campaign: "Everyone can be an innovator"

Ideation Sessions with select assets could lead to a healthy innovation pipeline



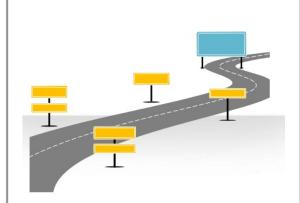
- Short, focused ideation sessions to identify innovation opportunities for specific Assets
- Goal is to identify 2-3 actionable innovation opportunities, define high level roadmap for each opportunity

Identify Innovation Opportunities



- Identify 2-3 opportunities to create value across departments through new initiatives
- Define problem statement for each new initiative

Define High-Level Roadmap



- Define high-level timeline for addressing opportunity
- Prioritize external innovation organizations for possible partnerships

Form Teams



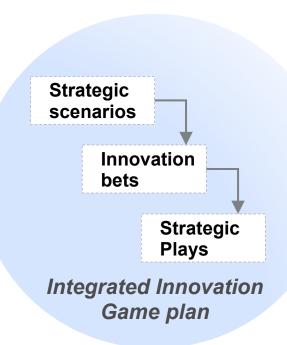
- Identify Project Leader to pursue opportunity
- Identify team members to be engaged in future discussions

Towards an Integrated Innovation Game Plan...

Internal Prerequisites

External essential requirements

- 1. Clear definition & Understanding assets
- 2. Cross functional teams with XYZ & Σ at work
- 3. Well structured accountabilities & incentives



- 1. Perspectives on Mega trends
- 2. Requirements of likely clients and partners

3. Competitive moves & Strategic alliances

....Strengthened and renewed through Uncommon connections......

