

Moving Towards Thailand's Future Economy with Science, Technology and Innovation

NSTDA Annual conference: NAC2019

March 25-28, 2019

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Education

- B.Sc. Chulalongkorn University
- Doctor of Veterinary Medicine, Chulalongkorn University
- MBA (Finance), Thammasat University

Working Experience

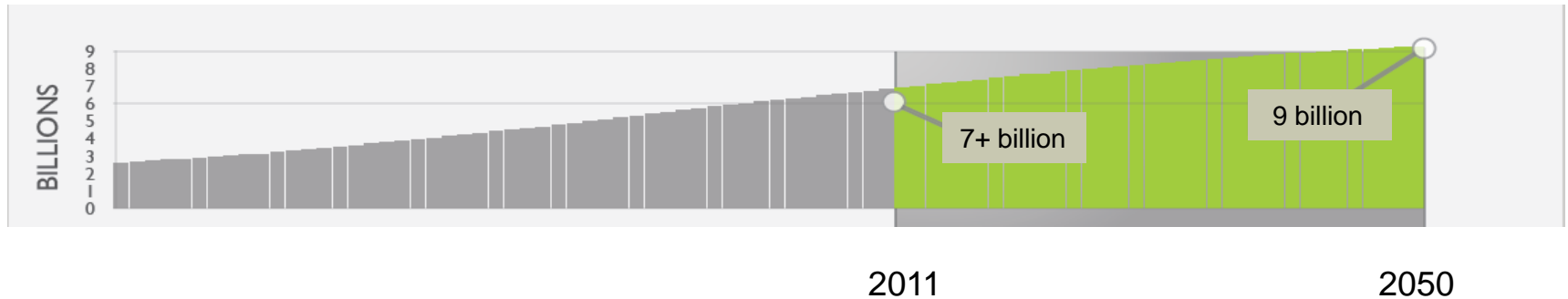
- 3 Years Assistant to Vice Chairman CPG (2016-2018)
- 10 Years: Managing Director, DuPont (Thailand) Limited (2006-2015)
- 10 Years: Novartis Thailand.
- 13 Years: Cargill Thailand

Current Experience

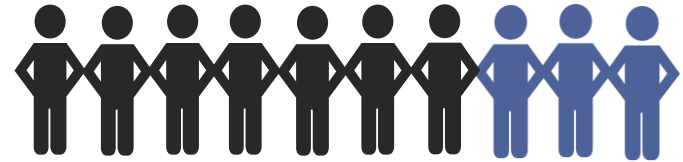
- Board of Director INSEE EcoCycle
- Advisory team Chia Tai Group
- Consultant to TOA Chairman
- National Science Technology and Innovation Policy office

The world is facing unprecedented challenges

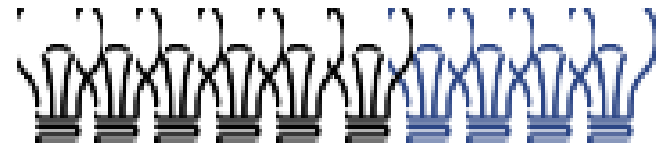
By 2050, the world's population will reach 9 billion



Food demand: 70% increase



Energy demand: 53% increase



Sustainability is important



Clear Focus on Science and Technology

Ag & Nutrition

1. Extend across the high-value, science-driven segments of the Ag and Food value chain

Bio-based Industrials

2. Develop industrial biotechnology capabilities to create transformational new bio-based businesses

Advanced Materials

3. Strengthen and grow differentiated high-value materials and leverage new sciences

Three Innovation Strategic Priorities

Strong Market Positions

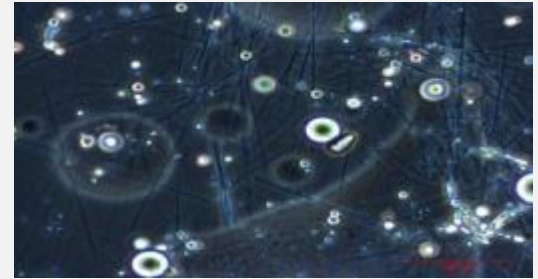
Agriculture



Food



Biosciences



Automotive



**Mobile Devices,
Displays**



Solar/Energy



Protection



Well Positioned in Growth Markets

Over 200 Years of DuPont



1802 ESTABLISHED



1880 EXPLOSIVES



1903 EXPERIMENTAL STATION



1935 NYLON



1938 TEFLON®



1962 LYCRA®



1965 KEVLAR®



1967 NOMEX®



1967 CORIAN®

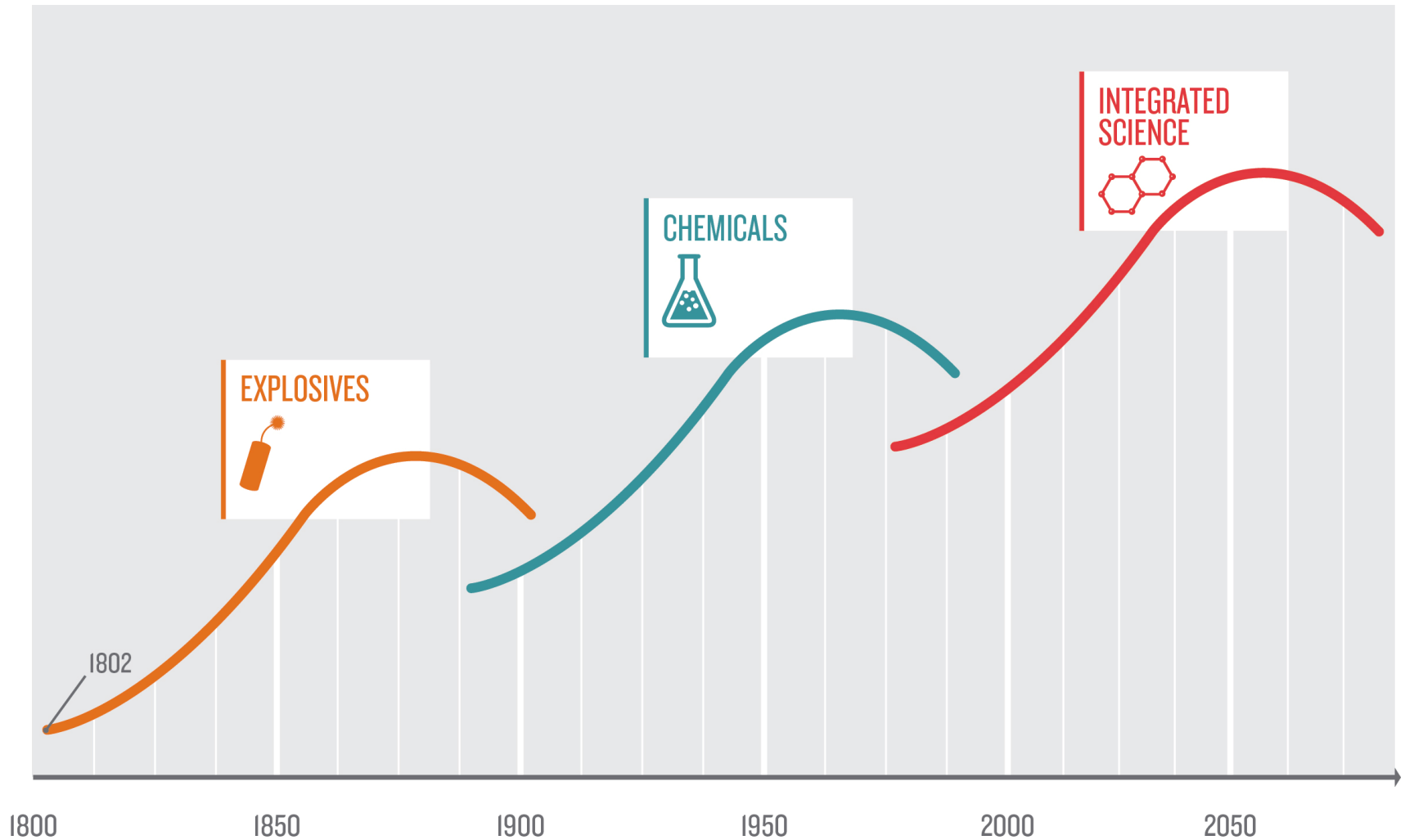


1967 TYVEK®



2001 SORONA®

Innovating into our 3rd Century



Mission Critical: Market-Driven Innovation

Market Driven

Direction set by deep understanding of customer needs and desired outcomes

Marketing strategies maximize sustainable value creation and capture from the offering

Innovation

New Products

New Services

New Technology Platforms

New Market Platforms

New Business Models

Not All Opportunities are Created Equal

Level 4

Transformational, Differentiated Cross BU opportunities or “Game Changer” requiring significant technical or marketing resources

Level 3

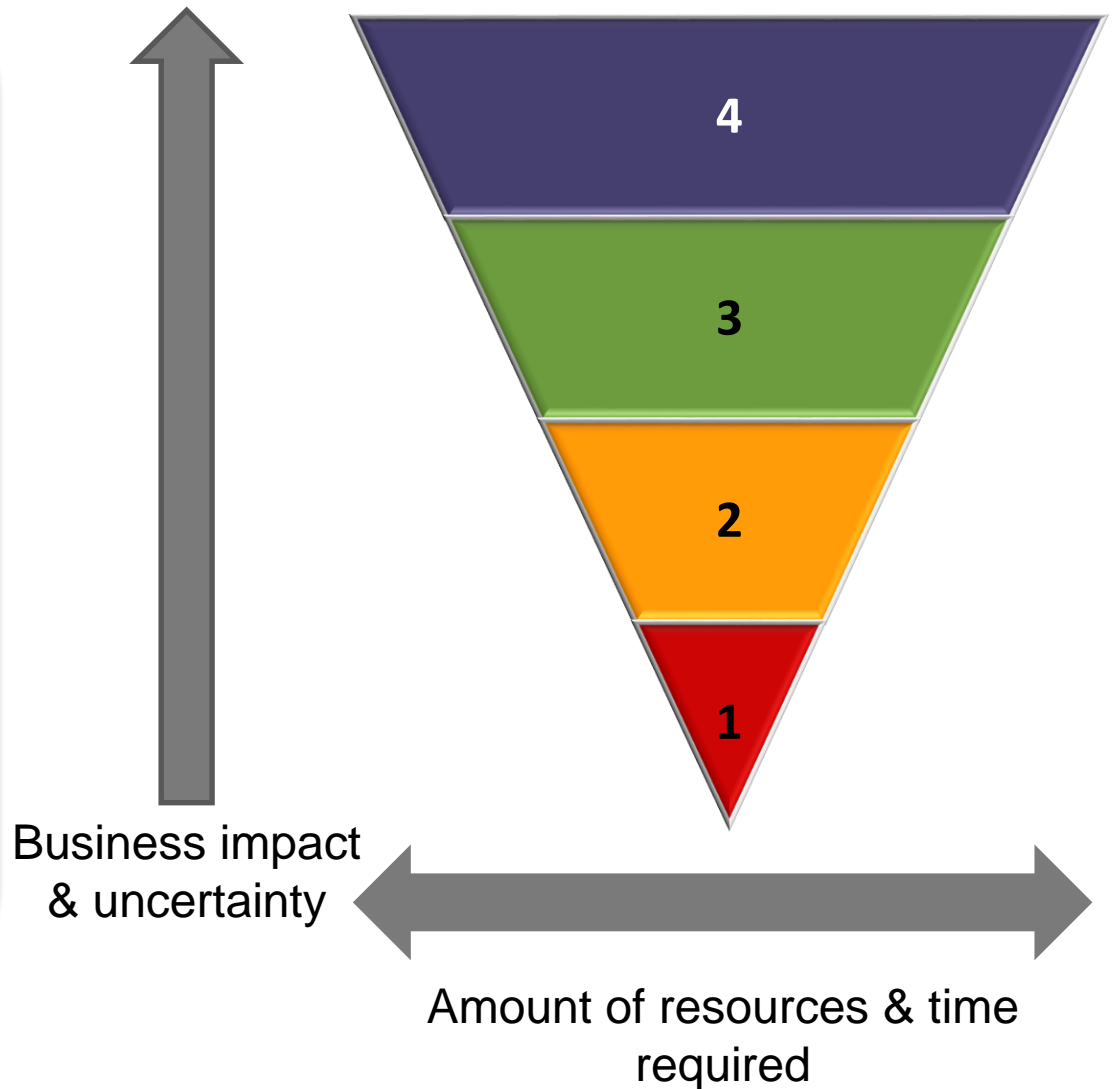
Differentiated opportunity requiring significant technical and marketing resources

Level 2

Requires minor technical or marketing involvement

Level 1

Can be addressed with current offering, business model, product



Innovation Excellence

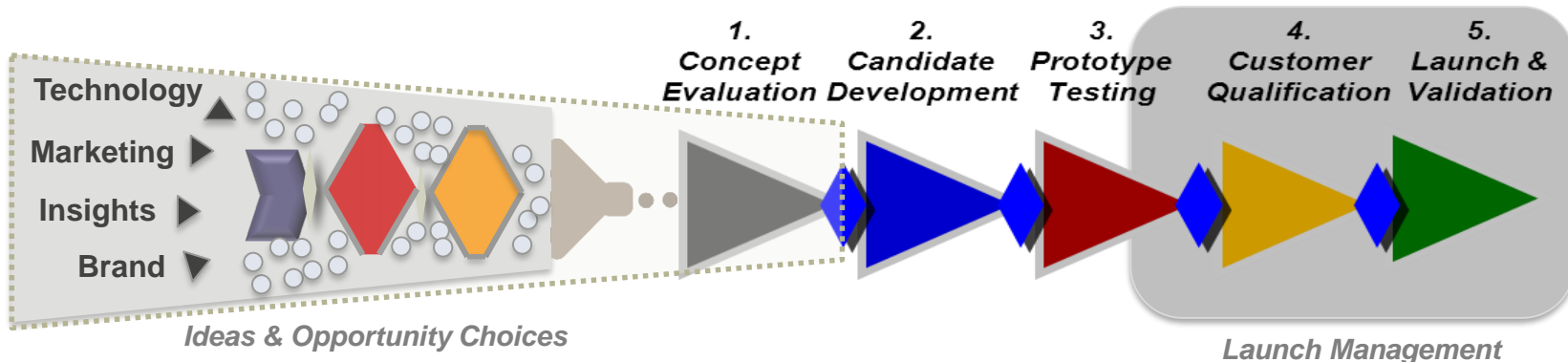
Corporate, Pillar & Business Strategy

Innovation Strategy & Objectives

Innovation Portfolio Management

Stage 0

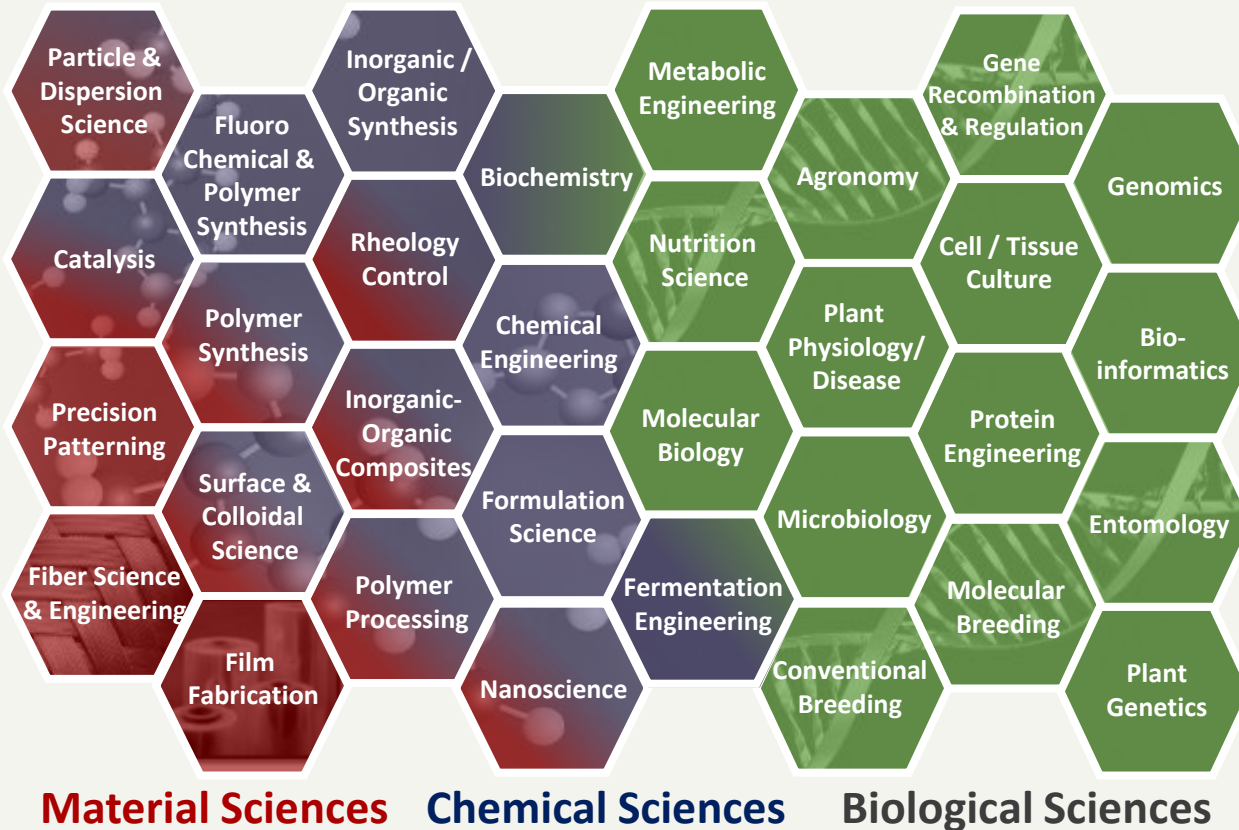
Governance & Project Execution



Enabling Technologies, Analytics, Knowledge Management

Core Values, Leadership, Competencies, Organization

Integrated Science is Differentiator



Increasing Food Production

Higher yielding and more
nutritious food production



Local Collaboration – Vegetarian Meat for Ready to Eat Meals



Soy Protein Solutions

Customer's Need

- Vegetarian Ready To Eat meals for modern trade
- Healthy
- Convenience
- Authentic meat experience

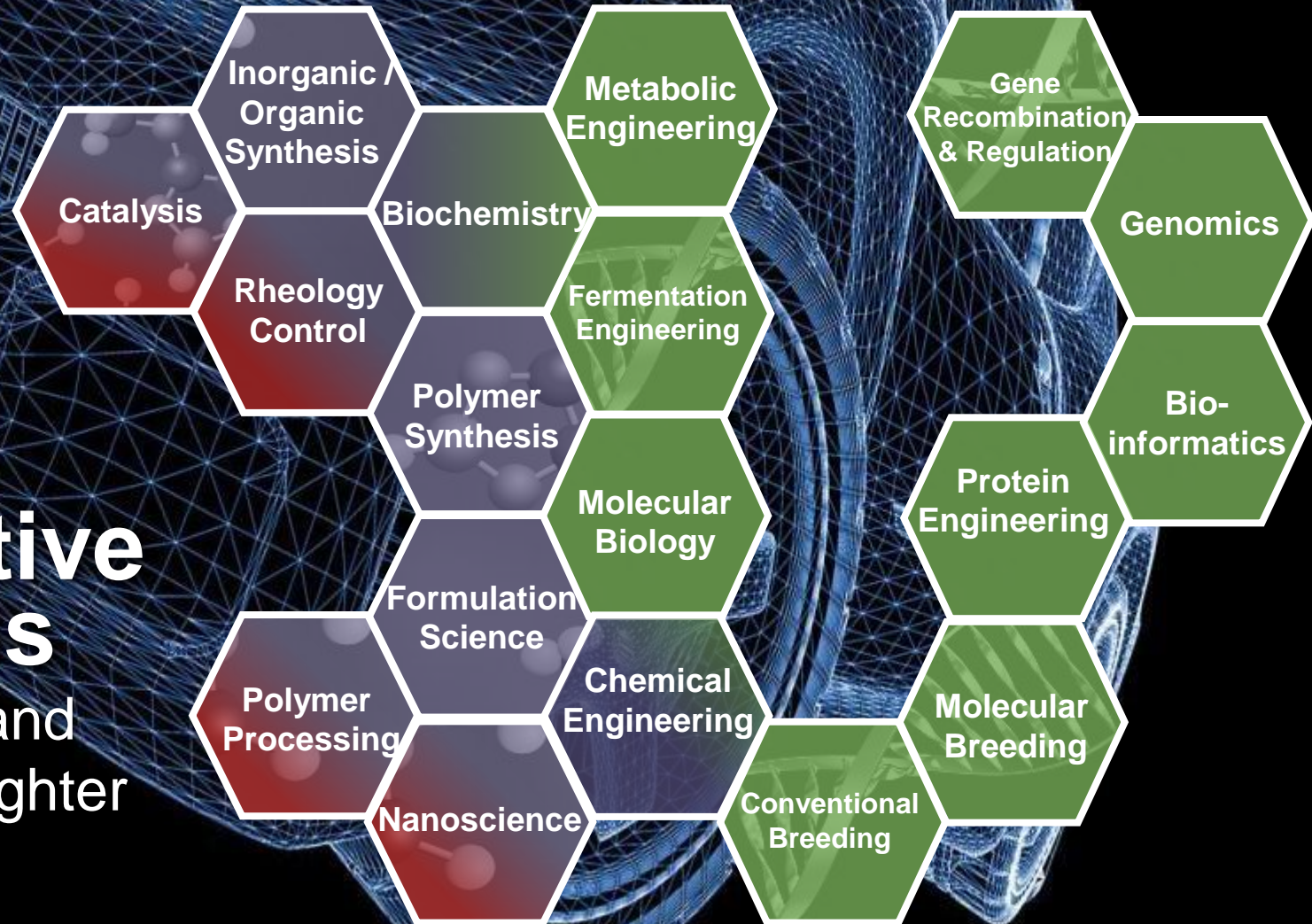
Soy Protein Solutions

- Improved quality of vegetarian products
- Low saturated fat
- No cholesterol
- Provides whole muscle meat flavor and texture
- Convenience and great taste.



Automotive Solutions

Make planes and
Automobiles lighter



Integrated Science Delivers Automotive Solutions



Renewable Materials

DuPont™ Zytel® RS nylon

Metal-Like Performance

Blow-Molded DuPont™ Hytrel®



Durable Under the Hood Parts

DuPont™ Zytel® PLUS nylon

Sorona®

Renewably sourced fiber



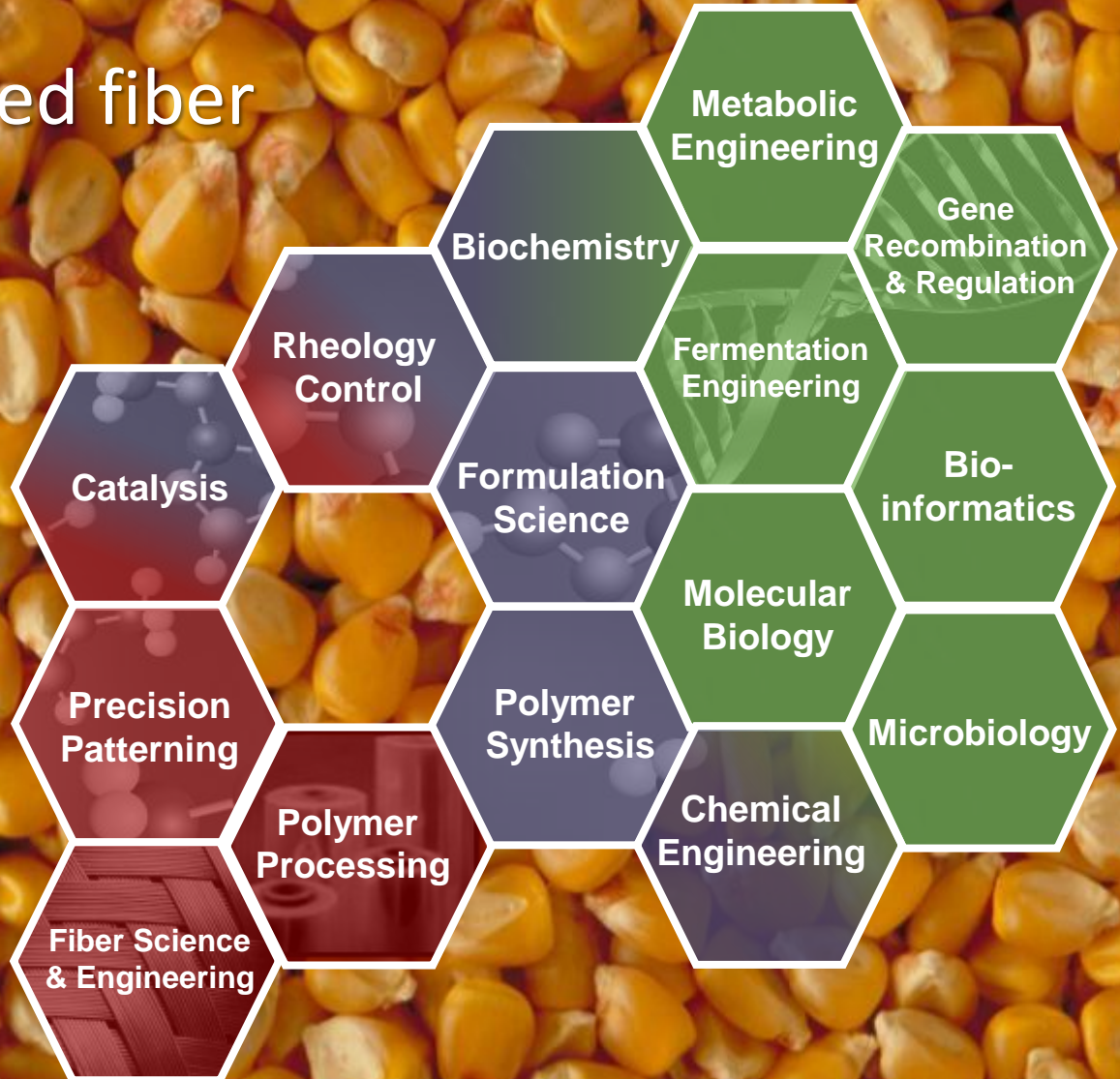
Carpet



Apparel



Automotive - carpet,
fabric and plastic parts



Advanced Biofuels

Low carbon,
scalable,
sustainable



Innovation Process



Any difference?

Creativity

Creativity



Innovation



Innovation

Creativity VS Innovation

- Creativity is the idea
- Innovation is creativity implemented

People are having great ideas all the time. But it's the sorting out and finding the right idea and bringing it to life that defines innovation.

Source: <http://creativityisfree.com/2008/06/06/creativity-vs-innovation/>
http://www.marketingprofs.com/ea/qst_question.asp?qstID=12705

A hand holding a glowing lightbulb against a blue sky with clouds. The lightbulb is bright and emits a warm glow, illuminating the hand and the surrounding area. The background is a clear blue sky with soft, white clouds. Two large, dark grey curved arrows form a circular path around the central text, indicating a cycle between Creativity and Innovation.

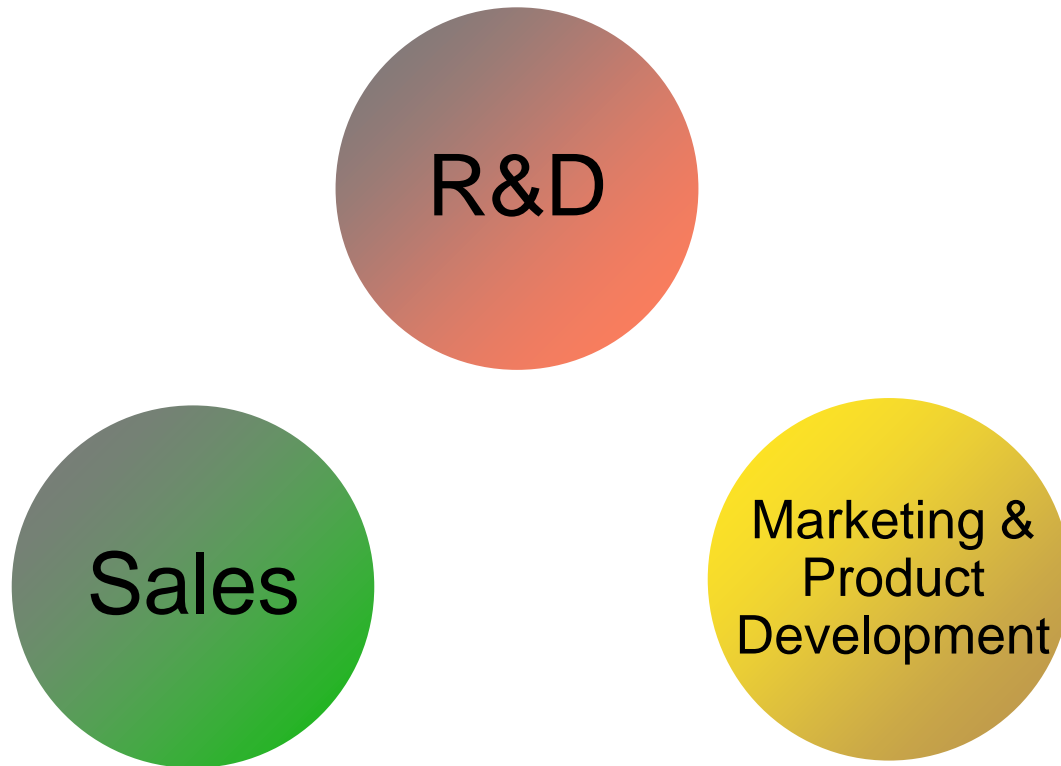
Creativity

**is using money to make ideas;
creating possibilities**

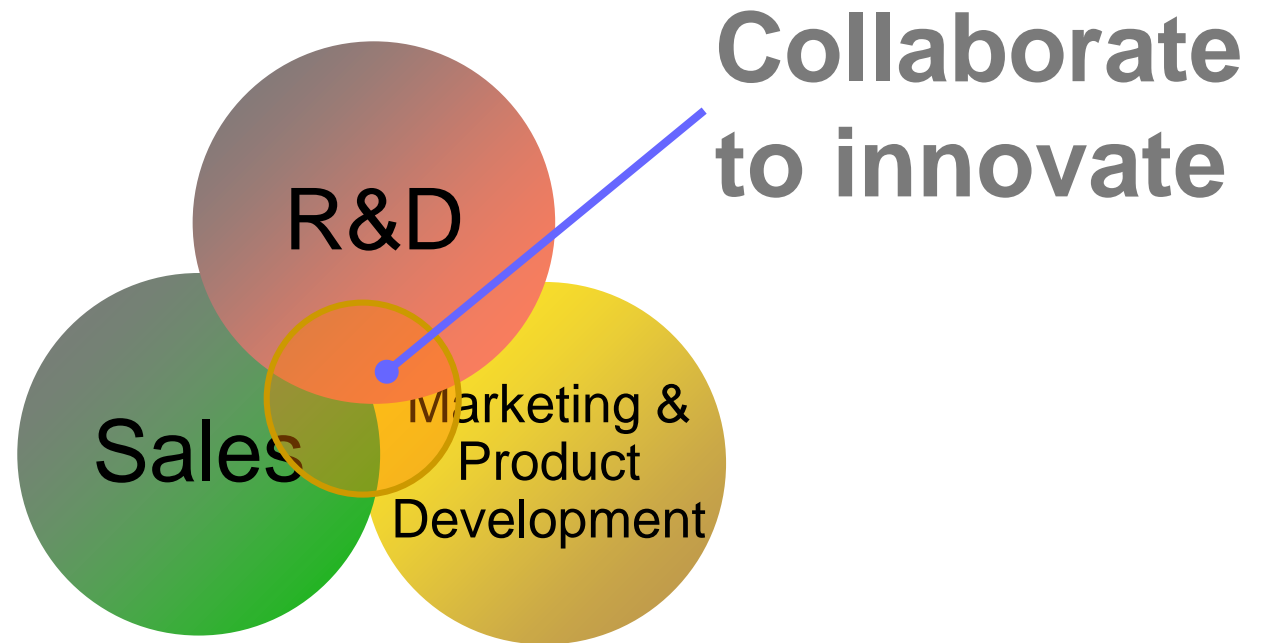
Innovation

**is using ideas to make money
creating business value**

3 Different Cultures Diverging: A Constant Dilemma

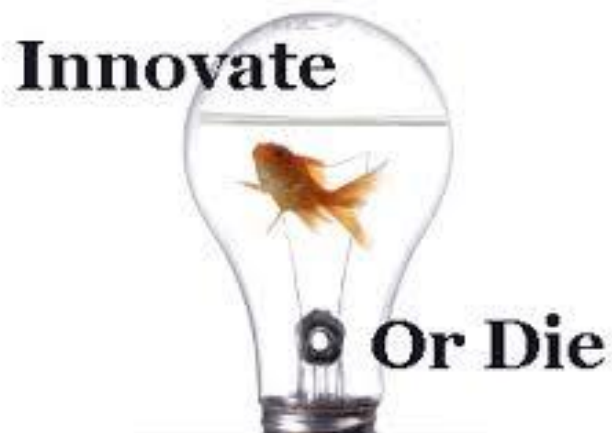


Common Ground



Key Areas to Remember

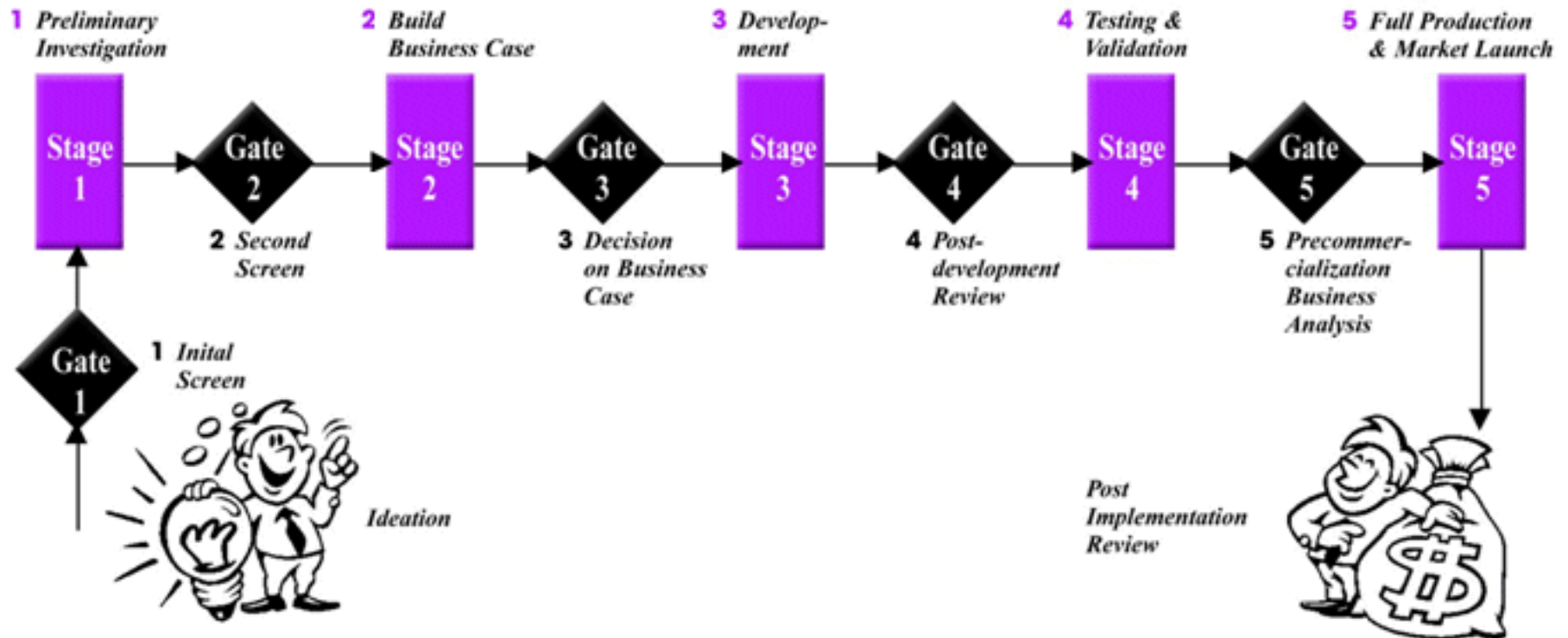
- If we fail to innovate as professionals, we plan to fail.
- Need to recognize that innovation is a **process** and not a result.
- Innovation does not just rain down from above but rather it is **learned**.
- Need to recognize the **obstacles** to innovation and be careful the **traps** of traditional thinking.



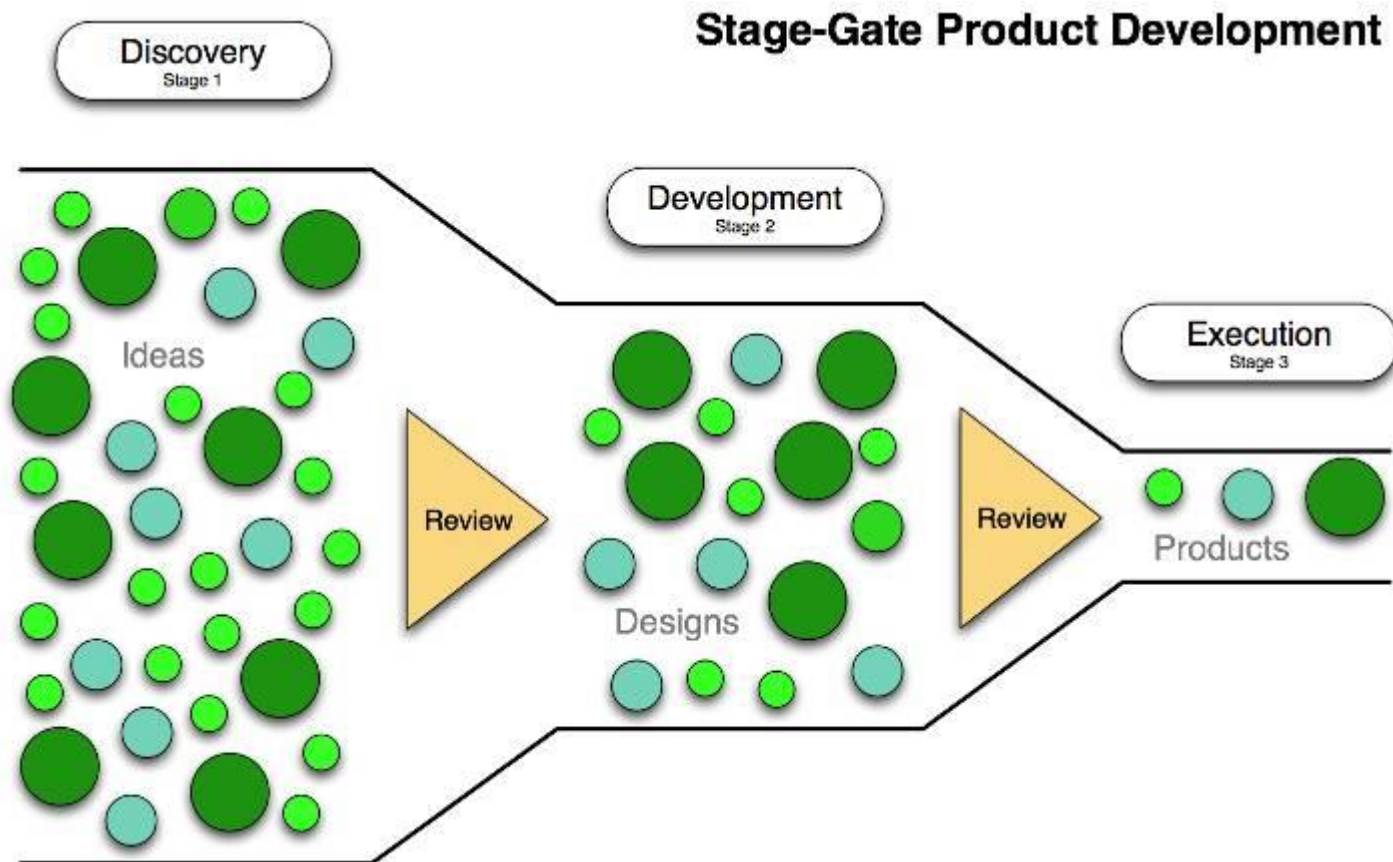
Innovation Process

The model shows the various stages of innovation process when assisting projects from idea to commercialized product.

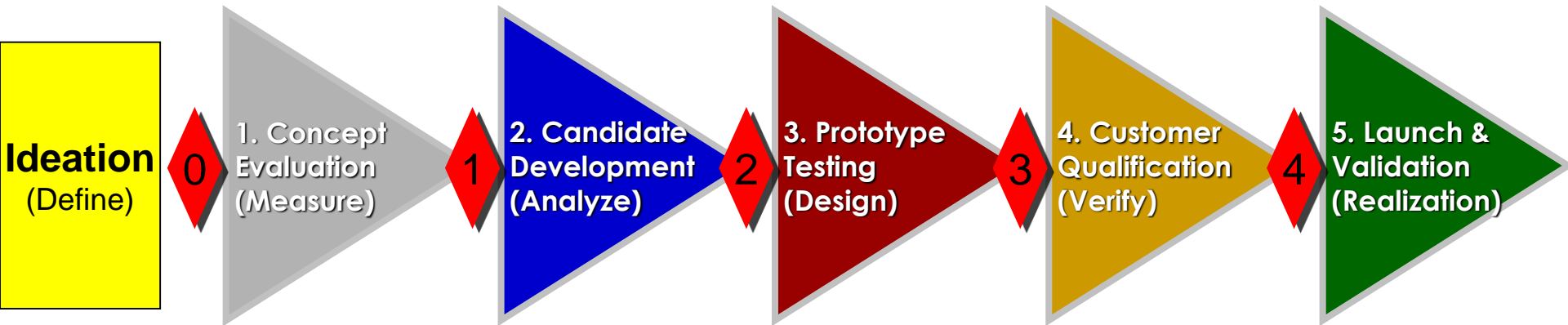
The Stage-Gate® European Site Product development process



Dr. Robert Cooper's Stage-Gate process for new product development

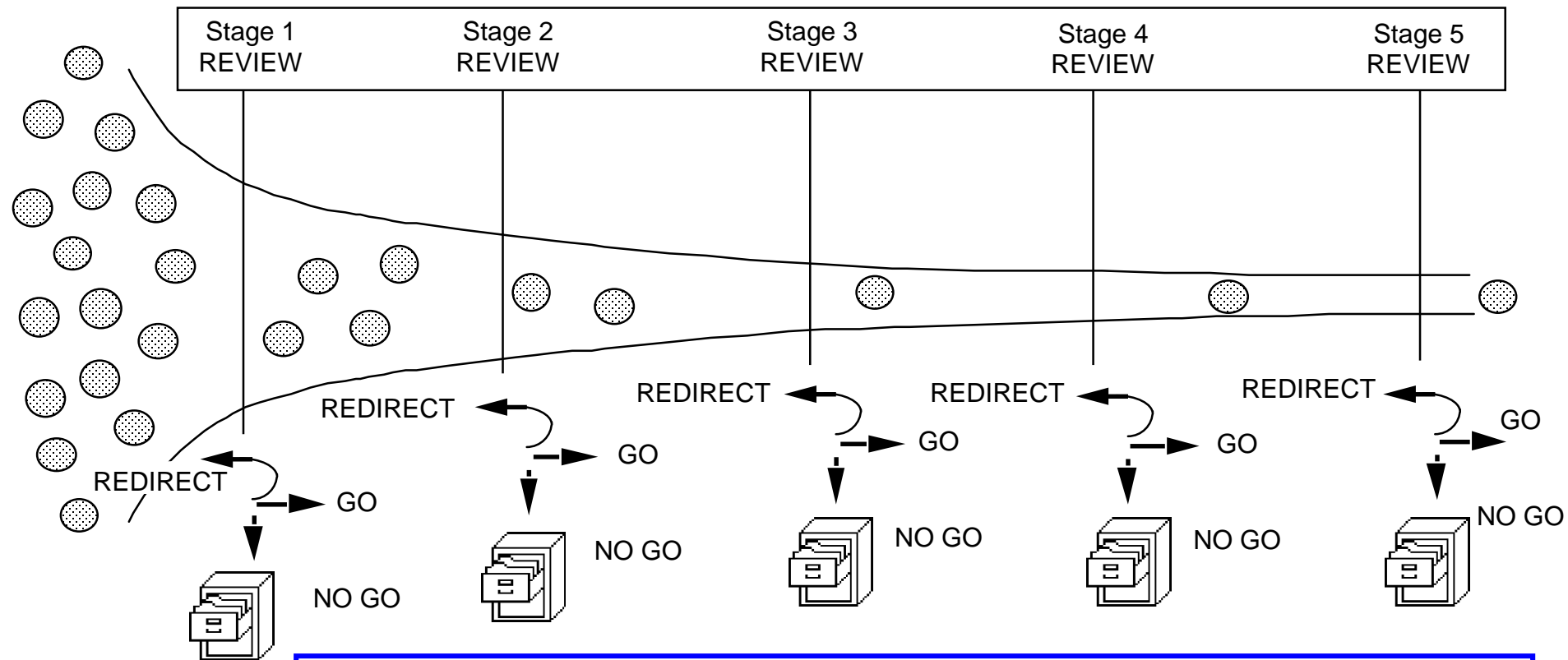


Stage Gate Process at DuPont



In Average, Only **10% of Ideas** That Make It to Commercialization!!

THE STAGE GATE REVIEW PROCESS IS USED TO MANAGE THE PRODUCT DEVELOPMENT PIPELINE



Just because a project that is started, it is NOT assumed it will make it to market

Market-driven Innovation Process

20 July 2018

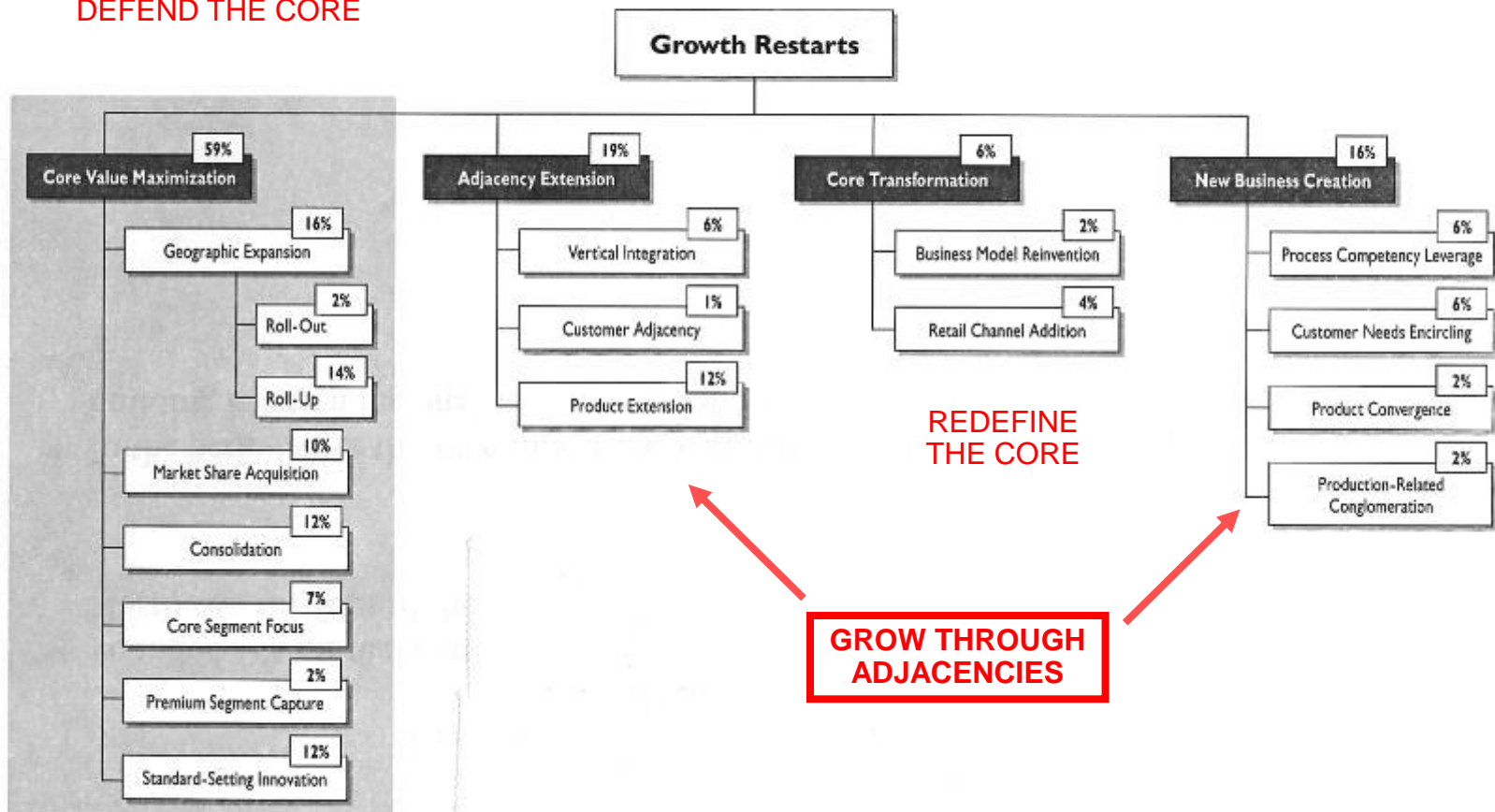
FINDING #4: THE CORE REENVISIONED

IN YOUR OWN BACKYARD

Taxonomy of Restart Strategies

Distribution of Strategies at CSB Restart Companies

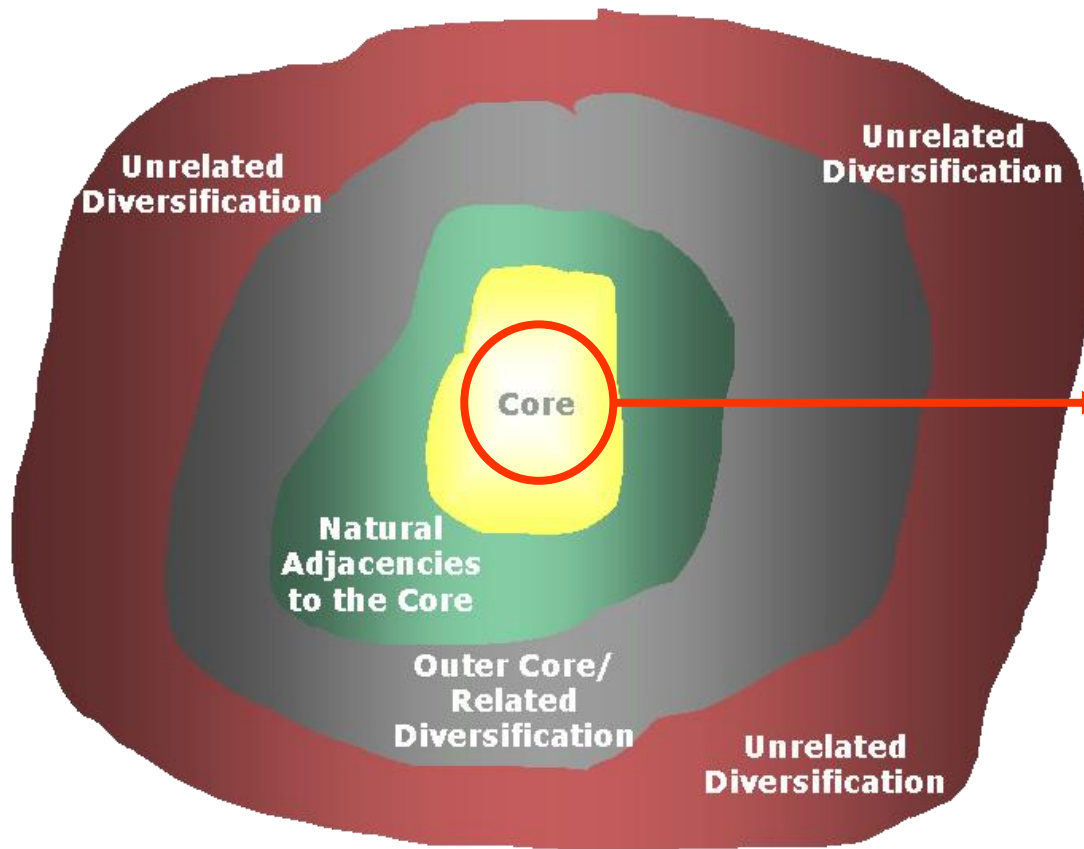
**STRENGTHEN &
DEFEND THE CORE**



n = 83 strategies identified at 42 restart companies.

Source: Corporate Strategy Board research.

The concept of adjacencies to the core



*THE FURTHER THE DISTANCE FROM
YOUR CORE, THE:*

Less competitive advantage

Less potential profitability

Lower market share/customer loyalty

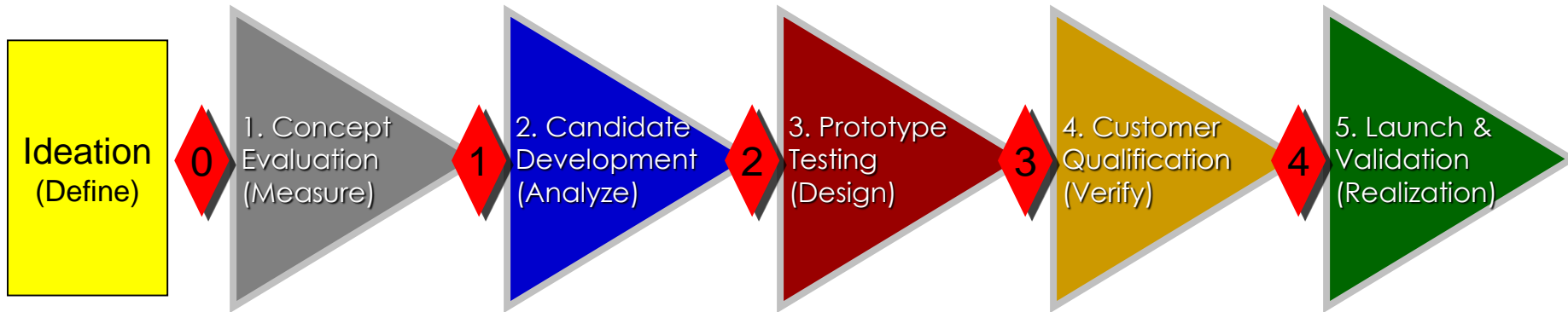
Key Questions

- 1) What defines the current core business?**
- 2) Which cores should be built around and which require strengthening or defending?**
- 3) What are the most attractive growth opportunities that emanate from the strong cores?**
- 4) What are the implications for the overall strategy, reinvestment options, financial pro forma and organization?**

Impact of distance from the Core: Gillette Example



Market-driven Innovation Process (Stage-gate) Framework



Brainstorm to identify and prioritize potential ideas

Initial feasibility on market opportunity, technology, business case and project finance

Product/service prototype development

Project risk assessment

Law & regulations compliance

Prototype testing with sample of target group in the market and collect feedback for improvement

Product/service quality testing with customer

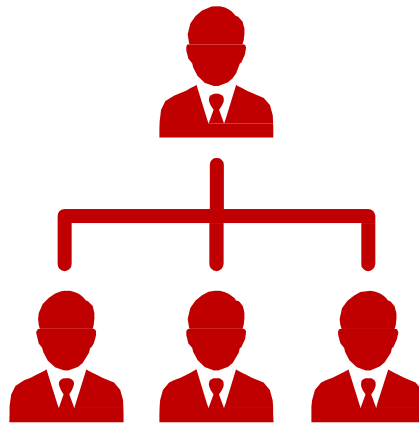
Market launch plan development

Product/service launch and follow-up



Key Success of Stage Gate Implementation

- Corporate Culture
- Organization structure
- Stage Gate process
- Governance process and Discipline
- Project Coordinators



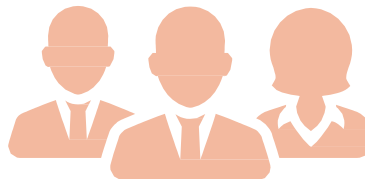
Decision Board



Project sponsor

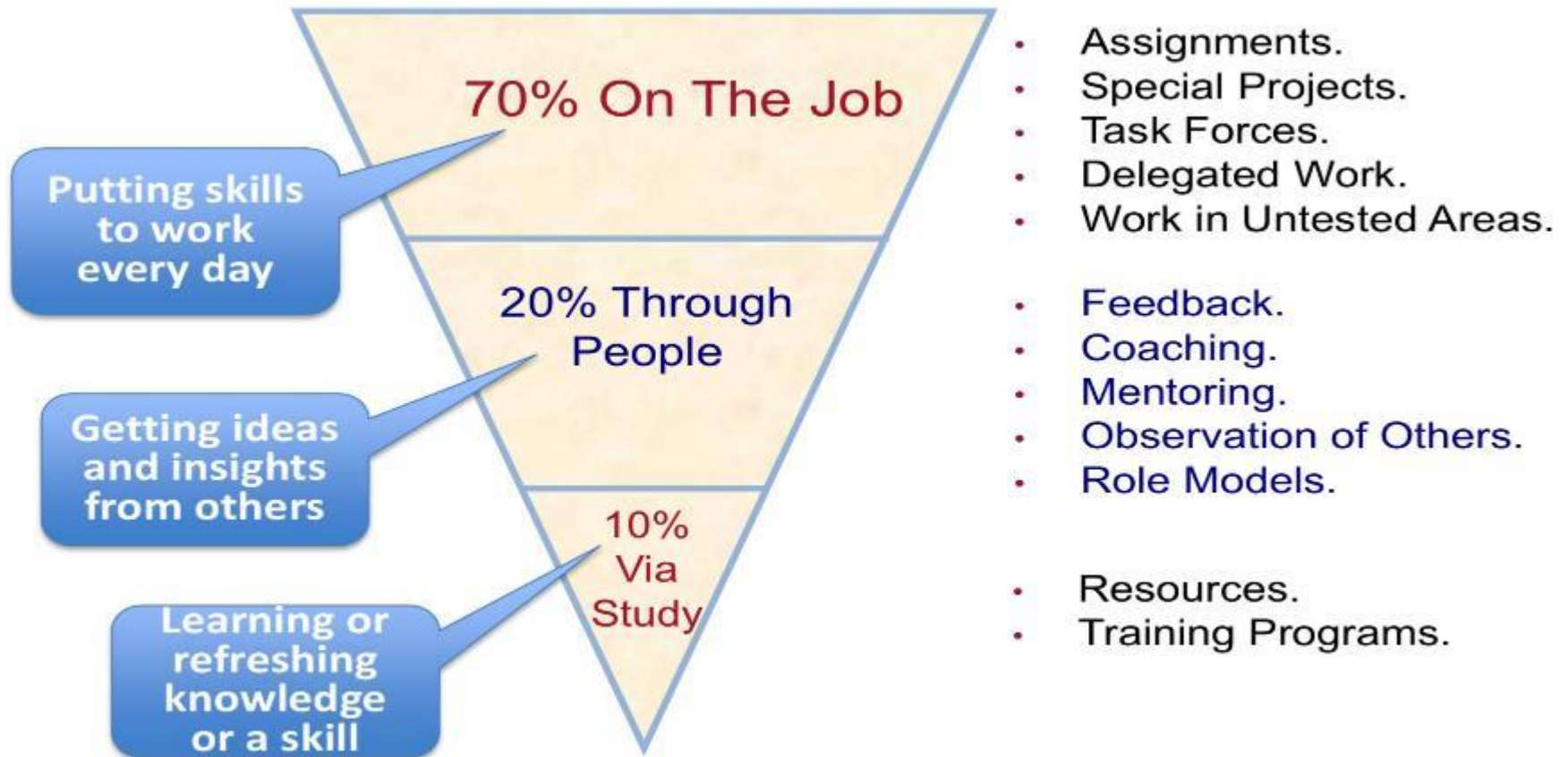


Project team



Project coordinator

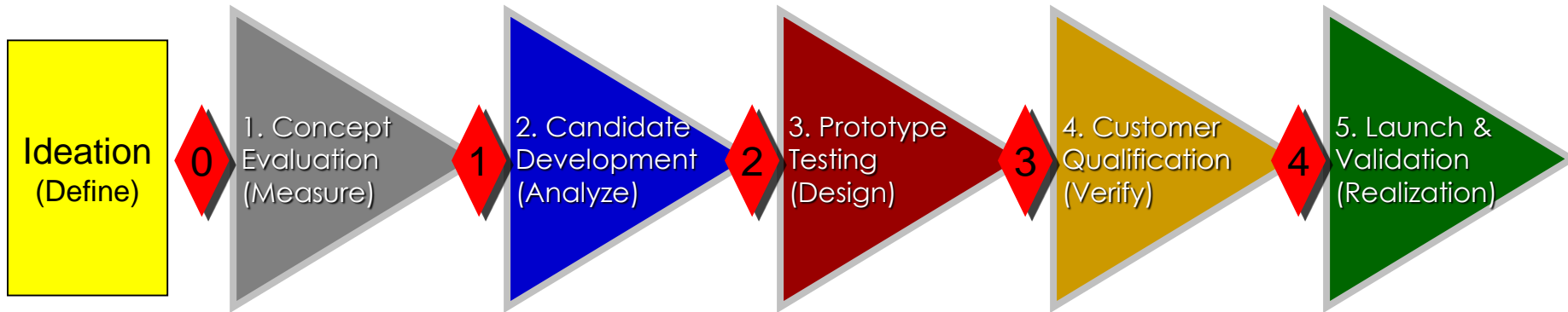
Effective learning process



Decision Board Members

1. ประธาน
2. รองประธาน
3. กรรมการจากฝ่ายผลิต
4. กรรมการจากการตลาด
5. กรรมการจากการขาย
6. กรรมการจากวิศวกรรม
7. กรรมการจากวิจัยและพัฒนา
8. กรรมการจากการเงิน
9. กรรมการจาก QA/QC หรือ
Regulatory Affairs
10. ผู้ประสานงาน

Market-driven Innovation Process (Stage-gate) Framework



Brainstorm to identify and prioritize potential ideas

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Stage Review_ Discipline

ขั้นตอนการพิจารณาของคณะกรรมการ

เตรียมตัว	นำเสนอ	ถาม-ตอบ	ประชุม ตัดสินใจ	แจ้งผลกับ สมาชิกทีม	ส่งเอกสาร สมาชิกทีม
7 วัน	30 นาที	30 นาที	30 นาที	15 นาที	3 วัน
ส่งเอกสาร ล่วงหน้า	คณะกรรมการฟัง	คณะกรรมการถามได้	สมาชิกออก จากห้อง	เหตุผลการ ตัดสินใจ	รายละเอียดการ พิจารณา
1 ชม. 45 นาที					

1. Event Base เรียกประชุมเมื่อต้องทำการตัดสินใจ
2. Decision Making meeting มีใช้การ Update
3. Decision Result การประชุมต้องได้ผลการตัดสินใจทันที
4. Conference meeting กรณีสมาชิกอยู่ต่างประเทศ
5. Document Support ทุกขั้นตอนมีระบบเอกสาร
6. Senior Leader Support ทุกคนต้องสนับสนุนขั้นตอนเหล่านี้

Governance Process and Discipline

- | | |
|------------|------------------|
| 1. Go | ผ่าน |
| 2. No Go | ไม่ผ่าน หยุดทำ |
| 3. Hold | พัก หยุดชั่วคราว |
| 4. Revisit | ให้กลับไปทำเพิ่ม |

Governance Process and Discipline

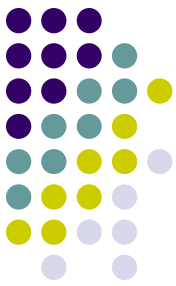
Gate มีการตัดสินใจที่มีวินัยและชัดเจน มีทั้งหมด 5 ชั้น

- ผลิตและออกตลาดได้หรือไม่ **Gate 5**
- จะออกสินค้าใด **Gate 4**
- ลูกค้าจะซื้อหรือไม่ **Gate 3**
- ขายแล้วจะคุ้มหรือไม่ **Gate 2**
- สอดคล้องกับกลยุทธ์บริษัทหรือไม่ **Gate 1**

7 basic elements for corporate culture foundation development

1. Written policies and procedures
2. High-level responsibility
3. Care in delegation of authority
4. Effective training
5. Auditing, monitoring, reporting
6. Consistent enforcement
7. Response to violations

**1991 U.S. Sentencing Guidelines, universally recognized by the compliance community, and revised 2004 Guidelines*



Project Charter Contents

ชื่อโครงการ (Project name) _____

Project Owner _____
Last Revised _____

วัตถุประสงค์/โอกาส (Objective/Opportunity)

วัตถุประสงค์/โอกาส

ความเป็นไปได้ทางธุรกิจและคุณค่าที่นำเสนอต่อลูกค้า (Business Case & Value Proposition)

ความเป็นไปได้ทางธุรกิจและคุณค่าที่นำเสนอต่อลูกค้า

ขอบเขตของโครงการ (Project Scope)

ขอบเขตของโครงการ

ตลาด ลูกค้า และการนำไปใช้เป้าหมาย (Target Markets/Customers/Applications)

ตลาด ลูกค้า และการนำไปใช้เป้าหมาย

ความเสี่ยงและความไม่แน่นอน (Key Uncertainties)

ความเสี่ยงและความไม่แน่นอน

คุณสมบัติและประโยชน์ที่คาดว่าจะได้รับ (Key Functional Benefits and Targets)

คุณสมบัติและประโยชน์ที่คาดว่าจะได้รับ

ทีมงาน (Project Core Team)

ทีมงาน

Gate Review Milestones (enter dates)

Stage 1 Idea Evaluation

Stage 2 Project Development

Stage 3 Testing

Stage 4 Preparation

Stage 5 Launch

Internal

Charter Approvals:

Use Only

1. Decision Board Leader:

Date :

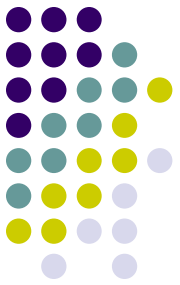
ชื่อโครงการ (Project name) _____

Project Owner _____

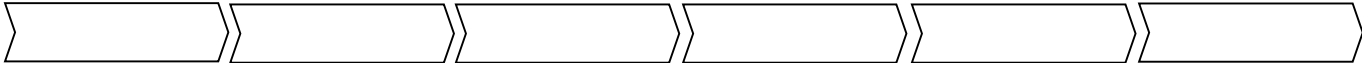
Last Revised _____

ปัญหา/โอกาส หรือ วัตถุประสงค์ (Problem/Opportunity or Business objectives)	
ความเป็นไปได้ทางธุรกิจและคุณค่าที่นำเสนอต่อลูกค้า (Business Case & Value Proposition)	
ขอบเขตของโครงการ (Project Scope)	
ตลาดเป้าหมาย ลูกค้า และการนำไปใช้ (Target Markets/Customers/Applications)	ความเสี่ยงและความไม่แน่นอน (Key Uncertainties)
คุณสมบัติและประโยชน์ที่คาดว่าจะได้รับ (Key Functional Benefits and Targets)	ทีมงาน (Project Core Team)
Gate Review Milestones (enter dates) Stage 1 Idea Evaluation : Stage 2 Project Development Stage 3 Testing..... Stage 4 Preparation Stage 5 Launch.....	
Charter Approval: Decision Board Leader Date	

1. :



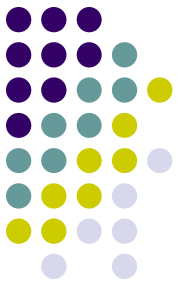
Value Chain Analysis



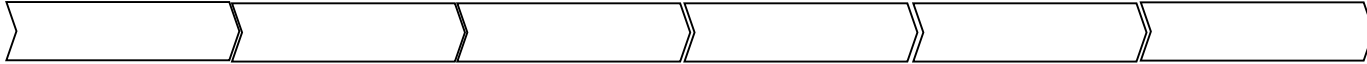
Players:

Activities:

Key Decision Factors:



Value Chain Analysis



Unmet
need:

Opportunity:

Power:

A photograph of a cornfield at sunset. The sun is low on the horizon, casting a warm orange and yellow glow across the sky and the leaves of the corn plants. The sky is filled with scattered, light-colored clouds. The corn leaves in the foreground are large and green, with some showing signs of being eaten. The text "Thank You" is written in a large, white, sans-serif font across the middle of the image.

Thank You