

“กรีนเทคโนโลยี นวัตกรรมดีเพื่อการ ลงทุน เกื้อหนุนธุรกิจไทยให้ก้าวไกล”

NSTDA Investors' Day 2011

September 22, 2011



By Dr. Pailin Chuchottaworn
President & CEO of PTT Public Company Limited

Content:

- **Modern Society**
- **Toward Knowledge-Base**
- **Human Factor**
- **R&D , E&M**
- **Innovation**
- **IPMO**
- **PTT Group Green Road Map & Example**

Content:

➤ Modern Society

➤ Toward Knowledge-Base

➤ Human Factor

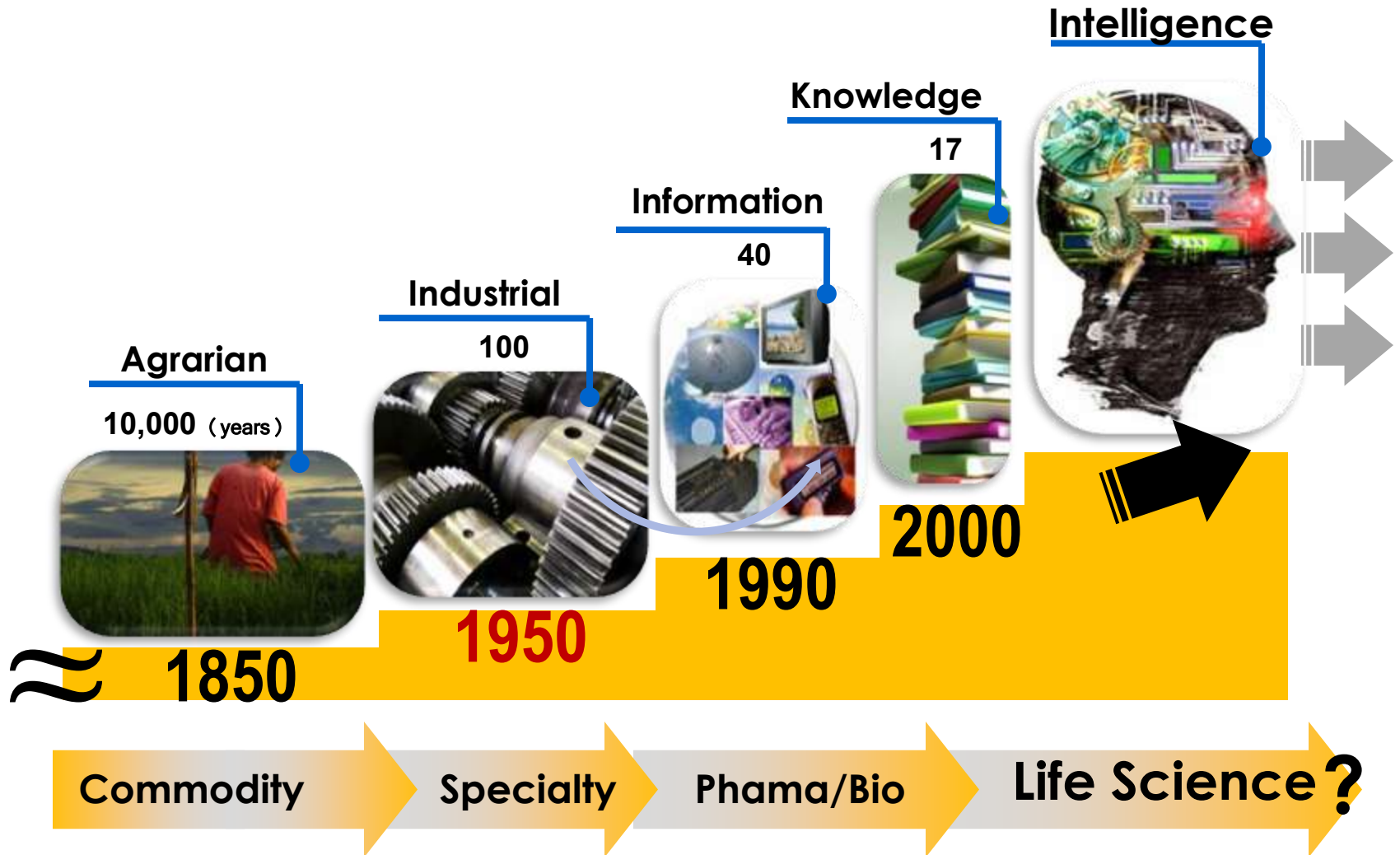
➤ R&D , E&M

➤ Innovation

➤ IPMO

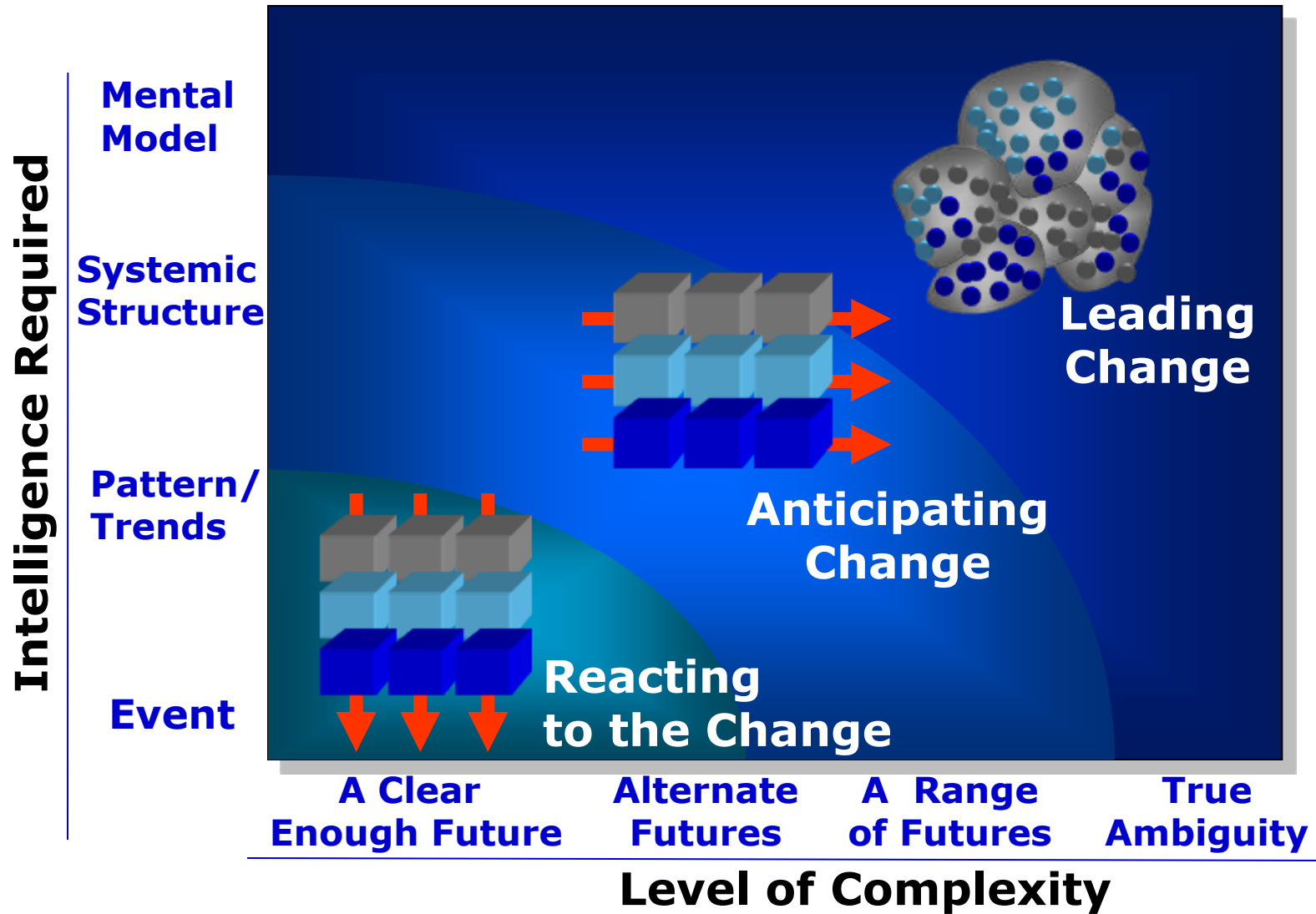
➤ PTT Group Green Road Map & Example

Phase of Human Society Developments



Modern Society & Innovation (1)

Managing Change in the Liquid Phase Modernity of Mankind



Modern Society & Innovation (2)

Internal issues are becoming externalized while external issues are becoming internalized

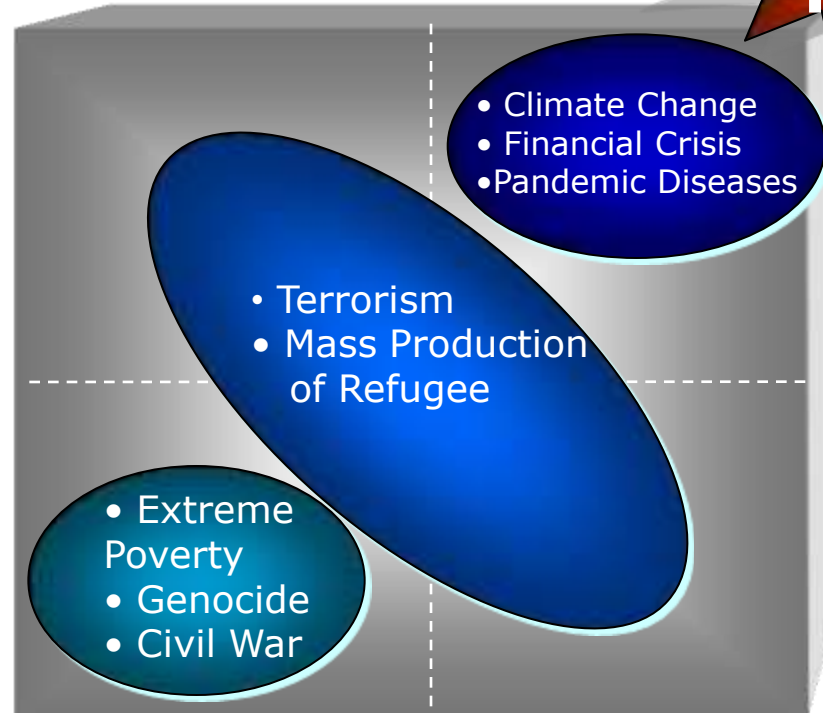
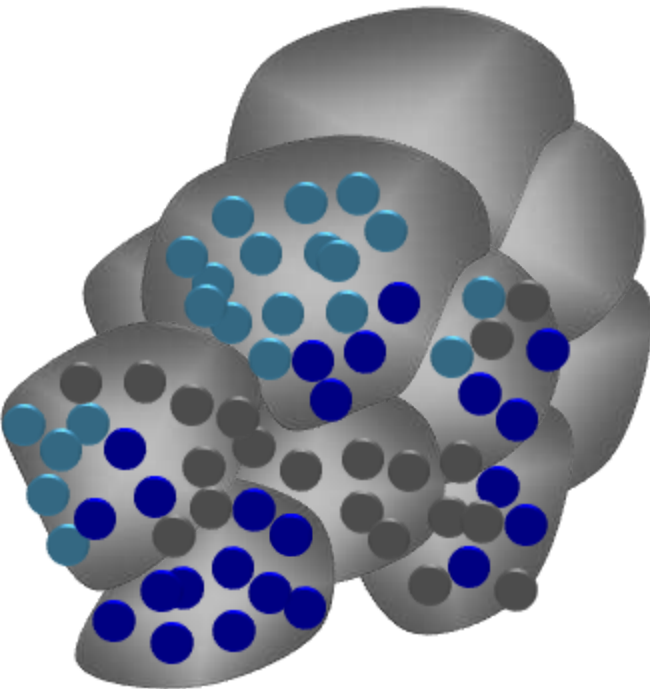
Globalization of Risks

Global Risks

- Climate Change
- Financial Crisis
- Pandemic Diseases

- Terrorism
- Mass Production of Refugee

- Extreme Poverty
- Genocide
- Civil War



Modern society

 In modern society, only the most innovative, green and less environmentally evasive processes and products are allowed to exist and prosper.



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Importance-adjusted top three strategies

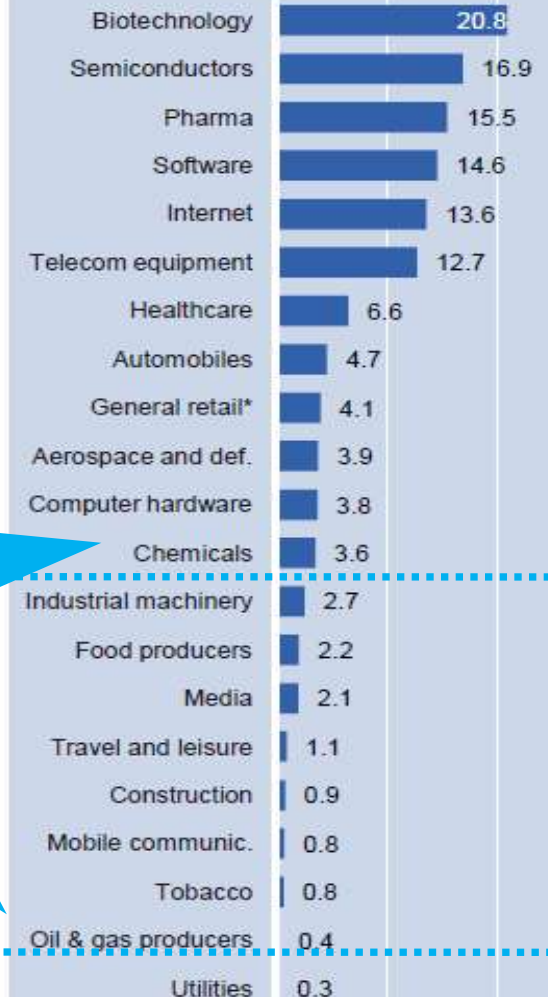
RANK	IMPORTANCE-ADJUSTED TOP THREE STRATEGIES	SCORE
1	Business growth	1.65
2	Talent	.74
3	Cost optimization	.72
4	Innovation	.70
5	Government regulation	.59
6	Corporate brand and reputation	.42
7	Customer relationships	.40
8	Sustainability	.37
9	International expansion	.29
10	Investor relations	.09

Innovation still one of the top priorities regardless of the economic crisis.

R&D Intensity of Chemicals are about 3.6% of their revenues and Oil & Gas producers are about 0.4% of their revenues.















Wide range

R&D intensity, by industry (2009)



*Incl. Amazon and eBay

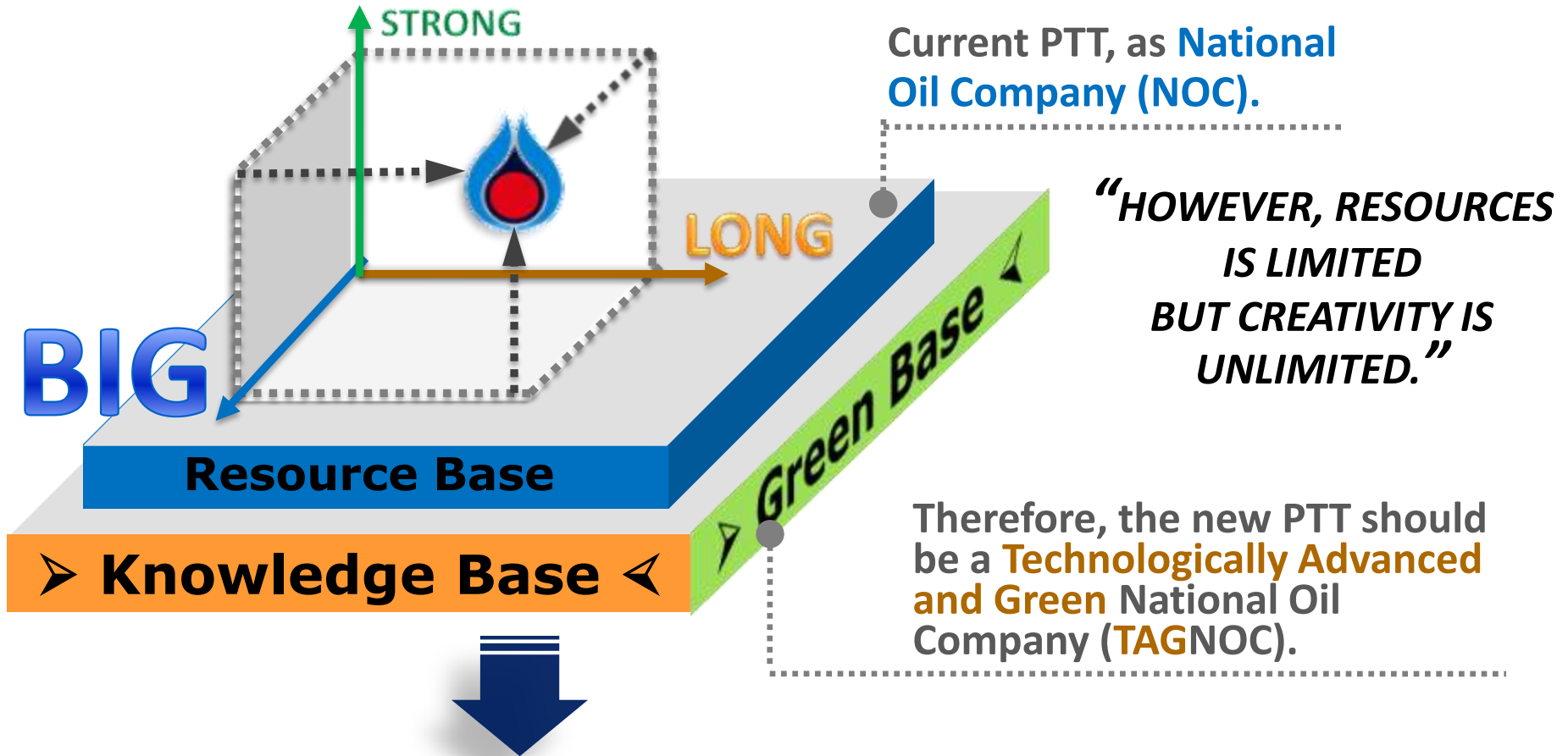
2011 Global Innovation Index Rankings

2011	Country	2010	2009
1	 Switzerland	4	7
2	 Sweden	2	3
3	 Singapore	7	5
4	 Hongkong	3	12
5	 Finland	6	13
6	 Denmark	5	8
7	 USA.	11	1
8	 Canada	12	11
9	 Netherland	8	10
10	 UK.	14	4
11	 Ireland	1	20
12	 Germany	16	2
⋮	⋮	⋮	⋮
16	 South Korea	20	6
20	 Japan	13	9
29	 China	43	37
31	 Malaysia	28	25
 48	 Thailand	60	44

Most of the top innovation countries have limited natural resources.

Thailand is very far behind from other Asian countries.

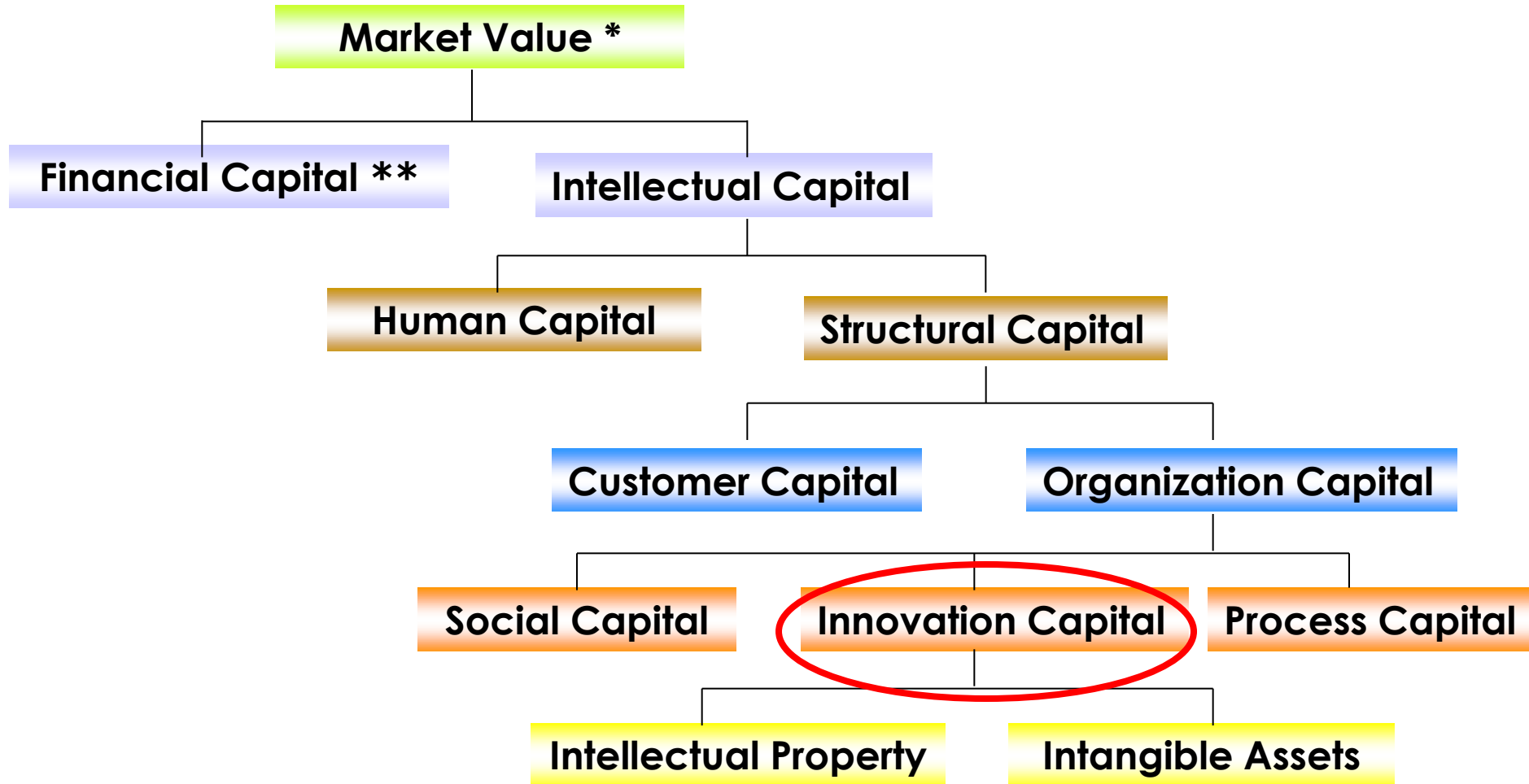
A Vision for PTT: From Resource-base to a Knowledge-base company



“Sustained Long Term Economic Justification”

Why Intellectual Capital Matter ?

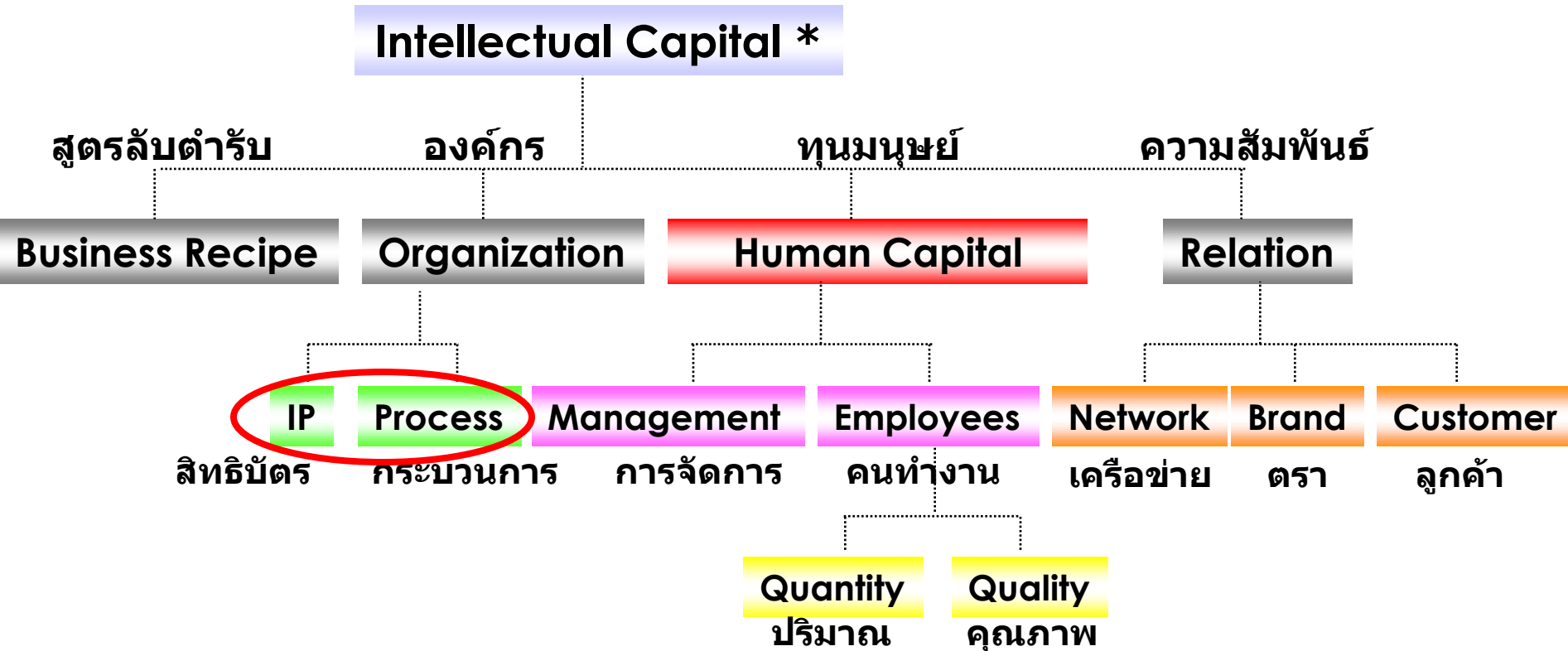
Intangible Asset (1)



Note : * IC Skandia Value Scheme
** Financial Statements

Why Intellectual Capital Matter ?

Intangible Asset (2)



Note : * Intellectual Capital Sweden – IC Rating

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➤ **Human Factor**

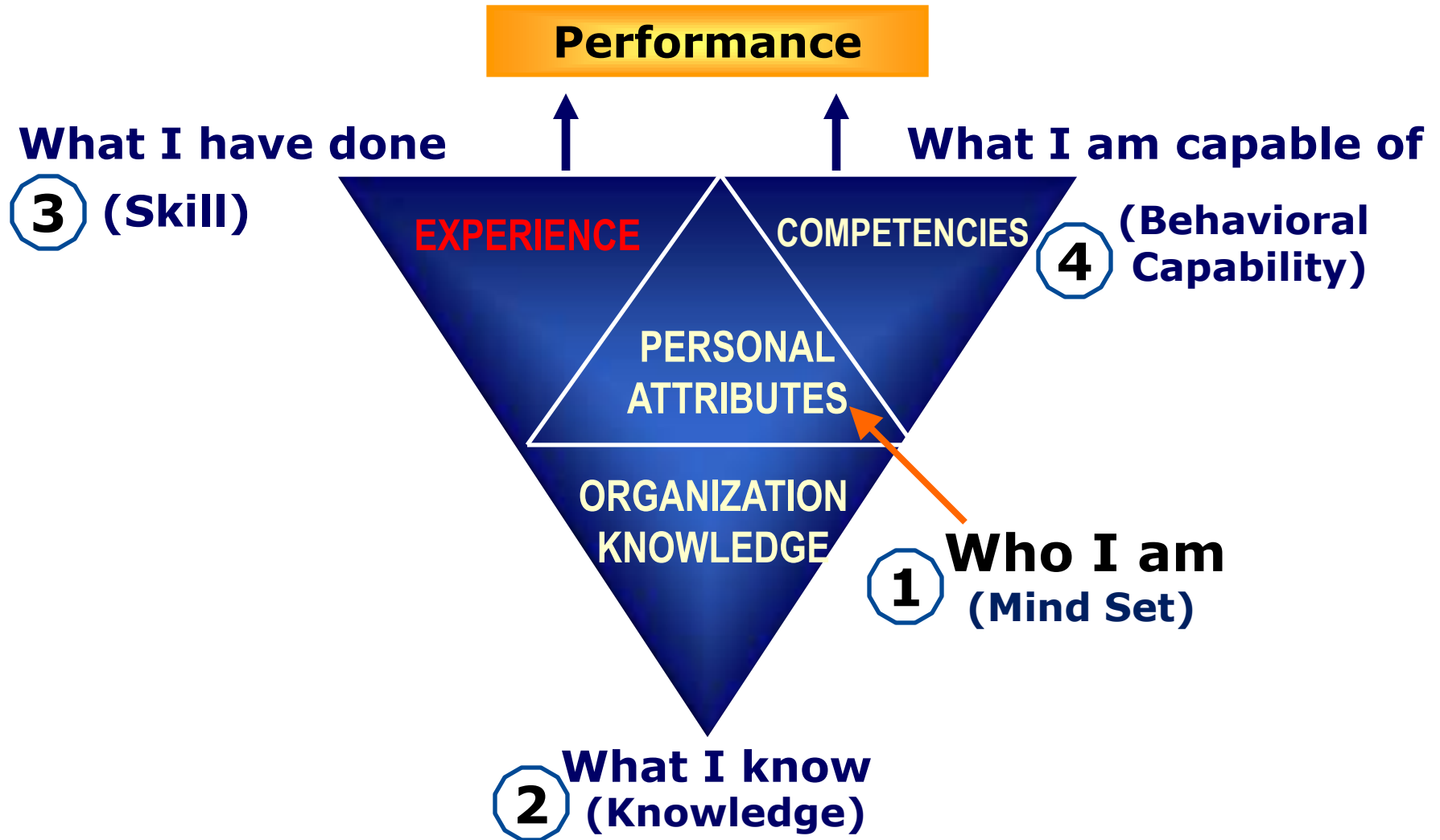
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Human Factor: DDI Leadership Profile



Human Factor: R&D People (1)

Critical Success Compositions

- Knowledge - Capability - ความสามารถ
- Experience - Skill - ความชำนาญ
- Competency - Behavioral capability - สมรรถนะเชิงพฤติกรรม
- Mind Set - Believe - กรอบความคิด/ความเชื่อ



Human Factor: R&D People (2)

Competencies (สมรรถนะเชิงพฤติกรรม) (6 Clusters, 19 Competencies)

Achievement Cluster

1. มุ่งมั่นสู่ความสำเร็จ
2. ยึดมั่นต่อระเบียบและพิธีการ
3. ปฏิบัติการเชิงรุก
4. เชี่ยวชาญอย่างมืออาชีพ

Managerial Cluster

11. ร่วมมือและประสานการทำงานเป็นทีม
12. พัฒนาผู้อื่นตามความถนัดของแต่ละคน
13. นำทีม
14. มุ่งเน้นปฏิบัติงานเชิงยุทธศาสตร์

Helping/Service Cluster

5. เข้าใจคน
6. ตั้งมั่นบริการลูกค้า

Cognitive Thinking Cluster

15. ขวนขวายหาข้อมูลข่าวสาร
16. คิดเชิงวิเคราะห์
17. คิดเชิงหลักการ

Influence Cluster

7. สร้างผลกระทบและโน้มน้าวจิตใจผู้อื่น
8. รอบรู้ในองค์กร
9. จัดการให้คนแสดงความรับผิดชอบในหน้าที่
10. นำการเปลี่ยนแปลงในองค์กร

Personal Effectiveness cluster

18. เชื่อมั่นในตนเอง
19. มีความซื่อตรง

Human Factor: R&D People (3)

Mind Sets

1. We are smart people - คนไทยเก่ง
2. R&D pays off - ทำแล้วคุ้ม
3. Believe and think big - เราทำได้!
We can do it!
4. Start now or lose later - ไม่ทำไม่ได้
5. Everyone for R&D,
R&D for everyone - ทำได้ทุกคน,
ทุกคนต้องทำ



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Five Generation of R&D

R&D Generations

Context

Process Characteristics

First Generation

Black hole demand
1950 to mid-1960s

R&D as ivory tower, technology-push oriented, Seen as an overhead cost, having little or no interaction with the rest of the company or overall strategy. Focus on scientific breakthroughs

Second Generation

Market shares battle
(mid-1960s to early 1970s)

R&D as business, market-pull oriented, and strategy-driven from the business side, all under the umbrella of project management and the internal customer concept.

Third Generation

Rationalization efforts
(mid-1970s to mid 1980s)

R&D as portfolio, moving away from individual projects view, and with linkages to both business and corporate strategies. Risk-reward and similar methods guide the overall investments.

Fourth Generation

Time-based struggle
(early 1980s to mid 1990s)

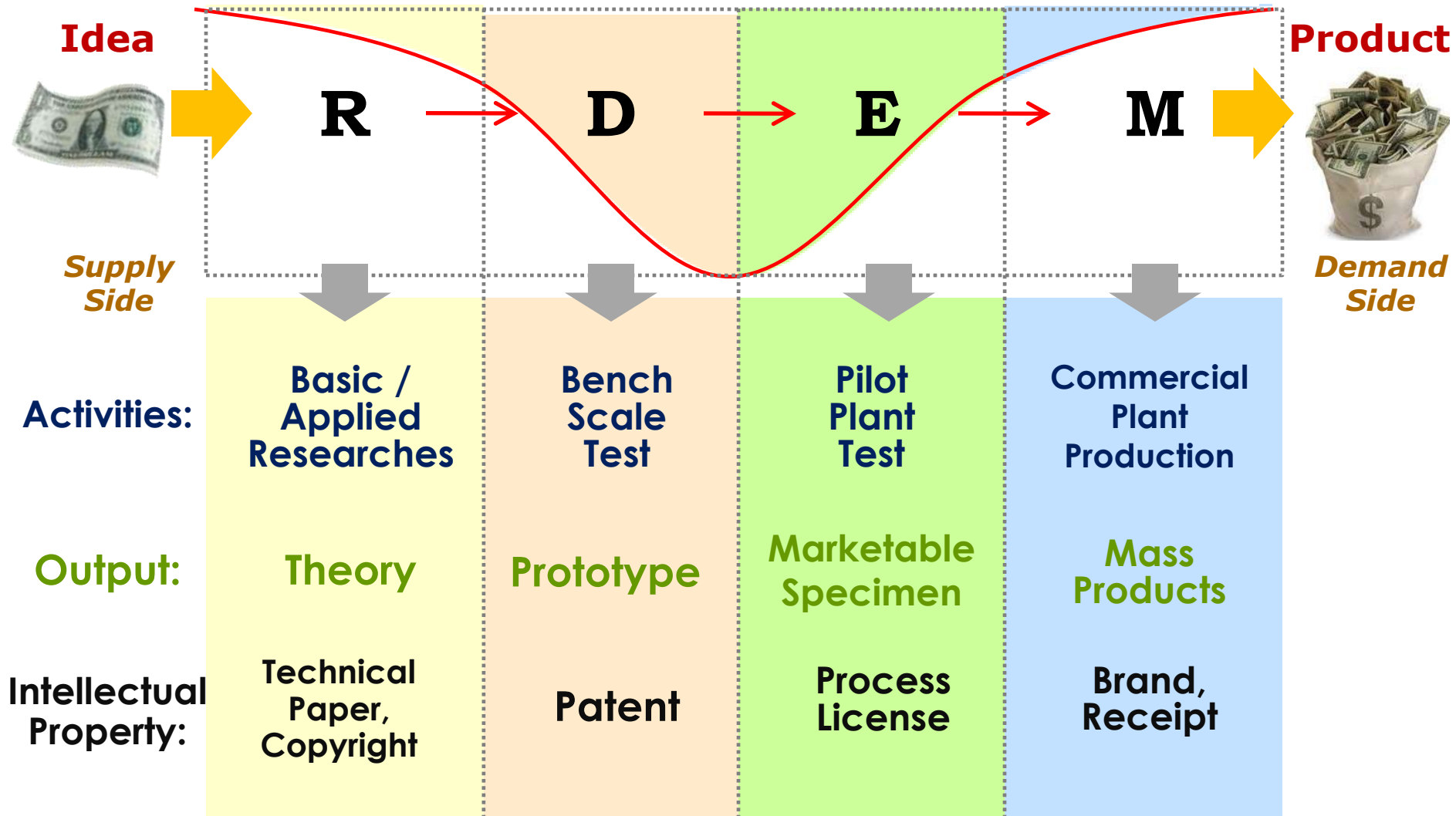
R&D as integrative activity, learning from and with customers, moving away from a product focus to a total concept focus, where activities are conducted in parallel by cross-functional teams.

Fifth Generation

Systems integration
(mid 1990s onward)

R&D as network, focusing on collaboration within a wider system – involving competitors, suppliers, distributors, etc. The ability to control product development speed is imperative, separating R from D.

Process From Research to Commercialization



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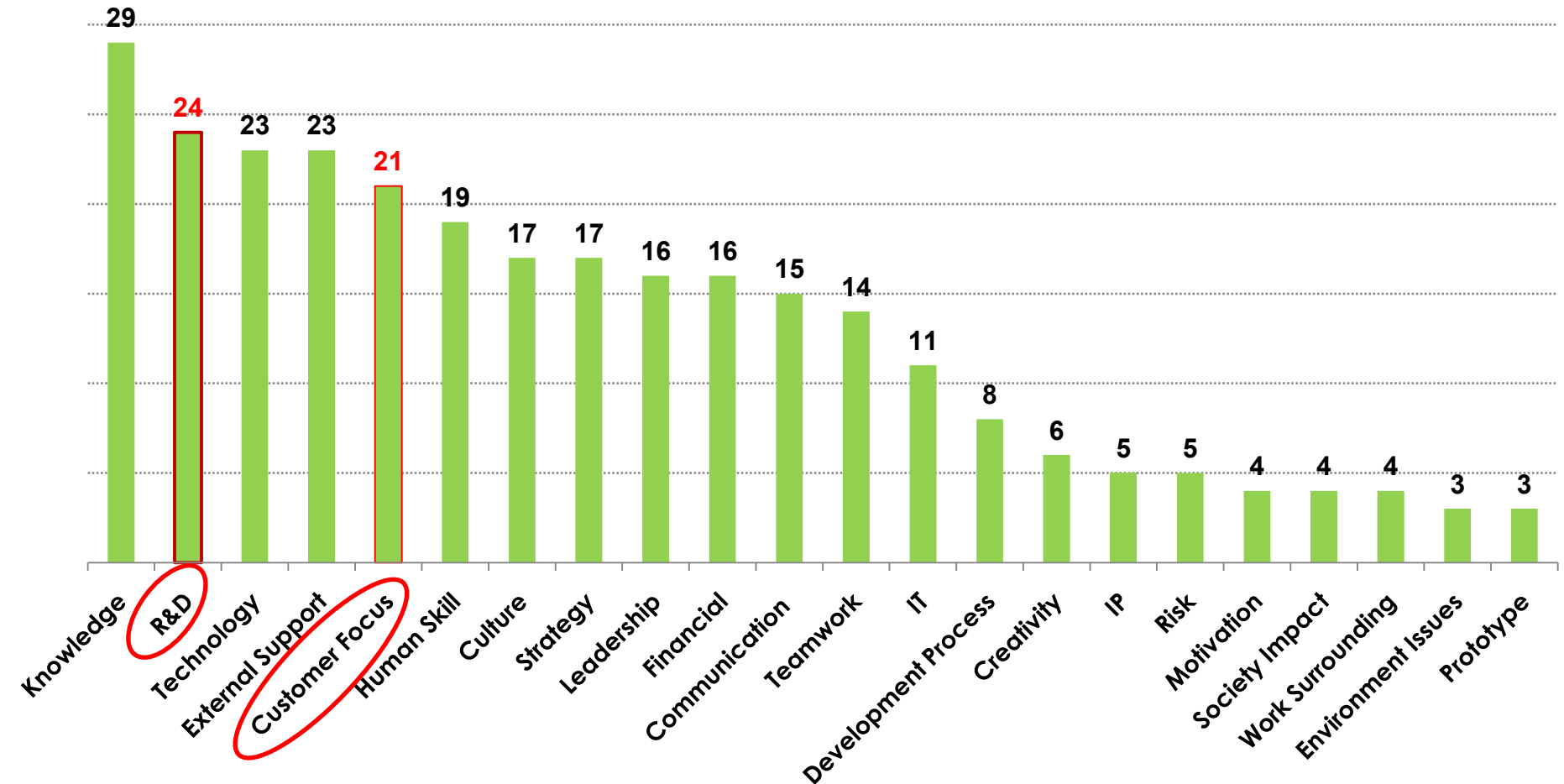
➤ R&D , E&M

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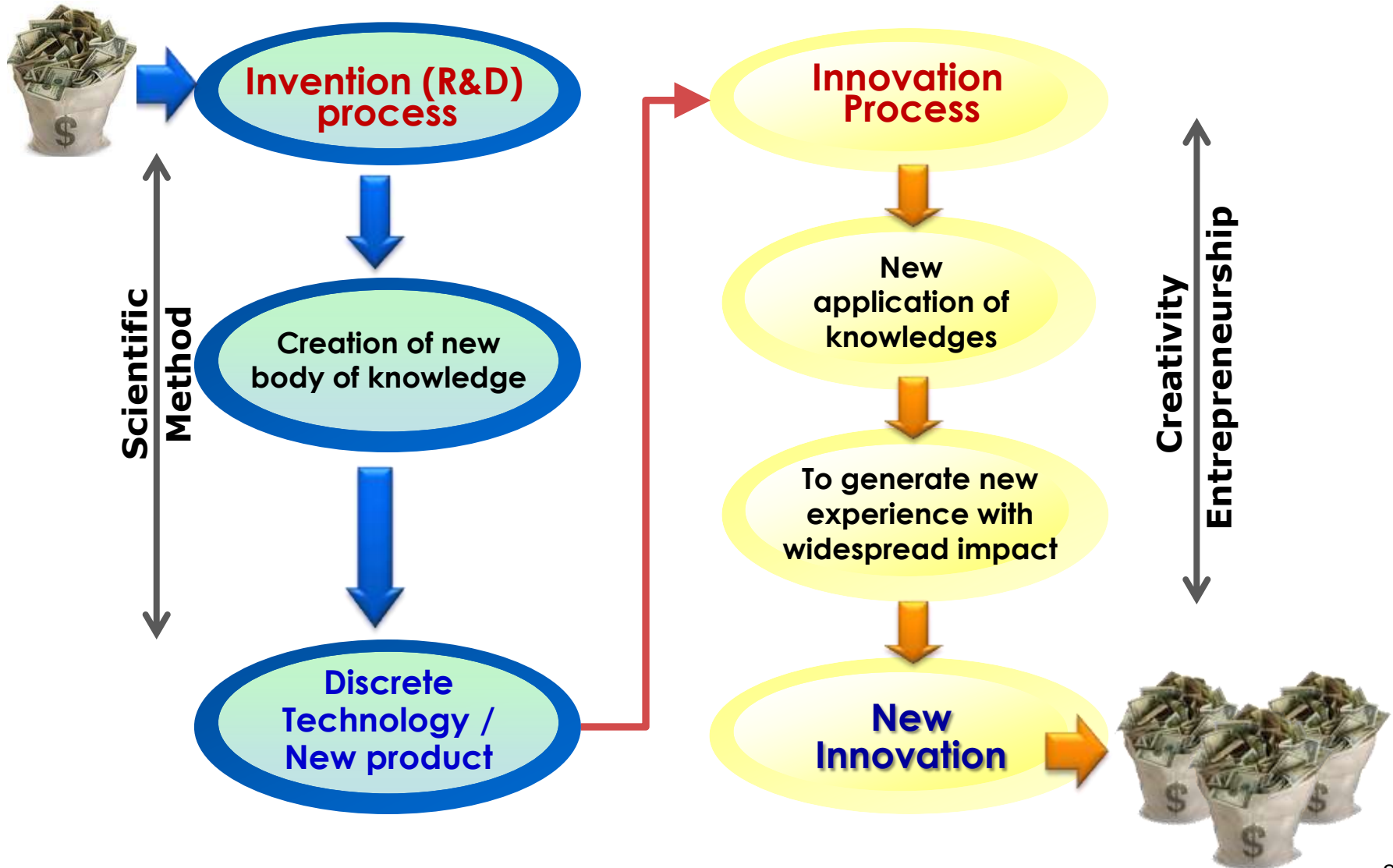
➤ IPMO

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Critical Success Factors for Innovation



Invention vs. Innovation



Innovation Equation


$$I = \Sigma (C + E)$$

Innovation

Creativity

Entrepreneurship

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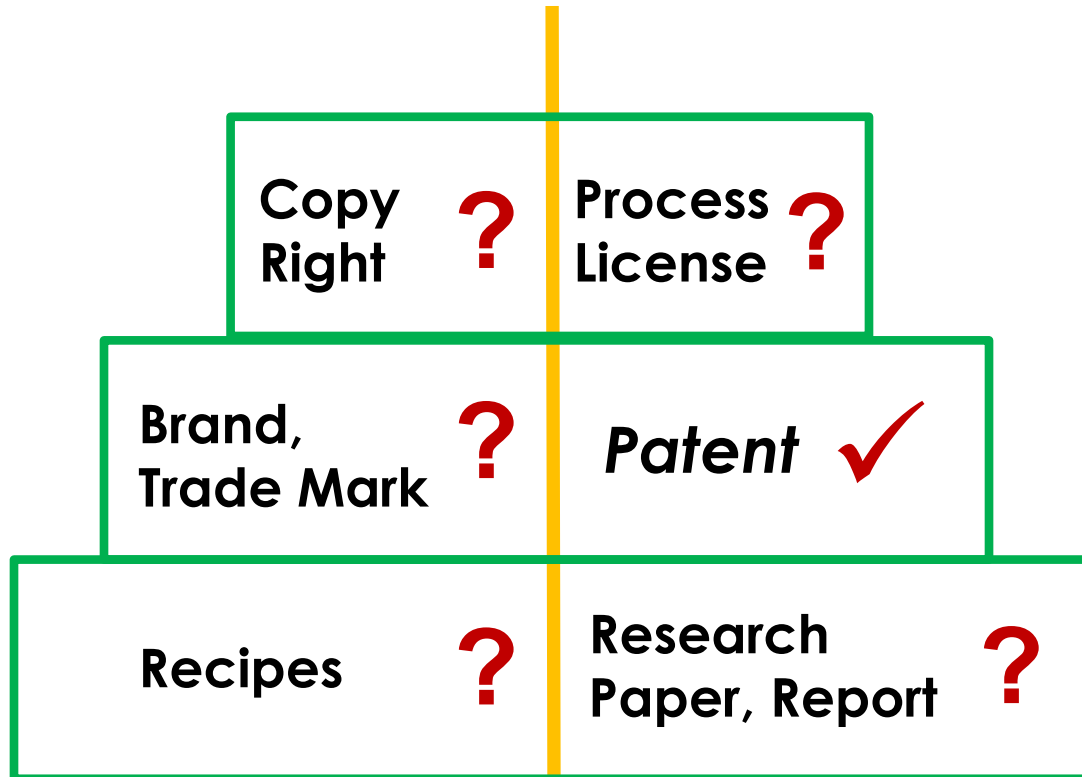
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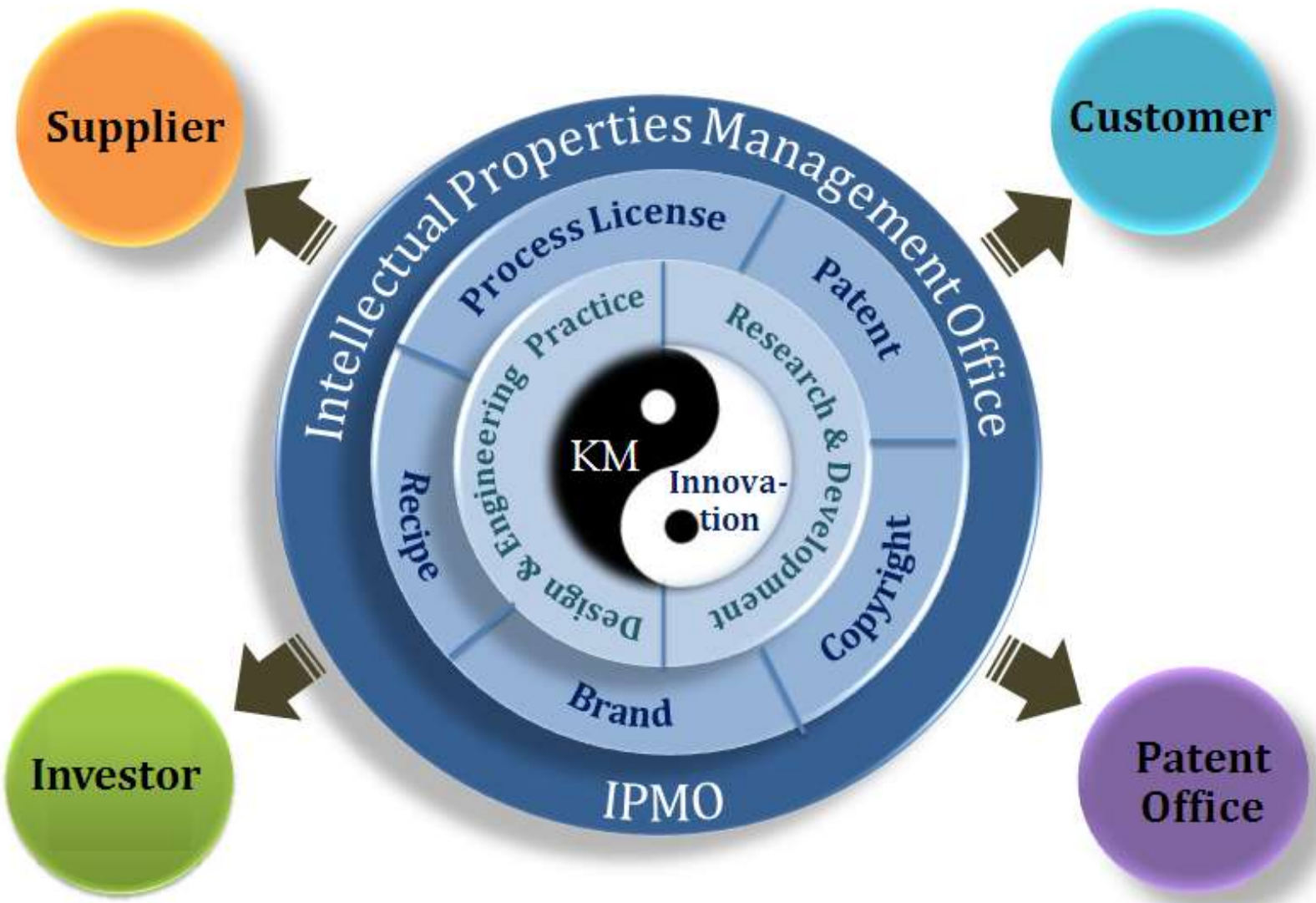
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IP Structure



Intellectual Properties

IRPC Intellectual Properties Management Framework



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Thailand – The future bio-hub of Asia

①

Feedstock



Abundant and competitive

- Sugar production 2010: around 9 MM Tons [Export 7 MMTon]
- Thailand is 2nd world largest exporter of sugar [Brazil is first]

②

Ready Plastic Industry



From upstream to converters

③

Logistics & Infrastructure



World-class facilities

④

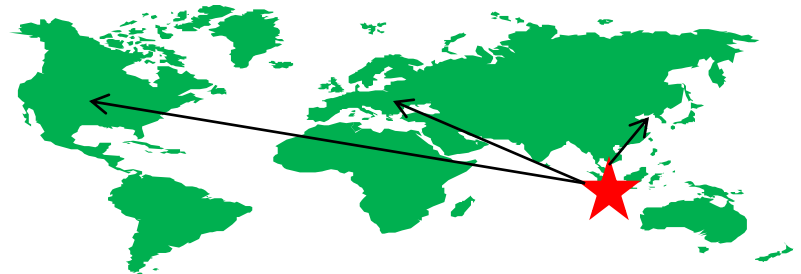
Government Incentive



Strong support from Government

⑤

A Strategic Location



Proximity to growing market

- Far East countries: China, Korea, Japan, Taiwan, etc.
- EU: Germany, Italy, France, Holland, etc.
- USA
- Maximum Tax privilege [0% 8 years, 15% next 5 years]
- Feed [Sugar or Tapioca starch] at export parity price Etc.



have aspiration to be a global leader by 2020

Development of Bio plastics is one of the **most important initiatives** in PTT Petrochemical Strategic Plan



PETROCHEMICAL

- Green ABS
- Natural Pigment Compound
- Wood Composite
- PP Compound with Chitosan



Material for Non Packaging (Engineering Plastic)
Material for Packaging

•Green PC/ABS

•Green PP&HIPS

•PBS
•PLA

•Bio PE from Sugarcane /Cassava



Long term 2015-2020

Medium term 2012-2014

Short term 2008-2011

2005-2007

- Biodiesel B100
- Biodiesel B3-B5
- Gasohol E10/ E20
- TDAE

- RAE
- Gasohol E85

- Euro IV (Diesel, Gasoline)
- Bioethanol

- Green Diesel
- Bio-Jet

Example: Green ABS



ABS resin with natural rubber for market differentiation

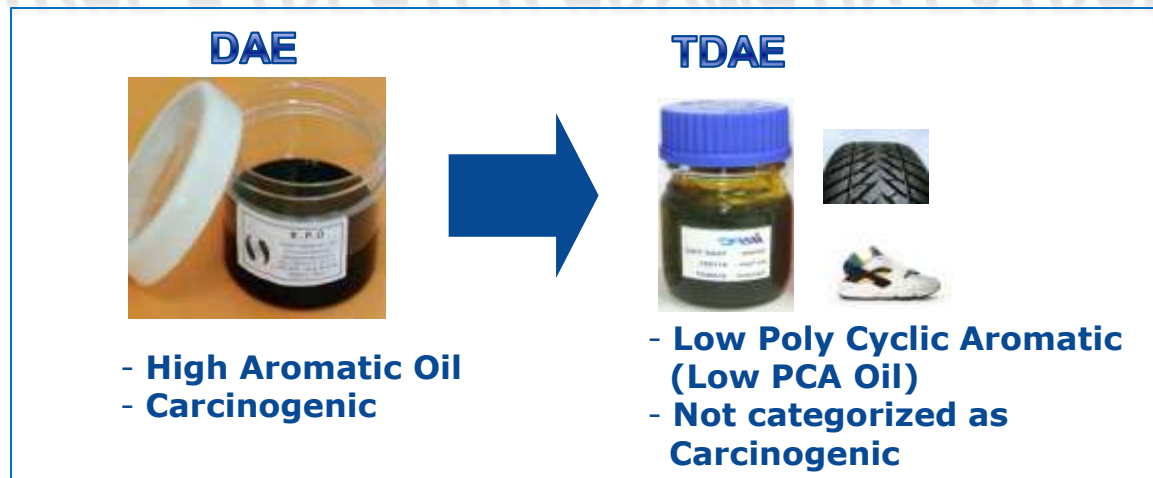
Example: Green ABS



Example: TDAE & RAE



TDAE = TREATED AROMATIC EXTRACT



Example:



Go Green ...Every day everywhere

คาเฟ่เมซอน นำร่องใช้บรรจุภัณฑ์
ใหม่ย่อยสลายได้ 100%

มีส่วนร่วมในการรักษาสิ่งแวดล้อม
ไปกับคาเฟ่เมซอน ด้วยการ
ใช้บรรจุภัณฑ์ Café Amazon Go Green
ที่ย่อยสลายได้ 100% ทั้ง

แก้ว ฝาพลาสติก และหลอด
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, Amazonia และ Ozonia) ในอาคาร
สำนักงาน EnCo

หลอด

PBS

Compound

ฝาโดม

PLA

ตัวแก้ว

PBS

Compound



Thank you

Question & Answer



Thank you

Today...
???



**Innovate & Change
or otherwise die**

