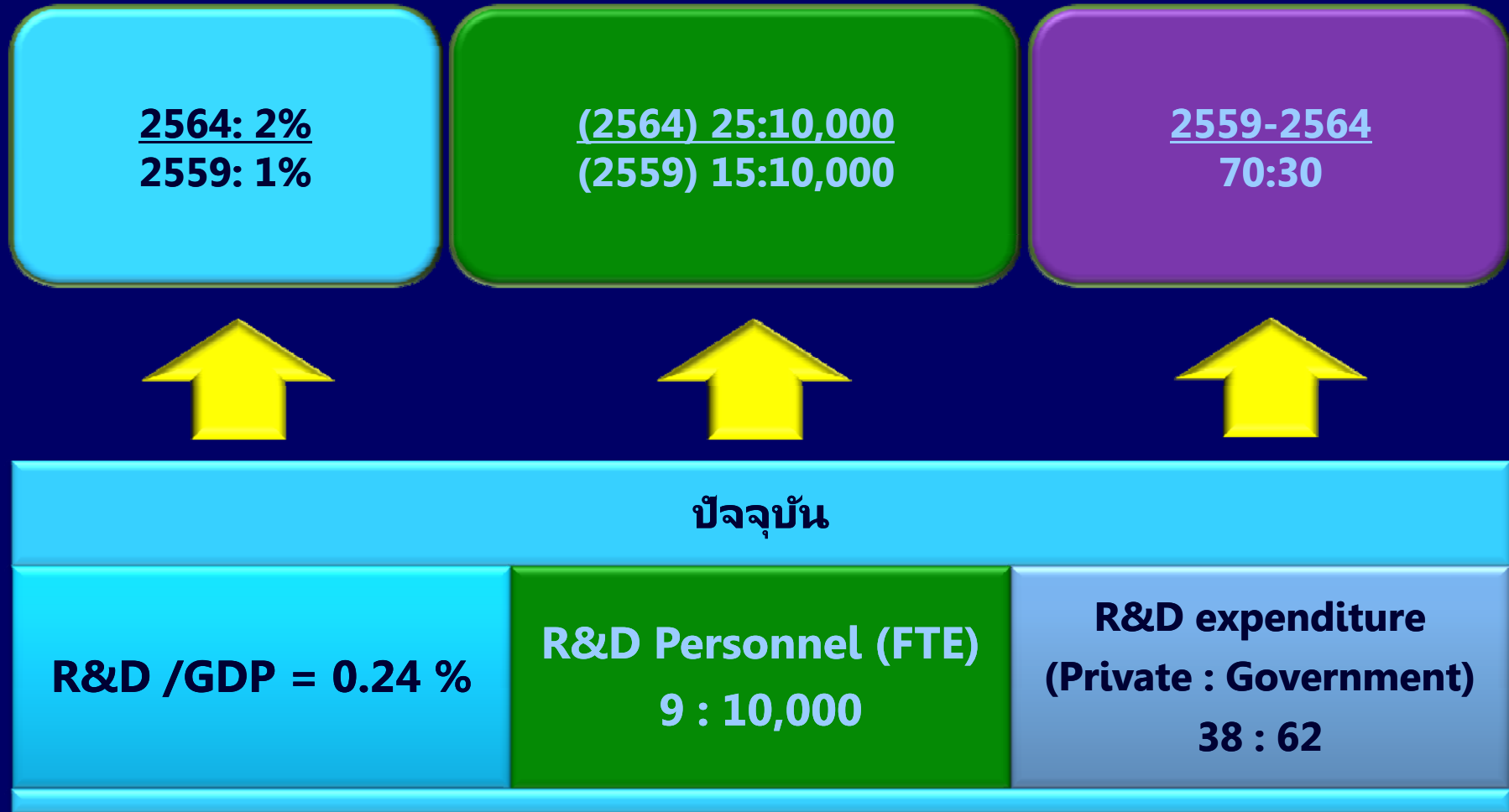


“การร่วมมือกับภาคเอกชนเพื่อการวิจัยต่อยอด และนำไปใช้ประโยชน์เชิงพาณิชย์”

วันที่ 26 กันยายน 2557
โรงแรมมิราเคิล แกรนด์ คอนเวนชั่น
กรุงเทพฯ

ศาสตราจารย์เกียรติคุณ ดร. อมเรศ ภูมิรัตน์
ผู้อำนวยการโครงการปริญญาเอกกาญจนาภิเษก
สำนักงานกองทุนสนับสนุนงานวิจัย

เป้าหมายการลงทุนวิจัยด้าน วทน. ปี 2559-2564



ข้อมูลจาก IMD ประจำปี 2552

- R&D Exp = 21,493 MB
- R&D Exp : Gov : Private = 13,318:8,175 MB
- R&D Personnel = 57,220 (man-year)

ที่มา: สำนักงานคณะกรรมการนโยบาย
วิทยาศาสตร์ เทคโนโลยี และนวัตกรรมแห่งชาติ
(มกราคม 2554)



Translational research

การวิจัยพื้นฐาน
(Basic Research)



นวัตกรรม
(Innovation)



เทคโนโลยี/ผลิตภัณฑ์เป็น
ที่ยอมรับของสังคม
(Commercialized
Product)

Innovation is

the act of developing a new process or product and introducing it to the market.

*** Persuasive atmosphere * Inductive stimulant**

Why do people innovate? What cause creativity? What is it that cause some of us as individuals, in groups and larger communities and nations – to innovate more, or less than others?

Some answers are suggested by economics, psychology, and biological necessity.

For an idea to become a full-fledged innovation, something that is widely available in society, it must pass from person to person, either by transfer of intellectual property rights, or by publication or collaboration. Most products include the creative ideas of many people, combined and transferred.

Basic research and commercialization



Government and academic labs
Non-profit corporations

Biomedical research companies

The Thailand
Research Fund : TRF

University Business Incubator
(Office of the Higher Education
Commission)

Agricultural
Research
Development Agency.
(Public Organization)
ARDA.

Industrial Technology
Assistance Program : ITAP
(NSTDA)

Government

Public & Private Research &
Development Collaboration
Program (Office of the Higher
Education Commission)

Research and Development
Certification Committee
Secretariat : RDC (NSTDA)

BIOTEC , NECTEC ,
MTEC , NANOTEC ,
(NSTDA)

Skill Technology & Innovation : STI
(The Board of Investment of Thailand : BOI)

NIA MAI

Basic
Research
University

R & D

Proof of Concept
Prototype
Scale up

Start up

Commercialization

Human Resources

Research Result

Facilities **University**

Technology

Know how

Financial

Industry Facility

Market Potential

RGJ - Ph.D. MANAGEMENT SYSTEM

Quality Measures : (1) Highly qualified Ph.D. advisors
(2) High quality Ph.D. students
(3) Requirement to produce international publications

More than 1,850 Thai advisors
from 27 leading universities

More than 2,850 Foreign advisors
from 1,150 institutions in 45 countries

Financial support from
government

Financial support from
international organizations

Financial support from
OHEC, University

RGJ-Ph.D. Program
3,958 students

Management and inputs from the
program's staff (16 persons)

Outputs:

- Ph.D. graduates (2,271)
- International publications (5,621), Patents (74)
- Strengthened graduate programs and research units
- International research interactions and collaborations

Quality enhancing activities
(Organized by RGJ-Ph.D. Network
Coordinators):

- RGJ-Ph.D. Congress
- RGJ-Ph.D. Seminar Series
- RGJ-Ph.D. Electronic Network
- RGJ-Ph.D. Newsletters
- Site Visits

Impact:
Strengthening of research
capability and improvement in
competitiveness

RGJ for Industry

In 2007, The Thai Government through The Ministry of industry initiated joint research program between university and industry under this scheme. RGJ-Ph.D. Program received financial support from the Office of Small and Medium Enterprises Promotion (OSMEP) to provide Ph.D. fellowships to students and supervisors who undertake research topics related to industry

From...RGJ for Industry

**...to Research and Researchers
for Industries (RRI)**



**website : <http://rri.trf.or.th>
Email : trfrri@trf.or.th**



**A New program at
The Thailand Research Fund**

Objectives

- ❑ **To promote human resource development at master and doctoral degree levels for industry.**
- ❑ **To promote the use of research and development strategy to create sustained competitiveness for industry.**
- ❑ **To facilitate research collaboration between research institution and industry.**
- ❑ **To facilitate the initiation of research networks among research institutions and industries.**

Linkages between research instruction and industry

*University's
research staff*

*Industry's
research staff*

**Joint Industry-University
research project**

**University,
Research
Institute**

Staff exchange program

Ph.D. : RGJ for industry

MS. : Practice school

B.S. : Cooperative program

Industry

Translational research

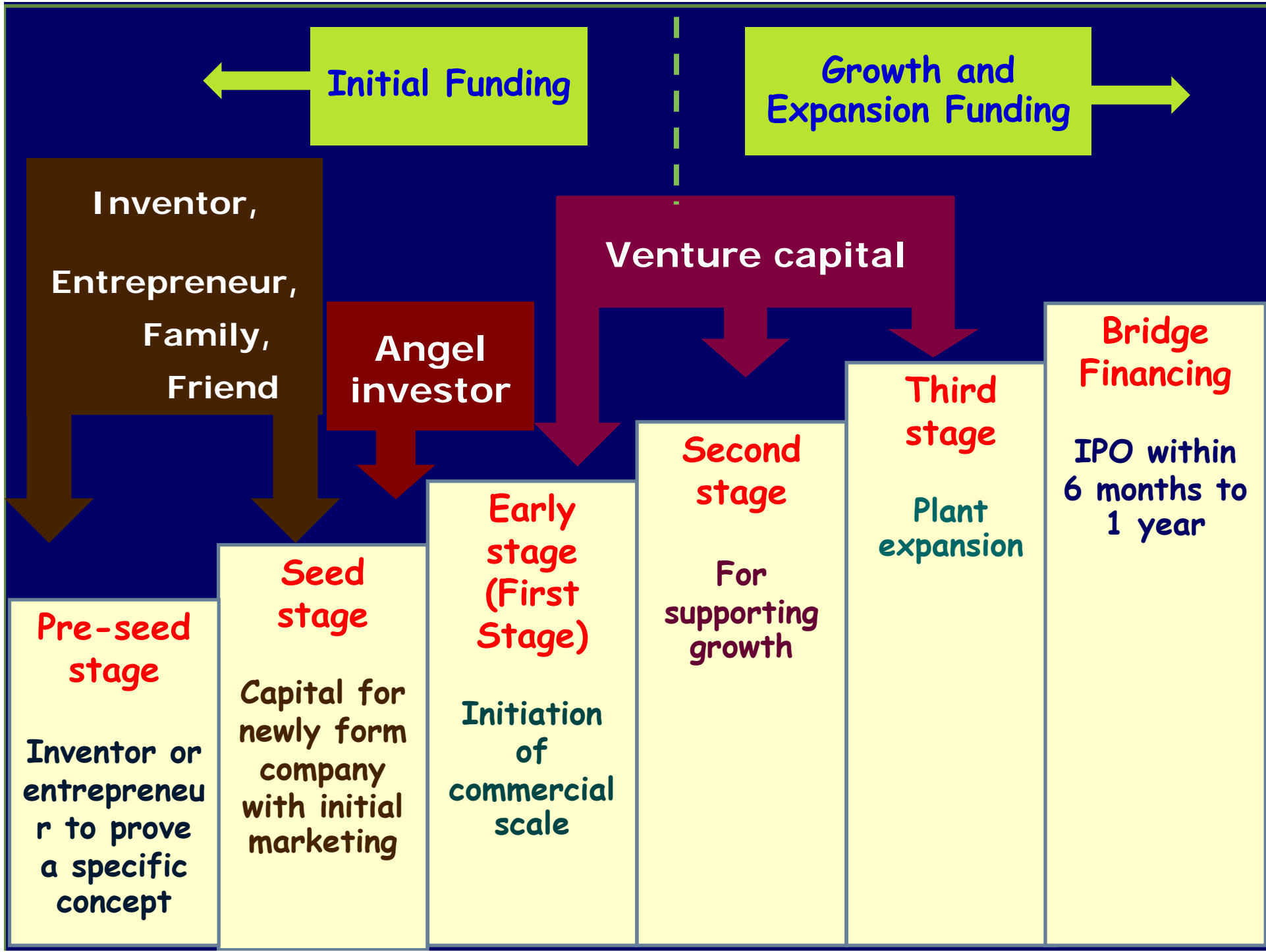
การวิจัยพื้นฐาน
(Basic Research)

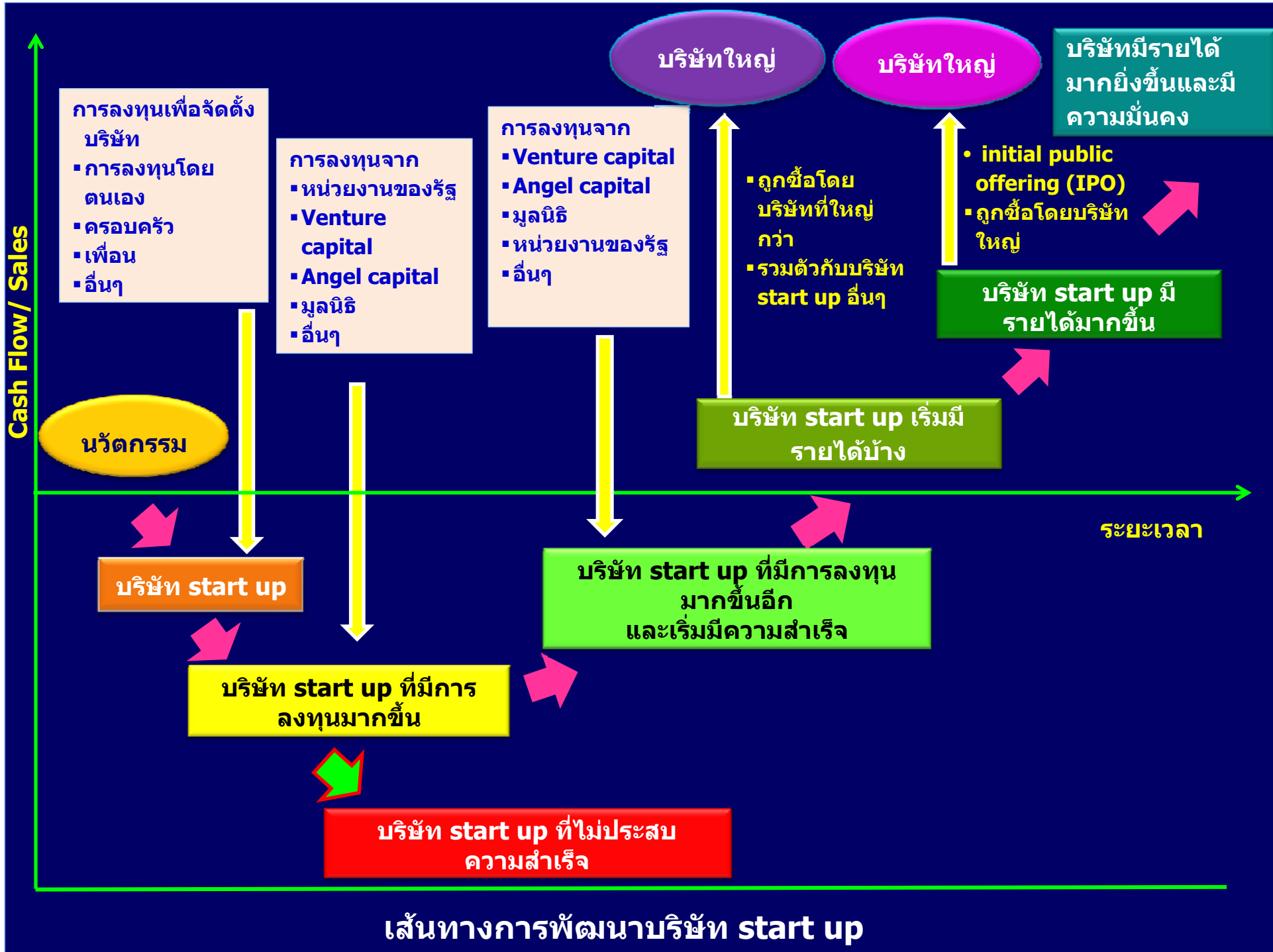


นวัตกรรม
(Innovation)



เทคโนโลยี/ผลิตภัณฑ์เป็น
ที่ยอมรับของสังคม
(Commercialized
Product)





Investment Portfolio - Imperial Innovations

Source : <http://www.imperialinnovations.co.uk/ventures/>

Startups, Tech Giants Code Human Brain

By EVELYN M. RUSLI

Somewhere, in a glass building several miles outside of San Francisco, a computer is imagining what a cow looks like.

Its software is visualizing cows of varying sizes and poses, then drawing crude digital renderings, not from a collection of photographs, but rather from the software's "imagination."

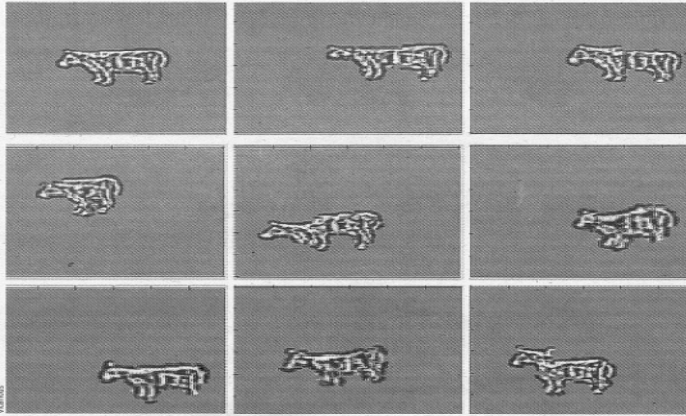
The technology is the work of Vicarious FPC Inc., a quasi-secretive startup backed by early Facebook Inc. employees and investors that is part of the rapidly expanding world of artificial intelligence. The company is weaving together bits of code inspired by the human brain, aiming to create a machine that can think like humans.

Such powerful software is still several years away from being fully developed, if at all, and raises all sorts of ethical questions. But the potential applications—such as masterfully translating foreign languages, identifying objects in photos and directing self-driving cars through busy intersections—are so compelling that technology giants like Facebook and Google Inc. are investing heavily in artificial intelligence.

Last week, Google said it purchased a small startup similar to Vicarious, London-based DeepMind, for more than \$500 million, according to two people with knowledge of the matter. Facebook was reportedly interested in DeepMind, and two months ago the social network tapped Yann LeCun, a New York University professor who is considered one of the top experts in the field, to lead its new artificial intelligence lab.

The idea of creating smarter computers based on the brain has been around for decades as scientists have debated the best path to artificial intelligence. The approach has seen a resurgence in recent years thanks to far superior computing processors and advances in computer-learning methodologies.

One of the most popular technologies



Vicarious's computer technology was able to create a series of images of cows by using the software's 'imagination.'

ogies in this area involves software that can train itself to classify objects as varied as animals, syllables and inanimate objects.

The field remains so specialized that Vicarious shares an investor with DeepMind—Founders Fund, run by Facebook investor Peter Thiel—and the two startups briefly discussed creating a singular company in 2010 before going it alone, according to Vicarious co-founder D. Scott Phoenix.

Vicarious has since raised about \$16 million from Founders Fund and several early Facebook employees, including Facebook co-founder Dustin Moskovitz and former chief technology officer Adam D'Angelo.

The company is shrouded in mystery, a point often cited by its skeptics. Like DeepMind, it has yet to release any products and may be several

years away from doing so. And some of Vicarious's investors, such as Avdun Senkint, the head of Felicis Ventures, have never seen its lab. The founders say it is located somewhere in the South Bay, keeping it secret to prevent malicious hackers from breaking in.

Vicarious was founded by Mr. Phoenix and Dilip George, a Stanford Ph.D. graduate who studied hierarchical models of the brain. Their premise was to focus on the sensory aspect of the brain, particularly vision's critical role in the early stages of human development. It has tried to further differentiate itself from its peers by designing a system with a high degree of interactivity between the basic visual receptors of the software, its eyes, and the higher-level, information processing parts. Such a feedback loop allows the machine,

for example, to imagine the missing contours of a cat that is partially hidden behind a box.

Like an infant, Vicarious's software started with the basics, first learning to recognize simple shapes such as text. Now it is beginning to understand texture and lighting. Eventually, Vicarious's researchers hope the software will learn how to move within the physical world and understand cause-and-effect relationships.

Vicarious's team of eight is best known for claiming to break the online Captcha test, or the Completely Automated Public Turing test to tell Computers and Humans Apart. The test, which typically appears on websites before registration or payment, shows a series of slightly jumbled numbers and letters that make it difficult for a computer to

scan. Last October, Vicarious announced that its software can break Captcha 90% of the time.

The announcement irked some in academia who questioned the strength of the software.

Mr. LeCun, of Facebook's artificial intelligence lab, wrote in an online post that Vicarious's announcement was a "textbook example of AI hype of the worst kind." He says Vicarious needs to release more information about its technology through academic papers or to test its algorithms against widely approved data sets.

Dr. George stands behind the results. He says the team is conservative about how much information it discloses because of competition concerns and to prevent malicious actors from replicating the software.

Beyond Captcha, Vicarious's visualization software still needs work. In the example of the cows, the images are pixelated and in grayscale. While the software successfully created cows in varying positions—by pulling not only from its knowledge of a cow's image but also how other animals it has seen behave, move and distribute body weight—some cows still came out distorted. One it drew, for example, had a very long neck.

Though the research is young, tech giants are already dreaming up a big future for artificial intelligence.

In a recent earnings call, Facebook CEO Mark Zuckerberg said he is interested in artificial intelligence that will help Facebook better understand users.

In the more distant world, one could imagine Jetsons-like robots that could run medical tests or fix damaged nuclear reactors.

For now, such dreams are far off. Vicarious said it may need another five to 10 years. But if it can graduate beyond pixelated cows, the payoff could be huge.

"If you invent artificial intelligence, that's the last invention you'll ever have to invent," Mr. Phoenix said.

—Rolf Winkler
contributed to this article.

Source : The Wall Street Journal, Wednesday, February 5 ,2014

START-UPS GAIN APPEAL IN JAPAN

Japanese leave established companies for less well-paying ventures, seeking meaningful careers, writes Yuri Kageyama in Tokyo

In a shabby back-alley office in Shibuya, a Tokyo district known for its youth culture and tech ventures, defectors from corporate Japan are hard at work for a little-known company they fervently believe will be the country's next big manufacturing success.

Like a start-up anywhere in the world, its bare-bones set-up crackles with an optimistic energy and urgent sense of purpose. What's different, for Japan, is that this start-up's talent is drawn from the ranks of famous companies such as Mitsubishi, Michelin and Nissan.

Kohshi Kusuhara, 35, worked for more than 10 years at electronics giant Panasonic Corp before hopping to Terra Motors Corp, a little-known venture that pays far less but is out to conquer the world with its stylish electric scooters.

As with his colleagues at Terra, he resiled from the hidebound culture of big Japanese companies and felt a deep sense of frustration at their eclipse by rivals such as South Korea's Samsung and America's Apple.

"If you're stuck in a system that promotes just by seniority, it's living a slow death like animals on a farm," said



Toru Takushige, president of Terra Motors, speaks during an interview at the company's headquarters in Tokyo. AP

Source : Bangkok Post, Business World, 2013

START-UP CHILE

We perceived the need to design a program to produce a cultural transformation amongst Chile's youth, encouraging them to engage in entrepreneurial activities.

We felt that by bringing foreign entrepreneurs to Chile, we could create an ecosystem to foster innovation and connectivity.

HOW DOES IT WORK?

1 year VISA

\$40,000 seed capital taking no equity

Soft landing and hospitality

Latin American networking and market access

Chilean cultural experience, language, learning history-making opportunity

Create & foster Network within local entrepreneurship ecosystem

Share skills and contacts with the network RVA

Repay by social capital - host workshops, mentoring local Chileans, organising meet ups and teach a class

5,600 applications

1,132 entrepreneurs

598 projects

483 job created

292 job created for Chilean

แนวทางการพัฒนานวัตกรรมสู่การใช้ประโยชน์ เชิงพาณิชย์โดยการจัดตั้งบริษัท start-up



“ START-UP... THAILAND ”

A blue-toned landscape featuring a road that recedes into the distance towards a bright sunburst. The sunburst is the focal point, with rays of light radiating outwards. The road is flanked by blue hills and a blue sky with light clouds. The overall mood is bright and hopeful.

ขอบคุณ