



Thailand 4.0

Medical Technology & Industry
Deep Tech Startup
Business, Innovation and Commercialisation
Research to Business





AGENDA

9:00 - 9:30 ประเทศไทย 4.0 อุปกรณ์และนวัตกรรมเครื่องมือแพทย์ 2560-79

9:30 - 10:20 Deeptech Startup ในยุค Thailand 4.0

10:20 - 11:00 กลไกธุรกิจ มุมมองของความสำเร็จในเชิงพาณิชย์

11:00 - 11:30 การจัดทำวิจัยให้สำเร็จเป็นธุรกิจ

11:30 - 12:00 ถามตอบ



GOAL

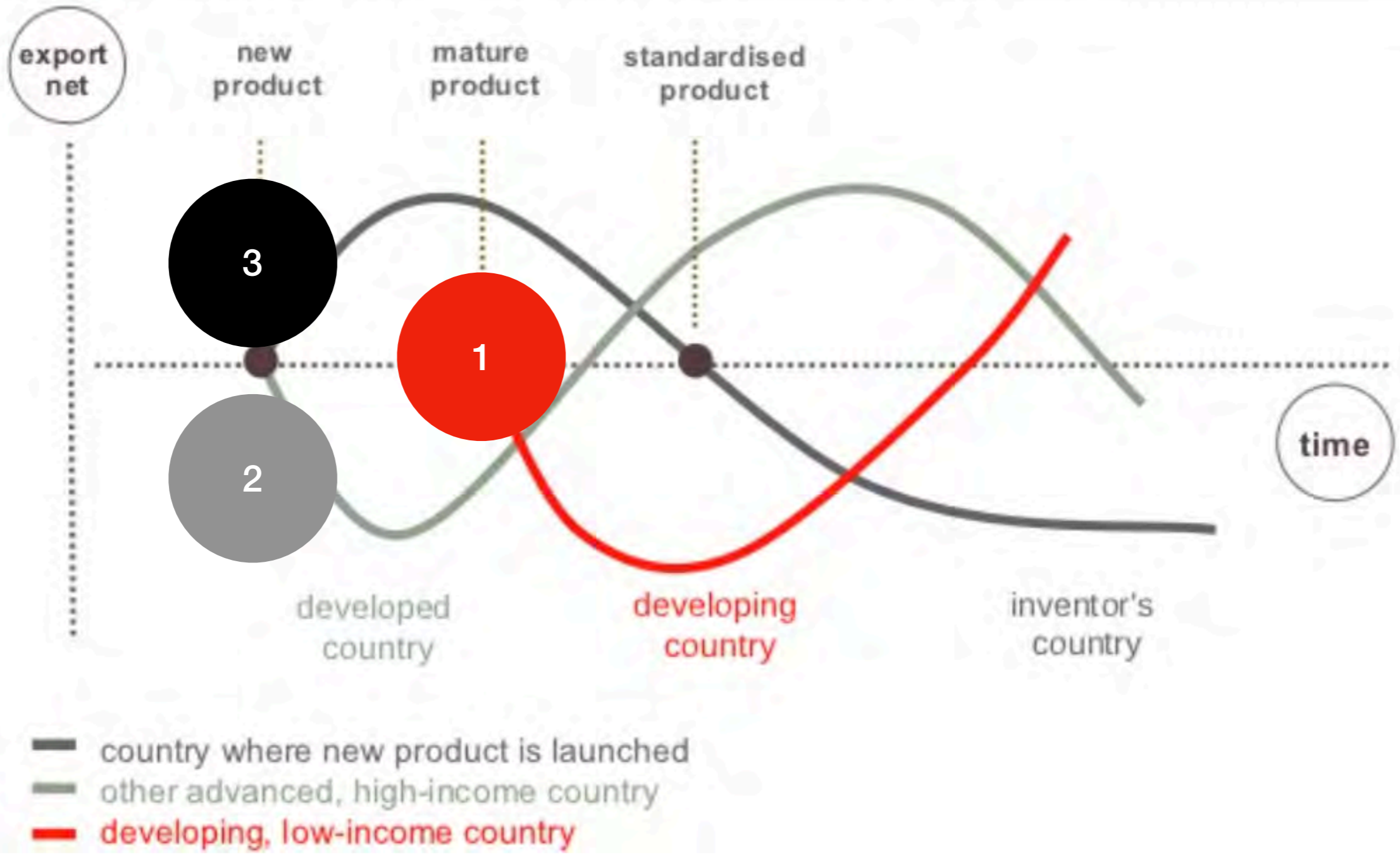
1. Knowledge Overview (ไม่ลงลึกในรายละเอียด ให้ข้อมูลความรู้ทั่วไป)
2. Know the know (ไม่เข้าใจอะไรถามได้ทันที)
3. Ask more question than we have answer (ถามเยอะๆ เพื่อจุดประกายความคิด)



ประเทศไทย และการนำเข้าอุปกรณ์ และ นวัตกรรมเครื่องมือแพทย์

Thailand 4.0

Major Economic Shift



Thailand 4.0

Major Economic Shift

Thailand 1.0

1960 - 1980

GDP growth 4.1% per year and employed over 70% of Thai population. Declined due to rise of industrialisation and westernisation.



Thailand 2.0

1980 - 1990

Devaluation of USD / THB against other major currency made Thailand strategically an export economy. Thailand started to move into manufacturing.



Thailand 3.0

1995 - 2015

Thailand developed into export economy and invested much into factory and machinery for full scale manufacturing. Booming industry includes car, petrochemical, and construction material.



Thailand 4.0

2015 to Future

60-79 (ยุคศาสตร์)

มั่นคง มั่งคั่ง ยั่งยืน

Thailand declared t's transition into innovation driven economy. Government start to setup and support Startup economy and innovation based Technology. Period of booming social media and e-commerce.



| เป้าปี 79 | มั่นคง | มั่งคั่ง | ยั่งยืน |
|-----------|------------------|------------------|------------------|
| ศัพท์ | Inclusive | Productive | Green |
| How | เท่าเทียมทั่วถึง | เพิ่ม สร้าง | เป็นมิตร |
| Tool | SME | Startup | Renewable Energy |
| For | ลดเหลื่อมล้ำ | แก้รายได้ปานกลาง | เพิ่มสมดุล |

Thailand 4.0

Major Economic Shift

“VALUE BASED ECONOMY”

ขับเคลื่อนด้วย **Technology, Creativity, Service**

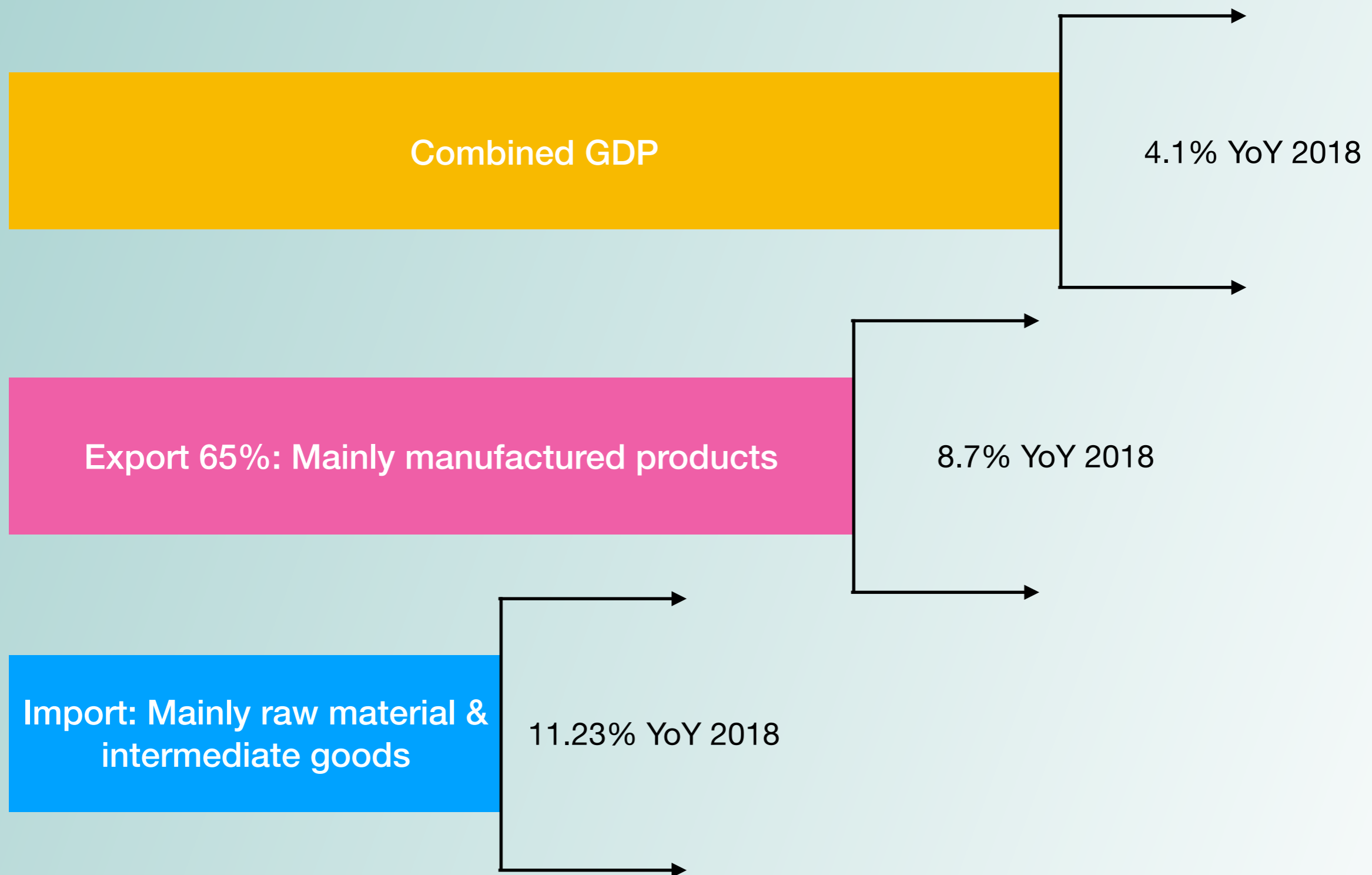
1. Food, Agriculture, biotechnology
- 2. Public Health & Medical Technology**
3. Robotics & Electronic Device
4. Internet Technology, IoT, AI, Machine Learning
5. Culture, Creativity, and increase value sector (tourism)

Thailand 4.0

Major Economic Shift



Thailand Economy



Example: USA - Economy driven by Technology

Franklin Technology Fund
13.4% YoY 2018



Economic growth continue
to be possible after
technology have matured

USA Medical Industry Investment

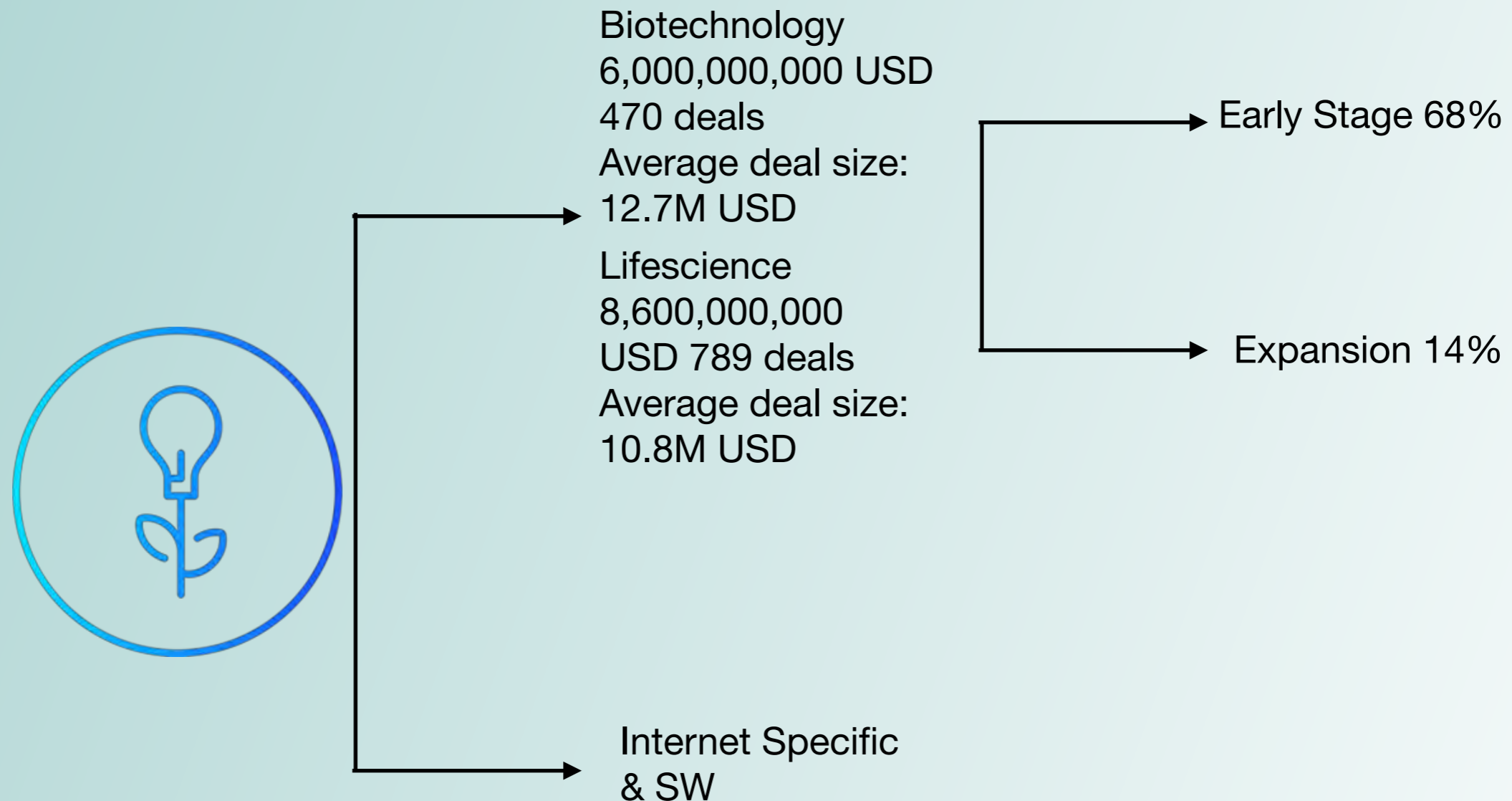
USA Venture Industry



Biotechnology 6,000,000,000 USD 470 deals
Average deal size: 12.7M USD

Lifescience 8,600,000,000 USD 789 deals
Average deal size: 10.8M USD

USA Medical Industry Investment



Laboratory Instrument (Analysers)



99%

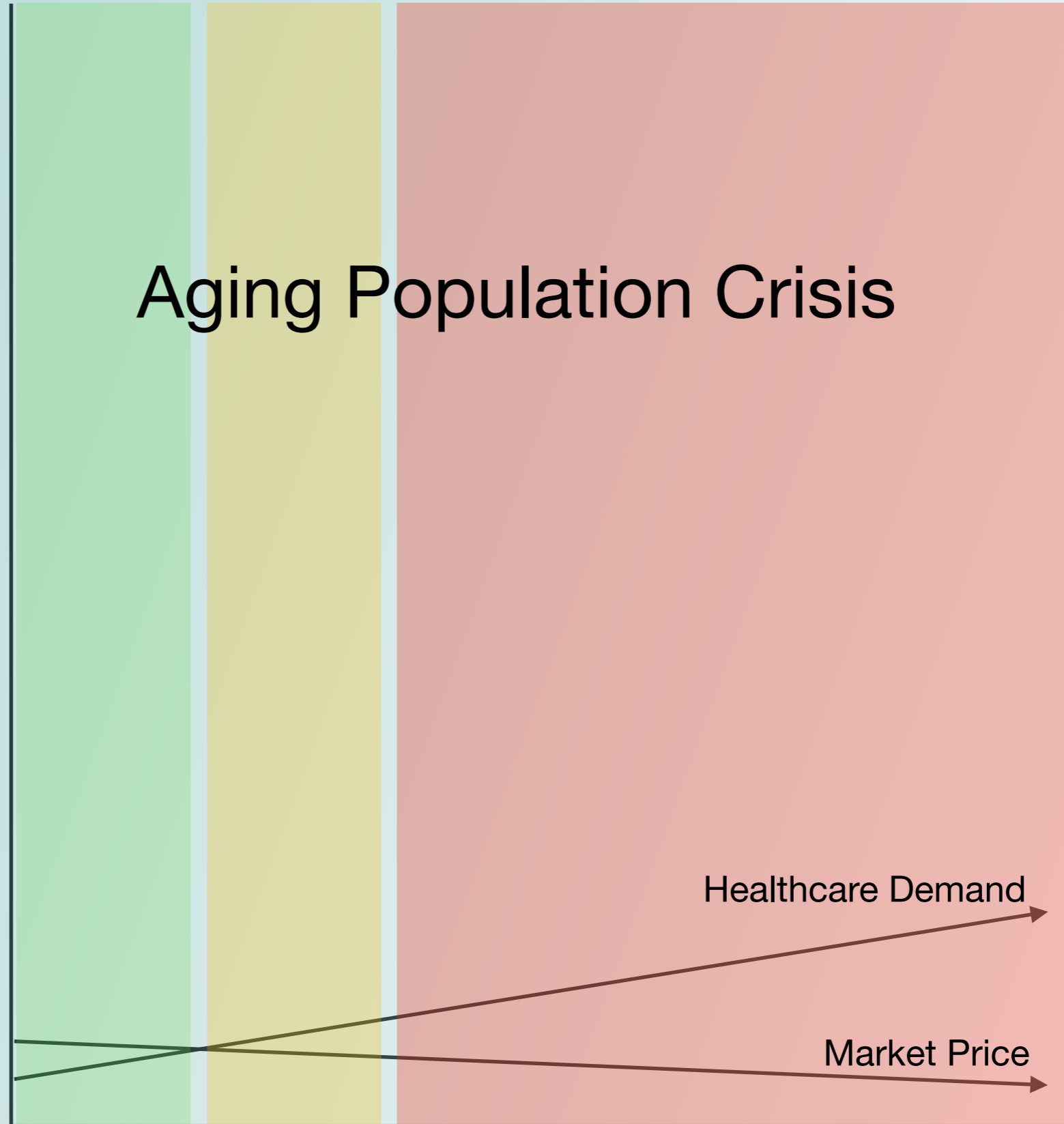
USA
European
Japan
Korea
China

Effect on our GDP is negative income (MNC transfers business profit back to HQ)

Thailand does not focus on manufacturing of medical technology & equipment



Aging Population Crisis



2018

2020

2030

Healthcare Demand

Market Price

2019

Import

TH

Develop support system for Deeptech & Healthtech

2025

Import

TH

Foster utility & first wave of successful company

2030

Import

TH

Scaling of 1st to 3rd wave of successful company into market





2018

TH

Current Startup Success rate in Thailand
> 1% compare to USA 5%
Only 3 venture have exited in some form

TH

Number of Deeptech Venture
Government & Public support and interest
Funding
Access to customer
Business Competency
Adaptability to market
Regulation

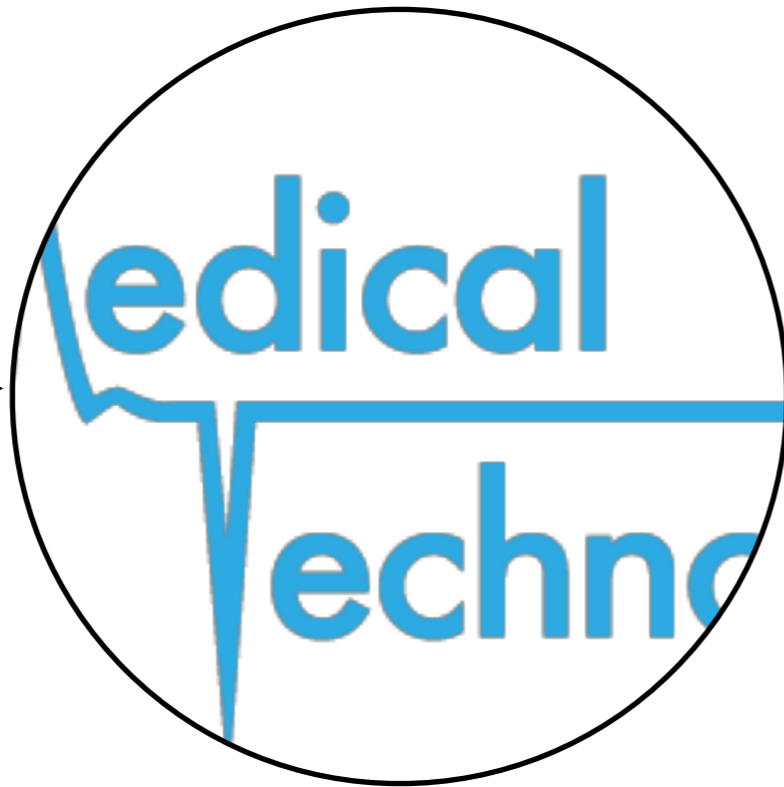
Import

TH



Deeptech Startup ในยุค Thailand 4.0

COMMERCIAL INNOVATION



SME

Trading company of medical technology, innovation, and services



Startup

Company focusing on disruptive technology & commercial scalability

2%

What startup are told about how likely they will succeed

5%

Rate of startup success in mature startup market like US

.01%

Thailand's actual startup rate of success

COMMERCIAL INNOVATION



Small Business

VS

Start-up Business



ก่อตั้งโดยเจ้าของคนเดียว
แล้วจ้างพนักงานทำงาน



ก๊อปปี้โมเดลธุรกิจทั่วไป
มาใช้ทำธุรกิจได้ไม่ยาก



กลยุทธ์ธุรกิจ
หาได้จากแหล่งความรู้ทั่วไป



หาแหล่งเงินทุนผ่านระบบทั่วไป
เช่น เงินเจ้าของ ภูธรธนาคาร



ขายลูกค้าทั่วไปในช่องทางเดิม
เช่น ร้านค้าปลีก เว็บไซต์



ก่อตั้งโดย Co-founder
มีทีมทำงานเล็กมาก



ไม่มีโมเดลธุรกิจให้ก๊อปปี้
ต้องสร้างโมเดลขึ้นมาเอง



กลยุทธ์ธุรกิจ ต้องคิดเอง
และต้องมีความสร้างสรรค์

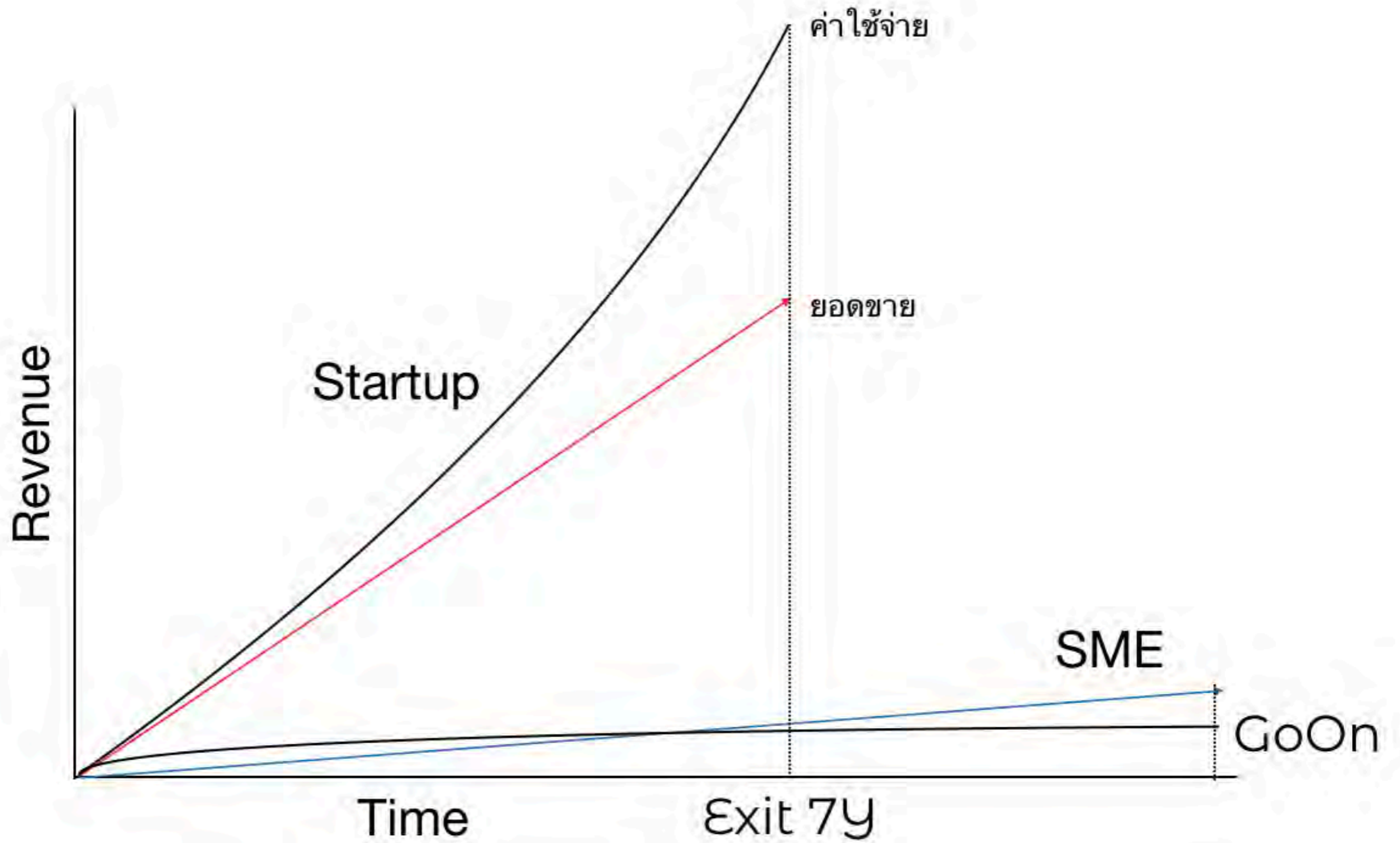


ใช้แหล่งเงินทุนแบบใหม่
เช่น Venture Capital

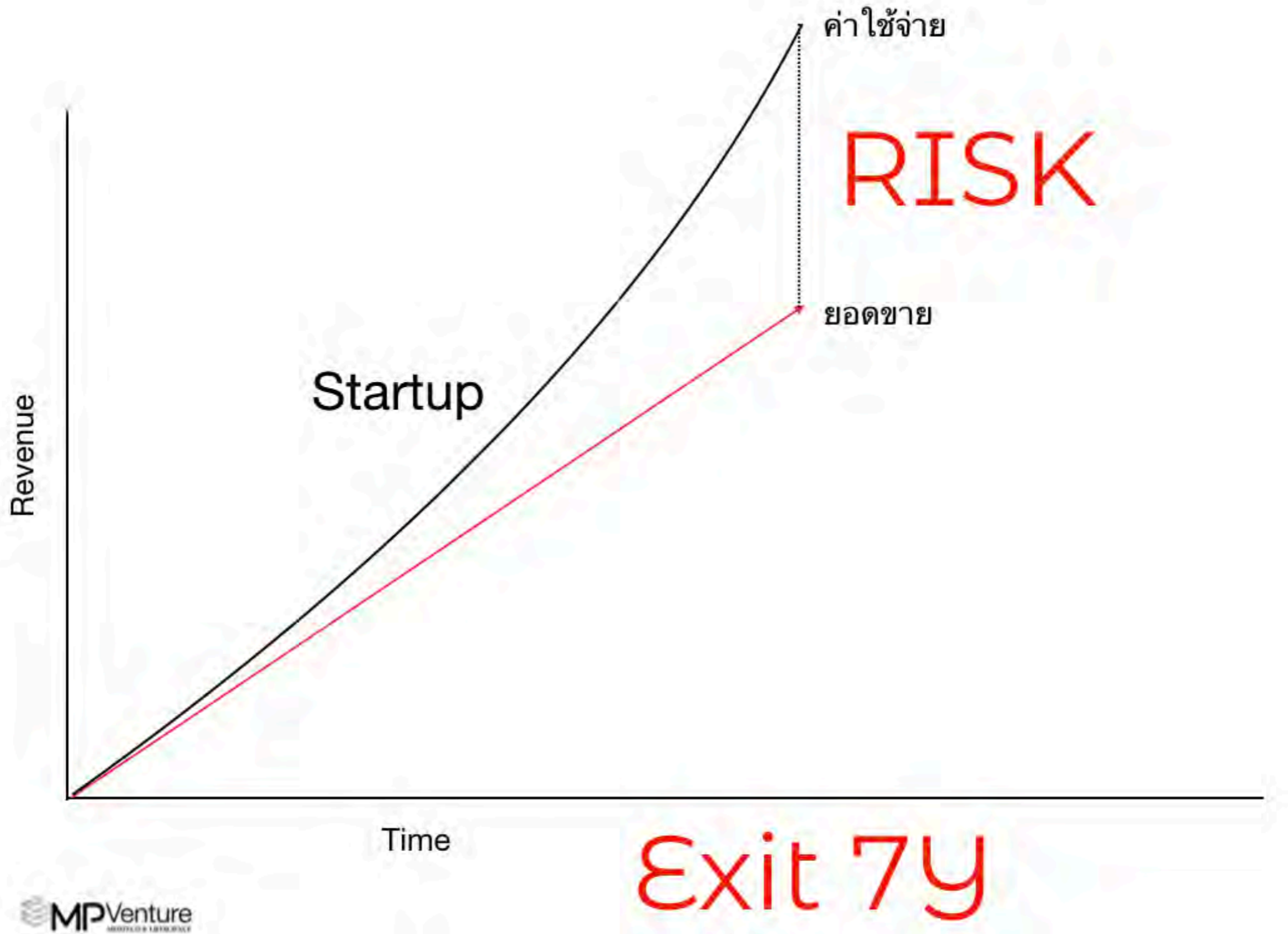


ขายลูกค้าที่มีไลฟ์สไตล์
ปรับตัวกับเทคโนโลยีได้ง่าย

COMMERCIAL INNOVATION



COMMERCIAL INNOVATION

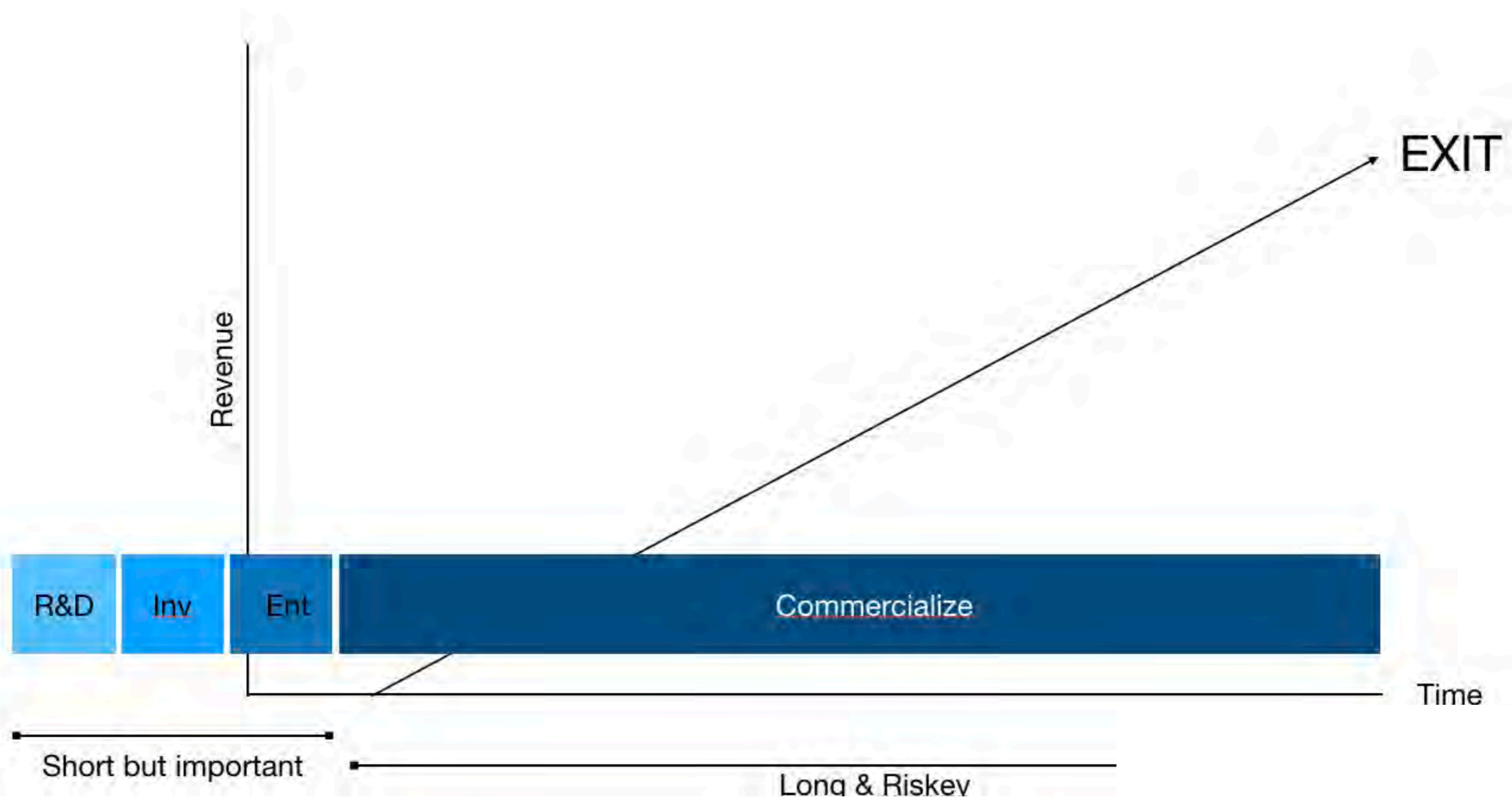


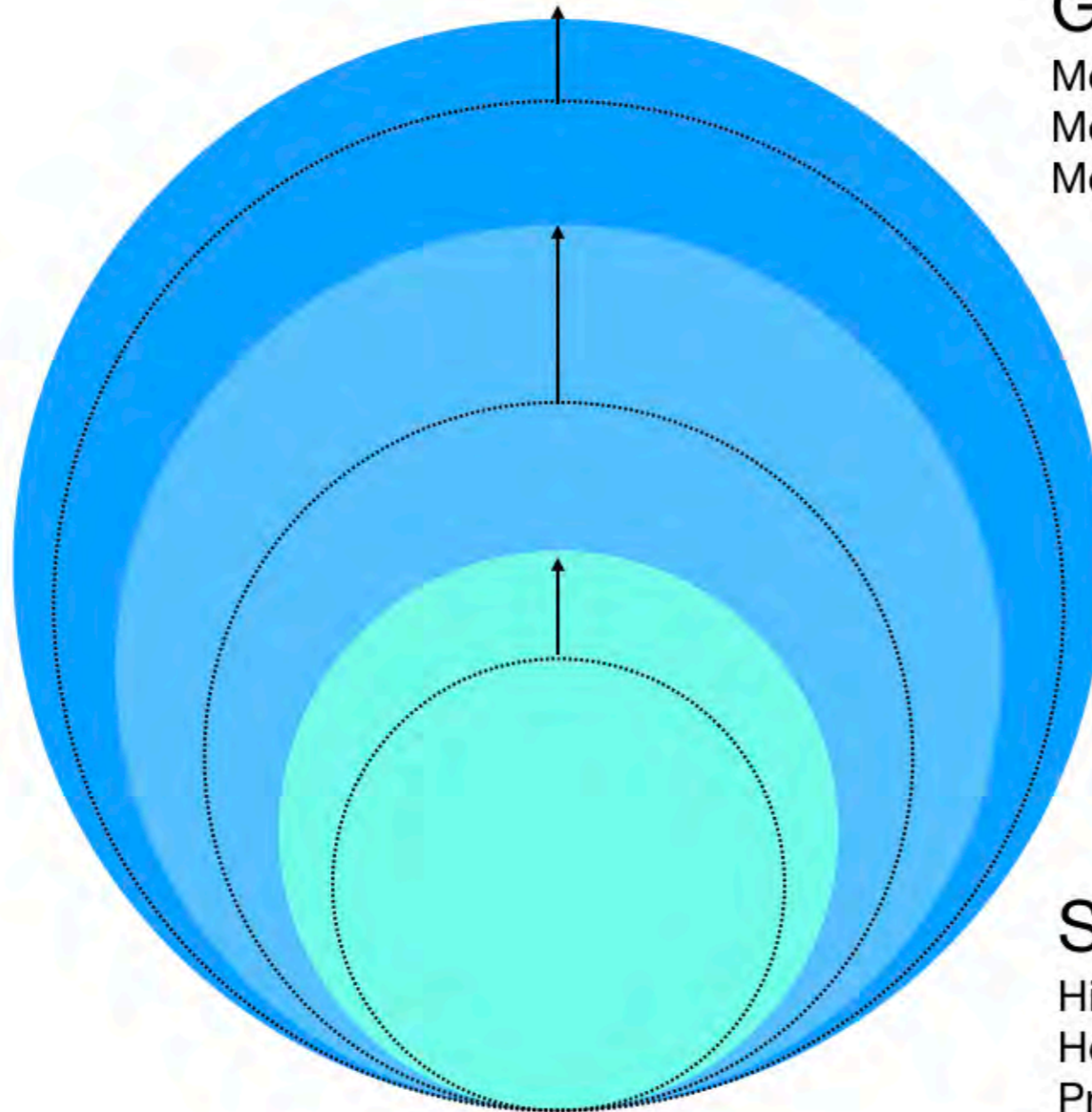
COMMERCIAL INNOVATION



- เคยทำธุรกิจใหม่ scale ยังไงไม่ให้ล้ม
- ทีมผู้ก่อตั้งตกลงเรื่องผลประโยชน์ที่ยังไง
- เข้าใจกลไกการตั้งราคาหรือปล่าว
- เคยขายของระดับ 10-100 ล้านบาท
- เคยทำการตลาดหรือปล่าว
- เคยบริหารเงินไหม
- เคยจ่ายภาษีไหม
- เข้าใจโมเดลธุรกิจหรือปล่าว
- เคยทำสินค้าไหม
- ในทีมมีใครเข้าใจ technology หรือปล่าว

COMMERCIAL INNOVATION





Global Healthcare Market

More Population
More Emerging Disease
More Healthcare Need

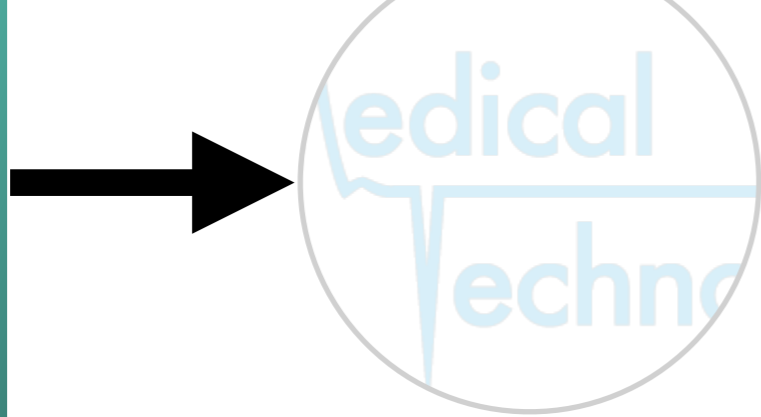
Thai Healthcare Market

Aging Population
Labor migration and tourism
Medical Tourism

Spending per Head

Higher access to healthcare
Health conscious & awareness
Preventive healthcare

COMMERCIAL INNOVATION



SME
Trading company of medical technology,
innovation, and services



Healthtech

Company utilising platform
technology, existing market
resource, or improvement & market
pain point as business product

Deeptech

Company utilising tangible
engineering innovation, scientific
advances and discoveries (life
science application). Set apart by
profound enabling power.

Healthtech

Platform for PT

Sensor for old people
falling

Data tracking through
fitness tracker

Diabetic remote
monitoring

Clinic searcher

Deeptech

Hemostatic wound
treatment

Parkinson Screen &
Diagnosis

Nano-encapsulation

Synthetic Womb

Gene Therapies

Immune System
programming

Healthtech

Platform for PT

Sensor for old people
falling

Data tracking through
fitness tracker

Diabetic remote
monitoring

Clinic searcher

Moderate Value

Deeptech

Hemostatic wound
treatment

Parkinson Screen &
Diagnosis

Nano-encapsulation

Synthetic Womb

Gene Therapies

Immune System
programming

Immense Market Value

COMMERCIAL INNOVATION

Thailand Health Tech Startup Ecosystem

Partners

ERP / Unified Communication

| | | | | |
|------------------------------|---|---|---------------------------------------|-----------------------|
| <p>Service Search</p> | <p>HIS/EMR/EHR</p> | <p>Personal Health & Fitness</p> | <p>Big Data & Analytic</p> | <p>Funding</p> |
| <p>TeleHealth</p> | <p>Clinic/Pharmacy Management System</p> | <p>Remote Monitoring</p> | <p>Insurance / Finance</p> | |
| | <p>Digital Transformation</p> | <p>Doctor Network</p> | <p>Communication Aid</p> | |

55 Health Tech Startups

Source : Health Tech Startup Thailand, Aug 2018
www.facebook.com/HealthTechThailand

Healthtech



Deeptech



Healthtech



Savvy
Utilisation of market imbalance
Platform base
Easy to gain traction
Less resistance & challenge
More target VC & Fund source
Existing association

Research Challenge
Market Application
Longer to market cycle
High capital requirement
High technical requirement
Difficult to find direct investment
Small support system

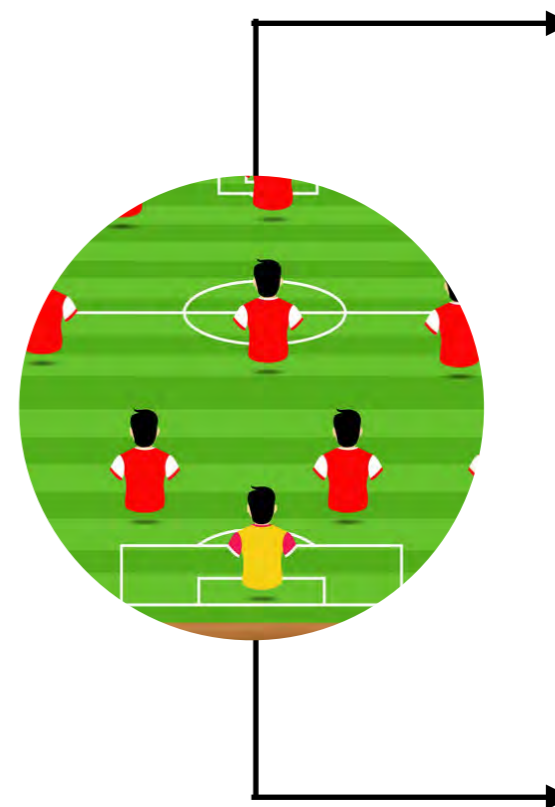
Deeptech



MP Venture
MEDTECH & LIFESCIENCE

R&D, or find existing IP

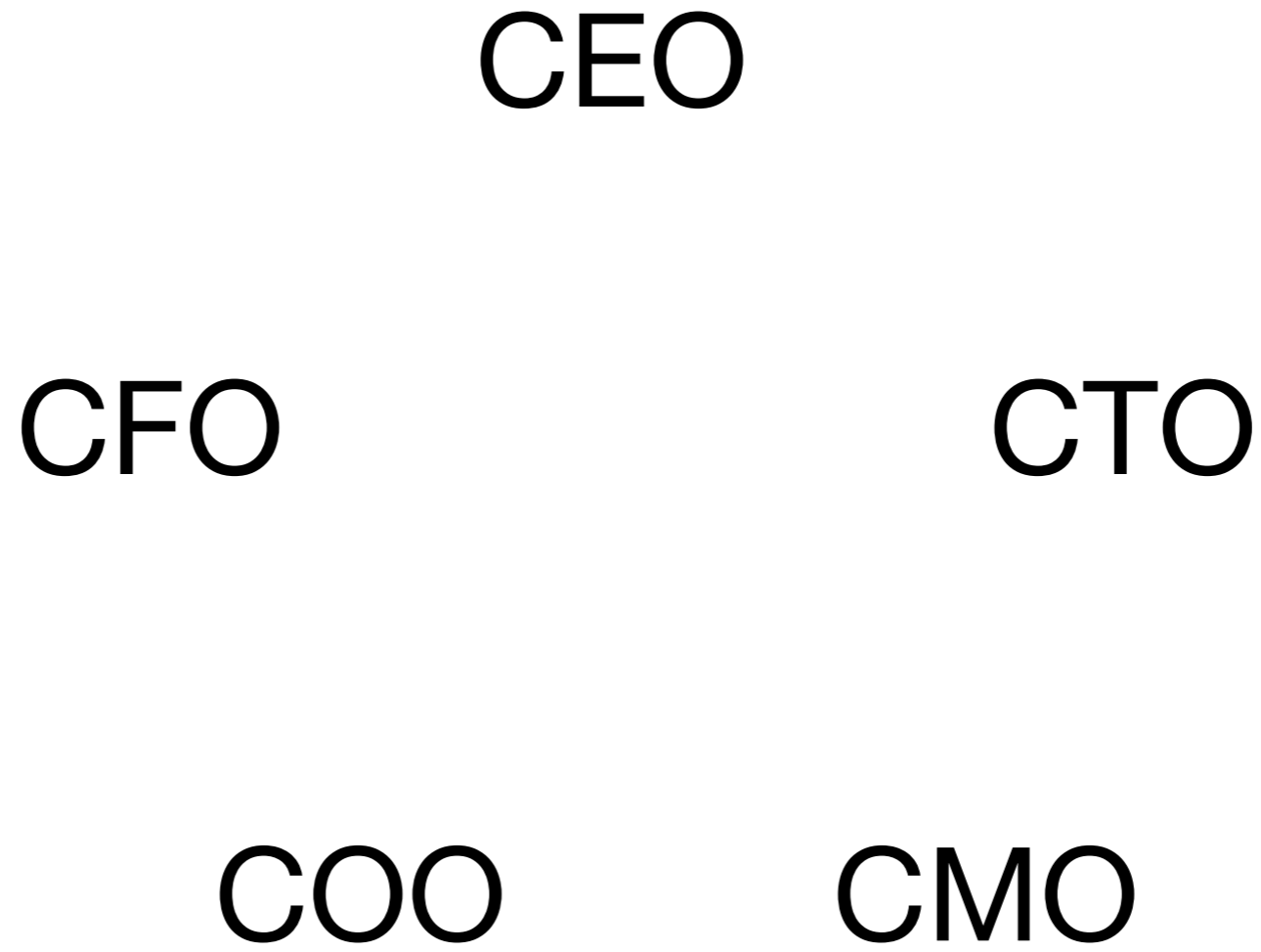
An IP have been found to have viability of utility in market and can be developed via a deep tech startup method



Team formation

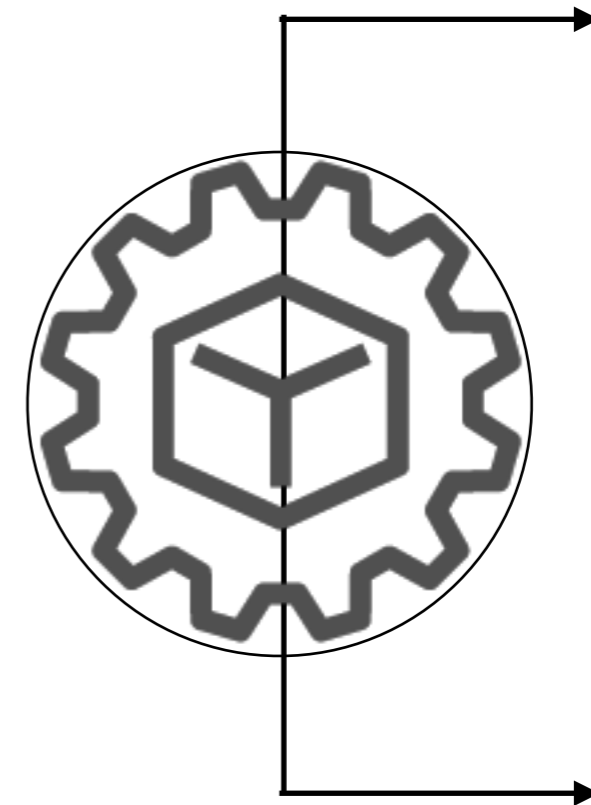
A founding team of approximately 5 are typically the founding member of the company. Team member typically consist of all researchers.

Deeptech startup process



Incubation & Acceleration

Certain members of the team would branch out to enter IC & AC program to search for increase competency, exposure, and search for funding. A company would typically do 3 of these programs.



Development

Certain member of the team would continue to develop the product, rapid prototyping, searching for manufacturer, and pushing for MVP.

Funding

Startup company needs to be continuously fund to keep the company alive. Most company fail to receive funding beyond the second round.



Clinical Trial

Once MVP is in place along with some basic fundings, company needs to file additional IP (to meet investment criteria) and start to validate product via clinical trial.

Business Partner

Once the product is almost ready, company needs to find market access either through Business partner or via self selling system.



Regulation

Startup company needs to ensure that they face no regulation block for commercial use, this maybe difficult esp. for new technology.

Business Management

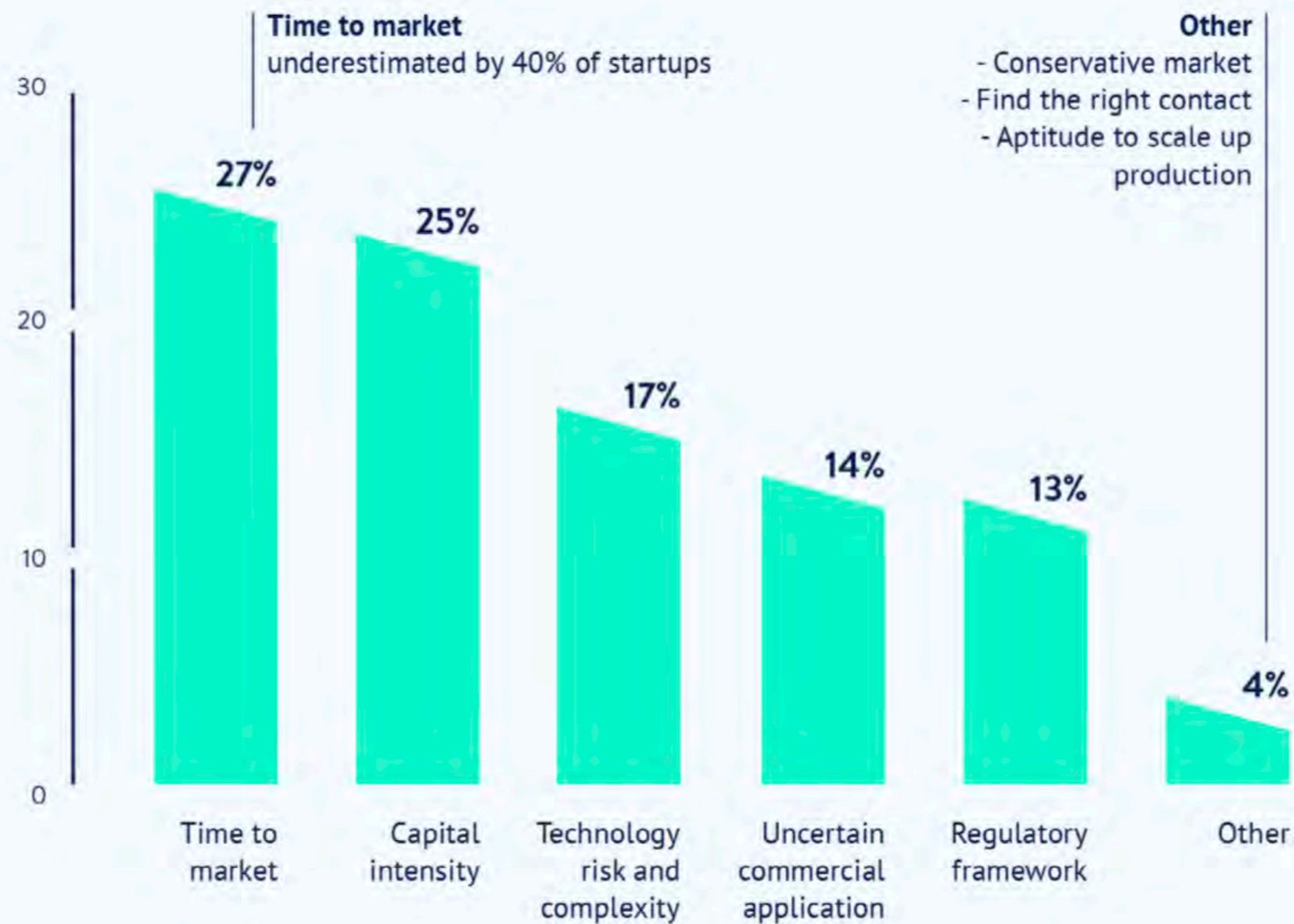
Once company finds market access and starts to generate revenue, company must use best management practice to grow as much as possible.



Sustainability & Exit

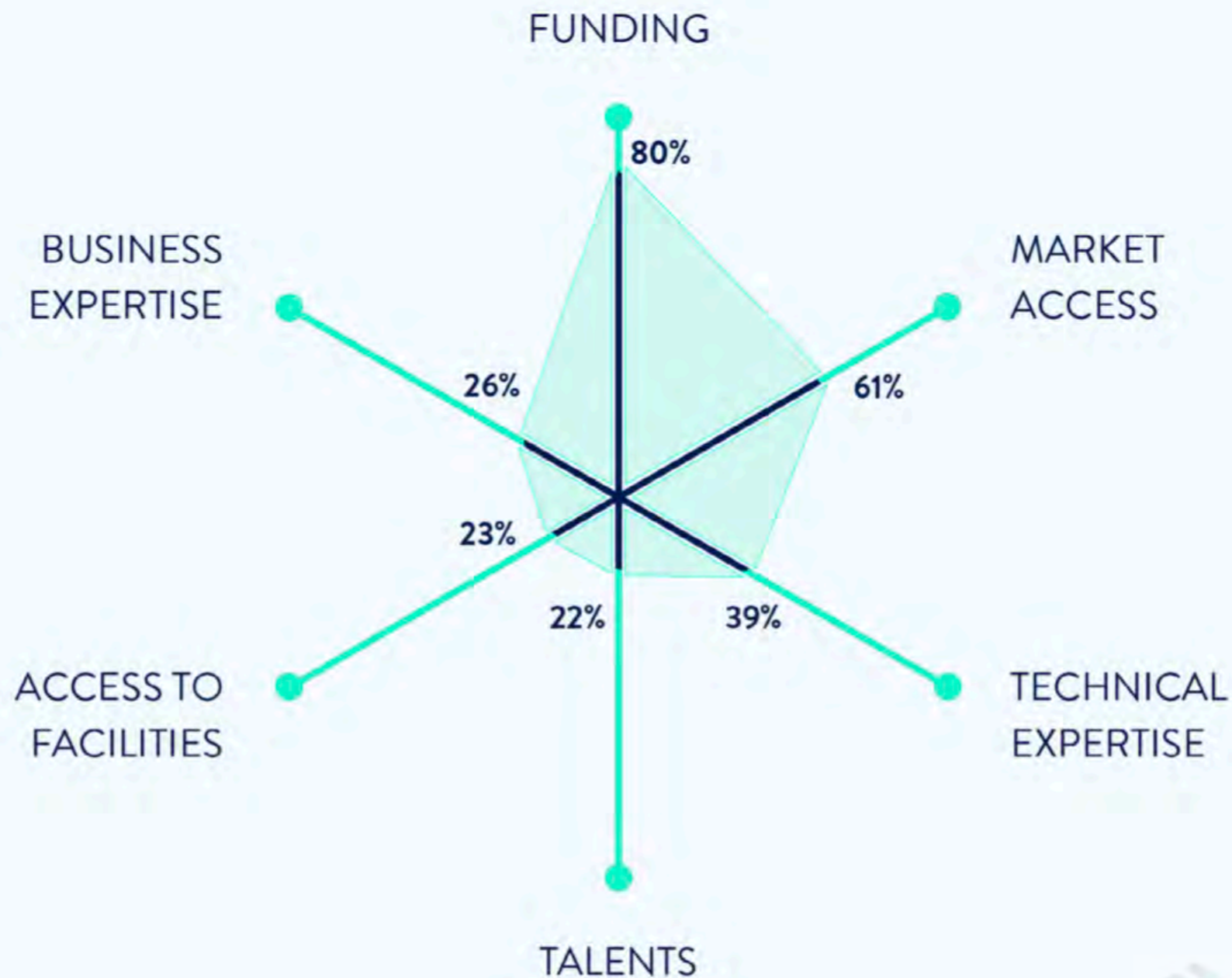
Once company become sustainability and profitable, it will look for it's exit within 7 years, via IPO or MA.

Challenges: Time to Market, Capital Intensity, Technology Risk & Complexity



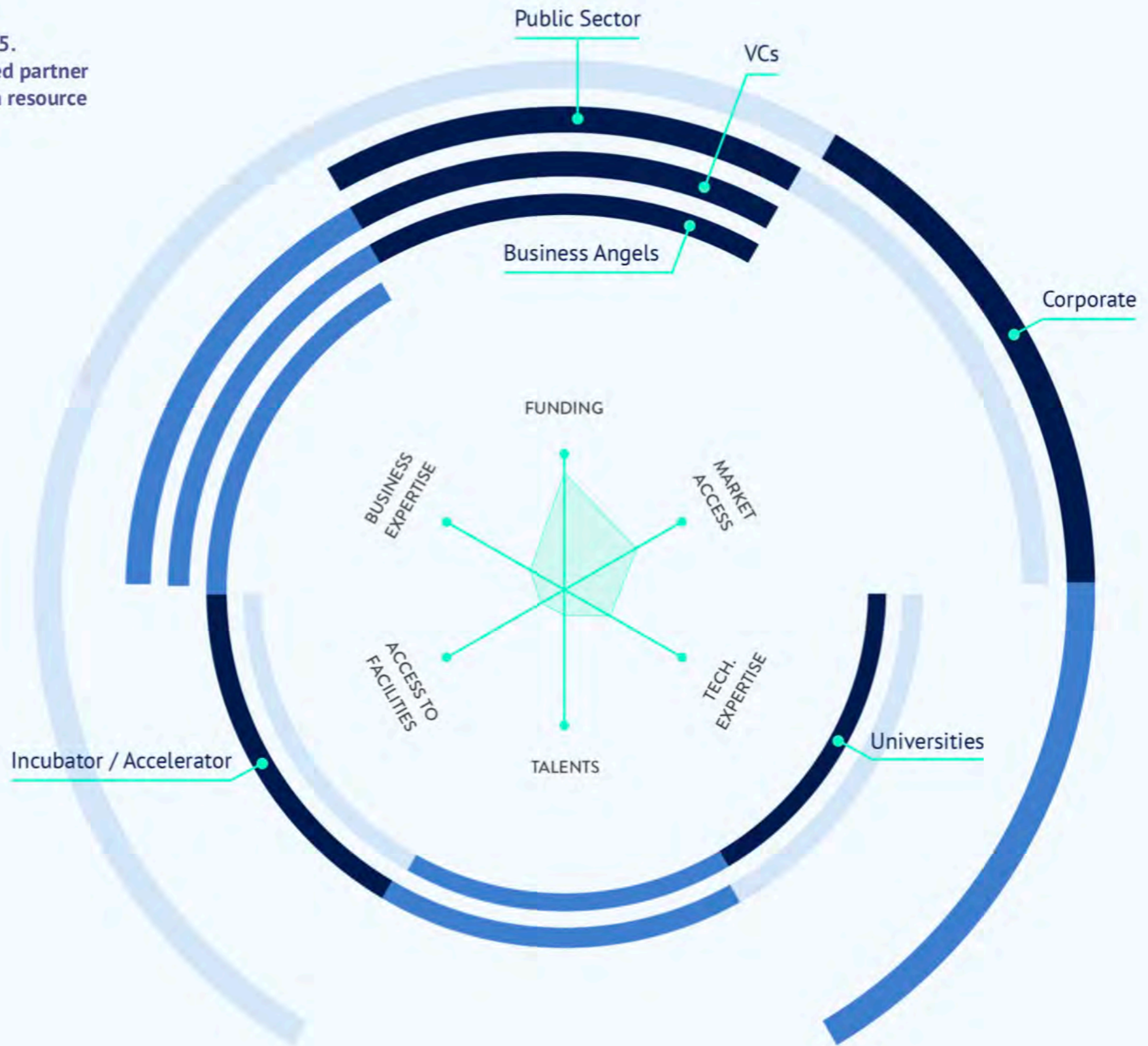
Source: Hello Tomorrow and BCG survey of 400 deep-tech startups.

Need: Market Access, Technical Expertise, and Business Knowledge



Deeptech Challenge

Exhibit 5.
Preferred partner
for each resource



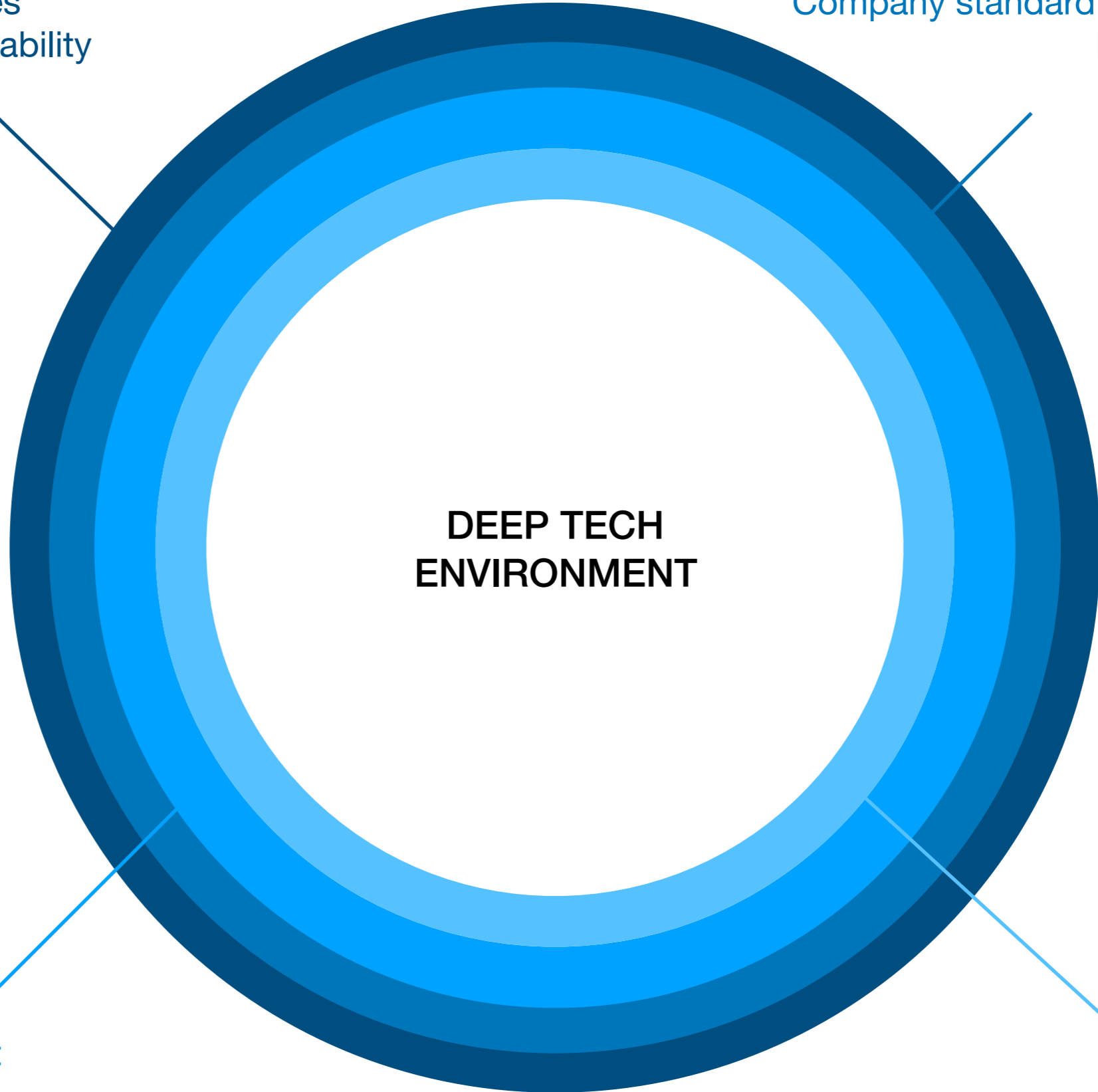
Deeptech Environment

Public Sector

Government support
Public policies
Facing adaptability

VCs

Provide investment & funding
Company standard for investment
Market Access



DEEP TECH
ENVIRONMENT

Development
Visibility
Incubator & Accelerator
Institutions

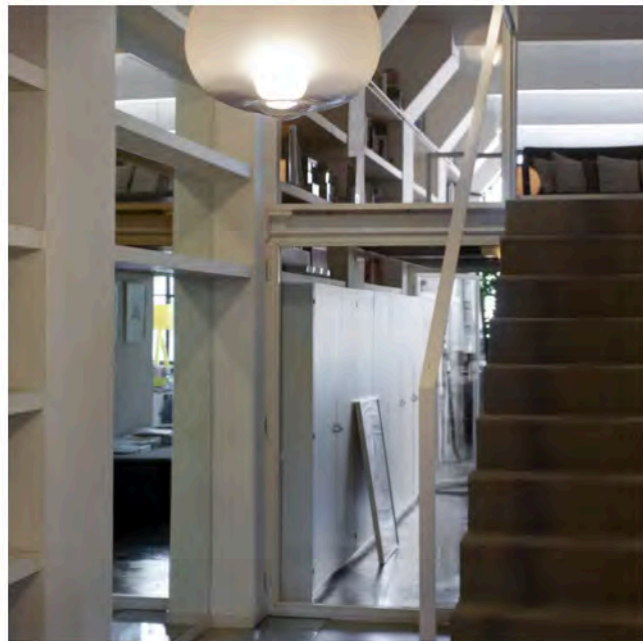
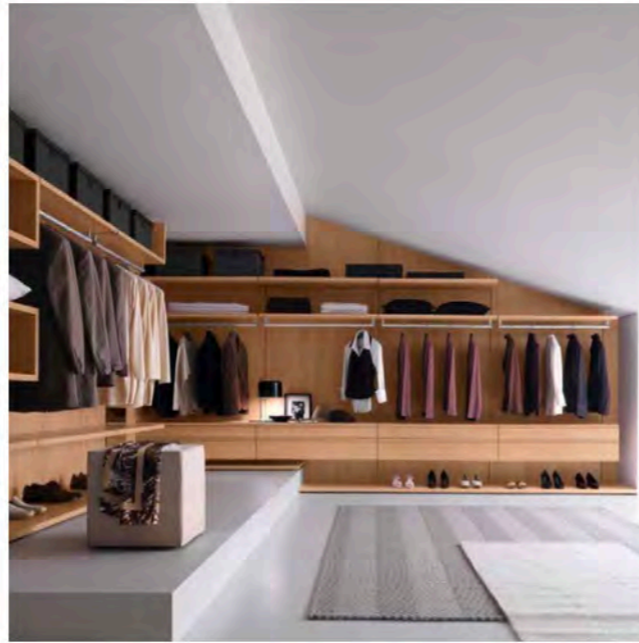
Facilities
Talent



กลไกธุรกิจ มุมมองของความสำเร็จในเชิงพาณิชย์

Designs that make every story extraordinary.

As an agency to some of the world's top design brands, we are the curator that brings everything extraordinary to your business.



Quick win & Fail



1. ทำกำไร ให้ผลตอบแทนผู้ถือหุ้น
2. มีความสามารถในการแข่งขันทางการตลาดและการขาย
3. มีความสามารถในการบริการจัดการ
4. Sustainable สามารถอยู่ได้ด้วยตัวเองได้



เงินลงทุน

เวลา

บุคลากร

ทรัพยากร

ความสามารถ

สินค้า

การตลาด

ธุรกิจ

กำไร

การเจริญเติบโต

การช่วยเหลือสังคม



เงินลงทุน

**Personal Fund
(Limited)
(Risky)**

RISK & RETURN

What risk are these vehicle undertaking and how much
return are they expecting

**Private Loans
(Cost to money)
(Extremely Risky)**

Depending on type of risk and expected statistical return,
they are classified into instrument (what car)

**Institution Debt
(Cost to Money)
(Collateral)**

DEEPTeCH ARE CAPITAL INTENSIVE



บุคลากร

ความสามารถ

Talent Acquisition

Talent Retention

Talent Reward & Incentive

Recruitment

Policy Management



ทรัพย์สิน

Office Space

Long Term asset

Short term asset

Inventory

Lease



What to buy

Product Design

Competitive Advantage

What to stock

How to stock

สินค้า



B2B B2C

Offline vs Digital

Event

Pricing

Marketing Material

การตลาด



Net Profit after Tax

G

Dividend

CSR / Social Impact

Sustainability

กำไร

การเจริญเติบโต

การช่วยเหลือสังคม

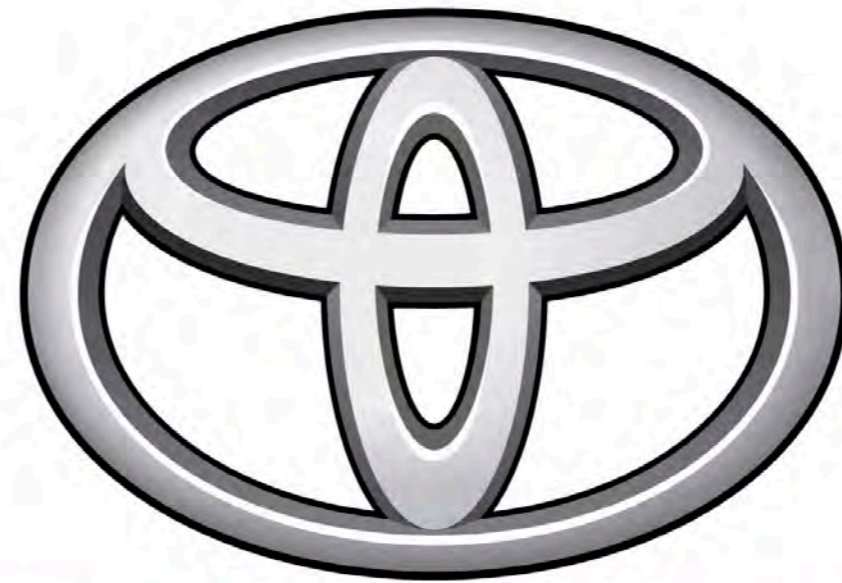


Ucan.



accenture





TOYOTA



Business Model

(Grab & Netflix)

Value Proposition

Subscription, unlimited



Business + Deeptech Startup

DTSU is just another type of business

KEY SUCCESS FACTOR

Product + Pricing + Timing to Market

Why?



Product

(Is there demand for this specific product?)

(What shape or form?)

(HW & SW?)

(How can it be priced)

(What is it competing against?)

(Sales Channel or Service Channel)



Product

Market Demand
Cost to produce
Market Price & Pricing Mechanic
Sales & Marketing Channel
UX / UI
Customer feedback & Dev
Time to Market

Team

Diversified & Competent team
Skills complement each other
Positive work culture
Rewarding for everyone

Environment

Public policy and environment support
No market block
Access to customer
Access to manufacturer
Few obvious road blocks
Wiggle room of adaptability



Craft Beer

Right Business in the good market but wrong environment, how craft beer in Thailand is now sending money abroad.





PRODUCT

TEAM

ENVIRONMENT



PRODUCT

1. ทำกำไร ให้ผลตอบแทนผู้ถือหุ้น

2. มีความสามารถในการแข่งขันทางการ
ตลาดและการขาย

TEAM

3. มีความสามารถในการบริการจัดการ

4. Sustainable สามารถอยู่ได้ด้วยตัวเองได้

ENVIRONMENT



Conclusion

Business is a complex topic, success are very dependent on many factors.

Depending on that business, how each factor play a role in a business success are always different.

Business success are also widely different (startup vs SME success), they are subjective

Successful business don't get lucky. Most of the time, they did the right thing a the right time working in the right environment.



การจัดทำวิจัยให้สำเร็จเป็นธุรกิจ



ความล้มเหลวของ PDEVICE

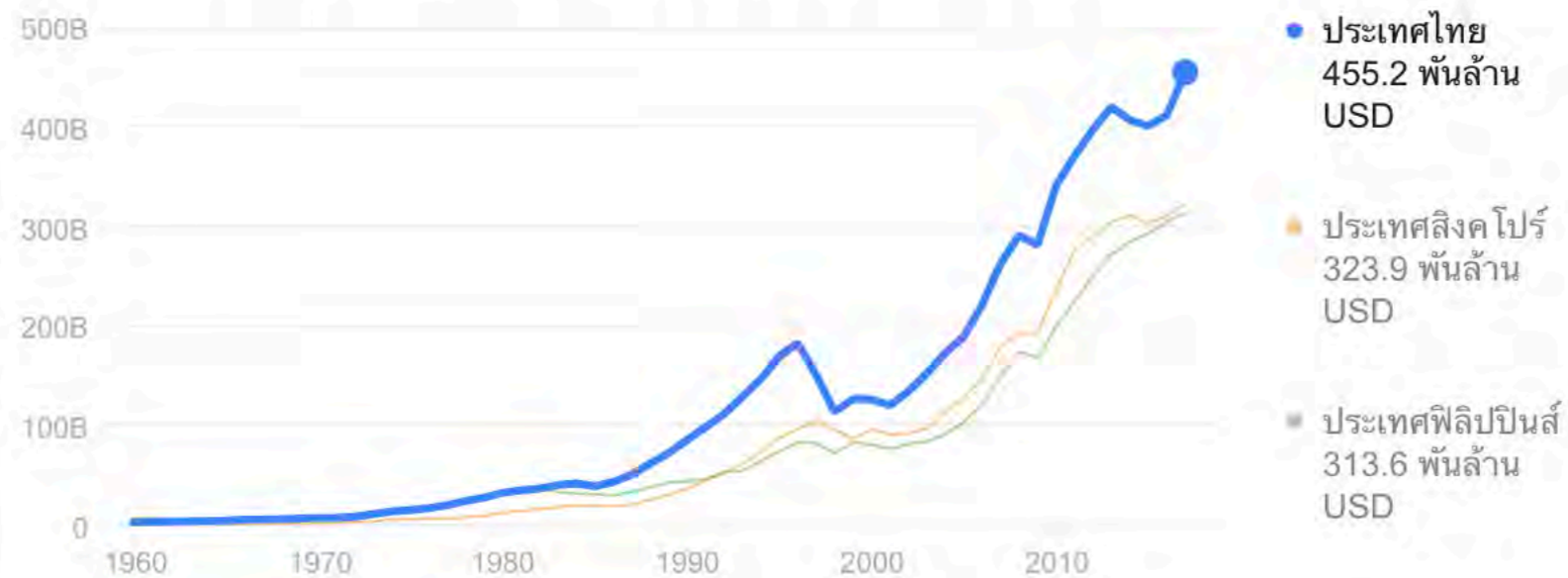


What happen to most of the researches?



ประเทศไทย / ผลิตภัณฑ์มวลรวมในประเทศ

455.2 พันล้าน USD (พ.ศ. 2560)



**1% GDP
-> Research**

🌐 สํารวจเพิ่มเติม

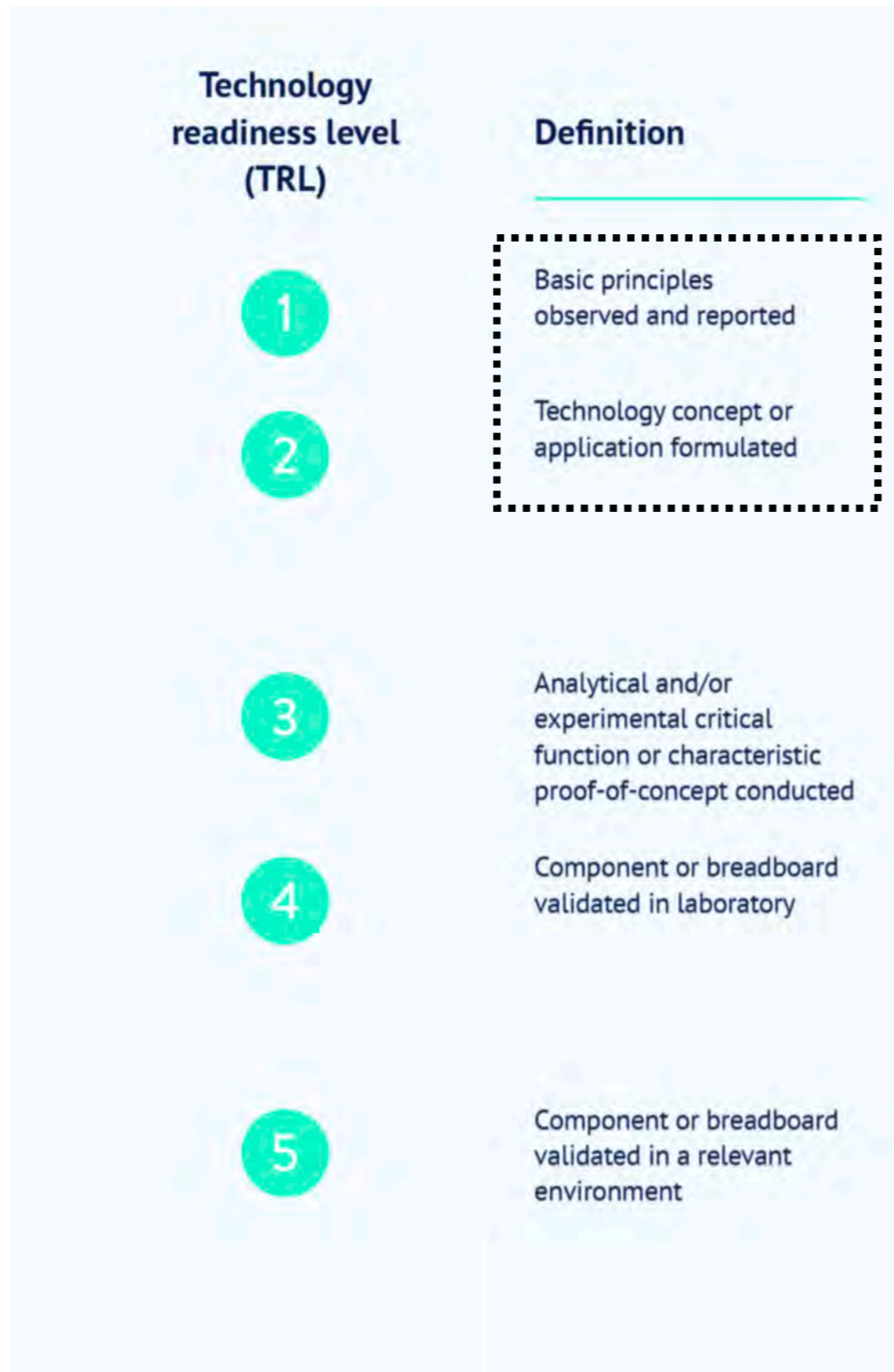
People also search for

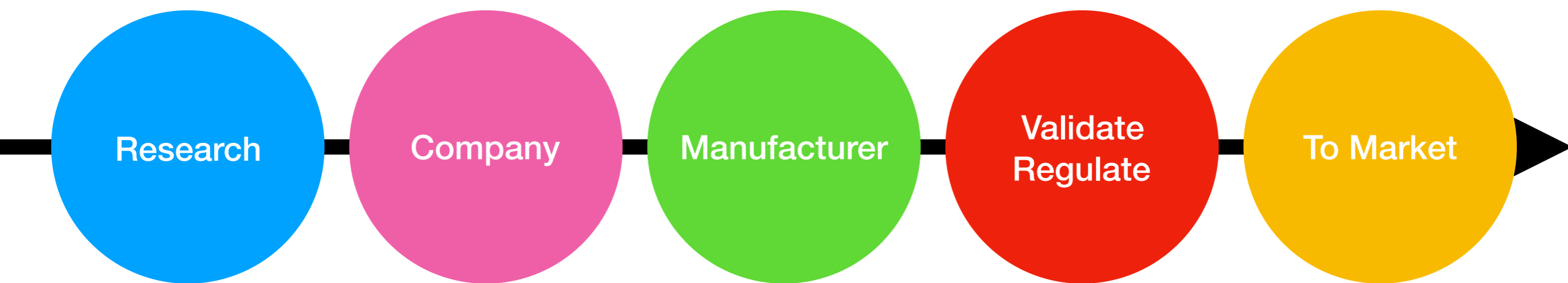
 Vietnam
223.9 billion
USD

 Cambodia
22.16 billion
USD

 Malaysia
314.5 billion
USD

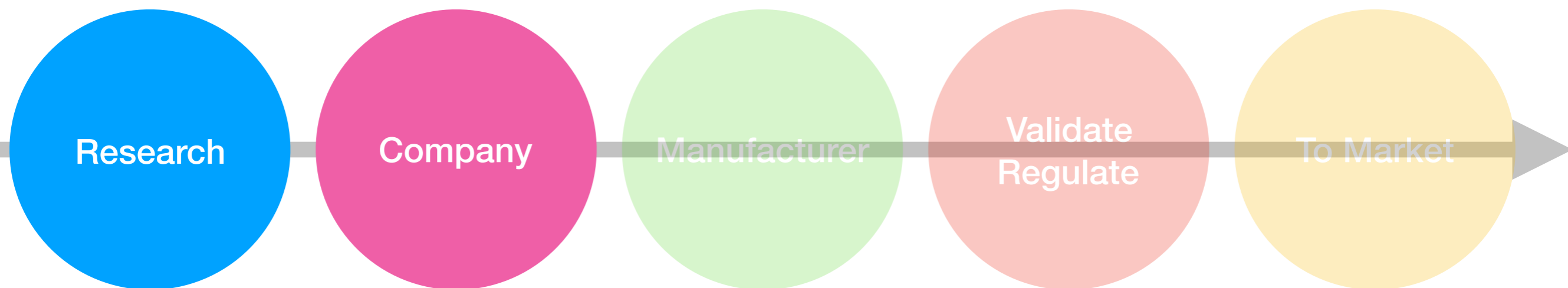
Framework of Research to Product







คนขาย



คนซื้อ - ความต้องการซื้อของสำเร็จ



งานวิจัยที่เป็นของสำเร็จคืออะไร

ทำงานแทนผู้ซื้อ

เช่น ชุดตรวจโรค x

หลักการ (เอาไปลงเครื่องไหน หรือมีเครื่องเอง)

IP (ต้องแบ่งผลประโยชน์ให้กับใคร เท่าไร)

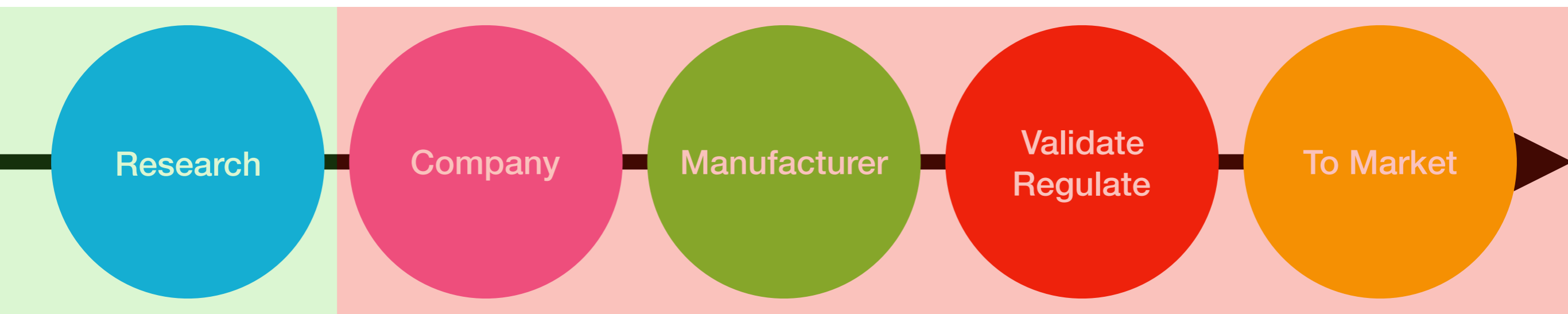
การผลิต

ราคา

ความต้องการตลาด



Common



Uncommon

What are some common research KPIs?



Research

INNOVATION

ENTREPRENEURSHIP

Company



FOUNDATION OF RESEARCH

RESEARCH

Is it business viable?

What method of statistic are used? (Relavancy of statistic)

Does it increase value to market?

Are the IP terms fair to all stake holder?

Can it be developed into a real product?

What kind of product and application?

How will the product be use?

How can it be priced?



FOUNDATION OF INNOVATION

What technology is available in market today?

What are technology trend & cost?

How can technology give research benefit?

How can technology give business access to market?

How to make innovation hard to copy?



ENTREPRENEURSHIP

FOUNDATION OF ENTREPRENEURSHIP

How do we setup business strategy?

How to minimize chance of business failure?

How can I learn business management skills?

How can I learn how to make good presentation?

How can I learn how company operate financially?



WHAT IS THE OBJECTIVE OF MY RESEARCH?

จุดประสงค์ของงานวิจัยคืออะไร?



IS MY RESEARCH BUSINESS VIABLE

งานวิจัยสามสารคนำไปต่อยอดทำธุรกิจได้หรือไม่









The Business Model Canvas

Designed for: _____

Designed by: _____

Date: _____

Version: _____

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|---|--|--------------|----------------------|------------------------|------------|------------|--------------------------|-----------|---------------------------|------------------|-------------------|----------------------------|------------------|-------------------------|------------------|--|-----------|--|--|----------------|--|--|-------------|--|--|
| <h3>Key Partners</h3>  <p>Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p>MOTIVATIONS FOR PARTNERSHIPS Optimization and economy Reduction of risk and uncertainty Acquisition of particular resources and activities</p> | <h3>Key Activities</h3>  <p>What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams?</p> <p>CATEGORIES Production Problem Solving Platform/Network</p> | <h3>Value Propositions</h3>  <p>What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p>CHARACTERISTICS Newness Performance Customization "Getting the Job Done" Design Brand/Status Price Cost Reduction Risk Reduction Accessibility Convenience/Usability</p> | <h3>Customer Relationships</h3>  <p>What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p> <p>EXAMPLES Personal assistance Dedicated Personal Assistance Self-Service Automated Services Communities Co-creation</p> | <h3>Customer Segments</h3>  <p>For whom are we creating value? Who are our most important customers?</p> <p>Mass Market Niche Market Segmented Diversified Multi-sided Platform</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| | <h3>Key Resources</h3>  <p>What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p>TYPES OF RESOURCES Physical Intellectual (brand patents, copyrights, data) Human Financial</p> | | <h3>Channels</h3>  <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p>CHANNEL PHASES 1. Awareness How do we raise awareness about our company's products and services? 2. Evaluation How do we help customers evaluate our organization's Value Proposition? 3. Purchase How do we allow customers to purchase specific products and services? 4. Delivery How do we deliver a Value Proposition to customers? 5. After sales How do we provide post-purchase customer support?</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h3>Cost Structure</h3>  <p>What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?</p> <p>IS YOUR BUSINESS MORE Cost Driven (leanest cost structure, low price value proposition, maximum automation, extensive outsourcing) Value Driven (focused on value creation, premium value proposition)</p> <p>SAMPLE CHARACTERISTICS Fixed Costs (salaries, rents, utilities) Variable costs Economies of scale Economies of scope</p> | | <h3>Revenue Streams</h3>  <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p> <table border="0"> <tr> <td>TYPES</td> <td>FIXED PRICING</td> <td>DYNAMIC PRICING</td> </tr> <tr> <td>Asset sale</td> <td>List Price</td> <td>Negotiation (bargaining)</td> </tr> <tr> <td>Usage fee</td> <td>Product feature dependent</td> <td>Yield Management</td> </tr> <tr> <td>Subscription Fees</td> <td>Customer segment dependent</td> <td>Real-time-Market</td> </tr> <tr> <td>Lending/Renting/Leasing</td> <td>Volume dependent</td> <td></td> </tr> <tr> <td>Licensing</td> <td></td> <td></td> </tr> <tr> <td>Brokerage fees</td> <td></td> <td></td> </tr> <tr> <td>Advertising</td> <td></td> <td></td> </tr> </table> | | | TYPES | FIXED PRICING | DYNAMIC PRICING | Asset sale | List Price | Negotiation (bargaining) | Usage fee | Product feature dependent | Yield Management | Subscription Fees | Customer segment dependent | Real-time-Market | Lending/Renting/Leasing | Volume dependent | | Licensing | | | Brokerage fees | | | Advertising | | |
| TYPES | FIXED PRICING | DYNAMIC PRICING | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asset sale | List Price | Negotiation (bargaining) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Usage fee | Product feature dependent | Yield Management | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Subscription Fees | Customer segment dependent | Real-time-Market | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lending/Renting/Leasing | Volume dependent | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Licensing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brokerage fees | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advertising | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



DESIGNED BY: Business Model Foundry AG
The makers of Business Model Generation and Strategyzer

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SUCCESS BY DESIGN



RESEARCH ↔ BUSINESS



Landscape of change
Converting Research to
Business
Innovation Trend
Market Viability
Business Viability
Formulating great proposal
How to pitch
How to find funding



Format

Problem

Solution & Innovation

Addressable Market

Team

Funding



PITCHING

<https://bit.ly/2rtwbfm>



Next time when you do research:

Business & Market application

Environment (whats out there?)

How to make the research interesting? (Packaging)

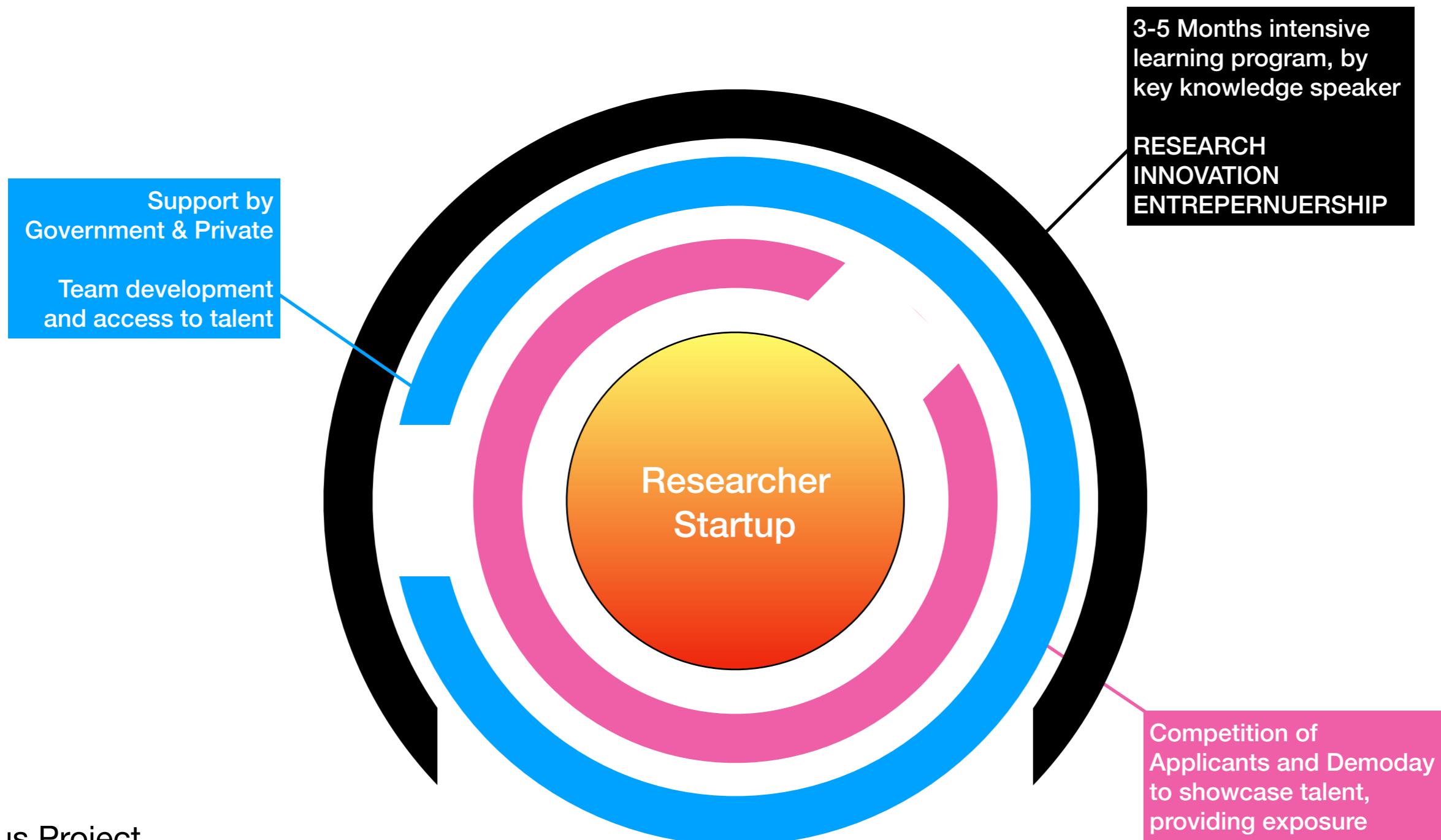
Who would be interested in this project?

How to find answer?





ACCELERATOR



Previous Project



ACCELERATOR

Q&A