Creating a Market For Technologies in Thailand

Global Entrepreneurship
Thammasat Business School

NSTDA Technology Licensing Office
A Quick Intro To Me

• In Thailand 18 years.
• Started four businesses in Thailand since 1997, in automotive sector.
• Professional background: combination of engineering design, distribution, and technology marketing.
• Education:
  – PhD in marketing from Thammasat,
  – MM in management from Sasin,
  – SB and SM from MIT in mechanical engineering.
My Most Recent Past

• During the last 10 years, invited regularly to give guest lectures on entrepreneurship, which led to starting two entrepreneurship programs in Thailand (at Mahidol University and Thammasat University).

• Goal: to create technology spin-offs.

• Learned from the experience:
  – Met NSTDA and the research it creates;
  – Found a large gap that must be overcome for technology to become part of a business.

• On Jan. 1 2008, I joined the TLO of NSTDA in Thailand.
A simple question:

Why Wasn’t the IPOD Developed in Thailand?
Why Wasn’t the IPOD developed in Thailand?

• Thailand has strong design and style capabilities, and creativity:
  – Fashion
  – Crafts

• The technology is all off-the-shelf (and much of it is made in Thailand).
A more-important simple question:

Why does it matter to Thailand (or other Asian countries) where the iPod was developed?
## Pricing and Costs of an IPOD

(Source: Personal Computing Industry Center at UC Irvine)

<table>
<thead>
<tr>
<th>Input</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Drive</td>
<td>$73.39</td>
</tr>
<tr>
<td>Display Module</td>
<td>$23.27</td>
</tr>
<tr>
<td>Video/Multimedia Processor</td>
<td>$8.36</td>
</tr>
<tr>
<td>Controller</td>
<td>$4.94</td>
</tr>
<tr>
<td>Insertion, test, and assembly</td>
<td>$3.86</td>
</tr>
<tr>
<td>Battery</td>
<td>$2.89</td>
</tr>
<tr>
<td>Memory ROM</td>
<td>$2.37</td>
</tr>
<tr>
<td>Back Enclosure</td>
<td>$2.30</td>
</tr>
<tr>
<td>Mainboard PCB</td>
<td>$1.90</td>
</tr>
<tr>
<td>Mobile RAM</td>
<td>$1.85</td>
</tr>
<tr>
<td><strong>Subtotal for 10 most expensive inputs</strong></td>
<td><strong>$125.13</strong></td>
</tr>
<tr>
<td>All other inputs</td>
<td>$19.28</td>
</tr>
<tr>
<td><strong>Total all iPod inputs</strong></td>
<td><strong>$144.40</strong></td>
</tr>
<tr>
<td>Apple Profit</td>
<td>$154.60</td>
</tr>
<tr>
<td>Retail Price</td>
<td>$299.00</td>
</tr>
</tbody>
</table>
Apple’s Profit

• $155 vs $144 (all other inputs)
• Is this fair?
• What value is Apple providing for this profit?
Some Value Apple Has Created

- Design
- Supplier Management
- Innovative Business Model
- Brand/Image
- Created a mass market for *good design*
  - Important implication for us!
Lessons *being* learned.

- In Thailand, it is still easier to be successful in business in real estate, trading and retail, and through connections...although this is changing quickly.
  - Implications for entrepreneurship and availability of financing.
Lessons *being* learned.

- Researchers often view commercialization as contradictory to the value of science; we are trying to change people’s view: impact can also come from commercialization.
- Researchers often don’t have a view of the potential impact of their work.
Lessons *being* learned.

• Need to close the gap between technology and market:
  – some parts of the US, in particular, have managed to create a system for creating companies that develop technologies;
  – that model has been hard to replicate, so far, in Thailand (Southeast Asia?).
Lessons *being* learned.

- Government funding is the biggest driver of research.
- Government culture often leads to formal relationships, yet informal relationships are better for innovation.
Lessons *being* learned.

• Researchers (and often policy makers) believe giving away a technology can help more people;
  – the technology, itself, is only one step in the process of creating impact
  – product development, distribution, and other marketing functions must also be “paid” for.

• Big companies always want things for free.
Creating a Market For Technology:

How do you *create* a market?

Inspirations:
Bill Gates
Fred Terman
Bill Gates circa 1970s

- Takes a stand against free information sharing culture: (Stephen Manes and Paul Andrews)
  - “Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid? Is that fair?”
  - “One thing you do is prevent good software from being written. Who can afford to do professional work for nothing?”
• Grand Challenges in Global Health:
  – Focus on 14 major global health challenges…
  – …to create breakthrough advances for those in the developing world.
  – Goals:
    • Improve vaccines
    • Develop new vaccines
    • Control insect vectors
    • Improve nutrition
    • Limit drug resistance
    • Cure infection
    • Measure health status
• Bring together scientists, engineers, public health professionals and entrepreneurs.
• Effect: Create a market for solving diseases in the developing world.
Fred Terman
(Thanks to Steve Blank for the first introduction)

• Professor, Electrical Engineering
• Dean of Engineering, Stanford
• Provost, Stanford
• “When we set out to create a community of technical scholars in Silicon Valley, there wasn't much here and the rest of the world looked awfully big. Now a lot of the rest of the world is here”
Fred Terman

• Determined to move the center of engineering from the East Coast.
• Encouraged students to open companies:
  – William Hewlitt and Dave Packard
  – Charles Litton
• Encouraged companies to be nearby:
  – Stanford Research Park
• Encouraged companies to stay linked:
  – Contract research
  – Students employed by companies
  – Continuing and professional education
Creating a Market: Some Obvious Rules

- Need customers and sellers.
- For a customer to buy, they must feel like they are getting more than they are giving up.
  - What do they have to give up?
- For a seller to sell, they should feel like they are receiving more than their costs.
- For a buyer to buy from us, they must feel like they are getting something they can’t get elsewhere, at a given price.
More Generally, In a Technology Market...
Only 3 Ways to Create Value:

\[ P \uparrow \]

\[ C \downarrow \]

\[ _Q \uparrow \]
The 3 Ways Do Not Have Equal Potential

\[ C \_ \text{ has LIMITED benefit.} \]

\[ P \_ \text{ and } Q \_ \text{ are UNLIMITED.} \]
The 3 Ways Do Not Have Equal Potential

• Our technologies: usually

  C_

• Find higher value
IP is not the only additional value which must be provided by a new product.
Not all value chains are the same.

- Fully integrated: development-mfrg.-distribution
  Ex. pharmaceuticals

- Chain of several intermediaries (often SMEs)

- Chain of several intermediaries managed by a single, powerful player (contract agriculture)
INVENT for IMPACT

Your technology can solve somebody’s problem, help a company compete, or lead to society's development...

If it can travel on the path:

LAB → MARKET
Lab2Market Has Three Goals
1. Encourage Thai researchers to think about the market impact of their research.
Encourage Thai businesses to build technology into their competitive strategies.
3. Build as many links as possible between technology developers and businesses.
1. L2M BOOT CAMP

A training program where multidisciplinary teams (composed of researchers and business people) go through a series of team building, creativity, and problem solving exercises, culminating in a project presentation.
2. Idea2Product Competition

• The Idea2Product –Asia Competition is held in December.
  – 2 pg. tech summary (2 months in advance)
  – Workshops
  – 5 pg. tech summary (2 weeks in advance)
  – 3 min. rocket pitch
  – 15 min. pitch with Q&A

• Put researchers at the center of the process.
  – Now: researcher launches the effort with 2 pg. summary;
  – Matched with MBA teams.
2. Idea2Product Competition

• Teams of researchers and business students present to investors, lawyers, and business people.
  – A chance for us to keep links alive with the business community (and build new ones)
• Goal: find the innovative solutions to a market needs.
• See more info at www.ideatoproduct-asia.org.
NSTDA Idea to Product® Competition (I2P)

FAST TRACK TO COMMERCIALIZATION

Creating new technology opportunities
Developing technology entrepreneurs
Starting new "ventures."

The NSTDA I2P Competition is an early-stage technology commercialization plan competition hosted by Technology Management Center (TMC), NSTDA. The NSTDA I2P Competition is opened to NSTDA and NSTDA-funded researchers of all disciplines who are interested in technology-focused entrepreneurship. Participants benefit from valuable feedback from entrepreneurs, investors, researchers, engineers, and intellectual property attorneys on the judging panels. Competition entries should be unique and innovative, be feasible to implement, and address an identified market need, and they must have an underlying technology component.

The NSTDA I2P helps speed up your commercialization process by getting opportunity to showcase your technology to potential investors. Teams also have a chance to win some prize money.

Round One Result
3. Technopreneurship Prizes

• Given to business students and researchers.
• Encourages use of NSTDA technologies at major business plan competitions:
  – Asia Moot Corp
  – Bangkok Business Challenge
  – Global Social Venture Competition.
  – International competitions.
Conclusions About Value

• Value is not *intrinsic*; it’s value is determined by what somebody is willing to pay.
• We can do things to increase value:
  – Makes things which are valuable and different.
  – Find the right customers.
  – Sell at the right place.
  – Make something easy to buy.
  – Make something easy to use.
  – Lower uncertainty of being satisfied.
Where do we go from here?

- Opportunities for developing countries:
  - Solve problems “at home”
  - Things we can be great at:
    - Personalized education
    - Information for rural people
    - Urban wellness
    - Agricultural expertise (esp. organic)
    - Language and cultural specific applications:
      - Software
      - Ecotourism
Where do we go from here?

• Opportunities for developing countries:
  – Developing cooperation throughout ASEAN
    • Similar challenges: do we all need to do the same research?
    • Big market
    • Science and business can succeed where others have failed
    • Competition: short term pain vs. Cooperation: long term benefit
Thank you!

We are always looking for ways to collaborate with people and organizations sharing similar challenges. Please feel free to contact me with any questions or ideas:

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