EE-402T Entrepreneurship in Asian High-Tech Industries
Stanford University, Tuesday, 8 April 2014

2014 Asia Entrepreneurship Update

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Outline

- Introduction: about this series, course credit
- Entrepreneurial activity in Asia – focus on past year
  - Background: Recent trends in Asia economies
  - Entrepreneurial activities and attitudes
- Understanding entrepreneurial activity as part of larger innovation system
- Focus of this series

Welcome to everyone!

- Weekly public lecture / panel discussion series presented by the US-Asia Technology Management Center
  - Every Tuesday, through MAY 27, 2014
  - Support from Allen Miner Foundation
  - See <http://asia.stanford.edu> for upcoming schedule
- Mission: new information and insights into entrepreneurship in Asia high-tech industries
  - Habitat issues, trends, opportunities for the U.S.
- Available for credit to Stanford students
  - EE-402T "Entrepreneurship in Asian High-Tech Industries"
    - No pre-requisites, open to undergrads and graduate students
    - May be repeated in future years for credit; each series is separate

EE-402T Requirements for Credit

- Obtain Syllabus for official statement of credit requirements
- MAY BE DIFFERENT REQUIREMENTS THAN FOR OTHER SEMINARS
- A. On-site attendance at eight (6) of eight (8) sessions
  - This (Req. A) is waived for students registered through SCPD
  - Today fill out survey, then weekly sign-up sheet at auditorium
- B. Submit a comment / summary each week for seven (7) of the eight (8) sessions
    - To me (Prof. Dasher) <rdasher at stanford dot edu>
    - cc to Sebastian Karl <skarl at stanford dot edu>
  - Comment must provide evidence that you watched the session
  - Each comment is due within two weeks of the date of the session

Request to everyone (visitors and students) for today, 4/08

- Please fill out the incoming student / guest survey and leave with Siejen, Sebastian, or me
  - Even if you have attended our series in the past
- For students registering for credit, the survey is your on-site attendance record for 4/08/2014
  - In addition, you will need to submit your comment / summary about the content of this session by Tuesday, 4/22/2014

Background:
Selected Asia Economies

GDP of the top five national economies of the world

	2011 - $ trillions	2011 GR - %	2012 - $ trillions	2012 GR - %	2013- $ trillions	2013 GR - %	GDP / person $
World	82.24	3.8	84.78	3.1	87.18	2.8	13,100
1. U.S.A.	16.02	1.8	16.47	2.8	16.72	1.6	52,800
2. China	11.54	9.3	12.43	7.7	13.37	7.6	9,800
3. India	4.63	7.5	4.78	5.1	4.96	4.7	4,000
4. Japan	4.55	(-0.6)	4.64	2.0	4.73	2.0	37,100
5. Germany	3.18	3.4	3.21	0.9	3.23	0.5	39,500

- **Ranking excludes EU (which would be #2 after U.S.A.)**

Estimated amounts in 2013 dollars, according to **PPP**
From: CIA World Factbook, data retrieved 4/07/2014

GDP of other Asia economies in the top 50

World ranking	2011 - $ billions	2011 GR - %	2012 – $ billions	2012 GR - %	2013 – $ billions	2013 GR - %	2013 GDP / person $
12. S. Korea	1,587	3.7	1,620	2.0	1,666	2.8	33,200
15. Indonesia	1,149	6.5	1,220	6.2	1,285	5.3	5,200
20. Taiwan	895	4.1	907	1.3	926	2.2	39,600
24. Thailand	614	0.1	654	6.5	674	3.1	9,900
26. Pakistan	531	3.7	554	4.4	574	3.6	3,100
29. Malaysia	475	5.1	502	5.6	525	4.7	17,500
31. Philippines	398	3.6	425	6.8	454	6.8	4,700
35. Hong Kong	365	4.9	371	1.5	382	3.0	52,700
38. Vietnam	324	6.2	341	5.2	359	5.3	4,000
40. Singapore	323	5.2	327	1.3	339	3.5	62,400

- **Not included: Middle East countries, Bangladesh (#43)**
- **Ranking excludes EU**

Estimated amounts in 2013 dollars, according to **PPP**
From: CIA World Factbook, data retrieved 4/07/2014

Trends in recent GDP growth rates

- General world slowdown in growth rates between 2011 – 2013
  - 3.8% GR (2011) > 3.1% (2012) > 2.8% (2013)
  - World 50-year average (1962 – 2012) = 3.6% / year
  - 2010 had seen 5.1% growth (rebound after 2008-09 shock)
  - Causes even greater slowdowns in export-driven economies
- General rule: GDP growth tends to slow down as economy becomes more advanced – less infrastructure build-out
  - Some special characteristics of national structures: especially unemployment, partial employment
  - Germany (2012, 2013) – back to historically low GR – consistently below 1% GR before 2008 shock
- Some special explanations: one –time events
  - Japan (2011) – Great East Japan Disaster
  - Thailand (2011) – Floods disaster

Trends in GDP – 2. Jumping-off points to China rebounded in 2013 after big drop

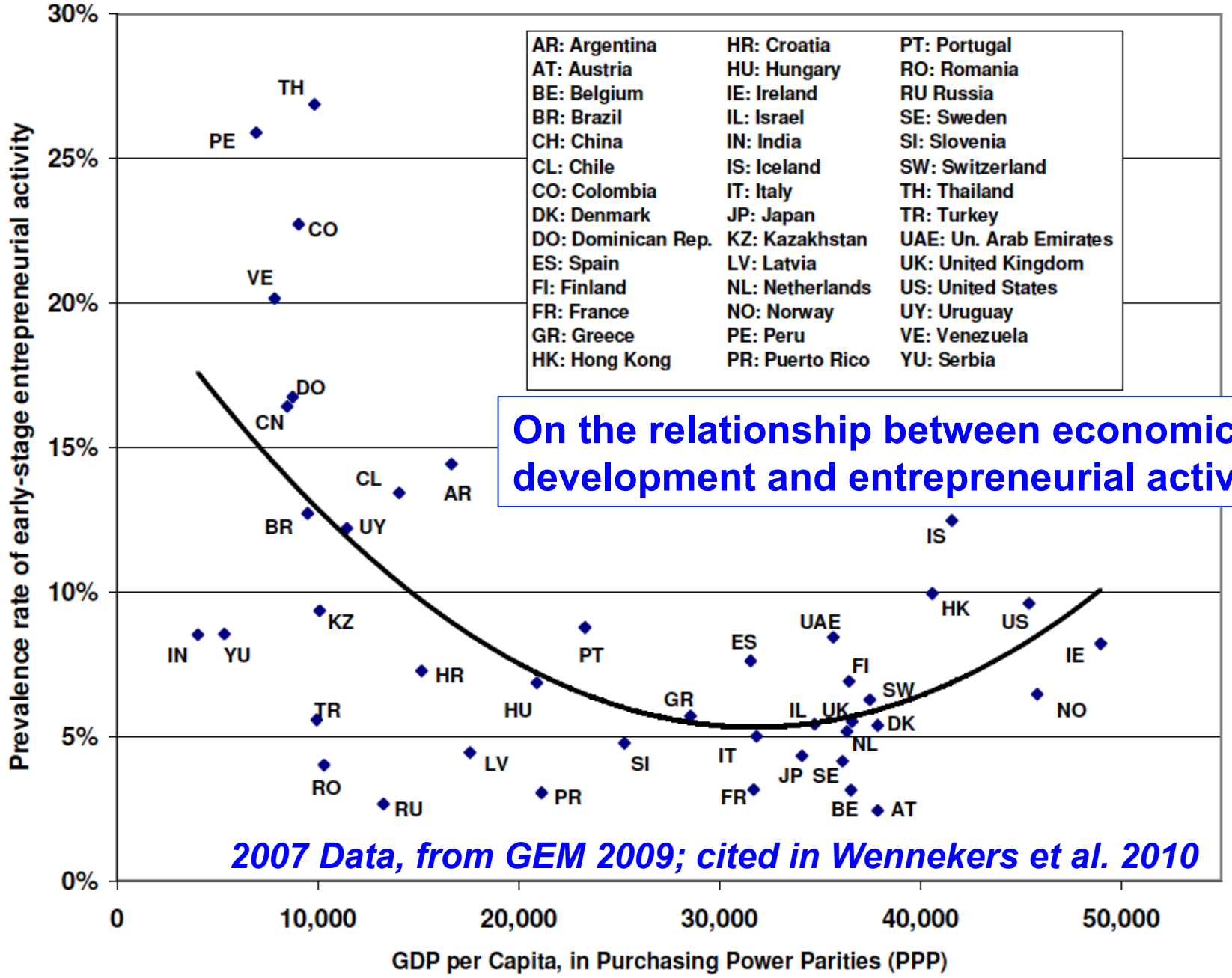
	2010 GR - % (calc. in 2012 dollars)	2012 GR - % (calc. in 2012 dollars / in 2013 dollars)		2013 GR - % (calc. in 2013 dollars)
Hong Kong	7.1	1.8	1.5	3.0
Singapore	14.8	2.1	1.3	3.5
Taiwan	10.7	1.3	1.3	2.2
S. Korea	6.3	2.7	2.0	2.8

- Taiwan: China is 2nd largest trading partner after Japan (since 2006), controversial government policies to create closer economic relations
- Hong Kong: new 2013 agreements with China under "Closer Economic Partnership Agreement" (2003) – RMB internationalization
- Singapore: largest rebound, may reflect government productivity policy: investments in pharmaceuticals, medical technology; continues to be financial hub for SE Asia as well as China
- Both Singapore, S. Korea pulled down by EU market slowdown

Trends in GDP – 3: South & SE Asia slowing but still growing faster than world GR

	2010 GR - % (calc. in 2012 dollars)	2012 GR - % (calc. in 2012 dollars / in 2013 dollars)		2013 GR -% (calc. in 2013 dollars)
India	10.1	6.5	5.1	4.7
Indonesia	6.2	6.0	6.2	5.3
Thailand	7.8	5.6	6.5	3.1
Malaysia	7.2	4.4	5.6	4.7
Philippines	7.6	4.8	6.8	6.8
Vietnam	6.8	5.1	5.2	5.3

- Domestic market growth has kept these countries from being pulled down even more by world slowdown; still important exporters
- Philippines: rapidly expanding business process outsourcing industry
- Malaysia: Policies to attract high-tech industries, Islamic finance; to increase domestic demand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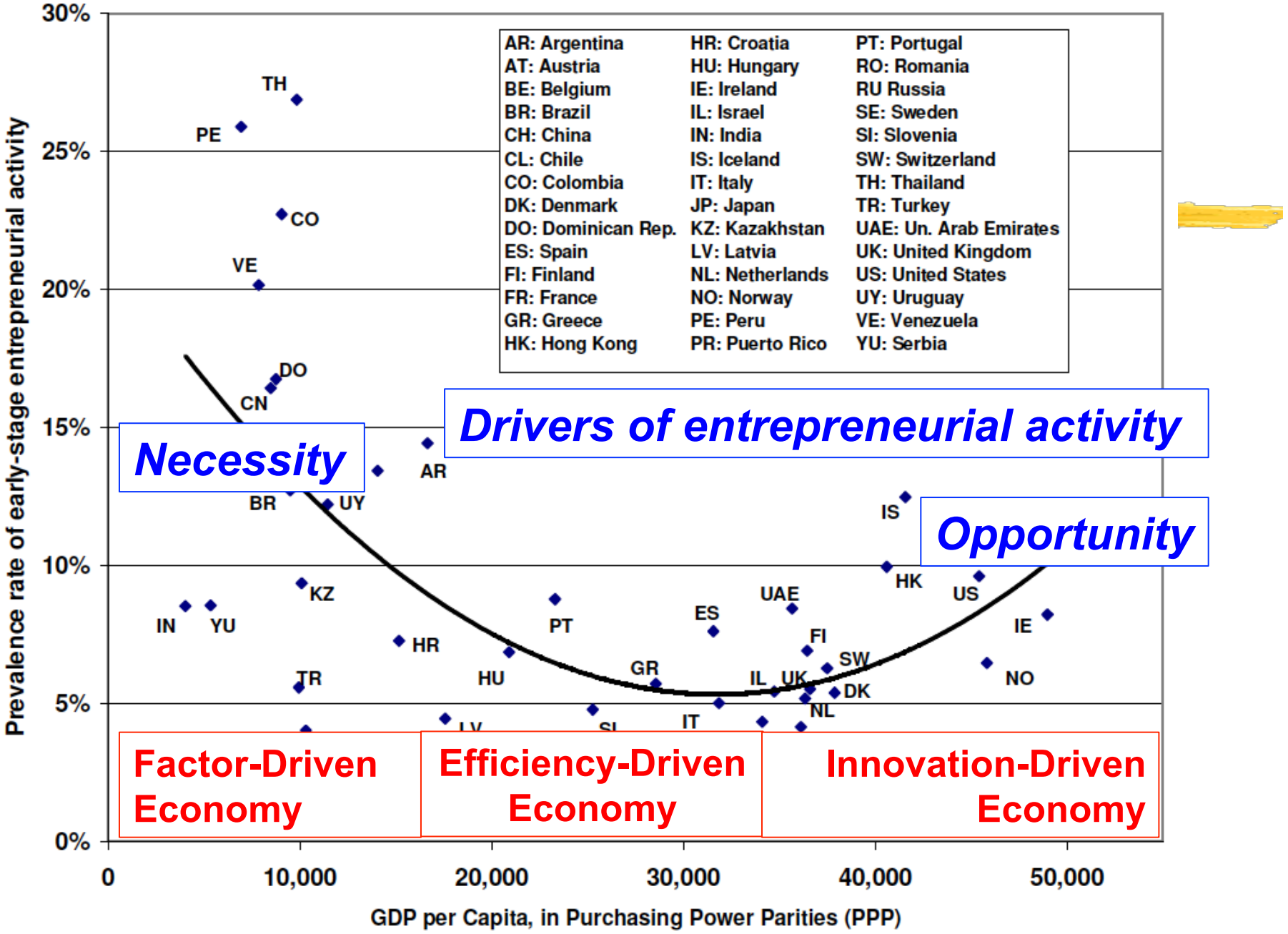
IN: India
IS: Iceland
IT: Italy
JP: Japan
KZ: Kazakhstan
LV: Latvia
NL: Netherlands
NO: Norway
PE: Peru
PR: Puerto Rico
PT: Portugal
RO: Romania
RU Russia
SE: Sweden
SI: Slovenia
SW: Switzerland
TH: Thailand
TR: Turkey
UAE: Un. Arab Emirates
UK: United Kingdom
US: United States
UY: Uruguay
VE: Venezuela
YU: Serbia
On the relationship between economic development and entrepreneurial activity
2007 Data, from GEM 2009; cited in Wennekers et al. 2010
Prevalence rate of early-stage entrepreneurial activity
30%
25%
20%
15%
10%
5%
0%
0
10,000
20,000
30,000
40,000
50,000
GDP per Capita, in Purchasing Power Parities (PPP)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SW: Switzerland
TH: Thailand
TR: Turkey
UAE: Un. Arab Emirates
UK: United Kingdom
US: United States
UY: Uruguay
VE: Venezuela
YU: Serbia
Drivers of entrepreneurial activity
Necessity
Opportunity
Factor-Driven Economy
Efficiency-Driven Economy
Innovation-Driven Economy
Prevalence rate of early-stage entrepreneurial activity
GDP per Capita, in Purchasing Power Parities (PPP)
30%
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20%
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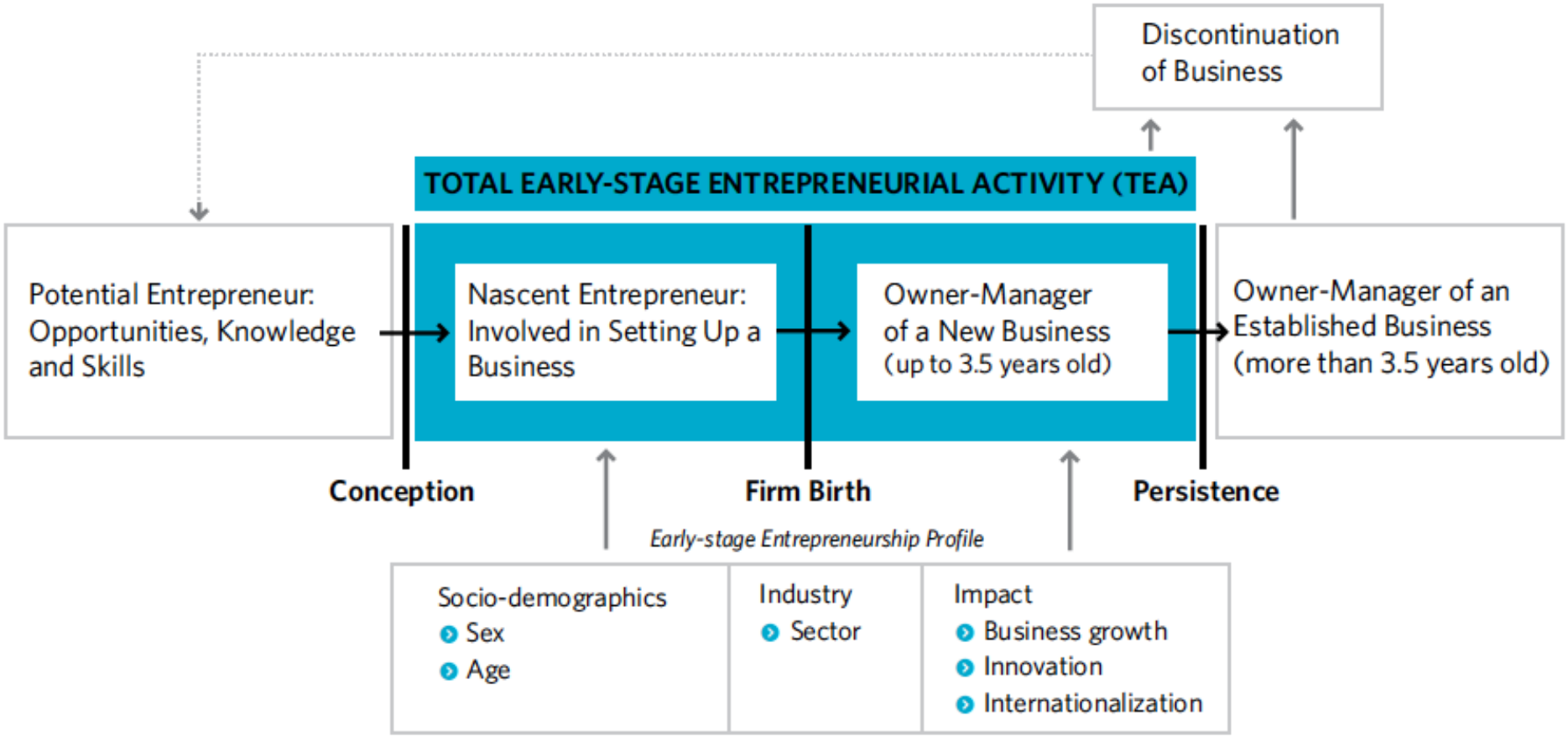
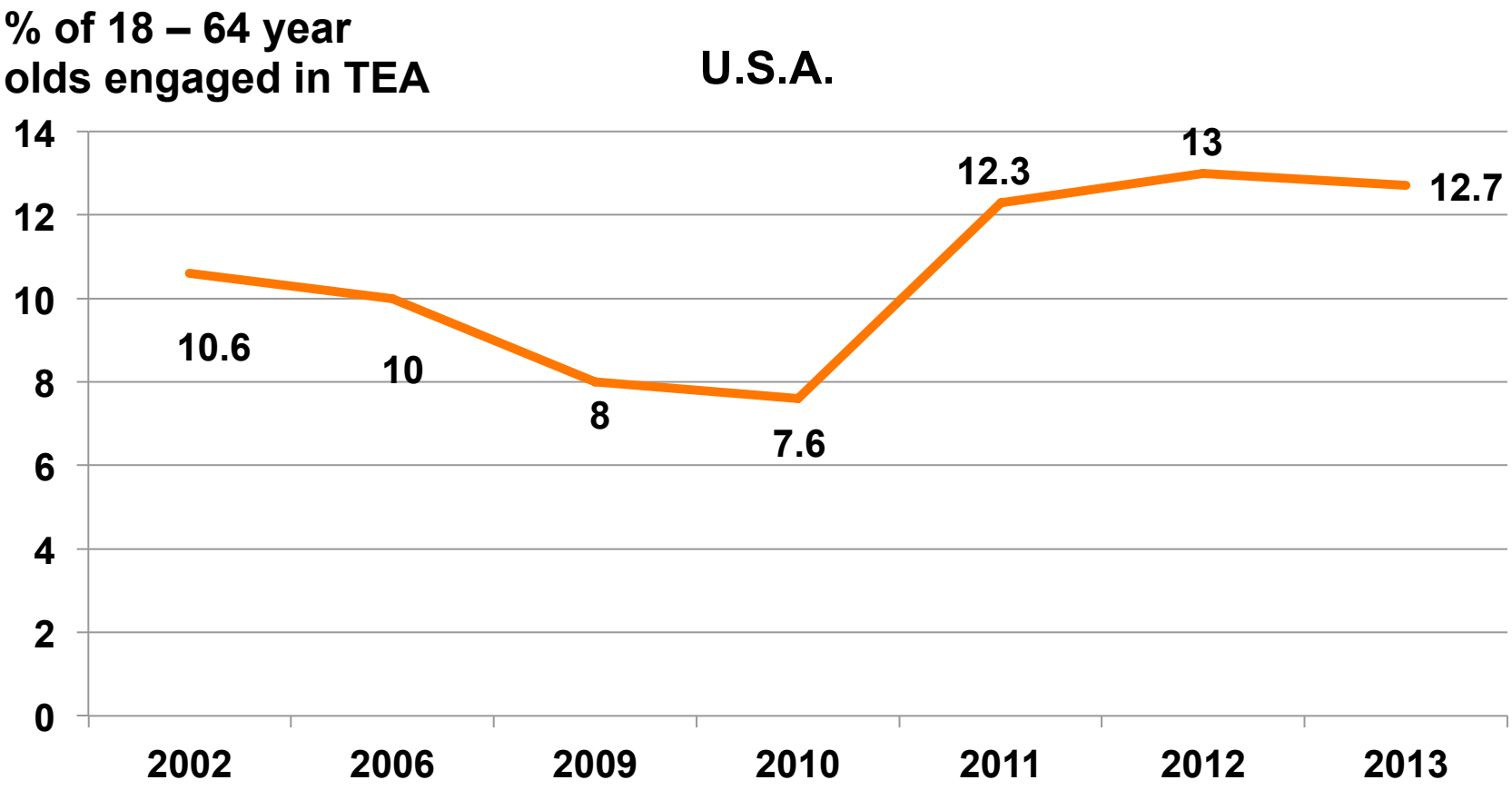
0%
0
10,000
20,000
30,000
40,000
50,000

Global Entrepreneurship Monitor – Definition of "TEA Rate"

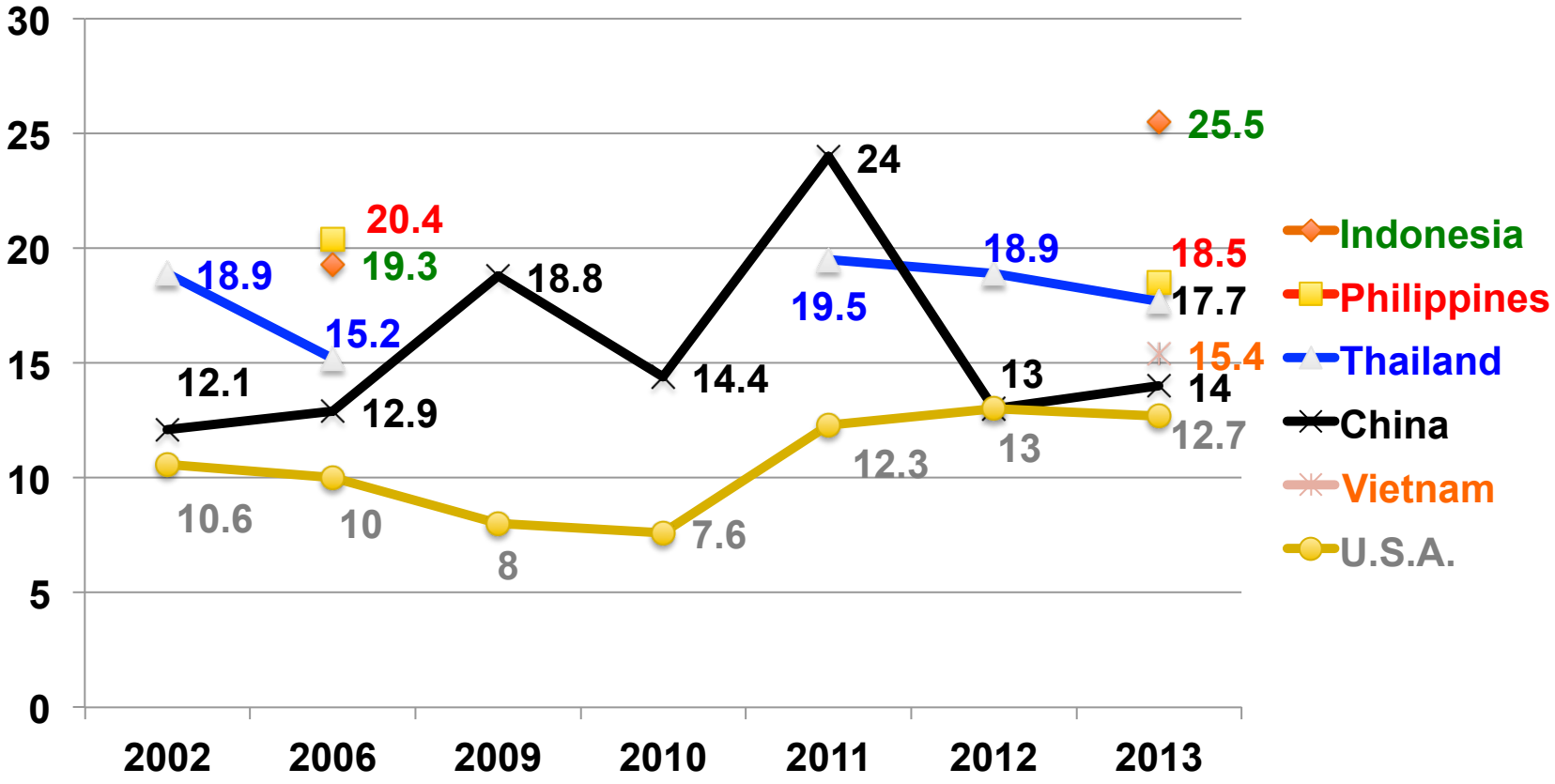
FIGURE 1.1 THE ENTREPRENEURSHIP PROCESS AND GEM OPERATIONAL DEFINITIONS



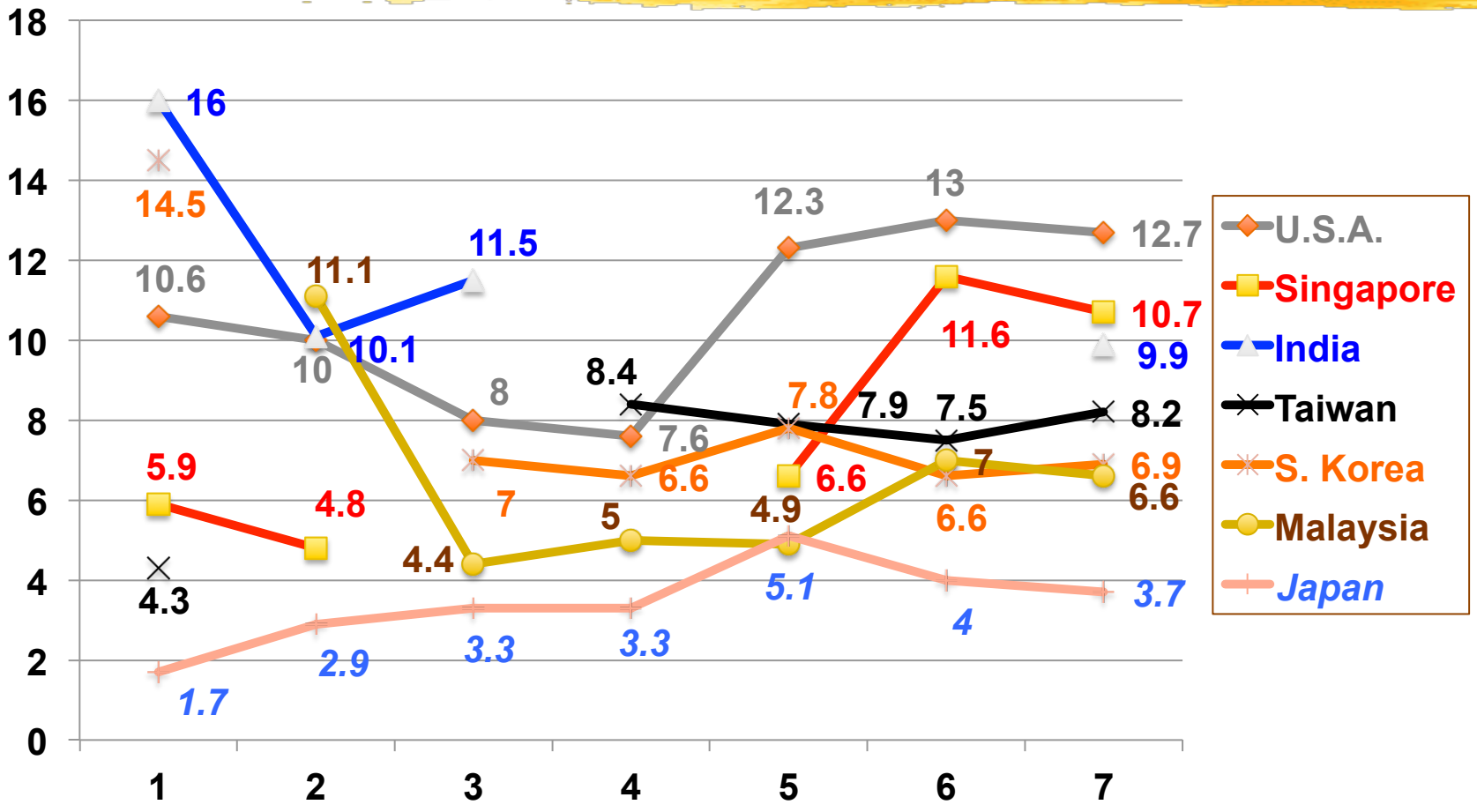
TEA Rate in U.S.A. since 2002



Asia countries with higher TEA rate than U.S. (in 2013)



Asia countries with TEA rate lower than U.S.A. (in 2013)



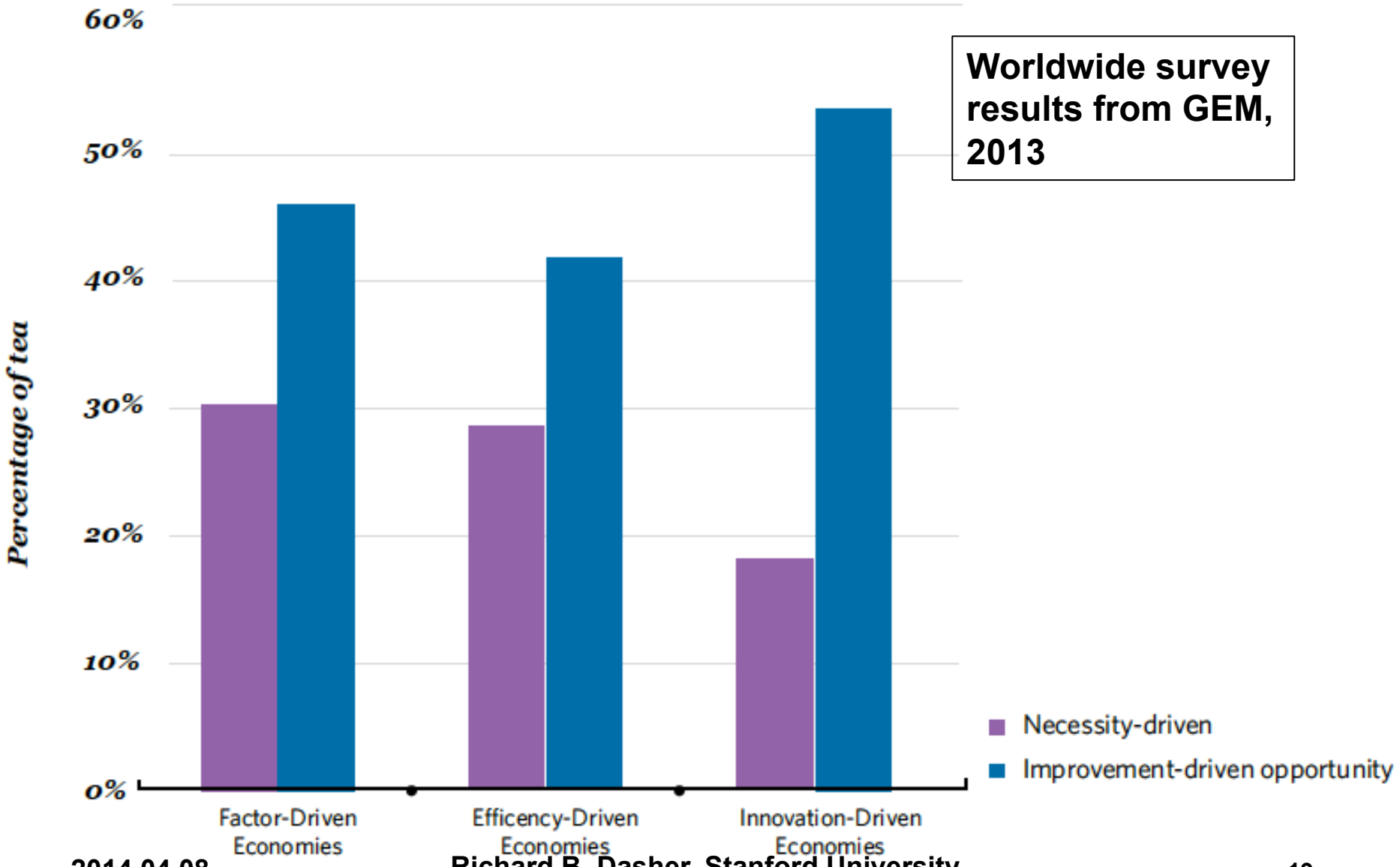
TEA rates and Asia countries' GDP / person

	TEA % (2013)	GDP $ / pers
Indonesia	25.5	5,200
Philippines	18.5	4,700
Thailand	17.7	9,900
Vietnam	15.4	4,000
China	14.0	9.800
USA	12.7	52,800

	TEA % (2013)	GDP $ / pers
USA	12.7	52,800
Singapore	10.7	62,400
India	9.9	4,000
Taiwan	8.2	39,600
S. Korea	6.9	33,200
Malaysia	6.6	17,500
Japan	3.7	37,100

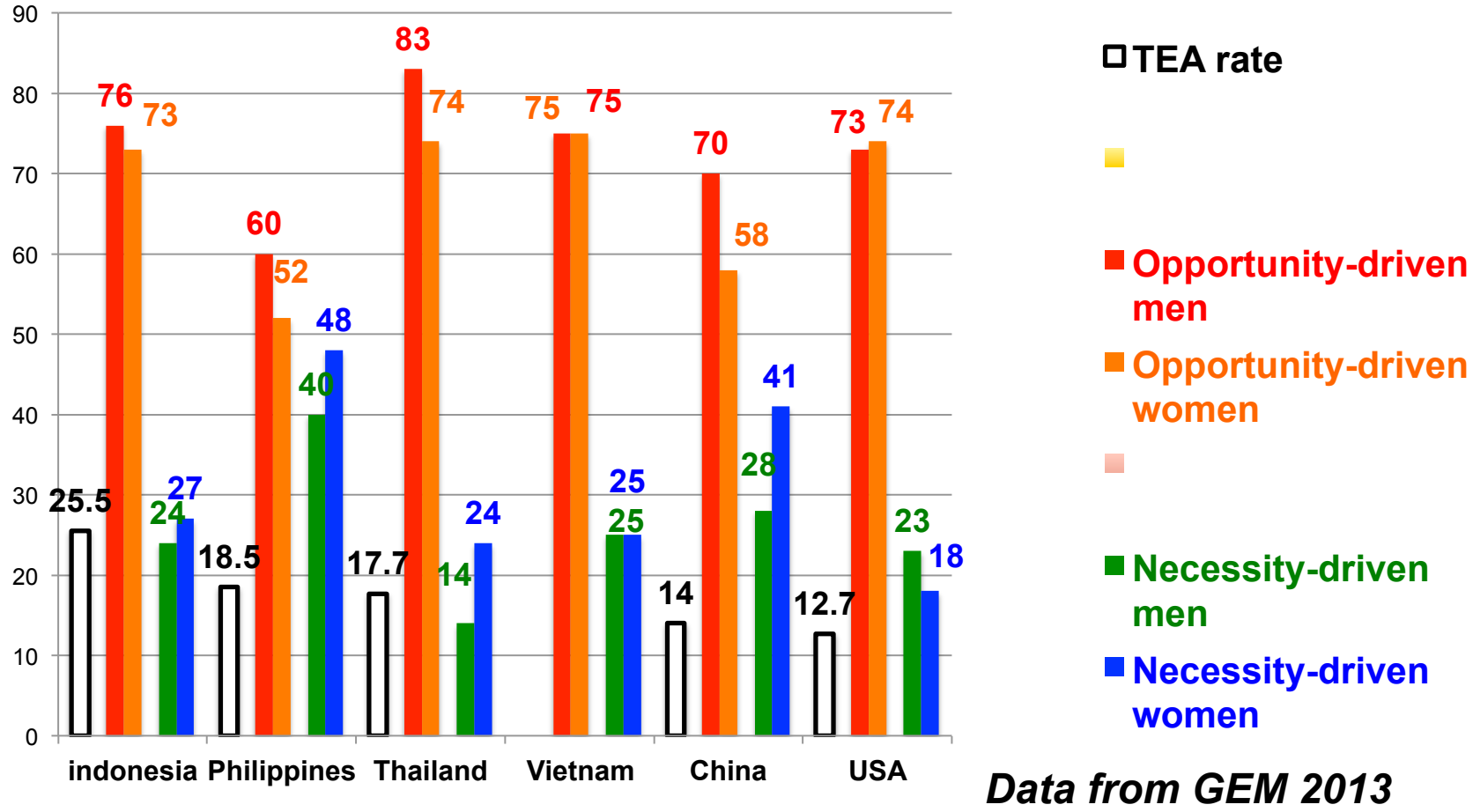
- TEA rates higher than US correspond to lower GDP / person – follow expected pattern, but is this "Entrepreneurship of Necessity?"
- TEA rates lower than US are harder to see pattern
  -- India surprisingly low TEA; Japan S. Korea, Taiwan expect higher TEA

FIGURE 2.3 PERCENTAGE OF ENTREPRENEURS MOTIVATED BY NECESSITY AND OPPORTUNITY, BY PHASE OF ECONOMIC DEVELOPMENT, 2013



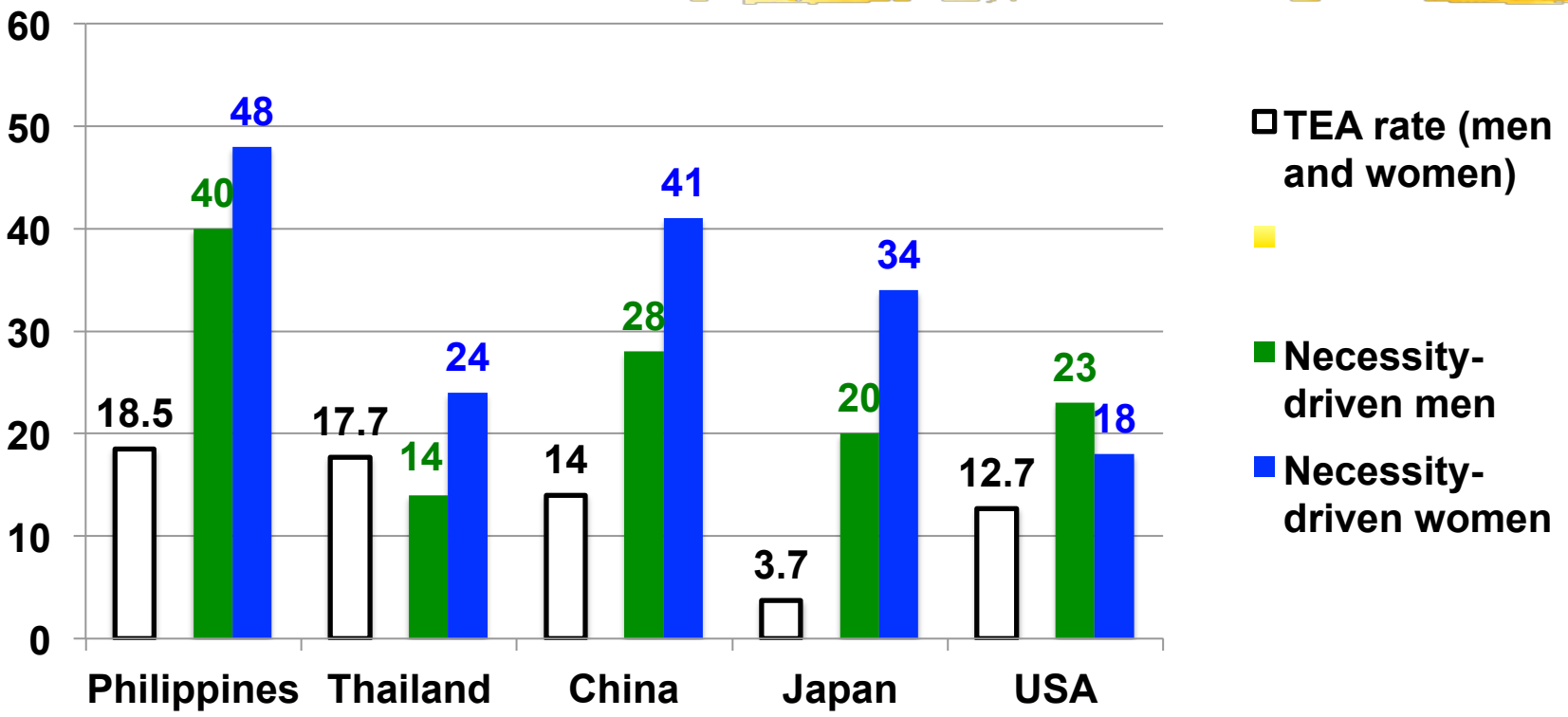
Worldwide survey results from GEM, 2013

Entrepreneurship is mostly opportunity-driven in Asia, even in high-TEA economies



Data from GEM 2013

Some Asia countries – higher % of necessity-driven women entrepreneurs than men

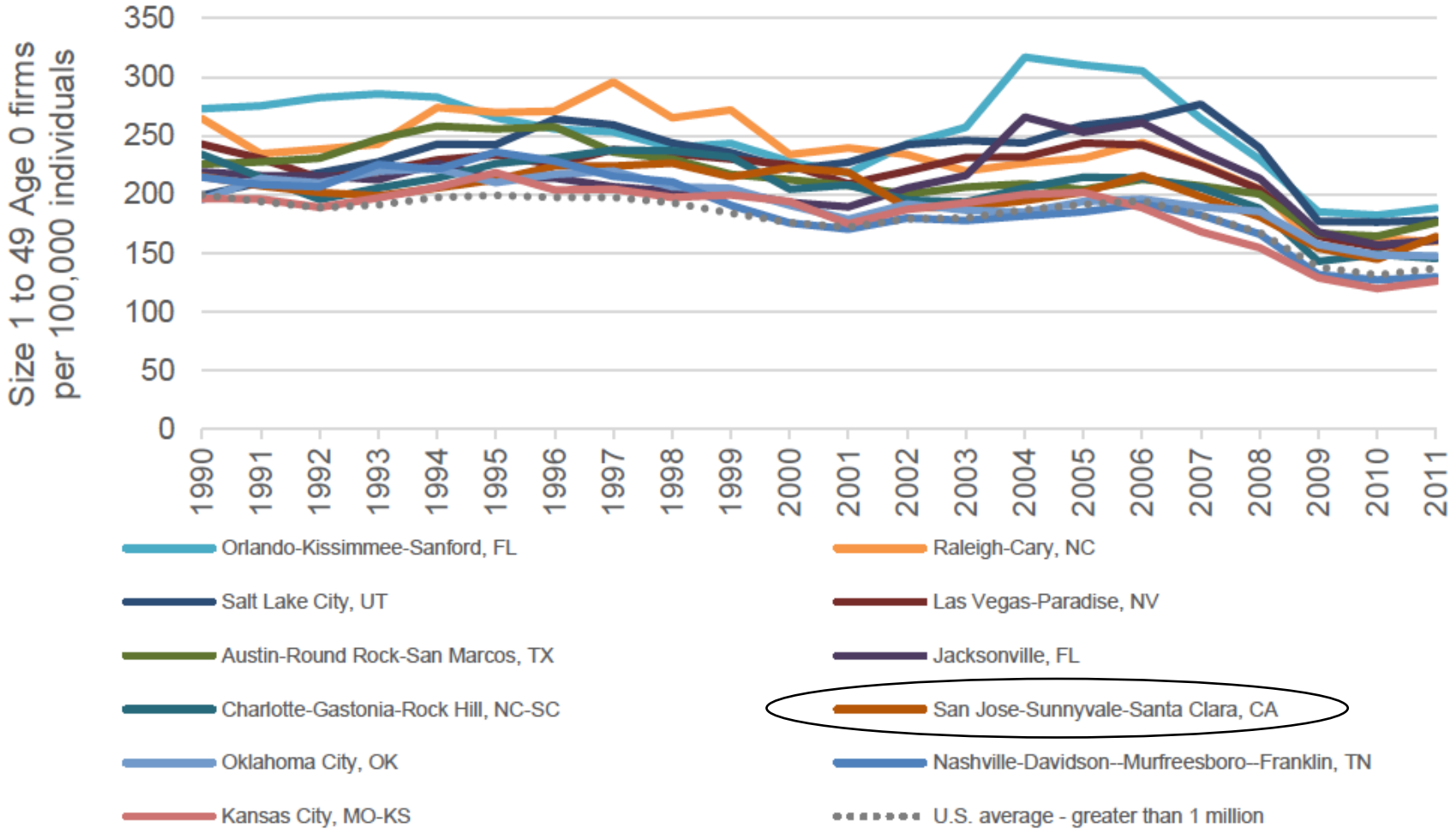


- May suggest marginalization from employment at established firms
- Phenomenon not found in India, S. Korea; Malaysia, Singapore; marginally higher in Indonesia, Taiwan; equal in Vietnam

Biggest differences in entrepreneurial patterns in Asia & US:

Not in creation but in growth and exit

Silicon Valley: famous for entrepreneurship, but rate of new company formation = ~ U.S. average



(Konczal 2013, Figure 21)

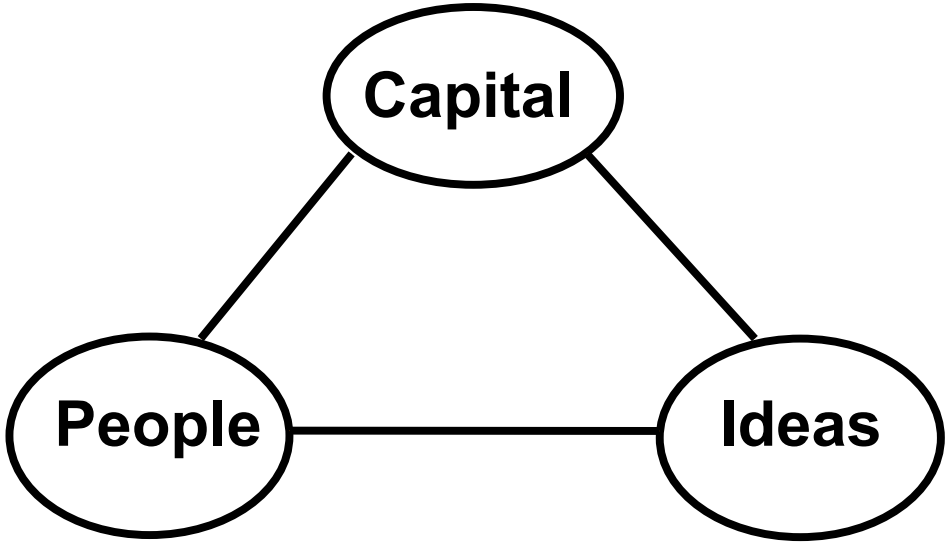
Silicon Valley reputation: waves of new industries – each with new world leader companies from S.V.

"Silicon Valley" term first used in 1971

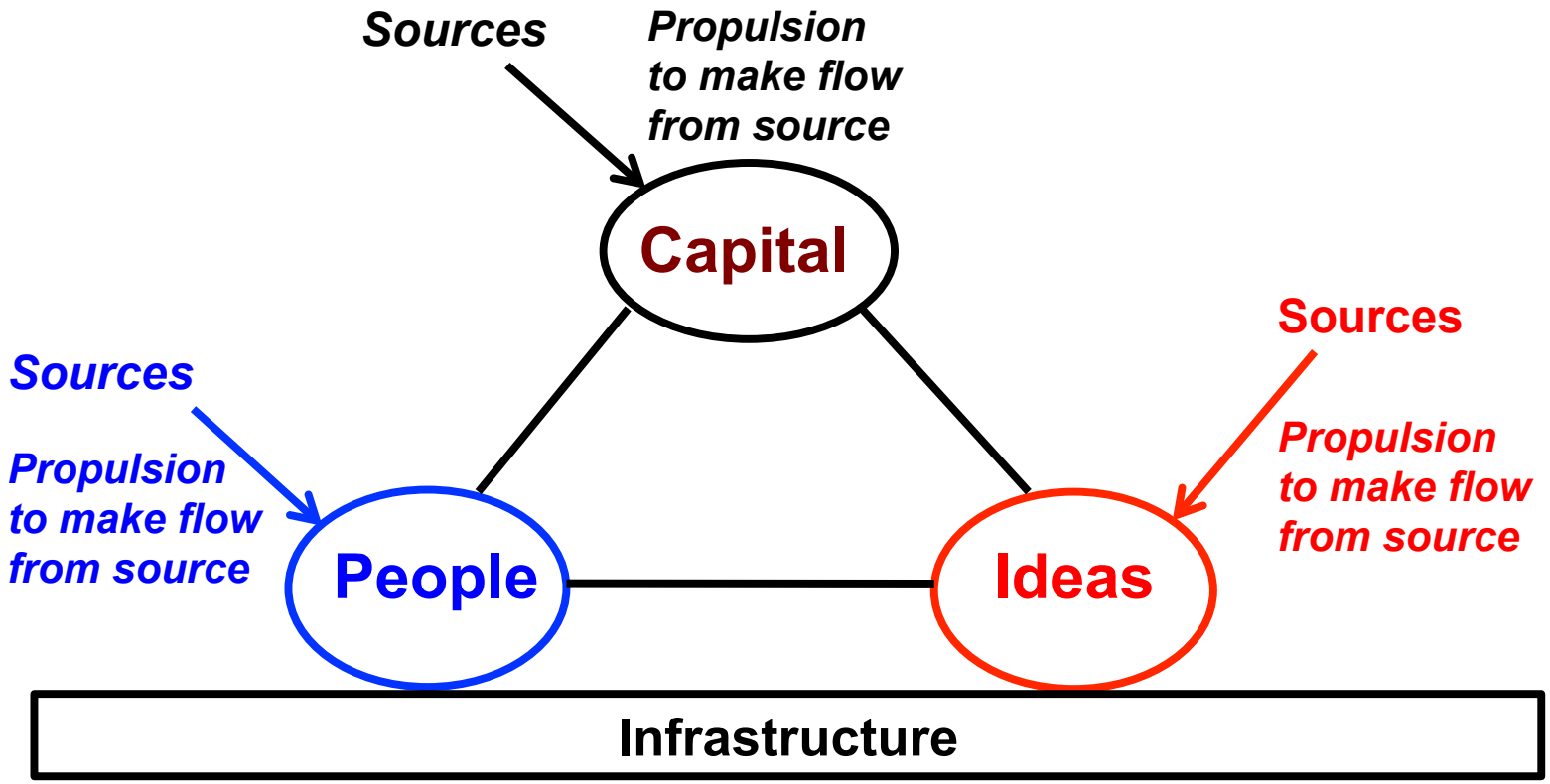
	Key S.V. industry	*Disruptive innovation*	*Rising stars*
Early 1970s	Silicon wafer manufacturing	Silicon crystal growth	
Late 1970s	(Highly) integrated microelectronics	microprocessor	Intel, others
Early 1980s	New computer systems	RISC chip, new OS	SUN, Silicon Graphics
Late 1980s	Software	Relational databases, graphic user interface	Oracle
Mid 1990s	Internet	Hypertext	Netscape
Late 1990s	E-commerce	DSL, business enablers	Yahoo, eBay
Early 2000s	Web 2.0	Search engines	Google
Late 2000s	Social networking	New business models	Facebook, Twitter

Start-up company (or an innovation) as a new combination of people, idea, & capital

A new combination of people, a (business) idea, and capital



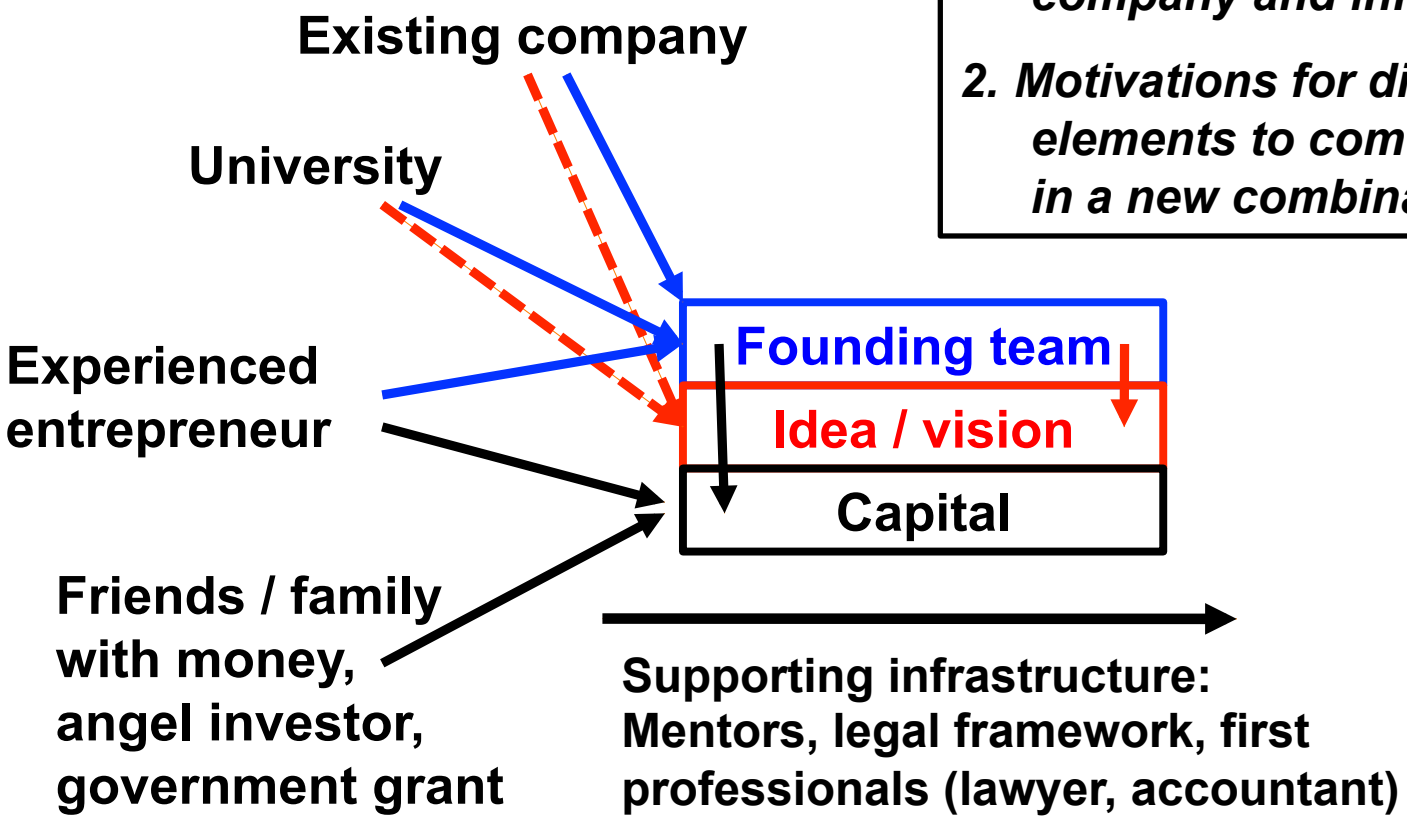
Basic elements of an (entrepreneurial) innovation system



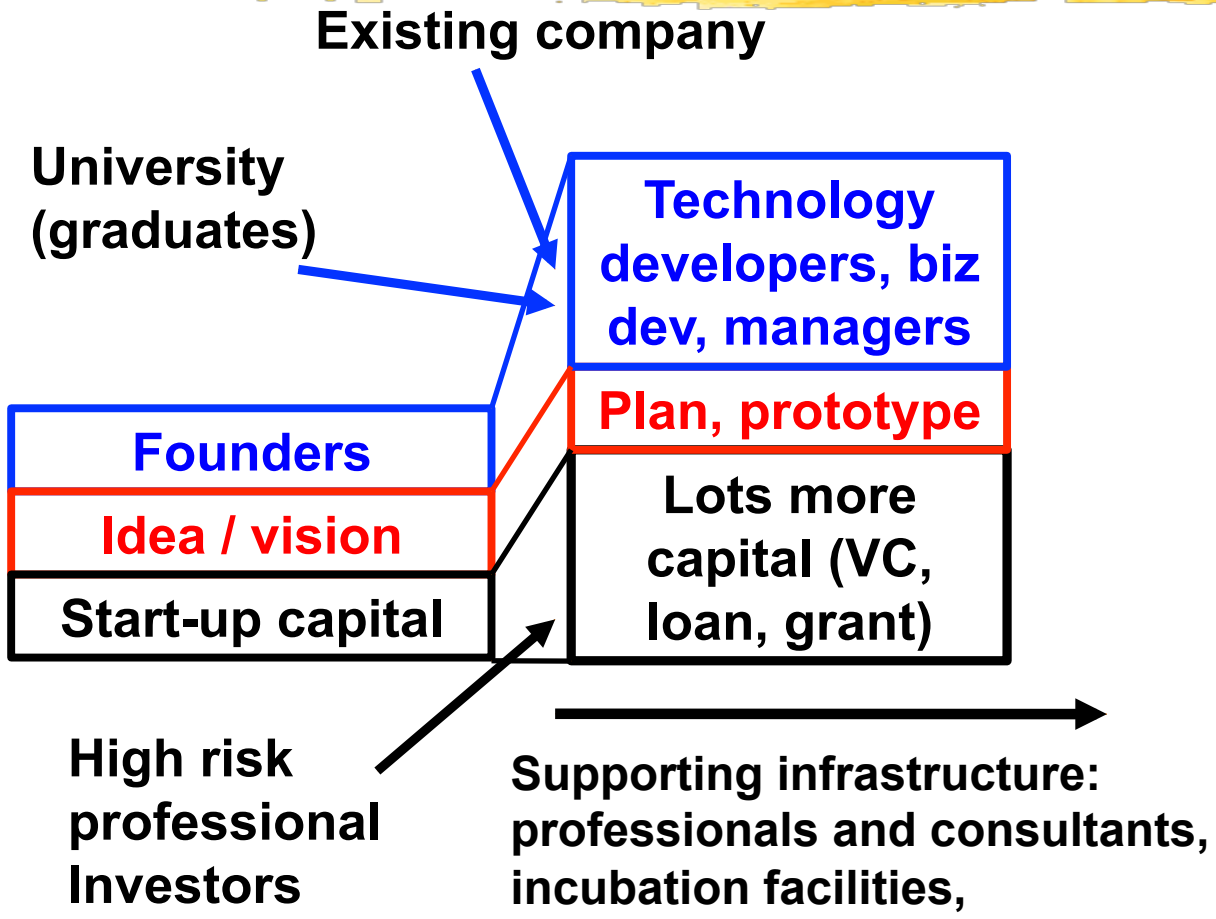
Stage 1: Company creation sources and resource needs

Habitat needs at this stage:

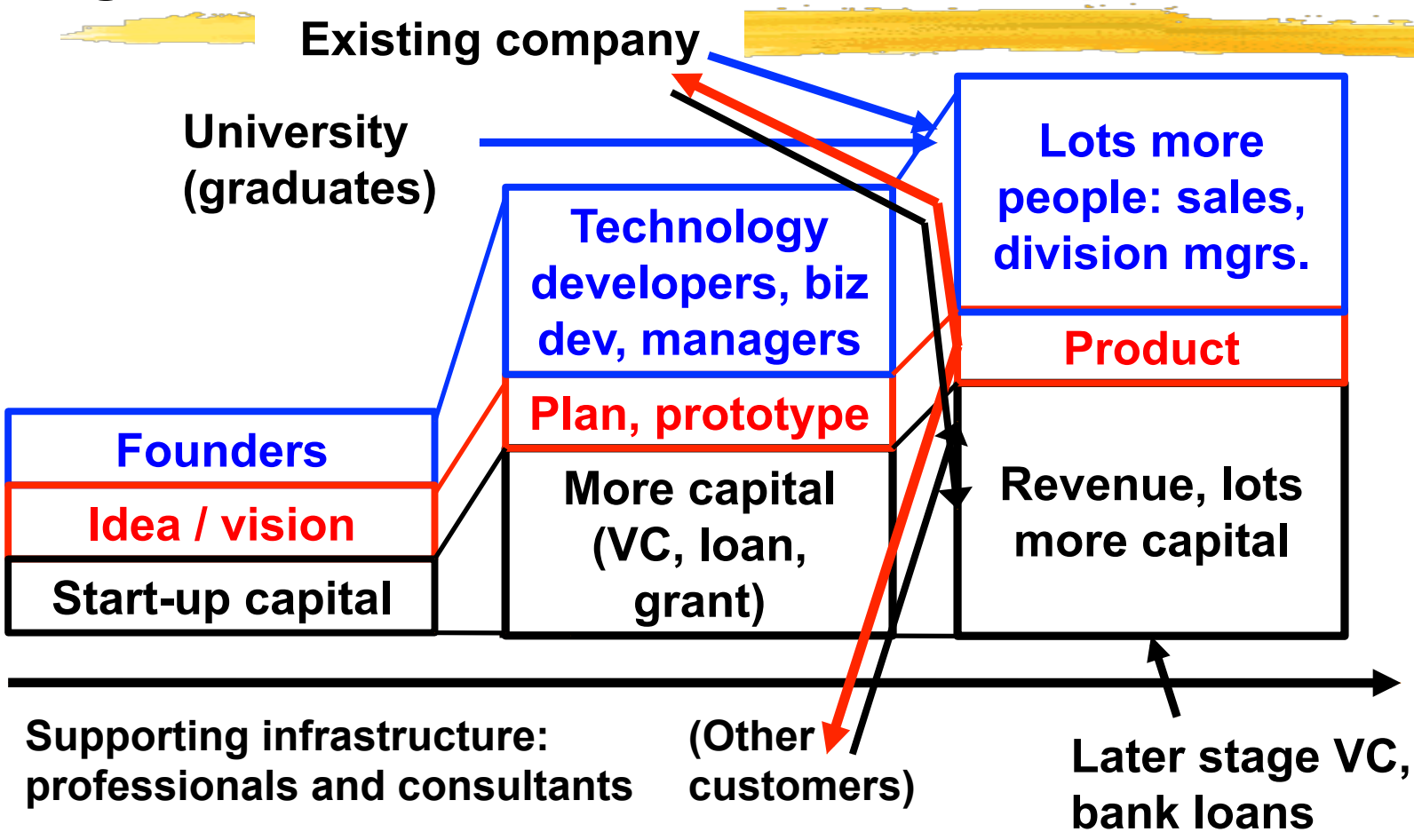
1. ***Sources for all elements of company and infrastructure***
2. ***Motivations for different elements to come together in a new combination***



Stage 2: Company incubation and development



Stage 3: Customer acquisition / expansion



Key Silicon Valley companies sustained high growth rates for at least ten years

	Average annual growth rate over the first five years of sales	Average annual growth rate over the first ten years of sales
Intel	167 %	91 %
Apple	284	125
Oracle	123	100
Cisco	203	131
SUN Microsystems	165	88

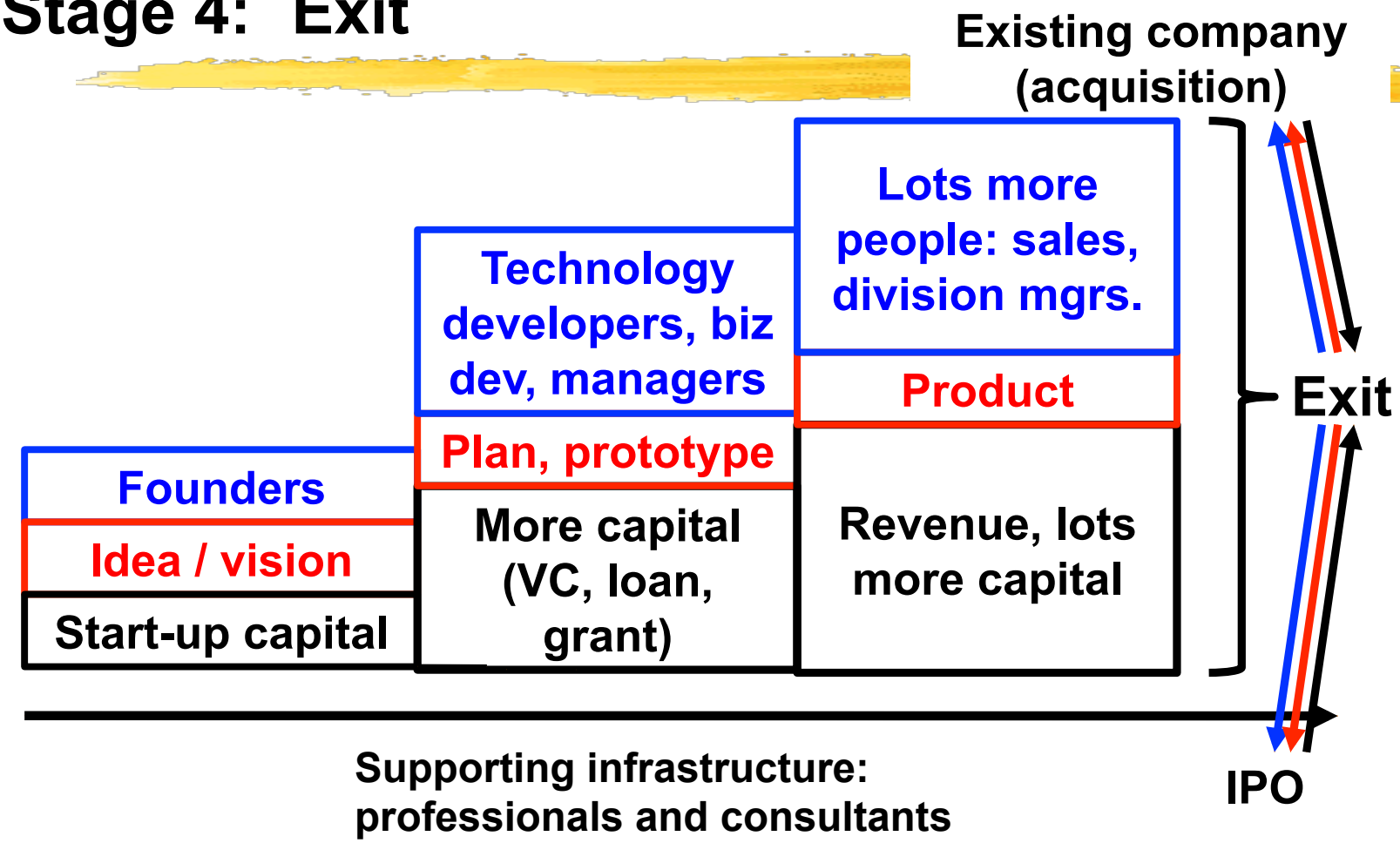
- Only a few companies achieved such sustained rapid growth
- But, those companies became a model for most start-up companies and their investors in Silicon Valley

Recent example of Silicon Valley growth: Square, Inc.

Credit card payment system for smartphones; charges a flat 2.75% commission per transaction (includes charge to credit card company)

Founded 2009 by Jack Dorsey, Tristan O'Tierney, Jim McElvey	(self-funded at Friends and Family, Angel stages?) Series A 11/2009 $10 M	Service began 5/2010
	Series B 1/2011 $27.5 M	
Approx. 150 employees (2011)	Series C 6/2011 and 12/2011 $103 M	Approx. $1 billion of payments processed (2011)
Approx. 400 employees (9/2012)	Series D 9/ 2012 $200 M	Approx. $8 billion of payments processed (2012 total, est.)

Stage 4: Exit


Existing company
(acquisition)
Lots more people: sales, division mgrs.
Technology developers, biz dev, managers
Product
Plan, prototype
Founders
Idea / vision
Start-up capital
More capital (VC, loan, grant)
Revenue, lots more capital
Exit
IPO
Supporting infrastructure:
professionals and consultants

Capital flow patterns in Asia

- Friends and family money seems present in all economies
- Most Asia economies have insufficient angel investors
  - See following discussion of people: as much a mentoring problem as a financial problem
- Most Asia economies usually considered to have insufficient venture capital
  - China has about as much VC as does U.K.
  - But, selection of investments and investor-management relations in Asia economies tends to reflect traditional financial investing
- Exit patterns differ greatly
  - U.S.: 90% via acquisition, much larger IPOs, smaller % held by founders
  - S. Korea, Japan: 85 – 90% of exits are by IPO, entrepreneur may keep over 50% of stock

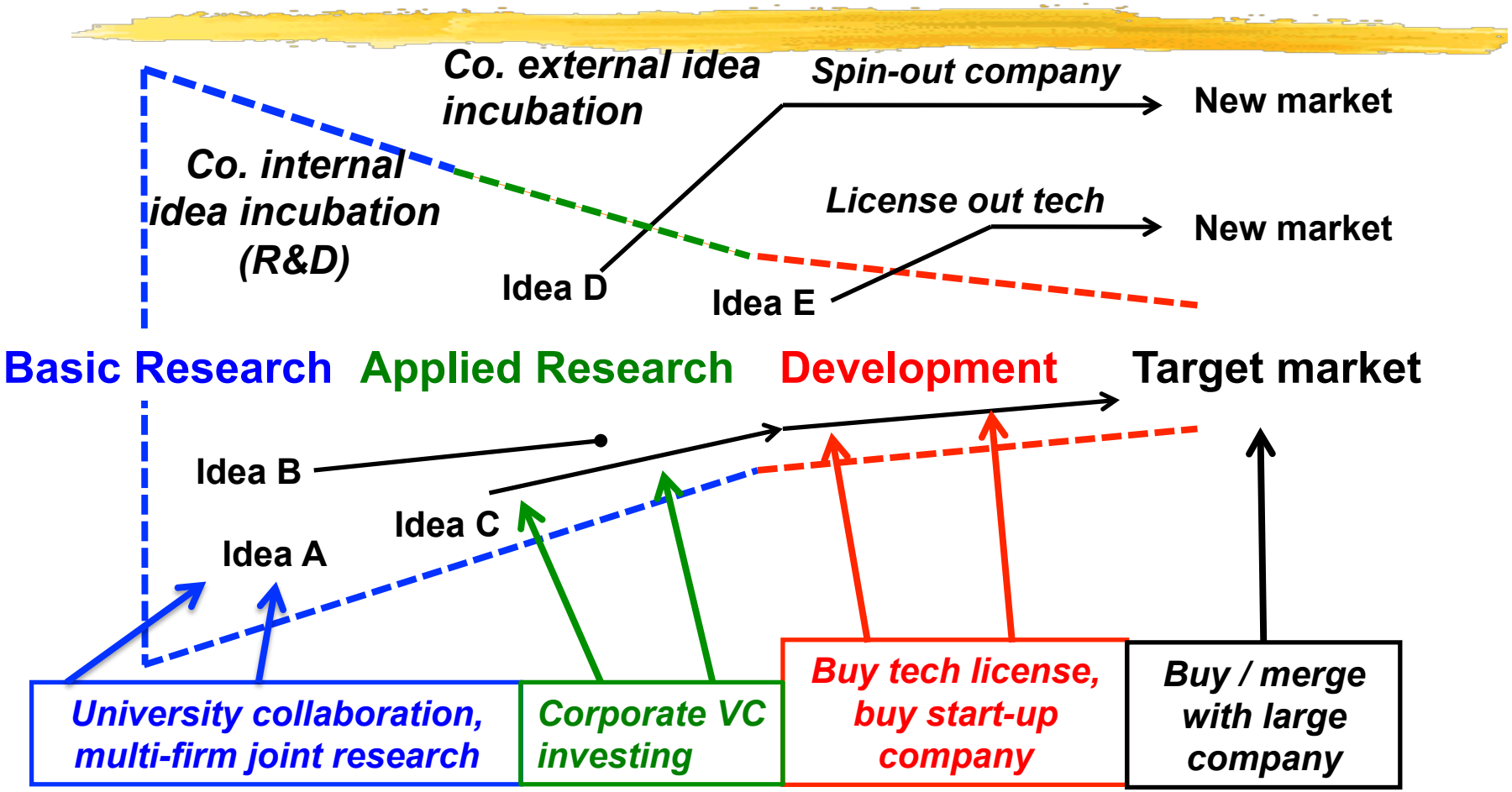
People flow patterns in Asia

- Entrepreneurs do exist everywhere
- Asia labor markets tend to lack good people who are willing to work for (other people's) start-ups
  - Incentivization by start-up companies is not sophisticated (wages cheap, little equity – create less team cohesion)
- Social stigma: not only failure, but also going to a nonprestige company
- Lack of clear expectations of exit: so far, very few serial entrepreneurs in Asia

Idea and knowledge flow in Asia

- Most Asia countries have focused on increasing IP output from universities, research institutions; emphasis on tech transfer
- Mentoring is not well-developed
  - Considerations of "face"
  - Less confrontational board – management relations
  - Confucian traditions of apprenticeship (imitate the master, don't expect explanations or analysis)
- Start-up companies arguably have more difficulty getting to market in Asia (except China)
- Failure of open innovation systems – start-up companies lack recipients for ideas
  - Big companies may buy start-ups, but usually fail to capitalize on external idea

Open innovation: sources of ideas



Google: big company practicing open innovation

- Company-internal R&D spending in the year from 2011Q4 – 2012Q3 = $6.217 billion
  - 13.1% of revenues; average for software industries is 13.3%
- In 2011, Google made one large company acquisition
  - Motorola Mobility (2011, $12.5 billion) was about present day business
- In 2011, Google made 24 start-up company acquisitions
  - Areas expected to be critical to Google business within two years or so
  - Probably spent around $700 million (terms of some deals not public)
- Google established corporate VC fund (Google Ventures) 2009
  - Fund size $100 million, increased to $300 million in 2013
  - Makes minority investments in start-up companies (not complete ownership) that are 3 – 7 years from market
- Active supporter of university research at Stanford and elsewhere

Summary – Final Comments

- Entrepreneurship in Asia is strongly opportunity-driven
  - Even in "factor-driven economies"
- People – especially in Asia – have tended to focus on "creation" stage of entrepreneurship
  - Characteristic of studies of entrepreneurship, government policies
  - Similar to focus on creativity in innovation processes
- Need more focus on growth, market access, and exit
  - In research and in policies
  - So…

Some upcoming sessions in this series

- April 15 Dai Watanabe, VP of Strategy and Corporate Development, DeNA West
- April 22 Daniel W. Zhang, Chairman, WuMart Holdings
- April 29 Earl Martin Valencia, President, IdeaSpace (Philippines)
- And more… series concludes on May 27