

6th Annual Conference on Collaboration for Advancing Entrepreneurship

Academia's 25% Rule

Western New England School of Law
Springfield, MA October 14, 2011

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Lecturer

Strategy and Innovation Department

School of Management

Boston University

Immediate Past President

Association of University Technology Managers



Universities and Entrepreneurship

- ❑ There are many, many ways new companies get created round universities
 - ❑ By students
 - ❑ Facebook, UnderArmour, Yahoo, Dell, Apple, Microsoft.....
 - ❑ By alumni
 - ❑ Hewlett-Packard, Campbell Soup.....
 - ❑ By faculty and staff
 - ❑ Based on university IP
 - ❑ Google, Cree, Silicon Graphics.....
 - ❑ Based on know-how
 - ❑ Cisco, SUN Microsystems, ITA.....



Entrepreneurial Impact: The Role of MIT

Edward B. Roberts and Charles Eesley
MIT Sloan School of Management

February 2009



Executive Summary



KAUFFMAN
The Foundation of Entrepreneurship

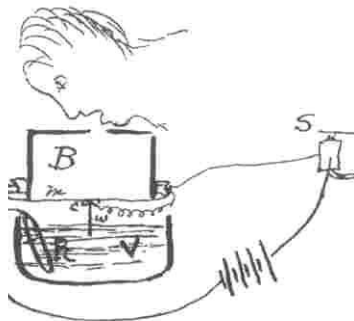
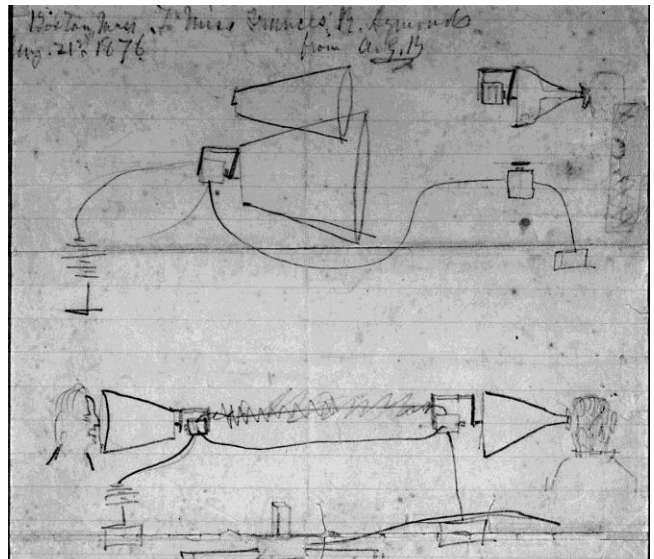
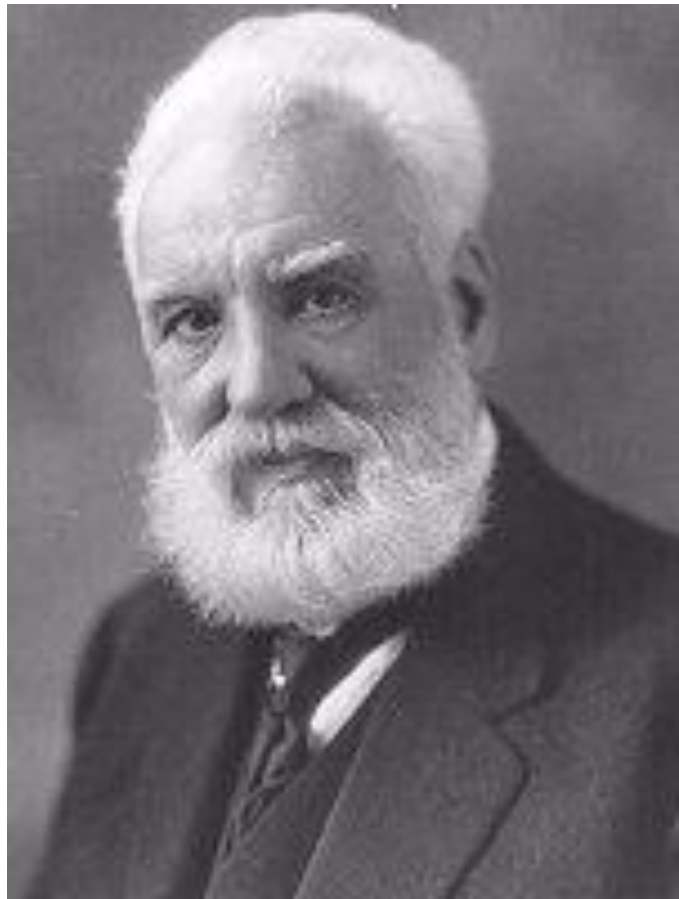
Trivia

- ❑ Who is the most famous Professor who's ever been a member of BU's faculty?

Clues:

- ❑ Not known for his scientific discoveries or learned writings
- ❑ Applied a 50 year old scientific discovery to meet unmet consumer needs
- ❑ Couldn't interest the leading company in his industry to take up his ideas
- ❑ Founded his own company, with his father-in-law, to commercialize
 - ❑ Just a typical prof doing what it takes to get his stuff commercialized





Alexander Graham Bell

- 1873 Appointed Professor of Vocal Physiology and Elocution at Boston University
- 1874 Started experimenting with electricity; worked on a harmonic multiple telegraph system
- 1875 Dean Lewis Monroe advanced him one year's salary
- 1876 Patent prepared January 15 - February 13; filed morning of February 14; Elisha Grey filed caveat in afternoon
Interference declared February 19; dissolved February 25
US Patent 174,465 issued March 7;
"Mr. Watson -- come here -- I want you" March 10, 1876



No. 174,465



TO ALL TO WHOM THESE PRESENTS SHALL COME:
Whereas Alexander Graham Bell, of Salem, Massachusetts

has presented to the Commissioner of Patents
 a petition praying for the grant of LETTERS PATENT for an alleged new and useful

Improvement in Telegraphy.

a description of which invention is contained in the Specification of which a copy
 is herewith annexed and made a part hereof, and has complied with the various
 requirements of Law in such cases made and provided, and

Whereas, upon due examination, made by the said Commissioner, it is adjudged
 to be justly entitled to a Patent under the Law;

Now therefore these **LETTERS PATENT** are to grant unto the said
 Alexander Graham Bell, his *heirs or assigns*
 for the term of *seventeen* years from the *seventh* day of
March one thousand eight hundred and *seventy-six*
 the exclusive right to make, use and vend the said invention throughout
 the United States and the Territories thereof.

In testimony whereof I have caused my
 hand and caused the seal of the Patent Office
 to be affixed at the City of Washington,
 this *seventh* day of *March*
 in the year of our Lord one thousand eight
 hundred and *seventy-six*, and of
 the Independence of the United States
 of America the *first* hundredth.

By *Charles D. Bell*
 Secretary of the Interior
 Commissioner of Patents

2 Sheets—Sheet 1.

A. G. BELL.
 TELEGRAPHY.

No. 174,465.

Patented March 7, 1876.

Fig. 1.



Fig. 2.

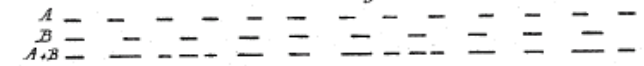


Fig. 3.

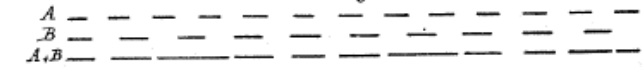


Fig. 4.

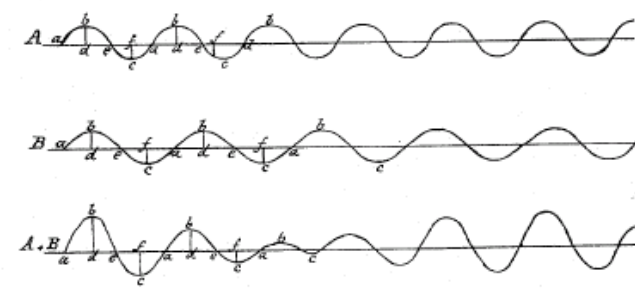
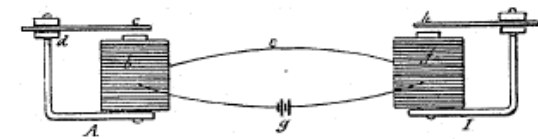


Fig. 5.



Witnesses
Ewell T. A. Bell
H. J. Hutchinson

Inventor:
A. Graham Bell
by Atty. Wm. S. P. M. S. P.

And Now, the Rest of the Story.....

- ❑ Spent the next 17 years defending the patents
- ❑ Over 600 lawsuits 1876 - 93
- ❑ Defended by Frederick Fish
- ❑ Only finally confirmed by 4 – 3 vote of the Supreme Court in 1887

Abstract

100%

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

and confirms that

to the control of

ALL THIS WAS NOW REPRODUCED EXACTLY IN THE CAPITAL CITY OF AMERICAN TELEPHONE AND TELEGRAPH COMPANY.
Democrat to be the best of all the publications in form as they daily authorize it getting up after a number of
 that is different, properly made, and the combination of such material is not lost by the reproduction.
 which the work of word in form is not the reproduction of the daily authorized office in

W. Carlow

Al Bunn

W. N. Andrews

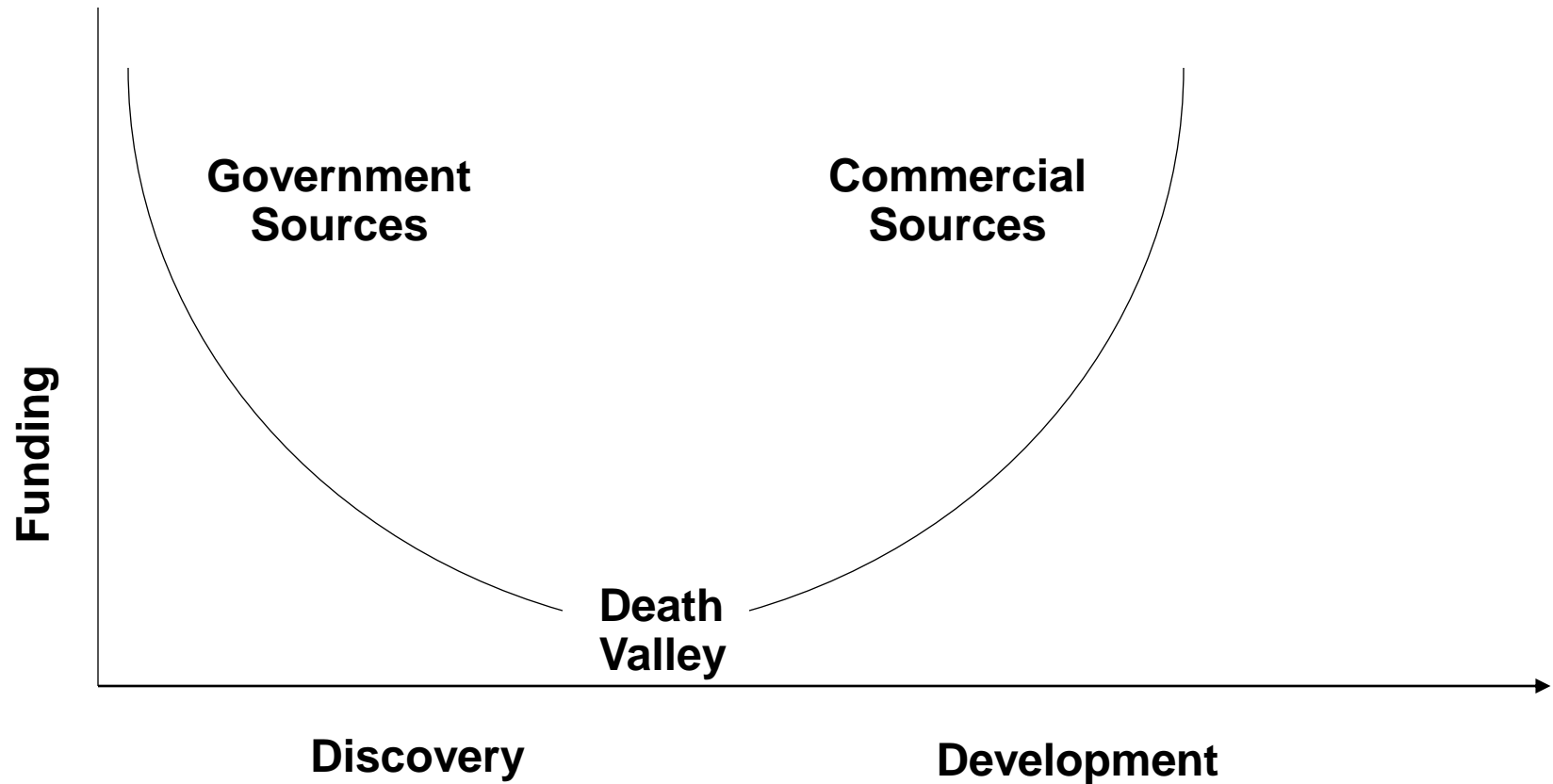
Oh, and what did BU get out of it?

- ❑ Nada
 - ❑ Didn't have any patent policy in place at the time
- ❑ US Universities taught rather than researched back then

Academic inventions

- ❑ Governments fund academic research to:
 - ❑ Advance their country's scientific knowledge base
 - ❑ Train the next generation of scientists
 - ❑ Not to discover new products
 - ❑ Certainly not to develop new products
- ❑ Funding decisions are therefore based on scientific merit
 - ❑ Not commercial merit
 - ❑ It is therefore extremely difficult to get academic funding for Proof-of-Concept/Prototyping
- ❑ Academic inventions are therefore embryonic and totally unproven

Academia's Death Valley





With thanks to Dr. Kosuke Kato, Osaka University and Fellow at Boston University Office of Technology Development



Licensing's 25% Rule

- ❑ Aka the *Goldscheider Principle*

“The Licensor should receive 25% and the Licensee should receive 75% of the pre-tax profits from a licensed product”

- ❑ Enunciated by Robert Goldscheider based on his experiences doing a series of licenses in the 1950's and 60's
- ❑ Historically, one of the fundamental principles of technology valuation

United States Court of Appeals
for the Federal Circuit

UNILOC USA, INC. AND UNILOC SINGAPORE
PRIVATE LIMITED,
Plaintiffs-Appellants,

v.

MICROSOFT CORPORATION,
Defendant-Cross Appellant.

2010-1035, -1055

Appeal from the United States District Court for the
District of Rhode Island in Case No. 03-CV-0440, Judge
William E. Smith.

Decided: January 4, 2011

DONALD R. DUNNER, Finnegan, Henderson, Farabow,
Garrett and Dunner, LLP, of Washington, DC, argued for
plaintiff-appellant. With him on the brief were DON O.
BURLEY; ERIK R. PUKNYS and AARON J. CAPRON, of Palo
Alto, California. Of counsel on the brief were PAUL J.
HAYES and DEAN G. BOSTOCK, Mintz, Levin, Cohn, Ferris,
Glovsky & Popeo PC, of Boston, Massachusetts

The Future of the 25% Rule?

“This court now holds as a matter of Federal Circuit law that the 25 percent rule of thumb is a fundamentally flawed tool for determining a baseline royalty rate in a hypothetical negotiation. Evidence relying on the 25 percent rule of thumb is thus inadmissible under *Daubert and the Federal Rules of Evidence, because it fails to tie a reasonable royalty base to the facts of the case at issue.*”

Technology Transfer's 25% Rule



Technology Transfer's 25% Rule

- ❑ Aka the *Stevens Principle*

“Successful technology transfer programs only license 25% of the invention disclosures they receive”

- ❑ Conclusion realized after analyzing technology transfer statistics from many institutions and many countries over many years

“A hot academic technology is one that two companies are interested in”

Lita Nelsen, MIT
1997



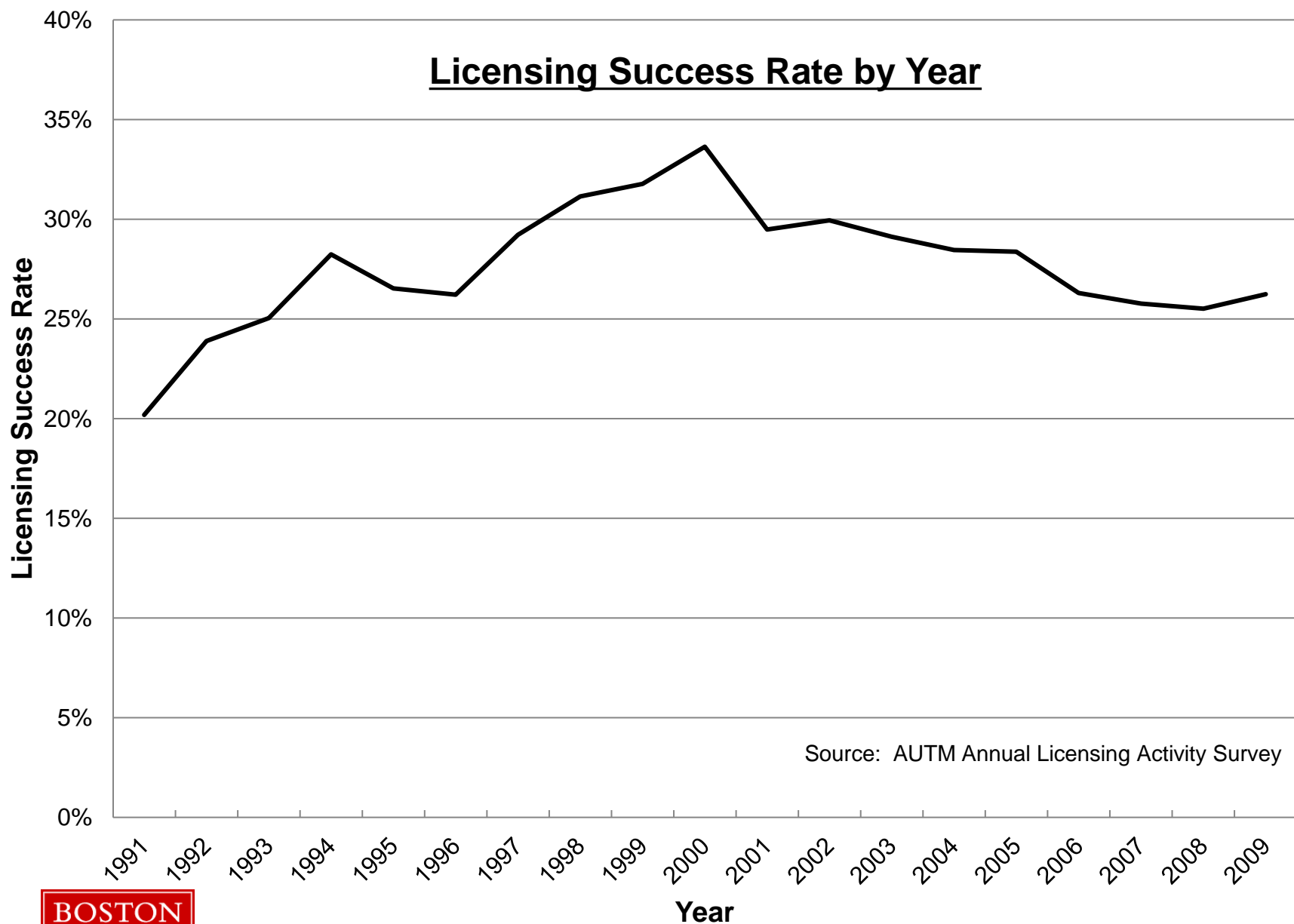
Licensing Success Rate (“LSR”)

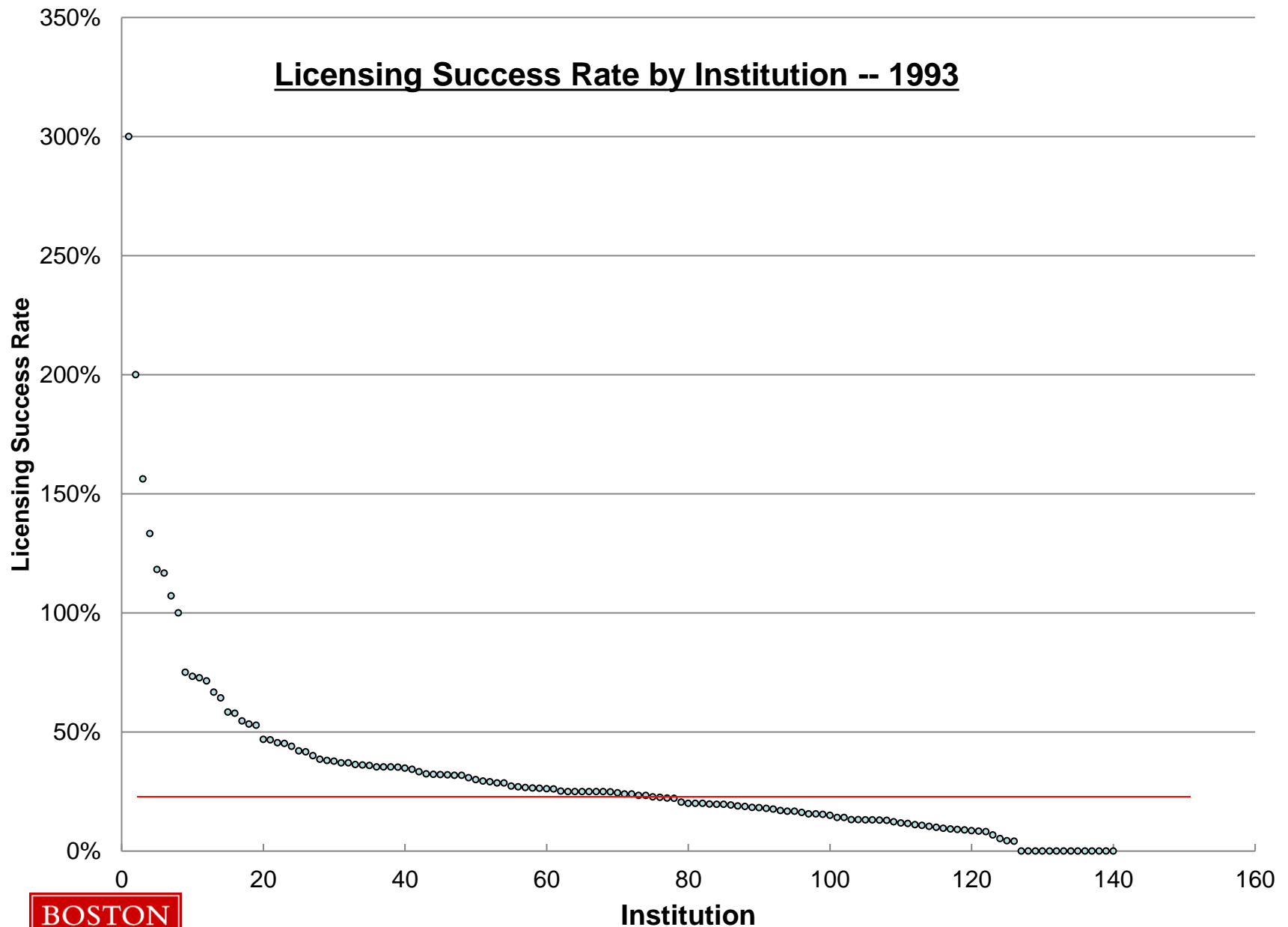
$$\text{LSR} = \frac{\text{The number of licenses signed}}{\text{The number of invention disclosures received}}$$

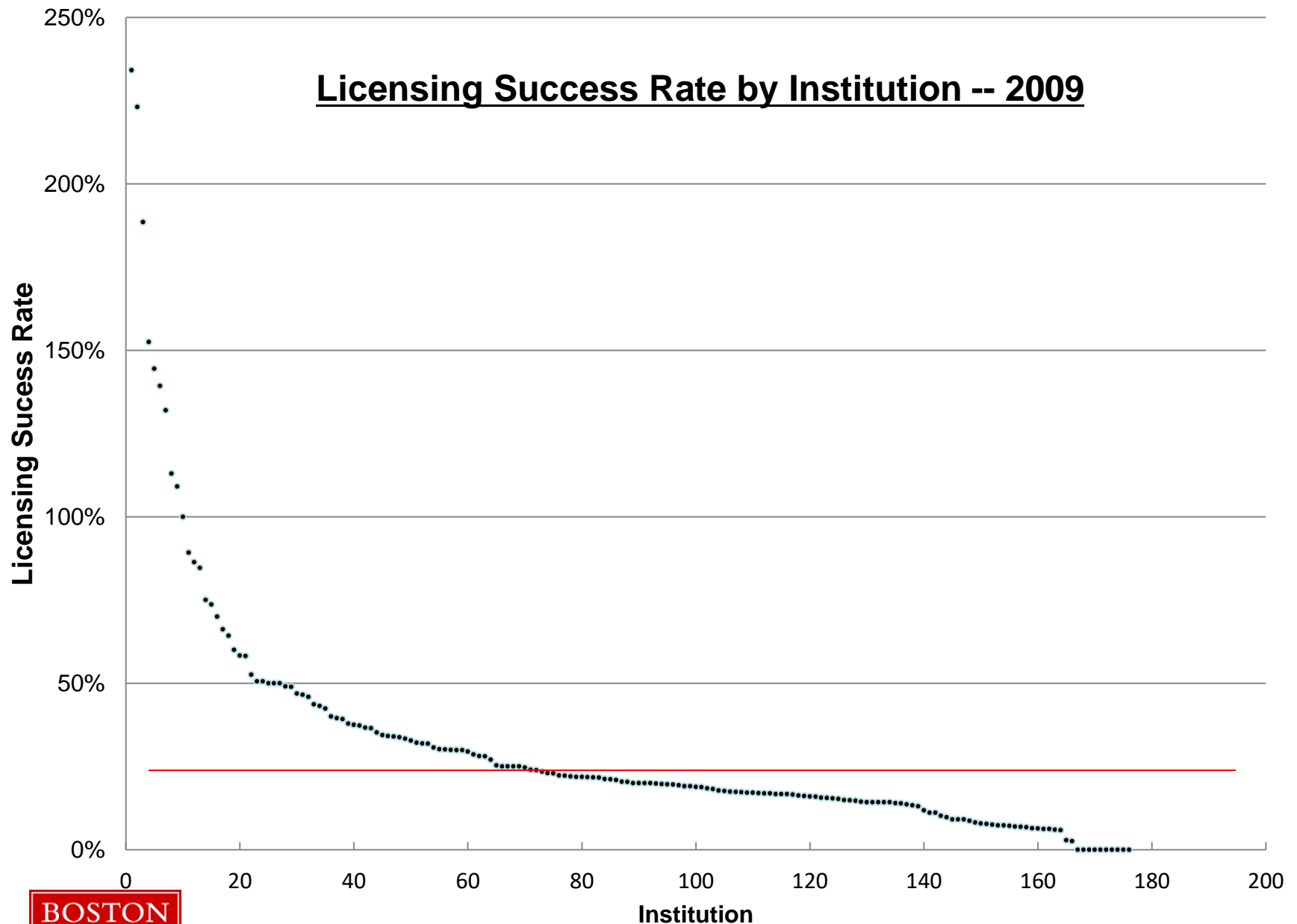
2009 Licensing Activity Survey

<u>Invention Disclosures</u>	<u>20,309</u>	
New Patent Applications	12,109	59.6%
Licenses/Options Signed	5,328	26.2%
Patents Issued	3,417	16.8%
Start-ups Formed	596	2.9%









Details

	<u>1993</u>	<u>2009</u>
Number reporting	140	176
Average LSR	25.0%	26.2%
Median LSR	24.2%	20.2%
Standard Deviation	37.6%	36.3%
Number with LSR:		
>100%	8	10
50-100%	11	17
15-35%	38	80
<10%	12	23
0%	14	10

Why Is This So Hard?

	<u>2009</u>
❑ Average success rate	26.2%
❑ Median success rate	
❑ All institutions	20.9%
❑ 82 >\$200million research	21.9%
❑ 62 >100 disclosures	21.6%
❑ U. of California	16.0%
❑ MIT	18.4%
❑ Stanford	17.4%
❑ WARF	17.1%

Institutions with LSR >100%

<u>Institution</u>	<u>No. of Years</u>
Wistar Inst.	14
Iowa State Univ.	13
Univ. of Georgia	10
Washington University	9
Montana State Univ.	8
Salk Institute	8
Univ. of Oregon	7
Fred Hutchinson Cancer Res. Ctr.	5
National Jewish Health	5
North Dakota State Univ.	5
Univ. of New Hampshire	5

Why Is This So Hard?

- ❑ Should we be more selective?
 - ❑ Research Corporation Technologies accepted 228 inventions from 1991-2008
 - ❑ ~13/year

Results – Research Corporation (1992-2009)

Projects Accepted	228
<u>Licensed</u>	<u>66</u>
Licensing Success Rate	28.9%

Why Is This So Hard?

- ❑ Should we invest more to make them less embryonic?
- ❑ Translational Research
 - ❑ von Liebig (UCSD) and Deshpande (MIT) Centers
 - ❑ Wallace H. Coulter Foundation

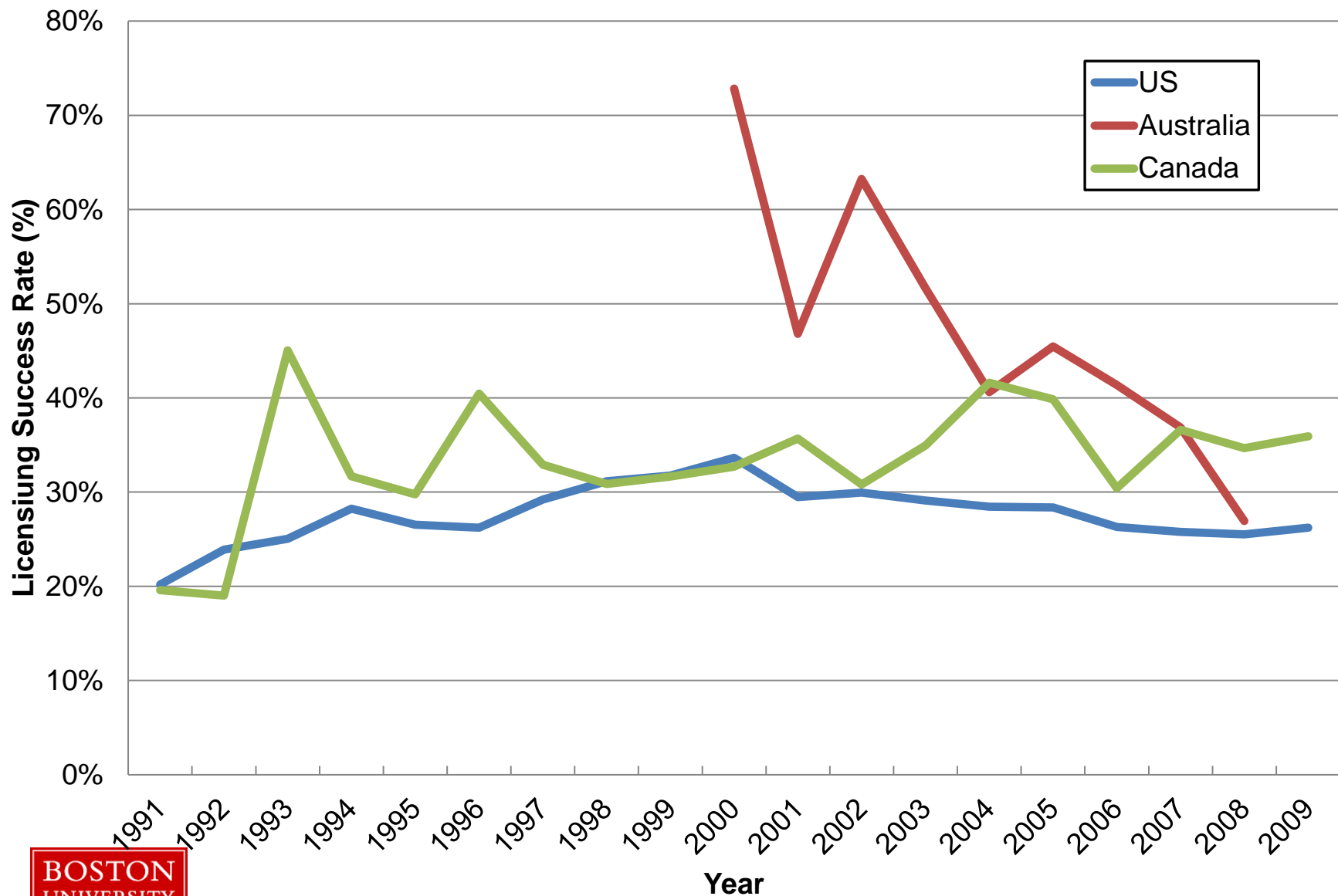
Overall Results

	<u>von Liebig</u>	<u>Deshpande</u>	<u>Coulter</u>	<u>Combined</u>	
Projects funded	66	64	210	340	
Total transactions	20	11	57	88	
LSR	30.3%	17.2%	27.1%	25.9%	
Licenses	4	1	20	25	28.4%
Start-Ups	16	10	37	63	71.6%

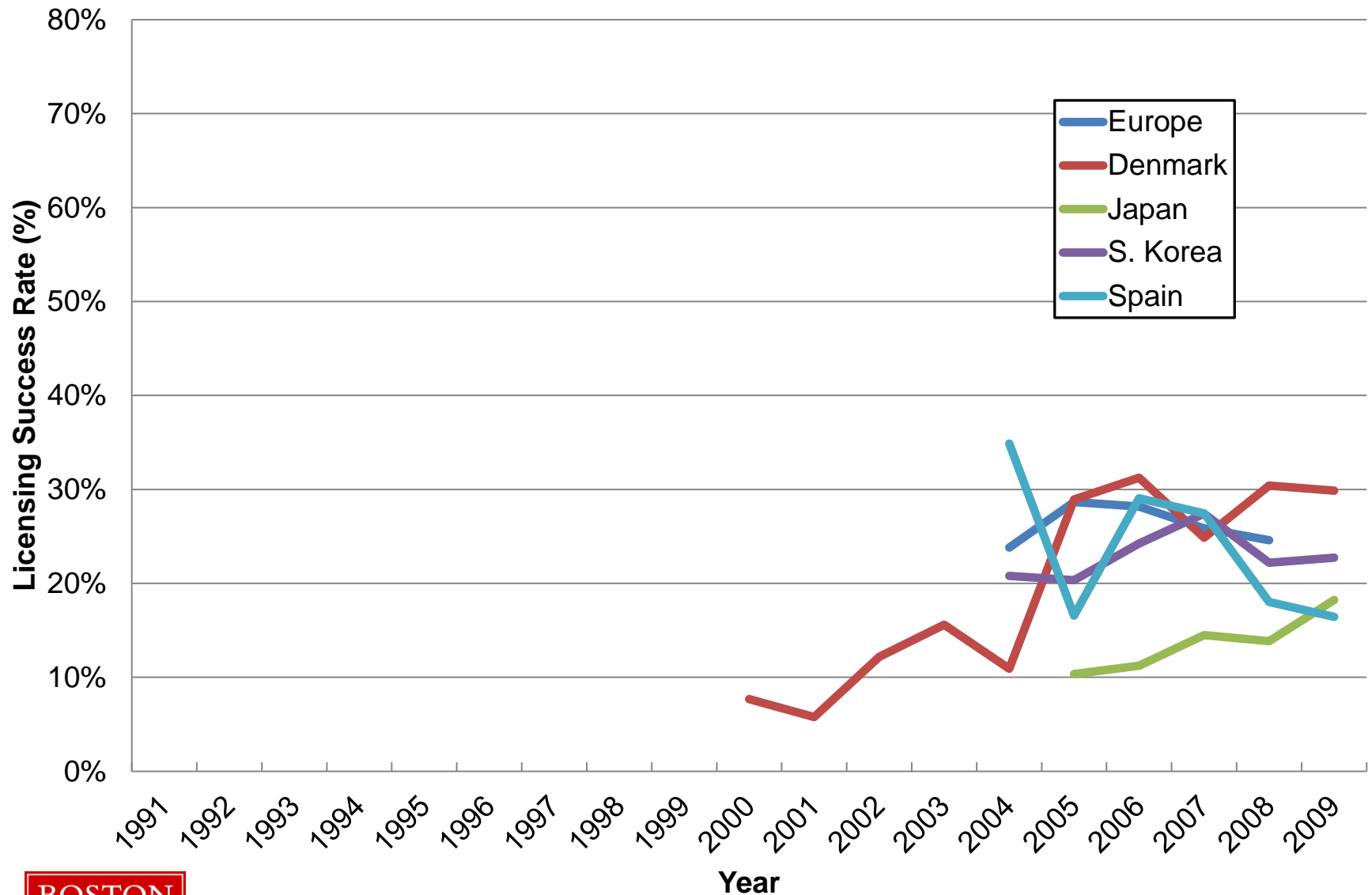
International LSR's



Licensing Success Rate for Different Countries



Licensing Success Rate for Different Countries



Discussion

- ❑ Why is the LSR so low?
- ❑ Why do different institutions have different LSR's?

Why is the LSR so low?

- ❑ Academic invention is driven by Technology Push
 - ❑ What can we do today that we couldn't do yesterday?
- ❑ Successful innovation is driven by Market Pull
 - ❑ What does the market want to buy?
 - ❑ What unmet need does the invention fill?

Why do different institutions have different LSR's?

- ❑ Developed various hypotheses that could be tested using the AUTM dataset

Why do different institutions have different LSR's?

- ❑ Developed various hypotheses that could be tested using the AUTM dataset
- ❑ Methodology:
 - ❑ Created single dataset for every year of AUTM Survey
 - ❑ Transformed data to logarithmic basis
 - ❑ Calculated correlation coefficients using JMP program:

<u>Hypothesis</u>	<u>Proxy Data within AUTM Survey</u>
<ul style="list-style-type: none"> • Its technologies are more marketable/commercializable 	
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ It is more selective in the invention disclosures it takes in 	Total Research Expenditures/Invention Disclosure
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ Its faculty understand technology commercialization better 	Ratio of Startup Licenses to Total Licenses Granted
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ It has protected them better 	Legal Expenditures/Invention Disclosure
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ Its technologies have a shorter timeline to market 	No Med School
<ul style="list-style-type: none"> • It markets them more effectively 	
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ It has been commercializing technologies longer 	Year 0.5 FTE Devoted to Tech Transfer
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ It has had more successes in the past and so understands what makes a technology commercializable 	Cumulative Active Licenses
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ It has adequate staffing to market and license its technologies 	Licensing FTEs/Invention Disclosures Received
<ul style="list-style-type: none"> • It sits in an innovation-rich ecosystem 	State – MA, CA, NC =1 others =0
<ul style="list-style-type: none"> • It focuses on non-exclusive licensing, so that a given technology can be licensed more than once 	Ratio of Non-Exclusive to Exclusive Licenses Granted

Conclusions

- ❑ We found a positive correlation of LSR with:
 - ❑ Total Research Expenditures/Invention Disclosure ($r = +0.33$)
 - ❑ More selective TTO's do better
 - ❑ Legal Expenditures/Invention Disclosure ($r = +0.26$)
 - ❑ Better protected technology is more attractive
 - ❑ Licensing FTEs/Invention Disclosure Received ($r = +0.34$)
 - ❑ Higher staffing level in TTO is beneficial
 - ❑ Ratio of Non-Exclusive to Exclusive Licenses Granted ($r = +0.38$)
 - ❑ Tendency to license non-exclusively increases licenses
- ❑ We found a negative correlation of LSR with:
 - ❑ Ratio of Startup to Total Licenses Granted ($r = -0.58$)
 - ❑ Start-ups are more demanding to complete

Conclusions

- ❑ We did not find a significant correlation with:
 - ❑ Med School
 - ❑ Age of TTO
 - ❑ State

Questions?

astevens@bu.edu

