THE ECONOMIC CONTRIBUTION OF TECHNOLOGY LICENSING

A Conference Co-Sponsored by
The United States Patent & Trademark Office and
George Mason University's
Center for the Protection of Intellectual Property (CPIP)

Wednesday, June 8, 2016
Singapore/Venice Combined Room
USPTO's Global Intellectual Property Academy
600 Delaney Street, Alexandria, Virginia 22314

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Panel 1: The Economic Contribution of Licensing to the US Economy

- Alan Marco, Chief Economist, USPTO
- Brian Moyer, Director, Bureau of Economic Analysis, Department of Commerce
- Jeffrey Whittle, Partner, Hogan Lovells, Chairman, Licensing Executives Society (USA and Canada)
- Becky Fraser, Director, Government Affairs, Qualcomm
- Moderator: Prof. Adam Mossoff, George Mason University School of Law, Director of Academic Programs and Senior Scholar, CPIP


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Economics of Licensing and the Market for Technology

Alan C. Marco, Chief Economist

June 2016

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PRICES


$80,000
Angelina (buyer)
$40,000
Brad (seller)
$0

PRICES DON’T MATTER

LICENSING DOESN'T MATTER

PRICES ARE EVERYTHING

Why do we care about royalty flows?

Inputs

- Labor
- Capital
- Raw materials
- Technology

Intermediate goods

Output

Why do we care about royalty flows?

- Understanding the **contribution of factors of production**
  - Incentives for **research and development (R&D)**
  - Incentives for **commercialization**

- Facilitates the **market for technology**
  - Knowledge flow
  - Supplier initiated innovation


UNITED STATES PATENT AND TRADEMARK OFFICE
DEPARTMENT OF COMMERCE

The Economic Contribution of Licensing to the U.S. Economy

Brian C. Moyer

June 8, 2016

Bureau of Economic Analysis
U.S. DEPARTMENT OF COMMERCE

BEA's Economic Accounts

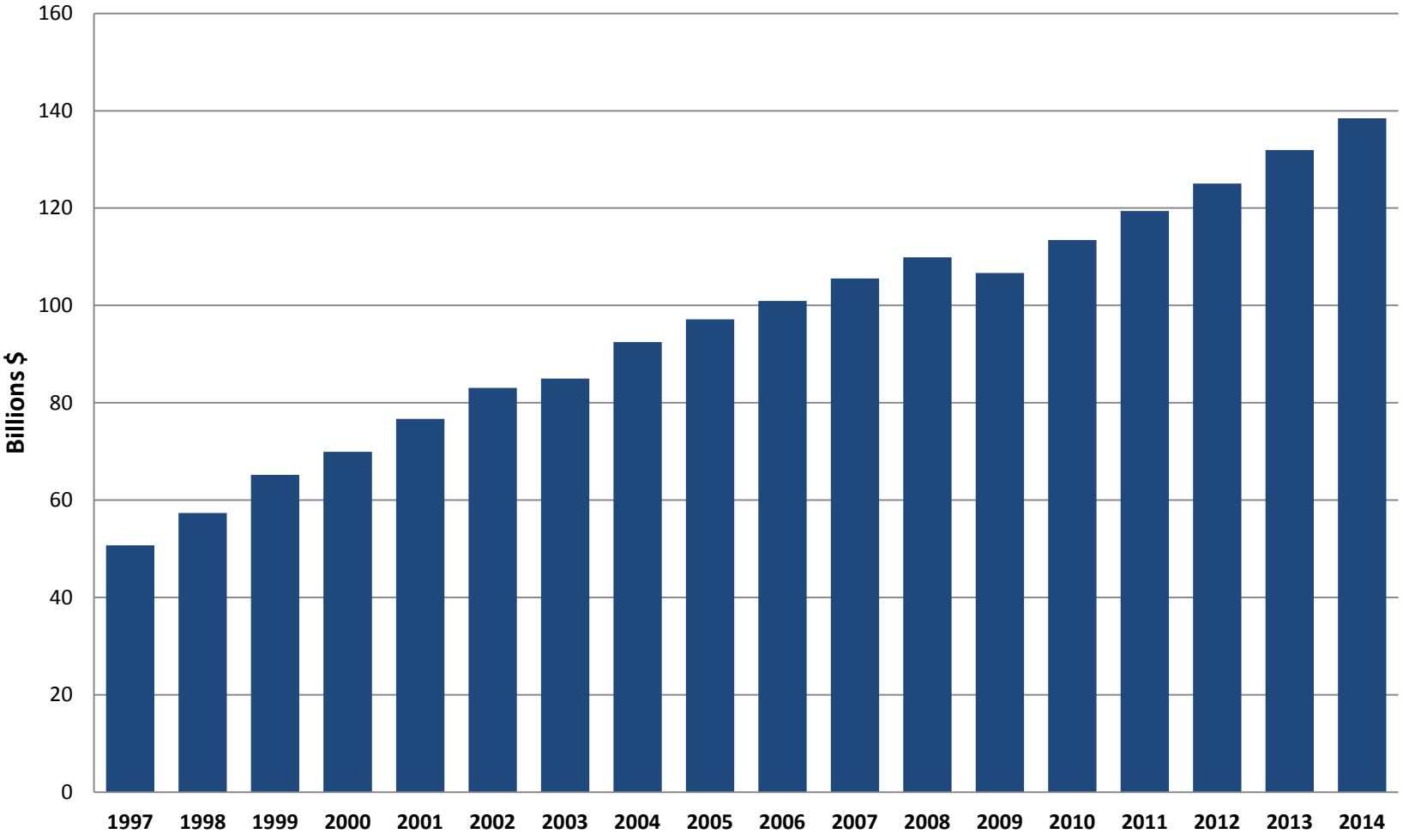
National Accounts—Gross Domestic Product (GDP), Personal Income, Corporate Profits

International Accounts—Balance of Payments Accounts, Trade in Goods and Services, Foreign Direct Investment

Industry Accounts—Input-Output Accounts, GDP by Industry, Travel and Tourism Accounts

Regional Accounts—GDP by State Accounts, State and Local Area Personal Income

Trend in Licensing Output



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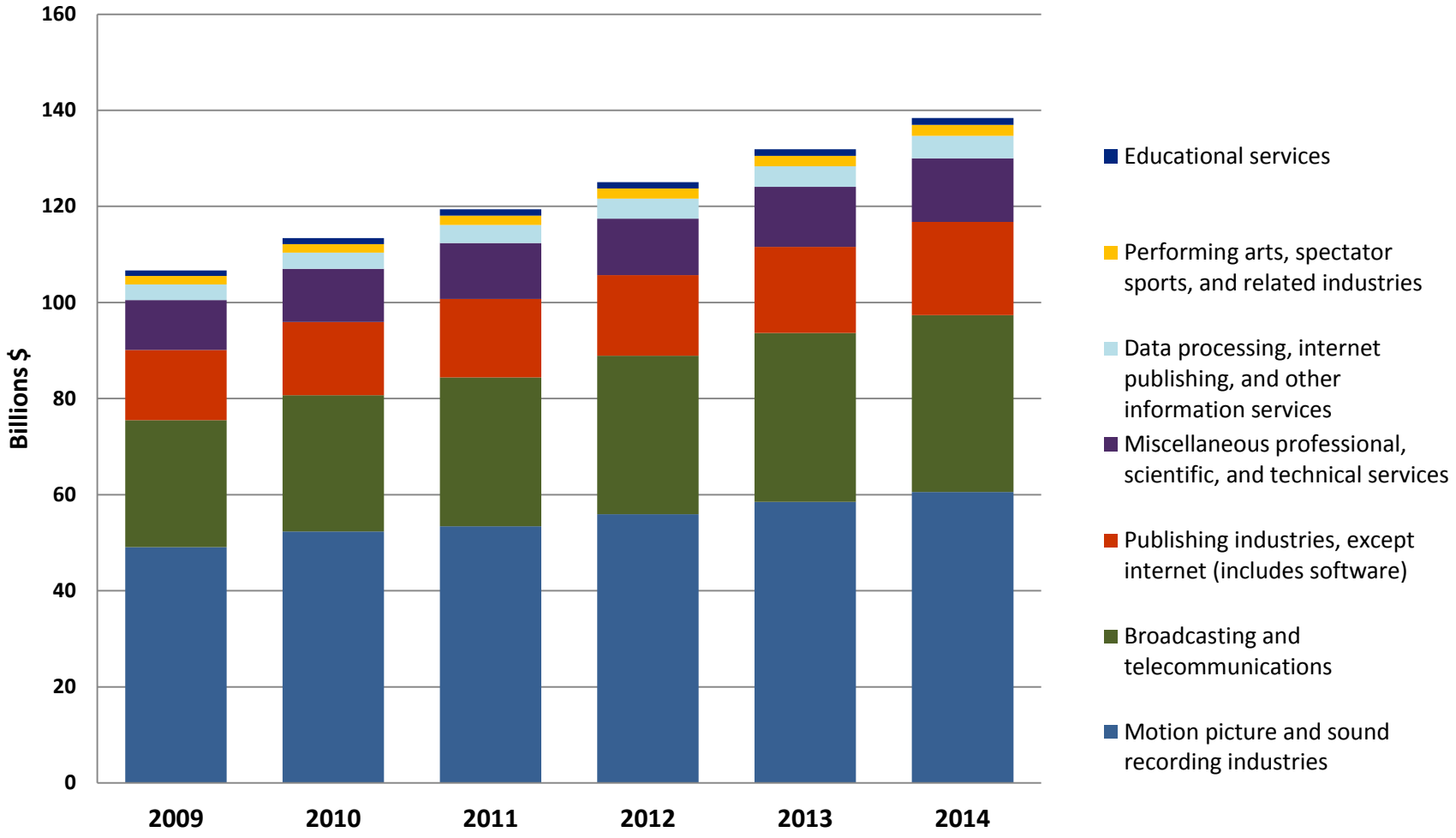
Licensing Output by Industry



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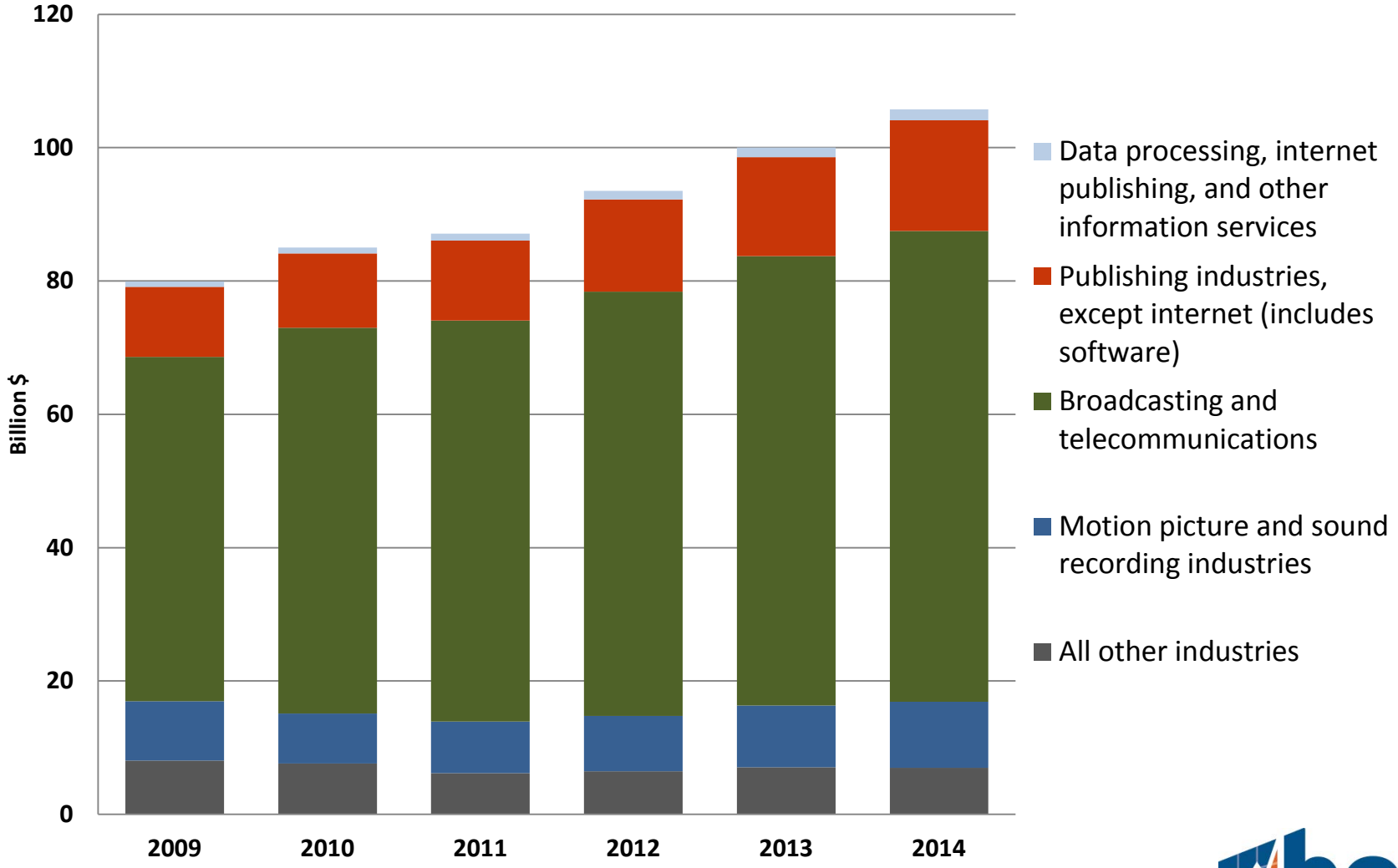
Use of Licensing by Industry

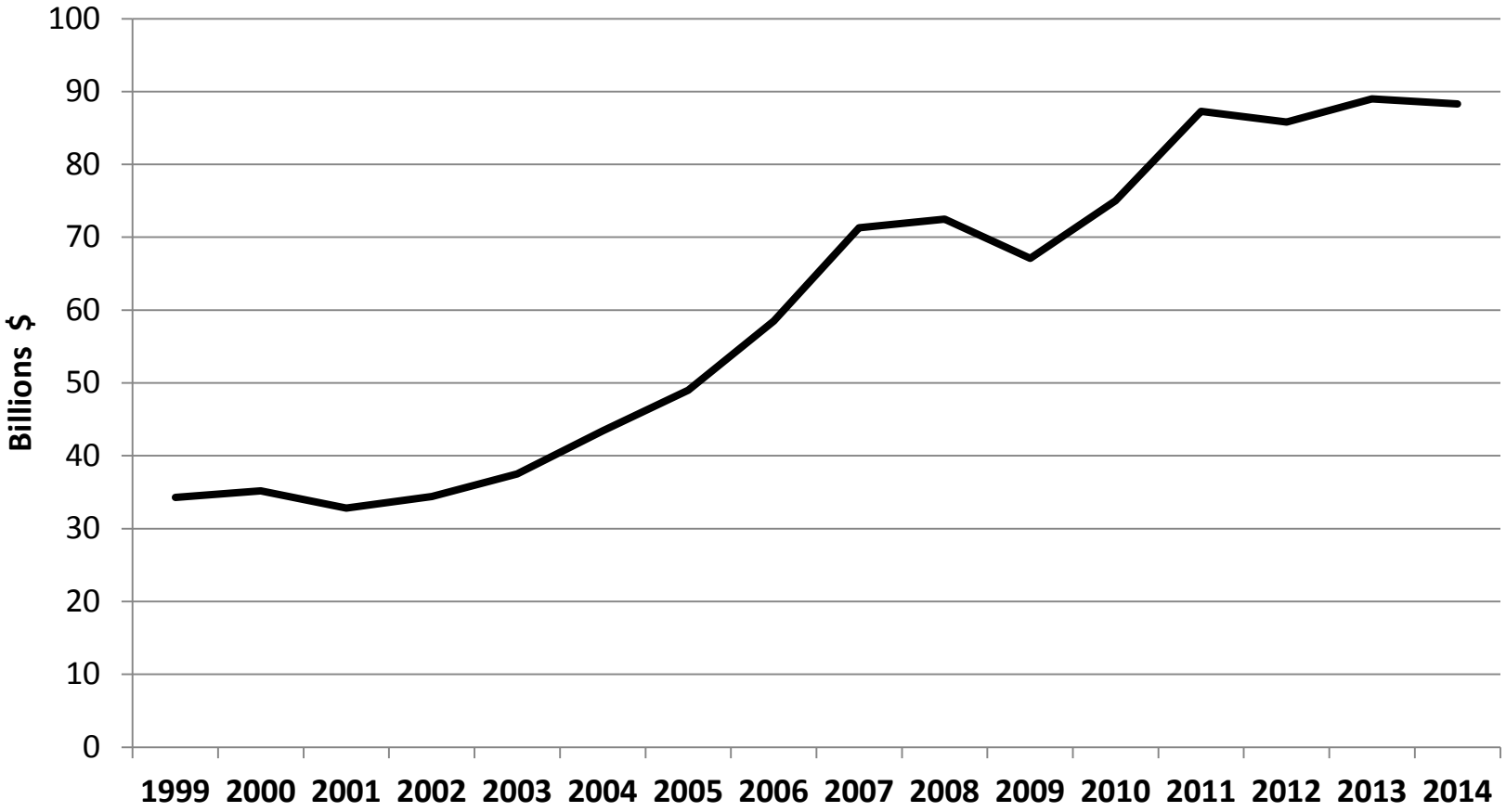


Licensing and Foreign Trade

- Licensing is the largest item included in the U.S. Balance of Payments statistics under “Charges for the use of intellectual property”

- Net exports of licensing is a major contributor to the U.S. Trade Surplus in Services—accounting for approximately 40 percent of the Surplus in 2015

Net Exports of Licensing



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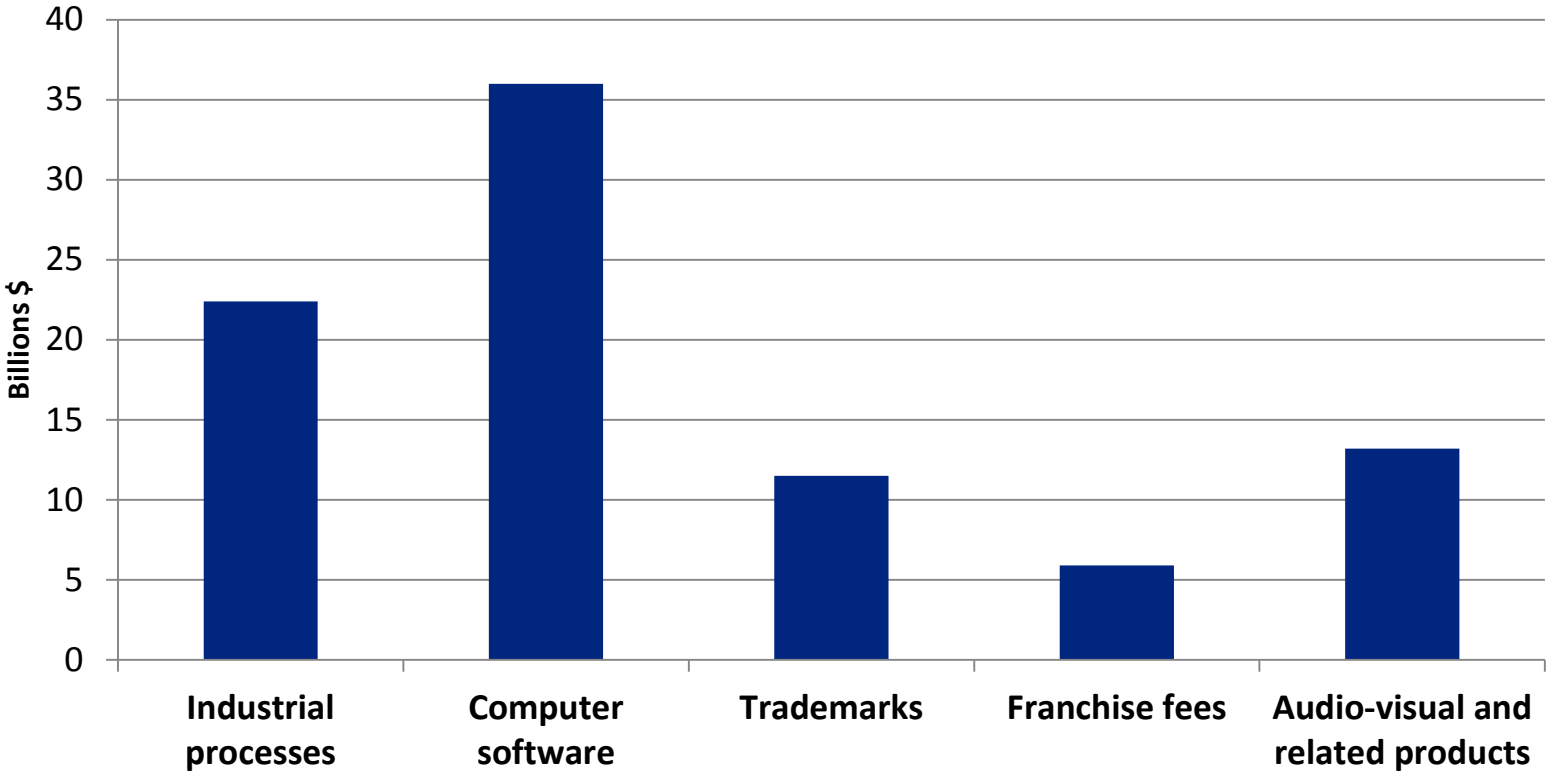
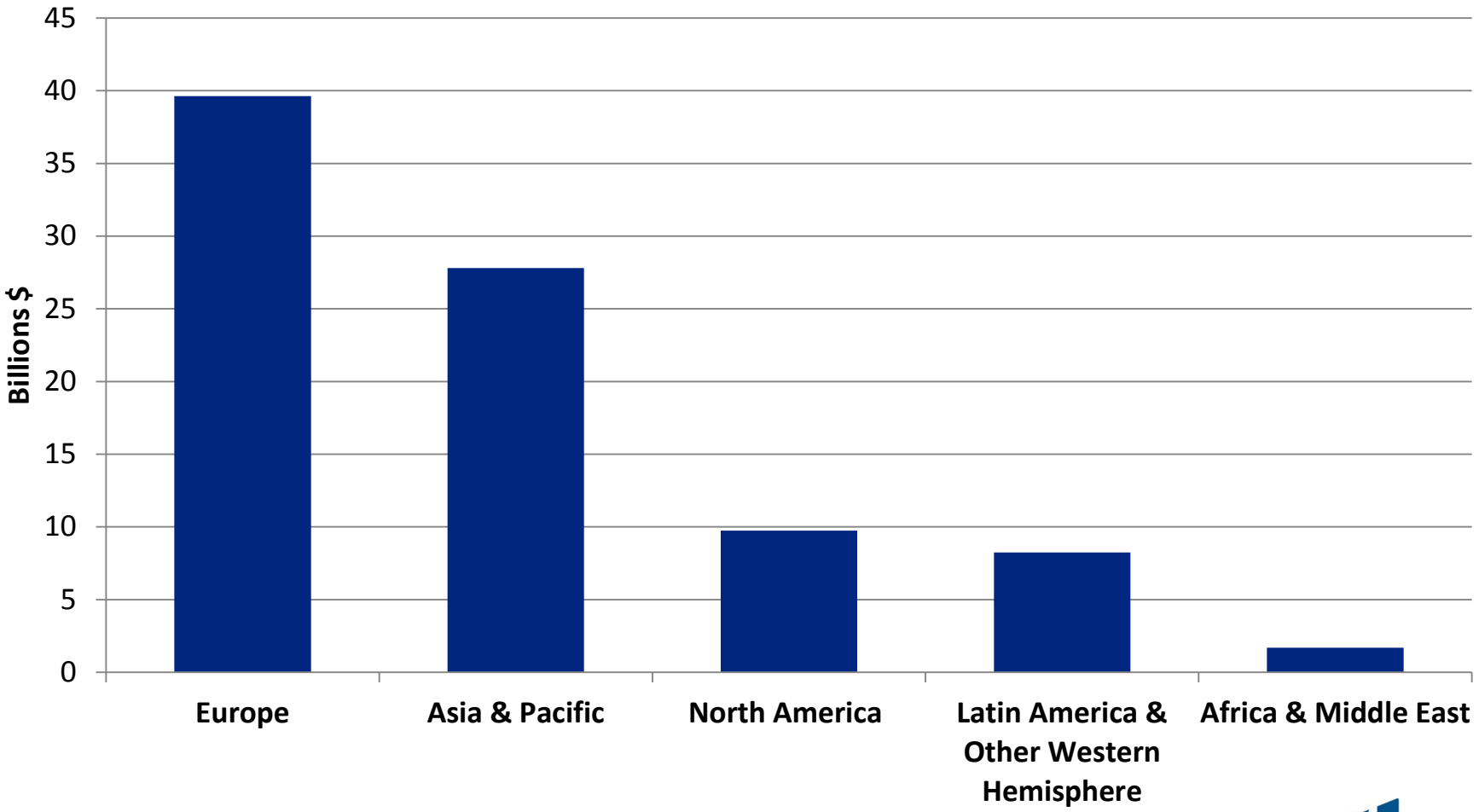
Net Exports of Licensing by Type, 2013



Note: Data for 2013 are shown to avoid data disclosure restrictions with the 2014 data.

Net Exports of Licensing by Region, 2015



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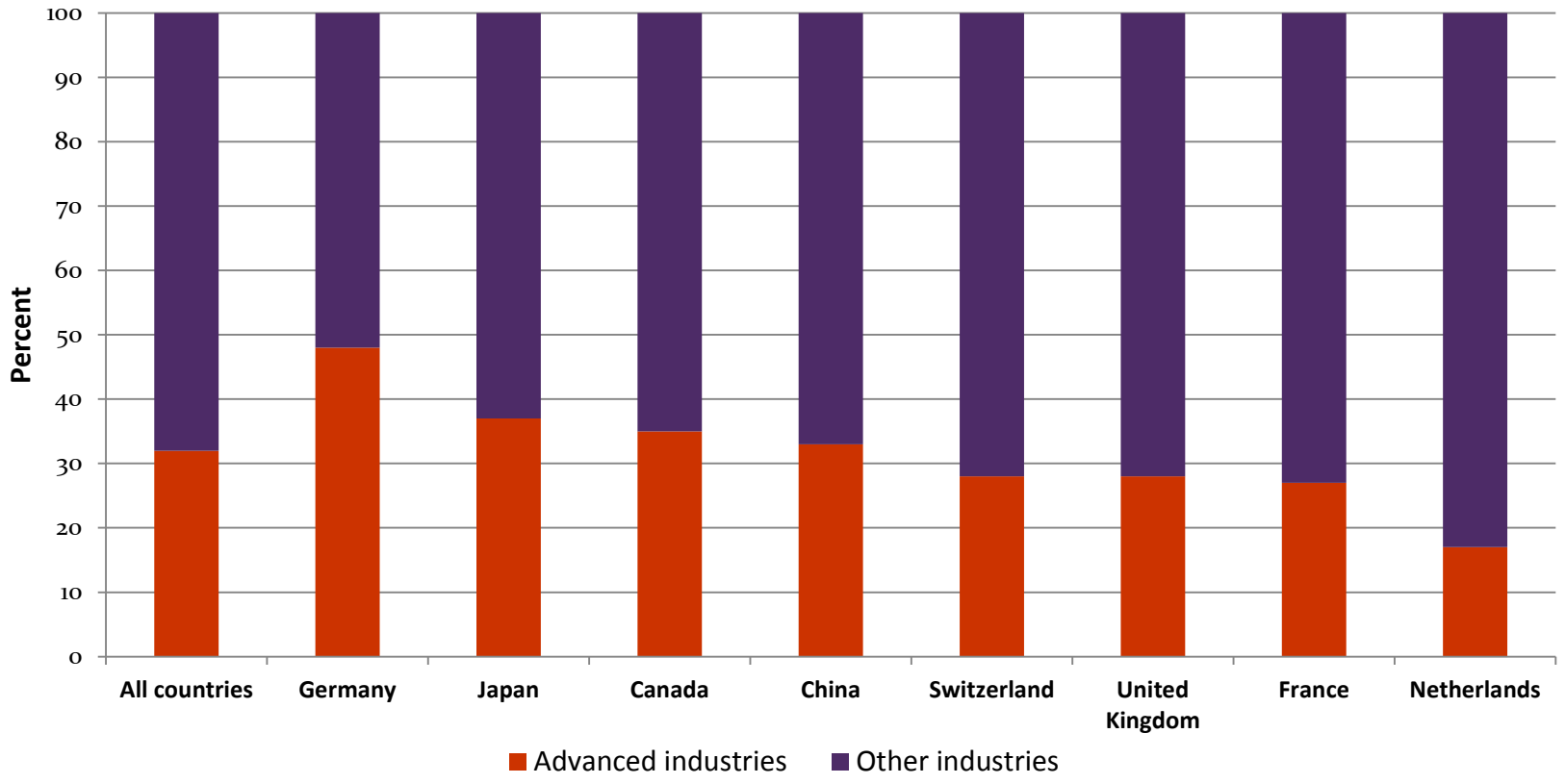
Technology Transfer Through FDI

Share of Employment by Foreign-Owned U.S. Businesses in Advanced Industries and Other Industries, by Selected Country, 2013*



* 2013 data are the most recent available, but the shares have tended to be stable over time.

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U.S. DEPARTMENT OF COMMERCE

Technology Transfer Through FDI

- Most foreign direct investment in the United States is **not** in advanced industries.
  - For the portion that is in advanced industries, investors must bring a certain level of technological capability in order to benefit from U.S. hi-tech innovations.
  - Berry (2006): "Lagging firms are not likely to be able to simply invest in a foreign country to build their technological capabilities… rather a firm's prior possession of relevant knowledge and skill is crucial for this type of strategy to work."

Source: Heather Berry (2006) "Leaders, Laggards, and the Pursuit of Foreign Knowledge." *Strategic Management Journal* 27(2): 151-168.

Licensing Executives Society (USA and Canada), Inc.

Economic Contribution of Licensing to the US Economy

USPTO – Washington, DC

June 8, 2016

www.lesusacanada.org

Licensing Executives Society
(USA and Canada), Inc.

Who Is LES?

(Executives providing the IP Business Bridge)

Licensing Executives Society
(USA and Canada), Inc.

State of Licensing
(as an economic contribution)

Threat/Bad View/Mafia

Licensing: Desire for Balance

1. **Strong Patent System** (High Quality; Thorough Searches; Educated Examiners; Adaptive to New Technology Waves)

2. **Well-Informed Federal Judges** (Active Educational Programs; Experienced Understanding)

1. **Effective Federal Legislation** (Enhances and Incentivizes Innovation Economy; Recognition that Legislation Cannot Address all issues so as not to over-regulate)

Licensing: LES Standards

- Service/Procedural Standards (e.g., ISO-9000)
  - Legislation points to other standards to follow
  - Fills the gap between legislation and private action
  - Allows private management of issues
- Different from but related to Standard Essential Patents (SEPs)

Licensing: LES Standards

- ANSI-Based (broad, open participation)
  - Patent Licensing Standards
  - IP in the Supply Chain Standards
  - IP Brokerage Standards
  - Valuation Standards
  - Board Compliance Standards (under initial development)

Patent Licensing Standards

- Ethical conduct in patent licensing
- License templates
- Patent assignment agreement templates
- Stand-still agreement templates
- Composition of claim charts

IP Brokerage Standards

- Ethical conduct in IP brokerage
- IP brokerage agency agreement templates
- Due diligence steps in IP brokerage
- Service minimums in IP brokerage

IP Protection in Supply Chain Standards

- IT security
- Physical security
- Employee training
- IP management maturity assessments
- Audit
- Reporting

Patent Valuation Standards Committee

- The naked patent licensing context
- Methodologies inside and outside of litigation
- Naked patent sales
- Patent value as part of a total IP package transaction
- Patent value in the context of FRAND

Time for Private Sector to Lead

- Initiate and Maintain Best Practices and Standards
- Implement High Ethical Behavior
- Emphasize Certifications for Licensing Knowledge (e.g., CLP)
- Educate Judicial, Legislative, and Executive Branches
- Focus on maintaining **Innovation Economy**

Licensing Trends No. 1

- United States economy still leads the world in technology commercialization and licensing (**leader**)
- Global economy is getting more educated and savvy about value of intellectual property and technology transfer/licensing (**more competitive**)
- Both rising-industrial and developing economies are hungry for more intellectual property and technology licensing education (**rising interest/competition**)
- Demand is still high for intellectual capital/knowledge

Licensing Trends No. 2

- Significance of Building Patent Portfolio around a Technology Platform in view of the recent changes in the last 4-5 years is important but often slow to understand

- Licensees and Acquirers want depth and strength (number and strong claims)

- Knowledge of and access to prior art is at an unparalleled state (we should take advantage of this to strengthen our patent system(s) in the United States and globally)—REWARDS!

Licensing Executives Society (USA and Canada), Inc.

Questions/Answers

Jeffrey S. Whittle, Chairman
LES (U.S.A. and Canada), Inc.

JEFFREY S. WHITTLE
Partner, Hogan Lovells, Houston, TX (USA)
jeffrey.whittle@hoganlovells.com

Jeffrey S. Whittle has a global Intellectual Property practice and focuses on the energy industry. With an emphasis on technology-based transactions, his practice encompasses mergers and acquisitions, due diligence investigations, and patent opinions. Jeff also focuses on patent protection, portfolio analysis, and other various types of intellectual property contentious and counseling matters, including *Inter Partes* reexamination.

Jeff has over twenty years of experience and served as the head of his former firm's Technology & Intellectual Property Law Section. He has been recognized by Chambers USA, IAM Licensing 250, IAM Patent 1000, IAM Strategy 300, and The Legal 500 United States for his work in law and intellectual property.

In addition to his practice, Jeff is a member of legal associations including the Licensing Executives Society (where he is currently Chairman of the Board), American Intellectual Property Law Association and Federal Circuit Bar Association, among others. He also has served on M.D. Anderson Cancer Center's Technology Review Committee, IP Law360's Advisory Board, and on Wake Forest University School of Law's Board of Visitors. Recently he was awarded and recognized with the Distinguished Service Award from the University of Houston Law Center.

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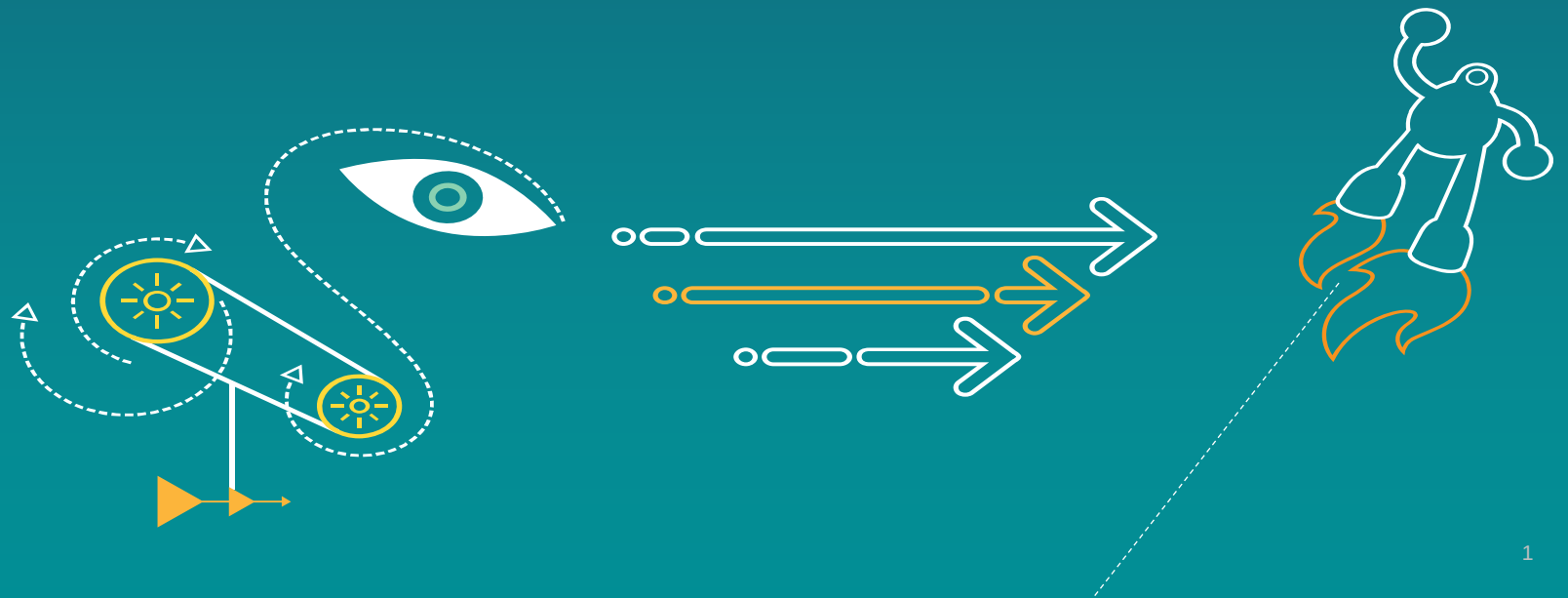
Economic Contribution of Licensing to the US Economy: Qualcomm Case Study



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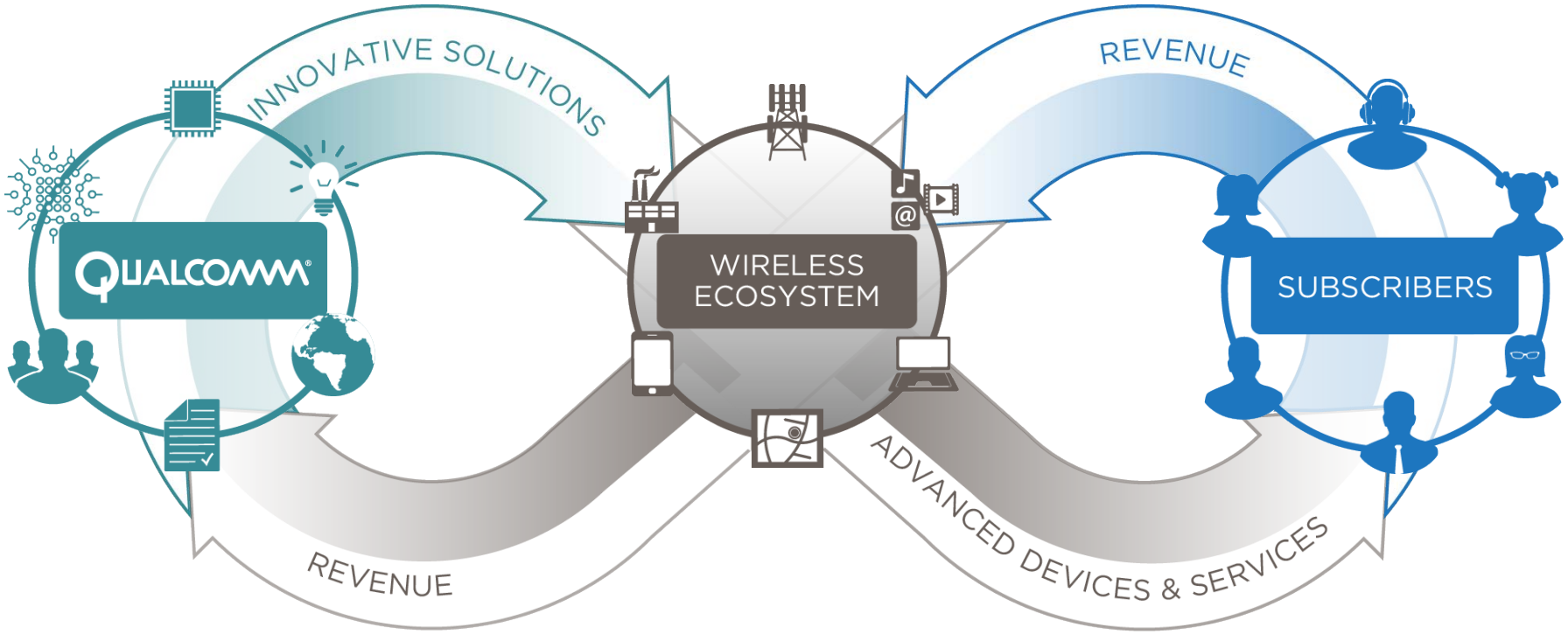
Qualcomm’s Business Model: A Virtuous Cycle

A Technology Enabler for the Entire Mobile Value Chain



The Mobile Technology Revolution: Fastest adopted technology of all time

FUELING ECONOMIC GROWTH

- Mobile contributed 3.2% to US GDP ($54B) in 2014 and is on track to reach nearly 5% by 2020.
- Mobile value chain is directly responsible for more than 1 million jobs in the US

LICENSING OF CORE TECHNOLOGY IS ESSENTIAL TO RAPID AND COST-EFFECTIVE ADVANCEMENT

- Clear and cooperative licensing arrangements make it possible for companies across the value chain – and thus consumers and businesses – to access the most advanced technology.
- Effective industry-driven collaborations to solve technical problems, set standards and license IP have been key enablers in this revolution.

IMPORTANT CONTRIBUTOR OF US ECONOMY

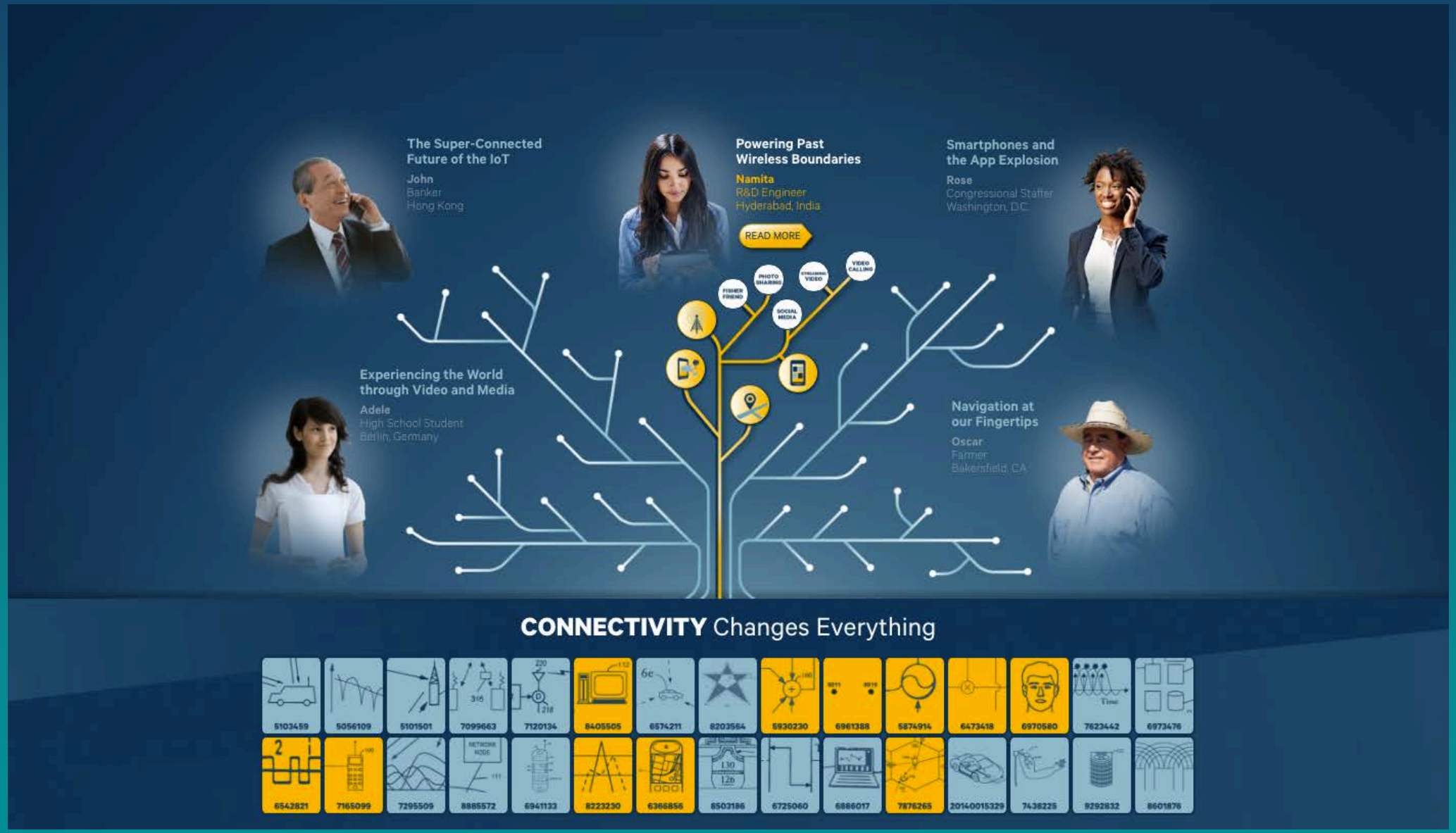
- US abroad took in $130.36 billion from export of licensed IP and imported $42.12 billion in 2014

San Diego, California Impact

- Qualcomm's presence in the regional economy adds $4.5 billion in direct and indirect economic activity annually – the combined effect is larger than six other major industry sectors in the region.
- Every job created by QC generates about 2.3 jobs in the region
- Every dollar generated directly by Qualcomm generates almost $2 of economic activity in the region.

Every year Qualcomm creates the economic impact of about one and half 2012 London Olympic Games

Wireless Technology Family Tree App



Thank you

Follow us on:

For more information on Qualcomm, visit us at:
www.qualcomm.com & www.qualcomm.com/blog

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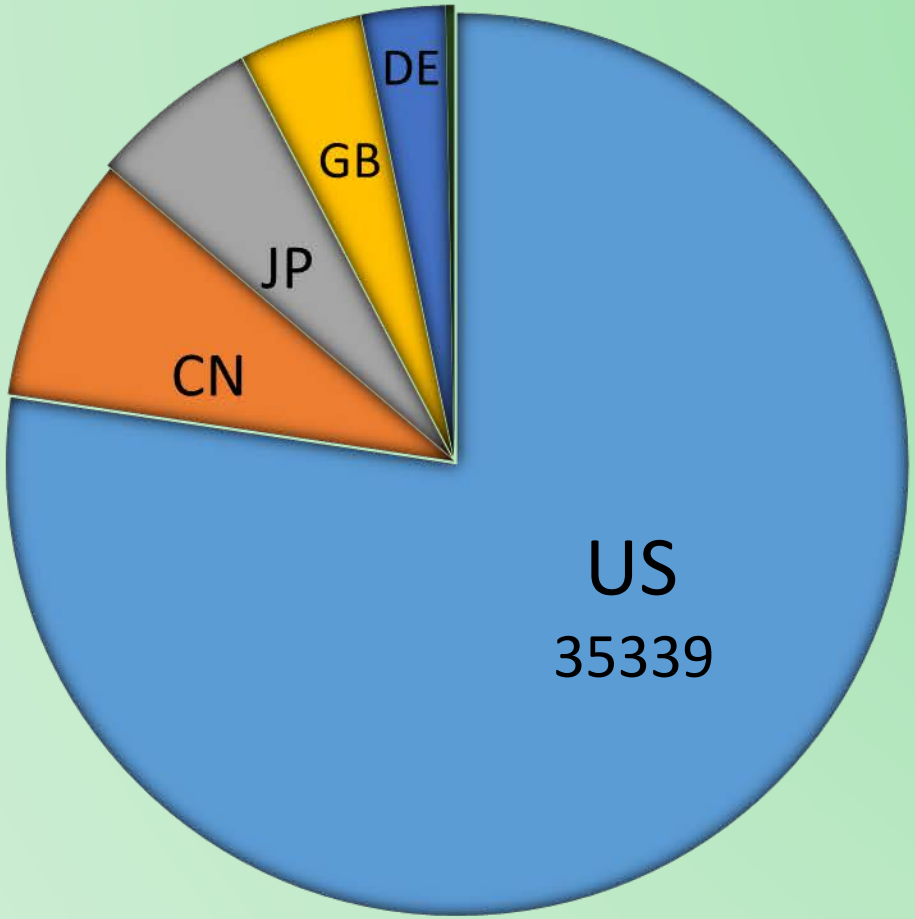
Panel 2: The Role of Licensing in Trade, Investment, and Technology Transfer

- Marc Ehrlich, Associate General Counsel, IBM
- Elizabeth Kendall, Director for Intellectual Property and Innovation, USTR
- Keith Mallinson, Founder, Wise Harbor
- Prof. Walter Park, American University
- Moderator: Prof. Mark Schultz, Southern Illinois University School of Law, Director of Academic Programs and Senior Scholar, CPIP

IBM Granted Patents By Selected Country - 1/1/2016



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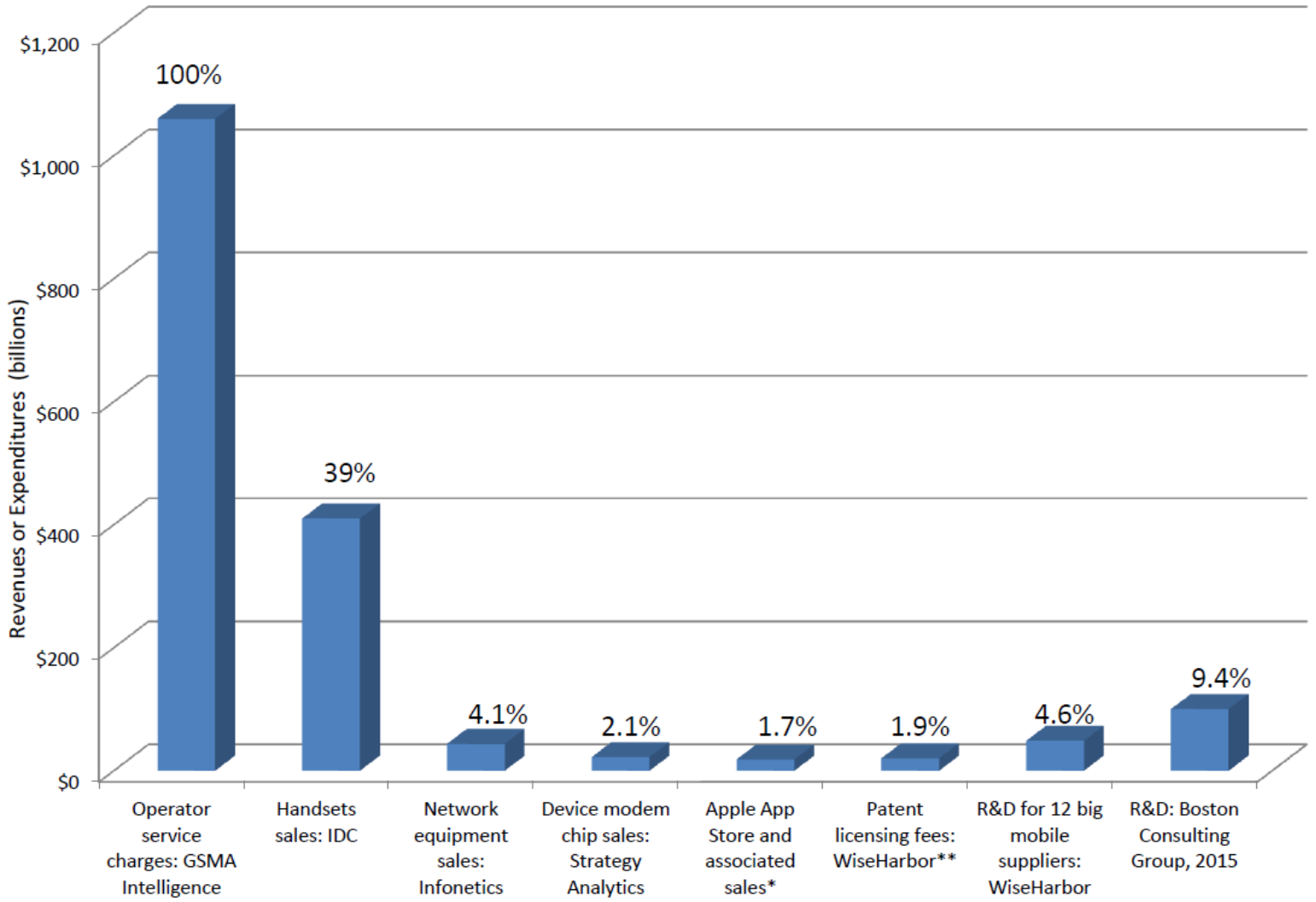
The Role of Licensing in Trade, Investment, and Technology Transfer

USPTO-CPIP Licensing Conference

Keith Mallinson
Founder, WiseHarbor

Alexandria, VA: June 2016

Mobile Ecosystem Revenues and Costs (2014)



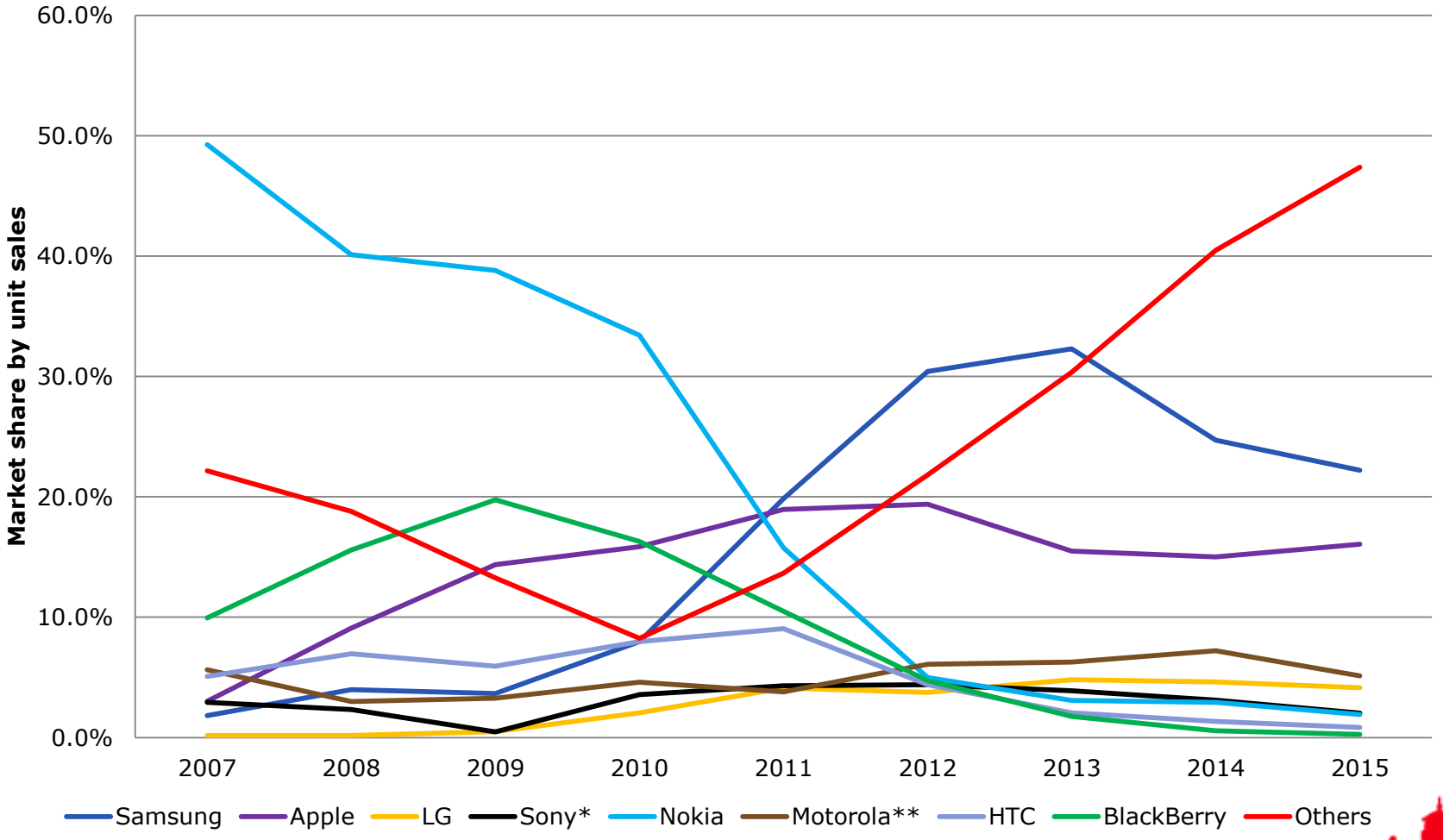
*Only around 17% of phone users have Apple's iPhones. Android, BlackBerry and Windows Phone users buy their apps elsewhere
**Aggregate fees for all mobile SEPs and many other patents (conservatively high estimate of payments actually made)

Vertical Integration of OEMs has Collapsed

- **Almost all major developers of mobile standard-essential technologies have exited the handset market, while some of the brand names are still used independently of their former parents**

	Peak share year	Peak share %	Exited market	Prior year share	Sold to
Qualcomm		Small: CDMA-only	2000	Small: CDMA-only	Kyocera
Alcatel	2002	2.8%	2005	1.1%	TCL: uses Alcatel OneTouch brand
Siemens	2003	8.4%	2005	7.3%	BenQ: bankruptcy followed in 2006
Motorola	2006	22%	2012	2.7%	Google, who then sold to Lenovo in 2014
Ericsson	2007	9.2%	2011	3.2%	Sony, following 2001-formed JV
Nokia	2008	40%	2014	15%	Microsoft

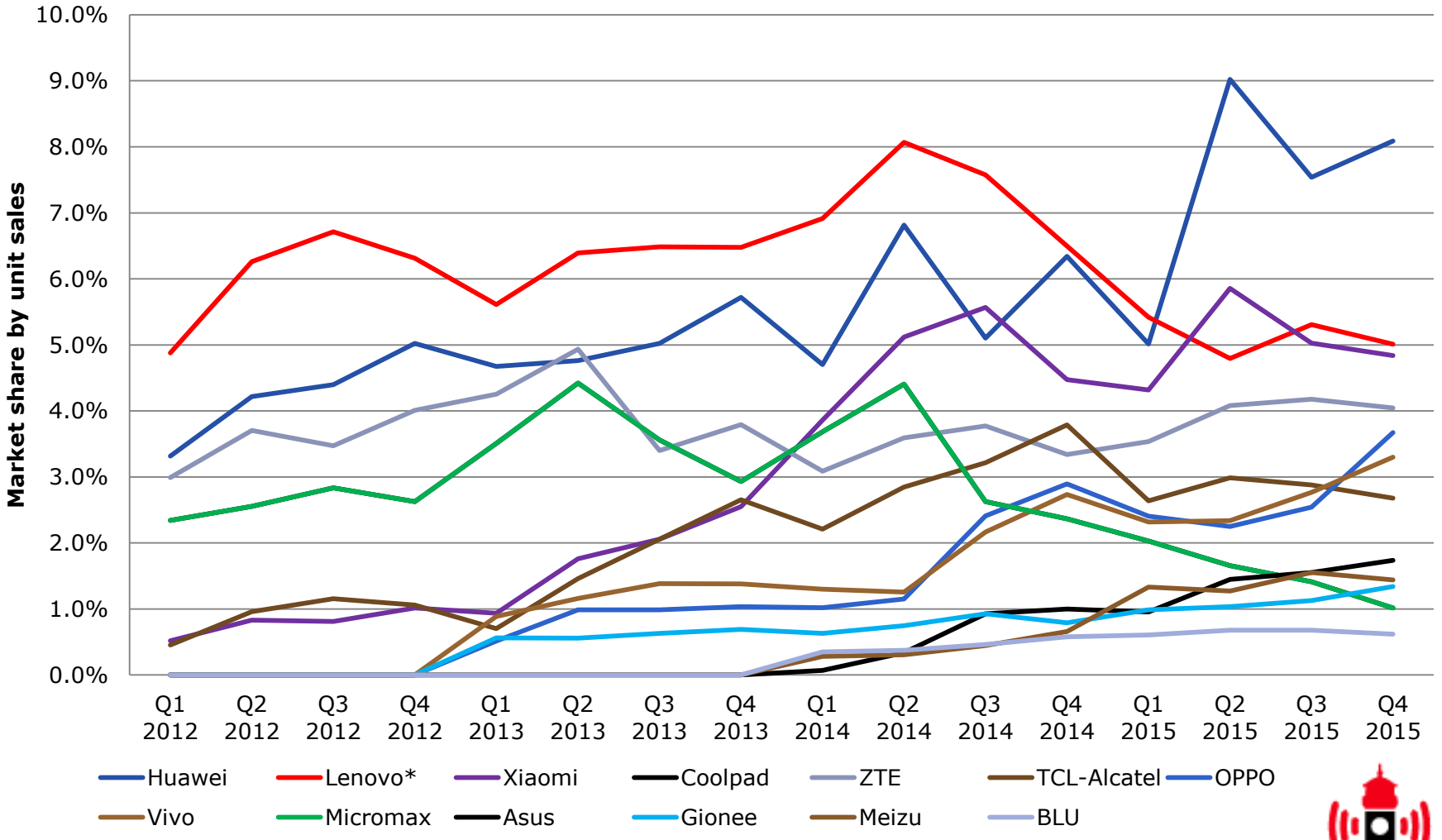
All Change: Shifting Smartphone Market Shares



** Formerly Sony Ericsson.*

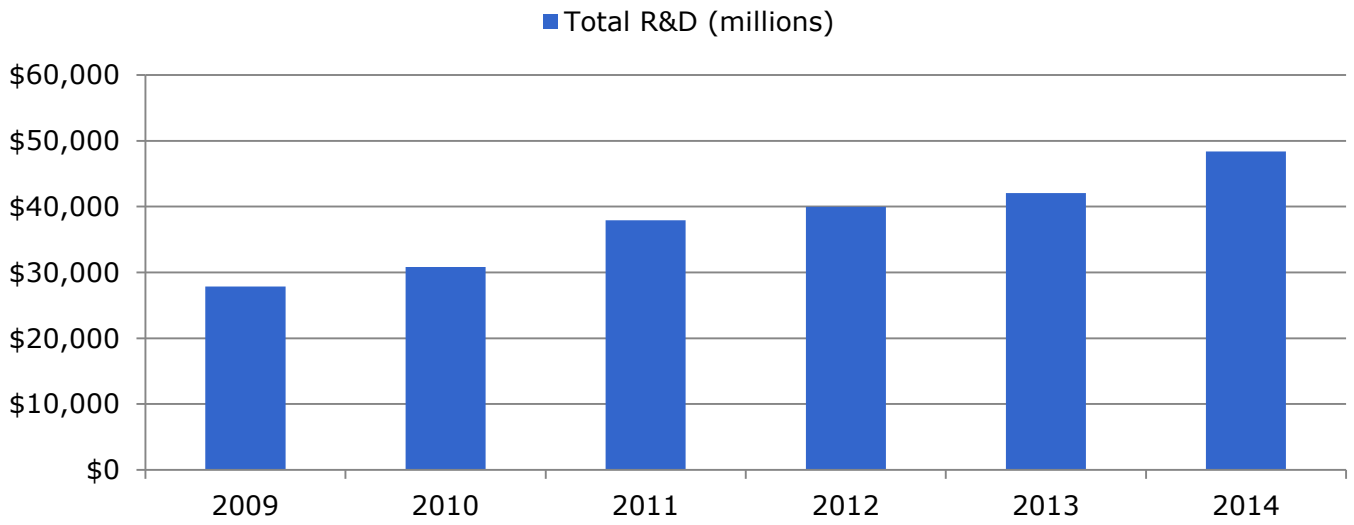
*** Includes figures for Lenovo, which acquired Motorola in 2014.*

Many Smartphone Market Entrants Recently



** Includes figures for Motorola, which was acquired by Lenovo in 2014.*

R&D Growth in Line with 74% Revenue Growth



	2009	2010	2011	2012	2013	2014	Growth 2009-2014
Total Sales (millions)	$353,836	$401,722	$510,840	$559,173	$582,011	$614,459	54%
Total R&D (millions)	$27,854	$30,829	$37,922	$39,970	$42,073	$48,386	74%
R&D/Sales	7.9%	7.7%	7.4%	7.1%	7.2%	7.9%	

Total revenues and R&D expenditures for eleven largest technology companies with a predominant or exclusive focus on mobile communications: Alcatel-Lucent, Apple, BlackBerry, Ericsson, Huawei, MediaTek, Nokia, Qualcomm, Samsung, LG, ZTE

Total Royalties Below 2.8% of Handset Sales for Five Licensors who Own Most Mobile SEPs

	2013		2014		2015	
	Royalties (millions)	Royalty Yield*	Royalties (millions)	Royalty Yield*	Royalties (millions)	Royalty Yield*
Qualcomm**	$7,878	2.09%	$7,862	1.91%	$8,202	1.87%
Ericsson	$1,583	0.42%	$1,480	0.36%	$1,745	0.40%
Nokia***	$688	0.18%	$791	0.19%	$1,145	0.26%
InterDigital	$325	0.09%	$416	0.10%	$441	0.10%
Alcatel-Lucent	$100	0.03%	$75	0.02%	$63	0.01%
Total	$10,574	2.80%	$10,625	2.58%	$11,596	2.64%

*As a percentage of global handset revenues of $378 billion in 2013, $412 billion in 2014 and $439 billion in 2015 (IDC)
**September yearend
***Nokia Technologies: figures for patent, technology and brand licensing
Royalty revenues from audited company reporting in all cases

Mobile SEP Licensing Fee Revenues and Royalty Yields on Global Handset Market

	2014	
	Revenues	**Royalty Yield***
Major SEP owners with licensing programs: Alcatel-Lucent, Ericsson, Nokia, InterDigital, Qualcomm	$10.6 billion	2.6%
Patent Pools: SIPRO (WCDMA), Via Licensing (LTE), Sisvel (LTE)	<$4 billion	<1%
Others: including Apple, Huawei, RIM, Samsung, LG	<$6 billion	<1.5%
Cumulative maximum: fees and yield for mobile SEPs	~$20 billion	~5%

**Royalty yields are total licensing fee revenues including lump sums and running royalties as a percentage of $412 billion in total global handset revenues*

In comparison to total consumer charges, including handset costs and $1.1 trillion in mobile operator services, which are also highly dependent on SEP technologies, the cumulative royalty yield shrinks to 1.3%

Thank You

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www.wiseharbor.com

WiseHarbor helps its clients solve commercial problems using market analysis.

Keith Mallinson is a columnist with IP Finance (http://ipfinance.blogspot.com) "where money issues meet IP rights". This weblog looks at financial issues for intellectual property rights. Keith Mallinson writes on the subject of intellectual property in standardised technologies such as those used in 2G, 3G and 4G mobile communications.

My articles with IP Finance and in trade publications are listed and linked on the WiseHarbor web site: http://www.wiseharbor.com/publications.html

Selected Trends in U.S. and Global Licensing

Walter G. Park, American University

USPTO-CPIP Conference on Economic Importance of Patent Licensing

June 8, 2016

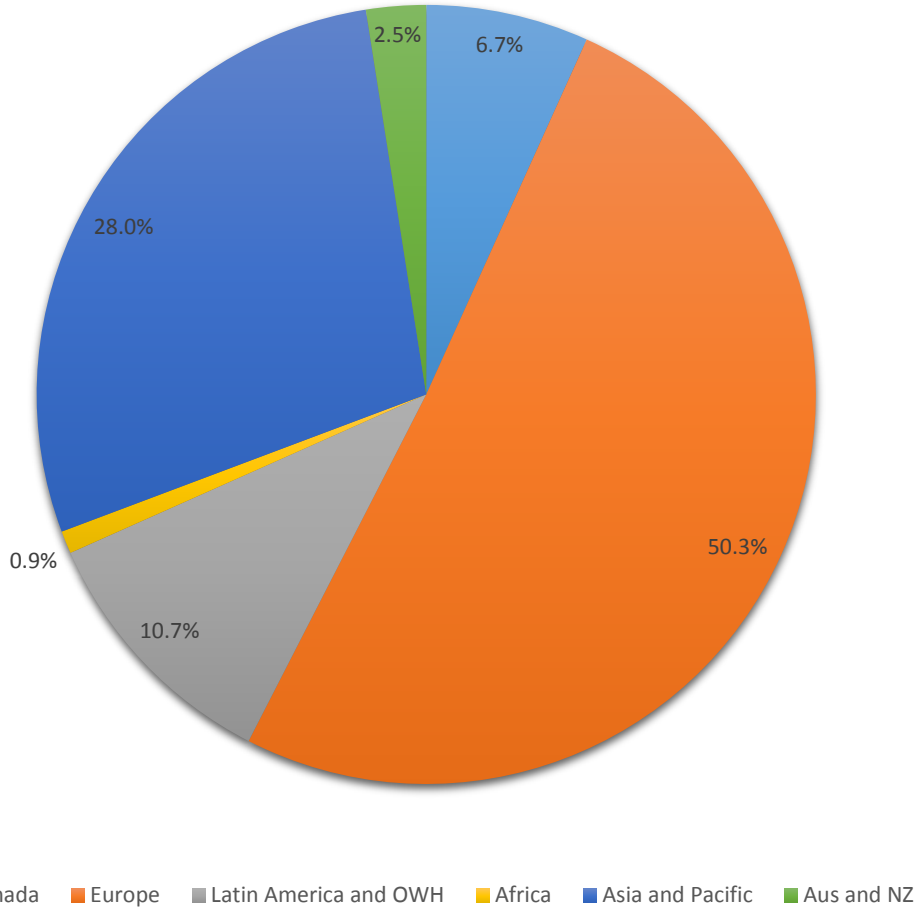
Alexandria, VA

U.S. International Licensing

	2006	2014
U.S. Outward Licensing *(billions of real 2009 dollars)*	88	120
Industrial processes	38.8%	37.4%
Computer software	27.1%	30.3%
Audio-visual and related products	17.6%	14.9%
Trademarks	12.4%	13.0%
Unaffiliated (Arms-Length) Licensing	33.8%	36.8%
Affiliated (Intra-Firm) Licensing	66.2%	63.2%

Source: www.bea.gov, Interactive Tables, International Services, Table 2.1

U.S. Outward Licensing by Destination, 2014



Source: www.bea.gov, Interactive Tables, Table 2.2

Global Licensing

Year	World Total (billions real 2009 $)	Share of Total Trade in Services				Share of World Total Licensing		
		World	Developed	Developing	U.S.A.	Developed	Developing	U.S.A.
2000	112	6%	7.8%	0.6%	17.9%	97.4%	2.4%	56.4%
2013	290	6.6%	9.3%	0.9%	18.7%	95.4%	4.3%	41.3%

Source: UNCTAD Statistics: Exports and imports by service-category, value, shares and growth, annual, 1980-2013

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Panel 3: Challenges and Opportunities in Cross-Border Licensing

- Mark A. Cohen, Senior Counsel, USPTO
- David Cohen, Chief Legal and Intellectual Property Officer, Vringo
- Damon Matteo, Chief Executive Officer, Fulcrum Strategy
- Gaétan de Rassenfosse, Chair of Innovation and IP Policy, Ecole Polytechnique Fédérale de Lausanne
- Moderator: Marina Lamm, Attorney-Advisor, USPTO

U.S. and Foreign Regulation of Technology Transfer
Role of China

Mark Cohen
Senior Counsel
USPTO

June 8, 2016

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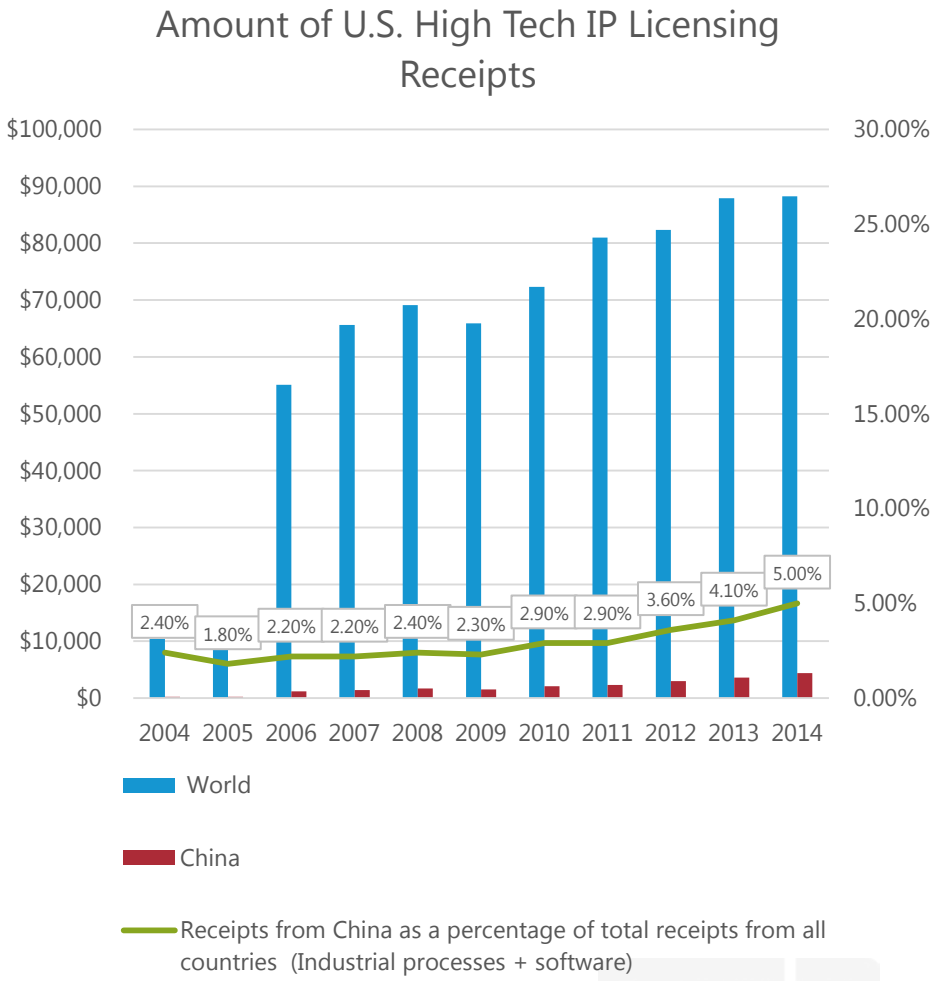
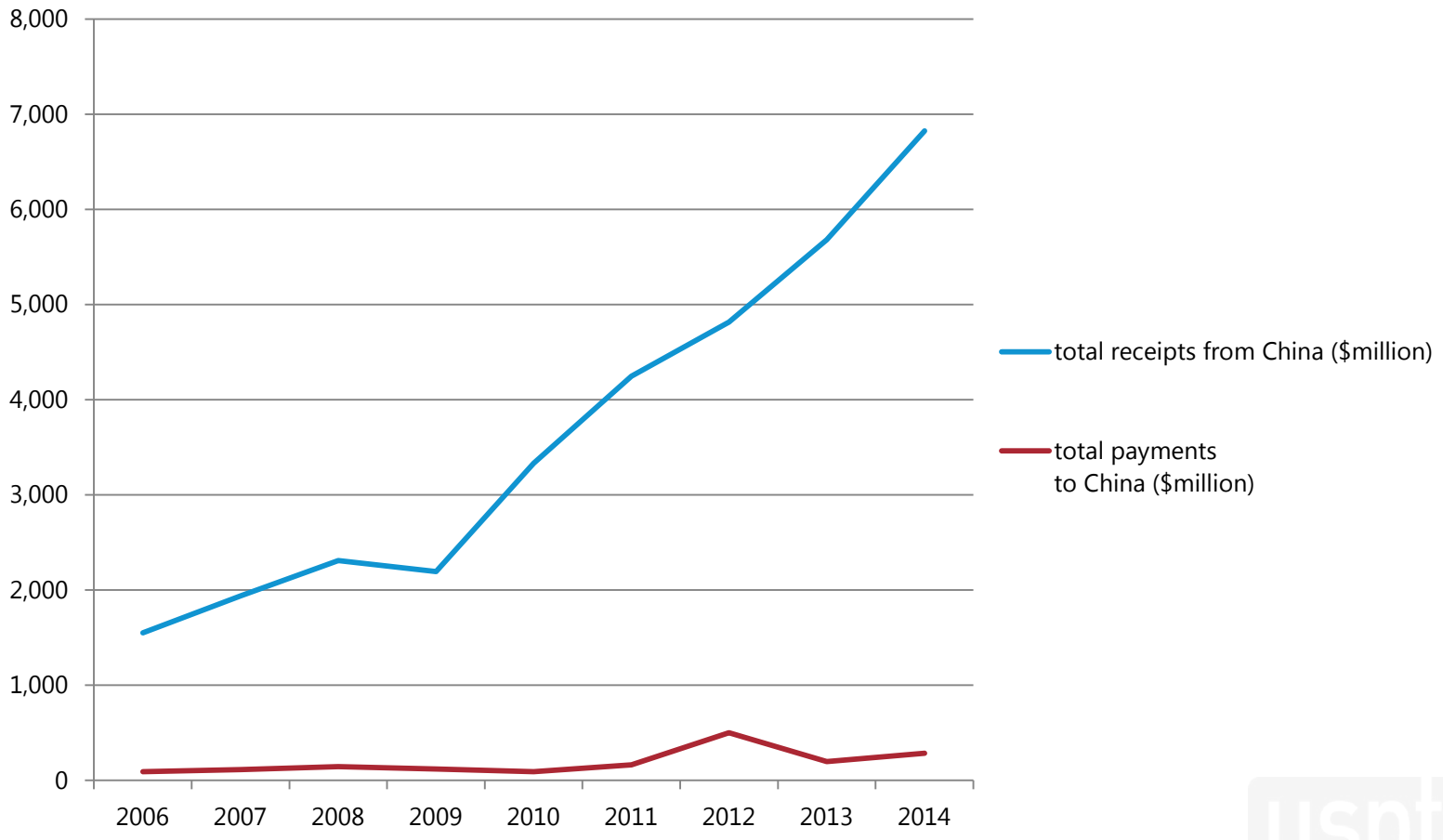
Licensing Revenues: High Tech
China vs. World



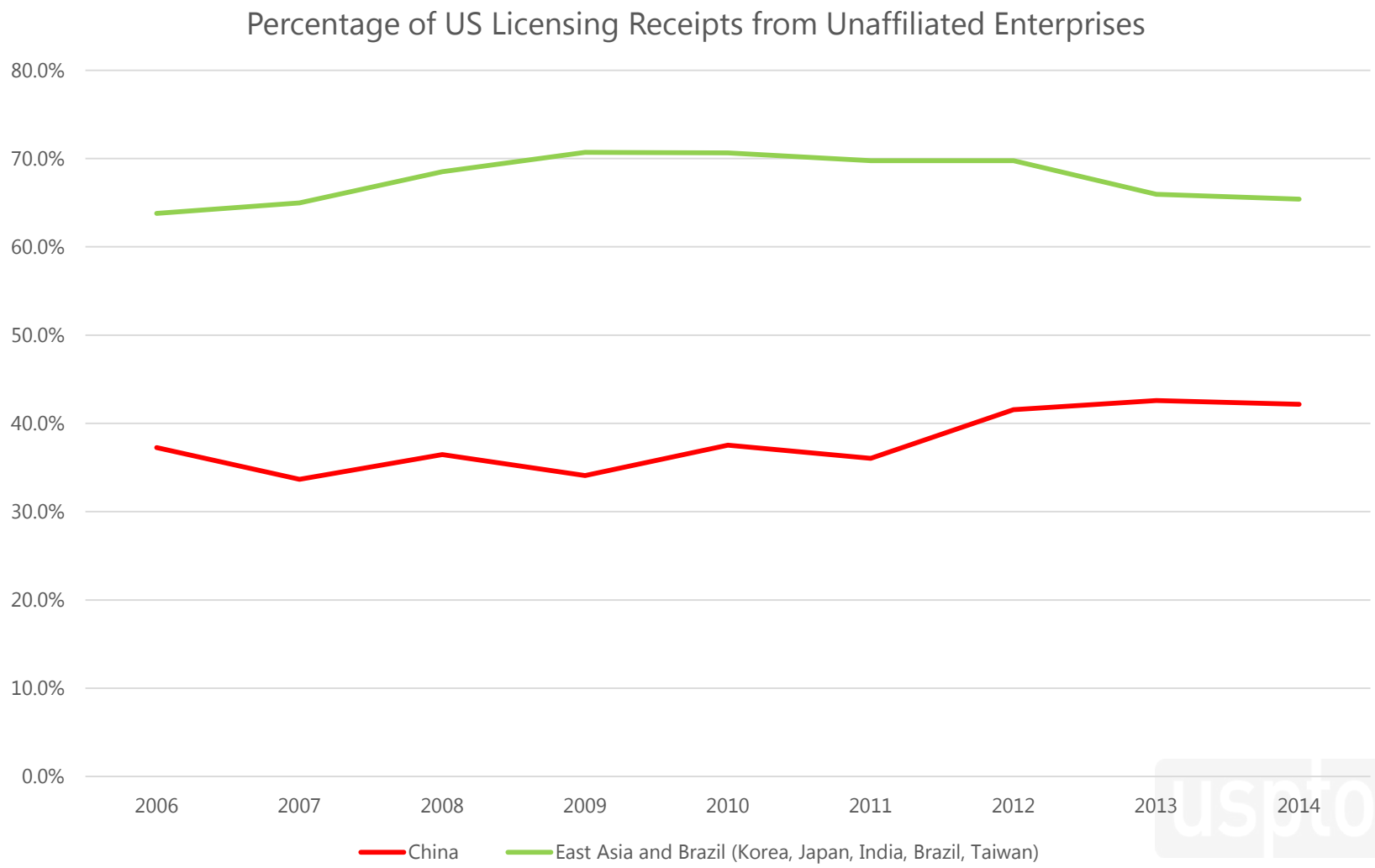
* U.S. receipts from China and rest of world, royalties and license fees by type of intangible asset, 2004–2014 (million $) based on BEA/Census data

** High tech exports (China and the rest of world) 2004-2013 (million $) based on World Bank data

Licensing Revenues:
China vs. U.S.



Licensing Revenues:
Unaffiliated from China vs. East Asia and Brazil



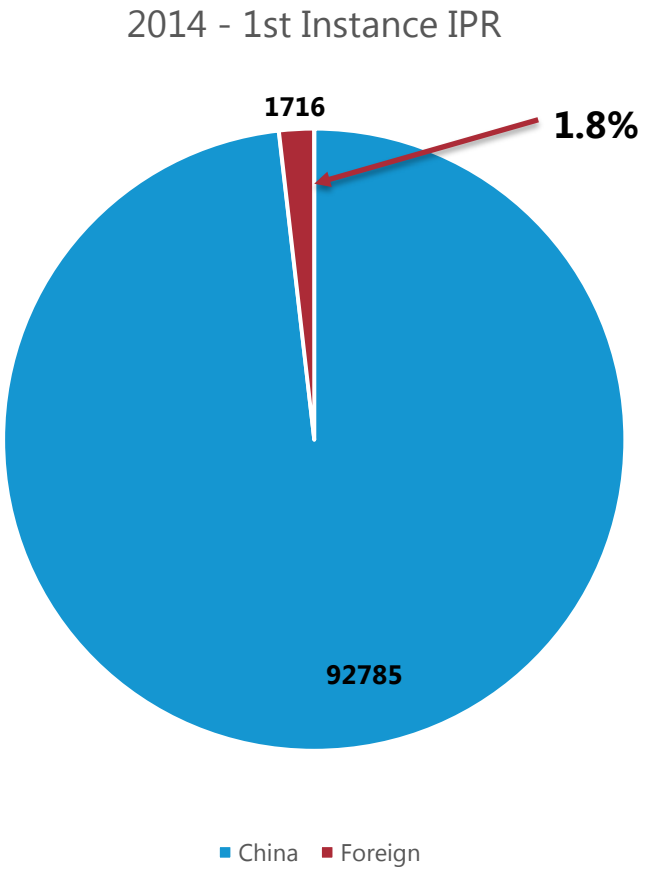
Why is Chinese Licensing Revenue So Low? Weak IP Environment

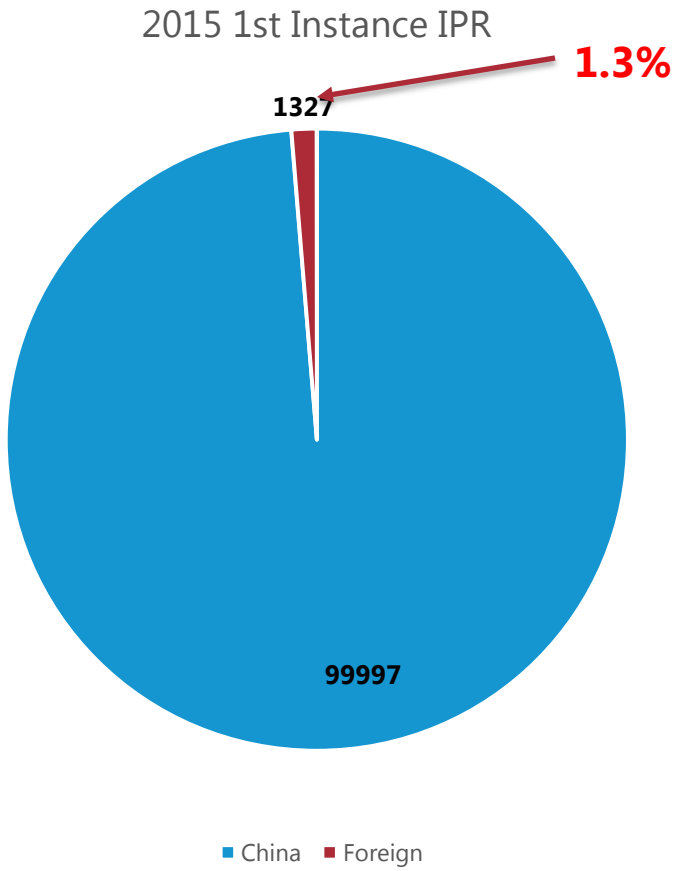
- **Industry Concerns about TT in China:**
  - 59% of respondents expressed concern about transferring technology to China*.
    - Concerns include:
      - Lack of IP protection (75%)
      - Challenges to enforce licensing agreements (51%)
      - Government dictating or influencing licensing negotiations (32%).
  - 86% of companies surveyed said they were concerned about China's competition enforcement activities*.
  - 49% of respondents believed that lack of IPR protection and enforcement constrains their investment in innovation and R&D in China**.
- **Disproportionate AML Use in the IP Context**
  - Antitrust fine imposed against Qualcomm for 975 million USD by China's National Reform and Development Commission (former State Planning Commission)
  - The Qualcomm fine was almost **50,000 times the average patent damage award** as calculated by CIELA. It is also about **20 times higher than the highest patent damage award**, 45 million USD in a first instance trial against Schneider Electric, which many viewed as an outlier

* USCBC Survey Data

** Amcham Shanghai Survey

Why is Chinese Licensing Revenue So Low? Weak IP Environment – Low Foreign Participation Rate in Litigation





SPC 2014/2015 Whitepaper on IPR Enforcement

Why is Chinese Licensing Revenue So Low?
Weak IP Environment – Low Damages

Civil invention patent cases from 2014-2015.10					
审判级别 Stages	**平均**赔偿额 Average damages awarded	**中位数** Median Damages Awarded	胜诉率 Win rate	**平均**审理时间/**月** Duration of trial /months	**案件数**(228) Number of cases
一审 First instance	158,643 (RMB) 25,200 (USD)	85,000 (RMB)	71%	9	126
二审 Second instance	351,916 (RMB) 53,694(USD)	200,000 (RMB)	70%	5	102

Source: Ciela Database

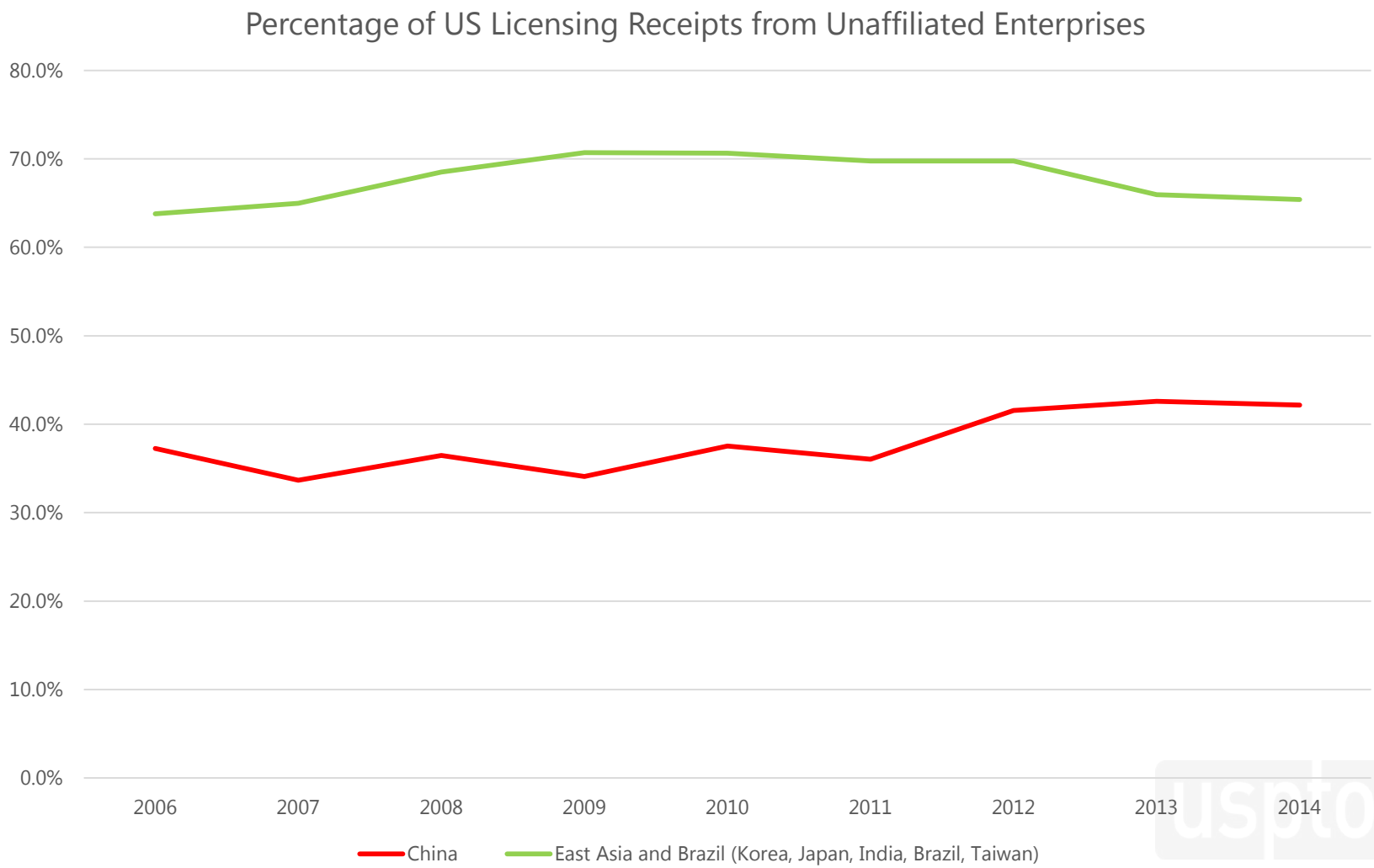
Challenges to Technology Transfer
Allocation of Liability – Indemnification

- *PRC Regulations on Administration of Import and Export of Technologies* mandates licensor liability regardless of contract:
- Article 24(3)
  - If use of the technology provided by the transferor as agreed in the contract by the transferee under a technology import contract infringes the lawful rights and interests of a third party, **the transferor shall bear liability therefor**.

Challenges to Technology Transfer
Allocation of Liability – Indemnification

- Consequences:
  - Foreign licensors transferring technology into China have a non-negotiable statutory obligation to indemnify licensees for third party infringement claims.
  - Increased risk and cost for foreign licensor
  - Decreased transmission of technology, particularly by small- and medium-sized business and start-ups
  - Possible anti-monopoly issues if licensee has market dominance
- **Particular issue for startups**
  - Freedom-to-operate (FTO) searches for startups are:
    - Expensive
    - Slow development of new products

Licensing Revenues Redux
Unaffiliated from China vs. East Asia and Brazil



Disclaimer

- The opinions expressed here are solely those of the speaker, and are not necessarily reflective of the positions, policies or practices of the United States Patent and Trademark Office.

Thank You!

Mark Cohen
Mark.Cohen@USPTO.GOV


UNITED STATES PATENT AND TRADEMARK OFFICE
DEPARTMENT OF COMMERCE

Technology Protectionism and the Patent System: Strategic Technologies in China

USPTO – GMU CPIP conference on
the Economic Contribution of Technology Licensing
Alexandria, VA, June 8th 2016

Gaétan de Rassenfosse
Holder of the Chair of Innovation and IP Policy
Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland

@gderasse

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

The patent system is a precondition for technology licensing

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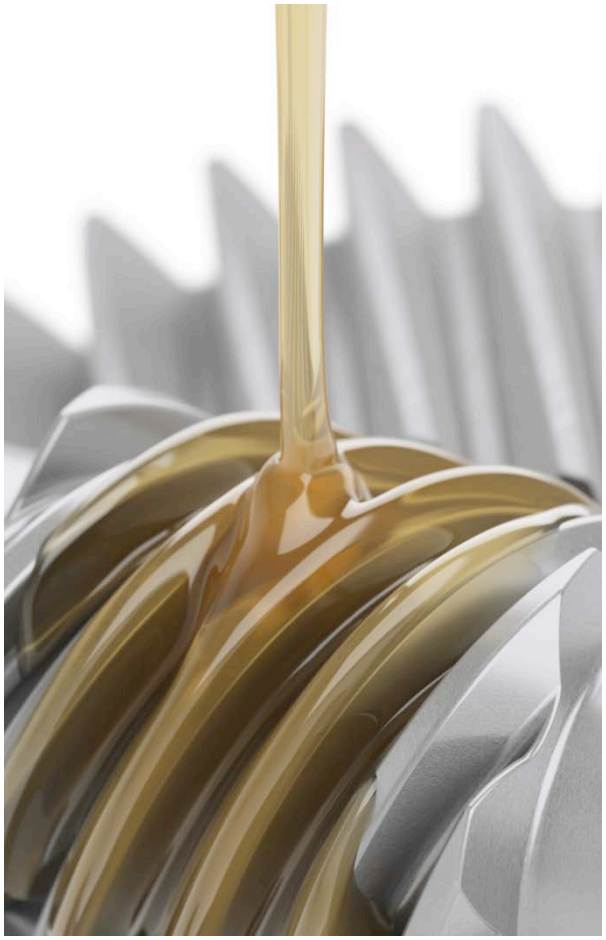
About 80% of technology licensing negotiations involve a patent

<u>Patents facilitate technology licensing:</u>

- Exclusivity right that they confer protect buyers (and sellers)
- Disclosure requirement signals to potential buyers that the technology exists



Patents lubricate the market for technology

A *well-functioning* patent system is a precondition for technology licensing

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Industrial policy may induce frictions in technology licensing

Litigation/ enforcement

Patent quality

Issuance

The national treatment principle is enshrined in international IP law treaties

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

"Each Member shall accord to the nationals of other Members **treatment no less favourable** than that it accords to its own nationals with regard to the protection of intellectual property"

WTO

The national treatment principle is enshrined in international IP law treaties

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"Industry representatives express mixed opinions on whether there is **anti-foreign bias in the issuance** or enforcement of patents in China. However, some non-Chinese firms reportedly find it more difficult to obtain patents in sectors that the Chinese government considers of **strategic importance**."

Is there evidence of anti-foreign bias in the issuance of applications at SIPO?

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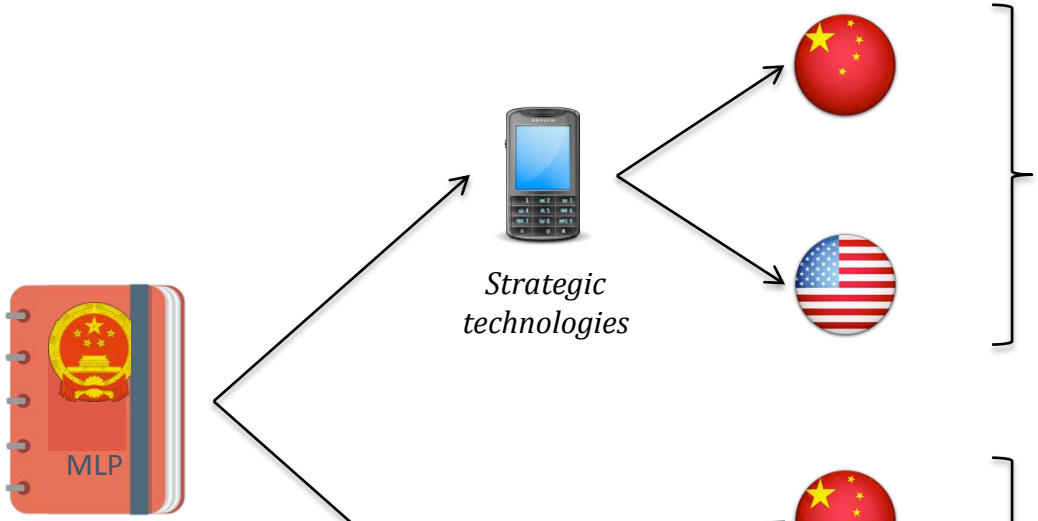
Many factors affect the chance of being granted patent protection

We estimate an invention fixed effect econometric model of the probability of grant at the SIPO

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

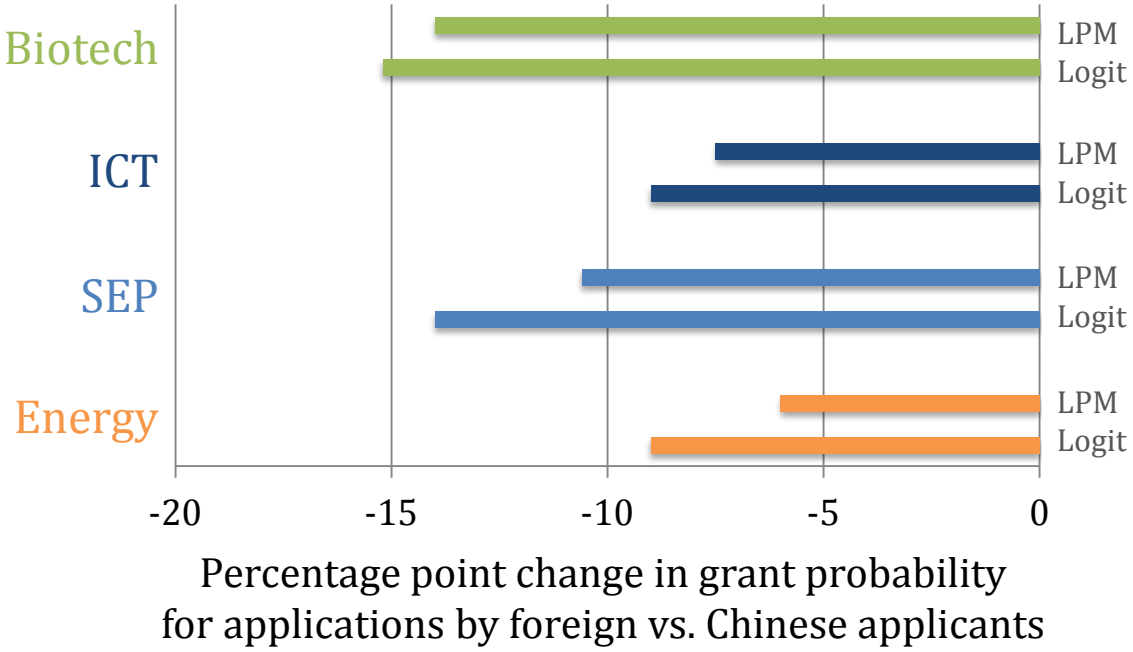
We identify areas of "strategic importance" using the *National Medium and Long-Term Program for Science and Technology Development 2006—2020*.



5–7% lower grant probability (controlling for all the factors)

Same probability of grant (controlling for all the factors)

Strong differences across technology fields



SEP: Standard-essential patents

We have documented the presence of an anti-foreign bias in the issuance of applications at the SIPO

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

- Most political efforts have been geared towards harmonizing IP law and ensuring better enforcement.
- But more subtle barriers may remain, *e.g.*, issuance.
- Illustrates that industrial policy creates frictions in the market for technology.
- USG should ensure that NTP is being upheld.

Thank you

References

de Rassenfosse, G., Palangkaraya A. and Webster, E. 2016. How do Patents Facilitate Trade in Technology?: Testing the Disclosure and Appropriation Effects. *Research Policy*, forthcoming.

de Rassenfosse, G. and Raiteri, E. 2016. Technology protectionism and the patent system: Strategic technologies in China. Available at SSRN.

Hedge, D. and Luo, H. 2015. Patent publication and the market for ideas. *HBS Strategy Unit Working Paper 14-019.*

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Protection of
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George Mason University School of Law

THE ECONOMIC CONTRIBUTION OF TECHNOLOGY LICENSING

A Conference Co-Sponsored by
The United States Patent & Trademark Office and
George Mason University's
Center for the Protection of Intellectual Property (CPIP)

Panel 4: Licensing and Commercialization in the Life Sciences Sector

- Issi Rozen, Chief Business Officer, Broad Institute
- Sherry Knowles, Principal, Knowles Intellectual Property Strategies
- Lin Sun-Hoffman, Partner, Liu, Zheng, Chen & Hoffman, LLP, Former BIO Chief Advisor for Asia
- Moderator: Larry Lian, Attorney-Advisor, USPTO

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THE ECONOMIC CONTRIBUTION OF TECHNOLOGY LICENSING

A Conference Co-Sponsored by
The United States Patent & Trademark Office and
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Center for the Protection of Intellectual Property (CPIP)

Roundtable: Government's Role in Promoting Licensing

- Paul Zielinski, Director, Technology Partnerships Office, NIST
- Matthew Rainey, Director-Advisor, WIPO Academy
- Mojdeh Bahar, Assistant Administrator, Office of Technology Transfer, USDA
- Michael Remington, Of Counsel, Drinker Biddle & Reath LLP
- Tyrone Montague, Director, Washington National Tax, KPMG
- Moderator: Mark A. Cohen, Senior Counsel, USPTO

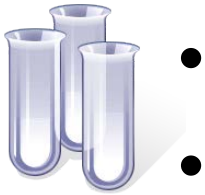
Federal Licensing in the U.S.

Paul Zielinski
Chair, Federal Laboratory Consortium for Technology Transfer
Director, NIST Technology Partnerships Office

June 8, 2016

Goal of Federal Licensing

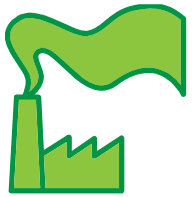
Availability and Use of Lab Products



Government

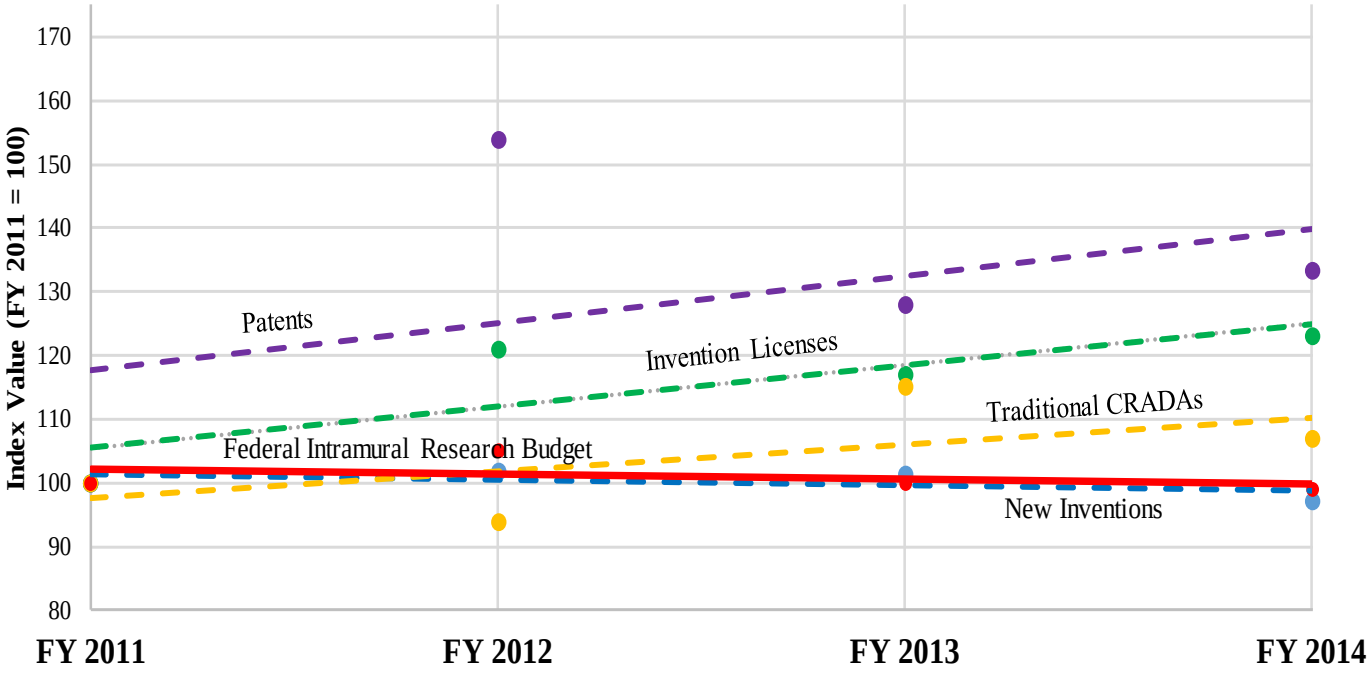
- Research/Invent
- Regulate
- Public benefit
- Sometimes Consumer

Private Industry

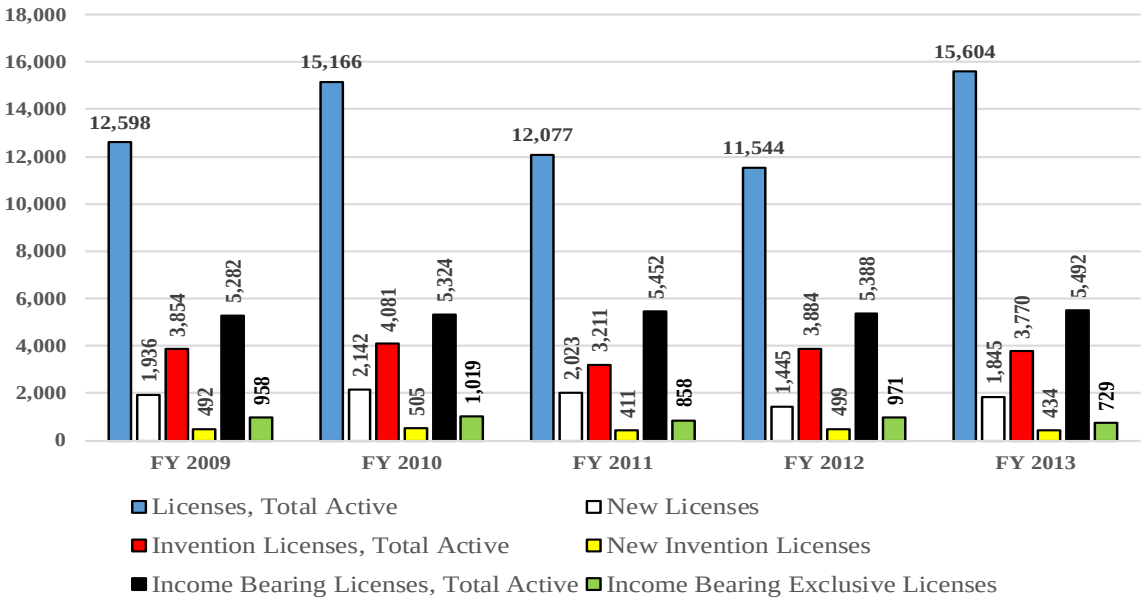


- Develop
- Manufacture
- Distribute
- Market
- Sell
- Requires private capital

Trends in Federal Technology Transfer Activities (FY 2011 - FY 2014)



Federal Licenses



	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Licenses, Total Active	12,598	15,166	12,077	11,544	15,604
New Licenses	1,936	2,142	2,023	1,445	1,845
Invention Licenses, Total Active	3,854	4,081	3,211	3,884	3,770
New Invention Licenses	492	505	411	499	434
Income Bearing Licenses, Total Active	5,282	5,324	5,452	5,388	5,492
Income Bearing Exclusive Licenses	958	1,019	858	971	729

Thank you!

Paul Zielinski

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(Inter)Governmental Support of Patent Licensing

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USPTO & George Mason University-CPIP
The Economic Contribution of Technology Licensing
Washington, D.C. – June 8, 2016

Matt Rainey
Director-Advisor, WIPO Academy
World Intellectual Property Organization

WIPO Activities and Resources in Support of Patent Licensing

- WIPO Training Programs
- WIPO Publications
- Patent Landscape Reports
- On-Line Resources: Patents and Technology Info
- On-Line Resources: Licensing

WIPO Academy Programs

- Distance Learning (DL) Course
  - Broad range of topics

  (http://www.wipo.int/academy/en/courses/distance_learning/)
- Professional Development Program
  - Patent Information & Documentation
  - Transfer of Technology and Licensing
  - Training Program on Patent Search and Examination
  - (etc.)
- Joint Master's Programs in IP
- Summer School Programs

WIPO Training Programs Supporting Licensing

- IP Management and Procedures
- Patent Drafting – basic and advanced
- PCT (Patent Cooperation Treaty) Training
- Patent Enforcement
- Patent Search & Examination
- IP Valuation
- Licensing & Commercialization
- SMEs

WIPO Publications for IP Management

- Patent Drafting
- IP Asset Development and Management
- Intellectual Property Audit
- Successful Technology Licensing
- Trademarks
- Industrial Designs
- Patents for SMEs
- Copyrights for SMEs
- Technology Transfer, Intellectual Property and Effective University-Industry Partnerships
- See *http://www.wipo.int/ip-outreach/en/publications/index.html*

WIPO Patent Landscape Reports

- Specific Technology Areas
  - Snapshots of patent situations
    - National, region, or global
  - Begin with a state-of-the-art search in selected patent databases
  - Examine patterns of patenting activity
  - Results presented textually and graphically
  - Provide info relevant to validity and legal status
  - Inform licensing analyses
- Patent Landscape Reports by Other Organizations:

  http://www.wipo.int/patentscope/en/programs/patent_landscapes/published_reports.html

WIPO Patent Landscape Reports

Microalgae-Related Technologies

E-Waste Recycling Technologies

Assistive Devices for Visually & Hearing Impaired Persons

Animal Genetic Resources

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WIPO Patent Landscape Reports

http://www.wipo.int/patentscope/en/programs/patent_landscapes/#reports

Area	Topic	Cooperation partner(s)
Public Health	Ritonavir	Medicines Patent Pool, UNITAID
Public Health	Atazanavir	Medicines Patent Pool, UNITAID
Public Health	Vaccines for Selected Infectious Diseases	World Health Organization - Cluster on Innovation, Information, Evidence and Research (IER)
Public Health	Selected Neglected Diseases (ongoing)	DNDi
Climate Change/Energy	Particle accelerator technologies and their industrial and medical use (ongoing)	CERN
Climate Change/Energy	Electronic waste (E-Waste) recycling and material recovery technologies	UNEP, Secretariat of the Basel Convention (SBC)
Climate Change/Energy	Solar Cooking	

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WIPO Patent Landscape Reports

http://www.wipo.int/patentscope/en/programs/patent_landscapes/#reports

Area	Topic	Cooperation partner(s)
Climate Change/Energy	Desalination Technologies and Use of Alternative Energies for Desalination Report	IRENA, GIWEH
Food and Agriculture/ Environment and Energy	Palm Oil Production and Waste Treatment and Exploitation (ongoing)	The Intellectual Property Corporation of Malaysia (MyIPO) and the Malaysian Palm Oil Board (MPOB)
Food and Agriculture/ Environment and Energy	Microalgae	Moroccan Office of Industrial and Commercial Property (OMPIC) and the Moroccan Foundation for Advanced Science, Innovation and Research (MASCIR)
Food & Agriculture	Animal Genetic Resources	FAO - Animal Production and Health Division
Food & Agriculture	Membrane Filtration and UV Water Treatment	GIWEH
Food & Agriculture	Plant Salinity Tolerance (ongoing)	FAO, ISF, AATF
Disabilities	Assistive devices and technologies for visually and hearing impaired persons	

WIPO On-Line Resources
Patents & Technologies

- PATENTSCOPE: www.wipo.int/pctdb/en/
  - Data services
    - PCT international application data: searches, subscriptions
  - Translation services
  - Video tutorials
  - Webinars
  - Links to external databases
- ASPI: Access to Specialized Patent Information
  - Public-private partnership between WIPO and leading patent info providers
  - For IP offices, academic institutions and research organizations in developing countries
  - http://www.wipo.int/aspi/en/

WIPO Resources: Patents & Technologies

- ARDI: Access to Research for Development & Innovation
  - 20,000 journals, books, and reference works for 117 developing countries & territories
  - http://www.wipo.int/ardi/en/
- WIPO GREEN
  - Interactive marketplace connecting technology and service providers in green technologies
  - https://www3.wipo.int/wipogreen/en/aboutus/
- WIPO Pearl: Multilingual Terminology Portal
  - 10 languages (Arabic, Chinese, English, French, German, Japanese, Korean, Portuguese, Russian, Spanish)
  - http://www.wipo.int/reference/en/wipopearl/

WIPO Resources
Licensing Information

- In cooperation with Danish PTO (DKPTO)
  - http://www.wipo.int/patentscope/en/news/pctdb/2014/news_0002.html
- PATENTSCOPE Field Combination Search:

  locates patents & apps available for licensing
- https://patentscope.wipo.int/search/en/structuredSearch.jsf
- IP Marketplace: https://www.ip-marketplace.org
- Patents and Utility Models
  - https://www.ip-marketplace.org/overview/?cat=pa
- Technology for Sale & Technology Wanted
- IP Trade Portal: http://www.ip-tradeportal.com
- On-line guidance to IP exchange, standard contracts, entering agreements, current IP valuation methods, etc.

Thank you

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Matt Rainey
Director-Advisor, WIPO Academy
World Intellectual Property Organization
matt.rainey@wipo.int

Economically Impactful Licensing: the USDA Example

Mojdeh Bahar, J.D., M.A.,CLP
Asst. Administrator
Office of Technology Transfer
ARS/USDA

Technology

Treatment for fresh-cut fruit & vegetables that maintain their natural flavor, texture, & color for up to 21 days

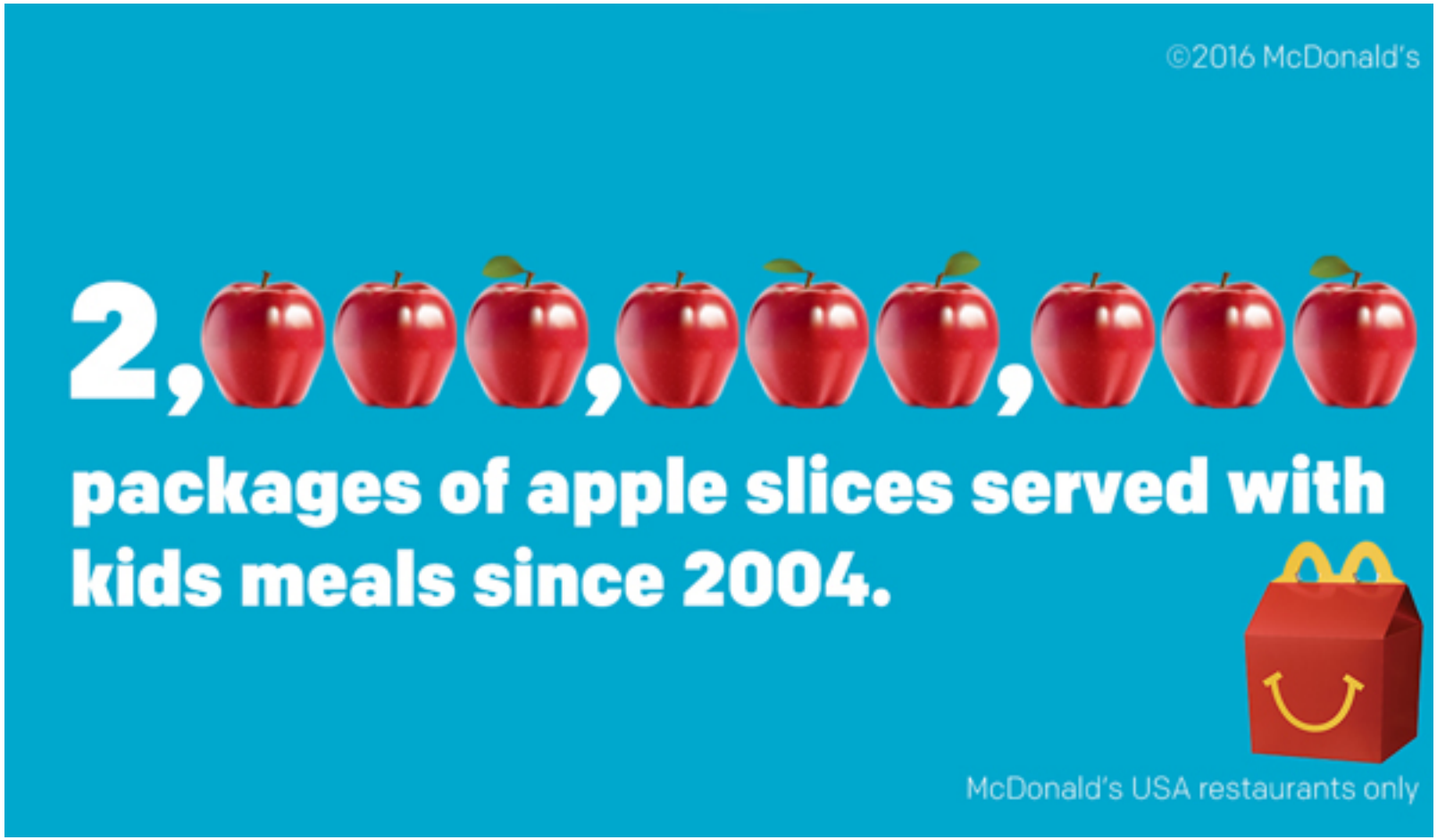
1995 USDA & Mantrose-Haeuser co-develop and co-patent treatment technology under a CRADA

1999 Patent US 5,939,117: “Methods for preserving fresh fruit and product thereof”

Mantrose-Haeuser exclusively licenses technology & develops NatureSeal^{R}

2004 NatureSeal^{R} is used in McDonald’s Apple Dippers^{TM}

2015: McDonald's served 250 million packages of sliced apples, more than 10% of all fresh sliced apples sold in the US



Technology

Method for vaccinating chickens through the injection of eggs

1984 Patent US 4,458,630: “Disease control in avian species by embryonal vaccination”

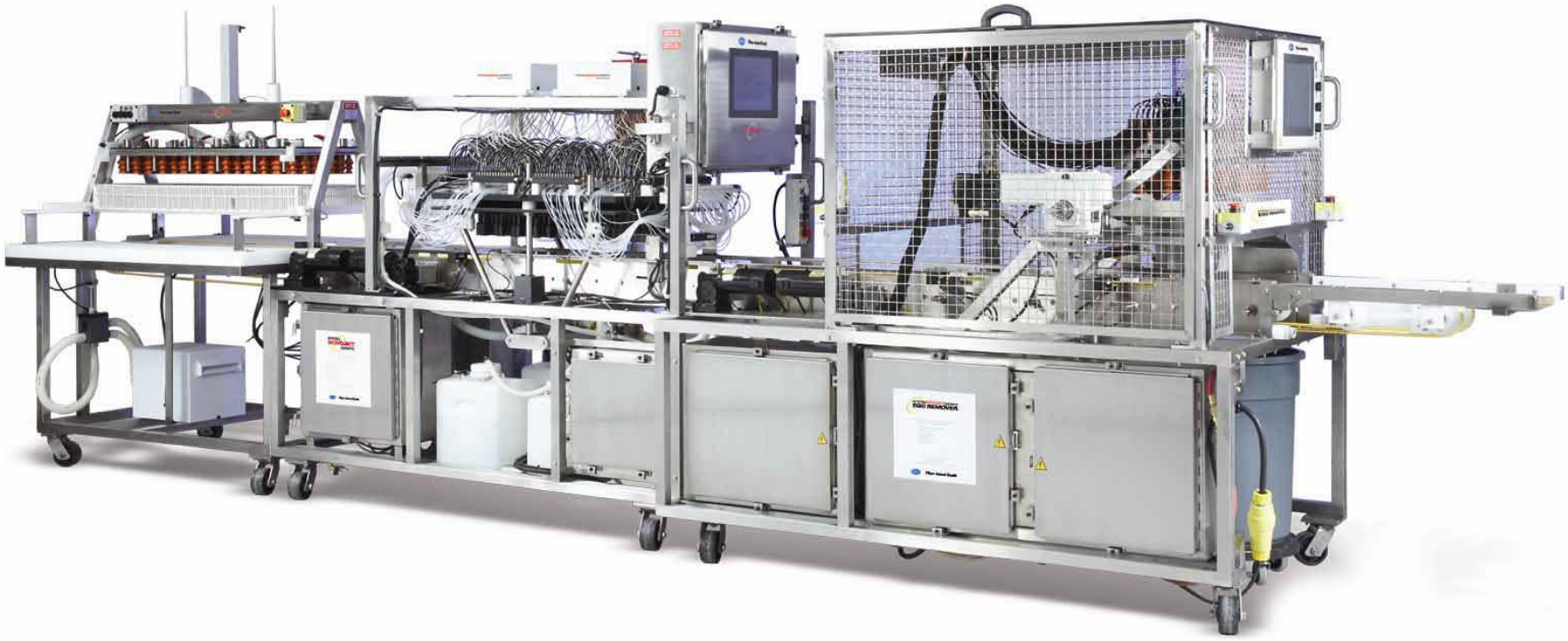
1986 Exclusive license to Embrex
Embrex awarded USDA-SBIR Phase I

1987 Embrex-ARS CRADA signed
Embrex awarded USDA-SBIR Phase II

1992 Embrex introduces commercial produce called ‘Inovojet’ based upon SBIR-CRADA results

2006 Pfizer Animal Health acquires Embrex for ~$155M

2015 **Inovojet used by nearly all U.S. hatcheries & ~15 billion eggs vaccinated worldwide annually**



Technology

Gluten & allergy free rice flour for cooking

1984 Patent US 6,224,921: “Rice flour based low oil uptake frying batters”

2006 Howard Community College – Technology Assessment Program identifies a new value position- gluten free.

2007 CrispTek exclusively licenses technology & develops Choice Batter

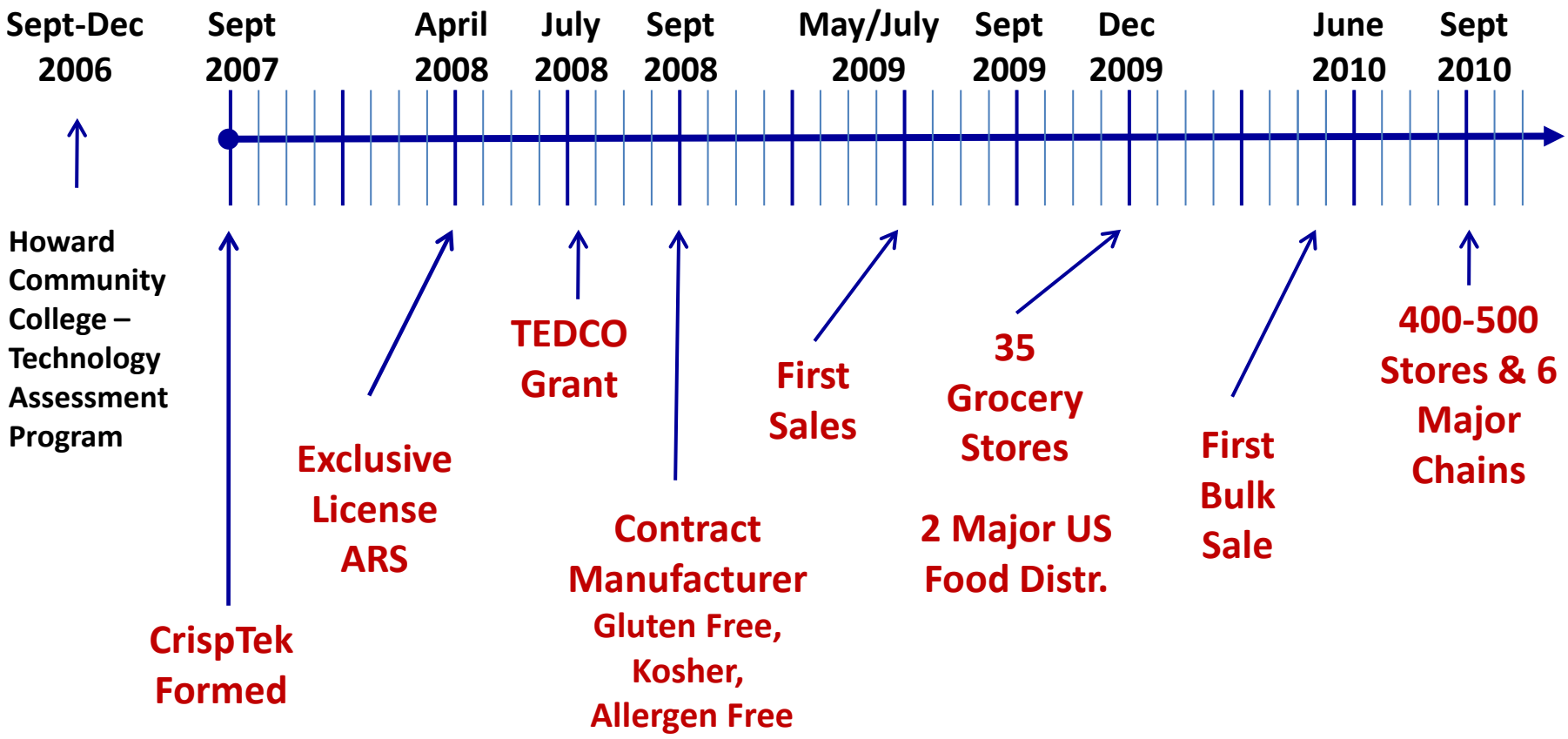
2009 Choice Batter first sales

2012 $4.7M sales and 95 jobs in 4 states (MD, IA, IL, TX)

Choice Batter products are blended and packaged in a facility free of gluten and the eight common allergens that include:

Egg, Dairy, Peanuts, Tree Nuts, Fish, Shellfish, Wheat, and Soy.
*Our Choice Batter products are also free of MSG, Cholesterol, Artificial Colors, Flavors and Preservatives.**

2012
$4.7M sales, 95 jobs in 4 states (MD, IA, IL, TX)



Thank you for your kind attention…

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KPMG

The Economic Contribution of Technology Licensing

U.S. Tax Credit Considerations

Tyrone Montague

June 8, 2016

Disclaimer

All information provided is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act upon such information without appropriate professional advice after a thorough examination of the particular situation. Any similarity between any depiction in this course and any actual event, person or entity is purely coincidental.

Credits overview

	What is the credit?	What is the benefit?	What qualifies?
Basic Research (§41)	■ A federal tax credit for amounts paid to any qualified organization for performing basic research.	■ Equal to a percentage of the current year's basic research payments that exceed the qualified organization base amount, 20% (13% net 280C(c)(3) rate)	■ Payments made pursuant to a written agreement to perform basic research.
Energy Research (§41)	■ A federal tax credit for amounts paid or incurred to energy consortia.	■ Equal to 20% of the amounts paid to an energy consortium.	■ Payments made to energy consortium for qualified energy research.
Research Tax Credit (§41)	■ A tax credit for performing qualified research in the U.S. to develop new or improved products or processes. ■ The credit is available for federal (and certain states) income tax purposes.	■ Equal to a percentage of the current year's qualified research expenses that exceed a base amount, 20% (13% net 280C(c)(3) rate) for the Traditional Credit and 14% (9.1% net 280C(c)(3) rate) for Alternative Simplified Credit.	■ Qualifying research activities meeting a 4 part test.
Orphan Drug Tax Credit (§45C)	■ A federal tax credit for qualified clinical testing expenses relating to activities performed on a drug (or drugs) which has/have received orphan drug designation by the FDA.	■ The credit amount is equal to 50% of qualified clinical testing expenses. ■ The Research Tax Credit may not be claimed for the same expenditures included in the Orphan Drug Tax Credit calculation.	■ Qualifying clinical testing expenses, which are defined the same as qualifying research activities under the Research Tax Credit. ■ Differentiating factor is that the activities must be performed in relation to an FDA designated orphan drug.

Who enjoys the R&D Credit?

Sector	Number of 2012 Returns Claiming a Credit
Manufacturing	6,219
Professional, scientific, and technical services	5,280
Information	1,583
Wholesale and retail trade	1,071
Management of companies (holding companies)	403
Finance and insurance	304
Various services (include educational services; health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services)	278
Construction	240
Administrative/ support and waste management services	148
Real estate, rental, and leasing	82
Mining	81
Utilities	67
Agriculture, forestry, fishing, and hunting	59
Transportation and warehousing	58
Total	15,873

Data from 2012 IRS Statistics of Income, the most recent year available

How and by how much do they enjoy it?

Form 6765 Summary Information	Total Credits (in Thousands)
Section A - Regular Research Credit	$3,438,134
Section B - Alternative Simplified Credit	$7,275,659
Section C-Current-Year Credit	
Passthrough research credit(s) from partnership, S corporation, estate, or trust	$168,916
Current-year credit for Increasing Research Activities	$10,842,567

Data from 2012 IRS Statistics of Income, the most recent year available

Overview of Qualification Rules

Controlled group rules

- Greater than 50% ownership test – single taxpayer concept
- Exclusion of foreign research – but if a foreign member of the controlled group funds research activities in the U.S., no exclusion as foreign research and no exclusion as funded research
- As long as a member of the controlled group has rights to intellectual property, as long as the R&D activities take place in the U.S. and the other qualification tests are met, the costs can qualify
- Section 280C elections can and must be made on a yearly basis on timely filed original returns including extensions

Ability to claim credits for past years

- Recent ability to make retroactive ASC elections so long as the statute of limitations on assessment of tax is open
- Rev. Rul. 82-49, ability to claim credits from closed years if in a net operating loss (NOL) position and credits couldn't have been used in intervening years

Overview of Qualification Rules

Qualified research expenses (QREs) generally include

— Wage QREs – direct performance, direct support and direct supervision of R&D

— Supplies QREs

— Contract research at 65% if payor has a right to the results of the research and the payor is at risk if the research is not successful

— Computer time sharing costs subject to rules on location and use

Other potential QREs

— Basic research

— Energy consortia research

Contact(s)

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