

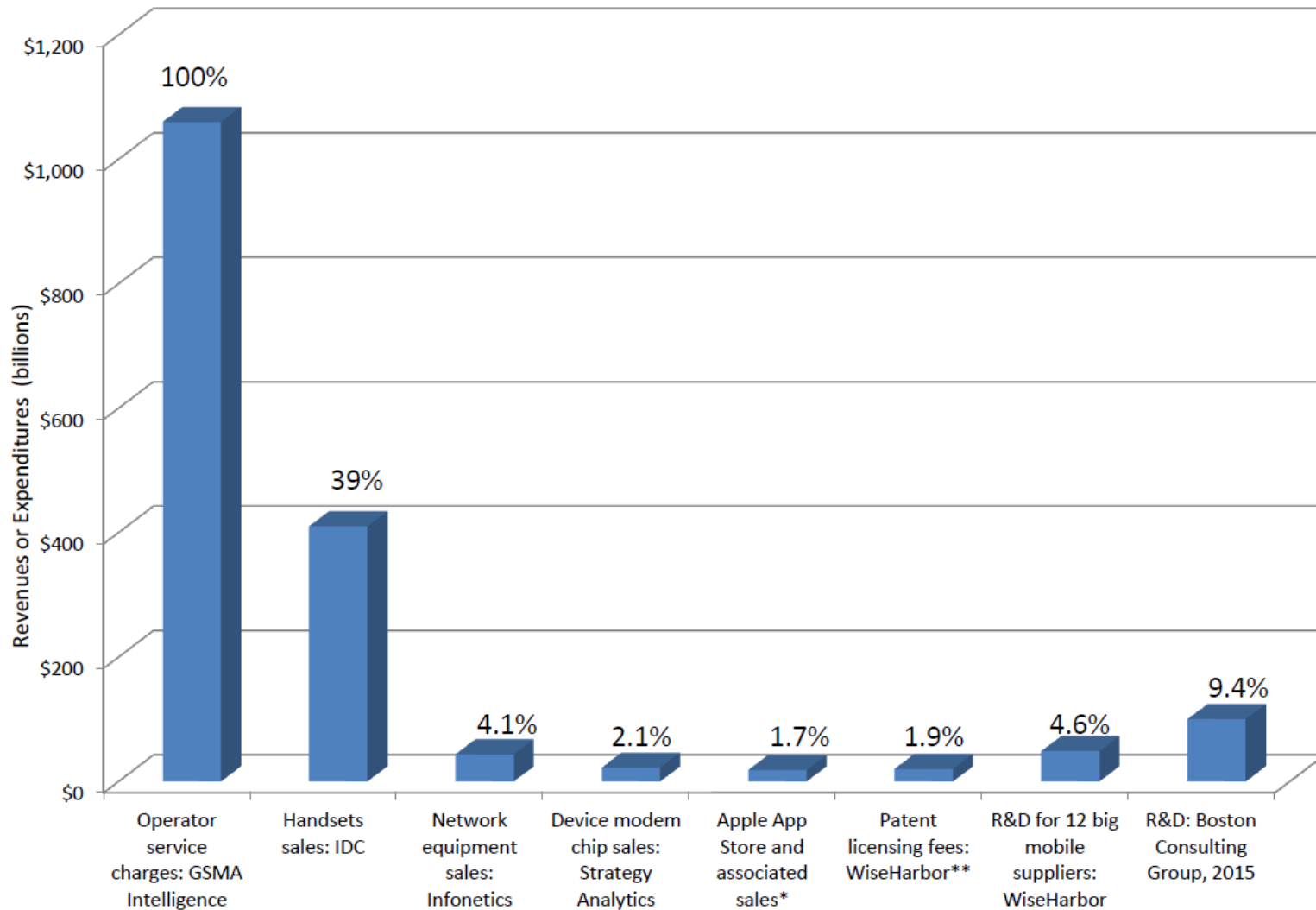
The Role of Licensing in Trade, Investment, and Technology Transfer

USPTO-CPIP Licensing Conference

Keith Mallinson
Founder, WiseHarbor

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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)



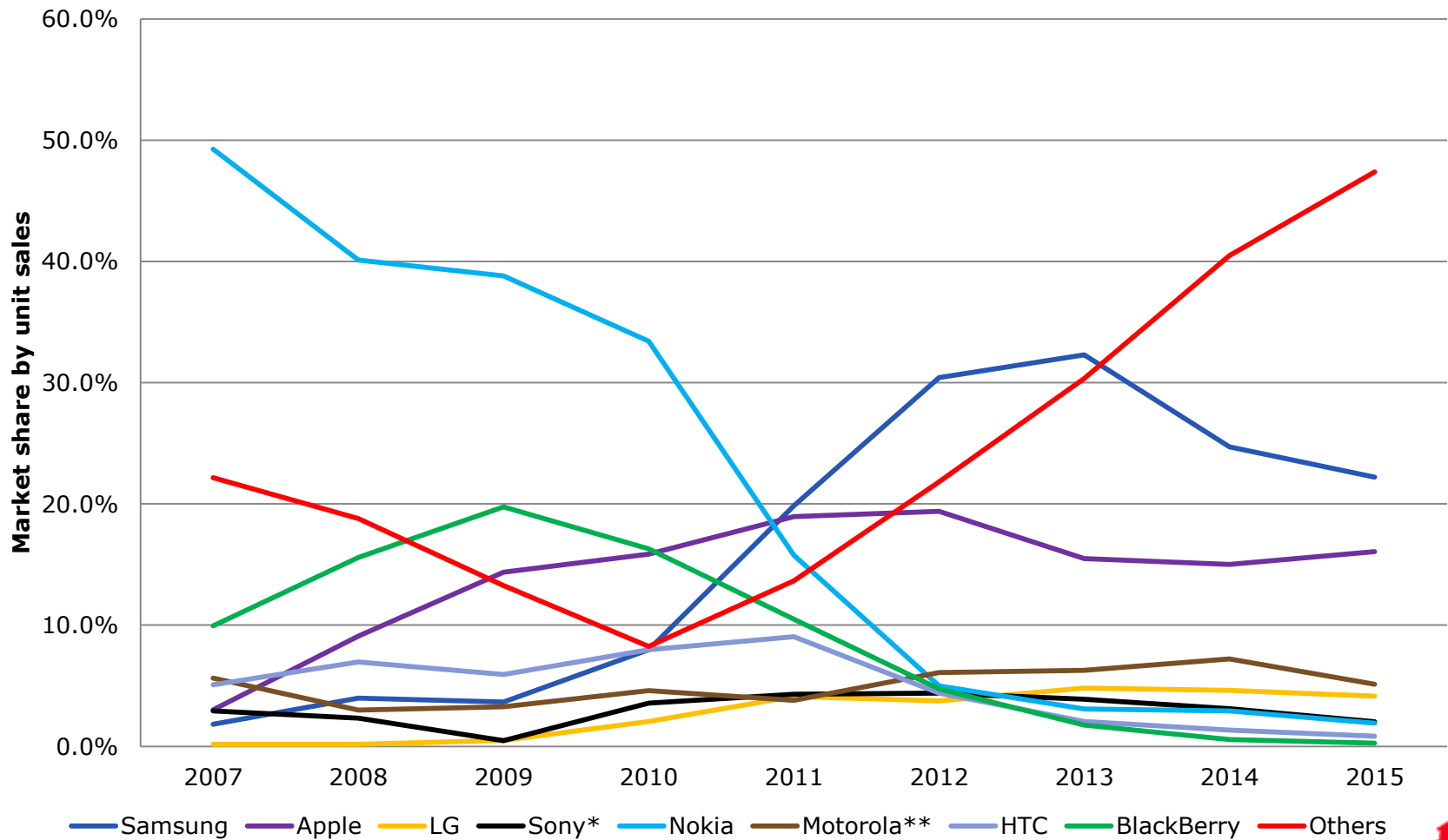
Vertical Integration of OEMs has Collapsed

- **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

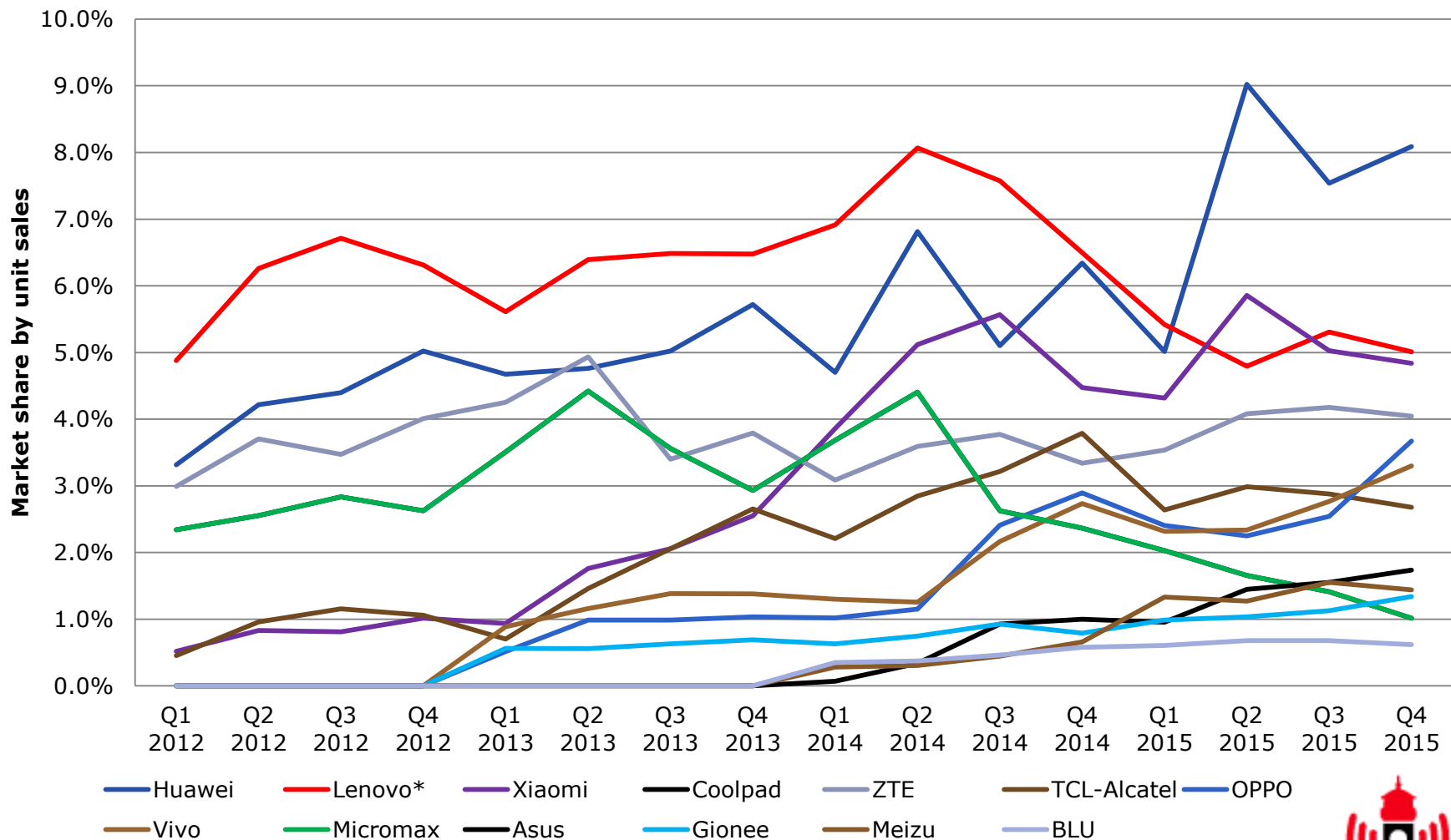


* Formerly Sony Ericsson.

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



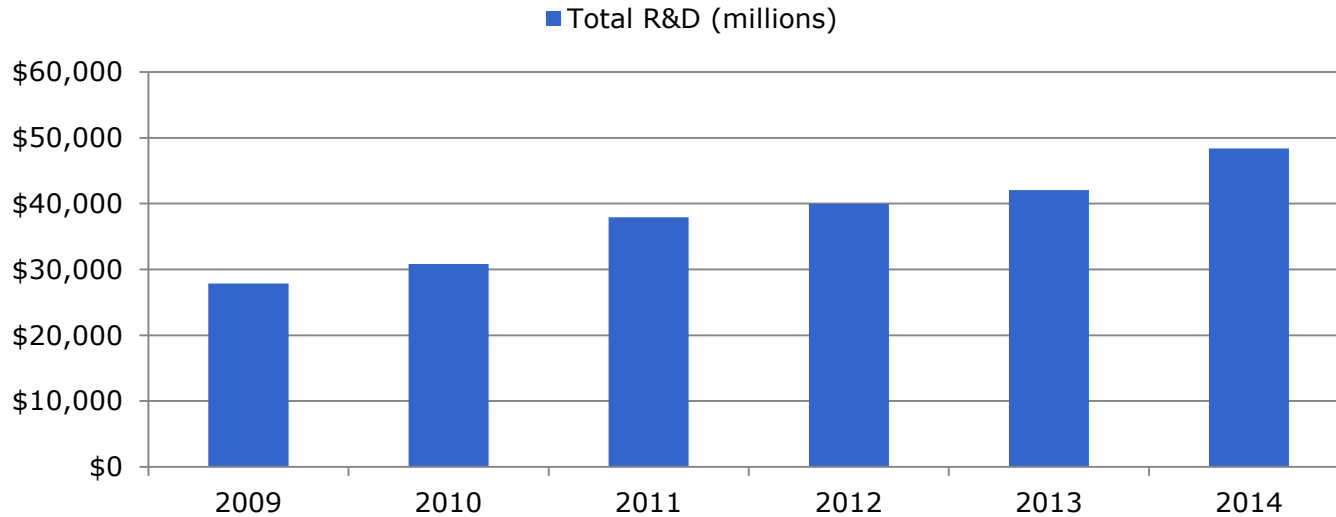
Many Smartphone Market Entrants Recently



* 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



Keith Mallinson

Founder

WiseHarbor

Phone: +44 20 7193 0339

+1 617 418 3977

Email: kmallinson@wiseharbor.com

Twitter: @WiseHarbor

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>

