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May 2016

5th European Energy Forum

Creating a Culture of Innovation



**WORLD
ENERGY
COUNCIL**

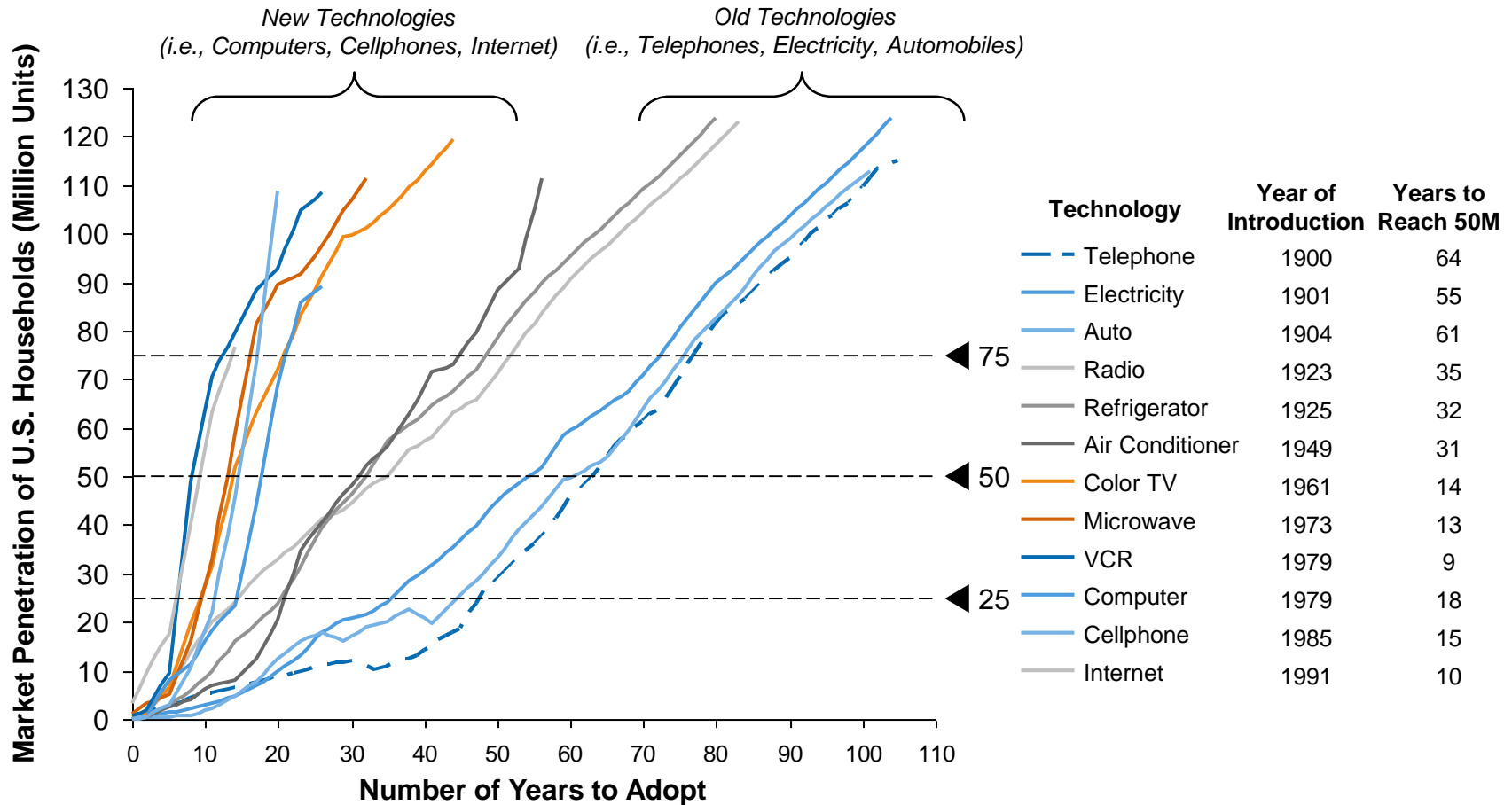


A Global View of Innovation

Linking Innovation with Value

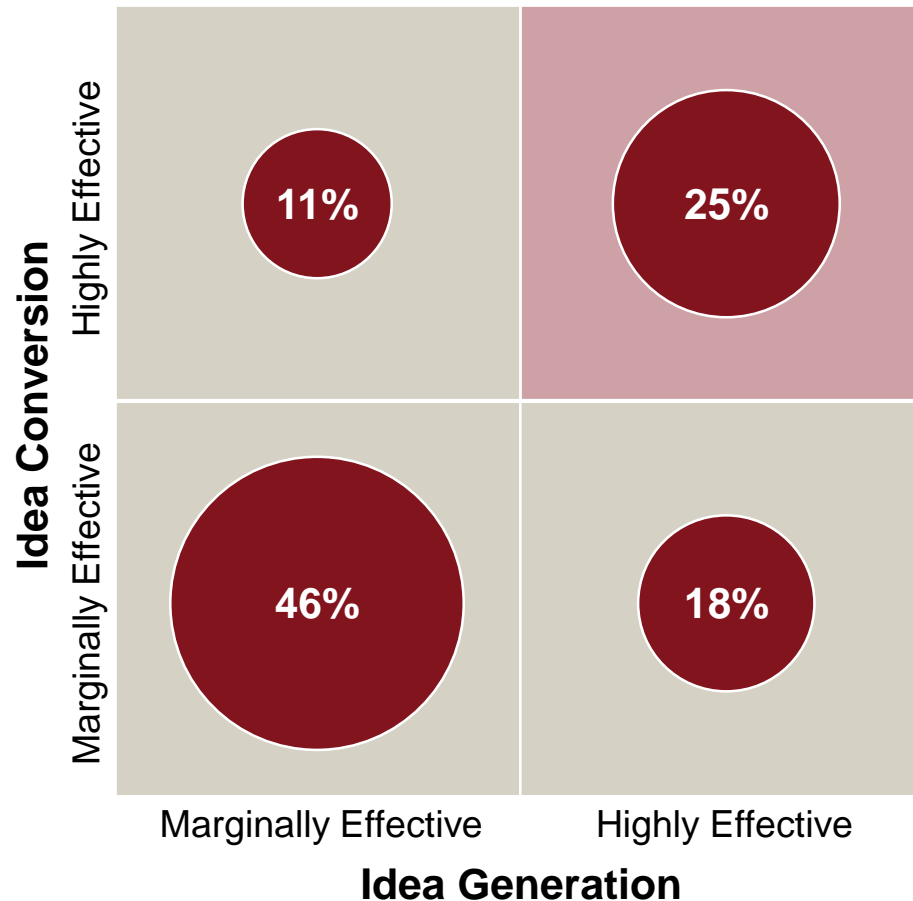
Embedding a Culture of Innovation

The Increasing Pace of Change



Source: Michael Felton, New York Times

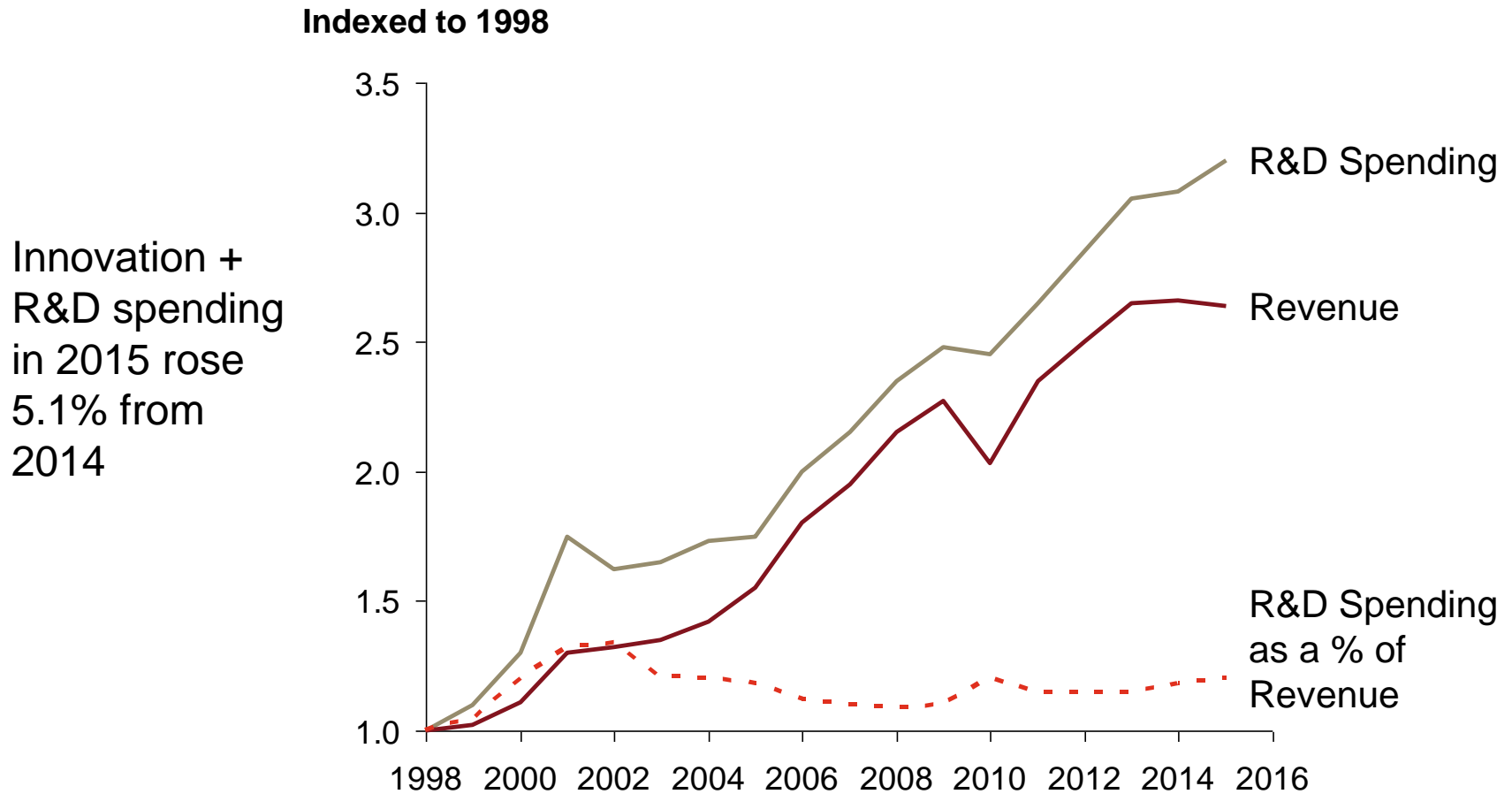
Perceptions of Innovation Effectiveness



When asked to evaluate their success with idea generation and idea conversion only one quarter of the respondents claimed to be highly effective at both.

Source: Strategy& analysis

Innovation Related Spend

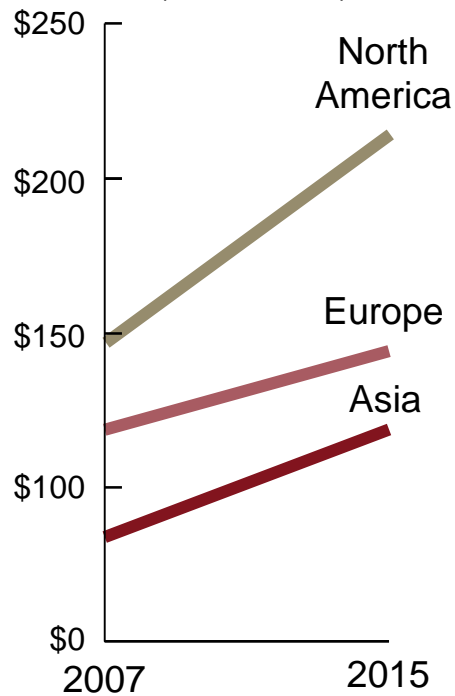


Source: Bloomberg data, Capital IQ data, Strategy& analysis

Global Shifts in Spending, 2007-15

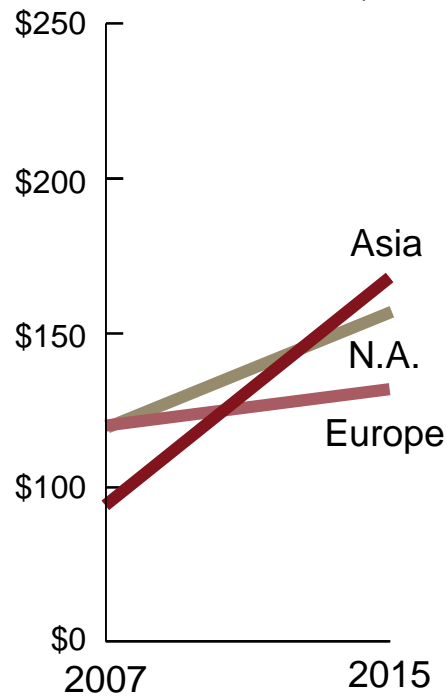
Corporate Innovation Spending

By Headquarters
(US\$ Billions)



In-Region Innovation Spending

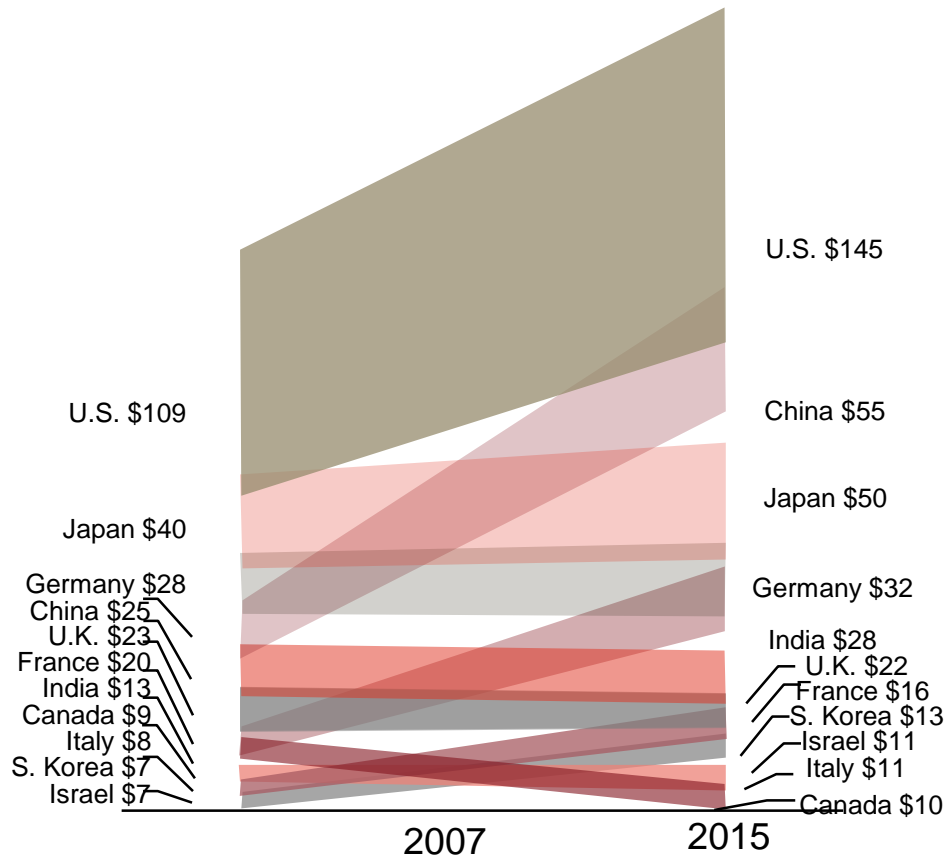
Domestic and Imported
(US\$ Billions)



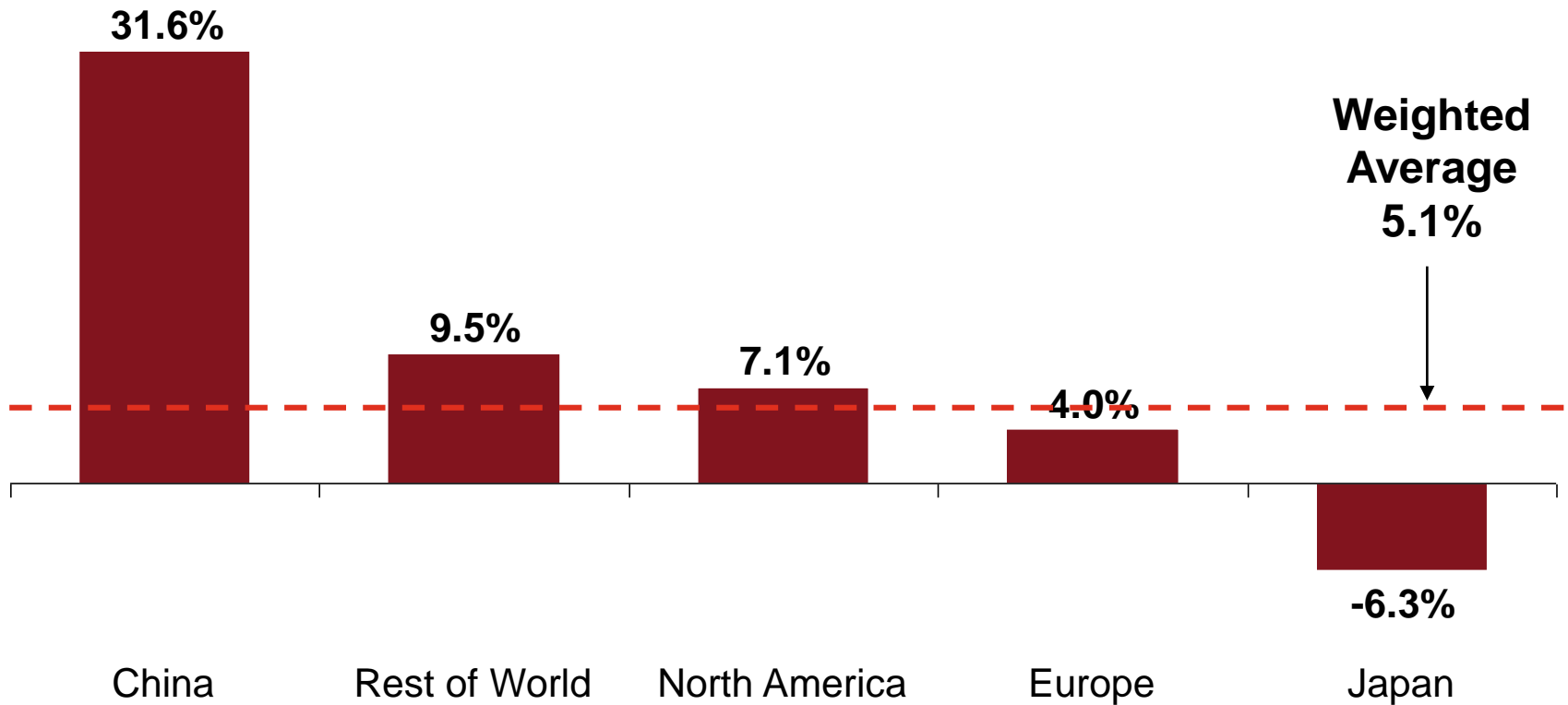
Source: Bloomberg data. Capital IQ data, Strategy& analysis

A Country View of Spending, 2007-15

In-Country Innovation Spending
 Domestic and Imported with +\$10B Spent in 2015
 (US\$ Billions)



Change in Spending by Region - 2014-15



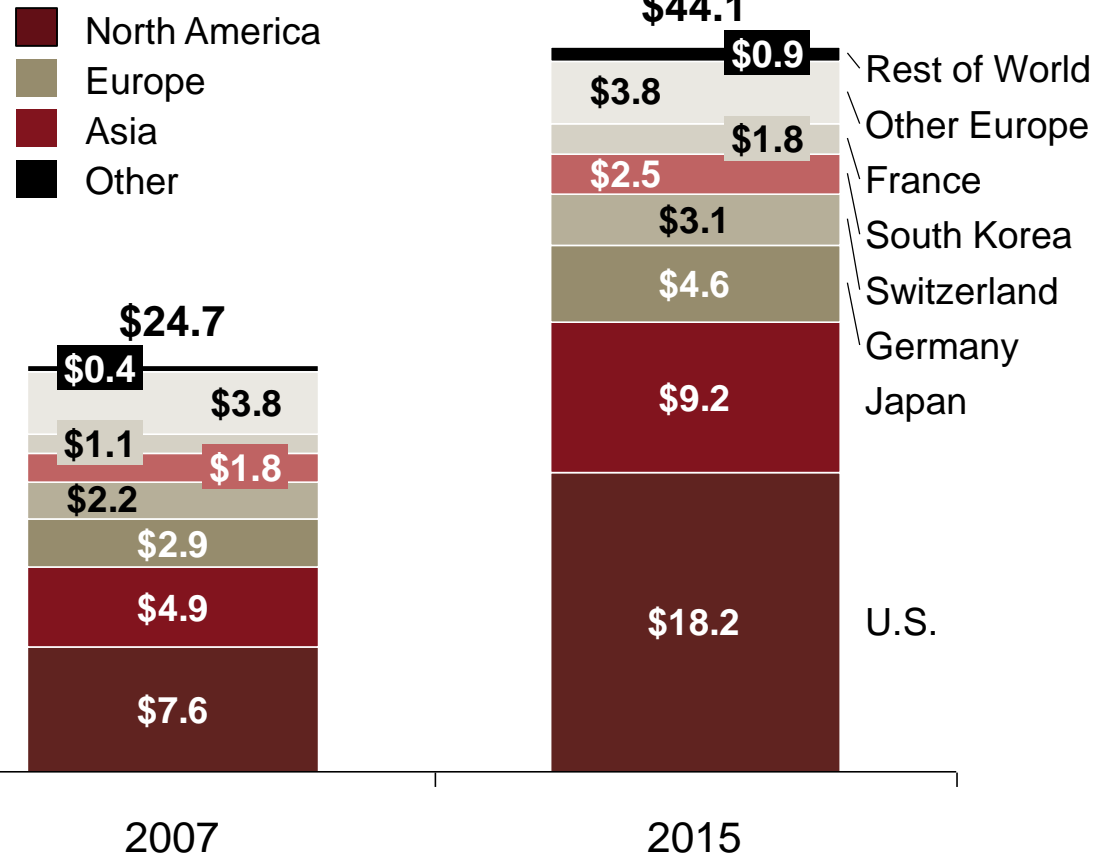
Source: Bloomberg data, Capital IQ data, Strategy& analysis

China Attracts Innovation Spending

Innovation spending in China by companies headquartered in other countries nearly doubled from 2007 to 2015, led by the United States

China's Imported Innovation

\$U.S. Billions



Note: Totals may not equal due to rounding
 Source: Bloomberg data, Capital IQ data, Strategy& analysis

The Top 20 R&D Spenders

2015 Rank	2014 Rank	Company	2015 US\$ Billion	Change from 2014	% of Revenue	2015 Rank	2014 Rank	Company	2015 US\$ Billion	Change from 2014	% of Revenue
1	1	Volkswagen	\$15.3	13%	5.7%	11	13	Pfizer	\$8.4	26%	16.9%
2	2	Samsung	\$14.1	5%	7.2%	12	12	Daimler	\$7.6	9%	4.4%
3	3	Intel	\$11.5	9%	20.6%	13	11	General Motors	\$7.4	3%	4.7%
4	4	Microsoft	\$11.4	9%	13.1%	14	10	Merck	\$7.2	-4%	17.0%
5	5	Roche	\$10.8	8%	20.8%	15	15	Ford	\$6.9	8%	4.8%
6	9	Google	\$9.8	24%	14.9%	16	16	Sanofi	\$6.4	1%	14.1%
7	14	Amazon	\$9.3	41%	10.4%	17	20	Cisco Systems	\$6.3	6%	13.4%
8	7	Toyota	\$9.2	1%	3.7%	18	32	Apple	\$6.0	35%	3.3%
9	6	Novartis	\$9.1	-8%	17.3%	19	19	GlaxoSmithKline	\$5.7	-7%	15.0%
10	8	Johnson & Johnson	\$8.5	4%	11.4%	20	28	AstraZeneca	\$5.6	16%	21.4%
Top 20 Total									\$176.5	9%	8.4%

Companies in RED have been among the top 20 R&D spenders every year since 2005

Source: Bloomberg data, Capital IQ data, Strategy& analysis

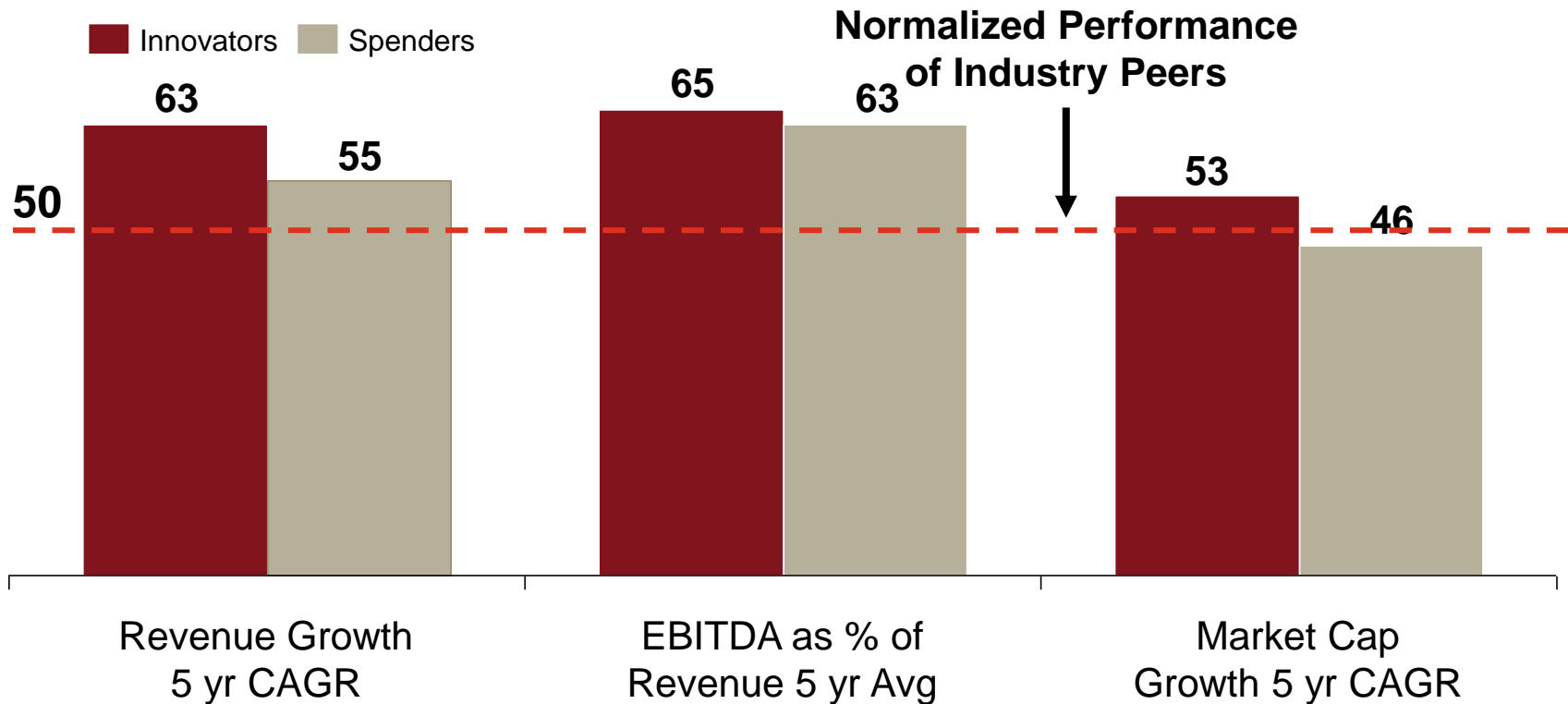
The Top 10 Most Innovative Companies

			R&D Spending		
2015 Rank	2014 Rank	Company	2015 US\$ Billion	1000 Rank	% of Revenue
1	1	Apple	\$ 6.0	18	3.3%
2	2	Google	\$ 9.8	6	14.9%
3	5	Tesla Motors	\$ 0.5	273	14.5%
4	4	Samsung	\$ 14.1	2	7.2%
5	3	Amazon	\$ 9.3	7	10.4%
6	6	3M	\$ 1.8	80	5.6%
7	7	GE	\$ 4.2	36	2.9%
8	8	Microsoft	\$ 11.4	4	13.1%
9	9	IBM	\$ 5.4	26	5.9%
10	11	Toyota	\$ 9.2	8	3.7%

Companies in RED have been among the 10 most innovative every year since 2010

Source: Bloomberg data, Capital IQ data, Strategy& survey data and analysis

Top 10 Innovators vs. Top 10 R&D Spenders



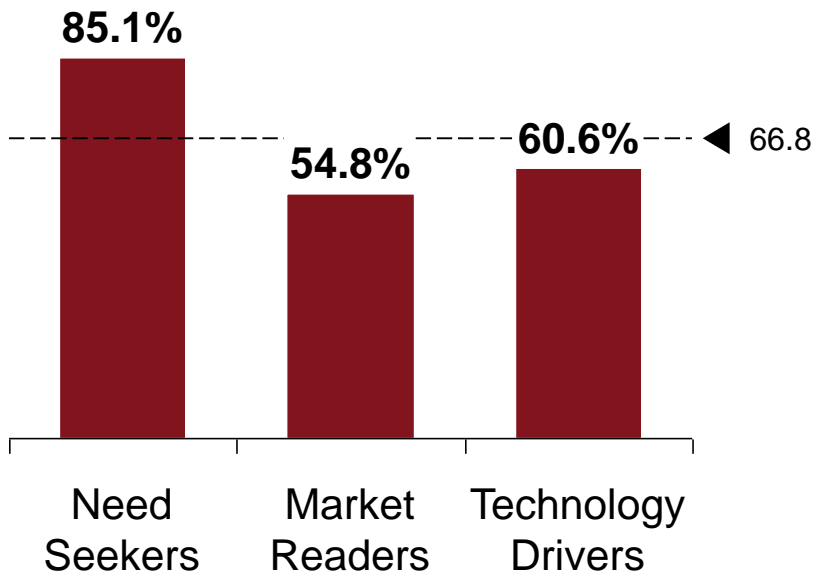
On an indexed basis, the top innovators led on all three financial metrics for the sixth straight year

Highest possible score is 100

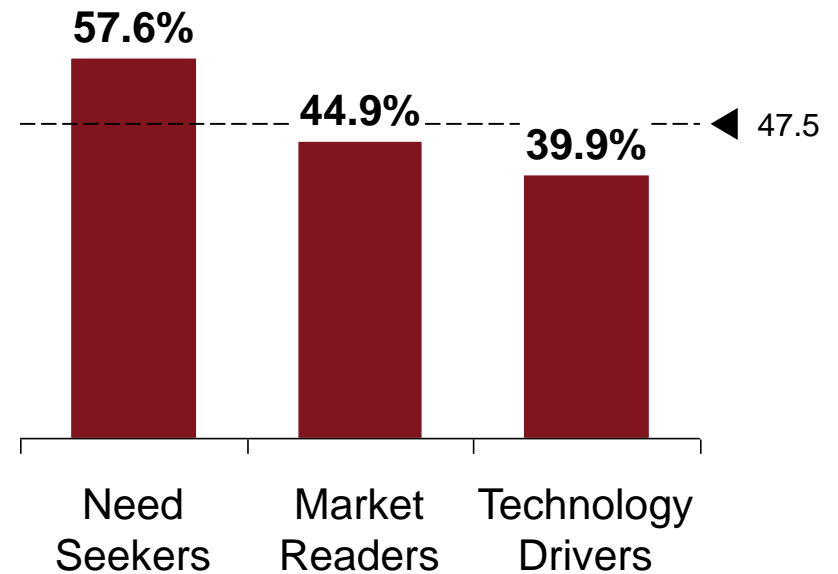
Source: Bloomberg data, Capital IQ data, Strategy& survey data and analysis

The Success of Need Seekers

% of Companies with Highly Aligned Business & Innovation Strategies



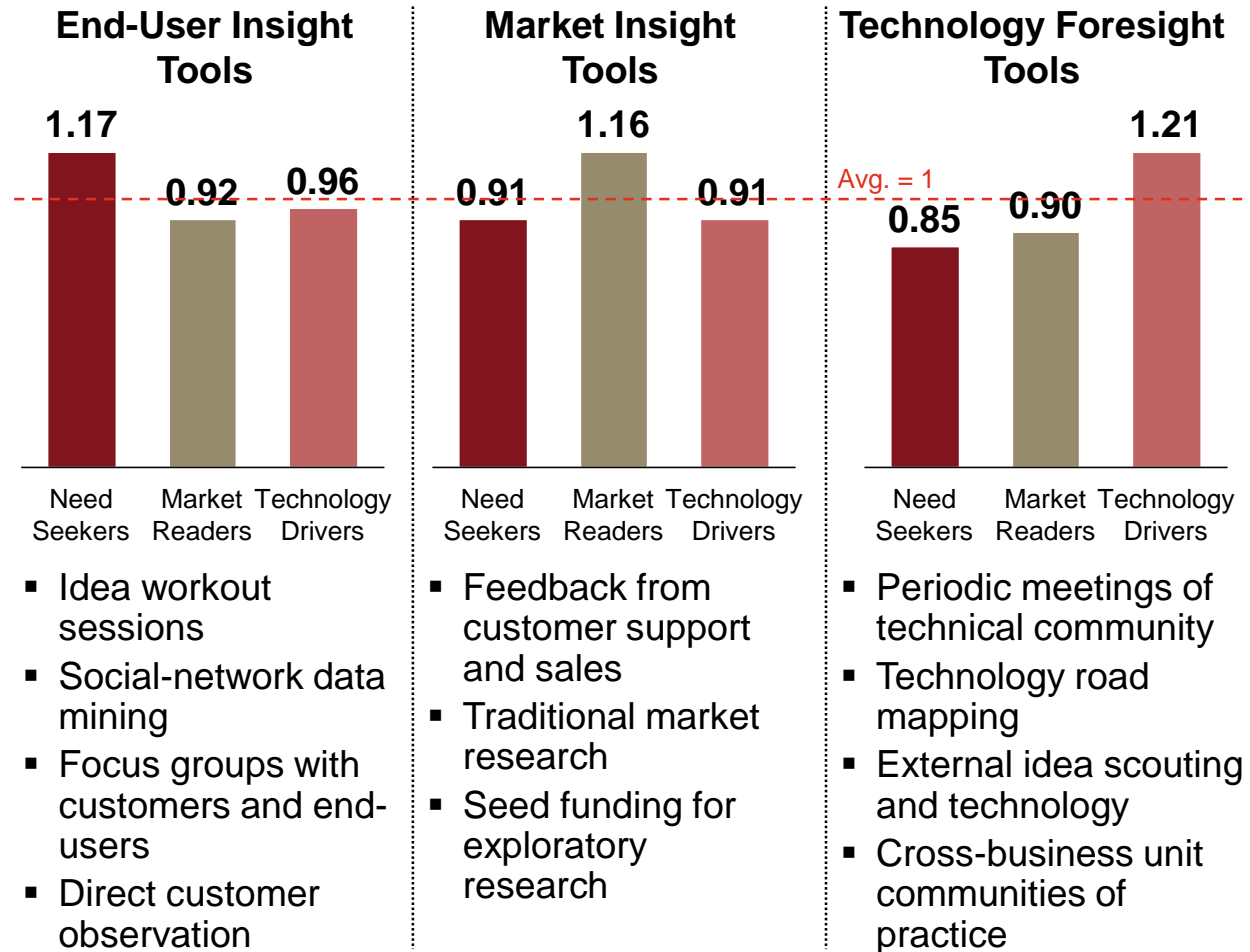
% of Companies that Financially Outperform Their Competitors



Source: Strategy& Global Innovation 1000 survey data and analysis

Idea Generation Tools by Strategy

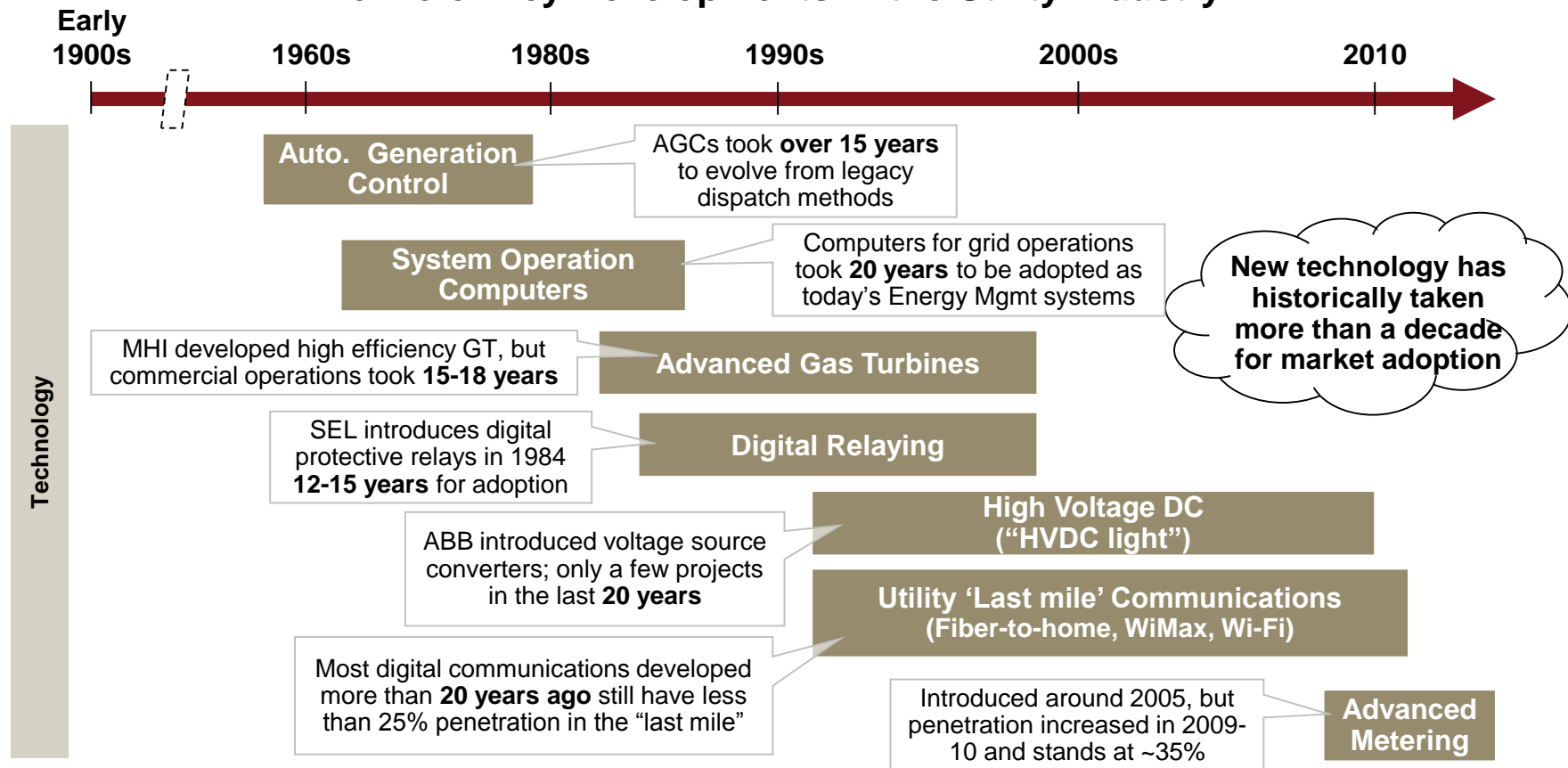
In the earliest stage of innovation, companies focus on and disproportionately employ the tools that are more closely aligned to their chosen innovation strategy, whether they are Need Seekers, Market Readers, or Technology drivers.



Source: Strategy& analysis

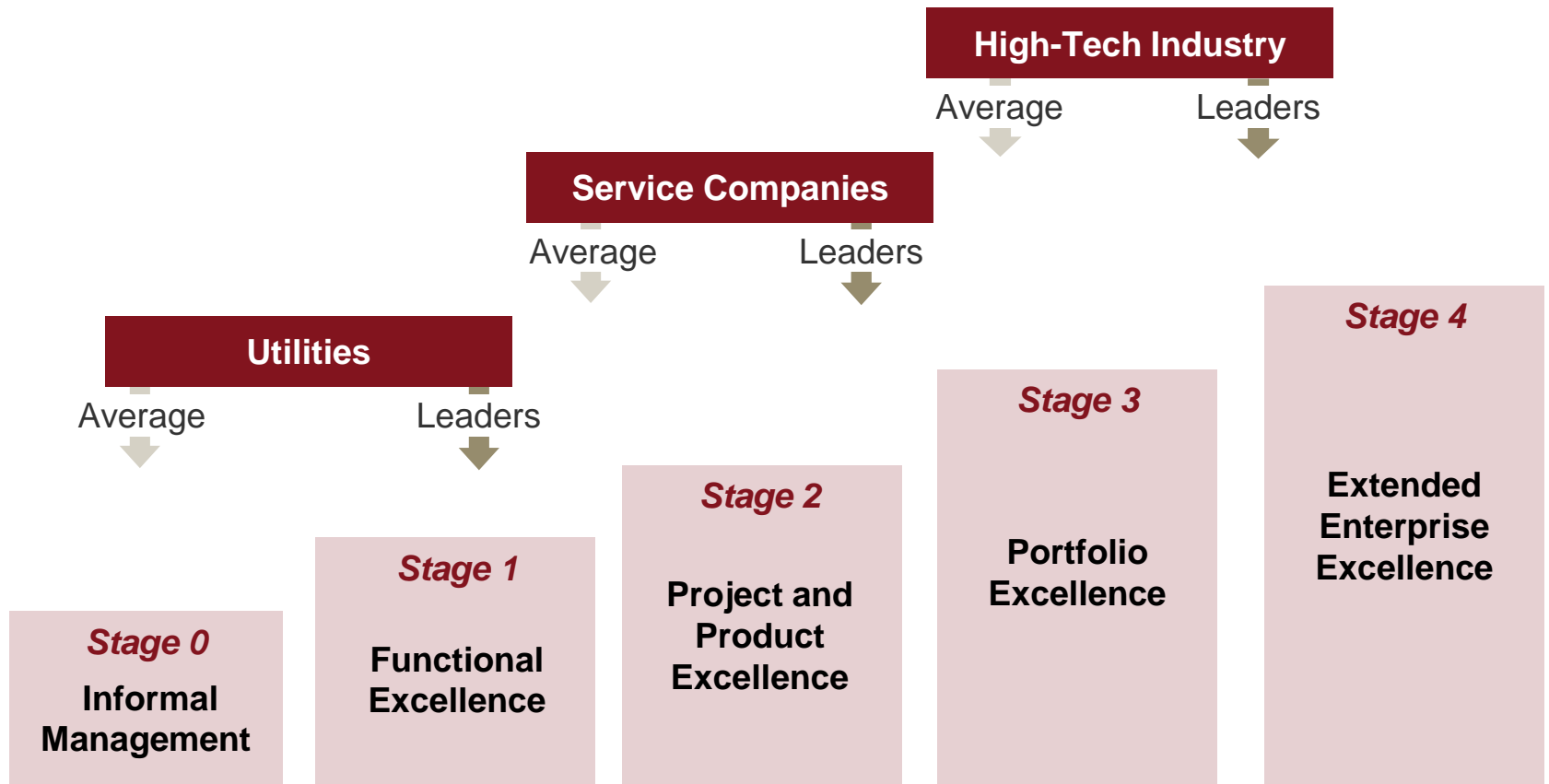
Utility Sector Evolution

Timeline of Key Developments in the Utility Industry



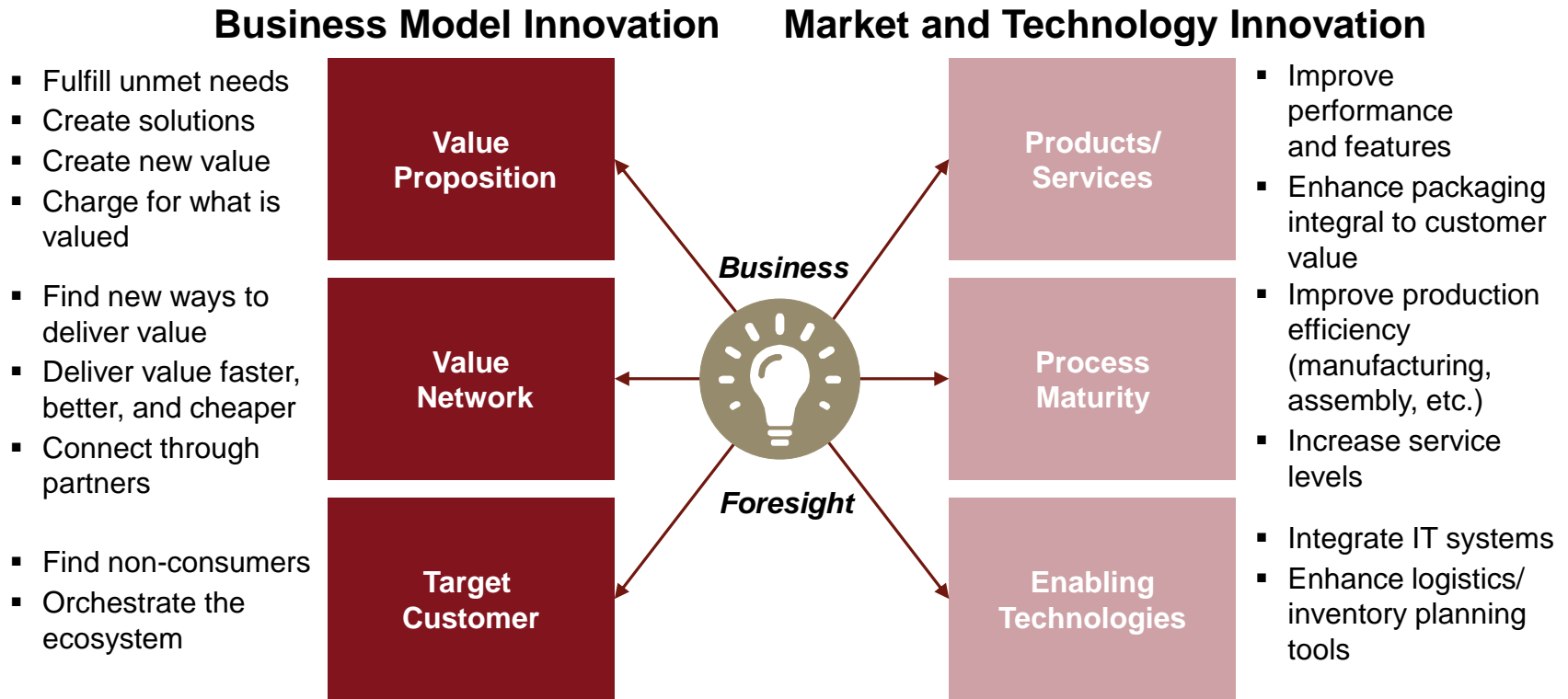
Notes: Strategy& analysis

Utilities Lag Most Sectors



Source: PMG Signals of Performance, PRTM/PwC Service Innovation Benchmarking Study

Leveraging the Innovation Levers



The Business Foresight focus raises the key questions, 'Where do you play, how do you play, and how do you 'win'?'

Source: Making Innovation Work, Davila, Epstein, Shelton: Wharton School Publishing, 2006

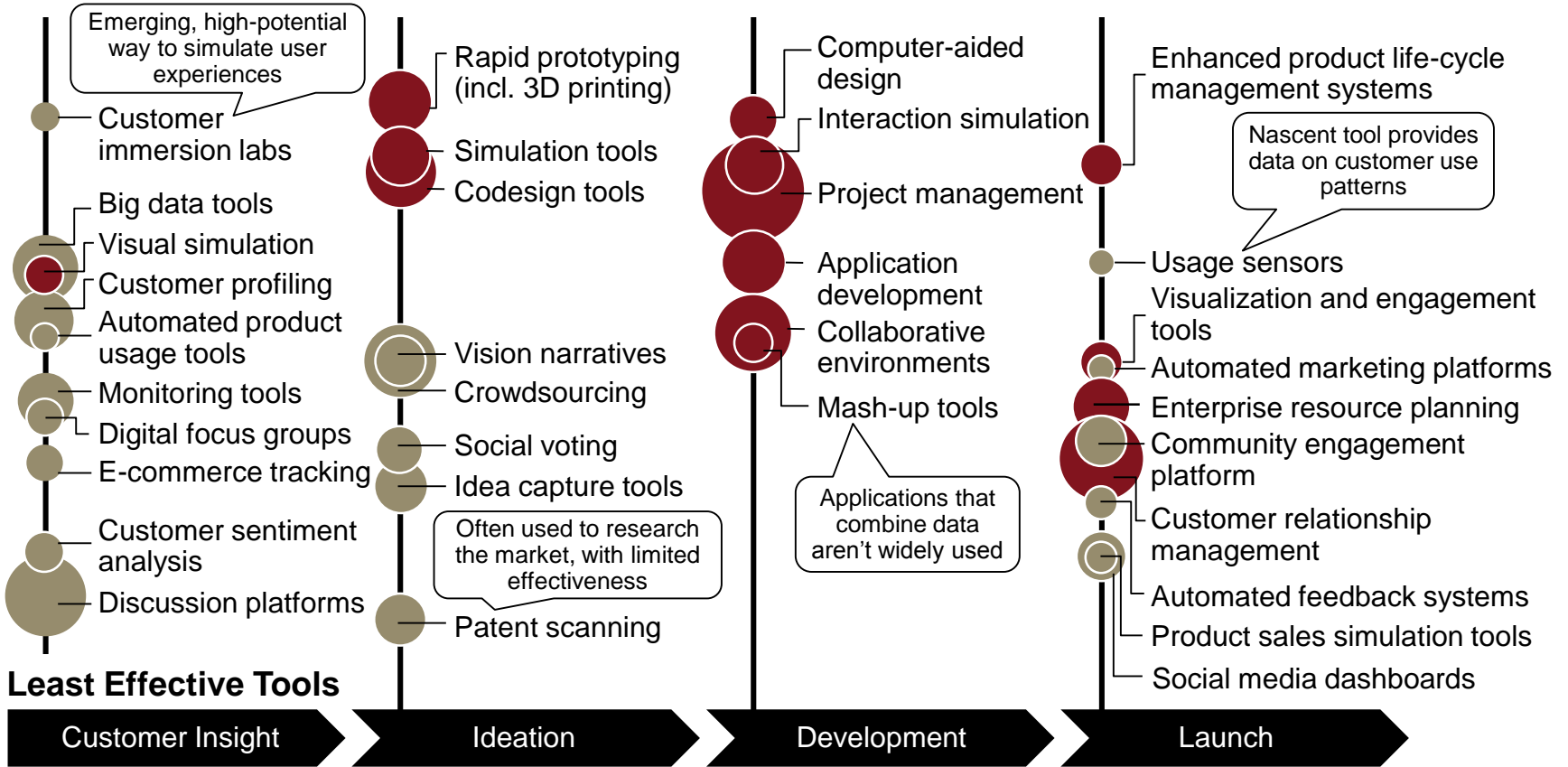
Capabilities of Top Performers

	Need Seekers	Market Readers	Technology Drivers
Customer needs translated to product development	●	●	●
Market potential assessment	●	●	
Open innovation	●		●
Technical risk assessment	●		●
Rigorous decision making		●	●
Directly generated, deep customer insights and analytics	●		
Enterprise-wide product launch	●		
Resource requirement management		●	
Supplier/partner engagement in development process		●	
Detailed understanding of emerging technologies / trends			●
Product life-cycle management			●

Source: Strategy& Global Innovation 1000 survey data and analysis

The Digital Tool Landscape

Most Effective Tools



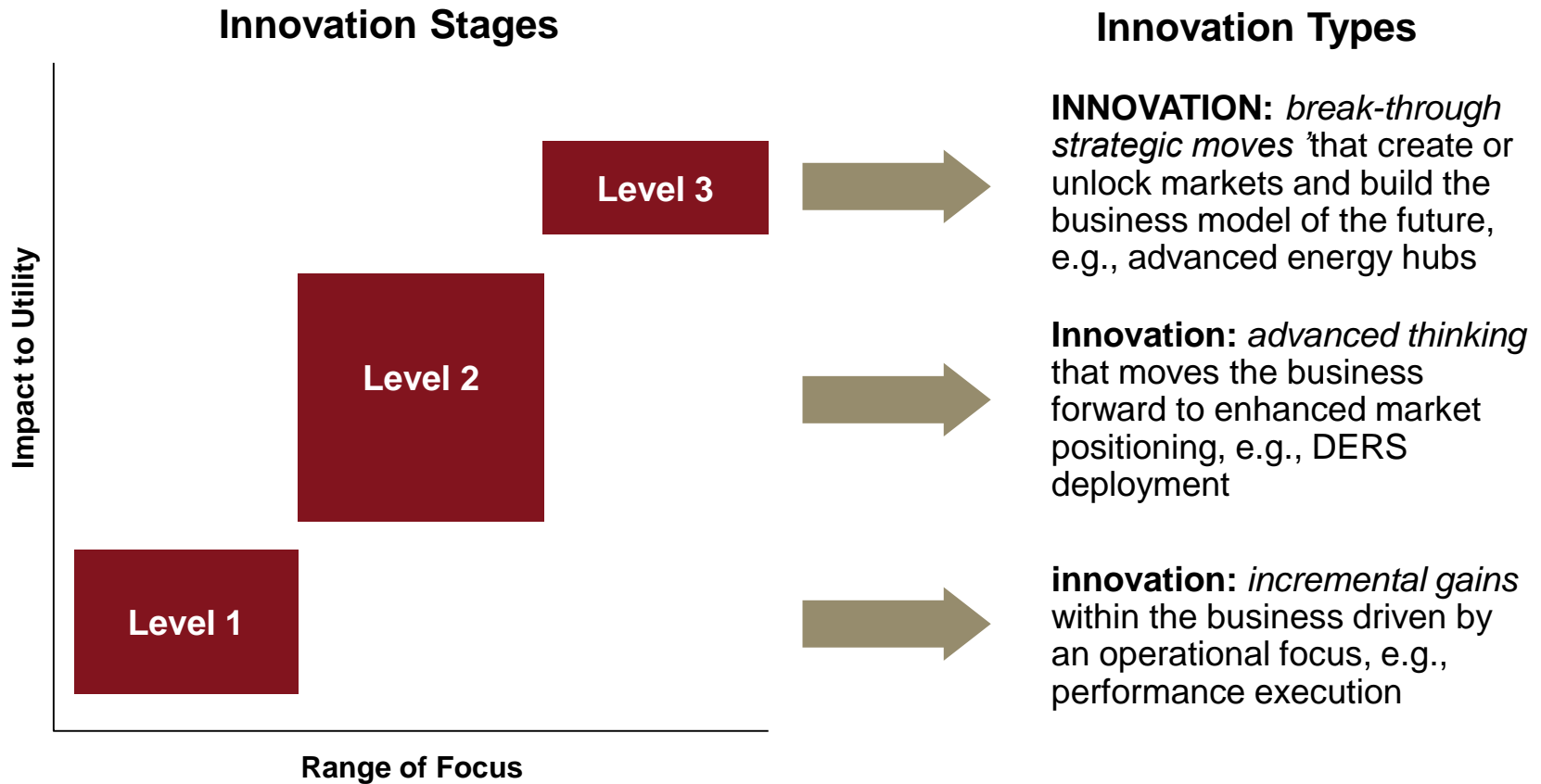
Source: Strategy& analysis

● Market and Customer Insight Enabler Tool

● Productivity Enabler Tool

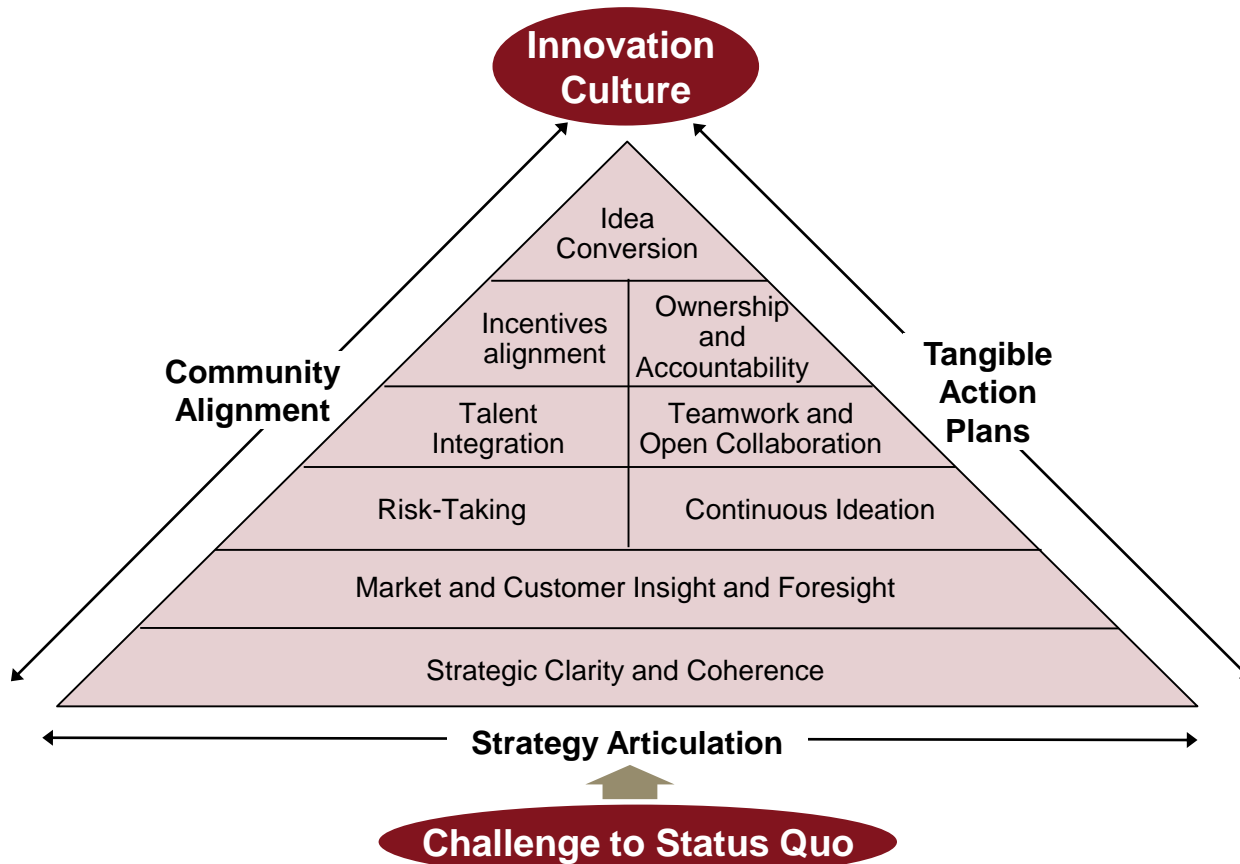
70% —
15% —
Circle Size = Percentage of respondents using each tool

Stages of Innovation Pursuit



Defining the Culture of Innovation

What a Culture of Innovation Looks Like



Embedding an Innovative Culture

Leadership: Inspires and supports behavior change

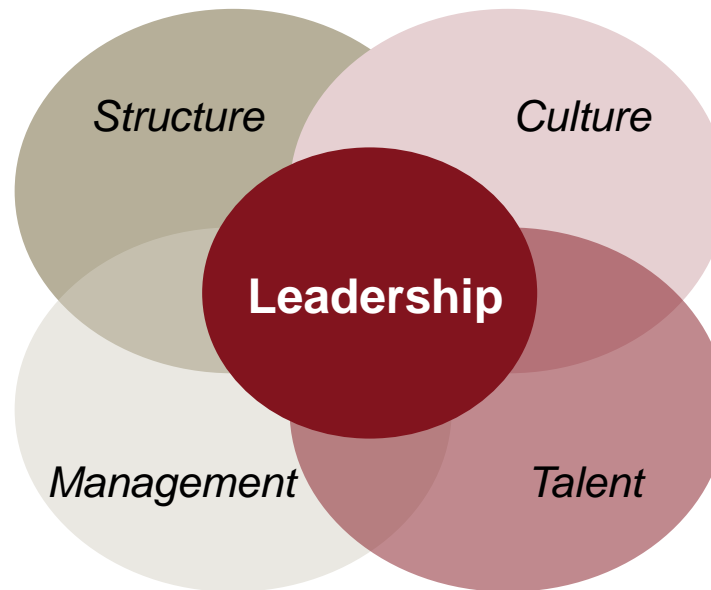
- Act as role models, 'walk the talk'
- Show tolerance for risk and failure – recognition that innovation is different from development
- Provide safe and encouraging/rewarding environment

Structure: For innovation

- 'Insulated but not isolated'
- Dedicated, small group to lead/drive
- Defined ties to the business
- Work virtually as needed
- Protected funding – separate from development

Management: That motivates

- Metrics – emphasize the right behavior (e.g., breakthroughs)
- Motivators – recognition, 'wall of fame', visibility
- Training



Culture: Of a startup

- 'Can-do' attitude
- Solution orientation
- Agile, flexible and quick
- Thirst for revenue
- Boot-strap approach
- Collaborative

Talent: Creative, non-linear

- Comfort with ambiguity
- Non-linear thinking
- Passion for business success; results-driven
- Bias for action; sense of urgency

Defining the Right Objectives

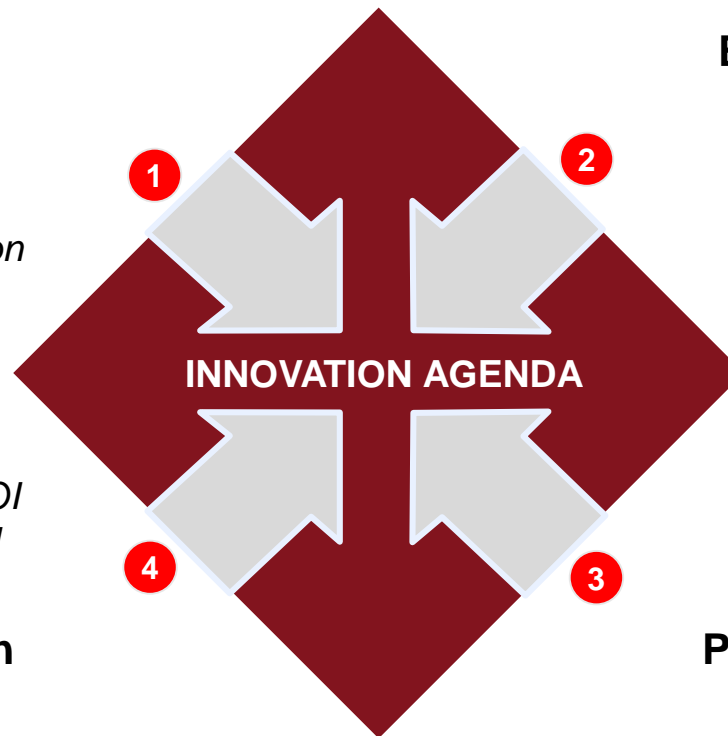
Objectives

Strategy Alignment

- *Linkage of innovation priorities with enterprise priorities*
- *Shaping of the innovation portfolio to business needs*

- *Demonstration of innovation value and ROI*
- *Support to revenue goal attainment*

Financial Contribution



Business Positioning

- *Advancement of technology capabilities and deployment*
- *Anticipation and satisfaction of customer requirements*

- *Creation of a portfolio of 'market-back' offerings*
- *Fulfillment of unrecognized and unmet needs*

Products and Services