



**Buck
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Winning R&D projects

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- 1 Changes in the R&D Landscape**
- 2 Global Developments**
- 3 Ecosystems, Clusters and Science & Innovation Parks**
- 4 Marketing Your Technology Base**

1 Changes in the R&D Landscape



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Wish list EDOs

“We want to grow our high tech cluster with 10% p.a.”

“Our technology park offers everything food companies are looking for”

“By 2022 our region is one of the 5 main life sciences regions in the world ”

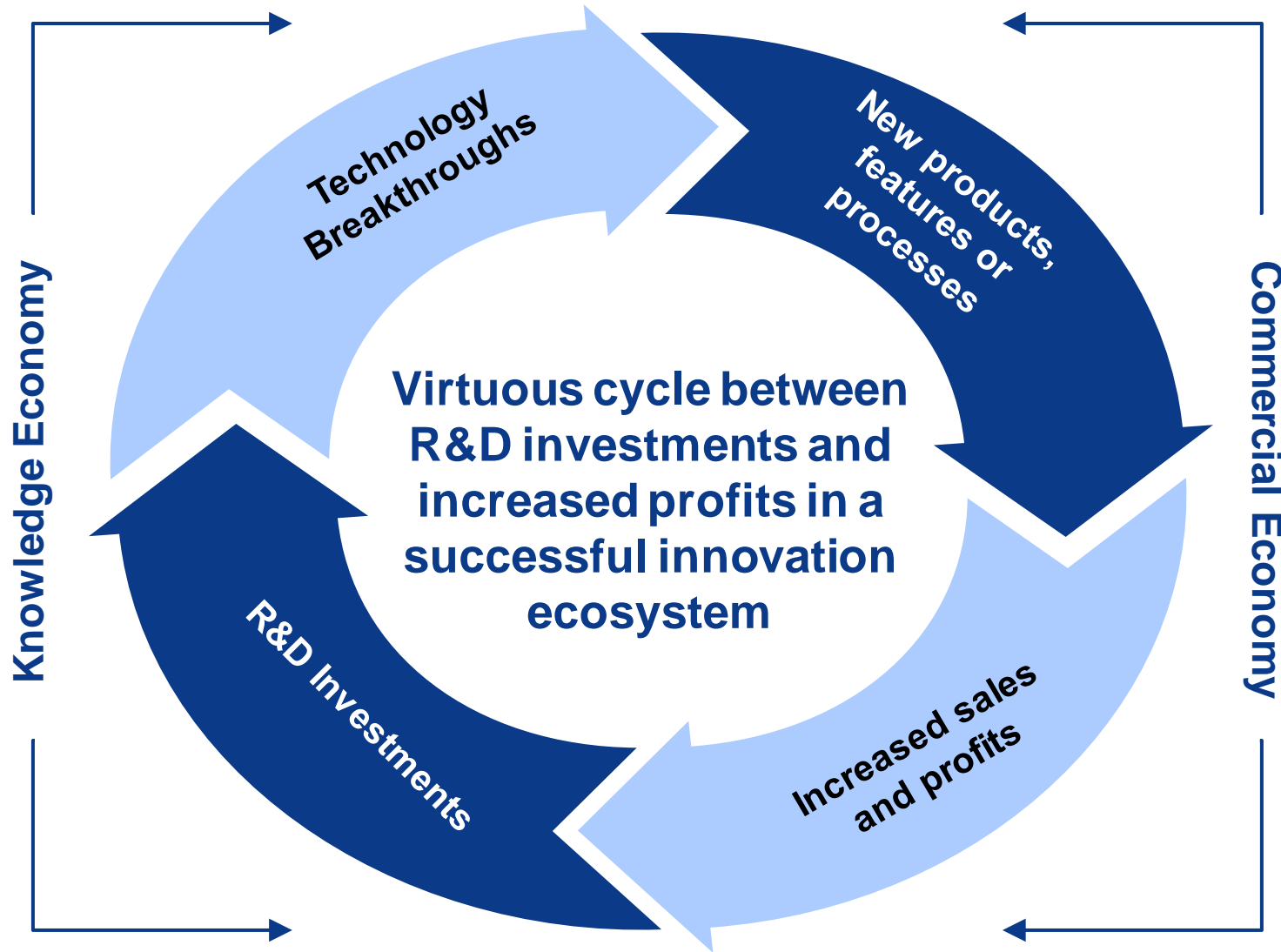
“Our target is 15 new R&D centers in 3 years.”

**But what are companies looking for?
Where will new R&D centers be located?**

Why R&D matters?



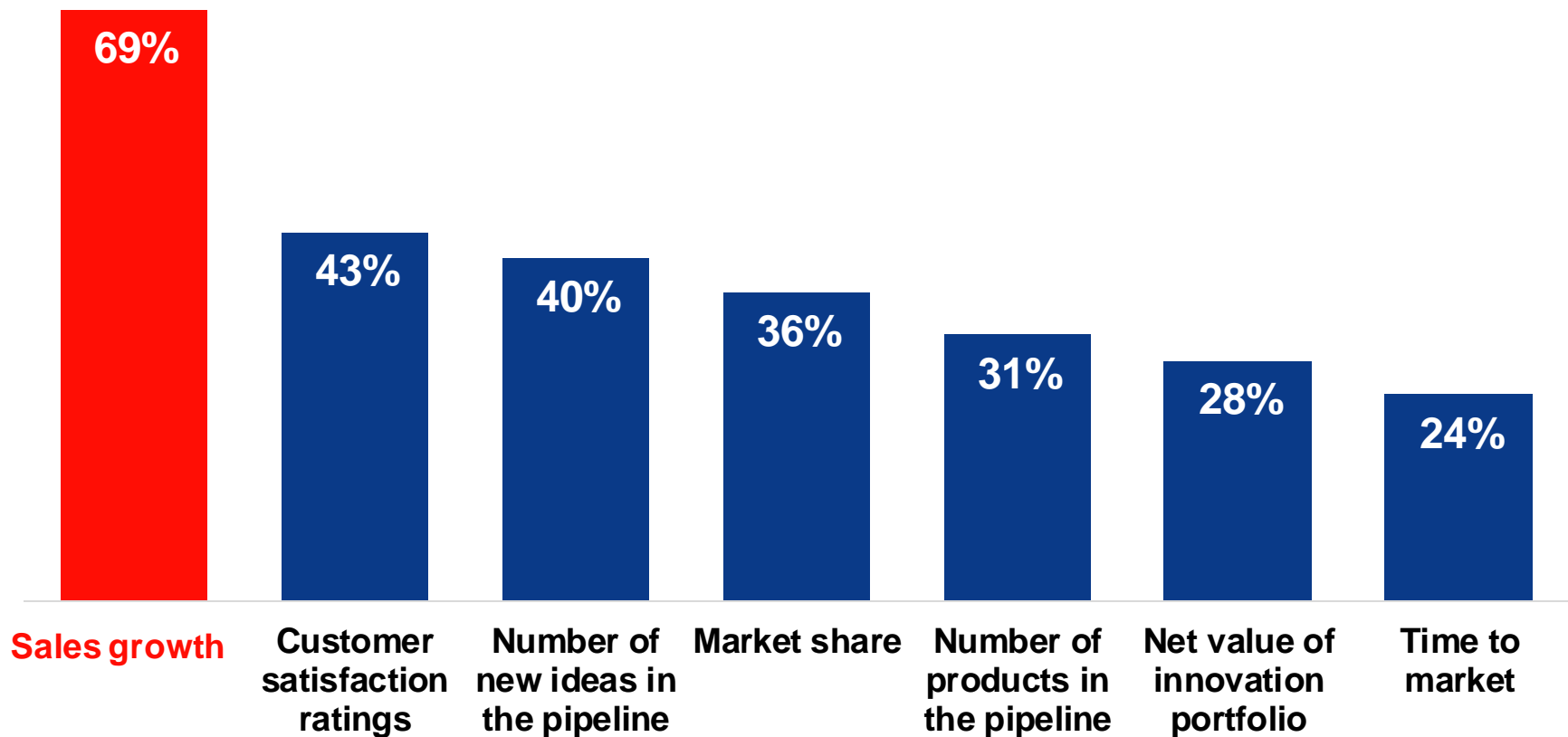
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Source: National Science Foundation

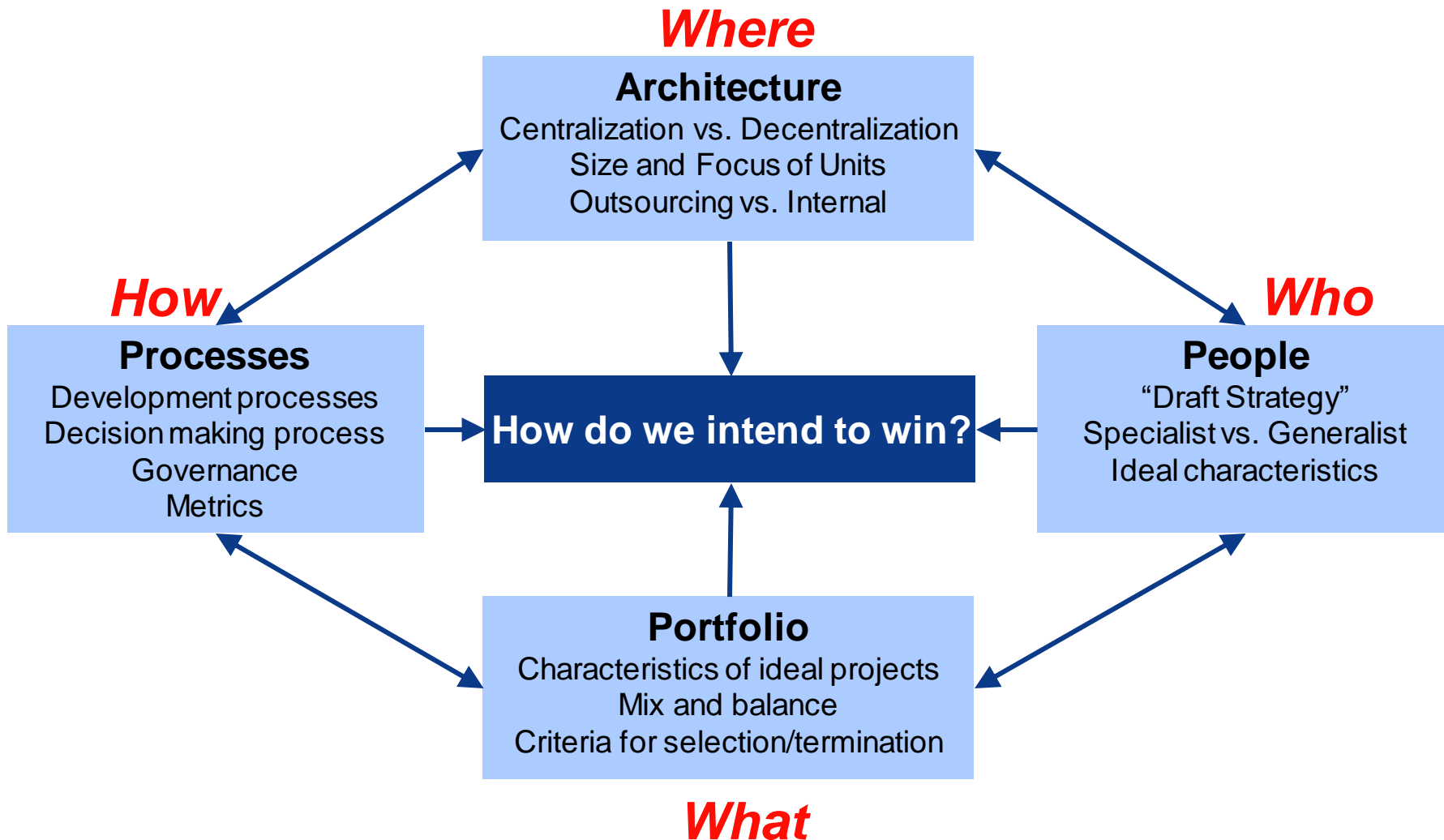
Innovation's impact: sales growth is the top metric

What are the most important metrics for measuring innovation at your organization? (n=1,222)



Source: PwC, 2017

Key elements of R&D Strategy

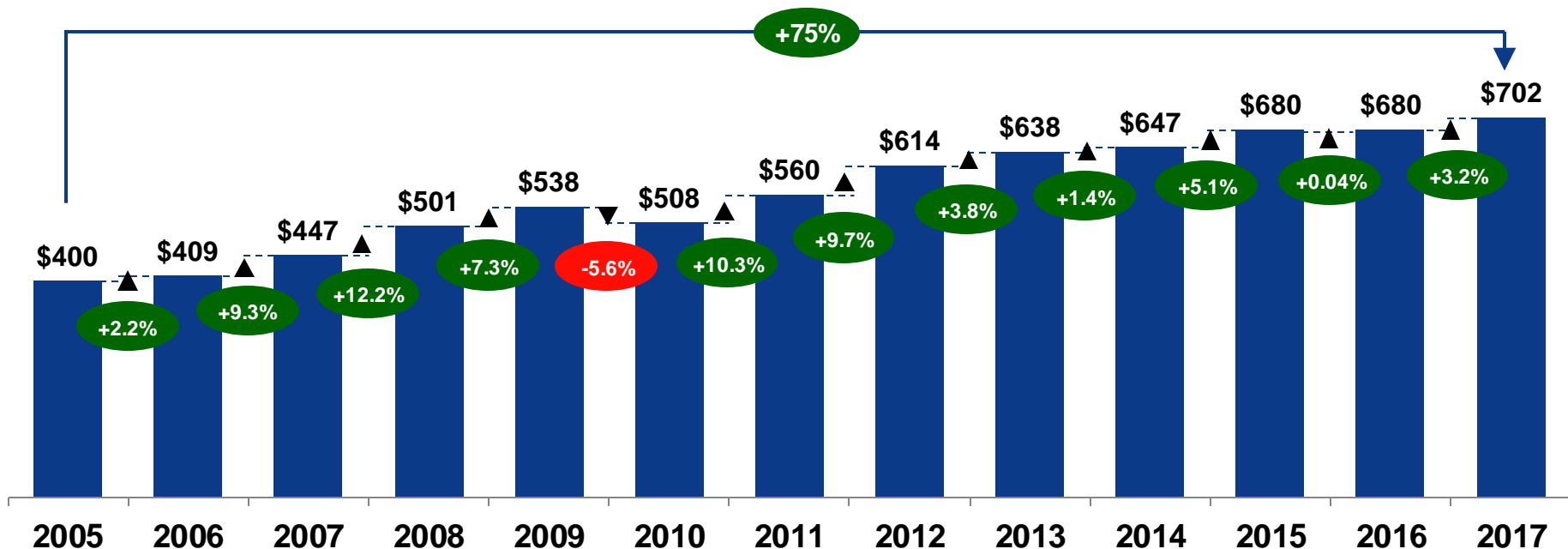


Source: Harvard Business School, 2012

Six Key Trends

A R&D expenditures are still growing

Global innovation 1000 R&D spending
2005 – 2017, USD billions

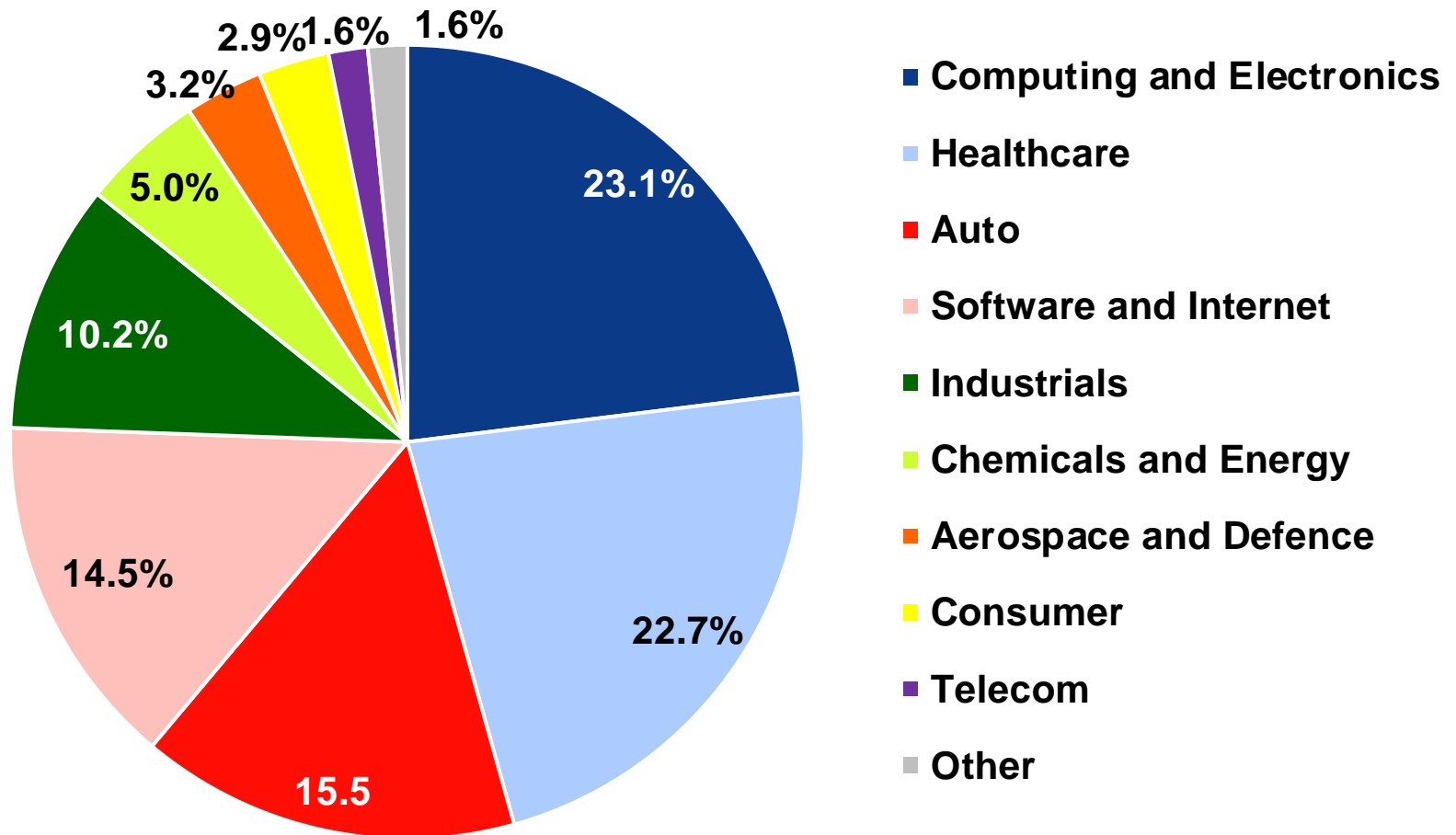


Source: PwC, 2017

Computing & Electronics, Healthcare and Auto contributed 61% of R&D spending in 2017

2017 R&D spending by industry

Total = \$701.6 USD billions

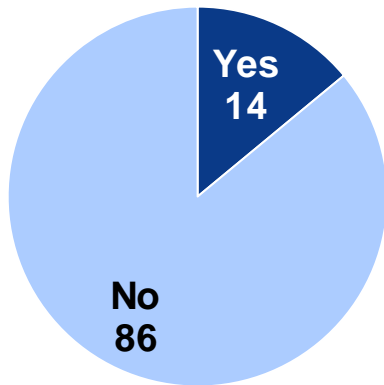


Source: PwC, 2017

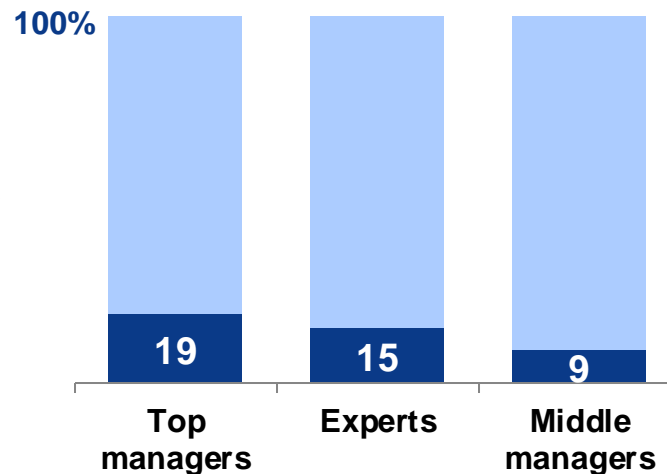
Less than a fifth of the companies are ahead of the curve in six emerging R&D trends

Is your company ahead of the curve in meeting the challenges of six emerging R&D trends?¹ (% of respondents²)

Overall



By roll



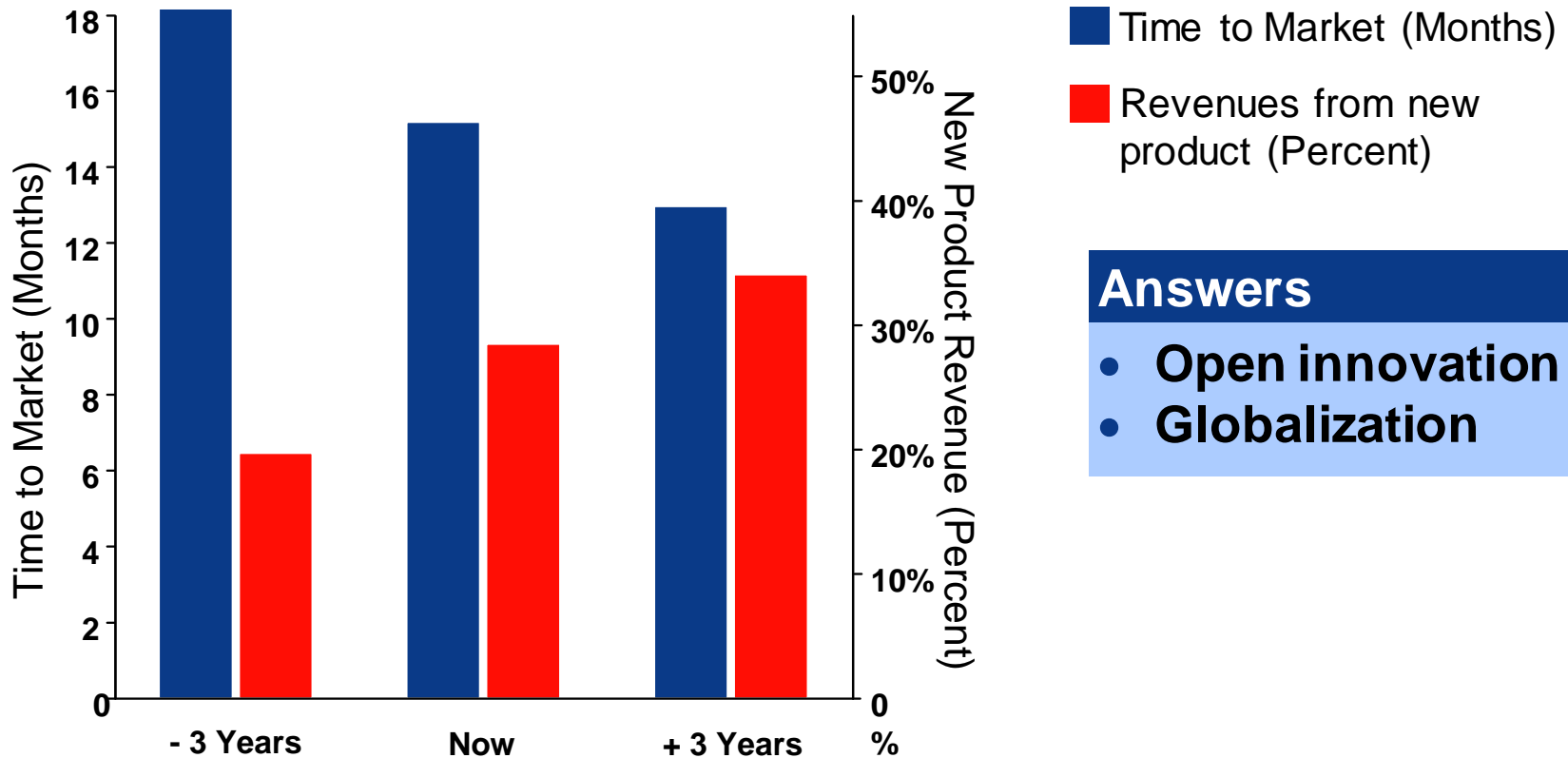
The percentages of companies that are ready for the following six trends:

- 1 The ability to leverage the Internet of Things, big data and advanced analytics, 11%
- 2 Digitization of the product-development process and feature-based development, 13%
- 3 Adapting product development to advanced materials and new manufacturing technologies, 17%
- 4 Excellence in software development, 13%
- 5 Globalizing R&D footprints, 20%
- 6 Transparency and accountability in R&D performance, 13%

² Pool of 200 respondents from top R&D organizations across the regions and six industries

B Next level of open innovation are innovation networks ecosystems

Innovation challenges: reducing time to market while increasing new product revenue

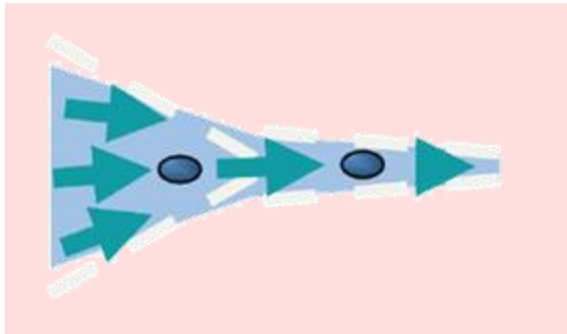


Answers

- Open innovation
- Globalization

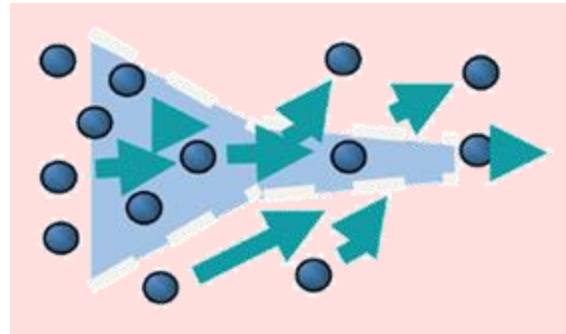
Source: Deloitte/adjusted BCI, 2014

Innovation Networks



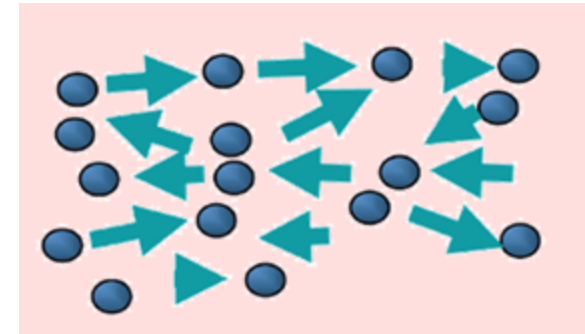
**Centralized inward
looking innovation**

Closed Innovation



**Externally focused,
collaborative
innovation**

Open Innovation



**Ecosystem centric,
cross-organizational
innovation**

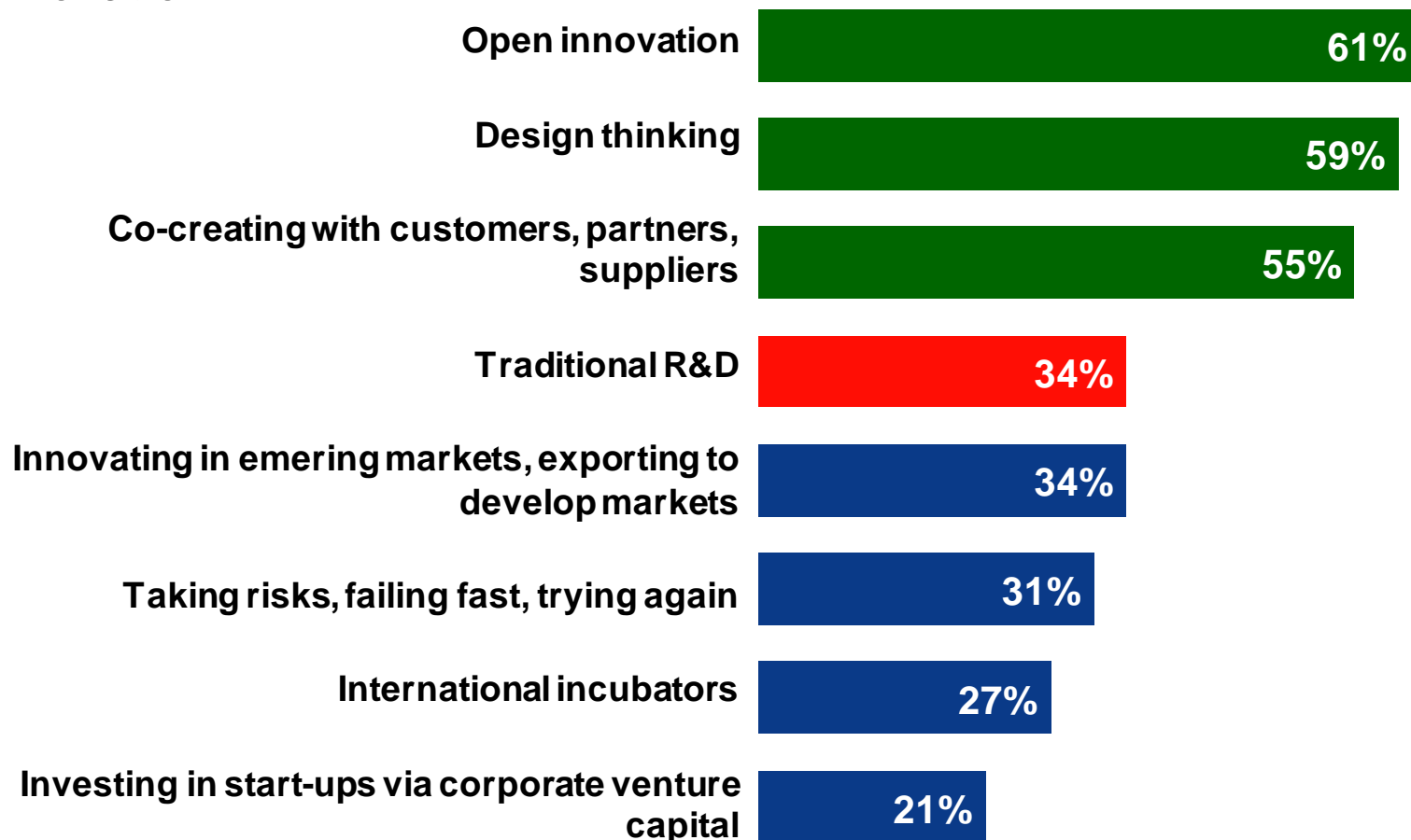
**Innovation
Networks
Ecosystems**

More collaborative operating models outpace traditional R&D



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What operating model does your organization currently use to drive innovation?



Source: PwC, 2017

C In R&D internationalization wins from economic nationalism



Input-oriented

- Information and communication networks
- Insufficient home personnel
- Local pocket-of-innovation
- Local infrastructure
- Qualified personnel abroad
- Local scientific community
- Tapping informal networks

Output-oriented

- National and legal conditions
- Country-specific cost advantages
- Local economic and natural advantages
- Improving local image
- Adaptation to local production processes
- Customer-specific development
- Closeness to lead users
- Local values
- Market and customer proximity

Efficiency-oriented

- Improving flexibility through new organization
- Local critical mass/ mass digression in home country
- Reduction of development failure risks
- Making use of many time zones
- Closeness to production, marketing, distribution
- Reduction of development cycle time
- Overcoming logistic barriers
- Lower R&D personnel costs

Key Drivers R&D Internationalization

External

- Acquisition of parent company, merger
- Historic reasons
- Peer pressure
- Tax optimization

Political / socio-cultural

- Improvement of international patenting laws
- Overcoming protectionist barriers
- Local social and peaceful labour relations
- Local content
- Legal restrictions in home country
- Low home acceptance
- Subsidies

D Steering R&D is changing: a more clear split between Research locations and Development locations

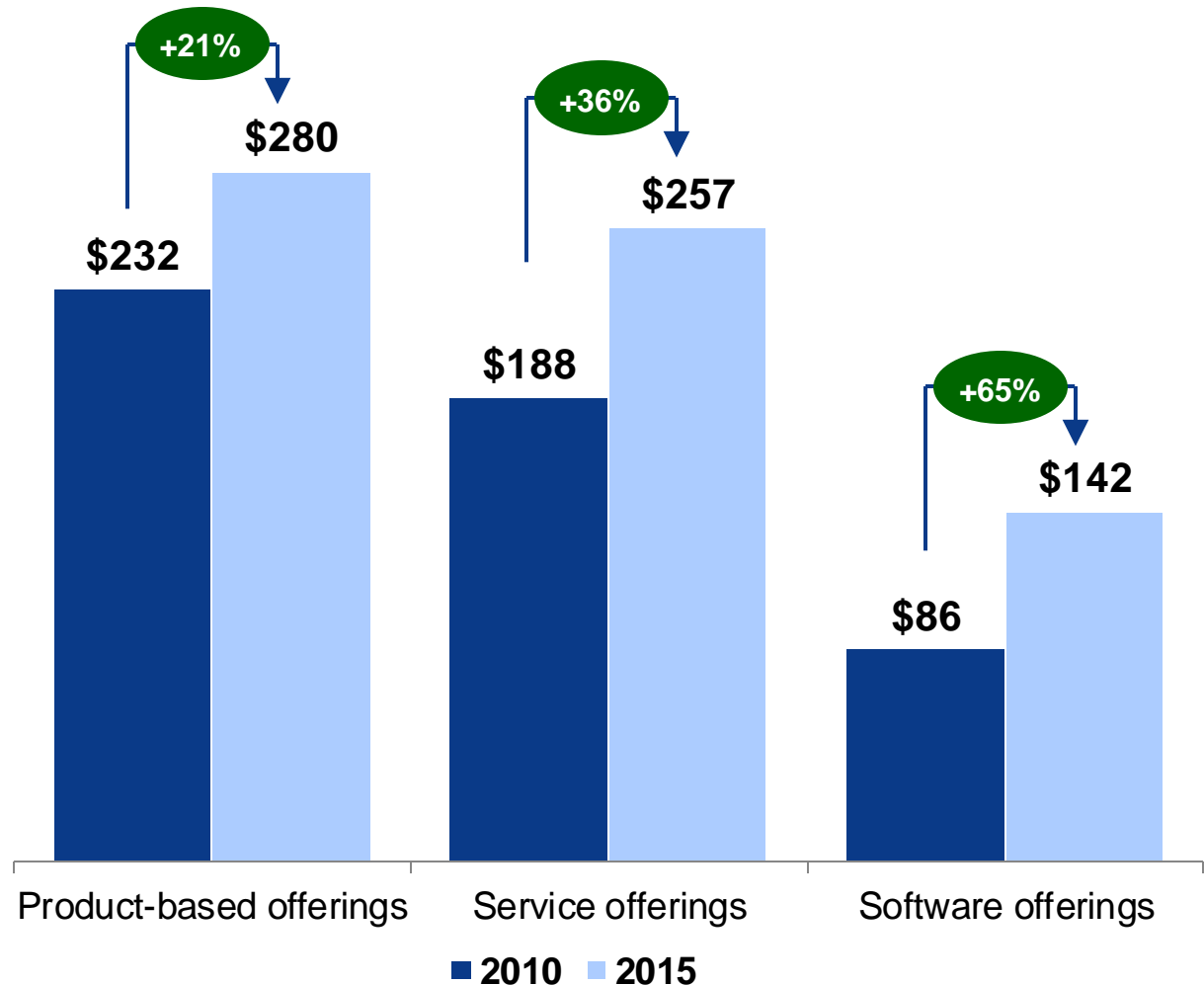
- The **Research locations** are chosen for their scientific excellence and high skilled talent base. The **Development locations** are chosen by the business lines/divisions and focus mainly on emerging markets
- Europe becomes more the research base for multinational companies; other parts in the world are home to new development centers
 - In various industries Europe has a strong research base
 - The US is a strong player in basic research and applied research & development
 - China and India are particularly appreciated for development and applied research

E The future R&D landscape: a limited number of global cross industry hot spots and specialized satellites

- Around the world a limited number of locations form the (cross-industry) R&D hot spots
- In Europe the strongest R&D hot spots are
 - London - Cambridge – Oxford
 - the larger Paris region
 - separate German cities such as Berlin and Munich
- Specialized satellites can be found in (examples)
 - Switzerland: Basel – Zurich for life sciences
 - Ireland: Dublin for the high tech industry
 - France: individual cities/regions like Grenoble, Toulouse, Sophia Antipolis for the high tech industry
 - Scandinavia: Stockholm, Helsinki for the ICT sector

F Shift from product-based R&D to software & services

Total R&D spending
by type of offering
US\$ Billions



Source : Strategy&, 2016

2 Global Developments

Global R&D spending (Total billion US\$, 2017, estimates)

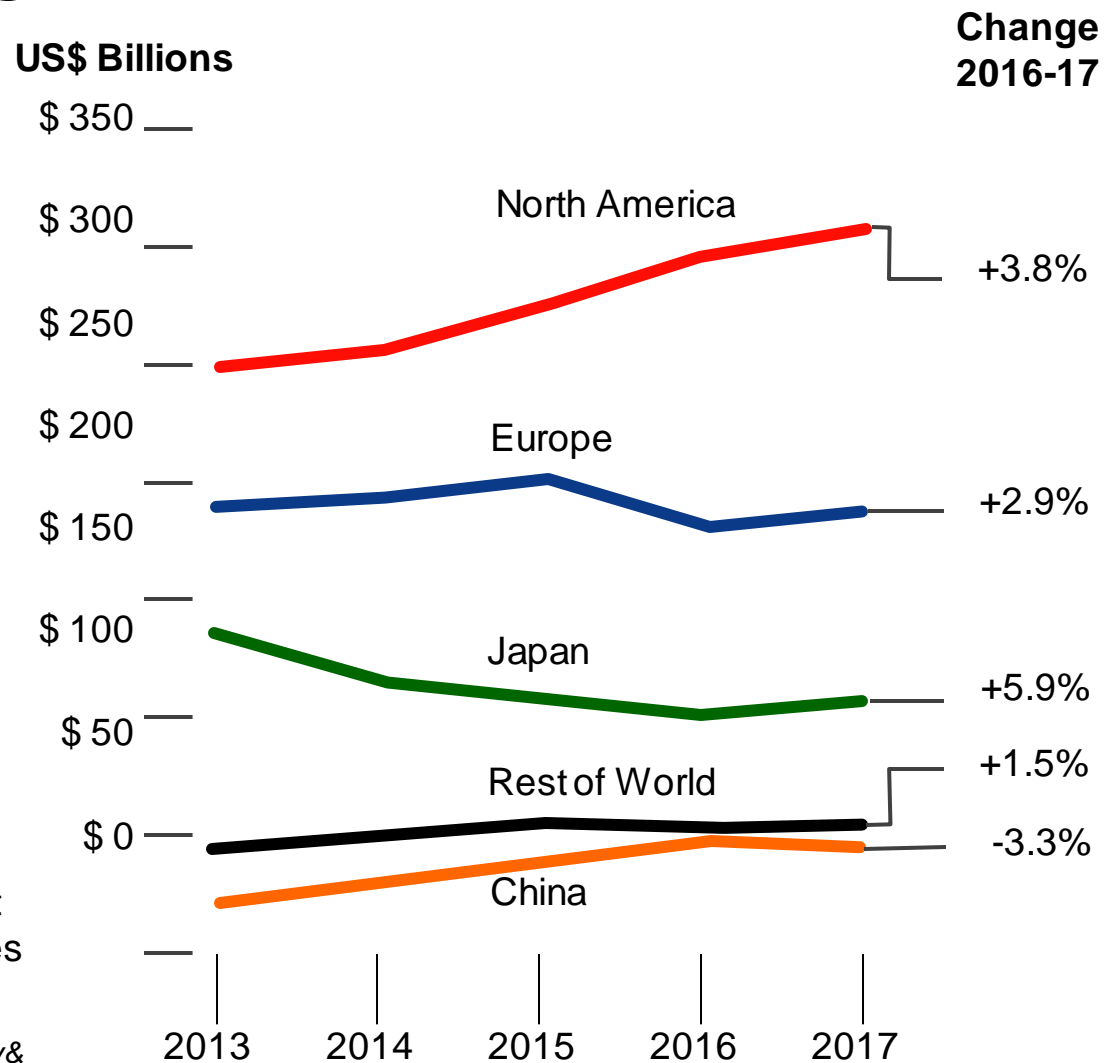
1	United States	512
2	China	401
3	Japan	172
4	Germany	113
5	South Korea	81
6	India	73
7	France	60
8	Russia	55

9	United Kingdom	48
10	Brazil	37
11	Australia	35
12	Canada	30
13	Italy	28
14	Taiwan	27
15	Spain	21
16	Netherlands	18

Source: OECD (42 countries)

Does Europe matter?

R&D Spending by Region



Note: Use of local currency would result in different year-over-year changes

Source: Bloomberg data, Capital IQ data, Strategy&



Top 10 Global Innovation Index (\pm 128 countries)

1	Switzerland
2	Sweden
3	United Kingdom
4	USA
5	Finland
6	Singapore
7	Ireland
8	Denmark
9	Netherlands
10	Germany

Source: GII, 2016

Global start-up cities

1	London
2	Paris
3	Berlin
4	Los Angeles
5	Boston
6	Singapore
7	Bangalore
8	Stockholm
9	Moscow
10	Tel Aviv

Source: Inc

1	Singapore
2	Helsinki
3	San Francisco
4	Berlin
5	Stockholm
6	Tel Aviv
7	Zurich
8	Seoul
9	Hamburg
10	Toronto

Source: Nestpick

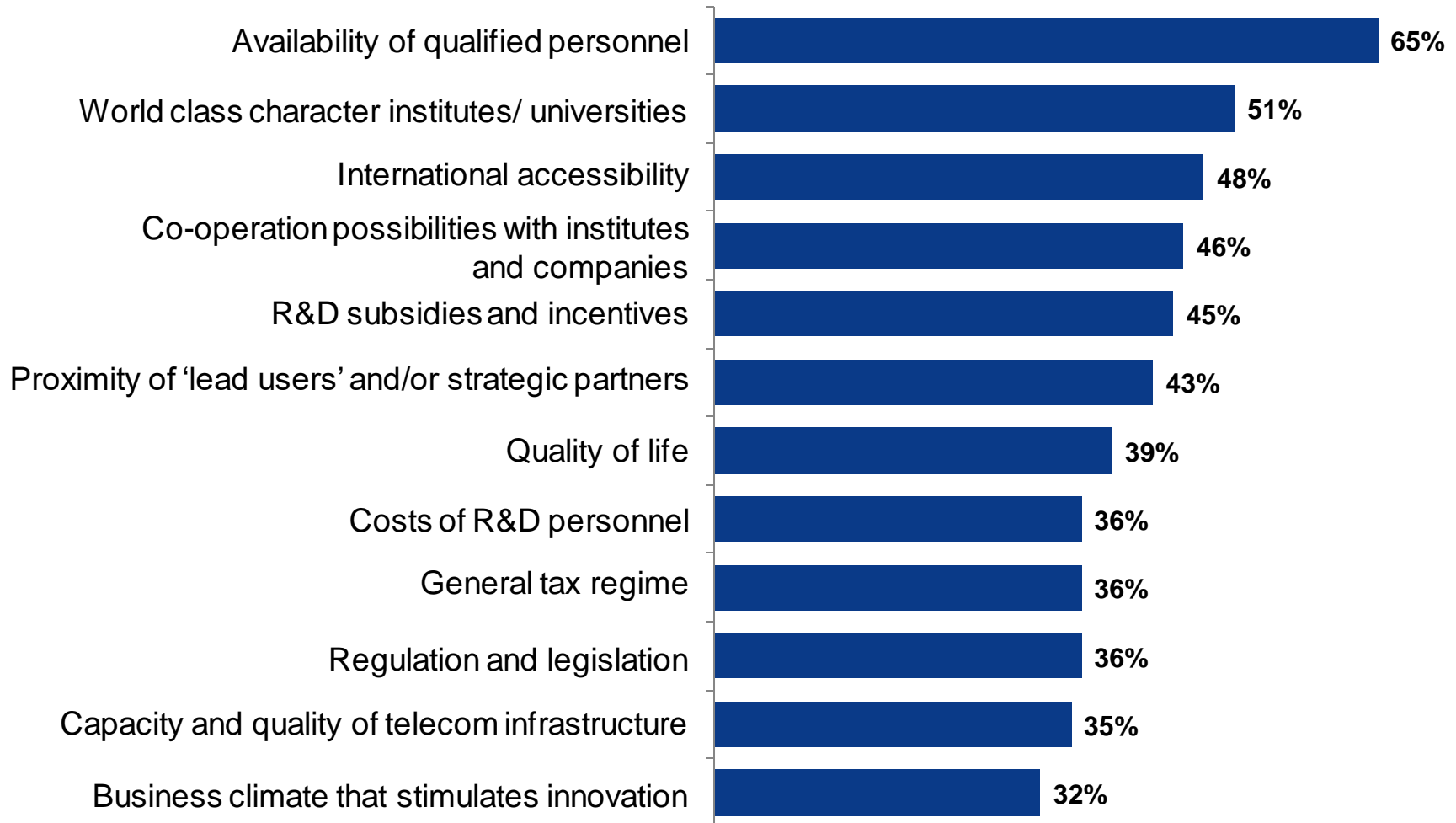
1	Silicon Valley
2	New York City
3	London
4	Beijing
5	Boston
6	Tel Aviv
7	Berlin
8	Shanghai
9	Los Angeles
10	Seattle

Source: Startup Genome

Importance of location requirements for new R&D centers



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Source: BCI

3 Ecosystems, Clusters and Science & Innovation Parks

- **Ecosystem** : conditions to stimulate economic activities, not sector or technology related
Example: start-up ecosystem in a city
- **Cluster** : defined geographical area where triple-helix partners (enterprises - knowledge institutes/ universities - governments/EDOs) are interconnected and work together in specific sectors/ technology domains in order to create more innovation, export, start-ups, educational opportunities
- **Science park/ innovation campus** : specific site where researchers of companies and universities/ knowledge institutes work together intensively in R&D and innovation

Added value of clusters

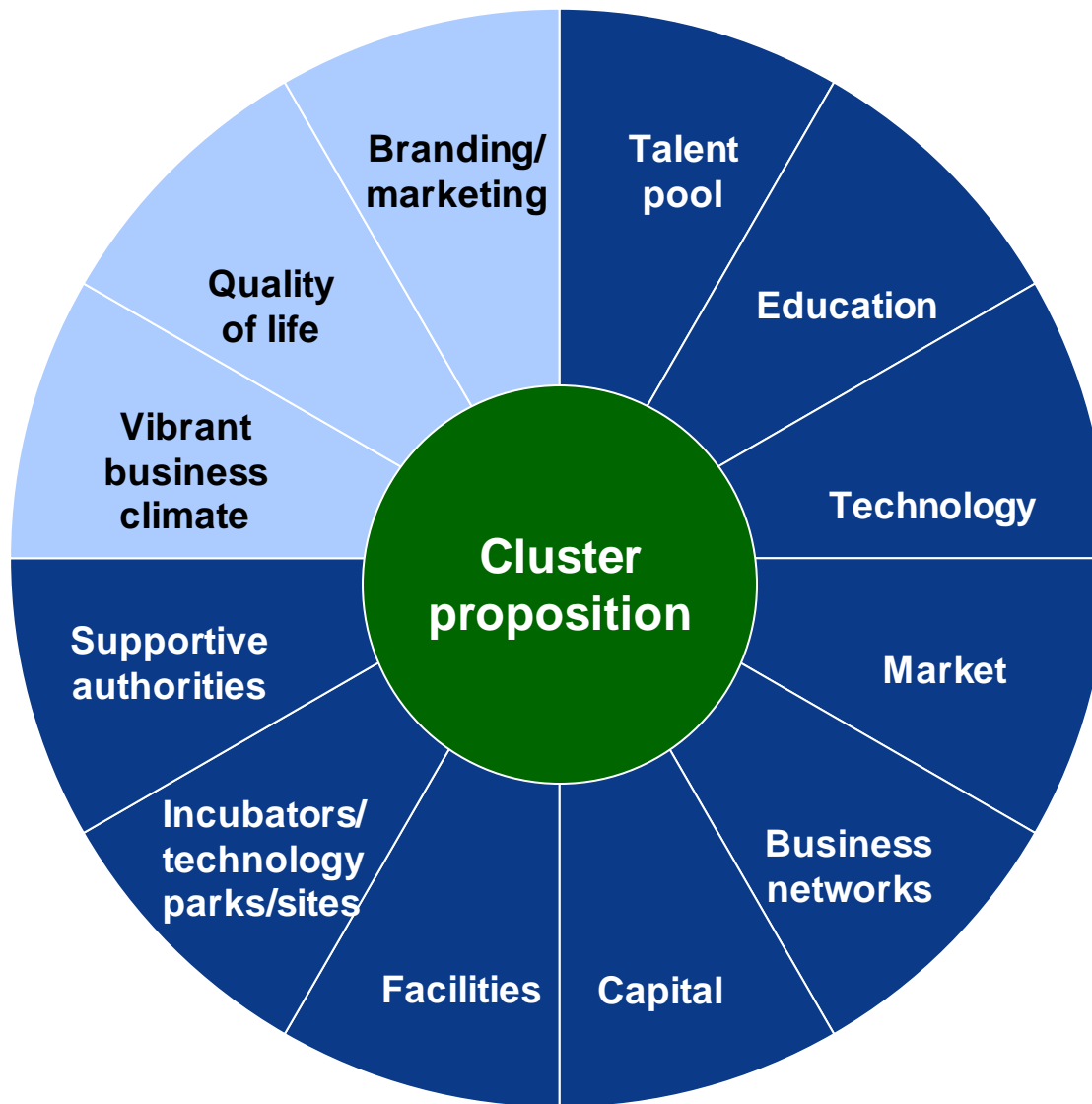
Advantages to companies

- Access to specific knowledge by network and dedicated R&D institutes
- Dedicated infrastructure
- Availability of specialised personnel
- Availability of specialised suppliers
- Extra profiling ('powered by')
- Healthy competition, boosting motivation and innovation

Advantages to regions

- Higher productivity of companies
- More start-ups / spin-offs with more chance of survival
- More innovation
- Opportunities for dedicated and effective policy
- Enhanced attractiveness to companies from elsewhere ('the best businesses want to move in')

The BCI Cluster Proposition Clock



Key building blocks of a successful cluster

Talent Pool	Availability, skills and experience of the workforce in the specific priority target sector
Education	Availability & reputation of educational institutes at various levels in the specific priority target sector
Technology & Know How	Assessment of the specific technologies available at academic and research institutes as well as within R&D centers of companies. What are the key strengths?
Market	What is the regional/national market for this specific sector, including launching customers
Business networks	Presence, size and activities of (big and small) firms in this particular target sector; life-cycle development stage and level of organization of relevant existing clusters in the sector
Capital	Available venture capital & loans available for business activities in the specific priority target sector
Facilities	(Shared) Advanced research and business facilities open for third party use in this target sector
Office, R&D & industrial sites	Dedicated research, manufacturing and/or office space available in innovation-oriented surroundings, preferably including presence of manifest knowledge intensive organization (public or private)
Supportive authorities	Coherent supportive programs on local and regional level to enhance the development of start-up companies and SME's and to promote the cluster

Secondary supporting building blocks for successful clusters

Vibrant business climate	Overall economic growth and level of innovation in the area
Quality of Life	Quality of life for knowledge workers, including ex-patriates
Branding / marketing	Effort to brand and market the region (and its priority target sectors) on a national and international level

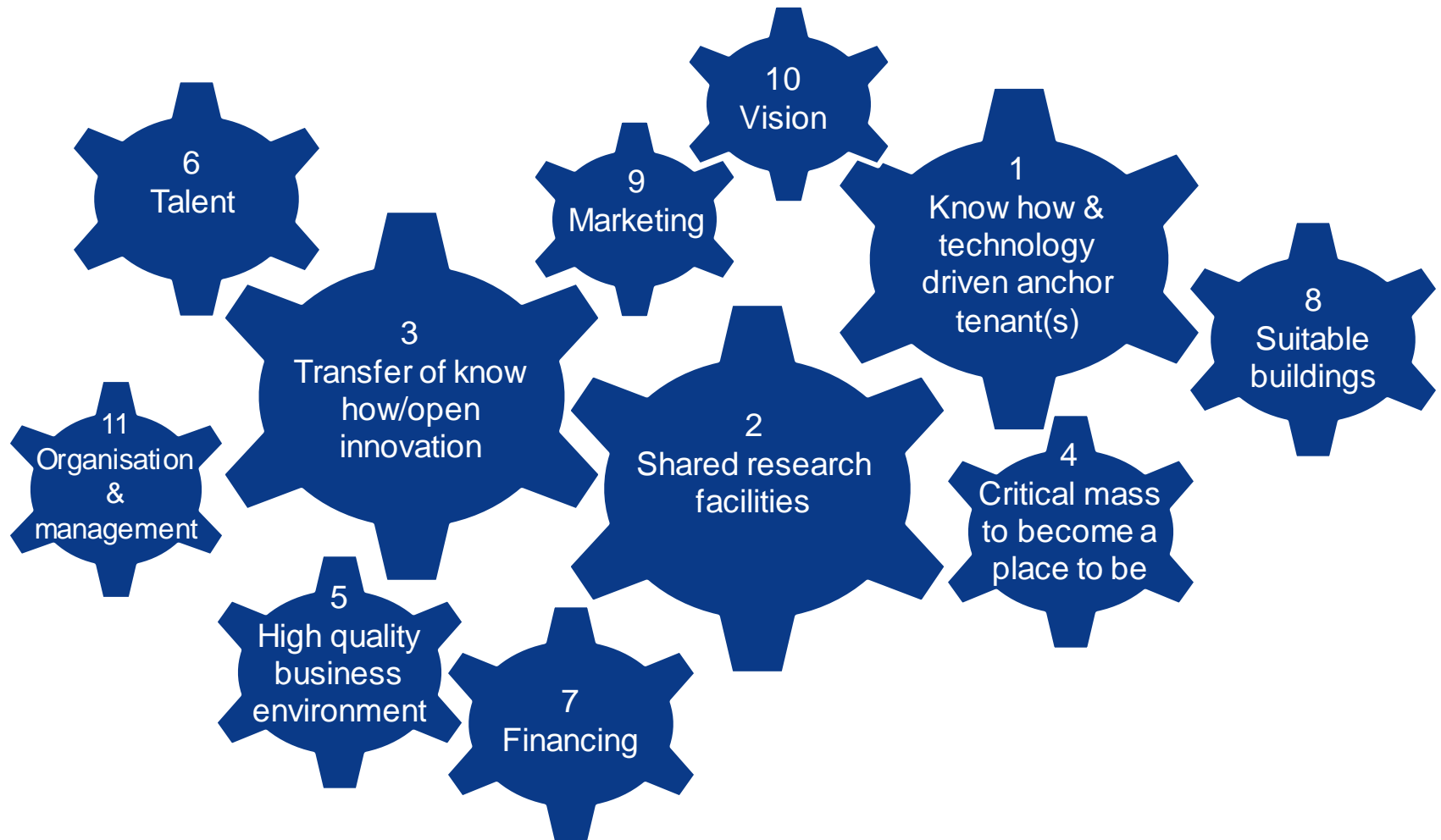
Strengthen regional niche clusters by enhancing innovation and strengthening the talent base

- According to our CTO contacts enhancing innovation is important
 - open innovation programmes and events (at state and regional level) organized by triple helix platforms
 - foster high flying university stars
 - capital: from seed capital to fiscal and financial incentives/attractive taxes
 - a good balance in attention for big, mid-size and small start-up firms
- Our clients recommend the following measures for strengthening the talent base in your state/ region
 - keep current talent (at work or in education) to your region
 - take an international perspective in assessing your region's attractiveness for global talent (visa's, languages, quality of life)

Success factors of a Science Park or Innovation Campus



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Source: Buck Consultants International

Conclusions

- Regional technology clusters are attractive for companies
- A technology cluster can be successful without a science & technology park
- Success of a science/ technology park depends on the proposition, not on property
- A science & technology park cannot be successful without a vibrant cluster

4 Marketing Your Technology Base

The five step approach of Buck Consultants International

- Step 1 Select technology niche(s)
- Step 2 Benchmark your ecosystem/ region
- Step 3 Develop a technology value proposition*
- Step 4 Identify target companies
- Step 5 Reach out to targeted companies



* Not covered in this presentation

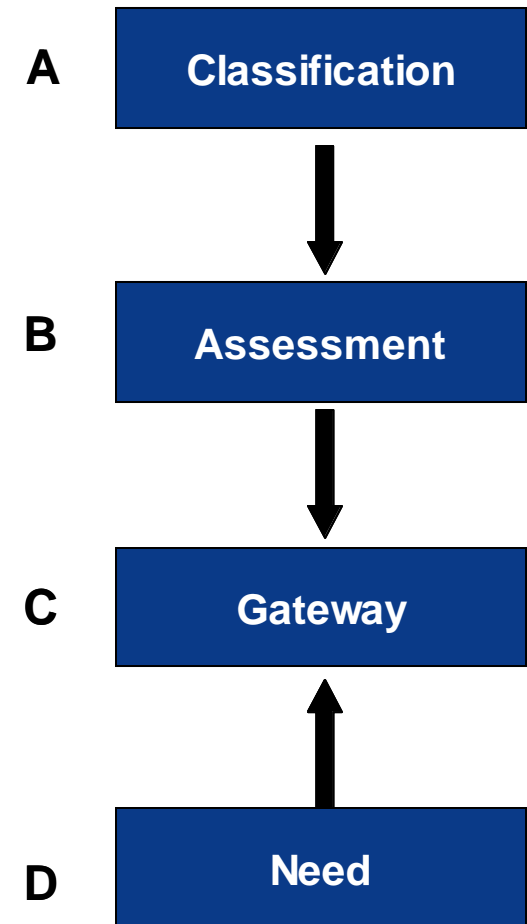


Step 1 Select promising technology niches

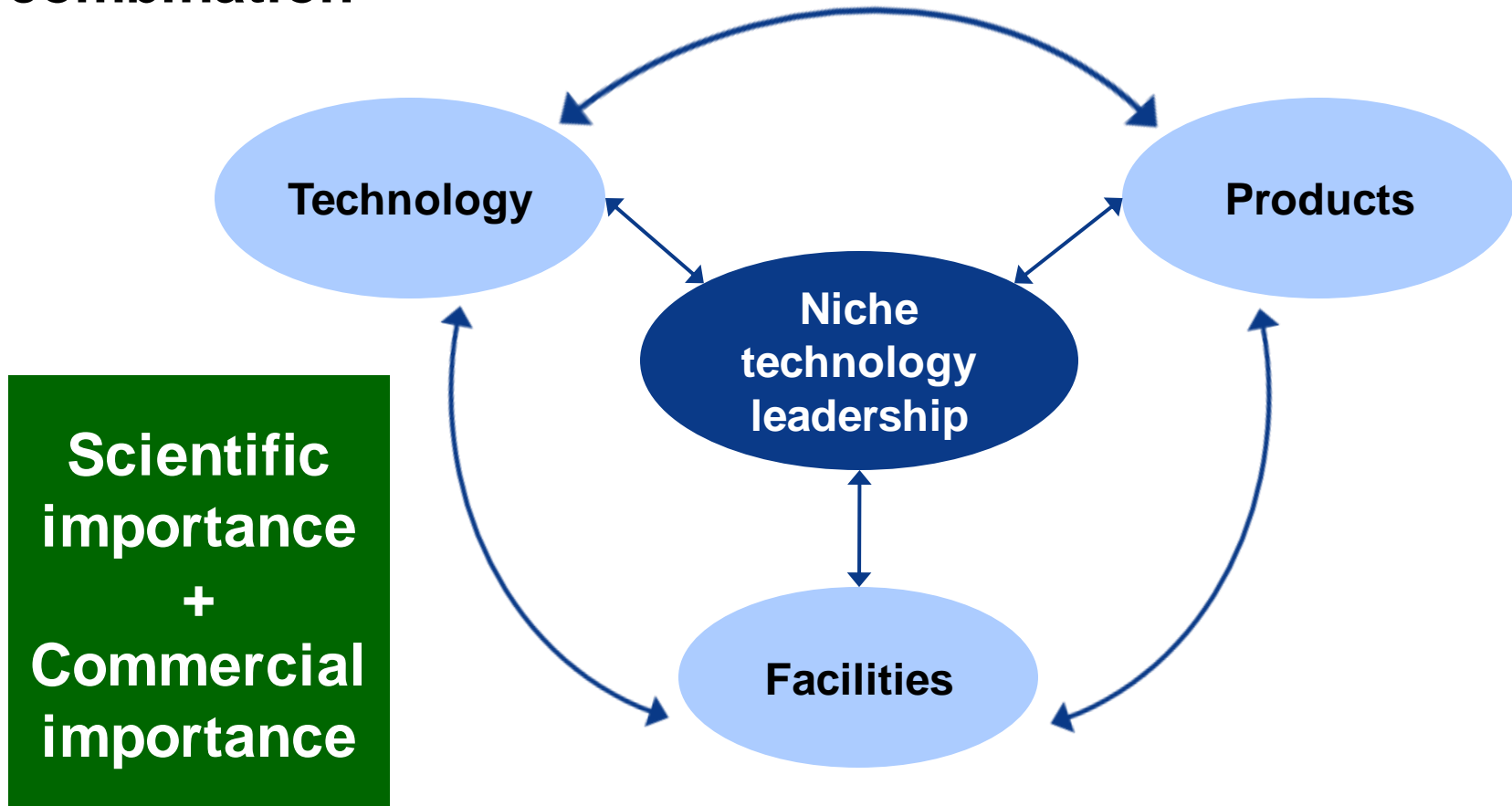
Classification: categorization of information on technology and know how, according to the characteristics attributed to it, to help its management and recognition

Assessment is the process used to evaluate information about technology and know how, according to established standards

Gateway is any mean to approach, view, communicate with, instruct and retrieve data from information resources



The selection of the technology niche(s) is based on the availability of technologies, products, facilities or a combination



Source: Buck Consultants International

Examples of technology niches in life sciences



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**Advanced
biomedical
materials**

**Lab-on-a-
chip**

**Hearing
devices**

**Tissue
engineering**

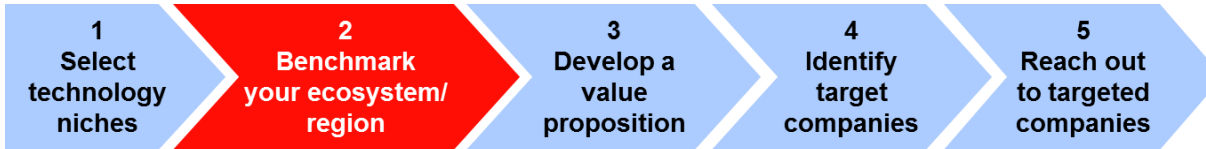
**Wound
care**

**Implantable
devices**

**Molecular
imaging**

**Early drug
discovery**

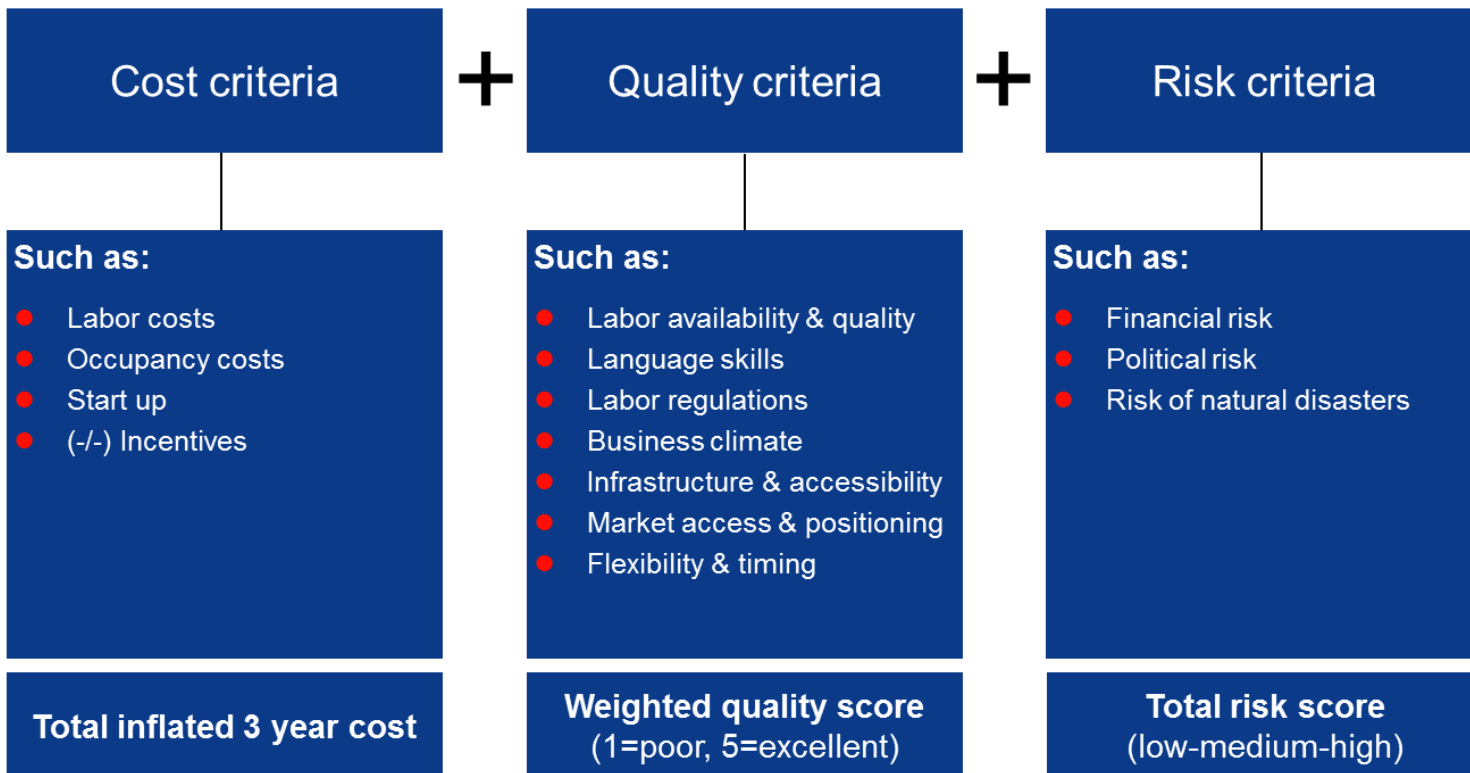
**Regenerative
medicine**



Step 2 Benchmark your ecosystem/ region

Location criteria are driven by Cost, Quality and Risk factors

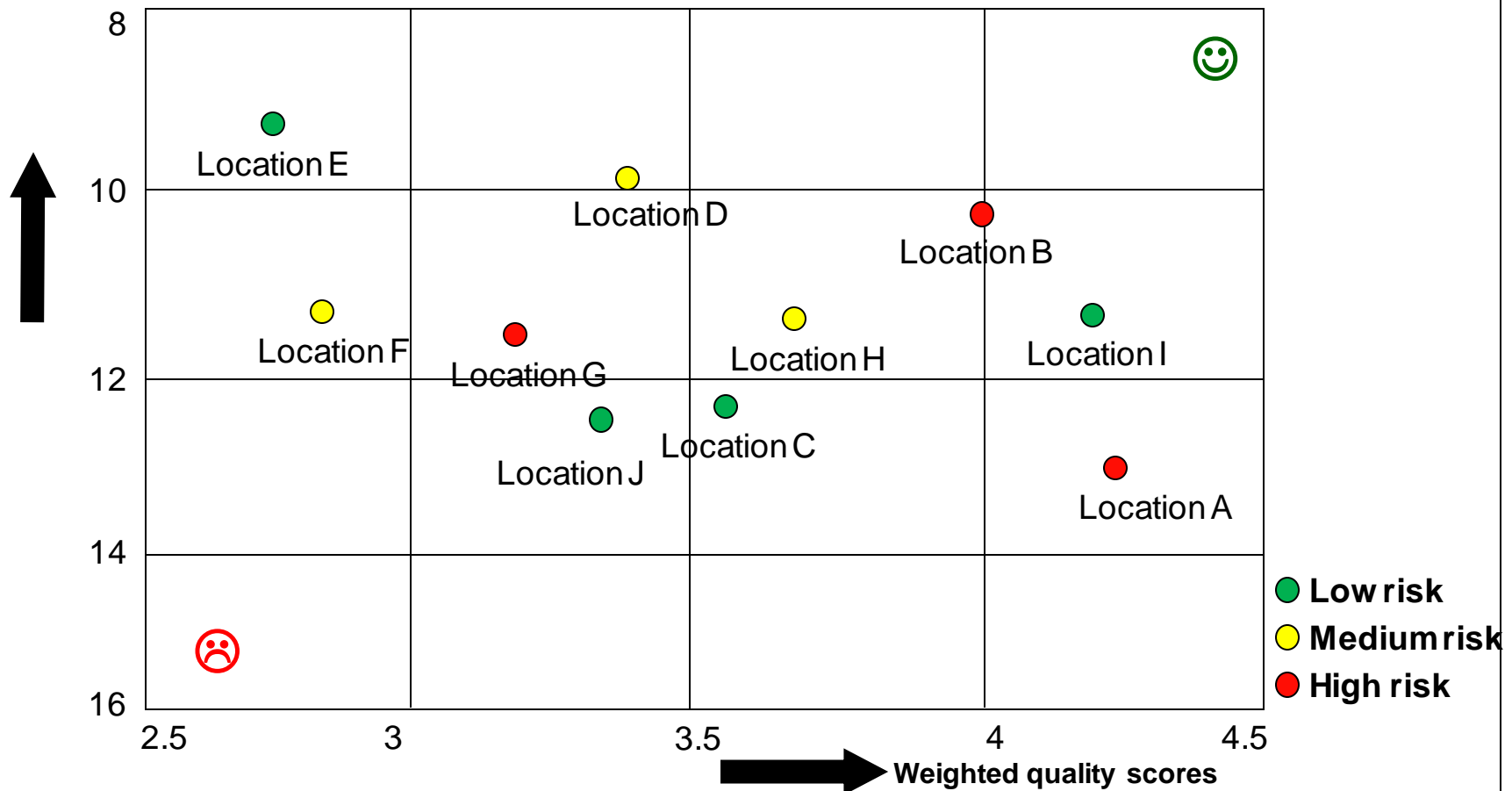
In our site selection approach we use cost, quality and risk criteria to develop a complete assessment of regions & locations



Cost-Quality-Risk matrix of the locations

Example: Project specific site selection results for an R&D center in perspective: cost-quality-risk assessment

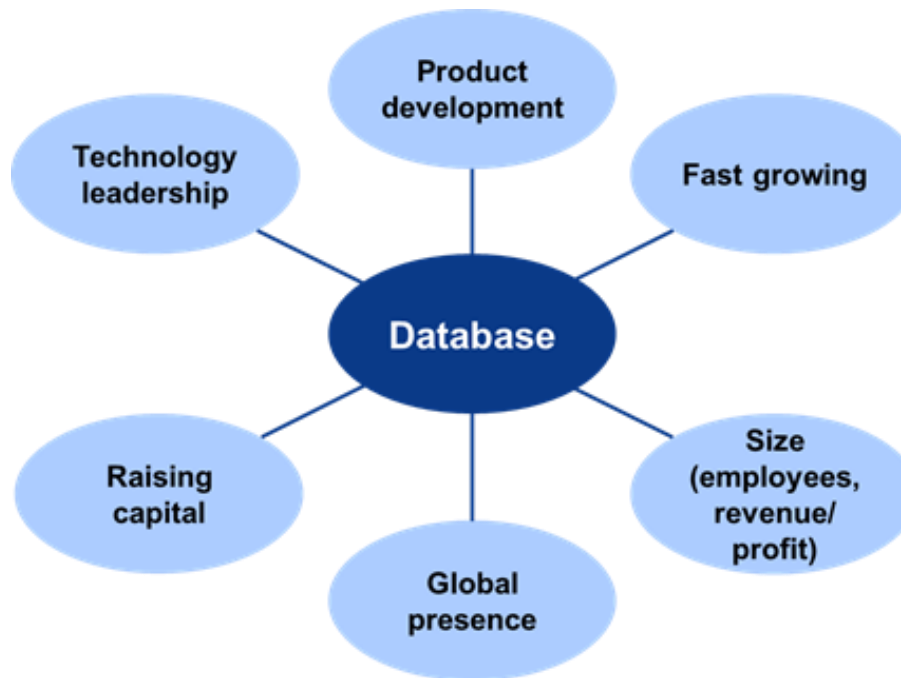
Total costs in million Euro for first 3 years (all operating costs -/- investment incentives)



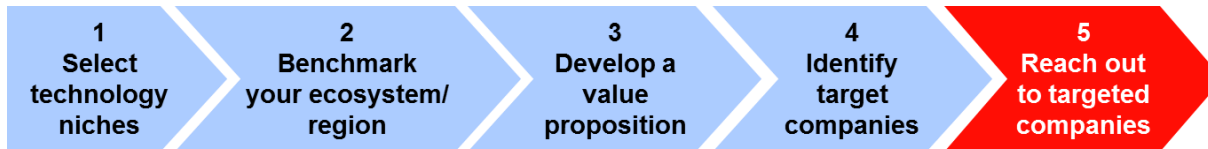


Step 4 Identify target companies

Based on the Value Proposition a **target database** can be compiled. The database consists of companies with a corporate profile that matches your science park's / region's proposition exactly, due the company's:



These companies should have you on their radar screen!



Step 5 Reach out to targeted companies in order to arrange one-to-one-meeting

- Focus in your marketing strategies not only on large, well-known companies: the growth in new (physical) R&D centers is mainly at mid-size and small, fast growing companies
- More than other types of operations (plants, back offices, distribution centers), the key to attracting R&D investments is building personal relationships



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