Technology Innovation Survey 2013

The changing landscape of disruptive technologies

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cutting through complexity

Technology Innovation Survey 2013

Contents

Foreword

Both the **cloud and mobile** have gone mainstream and are leading to major upheavals in sharing, storage and computing. **Commerce, communications and software applications** have moved to the handset. The **social media revolution has shaken up traditional channels** and marketplaces. Cleantech has gone cold. Metadata has emerged as the plumbing of this information age of data collection and dissection. Meanwhile, **it's increasingly accepted that we live in an ultra-transparent society digitally.**

Cloud, mobile, big data, biometrics, artificial intelligence – are leading the innovation parade from Main Street to corporate parks. These are the engines of rapid transformation in a technologically rooted future. Just about half the far-out science fiction technologies from past entertainment programs such *Star Trek, The Jetsons* or *The Terminator* exists today.

Both the cloud and mobile have gone mainstream and are leading to major disruptions in consumer and enterprise markets. Commerce and software applications have moved to the handset. Social networks are shaking up traditional channels and marketplaces. Metadata has emerged as the plumbing of this information age of data collection and dissection. Meanwhile, it's increasingly accepted that we live in an ultra-transparent digital society.

Globalization and the integration of technologies like cloud, mobile and social are spurring more rapid innovation cycles. Tech companies are playing the global resource game, picking the best talent from each market to gain competitive advantage. Large emerging markets in the east – China and India – have tapped into a digital future and fine-tuned micro-innovations for local markets. Yet Silicon Valley remains the epicenter, and that status isn't expected to change in the near future. Every market wants some of Silicon Valley's entrepreneurial and tech innovation magic, though that special combination of ingredients is hard to replicate.

The 2013 Technology Innovation publication, now in its second year, reflects emerging perspectives from over 800 technology leaders globally on where the next big idea will come from, disruptive innovation trends and barriers to commercializing innovation. We hope you find the survey results insightful, and we welcome feedback about the findings or suggestions for the next technology innovation survey.

Gary Matuszak
Global Chair
KPMG Technology, Media and Telecommunications

Richard Hanley
Advisory Sector Leader,
Technology, Media and Telecommunications, KPMG LLP (U.S.)

Executive Summary

The **KPMG Technology Innovation survey is designed as a roadmap to spot tech trends** that will transform business and consumer markets over the next three to four years. The report provides **insights into tech innovation management**, and **identifies opportunities and challenges** in tech innovation adoption. The survey also spotlights the countries and companies most likely to succeed in becoming the world's tech leaders, and why. Finally, this year's survey **unveils a country confidence index** based on tech leaders in each market rating their country on 10 success factors to enable technology innovation.

KEY TAKEAWAYS

- **Cloud and mobile will continue to be major forces of tech change for at least the next three years.** Mobile is predicted to have the strongest influence on consumer markets. The cloud is seen as the most impactful force for enterprise markets. The convergence of these two powerhouses is driving even more tech disruptions.
- **Social media still has not played out its full potential** as several geographic markets highlight its coming impact for the consumer and business sectors.
- **A new wave of innovation is coming** as a broader array of technologies such as big data, the Internet of things, and biometrics become more embedded in a tech-savvy future.

> "Continuing developments in cloud and mobile, and the interplay of these technologies, is enabling new business models that take advantage of economies of scale, provide virtual access to supply chains, and allow physical products to operate in the cloud and have access via mobile devices. The survey findings indicate the power of these technologies to continue to fuel innovation in coming years and drive disruption in many industries."
>
> – Gary Matuszak, Global Chair,
> KPMG's Technology, Media & Telecommunication

- **Cyber-security and privacy issues continue to impede the progress of technology innovation** even as a new generation eyes privacy as a non-issue.
- **Globalization is leading to a rapid pace of change** and a more diverse set of tech innovations and micro-innovations fine-tuned to local markets.
- **Silicon Valley has cemented its lead as the world's technology innovation center.** China and India continue to be seen as up and comers with high marks for confidence as future innovation leaders. Israel and Singapore also score high for confidence in their own market's prospects for tech innovations.
- **'Faster and better' outshine 'cheaper' as a top benefit** of adopting new technologies, a sign that the evolution of cloud and mobile is driving incremental value as these technologies mature.
- Getting into **the top corporate innovator league requires coming up with a "wow" factor over and over again** – or risking falling behind quickly.
- **Staying private rather than going public is seen as the best growth path today** for startups, quite the reverse of just a decade ago in the dotcom boom.

Methodology

AND DEMOGRAPHICS

METHODOLOGY

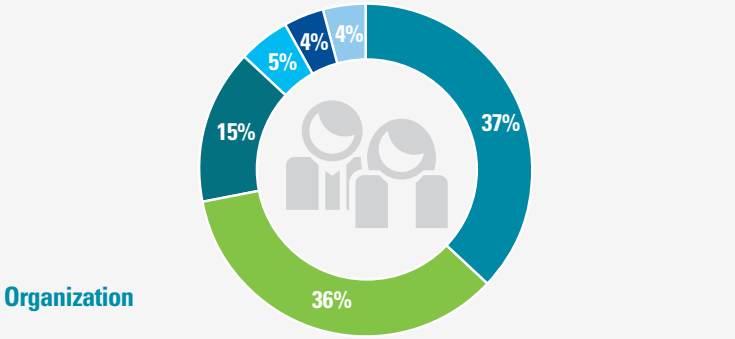
The global survey included 811 technology industry leaders representing startups, mid-market companies, large enterprises, venture capitalists and angel investors in the Americas, Asia and Europe/Middle East/Africa (EMEA). The web-based survey was conducted April through June 2013.

More than two-thirds of the results represent startups and medium-sized companies, followed by large enterprises at 15 percent, and venture capitalists and angel investors at 9 percent. Significantly, C-level suite executives comprised 6 in 10 of the respondents.

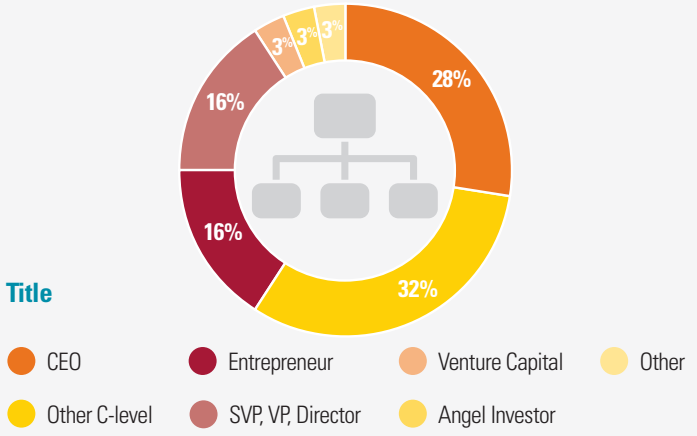
The U.S. accounted for one-quarter of the overall survey responses, while the next largest sample was China at 12 percent, followed by India at 9 percent. Regionally, Asia had the highest representation (37 percent), trailed by the Americas (34 percent) and EMEA (30 percent).

DEMOGRAPHICS

Q: Which of the following best describes your organization; your title?



Source: KPMG Technology Innovation Survey 2013



Source: KPMG Technology Innovation Survey 2013

Disruptive technology

INNOVATION TRENDS IN CONSUMER MARKETS

"China's tech leaders believe that mobile innovation in China has advanced much quicker than other regions of the world, therefore, expect a greater focus on cloud."

– Edge Zarrella
Clients and Innovation Partner, KPMG China

CONSUMER MARKETS

CLOUD AND MOBILE WIN MOST VOTES BY FAR

Mobile and the cloud were rated as the top technologies that will enable the next indispensable consumer technology, together representing nearly two-thirds of the responses. The next most-favored category was biometrics, selected by 4 percent.

Differing from the global norm, respondents in China and India ranked the cloud ahead of mobile as a top spark for consumer technology change. Mobile is well developed in both markets, where surfing the web on mobile devices far surpasses desktop access. Meanwhile, the cloud still shows lots of opportunity in these markets.

In another geographic contrast, China selected social networking much higher than the respondents globally. The impact of SINA Weibo (China's Twitter) on society and culture is undoubtedly a big factor.

Turning to type of respondent, venture capitalists and angel investors pinpointed the cloud and social media as more impactful than other groups did. C-level executives and entrepreneurs alike rated SaaS as number one by a wide margin. Entrepreneurs rated mobile commerce a strong second, no surprise as startups roll out mobile apps for just about every need.

Q: Select the technology that will enable the next indispensible consumer technology in the next three years.

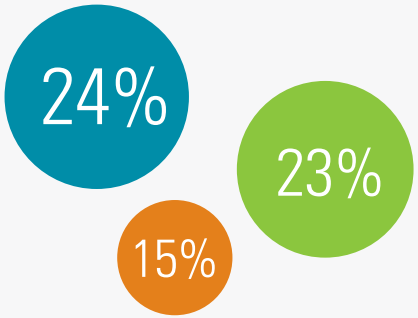
Technologies	Global	U.S.	China	India	EMEA
Mobile	**32%**	**33%**	22%	32%	**32%**
Cloud	29%	23%	**35%**	**39%**	27%
Biometrics: gesture/facial/voice	4%	7%	6%	6%	2%
Biotech/digital health/healthcare IT	3%	6%	4%	0%	2%
Big Data/analytics	3%	5%	4%	1%	2%
Artificial intelligence	3%	5%	4%	1%	3%
Nanotechnology	3%	4%	0%	1%	7%
Social networking platforms	3%	3%	6%	4%	2%
Machine2machine internet of things	3%	3%	2%	3%	5%
Digital media	3%	1%	7%	4%	2%

Source: KPMG Technology Innovation Survey 2013

61% view mobile and cloud as the technologies that will enable the next indispensable consumer technology.

ADOPTING MOBILE BENEFITS AND CHALLENGES FOR CONSUMERS

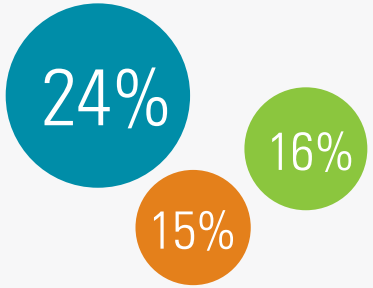
Q: Choose the top benefits for consumers in adopting mobile technologies.



- **Easier access to personalized real-time info**
- **Greater convenience and more savings**
- **Increased personal productivity**
- 10% Improved communication/connectivity
- 10% More valuable social networking/collaboration
- 9% Ability to manage effectively personal info
- 5% More intuitive, convenient access to entertainment
- 3% Better healthcare options
- 1% Other

Source: KPMG Technology Innovation Survey 2013

Q: What do you see as the biggest challenges for consumers to adopt mobile technologies in the next three years?



- **Privacy/transparency concerns**
- **Ability to support new technology**
- **Ease of adoption/use**
- 14% Cost/pricing models
- 12% Strong competition
- 9% Consumer demand
- 6% Government policies
- 3% Geography
- 1% Other

Source: KPMG Technology Innovation Survey 2013

PRODUCTIVITY TOPS ALL, EVEN SAVINGS

Easier access to personalized, real-time information is viewed as the leading consumer advantage in adopting new mobile and cloud technologies. Increased personal productivity is also a benefit mentioned for both technologies illustrating the value placed on access to information and increased efficiency as competitive differentiators.

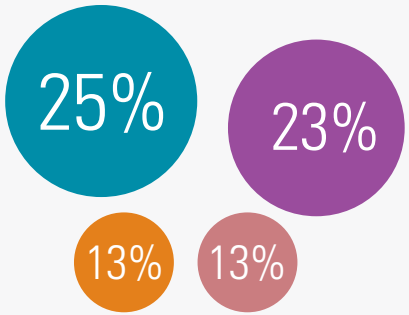
ADOPTING CLOUD BENEFITS AND CHALLENGES FOR CONSUMERS

PRIVACY/TRANSPARENCY ARE THE BIGGEST ADOPTION CHALLENGES

Privacy/transparency concerns are the predominant constraint for consumers to adopt cloud and mobile technologies over the next three years. These findings did not differ much by region of the world or functional role.

An interesting contrast with last year's trend points to cost/pricing models as the highest challenge for consumers to adopt mobile. While pricing models for mobile have stabilized, cloud pricing models need to mature, i.e. cloud freemium models entice customers to try these services but as users scale their adoption, pricing may become confusing.

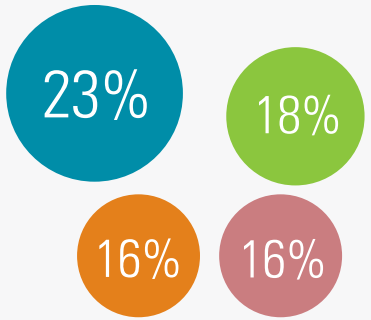
Q: Choose the top benefits for consumers in adopting cloud technologies.



- **Easier access to personalized real-time info**
- **Increased personal productivity**
- **Ability to manage effectively personal info**
- **Greater convenience and more savings**
- 9% More valuable social networking/collaboration
- 6% Improved communication/connectivity
- 5% More intuitive, convenient access to entertainment
- 4% Better healthcare options
- 2% Other

Source: KPMG Technology Innovation Survey 2013

Q: What do you see as the biggest challenges for consumers to adopt cloud technologies in the next three years?



- **Privacy/transparency concerns**
- **Cost/pricing models**
- **Ease of adoption/use**
- **Ability to support new technology**
- 8% Strong competition
- 8% Consumer demand
- 8% Government policies
- 1% Geography
- 1% Other

Source: KPMG Technology Innovation Survey 2013

Disruptive technology

INNOVATION TRENDS IN ENTERPRISE MARKETS

> "The anticipated migration of core systems and critical infrastructure to cloud in the next two years will be a complex undertaking; users will be requiring if not demanding strategic direction and guidance from providers across a broad range of areas."

– Tom Lamoureux,
KPMG Global Advisory Leader,
Technology practice.

ENTERPRISE MARKETS

Cloud ranked highest as the technology that will be the biggest driver of business transformation for enterprises in the next three years, surpassing mobile. Korea, the U.S. and India ranked the cloud higher than others. Mobile was ranked ahead of the cloud by EMEA, as well as by Israel.

Big data/analytics was ranked third globally – a significant increase from last year's survey. This trend indicates an increased understanding in the benefits of large data sets to identify new patterns and create incremental business opportunities based on historical activity and new information. Startups, C-level tech leaders, VCs and angel investors agree on the importance of big data and analytics as a key driver in business transformation.

China placed artificial intelligence (AI) in third place, far higher than the global poll. Cloud, mobile and analytics are advancing AI in various areas including reasoning, learning, communication, and the ability to move objects. Opportunities to disrupt existing models range from manufacturing to healthcare where robotics and AI can create new efficiencies.

Q: Select the top technology that will have the greatest impact in driving business transformation for enterprises in the next three years.

Technologies	Global	U.S.	China	India	EMEA
Cloud	**32%**	**39%**	**25%**	**33%**	28%
Mobile	26%	25%	20%	23%	**29%**
Big Data/analytics	8%	11%	7%	3%	11%
Artificial intelligence	5%	4%	11%	3%	5%
Nanotechnology	3%	3%	2%	6%	3%
Social networking platforms	3%	1%	4%	6%	2%
Digital media	3%	3%	6%	6%	2%
Collaboration software	3%	1%	4%	3%	3%

Source: KPMG Technology Innovation Survey 2013

58% say cloud and mobile will have the greatest impact in driving enterprise transformation in the next three years.

"We are seeing significant adoption of data analytics to optimize current business opportunities. We expect this trend to continue and grow quickly, but the real explosion will come when an 'analytics enabled workforce' catches up to more fully exploit the emerging technologies."

– Jeanne Johnson
Leader, Data & Analytics,
KPMG LLP (U.S.)

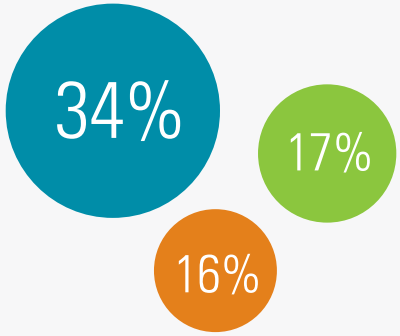
ADOPTING CLOUD BENEFITS AND CHALLENGES FOR BUSINESSES

IT'S ALL ABOUT OPTIMAL PRODUCTIVITY AND EFFICIENCIES

On a list of eight benefits to adopting new technologies, improved business efficiencies and higher productivity were rated significantly higher – 34 percent for cloud and 33 percent for mobile. The next most important benefits were cost reductions for cloud and faster innovation cycles for mobile.

"Better, faster, cheaper" trended as startups, mid-market companies, large enterprises and venture capital firms universally selected improved efficiencies and higher productivity as the biggest benefit – as did C-level executives, founders and venture investors.

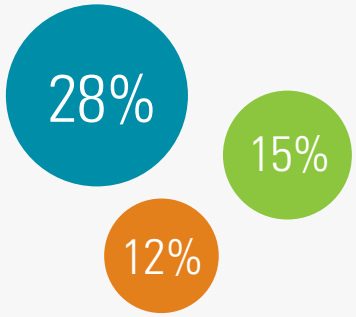
Q: Choose the top benefits for businesses in adopting cloud technologies.



- **Improved business efficiencies/higher productivity**
- **Cost reductions**
- **Faster innovation cycles**
- 9% Accelerate time to market
- 7% Increased market share
- 6% Increased profitability
- 5% More effective R&D
- 4% Enhanced customer loyalty
- 1% Other

Source: KPMG Technology Innovation Survey 2013

Q: What do you see as the biggest challenges for businesses to adopt cloud technologies in the next three years?



- **Security/privacy governance**
- **Displacement of existing tech roadmap**
- **Technology complexity**
- 11% Cost
- 10% Customer adoption
- 9% Risk management
- 9% Measuring ROI
- 5% Regulatory compliance
- 1% Other

Source: KPMG Technology Innovation Survey 2013

"Cloud and mobile 'security/privacy governance concerns' reflect recent cyber-attacks, outages of cloud services, the growing number of workers accessing corporate data on mobile devices and the increase use of mobile apps. Enterprises have concerns about data loss and intellectual property theft, but are also becoming more comfortable with mitigation and protection strategies."

– Richard Hanley, Advisory Leader, Technology, Media and Telecommunications, KPMG LLP (U.S.)

ADOPTING MOBILE BENEFITS AND CHALLENGES FOR BUSINESSES

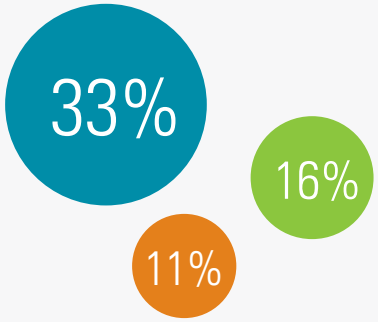
JUST MAKE IT EASY AND SAFE TO USE

As with the consumer markets, security and privacy issues emerged as the largest challenge for businesses in leveraging both the cloud and mobile over the next three years. As the next biggest challenge, displacement of the existing tech roadmap was named for cloud, while cost was selected for mobile.

In some notable geographic differences, the U.S. sample named security issues more than other nations while China singled out cost as the biggest barrier.

Technology complexity as a challenge was weighted strongest by startups, large enterprises, entrepreneurs and venture capitalists/angel investors. Across sectors, existing enterprise architectures are under tremendous shifts as a result of cloud, mobile, social and big data disruptive forces. In the enterprise market, business and IT leaders are redefining business outcomes that capitalize on relevant technology disruptions.

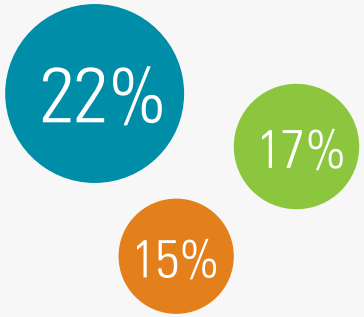
Q: Choose the top benefits for businesses in adopting mobile technologies.



- **Improved business efficiencies/higher productivity**
- **Faster innovation cycles**
- **Enhanced customer loyalty**
- 10% Increased profitability
- 8% Accelerate time to market
- 8% Increased market share
- 7% Cost reductions
- 6% More effective R&D
- 1% Other

Source: KPMG Technology Innovation Survey 2013

Q: What do you see as the biggest challenges for businesses to adopt mobile technologies in the next three years?



- **Security/privacy governance**
- **Cost**
- **Technology complexity**
- 13% Customer adoption
- 12% Displacement of existing tech roadmap
- 8% Risk management
- 8% Measuring ROI
- 5% Regulatory compliance
- <1% Other

Source: KPMG Technology Innovation Survey 2013

Barriers
TO COMMERCIALIZING INNOVATION

"New and innovative technologies provide exciting opportunities for business enablement but also have the potential to introduce new risks, particularly around security and privacy. Organizations should have a thoughtful approach to evaluate both the risks and the opportunities to determine the best course of action."

– Greg Bell, Principal and Services Leader, Information Protection, KPMG LLP (U.S.)

SECURITY AND PRIVACY ISSUES BAR PROGRESS

Security and privacy issues were again viewed as the biggest barrier to commercialization, a finding that spanned across all regions. The predominance of these two issues indicates the importance for the tech industry to continue to educate customers and the big opportunity to innovate and create more secure infrastructure. Security is a big issue and we see this as ongoing challenge and risk, especially in the enterprise and government markets.

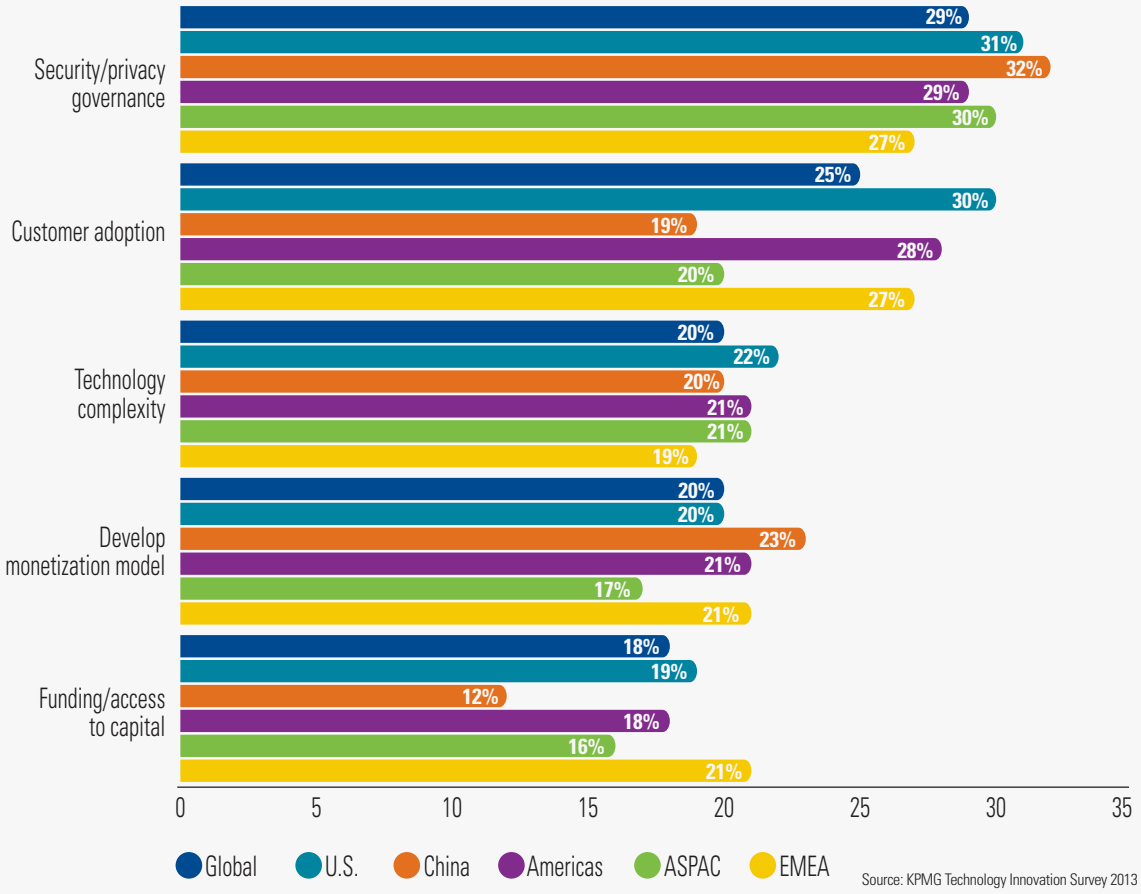
In further breakdowns of the data, all (excluding startups) also rated privacy as the highest hurdle; startups instead chose customer adoption (27 percent).

Additionally, both startups and venture capitalists/angel investors ranked funding/access to capital as big obstacles (24 percent and 22 percent, respectively). Venture capitalists/angel investors pinpointed customer acquisition as a bigger challenge than others. Large enterprises weighted government policies as a higher barrier than others did.

China rated the related category of customer acquisition (31 percent) and access to engineering talent (22 percent) as bigger barriers than those globally.

29% view security and privacy as the biggest barrier to commercializing new innovations.

Q: In your opinion, what are the top barriers to commercializing technology innovations?



Source: KPMG Technology Innovation Survey 2013

Technology Innovation

INTERVIEWS WITH TECHNOLOGY INDUSTRY VISIONARIES

DAVID McQUEENY

IBM RESEARCH, VP of Software, Hawthorne, New York

Cloud, mobile and social media technologies have been around for a few years now. What's the next, new technology revolution on the horizon?

Systems that run our world have become more interconnected. The combination of social, mobile, cloud and analytics leads to an acceleration of innovation. The question is, 'What is the next big step?' We see an evolution to what we are calling cognitive computing, and there are two aspects of it. First is a deeper understanding of what the data means, and extracting more insights from multiple sources of inter-related data. Second is for computing systems to enter the human domain and understand inputs such as natural language, speech, imagery and video, and communicate back in human-friendly ways that contain not only "answers" but explanations of how those answers are relevant. The programmable systems we have been building will continue to be important but they ask us as humans to enter the computer's domain, use formal programming languages and use mostly structured data. Cognitive computing is much more about the data, systems that are programmed to learn vs. systems that are programmed to automate processes.

What's an example of how cognitive computing is being applied?

IBM's Watson is a good example of how systems interact with humans more naturally. Learning through interactions, systems can deliver evidence-based responses driving better outcomes. Watson combines natural language processing and machine learning. For instance, every retailer wants to know not only what was purchased and what was not purchased, and why. Was the customer really looking for something else? The customer insight is not always

at the point of sale. To get to this "customer insight nirvana" point, the imperative is to move from reliance on structured, local data to unlock unstructured data and move to systems of engagement that co-evolve and assist people by extending what they can do on their own and improving their experience.

What is the promise of Big Data and Analytics?
The revolution around Big Data and analytics is in bringing out insights from unstructured data and delivering it to be acted upon. An example is sentiment analysis or looking at social media, reading and interpreting social content to get a well-rounded look at opinion and a sense of customers' response to campaigns or next steps. It's about detecting the underlying patterns to make predictions on customers' selection processes and then make the best recommendations.

How do you see the Cloud morphing?
Virtualization began 40 years ago and cloud will continue to be a journey. The next-generation cloud systems will use a delivery model that is more efficient and convenient, taking complex workloads and evolving security and business processes functionality along with the simple infrastructure elements we see today. Ultimately, you need to examine the workloads and how they interact with the computing infrastructure and optimize that fit, ideally in real-time. The combination of cloud infrastructure and data and analytics to monitor command and control systems is rapidly evolving to identify cyber-security threats. There is huge opportunity in this area to solve some longstanding problems, allowing us to build systems that are both more efficient and more secure.

Much of the field of cyber-security can be viewed as a Big Data and fast data problem. It's about the ability to intercept streaming data at network speeds in high volume and do real-time analytics to discover and monitor patterns around cyber-attacks. Through long-running streaming analytics systems, for instance, you can analyze data on the networks, look at data patterns and see how malicious code is starting to attack the system. You can interrupt the attacks and cut them off before they have the chance to launch.

Advanced data analytics can also help to address the growing problem of advanced persistent threats. It can identify threats that come into the system and remain deliberately dormant, and find them before they do any damage.

What are the top barriers to commercializing technology innovations?
The biggest barrier is fitting in new technology into existing infrastructure, or making new technology available as a service that can be called from the existing systems. Clients want the value of innovation without the cost of extensive system integration or wasted investment. We are working on a number of techniques for new mobile services that will be delivered this way.

What do you see a big problem area in technology that needs to be solved?
The biggest challenge is making the technology value as available and consumable as possible for everyone, not just technology experts. The technologies need to be delivered and consumed by the broadest range of consumers possible- inside and outside of the enterprise. For example cloud and the power of analytics needs to be implemented and packaged in a simple interface that hides the complexity and creates systems that can be easily exploited. This focus on high-value for end-users without high complexity being exposed is a real industry turning point.

In the past, the role of the Chief Innovation Officer was to make sure everything ran flawlessly. Of course that remains vitally important. The forward-looking CIOs today look at how the power of computing systems can be applied in the marketplace and ultimately enable faster innovation, and see themselves as business and technology innovators.

Do you think Silicon Valley could lose its status as the world's center of innovation?
The most durable thing about Silicon Valley is the large concentration of experienced people and the incredible and powerful ecosystem. But I don't think the Valley has a lock on this that could not be matched, and I do think other regions of the world can become as powerful.

IBM is opening its 12th research lab in Nairobi, Kenya. Innovation is driven by necessity and places like Africa are highly innovative in mobile computing and e-commerce. We are delighted by the math and science talent that we have been able to attract to this new lab. ●

ADRIAN TURNER

MOCANA CORP, CEO, San Francisco, California

What's the next breakthrough consumer technology?
Wearables. Collecting and monitoring data via sensors, with mobile devices as the proxy to transmit and receive data. Secondly, I think we will see a lot more innovation around technology in the living rooms, with interactive TV and mobile devices augmenting the value.

What about tech innovations on the enterprise side?
Specialized mobile apps beyond the small set of productivity apps (PIM, Calendar, Doc Share) that are mobilized today. Essentially the consumer app economy will be transplanted to the enterprise with exponential growth of mobile apps in the enterprise once mobile application and data security is addressed. These apps will access enterprise system of record data. Beyond that mobile apps will control physical devices and more devices will attached to appstore in an enterprise context. Eg. Medical devices.

Is there a gap in how this data is being collected and analyzed?
The gap is context awareness for that data in both consumer and enterprise markets. Who am I–getting the right data to the right person at the right time. There is an innovation opportunity in context intelligence, and security policy management, including identity management of people and devices at scale.

What's your view on technology security and privacy issues?
Security is different than privacy. Security protects data, privacy is tied policy based decisions as to what to do with that data. On the enterprise side, security compliance is the cost of doing business. On the consumer side, security people say they value security and privacy but actions suggest they don't. Consumers are providing personal data to use social networks, for instance, and access to free services is a benefit they are seem not willing to give up for the sake of privacy. Consumers just incorrectly assume that connected devices and apps are secure. There is a lot of apathy in the consumer market towards security.

Where do you see the big innovation coming in the security market?
Automation around mobile application and data security. There needs to be more trustworthy systems for automation. Every device should sense hacking and have apps that are self defending. Ultimately this model moves to the data itself. On a related note, in configuring security systems today, there are too many variables. We need to get to a place where machine learning can ultimately come in and be the foundation of trust taking automatic corrective action, with the networked system becomes smarter over time.

Are we in the early stages of that automation development?
There are advancements in hardware based roots of trust that will help. One of the challenges though is the lack of standards for data exchange among industries and vendors so that all these systems are speaking a common language. With hardware, software and devices attaching to a service, you have a lot of links in the chain that have to be secured. It only takes one break in the chain to compromise the ability to reliably automate. We shouldn't be connecting some of the things we are, but we are past the point of return.

What is the number one problem that corporation managers make in evaluating security systems?
It varies but on the whole, I am really, really shocked by the lack of security capability in many manufacturers and enterprises. The number one thing that people get wrong is that they assume if they don't have evidence of a security issue, then they are secure, but it could be that they are not monitoring it in the right way. They think, 'it's not my problem, it's someone else's problem.' We show them it is their problem.

With the advent of the Cloud versus in-house systems, how is that changing the management of corporate security systems?
There is a lot of advancement being made and more of a sense of trust about storing information in the cloud. Yet there are unsolved problems with increased portability and scalability as more data moves to the cloud. There is also a need to secure data access all the way out to the edge. You have to assume the endpoint is compromised and focus on the app and the data. The app is the new endpoint and the system needs to be secure from the app right through to the datacenter and cloud.

You were born in Australia and you've thrived in the Silicon Valley ecosystem. Does the Valley have what it takes to continue to be a leader in tech innovation?
When I started researching this area, I thought it was easy to replicate Silicon Valley. But I have realized that no other market has the combination of elements to take the lead. There are enablers here that are not found elsewhere: the combination of sophisticated risk capital, globally experienced entrepreneurs and mentors that give large endowments to universities to give back to their schools and take research and turn it into a product, a risk-taking culture willing to take stock options in lieu of cash compensation, and market scale where companies can get to multi-billion dollar market caps. The bar in Silicon Valley is very high. Moreso than anywhere else.

STEVE GOLDBERG

VENROCK, Partner, Palo Alto, California

What's the next, new tech innovation on the horizon?
Both the cloud and mobile are clearly active investment segments, and I think both will continue to evolve in the next two to four years. Security issues for enterprises in mobile and cloud will be an ongoing challenge, and an area of opportunity for startups to drive innovation in the next few years.

In this big data era, everything is instrumented, from geo locations to healthcare monitoring. And with Internet connectivity so inexpensive now, why not instrument everything and draw conclusions on historical activity and new information via killer apps?

What new investment areas have the best prospects?
Robotics applications connected to machine learning, machine vision, and gesture technology are all early and very exciting. That goes for Google self-driving cars to robots helping the elderly at home or working on the factory floor. The online education space is extremely early and very promising too. Another space coming on strong is healthcare IT – enterprise software or software for consumers to deal with the new healthcare laws and improve the customer experience.

Will security and privacy issues continue to be the big issue it is today?
Security has been a good venture space for 25 years and continues to be. Enterprises are concerned about IP, security for employees and international competitiveness. These are relatively well-defined parameters.

On the consumer side, privacy concerns are all over the map – although the new generation clearly doesn't worry so much. There may be tremendous advantage for Amazon to know demographic data of its users, for instance, to target ads and merchandise offerings. People are willing to give up some privacy to get some help in sifting through a massive amount of data in selecting merchandise.

How has the commercialization of innovation changed?
In the past some technology products took up to 5 to 10 years to be built and it was expensive and difficult to take the products to market. Now there is an efficient tech market, the classic 'know your customer' is more important than ever to be able to differentiate your product. Back in the days, focus groups were used. Today knowing your customer's needs, talking to customers and rapid iteration are key.

Where is the venture investment business going?
The VC industry is still contracting after the bubble burst 13 years ago, and will stabilize to a few hundred firms. It is a flight to quality. The ones left are those making money, the well-known brand names.

VCs are investing in vertical trends. Commerce and fintech investments are increasing. Semiconductors and networking investments are made when there is a good opportunity. Mobile investment is at its peak. Robotics investments are in the early stage. Education has opportunities.

How are exit options changing?
Ever since 2008, people are more pragmatic about the options and the likelihood of going public. Only certain ones will go public. Building a great company market-wise and financially and selling it in a big M&A deal can be a wonderful opportunity too.

What's changed among the startups that pitch for financing?
No one comes with just PowerPoint slides and nothing else. Everyone has a demo. Even the seed deals have a product, software built, and have some metrics on usage including conversion rates from free to paid.

What advice do you have for young entrepreneurs?
Hire the best possible people. The venture community agrees on the chance of success based on how good is the team including relevant experience and willingness to be coached, good listeners and willingness to collaborate.

What's your view of Silicon Valley's place in the tech world?
I am a big fan of Silicon Valley. There is no other place in the world with the confluence of components required for entrepreneurs to succeed. Israel has historically been very active. New York City is big particularly in advertising and media.

Which technology company has the best prospects?
The big ones still have a lot of run – Google, Amazon and Facebook is right up there and has become a big part of everyone's lives.

Will there be another Steve Jobs?
I would say lots. But the bigger question is getting that sea change of alignment – the right person in the right place. The perfect mix of components coming together, at the right time, to drive a massive opportunity. That doesn't happen often.

LI YINGTAO

HUAWEI TECHNOLOGIES, President of the '2012 laboratories, Shenzhen, China

How does Huawei manage innovation from a strategic standpoint?
It starts with the customer requirement and ends with customer satisfaction. We have an integrated team to set the short and long-term strategy: marketing, technical, research and development. We are concentrated in R&D on how we can creatively build a product to meet the customer requirement.

Who has the ultimate responsibility for the innovation agenda?
We have a group of 15,000-16,000 engineers and researchers working in what's named the 2012 laboratory. It is a mixed team from different domains and walks of life. This group which I lead reports to the executive management team. More than 20 percent of those in this lab work outside China, and India has a lot.

What is an example of Huawei innovation with global impact?
About 10 years ago as 3G service was starting to develop, many carriers in Europe did not have enough wireless base stations. Power supply was also lacking. We went deep into the base stations, discussed the requirements on-site, and created a distributed base station. This has become the most widely accepted mode for 3G and is widely deployed in the whole world. Our European customers were the first in the world to enjoy 3G service.

Another example is work we are doing on the high-speed train between Beijing and Shanghai to allow for better wireless connection along the rails. We have organized a team of mathematicians and engineers to work on this technical problem, and we have the confidence to solve it.

What do you see as the biggest challenge for businesses to innovate effectively?
Getting the right focus and investment in the future is the biggest challenge. Ultimately we will be tested and verified by the market. The future is not forecasted, it is created. It might bring us some failure in investment. We need to balance the investment for success and failure. Without sufficient failure, we might not have tested enough in the future.

How does Huawei work on commercializing its innovations?
We take risks focused on technical exploration. Many of our engineers in the business unit also work on R&D, and are more customer-oriented in their work. To see if our investment is successful, we put the ideas into the business units to provide some innovative thoughts.

You can't close your door and work on innovation on your own. We also have joint innovation centers with our customers and our suppliers. We ask them what new technologies, what requirements, they need – because our suppliers know in advance and they know our capabilities. We also have cooperation partners with universities, colleges and research institutes. In some cases, we create the new thing together.

What is the biggest industry challenge that needs to be solved?
We participate in 180 standard organizations worldwide to contribute to the industry discussion with our thoughts and technical expertise, and hear voices from others in the industry. We need systems with interoperability, and we have discussed our solutions. We have found that cooperation with upstream and downstream parties opens up innovation. Improving for the future requires more collaboration.

What are the best sources of tech innovation?
We strive to meet the requirements of our customers, to create something valuable. Our customers are our best teachers. We create some technical solutions based on what we see or anticipate as customer needs, like Steve Jobs did. Not every time we will be successful. If you are innovative, you have to accept that. There are some fundamental problems not solved yet. Surfing the net is not very smooth. We also have lost or dropped calls.

Do you see Silicon Valley innovation style at work in China?
I don't see any fundamental difference in the innovation style. Entrepreneurship, figuring out what meets customer requirements and becoming successful, is the same in Silicon Valley and many places of the world. ●

JACK XU

PAPA MOBILE, Co-founder and CEO, Beijing, China

What approach works best in encouraging innovation at a startup like yours?
Brainstorming. I set up a team of four, we brainstormed every day, and when we got an idea, we wrote it down on the board. At the end of one month, we had 20 ideas, but not all excited everyone. We selected five ideas and continued brainstorming. One morning, one team member has an idea and our brainstorm was very excited. We said if everyone continues to be excited tomorrow, we start it. When I told the idea to our engineers, they wanted to start it now.

How has your approach evolved as an innovative entrepreneur?
I was in the first wave of Chinese Internet entrepreneurs 12 years ago, working on the desktop PC at Renren and Sohu. The practice then was do what was popular in the U.S. and then do it over here.

My first product, Diandian, was built on the social messaging platform Tumblr from the U.S. When I built Diandian, it took me one and a half years, and I don't know how to innovate it for China users.

At PaPa, we wanted to develop a brand new product based on the mobile Internet. We didn't want to do another Instagram – there were already 20-30 clones and none took off.

I realized that I had to forget all the things I had done on the desktop era. I had to become an elementary school student in the mobile Internet space, and that revelation has freed me.

This time, we wanted to chase the marketing heart point, to create a whole new product from the heart. Zen taught me to empty myself, to give up my experience, which was my biggest hindrance.

We moved our office from the crowded Zhongguancun area where the mentality is not a lot of creativity but a lot of copycats. Now we have a loft in the 798 art district. We feel that here we can have the wisdom, the freedom, the calmness to create. Good ideas are like art.

What are the big tech trends that PaPa is riding on?
Social, mobile and photos – sharing online. Innovation is about a combination of elements and the need to make the product very easy to use. PaPa has a lot of promise because it is on the mobile Internet. It takes not only innovation but big scale. The app caught on quickly without any marketing after celebrities started noticing it and began using it.

What catches on in the mobile Internet space?
It needs to be extremely simple, almost to the point of being stupid. It needs to be extremely fun and interesting, and not like anything seen in the U.S. You have to listen and see how the mobile internet behavior is in China, and come up with a localized solution.

What's the formula for getting localization right?
There is a lot of overlap between China and the U.S., but 20 percent is extremely different. You have to figure out how to get rid of that 20 percent that is too uniquely American and replace it with something that is uniquely Chinese. Figuring out which parts are overlapping and what are different and need localization is what is difficult.

It is a judgment call, and takes a true understanding of both cultures, and what makes Chinese users happy and interested.

Are there any shortcuts to innovation?
For example, if the 798 district has oil, you want to find the exact place. If you can figure out which place it is not, then you can shorten the time to test it. If it's three meters underground, you don't dig deeper. Building small teams to test different places can save time in testing different places and help you stay ahead of the trend.

What is the key difference in innovating for the mobile Internet?
Speed. Two engineers can develop one mobile Internet product in one month. You can tell if it is good in one second. Then you test it for one week. In one month in the market, it will die or not. With the PC this took five to 10 years. PaPa had 10 million users in half a year after it launched – that can only happen so quickly with the mobile Internet.

What are your goals?
I always had the passion to set up my own company, with my own values. We are working really hard to develop new features and to continue to innovate as a company. We want to reach 100 million users within two years and build a great company. And my third goal is to make money. I have the patience. I am a middle-age man (33 years) and can take 10 years to build a company.

ALEXANDER LIUNG

SOUNDCLOUD, Co-founder, Berlin, Germany

Do you agree with the finding that cloud and mobile will be the most disruptive technologies down the road?
I would agree with it and add that both are in longer transitions and at different points of their curve.

Cloud is a massive disruptive trend – even before people called it cloud. It was about fundamentals of the Internet and storing content and entertainment online. Most people understand the storage principles but the interesting part is what cloud is enabling. It is not about replicating what we did before but unlocking value because of the cloud.

Mobile is the big thing at the moment and is not hype in any way. Mobile is growing faster than the desktop web and will overtake it. Mobile will keep growing for a long time and represents a very different paradigm – it is constant connection with the Internet instead of just certain parts of the day. For our users, it changes the relationship between the user and the service. SoundCloud has become more like a companion with them the full day instead of two to three hours.

Do you see a shift in how technology is developing geographically?
Traffic and revenues are becoming much more global than before. You can scale an Internet business more than was ever possible. We live in a global world where we are all connected. It is no longer about a market-by-market approach. You can have an impact on billions.

How has this globalization impacted SoundCloud's business?
We have more than 200 million people using the site every month from 200 countries. From the time when we started the company at the end of 2008, the Internet was part of our world and that has paid off in having users around the world. People spend so much time online that the internet has become part of their world. Naturally people feel the internet is their world vs. having a localized country view.

How has the growth of mobile impacted SoundCloud's business?
Mobile is by far our fastest-growing channel, and it will overtake the Internet channel. Our music content makes a lot of sense for mobile. It is the only kind of content that you can consume in parallel with doing something else. That combination of parallel and mobility are doubly important for the user experience. Mobile was looked at as a limiting factor, but that concept has shifted completely. It is not a limiting but an enabling factor, ready when users want it wherever.

How has Soundcloud adapted its offering for the mobile generation?
We moved from a web version to Android, iOS, then an iPad® app, and a mobile version of the browser. We are focusing on constant availability, listening all the time such as during that 15-minute walk to the office. We also have introduced an algorithm to make it easier to search on mobile.

A mobile phone is always with you, and with a microphone connected to the web, you can capture where you are. It has been used in many interesting ways, for instance during the Occupy Movement, people were recording live commentary and with a couple of clicks, sharing it with the world.

How has this internationalization trend impacted SoundCloud?
Our top markets are Europe and North America, and we have fast organic growth in all parts of the world. We haven't really focused on internationalizing the site – the text is all in English. Our users upload content and write comments in their own language. We have a search function for users to find content in their own language.

Do you foresee a shift in new markets taking over tech innovation leadership?
China, for sure. If China was more open on the web, it would have a massive impact on what the web looks like worldwide. The number of people online in China is staggering. The country has tremendous market scale and speed of growth.

Global & Country

TECHNOLOGY INNOVATION PERSPECTIVES

This year the KPMG **survey debuts a confidence index** gauging each country's prospects for tech innovation. The index is based on tech leaders in each market **rating their country on ten success factors** including **talent, infrastructure, incentives,** and **capital.**

TECHNOLOGY INNOVATION CONFIDENCE INDEX

Of 12 countries measured by this index, India got the best grades. India's technology leaders have confidence they excel in all but one of the 10 criteria – government incentives.

India's credentials were attributed to the nation's abundance of engineering talent, technology institutions, access to capital, global outreach and mentoring through networking groups. This tiger nation with its vibrant mobile communications market, global outreach and outsourcing services leadership seems destined to close the innovation gap with its northern Asian neighbor China if only India can update its infrastructure and scale more startups into globally recognized tech players.

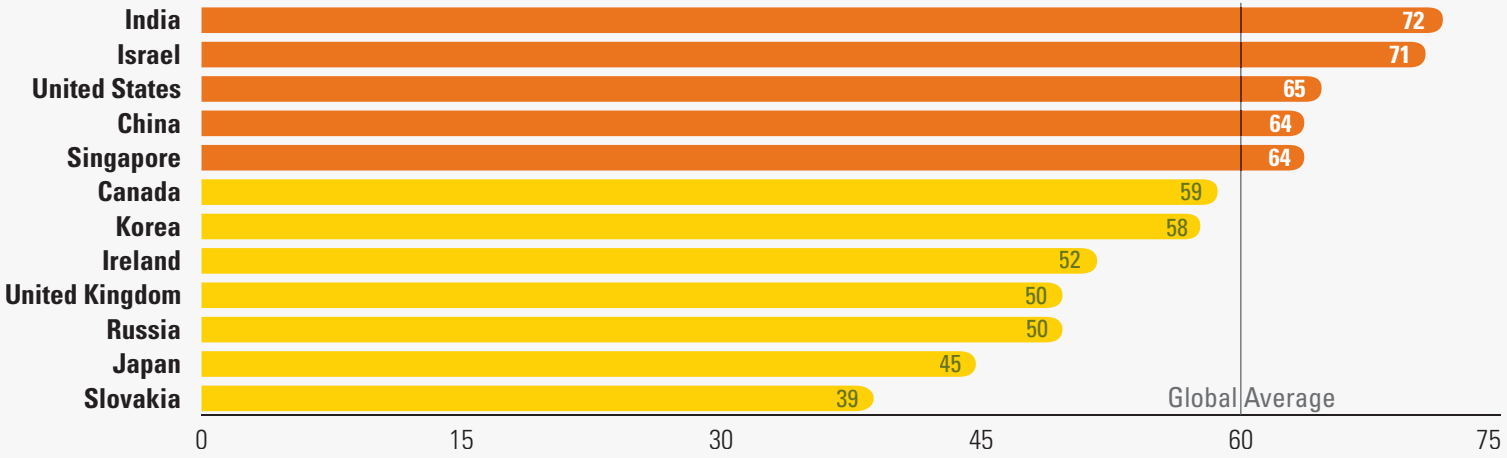
"India topping the innovation confidence index is a confirmation of business leaders' faith in the country's technological capabilities. Despite several concerns on data privacy and local technological infrastructure, the outlook for the sector is largely positive. The government can assist the technology sector by enabling easier access to capital through investor friendly policies and strengthening IP protection laws."

Pradeep Udhas, Head of Markets, KPMG in India.

The innovation engine of Israel closely trailed India on the index. Israel earned the highest marks for disruptive technology breakthroughs that will have a global impact, followed by talent, technology infrastructure, networking and mentoring. This startup nation churns out high tech advances despite its relatively small population size in sectors ranging from security to robotics to software. Supported by clusters of high-tech industry, an active venture capital market and scientific institutions such as the Weizmann Institute of Science and Technion, Israel's technologically advanced economy and culture of entrepreneurship have given the market the nickname of "Silicon Wadi" – or Hebrew for "valley."

Q: Rate the success of your country in enabling technology innovation, based on the following criteria:

- Availability of talent
- Access to tech infrastructure
- Access to alliances/partnerships
- Access to capital
- Ability to drive customer growth
- Development of disruptive technology breakthroughs
- Mentoring and access to innovation network
- Supporting ecosystem
- Education system
- Government incentives



Source: KPMG Technology Innovation Survey 2013

The U.S. ranked third, despite world-leading tech brands, a stellar reputation for innovations and entrepreneurship, and strong tech clusters in the Bay Area, New York City and other cities. Tellingly, U.S. tech titans judged their country weak in two all-important areas: government incentives and educational system. The U.S. excelled in access to alliances and partnerships, benefits that come with market maturity.

"The U.S. continues to lead technology innovation. The passion that has inspired entrepreneurs for decades to solve consumer and enterprise problems, continues to be a vibrant force in driving the U.S. economy forward."

Patricia Rios, Global Director, KPMG Technology Innovation Center, KPMG LLP (U.S.)

China's fourth-placed score was driven by high marks for talent, capital and innovation networks. China tech leaders rated their market successful or extremely successful on nearly every factor, except ecosystem and educational systems. China's strong placement overall showcases amazingly fast progress for a market that started the tech entrepreneurship journey less than two decades ago in a progression from 'made in China' to 'invented in China.'

"China continues to innovate at impressive speed. We believe that domestic consumption in the country will drive the majority of new innovation. China will innovate for China's sake. This is supported by Chinese consumers who are driving the desire for local brands, which are unique to this market. We see Chinese organizations increasingly establishing innovation hubs where their research and development can thrive. We believe this will also help to bridge any gaps where Chinese brands may face difficulties when looking to expand into the global market."

Edge Zarrella, Partner, Clients and Innovation Consulting, KPMG China.

Singapore ranked fifth on the confidence gauge, achieving the highest grade for educational systems, a strong supporting

Continued on page 28

COUNTRY CONFIDENCE INDEX COMPONENTS

Q: Overall, how would you rate* the success of your country in enabling technology innovation?

	USA	China	India	Japan	Korea	Israel
Availability of Talent	**64%**	62%	**75%**	20%	49%	**79%**
Access to technology infrastructure	**67%**	57%	**69%**	23%	60%	**75%**
Access to alliances and partnerships	**67%**	57%	**64%**	23%	54%	**59%**
Ability to drive customer adoption in local and international markets	**63%**	57%	**71%**	17%	51%	**64%**
Development of technology breakthroughs that will have a global impact	**64%**	53%	**69%**	20%	47%	**85%**
Mentoring and access to innovation network (start up CEO's, Founders, etc.)	**58%**	**58%**	**72%**	29%	42%	**73%**
Access to capital	**63%**	62%	**65%**	17%	48%	**68%**
Supporting ecosystem (law firms, accounting firms, etc.)	**61%**	**51%**	**60%**	20%	36%	39%
Educational system	42%	42%	**65%**	17%	**47%**	**55%**
Government incentives	23%	**52%**	**56%**	11%	**38%**	34%

*Ratings are based on a scale of 1 to 5, where 1 is "not at all successful" and 5 is "extremely successful". Results show percent who rated their country 4 or 5.

Source: KPMG Technology Innovation Survey 2013

Continued from page 27

ecosystem, and research and development capabilities at science parks. Government incentives, a strong point for Singapore in luring both multinationals and startups for research and development and regional headquarters, also scored high. The country lowest scores included mentoring and access to an innovation network (startup CEOs, founders, etc).

Japan came in on the low side. Many Japanese technology companies are challenged in the weakened domestic and regional economy while such traditional tech leaders as Atachi, Fujitsu and Hitachi morph into diversified industrial product makers.

> "In the last decade, Singapore has transitioned from just being an attractive business hub to one that is also focused on high-value industries such as biotechnology. It is also a force to be reckoned with when it comes to research and development. Big names such as HP Labs and Gemalto have set up research sites here."
>
> – Juvanus Tjandra, Partner, Management Consulting, KPMG in Singapore

LEADING TECHNOLOGY INNOVATION MARKETS

COUNTRY THAT SHOWS THE MOST PROMISE FOR DISRUPTIVE BREAKTHROUGHS WITH GLOBAL IMPACT IN THE NEXT FOUR YEARS

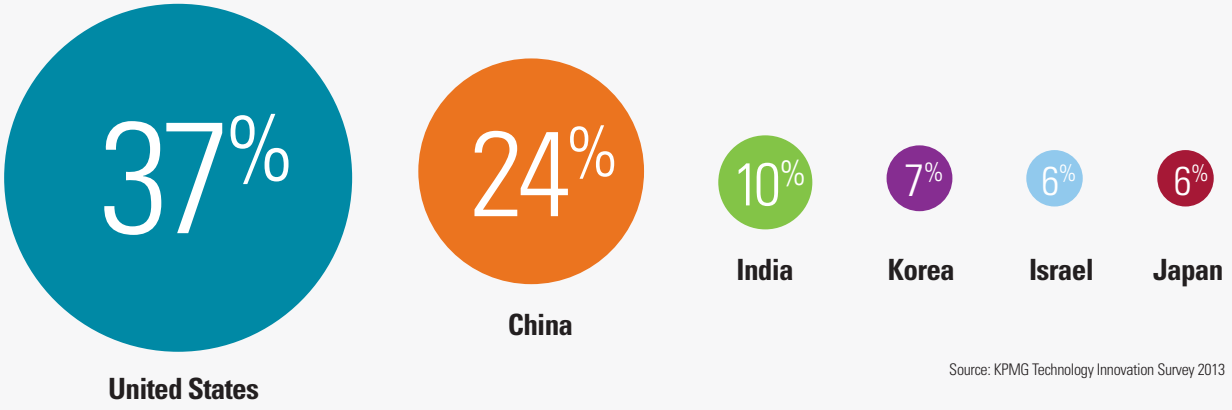
The U.S. cemented its leadership for tech disruptions by a wide margin (37 percent), trailed closely by China (24 percent). The results showed a shift from 2012, when China and the U.S. tied with 29 percent of the tallies overall.

With the Chinese economy slowing, venture capital investment and IPOs on the downswing, it's perhaps not surprising to see China lose some standing in this year's survey but continuing to be a strong innovation leader. Meanwhile an improving business outlook and market for technology products and services bolstered confidence in the U.S. ratings.

Similar to the 2012 survey, the findings continue to trend on a notable country bias. Some 60 percent of those polled in China picked their own market as first. Likewise, 60 percent in the U.S. selected their homeland. Many chose their home country except for Japan, which selected the U.S. as the most promising.

As with its strong showing on the confidence index, India again showed promise, ranked in third place for disruptive breakthroughs with 10 percent of total ballots.

Q: Which country shows the most promise for disruptive breakthroughs that will have a global impact?



Source: KPMG Technology Innovation Survey 2013

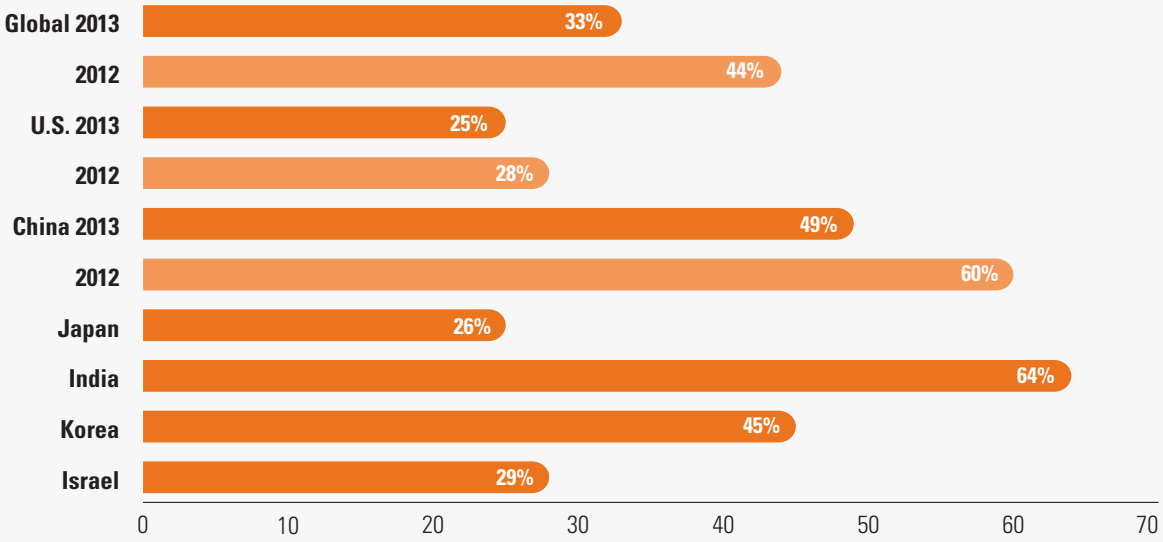
WILL THE VALLEY LOSE ITS TECH KINGDOM CREDENTIALS?

Silicon Valley is regarded as the world's leading innovation hub, although one-third predict the Bay Area is very likely to lose this leadership stature by 2017. That's a marked change from last year's results, when 44 percent said it's very likely.

India and China were the most skeptical about Silicon Valley's continued tech dominance. A relatively high 64 percent of India pollsters predict the Valley will lose the throne while 49 percent did from China. At the opposite end of the spectrum, about half (48 percent) of U.S.-based respondents and 59 percent from Israel believe it's unlikely that America will be toppled.

In spite of the rise of home-grown tech brands and innovation energy from Korea, China, Japan and Russia, it seems hard to top the cluster effect of the Valley, home to many of the world's most innovative tech brands such as Google, Intel, Facebook, Apple, eBay, Salesforce, Cisco, Twitter, Hewlett-Packard, Yahoo! and Tesla Motors – not to mention the venture capital base of Sand Hill Road. ●

Q: What is the likelihood that the technology innovation center of the world will move from Silicon Valley to another country in the next four years?



Source: KPMG Technology Innovation Survey 2013

> "China and other tech hubs are driving technology innovation and increasingly there is more collaboration and competition between countries in the development of new technologies. The Silicon Valley ecosystem and culture are unique and a solid foundation for Silicon Valley to continue to be the technology leader."
>
> – Gary Matuszak,
> Global and U.S. Chair,
> Technology, Media & Telecommunications

LEADING TECHNOLOGY INNOVATION MARKETS (cont.)

CHINA STILL SEEN AS GRABBING LEAD IF THE VALLEY SLIPS

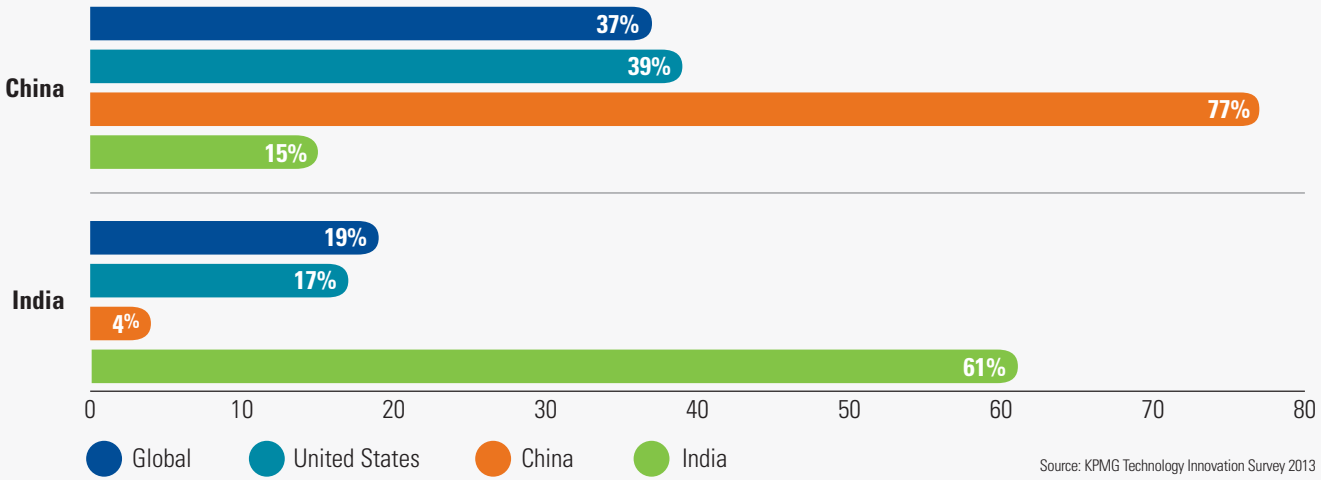
Among those who predict tech leadership will move from Silicon Valley over the next four years, China continues to be seen as the most likely successor, thanks to its combination of scale and innovation. More than one-third (37 percent) of those queried selected China as the market most likely to succeed the Valley, slightly down from last year's finding of 44 percent. China's mobile communications market – the largest in the world – combined with its quick shift to the mobile platform, and its tech-savvy urban consumers are all contributors.

India maintained its rank as second behind China. Some 19 percent predict that this emerging tiger market with its fast-growing mobile population and talented engineering base will excel as the leading tech hub – and by 2017! The strong support for India jives with other favorable results for this emerging nation.

Among U.S. respondents, China was considered to have the best possibility of taking the Valley's lead, but to a narrower degree in yearly comparisons, with 39 percent pegging China in 2013 compared to 50 percent in 2012. India ranked second but is gaining, with a 17 percent selection this year, up from 12 percent in 2012.

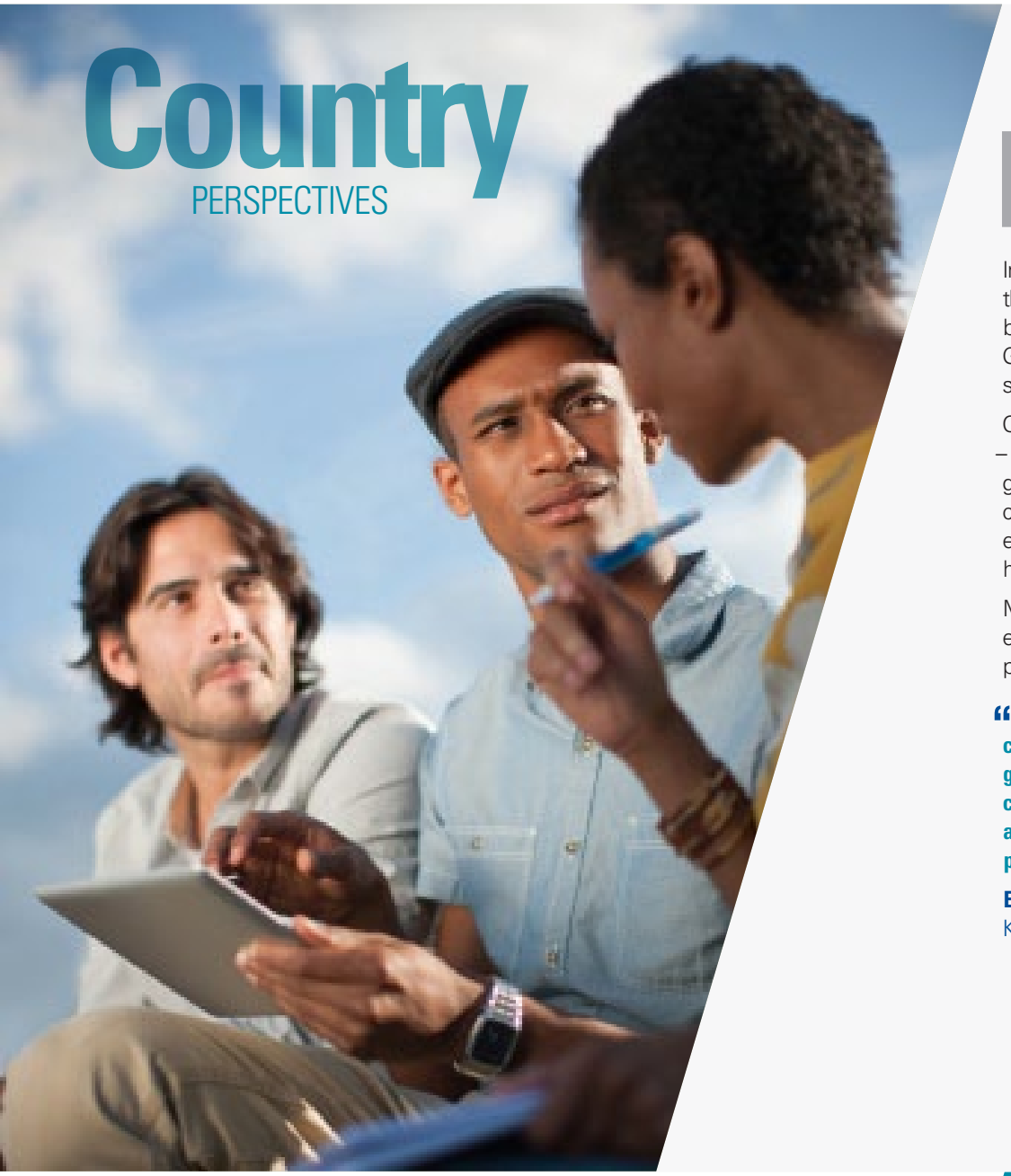
Elsewhere, a decided national bias was apparent. More than three-quarters (77 percent) of those polled in China say their country will take over tech leadership globally, compared with an even stronger 84 percent last year. Likewise, India was very keen about its own prospects too, with 60 percent saying their homeland will be the next Silicon Valley, the same percent as last year. A similar national pride was seen in the Japan results that rated the rising sun nation for best chance (44 percent) of succeeding Silicon Valley. Korea too noted that its home market will be tops, by 48 percent compared with 34 percent in 2012.

Q: Which country is likely to become the leading innovation center over the next four years?



Source: KPMG Technology Innovation Survey 2013

Country
PERSPECTIVES



CANADA gets ready for next-gen tech

Innovation in Canada technology remains strong and growing in certain parts of the country, but the challenge of raising capital remains. The question is whether the technology sector could be that much stronger in Canada. Help appears to be on the way in the form of the federal Government's Venture Capital Action Plan announced in 2013, which will see $400 million set aside for venture capital funds across the country.

Canada is poised for its next big technology company to compete and shine on the global scene – Nortel, Blackberry and others were a proxy for Canadian technology in recent times. The next generation of technology is upon us, however, and we expect several Canadian technology companies to scale in the short-term. How many will resist the market forces that bring upon exits, sometimes prematurely, to become the next beacon for innovation is an open and healthy debate.

Meaningful and consistent capital flows, attracting and retaining the right talent, offering relevant educational and training programs and access to a growing technology infrastructure are the top priorities to ensure the sector remains productive and robust.

"Canada's technology sector is transitioning back to a level of prominence. Investors and venture capitalists/angel investors are reassessing their resource sector holdings and examining the high growth potential of the technology industry. Canada is home to vibrant and healthy technology companies that are producing solutions and services that help businesses and consumers here and abroad work better and faster. The time has never been better to invest both dollars and people in Canadian-bred technology and innovation."

Brendan Maher, National Industry Leader, Technology, Media and Telecommunications, KPMG Canada

COUNTRY PERSPECTIVES (cont.)

CHINA innovates rapidly, as new technologies are embraced

China continues to innovate at impressive speed and is increasingly being viewed as an innovation hub. Success in the China market initially required the adoption of innovation and/or technology from elsewhere and subsequently adapting it to the local market. The consensus was that it does not matter who drives innovation – it is about how we can learn from it and adopt it.

Times have changed as Chinese consumers are now embracing new technologies and businesses are finding it crucial to be able to adapt in order to succeed. Chinese organizations are also increasingly establishing innovation hubs where their research and development can thrive. This will also help to bridge any gaps where Chinese brands may face difficulties when looking to expand into the global market.

"We believe domestic consumption in the country will drive the majority of new innovation. China will innovate for China's sake. This is supported by Chinese consumers who are driving the desire for local brands, which are unique to this market."

Edge Zarrella, Partner, Clients & Innovation, KPMG China

Chinese brands are much more innovative and creative than ever before. Mobile commerce is now booming in China and the speed of growth is significant. E-commerce has also taken off in China and many purchases - such as insurance, clothing, and groceries - are done via the many social commerce platforms. It has become apparent that Chinese consumers are more willing to perform online-commerce transactions. As a result, the large brands are increasingly keen to establish their presence in the mobile world and some now showcase their new collections using social media and mobile applications.

"The municipal governments in China are driving innovation in line with the central government's guidelines and market needs. A very successful example is the creation of Smart Cities across China. This has fueled the growth of technology and innovation. The Chinese government is also taking positive steps in protecting data privacy and IPR in China. From 1 September, telecommunications and internet information service providers operating in China will be subject to new rules governing the protection of personal information. The new laws tend to follow data protection principles recognised in EU model data protecting jurisdictions."

Edge Zarrella, Partner, Clients & Innovation, KPMG China

In China, innovation has been driven by both necessity and convenience. China has enthusiastically adopted e-commerce online transactions and social media platforms, which will fuel future mobile technology innovation. As China is relatively new in the technology space, it has the advantage of not being constrained by legacy systems. As a result, China is already leading the way globally in mobile payments, which is driving innovation across social networks and cloud adoption.

We see e-commerce taking off particularly outside the tier 1 cities, where consumers perhaps have less access to traditional shopping outlets. With the development of social media applications or platforms such as Weibo and Wechat, the relationship between brands and social media is evolving. This is creating new revenue streams, and as a result, companies are increasingly interacting with social network users. This spells huge opportunities for both global and domestic brands.

China is certainly starting to make inroads. Its advantages include its availability of talent, access to capital and mentoring and innovation networks. However, improvements to the education system need to be made.

"China is now being perceived as a future innovation hub. To fulfill this perception, China needs to continue with its heavy investment in state-of-the-art technology infrastructure, education and providing greater incentives in order to build an environment that inspires and promotes greater innovation."

Edge Zarrella, Partner, Clients & Innovation, KPMG China

INDIA looks beyond BPO

The Indian information technology industry (business process management) has expanded from a mere US$8 billion in 2000 to an estimated US$108 billion in 2013, contributing significantly to India's economic progress over the last decade. Technology and business leaders now agree that the next decade will be substantially different from the previous one and will witness a rise in new business models improving a rapidly changing marketplace and customer needs.

India is rated highly on access to mentoring and innovation networks and a supporting ecosystem of law and accounting firms. Yet while Indian firms have access to world-class technology infrastructure, more assistance from the government in the form of policy incentives and an improved education system is required. The Government of India has provided several tax and policy incentives for the technology sector, especially to encourage exports, and to provide world-class infrastructure for IT-BPO companies.

In addition, the convergence of four key technologies (social media, mobility, analytics and cloud) is driving innovation, especially at the startup level. With almost 900 million mobile subscribers in India today, the country is an important market for innovative offerings in this sector.

The biggest barrier to innovation in India is concerns over privacy. Other challenges include lack of strong IP protection laws that is deterring investors from entering the Indian market, a slower pace than American or European counterparts in adopting innovative technologies, and bureaucratic and legal roadblocks to commercializing innovation.

"In the field of technology, India's farsightedness and focus on innovation have helped it move ahead, and its leaders are confident in the country's technological capabilities. Despite several concerns on data privacy and local technological infrastructure, the outlook for the sector is largely positive. The government can assist the technology sector by providing easy access to capital and strengthening IP protection laws."

Pradeep Udhas, Heads of Sales and Markets, India

IRELAND small and nimble

Ireland has been transformed in the past few decades from a largely agricultural economy to one of the world's leading centers of investment. Much of this progress is technology led. Irish technology companies are making an impact on a global scale with new and disruptive startups.

Among Ireland's attributes are its uniquely youthful population with the highest proportion of under 25s of any European country and its highly regarded education system, with the highest amount of science and engineering graduates in the world.

Ireland's youthful dynamic, tech-centric population attracts a disproportionately high number of young entrepreneurs – enthused by an ecosystem that combines a tech-friendly environment with a high quality of life. Irish early-stage entrepreneurs have a strong focus on international markets and exporting. Additionally, Ireland has significantly enhanced the ease of obtaining visas for those engaged in the tech sector.

Ireland has a government that understands the needs of startups, a point reinforced by the World Bank's highlight of Ireland as 'the easiest location in Europe in which to start a business'. This is underpinned by an attractive tax regime including a low rate corporation tax of 12.5 percent, extensive double taxation agreements and an attractive R&D tax credit regime.

Ireland has more venture funding per capita available than any country in Europe. Over €800M is available through angel, seed and venture capital firms, and over 90 percent of all VC money is invested in Irish technology companies, compared to 31 percent in Europe overall.

"What makes Ireland unique is that we are small, connected, and incredibly nimble and we have scale. This is unparalleled anywhere else in Europe- the combination of tech, talent, track-record and tax works well and has proven very attractive for both established technology players and innovative startups."

Anna Scally, Partner, KPMG Ireland

COUNTRY PERSPECTIVES (cont.)

ISRAEL propels a startup nation

With the second-highest concentration of high-tech companies after California's Silicon Valley, the high-tech industry in Israel is one of the major growth engines of the Israeli economy. Israel invests about 4.25 percent of its GDP in R&D, the highest ratio of any country in the world.

Government incentives (including low corporate tax rates ranging from 6 percent to 25 percent), grants and robust national and bi-national R&D funding programs are together fueling the vibrant Israeli technology market. This ecosystem of support has fostered what has become the world's highest percentage of high-tech production relative to GDP.

With almost 60 mergers and acquisitions in the local technology industry and more than 200 local R&D centers, many global high-tech companies continue to invest and open local R&D centers, among them Apple, IBM, Broadcom, Intel and Google.

The recently announced acquisition of the social GPS and maps Company "Waze" by Google for $1 billion, is a result of the growing trend during the last few years, where the majority of investments in Israeli technology companies have shifted from communication and semiconductor segments to new media, internet and mobile platform applications.

"Only second to California's Silicon Valley, the unique concentration of innovation, the cultivation of a strong entrepreneurship spirit, skilled workforce, and venture capital funding, has made Israel one of the most vibrant technology centers in the world."

Ofer Sela, Technology partner, KPMG Israel

JAPAN looks for the upswing

Japan is attempting to revitalize its economy as the lax monetary policy and fiscal stimulus package of Abenomics, an economic policy of Prime Minister Shinzo Abe, has significantly weakened the yen and benefited export-focused Japanese technology companies. Political leaders hope that this positive trend will enable Japan's economy to exit from the deflationary trend and increase more commercial and consumer appetite in Japan. If this positive trend is to continue, Japanese technology companies will be able to increase investment in research and talent.

Globalization continues to be a hot topic for Japanese technology companies. The aging population, the strong yen and deflationary economy have prompted a cross section of corporations to increase overseas investment in the past few years. Japanese technology companies are innovating not only for local consumer and commercial needs but also for global counterparts as they continue to place research and development facilities at respective localities to penetrate the local market and increase overseas revenue. The challenge is to recruit personnel who have the ability to manage the dynamics of the global operation.

Meanwhile, cyber security and privacy issues are of paramount importance for technology companies and the introduction of the Personal Information Protection Law in 2003 requires companies to abide by a set of strict privacy laws. Given the proliferation of the internet, social media and other communication media, careful monitoring is necessary to be in compliance with the regulations.

"Many Japanese technologies companies have started to realize that they need to focus on the B-to-B market sector to stabilize earnings, which means that we should see a decline in the level of focus and investment in consumer electronics. We also expect continuance of investment of significant resources in innovations in new technology including robotics, cloud computing and big data related products."

Hiroto Kaneko, Head of Technology, Media & Technology, KPMG Japan

KOREA's new creative economy

Korea has successfully captured a significant role in the technology industry. The ICT (Information & Communications Technology) industry has led the growth of Korean economy in the last decade as Korean IT companies like Samsung Electronics, LG Electronics and SK Hynix have become top global players in the mobile phone, semiconductor and LCD industries.

Korea's growth engine is threatened, however, by an aging population and the economic dynamics of its neighboring countries, as the Chinese economy slows down and the Japanese yen weakens against the dollar, in combination with the aftermath of the global economic crisis. The time to seek and to develop a new growth path that concurs with the current global trend is imminent.

The Korean government plans to establish a "creative economy ecosystem" that fosters a favorable business environment for new startups run by young talented people. Accordingly, the Korean government is cooperating with national legislators to provide fairer business conditions and to foster a business environment where entrepreneurs are encouraged to take risks and allowed to seek various chances.

Over the next five years, the Korean government will spend KRW 40 trillion won (US$36 billion) on building the creative economy ecosystem. The Korean government expects that converging advanced and innovative ICT technologies with existing industries that have been falling behind would not only create new markets but also propel Korea's upcoming future.

"I do not believe that creativity and entrepreneurship can solely be developed by a government driven program itself. The business environment that allows easy access to resources for startups and promotes second chances that the government wishes to create will encourage them. This business environment will help Korea transform from a fast follower to an industry leader with new innovations that will lead future global trends. In addition, the convergence of ICT technologies with other traditional industries will turn into Korea's new economic growth engine."

Seung Hwan (Sean) Choi, National Industry Leader, Technology, Media & Telecommunications, KPMG in Korea

RUSSIA rebuilds its tech heritage

Human capital used to be the one of Russia's key strengths in technology innovation. Russia was famous worldwide for its talented pool of scientists, researchers and technical specialists. When it comes to talent availability for innovation and technology enterprises, however, Russia has a serious deficit of specialists while facing high demand from business. Other impediments are an under-developed regulatory environment, difficulty in commercializing innovation, and issues with government policies and customer adoption. The fact that technology security and privacy issues are still not of paramount importance signifies one more area for development.

The Russian government recently took steps to promote innovations in the country, however. In 2012, the government adopted a biotechnology development program up to 2020, which introduces tax and customs incentives and sets the aim of boosting production volume of the Russian biotech sector.

Another step is the government's recently approved road-map to double production volume and exports of the Russian IT sector up to 2018. To achieve this goal, four major steps will be taken: techno-parks construction, export support, investments in education and introduction of special incentives for startups.

"The goal of diversifying Russia's economic structure and reducing its reliance on natural resource sectors cannot be achieved without developing technology and innovation. Hopefully, the programs adopted by the Russian government will eventually set the Russian economy on the innovation-led growth model."

Alisa Melkonian, Partner, Head of Innovations & Technology KPMG in Russia and the CIS

COUNTRY PERSPECTIVES (cont.)

SINGAPORE

Singapore's aim to improve economic competitiveness and innovation through information and communications technologies (ICT) has been taking shape under the nation's living Intelligent Nation Masterplan, iN2015.

Today, over 95 percent of homes and business in Singapore have access to the Next Generation Nationwide Broadband Network, which offers broadband speeds of up to one Gigabit per second and more. The island state's mobile broadband subscription per capita is the highest in the world at above 100 percent while mobile penetration is at 151 percent (end 2012) and growing.

Also on the rise is household usage of broadband for a host of activities including online shopping, social networking, and education or online learning activities. The broadband penetration rate for households climbed from 40 percent eight years ago to 85 percent in 2011. Additionally, the nation's free wireless broadband service speeds will be doubled from 1 MBPS to 2 MBPS, with services expanded to include cashless payments. In the pipeline are further investments in cloud technologies, cyber-security, big data and analytics.

To prepare young people for a future in knowledge-based, technology-driven economies, schools in Singapore are introducing new technology and tools into the learning environment, for instance, the use of web-based artificial intelligence chat bots to encourage critical inquiry among learners. Schools are also equipping students with skills such as 3D printing and computer programming to prepare them for careers in fields such digital design, gaming and animation.

At the enterprise level, the government has put in place numerous initiatives to encourage the growth of technology and knowledge-based businesses. These businesses can tap on expertise in agencies dedicated to helping them with their financing, capability and management development, technology and innovation, and access to markets. SPRING, Singapore's enterprise development agency, is one such example.

Since 2008, SPRING has supported more than 150 projects totalling more than SGD$50 million under its Technology Enterprise Commercialisation Scheme (TECS). TECS aims to bring potentially disruptive technologies closer to the market. SPRING's most recent disbursement of SGD$6 million to 15 startup companies are for projects covering a wide spectrum of technology areas including medical devices, electronics, engineering, water and environment, as well as information technology.

Companies in Singapore are also encouraged to innovate to raise productivity under the government's Productivity and Innovation Credit (PIC) scheme introduced in 2010. Under this scheme, companies enjoy a 400 percent tax deduction on productivity and innovation related investments. The take-up rate has been encouraging. Fifty-seven percent of active companies with at least one employee (who is not a shareholder) claimed PIC in 2012.

Singapore also provides an environment conducive to R&D. In 2010, HP Labs Singapore was established as HP Labs' third research site in the Asia Pacific region. The Singapore site is also the seventh of HP labs worldwide. Gemalto, the world's biggest smart card company, has also established a R&D site in Singapore. Earlier this year, Dell, Intel and Revolution Analytics also announced the creation of the Big Data Innovation Centre in Singapore. This center gathers expertise from all three organizations to support big data and predictive analytic innovation for Asia.

"While Singapore does not immediately come to mind when it comes to disruptive technology breakthroughs with global impact, the nation has been strongly supportive of innovations. This is especially so in the health sciences and healthcare sector. For example, Singapore has funded the development of a robotic surgical system that enables surgeons to perform incision-less surgeries with increased precision and intuitiveness, and reduced surgery time. The country has also supported the development of other innovations such a 3D model that will improve the planning and treatment of liver cancer.

In the last decade, Singapore has transitioned from just being an attractive business hub to one that is also focused on high-value industries such as biotechnology. It is also a force to be reckoned with when it comes to research and development. Big names such as HP Labs and Gemalto have set up research sites here. I believe Singapore has the right factors – a robust intellectual property regime, a strong devotion to research and development in different technological disciplines and a top educational system geared towards grooming the young generation for a tech future, among others – to be a key technology hub."

Juvanus Tjandra, Partner, Management Consulting, KPMG Singapore

SLOVAKIA: the cool factor

Slovak Republic is a European Union member state that is becoming a new Central European innovation hub. A fast-growing ICT sector supported by domestic and foreign companies in combination with universities create very good conditions and an eco-system for building new startups and attracting more young talents to this high-tech knowledge intensive sector.

Over the last four years, the startup community in Slovakia has been growing significantly and a new era of Slovak innovative entrepreneurship has been created. The key strength of Slovakia is the availability of young talents.

One of the factors that distinguishes Slovakia is a passion for creating something really cool and useful in the startup world. Several Slovak success stories such as ESET, Sygic, Piano Media, Monogram Technologies and Websupport have led the way. What is more, Slovakia is becoming a new place for R&D centers for other industrial sectors besides ICT, such as automotive suppliers, electrical engineering and machinery industry. The potential for cooperation among established companies, foreign investors and the Slovak startup scene plays a valuable role in looking for disruptive technologies in not only the ICT sector.

"Slovakia is a small country but there are a lot of young and excellent people who have a passion for doing something innovative and inspirational. Slovaks know to learn faster than their competitors, and it is their real competitive advantage. I think that Slovakia has all pre-conditions to become an innovation entrepreneurial hub of the Central and Eastern Europe in 10 years."

Vladimír Švac, Head of Innovation Advisory Services, KPMG in Slovakia

UNITED KINDOM pushes an e-economy

The tech sector is increasingly seen by the UK Government as a priority area of focus, with a stated goal of ensuring the UK is the destination of choice for creative and high-tech industries. This ambition has been backed up by a range of important incentives available to tech companies including generous and flexible credits against the cost of Research & Development, and a new 10 percent corporation tax rate that has been introduced t to 'Patent Box' profits to help encourage innovation and commercialization of intellectual property in the UK.

While the UK has consistently attracted more headquarters operations than any other location in Europe, it is the startup scene that is perhaps generating the most excitement. This is exemplified by the 'Tech City' area in East London where the number of tech startups has shot up from a couple of hundred in 2010 to more than 1,300 by 2013. This extraordinary growth rate and the goal of the UK as a center of innovation for tech companies will be also be helped by the London Stock Exchange's recent launch of a new 'High Growth Segment' (HGS) market that will make it easier for entrepreneurs and tech companies to IPO. Like NASDAQ, HGS will have lower free float requirements that will allow companies to float with just 10 percent of their shares available to investors as opposed to the current threshold of 25 percent under LSE's main listing rules.

"It is pleasing to see the Tech Sector get increasing prominence within government policy and the launch of HGS will help the UK's burgeoning startup scene. This bodes well for the tech sector in the UK and I am increasingly excited by the startup scene where the UK's combination of creative talent, tax incentives, e-economy, cultural assets and international outlook will help grow this segment."

Tudor Aw, Technology Sector Head, KPMG in the UK

COUNTRY PERSPECTIVES (cont.)

United States: the tech innovation playbook

Many countries and cities are committed to developing their version of Silicon Valley and are succeeding. New York is a great example of success with increasing momentum in the startup scene and also attracting investment from companies like Google to become key local players.

Other cities in the U.S. with startup hubs of significance include Austin, Cambridge, Portland, Seattle, each with its own ecosystem.

As mini Silicon Valleys grow in other cities and countries, the San Francisco Bay Area continues to attract startup talent in the tech sector as well as investment from other sectors who understand the importance of being part of this ecosystem. Retailers, automotive companies, financial institutions and telcos, to name a few sectors, continue to build their innovation centers in the Bay Area creating exciting synergies for future innovation.

Given the U.S.' long standing position as a technology innovation leader and its top ranking again this year, the US confidence index of 65, just above China's, is surprising. The index indicated the biggest challenges to enable technology innovation in the U.S. are the educational system and lack of government incentives. Yet, the tech innovation engine primarily driven by Silicon Valley continues to be the playbook for other tech innovation hubs around the world.

The U.S. is considered the "friendliest" tech innovator country, by 47 percent of those polled globally and 62 percent in the U.S. That's a wide margin over other markets, and a strong showing for the U.S., backed up by results from Japan (49 percent), Korea (44 percent) and Israel (43 percent).

"Governments, educational institutions, entrepreneurs, investors and big enterprises want the playbook to replicate the tech innovation success that has made Silicon Valley the global leading tech innovation hub. The Silicon Valley ecosystem is unique and difficult to replicate given its solid foundation for tech companies and entrepreneurs to take risks, and successfully launch companies."

Gary Matuszak, Global and U.S. Chair, Technology, Media & Telecommunications

Innovation leadership

It's clear that to get into this corporate innovator league **requires coming up with a "wow" factor** over and over again.

LEADING INNOVATION COMPANIES

Google continues to excite the tech world by churning out revolutionary new products such as the self-driving car, balloon-accessed Wi-Fi and Google Glass. No surprise then that Google topped the charts, named by 25 percent globally to spearhead technological innovation. The U.S., Israel and India polls agreed.

Apple ranked second at 24 percent of responses, a dramatic drop from 2012, when Apple was rated tops by 37 percent. Microsoft, despite a flurry of product launches, was ranked third (9 percent) overall, a fall from last year (15 percent). In other slips in yearly comparisons, Facebook was ranked eighth in the 2013 table compared to sixth in 2012, as the social media giant has raced to offer mobile-based services and innovated close to its core business.

On the upswing, Korean electronics manufacturer Samsung was pegged fourth (6 percent), no doubt earning its corporate innovator stripes due to its highly competitive smartphones. The South Korean sample showed country pride by putting Samsung top of the charts.

It's clear that to get into this corporate innovator league requires coming up with a "wow" factor over and over again.

China respondents rated Apple and Microsoft ahead of Google, naturally enough considering that Google withdrew its search engine from the Chinese market in 2010 while rival Chinese search brand Baidu absorbed most of Google's former market share. While Samsung and other cheaper, home-grown models have caught on in China, an iPhone® launch can still jam Apple stores in Beijing, Shanghai and other major cities.

COMPANIES DRIVING GLOBAL INNOVATION

Q: In your opinion, which company is the leader in driving technology innovation?

Company	Global	U.S.	China	EMEA
Google	**25%**	**35%**	9%	**29%**
Apple	24%	28%	20%	25%
Microsoft	9%	9%	20%	5%
Samsung	6%	3%	3%	4%
IBM	3%	2%	4%	2%
Other	16%	10%	**24%**	17%
Don't Know/NA	5%	2%	8%	5%

Source: KPMG Technology Innovation Survey 2013

EMERGING GLOBAL TECHNOLOGY INNOVATION VISIONARIES

DID THEY REALLY PREDICT GATES AND JOBS AGAIN?

Amazingly considering that neither run the companies they founded what seems eons ago now, global tech legends Bill Gates and Steve Jobs continue to receive the most nods as emerging technology innovation visionaries. Gates took 12 percent of the overall votes while Jobs checked in with 11 percent of the tallies. Tim Cook, who took over the Apple reins in 2011 and has continued Jobs' vision of 'think different,' ranked fifth in this year's survey.

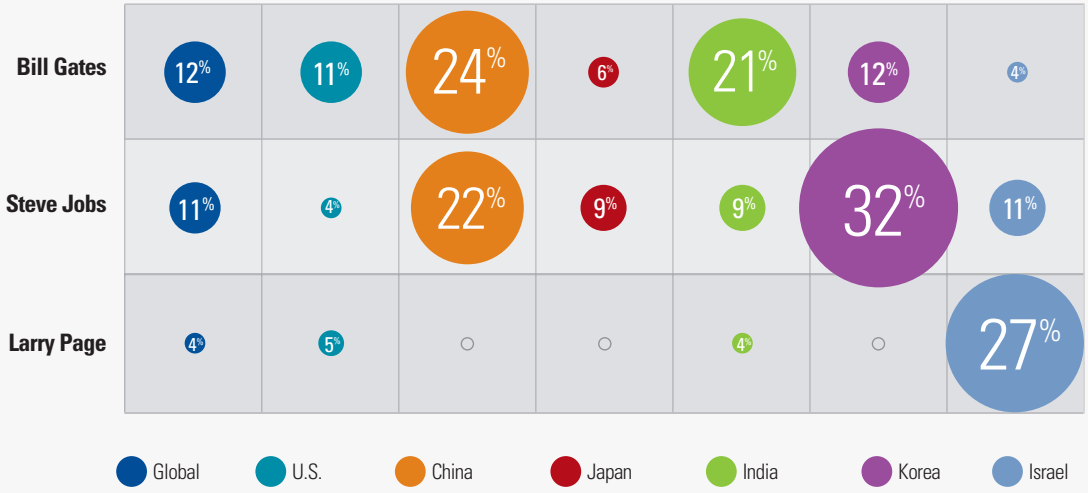
New CEO Marissa Mayer, who is shaking things up at Yahoo!, joined the list as the only woman named among the 19 visionaries. Japan's Masayoshi Son, the maverick leader of tech player Softbank Corp., was the only Asian among the top 12. Besides Yahoo's Mayer, newcomers were inventor and entrepreneur Elon Musk (think Tesla Motors, Space X and PayPal) and Pat Gelsinger, CEO of Silicon Valley-based cloud solutions leader VMware.

Meanwhile, China's e-commerce and trading company leader Jack Ma of Alibaba dropped off this year's list. Ma recently stepped down as CEO of the e-commerce startup he founded in 1999, saying that at age 48, he is too old to run the fast-moving Internet trading conglomerate.

In other geographic variables, Israel gave extraordinarily high marks (27 percent) to Google co-founder Larry Page while Korea favored Steve Jobs (32 percent).

TOP EMERGING TECHNOLOGY INNOVATION VISIONARIES

Q: In your opinion, who is the top emerging global technology innovation visionary? Please name a person, not a company.



Source: KPMG Technology Innovation Survey 2013

Innovation management

RESPONSIBLE FUNCTION TO DRIVE INNOVATION

Nonhierarchical management styles and a culture of encouraging ideas to come from all levels of the organization are more common today. Yet the CEO is still regarded as the chief driver of innovation within corporations, as indicated in the survey by one-third globally. Japan (53 percent), India (43 percent) heartily agreed, and even Israel (27 percent), which has thrived on spreading out authority among the ranks, were in agreement.

Differing from the global norm again, respondents in China gave nearly equal weight to the CEO and the chief innovation officer. This innovation function, common on the corporate hierarchy in China but not in the west, was created by Chinese companies partly in response to new directions earmarked by the government's five-year plans. The CIO role continues to score high in year-to-year comparisons. Korea also highlighted this innovation role for importance, ranking it first for two years in a row.

Q: What function has the responsibility for driving innovation?

Position	Global	U.S.	China	EMEA
CEO	**33%**	**38%**	**28%**	**33%**
Research & Development	18%	20%	19%	15%
Chief Innovation Officer	17%	9%	23%	14%
Chief Information Officer	14%	16%	19%	18%
Think Tank Committee	6%	7%	4%	6%

Source: KPMG Technology Innovation Survey 2013

AREAS WHERE INNOVATION IS IDENTIFIED AND NURTURED

Q: Where is innovation identified and nurtured in your company?

Area/Function	Global	U.S.	China	EMEA
Research & Development	**38%**	**44%**	**53%**	**32%**
Information technology	32%	20%	40%	32%
Strategic planning	30%	24%	47%	24%
Corporate development	19%	9%	34%	16%
Business units	17%	13%	9%	24%

Source: KPMG Technology Innovation Survey 2013

Research and development led with 38 percent of the polls, followed closely by information technology and strategic planning.

One noticeable trend is the growing importance of crowd sourcing as a nest for new ideas – a phenomenon that has impacted a number of business practices such as startup funding and design. Twelve percent named ideas championed by employee crowd sourcing as an innovation zone compared with only 8 percent in 2012. Customers and suppliers, an external crowd sourcing area, won 10 percent of the responses overall, up from 7 percent.

In a sign of the rapid pace of tech change and focus on the "next, new thing," two new areas – emerging technologies group and innovation teams at the business unit – were identified by roughly 11 percent of the respondents.

METRIC TO MEASURE REVENUE VALUE

Revenue growth was cited tops by nearly half of the respondents as the most common metric. The related areas of market share and number of new customers also drew high responses, though to a lesser degree than the all-important top line growth.

Those polled in China looked at the factors differently, with more than half of those in this hyper-competitive market pointing to market share and return on investment as the key measurements.

The number of new patents was farther down the list, drawing only 9 percent of responses, consistent with last year's findings. This trend could be related to the challenge of commercializing patents. ●

Q: What are the top metrics used in your organization to measure the value of an innovation?*

Metric Used	Global	U.S.	China	EMEA
Revenue growth	**47%**	**52%**	44%	**43%**
ROI	28%	25%	**54%**	21%
Market share	27%	15%	52%	26%
# of new customers acquired	26%	31%	23%	31%
Market value	20%	14%	19%	18%

*Asked among large enterprise, mid market, and startup companies only. Source: KPMG Technology Innovation Survey 2013

CREATING AN INNOVATIVE CULTURE

Q: What is the most effective approach to motivate employees to be innovative?*

Method	Global	U.S.	China	EMEA
Financial incentives	**39%**	**45%**	**47%**	**31%**
Internal recognition	19%	21%	5%	26%
Career progression	16%	11%	28%	17%
Time allocation	16%	13%	17%	16%
External recognition	9%	9%	2%	10%
Other	1%	2%	0%	2%

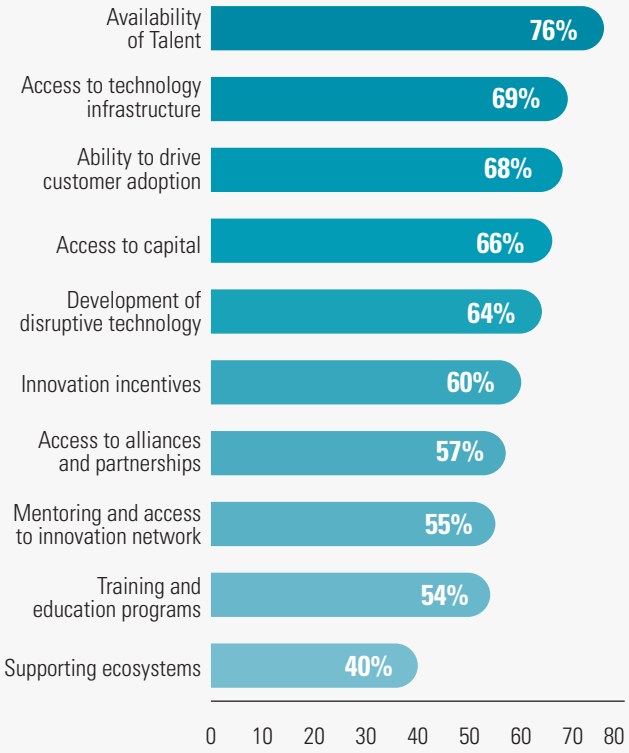
*Asked among large enterprise, mid market, and startup companies only. Source: KPMG Technology Innovation Survey 2013

Cash is still king when it comes to motivating workers to think up new ideas. Some 39 percent rated it as the most effective. Recognition within the company was selected by 19 percent of those surveyed topping external recognition almost by a 2-to-1 ratio.

Next most effective were career progression (16 percent) and time allocation to new projects (16 percent). There was little difference in the findings year over year. ●

IMPORTANCE OF FACTORS ENABLING TECH INNOVATION

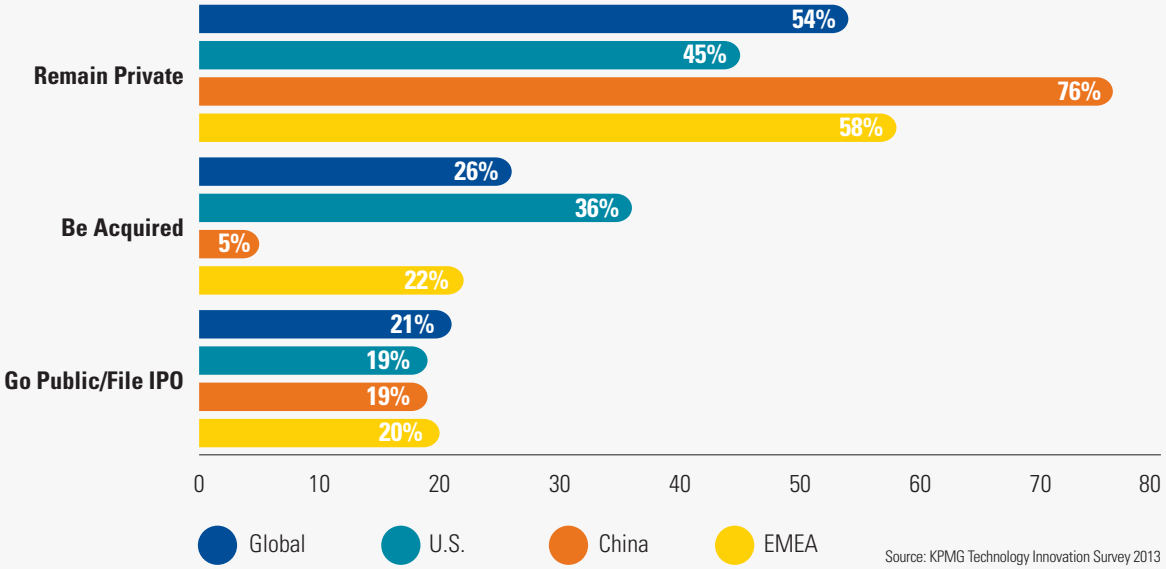
Asked which of 10 factors is most important to enabling tech innovation, talent availability was picked tops by 76 percent globally and by 80 percent in the U.S., where immigration reform is hotly debated. Large enterprises and startups alike put talent at the top of their must-have list. Trailing closely though, access to technology infrastructure drew 69 percent of responses while ease of customer adoption in local and international markets got a 68 percent rating and access to capital drew 66 percent.



Source: KPMG Technology Innovation Survey 2013

GROWTH PATH PREFERRED BY START UPS

Q: What is your company's preferred growth path?



Source: KPMG Technology Innovation Survey 2013

More than half (54 percent) of those polled at startups opted for remaining private versus being acquired or going public as the best growth path. It's the flip of the dotcom boom a decade ago when companies rushed to go public. The fact that many companies favor remaining private reflects a more thoughtful approach to accessing the public markets.

"The best startups today carefully assess the readiness of the business model, financial projections and staffing levels to execute a successful transition from private to public prior to planning an initial public offering. This can extend the average period from inception to IPO but also improve the quality of new issuers."

Packy Kelly, Co-leader, Venture Capital practice, KPMG LLP (U.S.)

In a sign that recently passed legislation in Washington, DC has yet to have much impact, U.S. startups rated going public last. Staying private was clearly the preferred option in China (76 percent), Japan (83 percent) and India (50 percent). Only Korea favored going public as the best growth path.

Conclusion

The rapid change of cloud, mobile and data are enabling other technologies to mature in areas such as biometrics, social graphs, the Internet of things and machine-to-machine communications. Seemingly everything will be connected wirelessly and analyzed endlessly.

The concept of privacy might be more muted in a future where young generations share just about everything online. Yet for enterprises and governments, tackling security and transparency issues will remain paramount even as next-gen cyber-security solutions emerge to deal with this challenge. It will be interesting to watch the advances in security driven by innovative thinking to develop new infrastructures designed for mobile, cloud and Internet of things environments.

Silicon Valley will continue to be the tech innovation center of the world given its vibrant ecosystem and unique culture where lessons learned from failure are celebrated and perseverance is rewarded.

Quicker advances will be spurred by the spread of Silicon Valleys into multiple spheres around the world. As several emerging economies such as China and India develop their own tech hubs, they too will invent the future. Micro-innovations fine-tuned to their local culture will be the result, and will spur more cycles of disruptions from many corners of the world.

Thanks to cloud and mobile, the cost of starting a technology business has come down tremendously and market reach opportunities have increased exponentially, making the market more competitive. Globalization has facilitated access to the 'best engineering talent' around the world.

Technology leaders of the future need to keep up with and outpace multiple geographic market forces to a much higher degree than in the past. Ultimately it's all about innovation and creating the roadmap to drive value and monetize new business models resulting from disruptive technologies. The next three years will no doubt bring many surprises as countries and companies strive to gain technology market leadership.

Thanks to cloud and mobile, the cost of starting a technology business has come down tremendously and market reach opportunities have increased exponentially, making the market more competitive. Globalization has facilitated access to the 'best engineering talent' around the world.

Authors

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Gary Matuszak is the Global Chair of KPMG's TMT industries and Chair of KPMG's Technology Innovation Center. Mr. Matuszak works with global technology companies ranging from the Fortune 500 to pre-IPO startups, and represents KPMG in a number of organizations impacting the industry. Mr. Matuszak has devoted virtually his entire career to serving the technology industry and has influenced the industry thinking on several key issues. He is a frequent speaker on technology industry trends, including cloud and mobile business strategies, global technology industry perspectives, and c-suite technology business outlooks. His speaking engagements include the Stanford Directors College annual conference and CNBC's Squawk On The Street. Before joining KPMG in 2002, he was the Silicon Valley office managing partner for Arthur Andersen, where he led the U.S. Software practice.

Richard Hanley, Advisory Industry Leader, Technology, Media and Telecommunications, KPMG LLP (U.S.)

Based in Silicon Valley, Richard works with US and global clients in the areas of management and risk consulting, as well as transactions and restructuring. Mr. Hanley's previous responsibilities at KPMG include Advisory Practice leader for the Bay Area and Pacific Northwest and the national technology sector leader for Transaction Services. Richard provides advice on domestic and cross-border mergers, acquisitions, and disposals to leading technology companies as well as private-equity and sovereign-wealth funds. He advises clients on due diligence, including evaluation of commercial, financial, and accounting aspects of potential acquisition targets and assistance with purchase agreements. He also assists with postmerger integration. Mr. Hanley has an economics degree in accounting and business finance from Manchester University and is a member of the Institute of Chartered Accountants in England and Wales.

Patricia Rios, Global Director, Technology Innovation Center, KPMG LLP (U.S.)

Patricia Rios manages the Technology Innovation Center, which is a global entity created to identify and evaluate the impact of disruptive technologies that may result in business transformation. Ms. Rios joined KPMG in 2008 as the technology industry Marketing Director and assumed her current responsibilities in 2011. Before joining KPMG, Patricia held global marketing leadership roles in the information technology industry, including more than seven years at Oracle and Sun Microsystems. She also has extensive sales and business development experience in private banking at JPMorgan Chase. Ms. Rios has served as an advisor to startup companies involved in outsourcing, smartcards and other emerging technologies. She holds an MBA in Finance and a bachelor's degree in Marketing from the Illinois Institute of Technology.

About KPMG

KPMG: AN EXPERIENCED TEAM, A GLOBAL NETWORK

KPMG's technology professionals combine industry knowledge with technical experience to provide insights that help technology leaders take advantage of existing and emerging technology opportunities and proactively manage business challenges.

Our network of professionals have extensive experience working with global technology companies ranging from Fortune 500 companies to pre-IPO startups. We aim to go beyond today's challenges to anticipate the potential long- and short-term consequences of shifting business, technology and financial strategies.

KPMG: TECHNOLOGY INNOVATION CENTER

KPMG recognizes the importance of innovation. In 2012 we launched a global Technology Innovation Center to identify and evaluate the impact of future disruptive technologies. The center connects leading technology thinkers including entrepreneurs, Fortune 500 technology executives, venture capitalists and KPMG member firm professionals. This publication is sponsored by the Technology Innovation Center.

Join us today. Visit kpmg.com/techinnovation

Interviewees

We thank the following tech sector leaders for their valuable insights:

Steve Goldberg, Partner, Venrock

Alexander Ljung, Co-founder and CEO, SoundCloud

David McQueeny, VP of Software, IBM Research

Adrian Turner, CEO, Mocana

Li Yingtao, President of 2012 Laboratories, Huawei Technologies

Jack Xu, Co-founder and CEO, PaPa Mobile

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