

INTERNATIONAL TECHNOLOGY ADOPTION & WORKFORCE ISSUES

RESEARCH



MAY 2013

CompTIA®

Advancing the Global IT Industry

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About this Research

CompTIA's *International Technology Adoption and Workforce Issues* study was conducted to collect and share information on technology adoption and workforce trends across several countries. The objectives of this research include:

- Explore business and information technology (IT) priorities among organizations
- Examine the usage of key technologies/solutions and IT services such as security and cloud computing
- Identify which IT skills are most important to employers and if there are any skills gap issues or staffing concerns
- Evaluate professional development practices such as training and certification

The study consists of five sections:

Section 1: Key Findings Summary

Section 2: State of Tech Utilization and Business Priorities

Section 3: Technology Focus: I. Cloud Computing; II. Cybersecurity

Section 4: The IT Workforce Landscape

Section 5: IT Training and Certification

The data for this study was collected via a quantitative online survey conducted February 22 to March 23, 2013 among 1,256 IT and business executives directly involved in setting or executing information technology policies and processes within their organizations. See the Appendix for Respondent Profile details such as industry, company size, and job role. The 10 countries covered in this study include: Brazil (n=125); Canada (n=125); France (n=125); Germany (n=131); India (n=125); Japan (n=125); Mexico (n=125); Middle East (Oman, Saudi Arabia, United Arab Emirates) (n=125); Thailand (n=125); United Kingdom (n=125).

Surveys were localized and translated to allow respondents to participate in their native language. Additionally, precautions were taken to minimize misinterpretations of questions. However, research has shown, cultural differences exist and can affect responses to certain question types, such as 5-point satisfaction rating questions. Viewers of this report should keep that in mind when comparing results across countries.

The margin of sampling error at 95% confidence for aggregate results is +/- 2.8 percentage points. Sampling error is larger for subgroups of the data. As with any survey, sampling error is only one source of possible error. While non-sampling error cannot be accurately calculated, precautionary steps were taken in all phases of the survey design, collection and processing of the data to minimize its influence. Note: because data collection occurred via an online survey, in countries where Internet penetration is lower among businesses, the non-sampling error could be higher.

CompTIA is responsible for all content contained in this series. Any questions regarding the study should be directed to CompTIA Market Research staff at research@comptia.org.

CompTIA is a member of the Marketing Research Association (MRA) and adheres to the MRA's Code of Market Research Ethics and Standards.



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Section 1 – Key Findings Summary

Key Themes from the Research



The importance of information technology (IT) to business success continues to trend upwards. Strategic priorities increasingly include an IT component.



Most businesses seek to improve their utilization of IT; few are exactly where they want to be in terms of effectiveness or efficiency.



Emerging technologies, such as cloud computing, continue to see adoption gains. Although as businesses rely more heavily on the “Internet of Things,” security, data loss and privacy concerns will affect more companies on more levels than ever before.



The global economy remains fragile, but the IT sector should out-perform. Businesses in several countries project solid increases in IT spending, while 4 in 10 businesses expect to hire new IT staff over the next 12 months.



For a number of reasons, IT skills gaps remain a challenge for most businesses. Few are exactly where they want to be with staff expertise and experience. Furthermore, more than half of businesses report being concerned about the quality and quantity of IT talent available for hire.



The majority of businesses expect IT certifications to increase in importance over the next two years. Similar percentages of executives believe it is important to test after training to confirm knowledge gains and teams of IT staff holding certifications benefit from a common foundation of knowledge.

Strategic Priorities Include Strong Tech Component

Top Strategic Priorities Among Businesses Globally for 2013

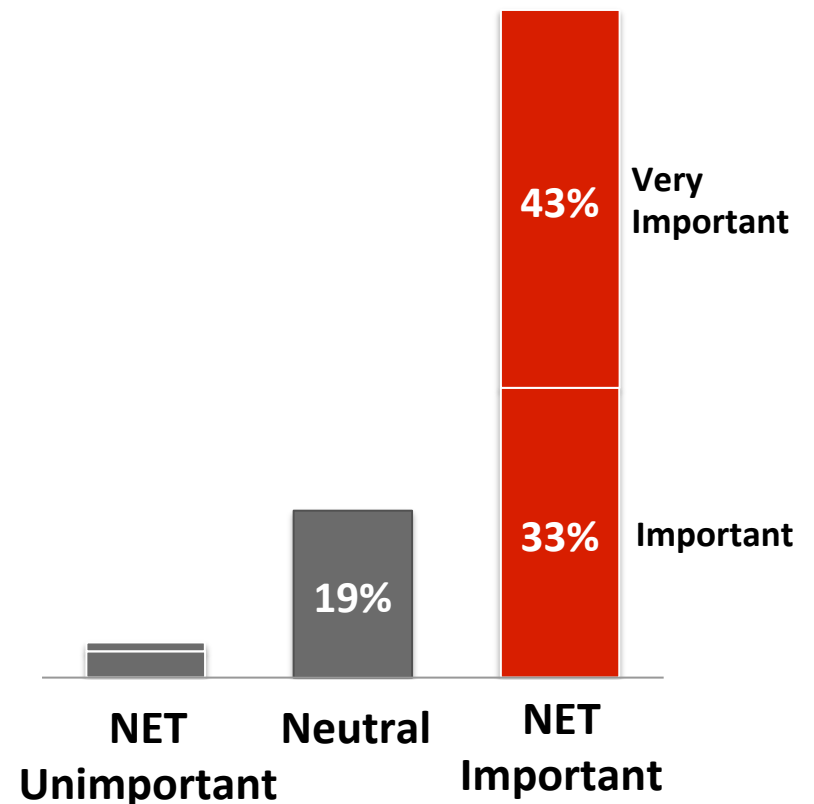
1. Reach new customers
2. Improve staff productivity / capabilities
3. Reduce costs / overhead
4. Innovate more effectively
5. Further leverage technology to improve business operations

57% of respondents say business conditions are improving and expect 2013 to be better than 2012.

78% expect to increase their expenditure on IT products and services over the next 12 months.

CompTIA

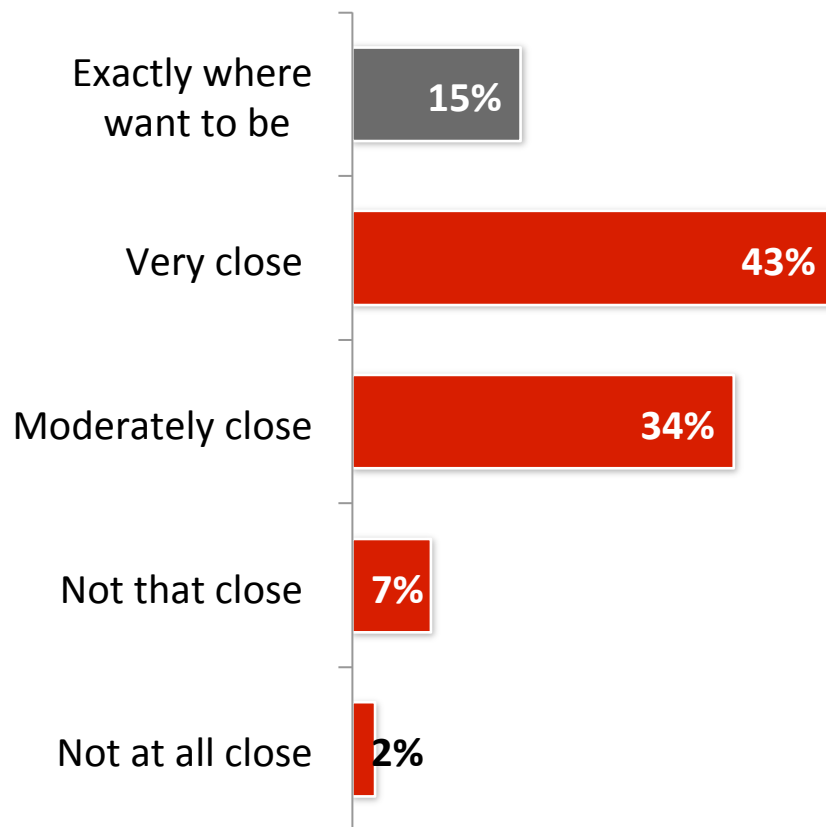
Importance of Technology to Business Success Trending Upwards



Base: 1,248 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Many Businesses Seek to Improve Their Use of IT

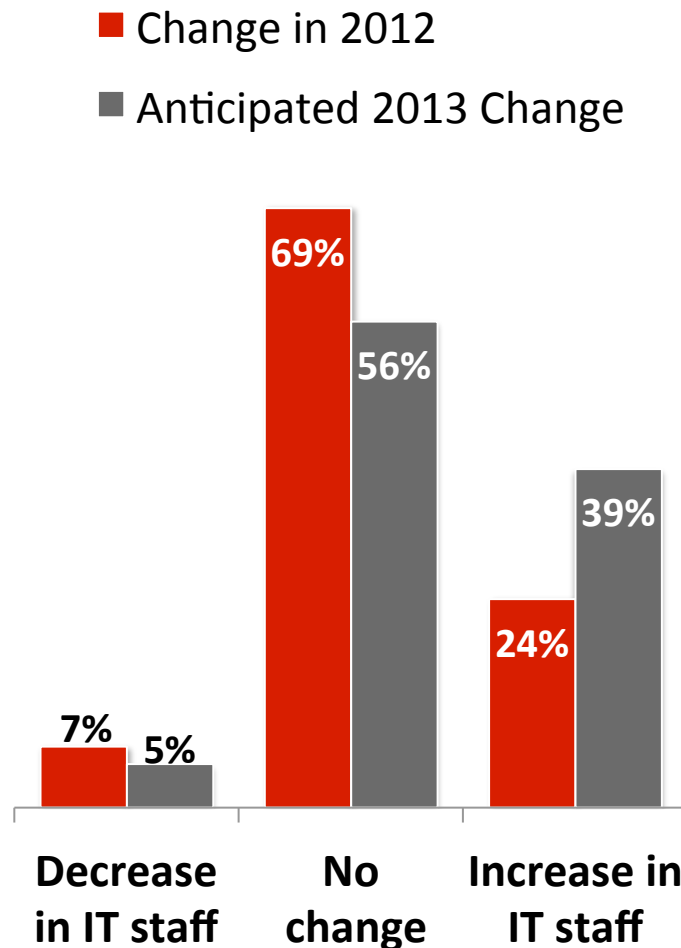
Degree to Which Businesses are “Where They Want to Be” in Using Technology



Top Technology Priorities Over Next 12 Months

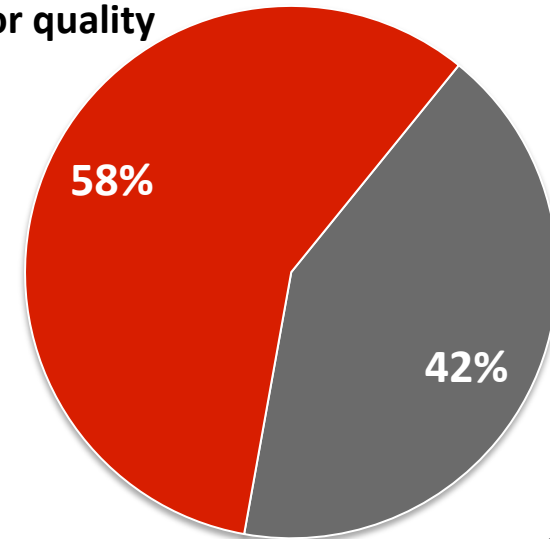
1. Security/Cybersecurity
2. Data storage/back-up
3. Network infrastructure
4. Web/Online presence, including e-commerce
5. Updating aging computers/software
6. Mobility-related initiatives
7. Automating business processes through technology
8. Data analytics/Big data/Business intelligence

4 in 10 Businesses Plan to Hire IT Staff in 2013; Many Expect Challenges in Finding Workers



Concern Over Ability to Hire IT Staff

NET concerned*
about IT labor
quantity or quality



NET not that
concerned about
IT labor quantity
or quality

Many Businesses Throughout the World Seek Improvement on the IT Skills Front

16% of businesses report being exactly where they want to be with IT skills, while 40% report being very close.

Consequently, nearly half of businesses (44%) seek significant improvement on the IT skills front.

Top Areas Affected by IT Skills Gaps

1. Staff productivity
2. Customer service / customer engagement
3. Security / defending against malware, hacking, etc.
4. Innovation / new product development
5. Speed to market with new products or services

Top Rated IT Skills in Terms of Importance to Businesses

1. Networks / Infrastructure
2. Database / Information management
3. Server / data center management
4. Storage / data back-up
5. Help Desk / IT support
6. Data analytics / Business intelligence
7. Printers, copiers, multifunction devices
8. Security / Cybersecurity
9. Customer relationship management (CRM)
10. Web design / development

Top Rated “Soft” IT Skills

1. Teamwork
2. Customer service
3. Project management

Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Majority of Businesses Throughout the World Expect IT Certifications to Increase In Importance

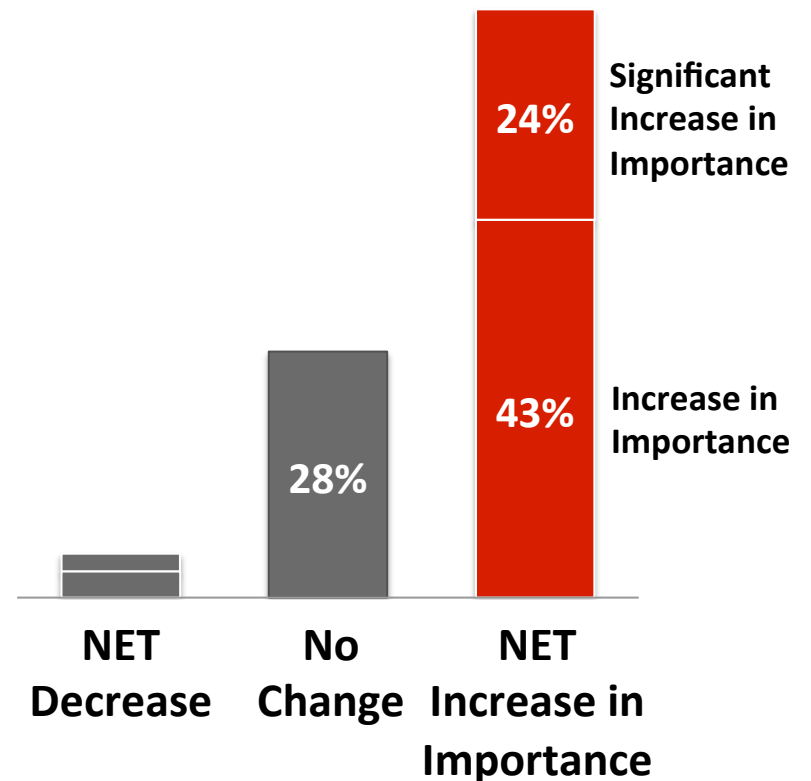
NET Agreement* to Statements

- 73%** “It’s important to test after training to confirm knowledge gains”
- 64%** “Teams of staff with IT certifications benefit from having a common foundation of knowledge”
- 62%** “Staff with IT certifications have proven expertise”
- 58%** “Staff holding IT certifications are more valuable to the organization”
- 54%** “The organization is more secure from malware and hackers due to staff with IT certifications”

*Strongly Agree + Agree



Expectations for Change in Importance of IT Certifications Over Next Two Years



Base: 1,246 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Key Points: Brazil

Key Stats for Brazil	
\$12,000	GDP per capita (PPP) world rank: 103 rd
3.02%	GDP growth forecast for 2013
85%	% of Brazilian executives expecting 2013 business conditions to be better than 2012
107.1m	Total workforce
71%	% of workforce employed in the services sector
0.759m	Estimate of IT workforce* in core IT occupations
49%	% of Brazilian executives expecting to increase IT staff headcount at their business
75.98m	Internet users world rank: 4 th
244.36m	Mobile phone users world rank: 5 th
84%	NET % of Brazilian executives indicating IT is important to the success of their business
7.2%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Brazilian Businesses:

1. Improve staff productivity / capabilities
2. Reach new customers
3. Reduce costs / overhead

*See appendix for definition of core IT occupations



Key IT Priorities for Brazilian Businesses:

1. IT security
2. Data storage/back-up
3. Network infrastructure
4. Updating aging computers/software
5. Automating business processes through technology

Cybersecurity:

88% of Brazilian executives believe the cybersecurity threat is in increasing. Additionally, 65% of Brazilian executives believe human error is a growing factor in security security incidents: Top human error related factors include:

1. Failure of end-users to follow security procedures and policies
2. General negligence / carelessness towards security

IT Skills Gaps:

86% of Brazilian executives indicate at least some degree of gaps in IT skills at their business exists. For 44%, the reported skills gaps are small, while for 42% the gaps are more extensive. Top negative effects of IT skills gaps at Brazilian businesses:

1. Lower staff productivity
2. Less than ideal customer service and/or engagement

IT Training and Certification:

93% of IT staff at Brazilian businesses engaged in some type of IT training during the past 12 months.

1. 87% of Brazilian executives believe IT certifications will increase in importance over the next two years
2. 76% of Brazilian executives agree (NET) that staff holding IT certifications are more valuable to the organization

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Key Points: Canada

Key Stats for Canada	
\$41,500	GDP per capita (PPP) world rank: 24 th
1.46%	GDP growth forecast for 2013
58%	% of Canadian executives expecting 2013 business conditions to be better than 2012
18.8m	Total workforce
76%	% of workforce employed in the services sector
0.426m	Estimate of IT workforce* in core IT positions
35%	% of Canadian executives expecting to increase IT staff headcount at their business
26.96m	Internet users world rank: 16 th
27.38m	Mobile phone users world rank: 37 th
80%	NET % of Canadian executives indicating IT is important to the success of their business
4.6%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Canadian Businesses:

1. Reduce costs / overhead
2. Reach new customers
3. Improve staff productivity / capabilities

*See appendix for definition of core IT occupations



Key IT Priorities for Canadian Businesses:

1. IT security
2. Web/Online presence / e-commerce
3. Updating aging computers/software
4. Data storage/back-up
5. Mobility (e.g. devices, apps)

Cybersecurity:

59% of Canadian executives believe the cybersecurity threat is increasing. Additionally, 38% of Canadian executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. Failure of end-users to follow security procedures and policies
2. Increased use of social media by staff

IT Skills Gaps:

90% of Canadian executives indicate at least some degree of gaps in IT skills at their business exists. For 39%, the reported skills gaps are small, while for 50% the gaps are more extensive. Top negative effects of IT skills gaps at Canadian businesses:

1. Lower staff productivity
2. Less than ideal customer service and/or engagement

IT Training and Certification:

90% of IT staff at Canadian businesses engaged in some type of IT training during the past 12 months.

1. 61% of Canadian executives believe IT certifications will increase in importance over the next two years
2. 62% of Canadian executives agree (NET) that staff holding IT certifications have proven expertise

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Key Points: France

Key Stats for France	
\$35,500	GDP per capita (PPP) world rank: 37 th
-0.07%	GDP growth forecast for 2013
26%	% of French executives expecting 2013 business conditions to be better than 2012
29.6m	Total workforce
72%	% of workforce employed in the services sector
0.591m	Estimate of IT workforce* in core IT positions
27%	% of French executives expecting to increase IT staff headcount at their business
45.26m	Internet users world rank: 8 th
59.84m	Mobile phone users world rank: 21 st
63%	NET % of French executives indicating IT is important to the success of their business
2.3%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for French Businesses:

1. Reduce costs / overhead
2. Reach new customers
3. Improve staff productivity / capabilities

*See appendix for definition of core IT occupations



Key IT Priorities for French Businesses:

1. IT security
2. Data storage/back-up
3. Updating aging computers/software
4. Network infrastructure
5. Web/Online presence / e-commerce

Cybersecurity:

38% of French executives believe the cybersecurity threat is increasing. Additionally, 29% of French executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. Increased use of social media by staff
2. Inadequate resources – not enough IT staff time to manage threats

IT Skills Gaps:

78% of French executives indicate at least some degree of gaps in IT skills at their business exists. For 50%, the reported skills gaps are small, while for 28% the gaps are more extensive. Top negative effects of IT skills gaps at French businesses:

1. Lower staff productivity
2. Security / defending against malware, hacking, etc.

IT Training and Certification:

81% of IT staff at French businesses engaged in some type of IT training during the past 12 months.

1. 43% of French executives believe IT certifications will increase in importance over the next two years
2. 66% of French executives agree (NET) that it's important to test after training to confirm knowledge gains

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Key Points: Germany

Key Stats for Germany	
\$39,100	GDP per capita (PPP) world rank: 26 th
0.61%	GDP growth forecast for 2013
40%	% of German executives expecting 2013 business conditions to be better than 2012
44.0m	Total workforce
74%	% of workforce employed in the services sector
0.708m	Estimate of IT workforce* in core IT positions
29%	% of German executives expecting to increase IT staff headcount at their business
65.13m	Internet users world rank: 5 th
108.7m	Mobile phone users world rank: 10 th
78%	NET % of German executives indicating IT is important to the success of their business
4.3%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for German Businesses:

1. Reach new customers
2. Improve staff productivity / capabilities
3. Reduce costs / overhead

*See appendix for definition of core IT occupations



Key IT Priorities for German Businesses:

1. IT security
2. Data storage/back-up
3. Network infrastructure
4. Updating aging computers/software
5. Disaster recovery/Business continuity

Cybersecurity:

70% of German executives believe the cybersecurity threat is increasing. Additionally, 47% of German executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. General negligence / carelessness towards security
2. Increased use of social media by staff

IT Skills Gaps:

86% of German executives indicate at least some degree of gaps in IT skills at their business exists. For 41%, the reported skills gaps are small, while for 45% the gaps are more extensive. Top negative effects of IT skills gaps at German businesses:

1. Lower staff productivity
2. Less than ideal customer service and/or engagement

IT Training and Certification:

84% of IT staff at German businesses engaged in some type of IT training during the past 12 months.

1. 59% of German executives believe IT certifications will increase in importance over the next two years
2. 85% of German executives agree (NET) that it's important to test after training to confirm knowledge gains

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Key Points: India

Key Stats for India	
\$3,900	GDP per capita (PPP) world rank: 164 th
5.68%	GDP growth forecast for 2013
81%	% of Indian executives expecting 2013 business conditions to be better than 2012
498.4m	Total workforce
28%	% of workforce employed in the services sector
2.8m	Estimate of IT workforce* in core IT positions
61%	% of Indian executives expecting to increase IT staff headcount at their business
61.34m	Internet users world rank: 6 th
893.86m	Mobile phone users world rank: 2 nd
64%	NET % of Indian executives indicating IT is important to the success of their business
7.6%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Indian Businesses:

1. Reach new customers
2. Improve staff productivity / capabilities
3. Innovate more effectively

*See appendix for definition of core IT occupations



Key IT Priorities for Indian Businesses:

1. IT security
2. Data storage/back-up
3. Data analytics/Big data/Business intelligence
4. Network infrastructure
5. Web/Online presence / e-commerce

Cybersecurity:

88% of Indian executives believe the cybersecurity threat is increasing. Additionally, 67% of Indian executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. Lack of security expertise with websites and applications
2. Failure of IT staff to follow security procedures and policies

IT Skills Gaps:

71% of Indian executives indicate at least some degree of gaps in IT skills at their business exists. For 34%, the reported skills gaps are small, while for 38% the gaps are more extensive. Top negative effects of IT skills gaps at Indian businesses:

1. Lower staff productivity
2. Innovation / new product development

IT Training and Certification:

97% of IT staff at Indian businesses engaged in some type of IT training during the past 12 months.

1. 81% of Indian executives believe IT certifications will increase in importance over the next two years
2. 61% of Indian executives agree (NET) that staff holding IT certifications are more valuable to the organization

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Key Points: Japan

Key Stats for Japan	
\$36,200	GDP per capita (PPP) world rank: 36 th
1.58%	GDP growth forecast for 2013
34%	% of Japanese executives expecting 2013 business conditions to be better than 2012
65.27m	Total workforce
70%	% of workforce employed in the services sector
1.43m	Estimate of IT workforce* in core IT positions
15%	% of Japanese executives expecting to increase IT staff headcount at their business
99.18m	Internet users world rank: 3 rd
132.76m	Mobile phone users world rank: 7 th
46%	NET % of Japanese executives indicating IT is important to the success of their business
1.8%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Japanese Businesses:

1. Reduce costs / overhead
2. Improve staff productivity / capabilities
3. Reach new customers

*See appendix for definition of core IT occupations



Key IT Priorities for Japanese Businesses:

1. IT security
2. Data storage/back-up
3. Mobility (e.g. devices, apps)
4. Network infrastructure
5. Data analytics/Big data/Business intelligence

Cybersecurity:

56% of Japanese executives believe the cybersecurity threat is increasing. Additionally, 34% of Japanese executives believe human error is a growing factor in security security incidents: Top human error related factors include:

1. Intentional disabling of security to allow non-approved apps, etc.
2. Lack of security expertise with websites and applications

IT Skills Gaps:

95% of Japanese executives indicate at least some degree of gaps in IT skills at their business exists. For 18%, the reported skills gaps are small, while for 77% the gaps are more extensive. Top negative effects of IT skills gaps at Japanese businesses:

1. Security / defending against malware, hacking, etc.
2. Lower staff productivity

IT Training and Certification:

72% of IT staff at Japanese businesses engaged in some type of IT training during the past 12 months.

1. 58% of Japanese executives believe IT certifications will increase in importance over the next two years
2. 45% of Japanese executives agree (NET) that staff holding IT certifications are more valuable to the organization

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Key Points: Mexico

Key Stats for Mexico	
\$15,300	GDP per capita (PPP) world rank: 83 rd
3.39%	GDP growth forecast for 2013
72%	% of Mexican executives expecting 2013 business conditions to be better than 2012
50 .01m	Total workforce
63%	% of workforce employed in the services sector
0.536m	Estimate of IT workforce* in core IT positions
45%	% of Mexican executives expecting to increase IT staff headcount at their business
31.02m	Internet users world rank: 12 th
94.57m	Mobile phone users world rank: 13 th
89%	NET % of Mexican executives indicating IT is important to the success of their business
7.3%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Mexican Businesses:

1. Leverage technology to improve business operations
2. Reach new customers
3. Improve staff productivity / capabilities

*See appendix for definition of core IT occupations



Key IT Priorities for Mexican Businesses:

1. IT security
2. Network infrastructure
3. Data storage/back-up
4. Web/Online presence / e-commerce
5. Data analytics/Big data/Business intelligence

Cybersecurity:

80% of Mexican executives believe the cybersecurity threat is increasing. Additionally, 52% of Mexican executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. Failure of end-users & IT staff to follow security procedures/policies
2. General negligence / carelessness towards security

IT Skills Gaps:

92% of Mexican executives indicate at least some degree of gaps in IT skills at their business exists. For 49%, the reported skills gaps are small, while for 43% the gaps are more extensive. Top negative effects of IT skills gaps at Mexican businesses:

1. Lower staff productivity
2. Speed to market with new products or services

IT Training and Certification:

95% of IT staff at Mexican businesses engaged in some type of IT training during the past 12 months.

1. 83% of Mexican executives believe IT certifications will increase in importance over the next two years
2. 69% of Mexican executives agree (NET) that staff holding IT certifications are more valuable to the organization

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Key Points: Middle East Region

Key Stats for Mideast (Oman, Saudi Arabia, & the UAE)

\$31,662	GDP per capita (PPP) estimate
4.1%	GDP growth forecast estimate for 2013
69%	% of Mideastern executives expecting 2013 business conditions to be better than 2012
13.32m	Total workforce
36%	% of workforce employed in the services sector
111.4k	Estimate of IT workforce* in core IT positions
62%	% of Mideastern executives expecting to increase IT staff headcount at their business
14.69m	Internet users
70.63m	Mobile phone users
95%	NET % of Mideastern executives indicating IT is important to the success of their business
6.2%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Mideastern Businesses:

1. Reach new customers
2. Improve staff productivity / capabilities
3. Innovate more effectively

*See appendix for definition of core IT occupations



Key IT Priorities for Mideastern Businesses:

1. IT security
2. Updating aging computers/software
3. Automating business processes through technology
4. Data analytics/Big data/Business intelligence
5. Network infrastructure

Cybersecurity:

85% of Mideastern executives believe the cybersecurity threat is increasing. Additionally, 54% of Mideastern executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. Lack of security expertise with websites and applications
2. Inadequate resources – not enough IT staff time to manage threats

IT Skills Gaps:

85% of Mideastern executives indicate at least some degree of gaps in IT skills at their business exists. For 52%, the reported skills gaps are small, while for 33% the gaps are more extensive. Top negative effects of IT skills gaps at Mideastern businesses:

1. Lower staff productivity
2. Less than ideal customer service and/or engagement

IT Training and Certification:

94% of IT staff at Mideastern businesses engaged in some type of IT training during the past 12 months.

1. 81% of Mideastern executives believe IT certifications will increase in importance over the next two years
2. 82% of Mideastern executives agree (NET) that staff holding IT certifications are more valuable to the organization

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Key Points: Thailand

Key Stats for Thailand	
\$10,000	GDP per capita (PPP) world rank: 113 th
5.88%	GDP growth forecast for 2013
67%	% of Thai executives expecting 2013 business conditions to be better than 2012
39.77m	Total workforce
52%	% of workforce employed in the services sector
0.387m	Estimate of IT workforce* in core IT positions
48%	% of Thai executives expecting to increase IT staff headcount at their business
17.483m	Internet users world rank: 23 rd
77.61m	Mobile phone users world rank: 18 th
78%	NET % of Thai executives indicating IT is important to the success of their business
6.2%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for Thai Businesses:

1. Reduce costs / overhead
2. Reach new customers
3. Improve staff productivity / capabilities

*See appendix for definition of core IT occupations



Key IT Priorities for Thai Businesses:

1. Data storage/back-up
2. Disaster recovery/Business continuity
3. IT security
4. Network infrastructure
5. Updating aging computers/software

Cybersecurity:

76% of Thai executives believe the cybersecurity threat is increasing. Additionally, 77% of Thai executives believe human error is a growing factor in security security incidents: Top human error related factors include:

1. Increased use of social media by staff
2. Lack of security expertise with networks/servers/other infrastructure

IT Skills Gaps:

68% of Thai executives indicate at least some degree of gaps in IT skills at their business exists. For 40%, the reported skills gaps are small, while for 28% the gaps are more extensive. Top negative effects of IT skills gaps at Thai businesses:

1. Innovation / new product development
2. Security / defending against malware, hacking, etc.

IT Training and Certification:

97% of IT staff at Thai businesses engaged in some type of IT training during the past 12 months.

1. 84% of Thai executives believe IT certifications will increase in importance over the next two years
2. 66% of Thai executives agree (NET) that staff holding IT certifications have proven expertise

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Key Points: UK

Key Stats for the United Kingdom	
\$36,700	GDP per capita (PPP) world rank: 33 rd
0.69%	GDP growth forecast for 2013
37%	% of British executives expecting 2013 business conditions to be better than 2012
31.9m	Total workforce
78%	% of workforce employed in the services sector
0.731m	Estimate of IT workforce* in core IT positions
24%	% of British executives expecting to increase IT staff headcount at their business
51.44m	Internet users world rank: 7 th
81.61m	Mobile phone users world rank: 17 th
77%	NET % of British executives indicating IT is important to the success of their business
2.8%	Planned increase in IT spending in 2013 (YOY)

Sources used for above stats: CompTIA, IMF, CIA World Factbook, IDC

Key Strategic Priorities for British Businesses:

1. Reach new customers
2. Reduce costs / overhead
3. Improve staff productivity / capabilities

*See appendix for definition of core IT occupations



Key IT Priorities for British Businesses:

1. IT security
2. Data storage/back-up
3. Web/Online presence / e-commerce
4. Network infrastructure
5. Mobility (e.g. devices, apps). Collaboration (e.g. video conferencing).

Cybersecurity:

62% of British executives believe the cybersecurity threat is increasing. Additionally, 44% of British executives believe human error is a growing factor in security incidents: Top human error related factors include:

1. General negligence / carelessness towards security
2. Failure of staff to get up to speed with new threats (e.g. mobility)

IT Skills Gaps:

85% of British executives indicate at least some degree of gaps in IT skills at their business exists. For 37%, the reported skills gaps are small, while for 48% the gaps are more extensive. Top negative effects of IT skills gaps at British businesses:

1. Lower staff productivity
2. Less than ideal customer service and/or engagement. Innovation.

IT Training and Certification:

86% of IT staff at British businesses engaged in some type of IT training during the past 12 months.

1. 42% of British executives believe IT certifications will increase in importance over the next two years
2. 58% of British executives agree (NET) that staff holding IT certifications have proven expertise

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Section 2 – State of Tech Utilization & Business Priorities

Top Business Priorities Over Next 12 Months

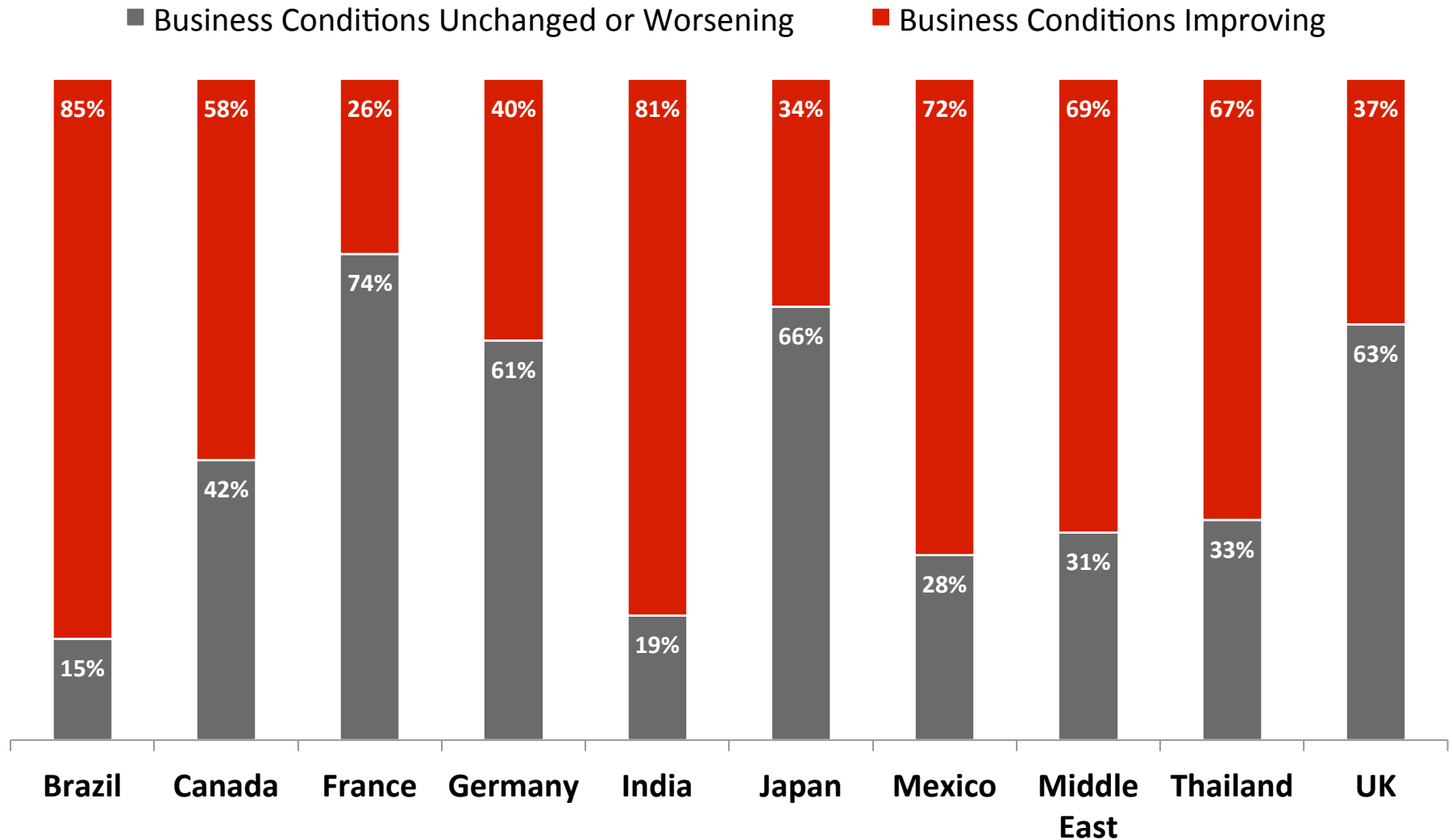
Strategies Rated a High Priority (see data set for mid & low priority ratings)	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Reaching new customers	62%	59%	62%	65%	63%	38%	65%	56%	62%	69%
Improve staff productivity / capabilities	70%	55%	58%	56%	58%	46%	63%	52%	61%	43%
Reduce costs / overhead	63%	62%	72%	53%	37%	51%	55%	42%	66%	57%
Innovate more effectively	61%	47%	56%	49%	58%	35%	57%	50%	56%	40%
Further leverage technology to improve business operations	60%	38%	49%	43%	46%	29%	66%	47%	51%	36%
Improve use of data analytics to make better / faster business decisions	55%	37%	54%	47%	55%	27%	54%	43%	57%	30%
Manage competitive threats	48%	30%	49%	40%	40%	27%	37%	45%	50%	34%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

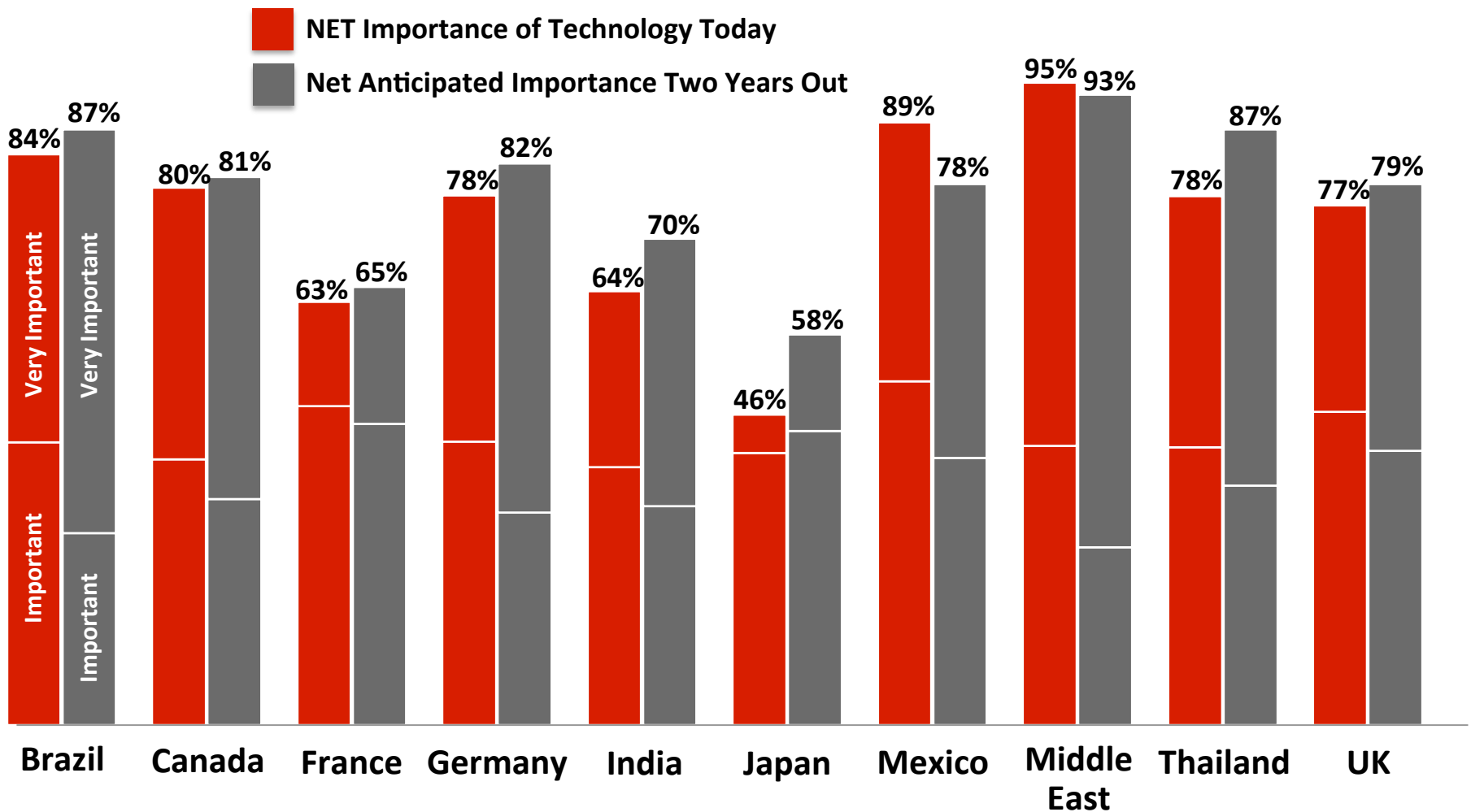


Base: 1,248 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Expectations for Improving Business Conditions

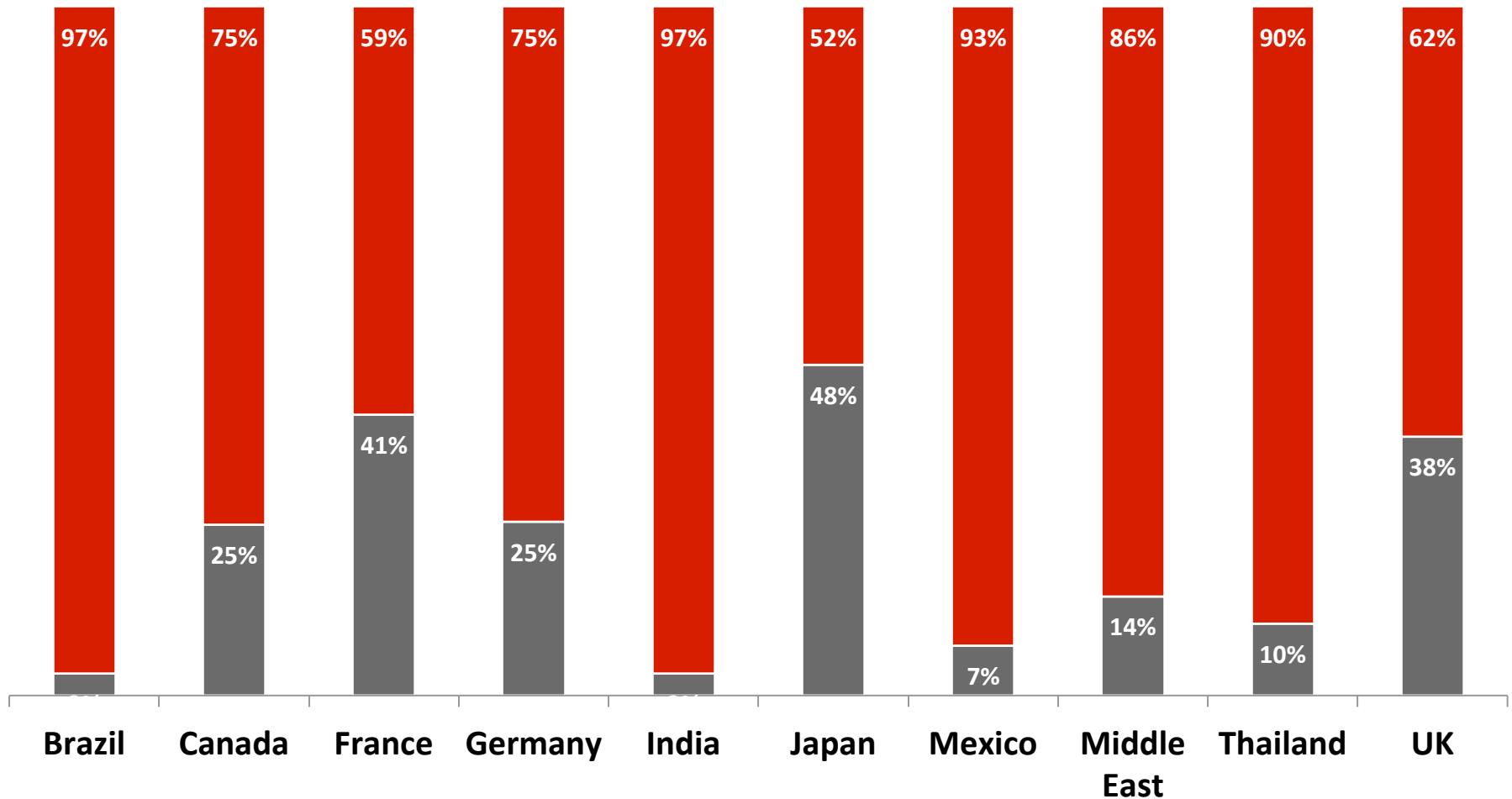


Importance of Information Technology to Business Success Trends Upwards

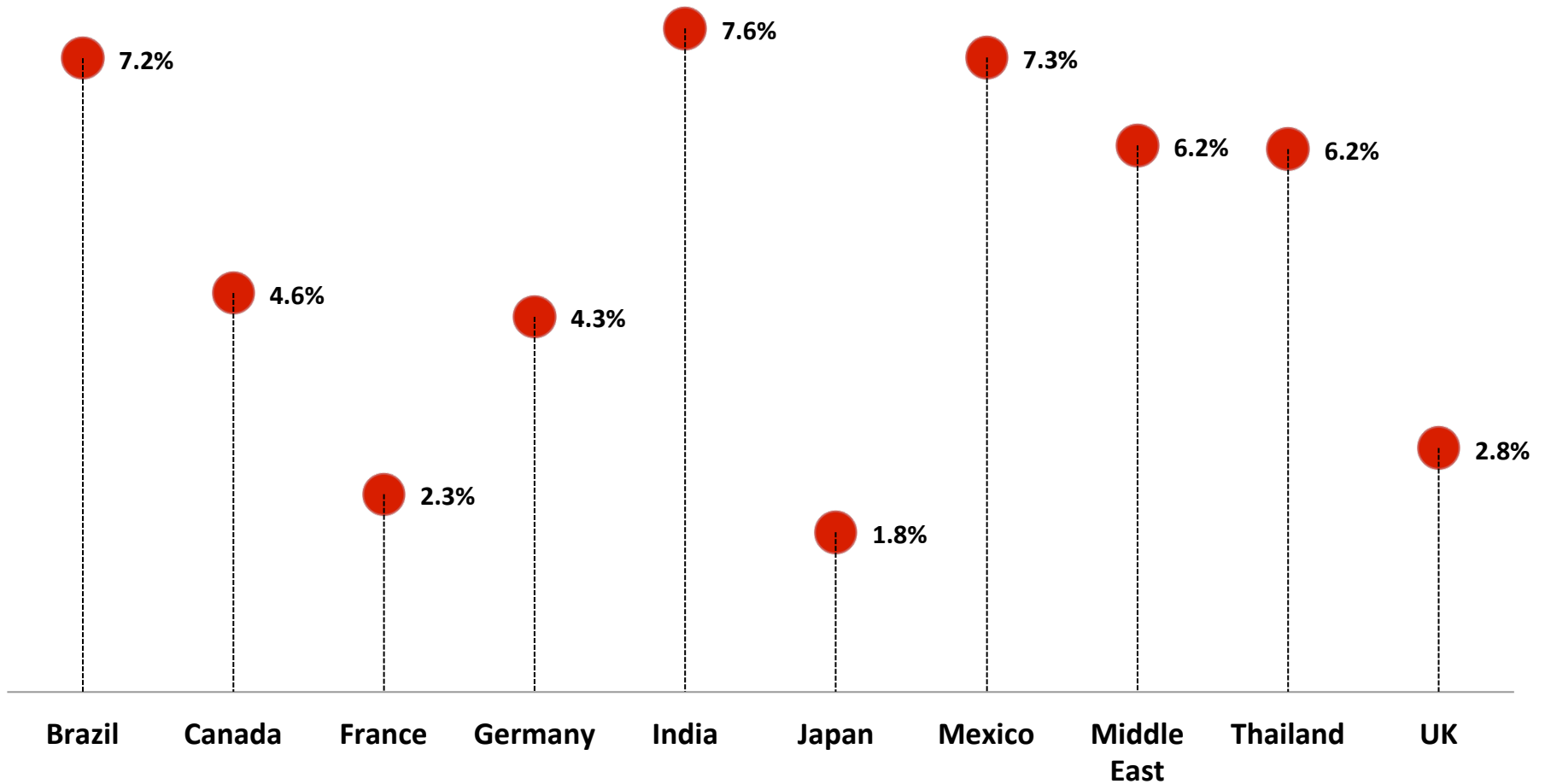


Expectations for Spending on IT in 2013

■ Flat or Decrease in IT Spending for 2013 NET ■ Increase in IT Spending for 2013 NET



Businesses in Several Countries Project Strong Increases in IT Spending Over Next 12 Months



Top Technology Priorities for Next 12 Months

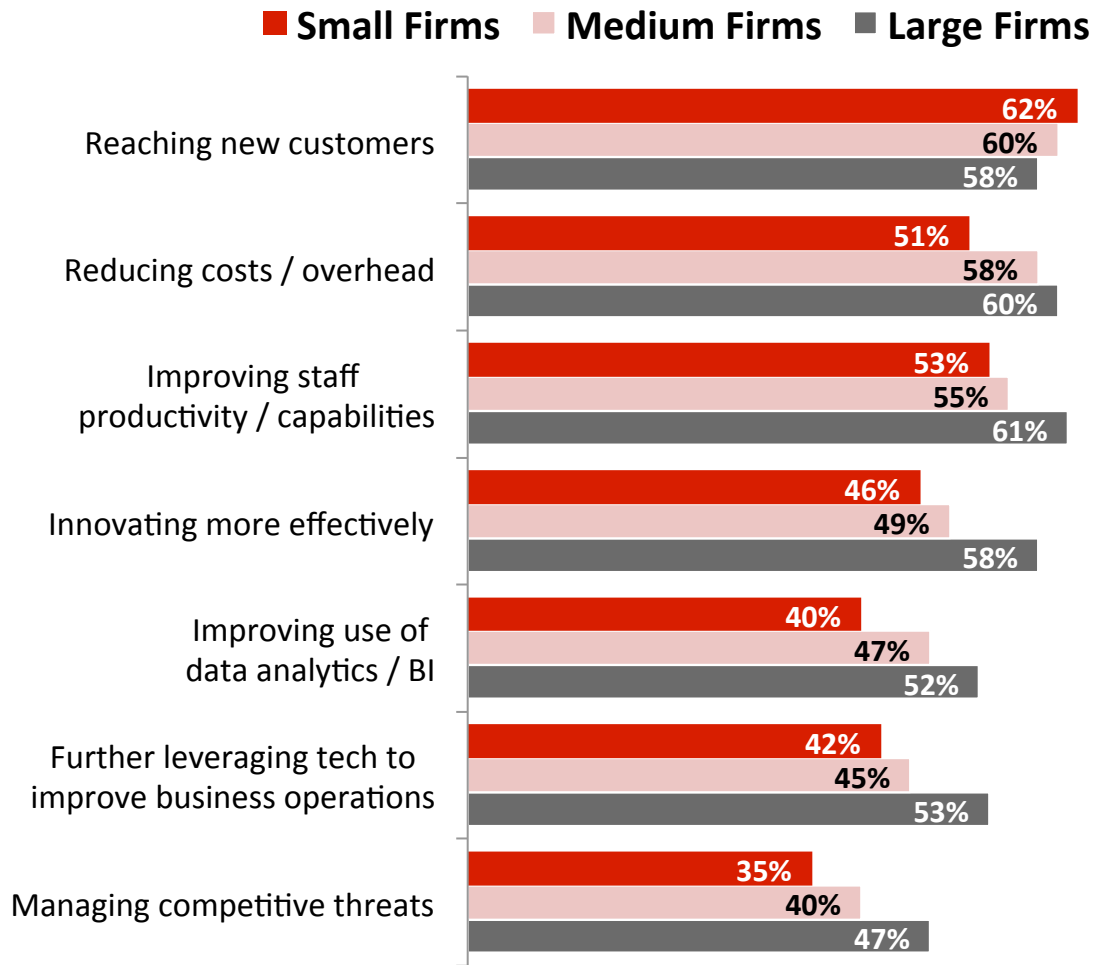
Initiatives Rated a High Priority (see data set for mid & low priority ratings)	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East	Thailand	UK
IT security	66%	56%	67%	75%	62%	40%	67%	68%	69%	54%
Data storage/back-up	66%	43%	58%	59%	62%	35%	63%	53%	81%	44%
Network infrastructure	56%	39%	51%	54%	50%	30%	64%	56%	66%	38%
Web/Online presence/ e-commerce	44%	46%	51%	44%	50%	24%	61%	54%	58%	42%
Updating aging computers/software	55%	44%	55%	51%	44%	25%	47%	57%	63%	30%
Mobility (e.g. devices, apps)	47%	43%	46%	47%	43%	34%	43%	48%	58%	37%
Automating business processes through technology	53%	39%	45%	47%	44%	23%	49%	57%	56%	28%
Data analytics/Big data/Business intelligence	46%	33%	42%	45%	51%	28%	52%	57%	53%	32%
Disaster recovery/Business continuity	45%	37%	31%	50%	41%	20%	46%	52%	74%	26%
Cloud computing (e.g. SaaS, IaaS, etc.)	45%	32%	44%	45%	44%	26%	51%	41%	52%	34%
Virtualization	44%	28%	45%	42%	42%	27%	44%	52%	55%	30%
Collaboration (e.g. web/video conferencing, project management, etc.)	44%	30%	45%	40%	44%	23%	42%	41%	57%	37%
Telecommunications (e.g. VoIP, UC, etc.)	44%	34%	44%	37%	44%	20%	42%	46%	50%	30%
Social networking technologies	30%	26%	30%	31%	38%	22%	44%	43%	52%	19%
Green IT	43%	24%	31%	31%	40%	14%	45%	41%	43%	14%



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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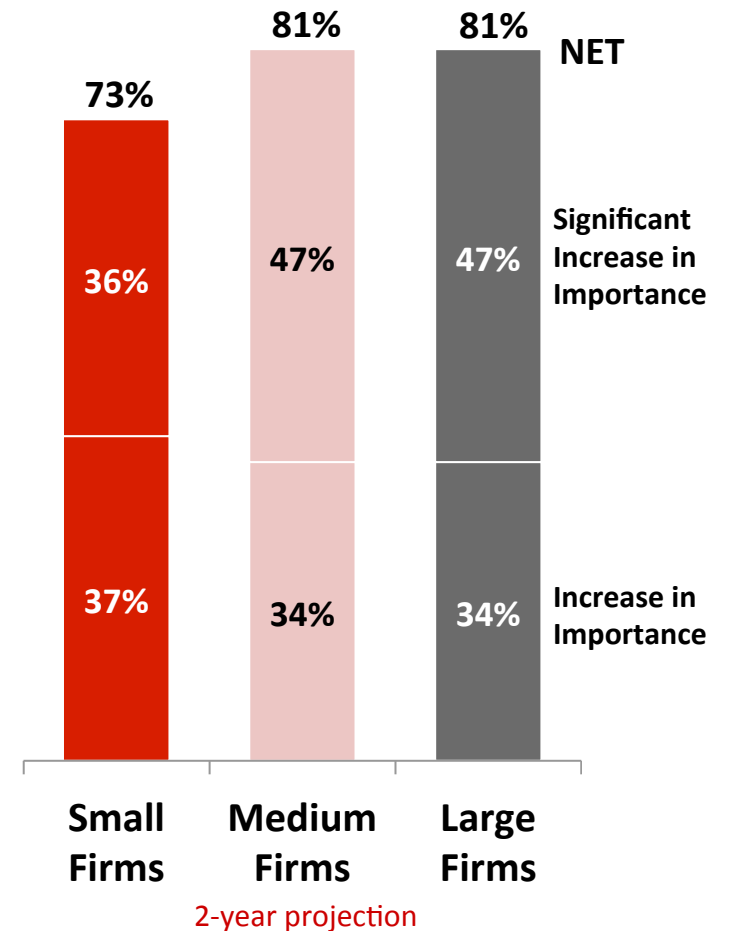
Segmentation of Tech Needs by Firm Size

Top Technology Priorities (rated as highest priorities)



Small Firms = 1-99 employees
 Medium-size Firms = 100-499 employees
 Large Firms = 500+ employees

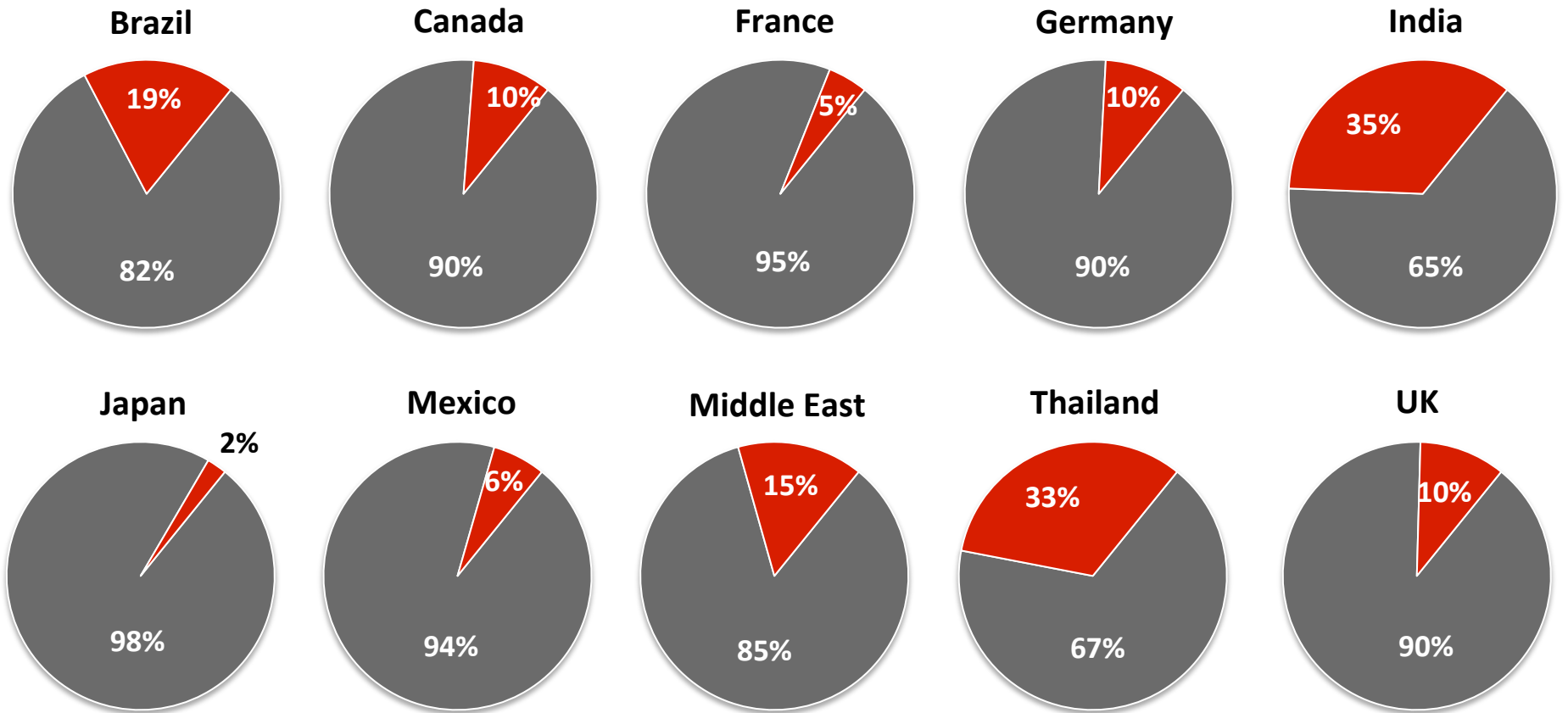
Importance of Technology to Businesses of All Sizes Trending Upwards



Self Assessment of Technology Utilization

 Exactly where want to be in utilizing technology

 NET some level of distance between current technology utilization and ideal



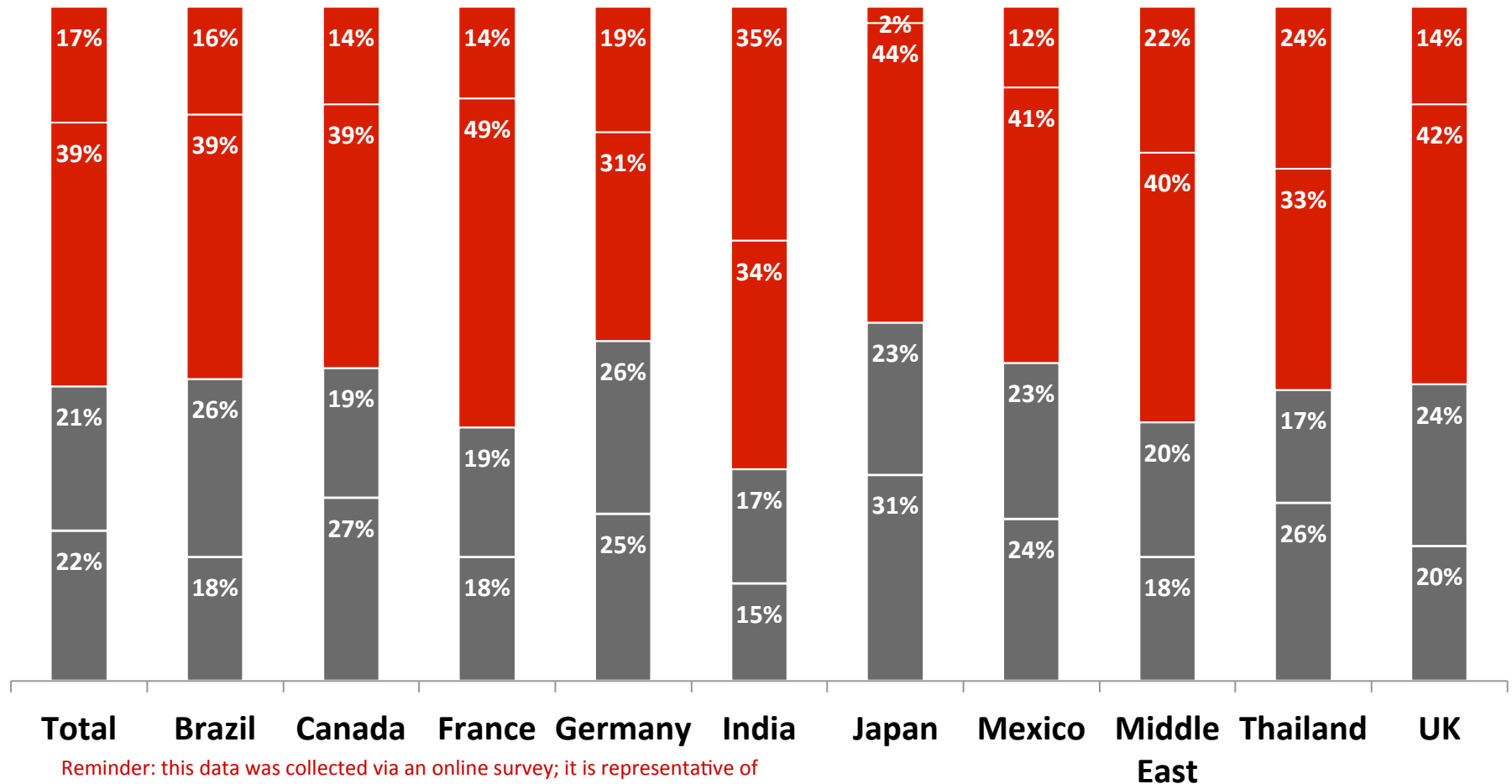
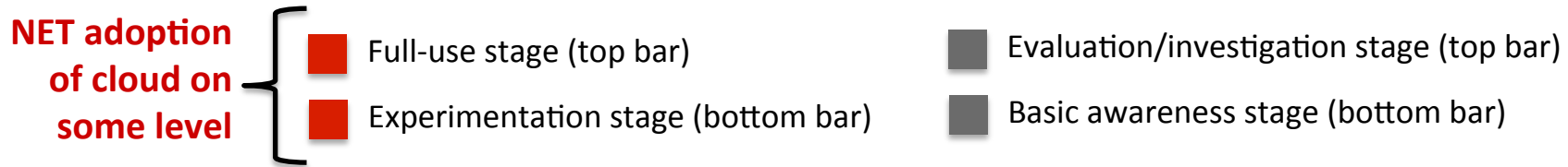
Self Assessment of Technology Utilization Cont.

Self Assessment of Technology Utilization	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Exactly where we want to be with technology	19%	10%	5%	10%	35%	2%	6%	15%	33%	10%
Close to where we want to be	40%	36%	59%	38%	30%	29%	54%	52%	47%	45%
Moderately close to where we want to be	37%	49%	28%	45%	30%	37%	36%	25%	13%	38%
Not that close to where we want to be	4%	6%	5%	6%	4%	25%	3%	6%	7%	6%
Not at all close to where we want to be with technology	1%	0%	3%	1%	1%	7%	0%	2%	0%	0%

Section 3 – Technology Focus

- I. Cloud Computing
- II. CyberSecurity

Stage of Cloud Computing Adoption



Reminder: this data was collected via an online survey; it is representative of businesses that have Internet access. In countries with low Internet penetration rates, the results could be less representative.



Base: 1,252 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Factors Businesses Say Inhibit Cloud Adoption

Cloud Adoption Hurdles	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Security or data loss concerns	48%	47%	40%	50%	46%	42%	46%	48%	49%	47%
Challenges in developing staff expertise with cloud solutions	34%	39%	26%	21%	34%	30%	35%	40%	47%	24%
Slow or unreliable Internet access	35%	17%	24%	15%	29%	18%	32%	50%	40%	27%
Insufficient or unclear return on investment (ROI)	22%	38%	31%	23%	26%	26%	27%	29%	26%	30%
Difficulty in integrating or migrating legacy applications to the cloud	33%	25%	22%	20%	30%	14%	36%	30%	31%	25%
Cloud services still unproven or untested	25%	32%	17%	25%	24%	26%	26%	33%	25%	24%
Unclear or costly government regulation or compliance related to using the cloud	22%	30%	22%	17%	29%	11%	18%	26%	34%	22%
Lack of local cloud service providers (only options are outside the country)	22%	21%	18%	7%	28%	14%	34%	38%	30%	10%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

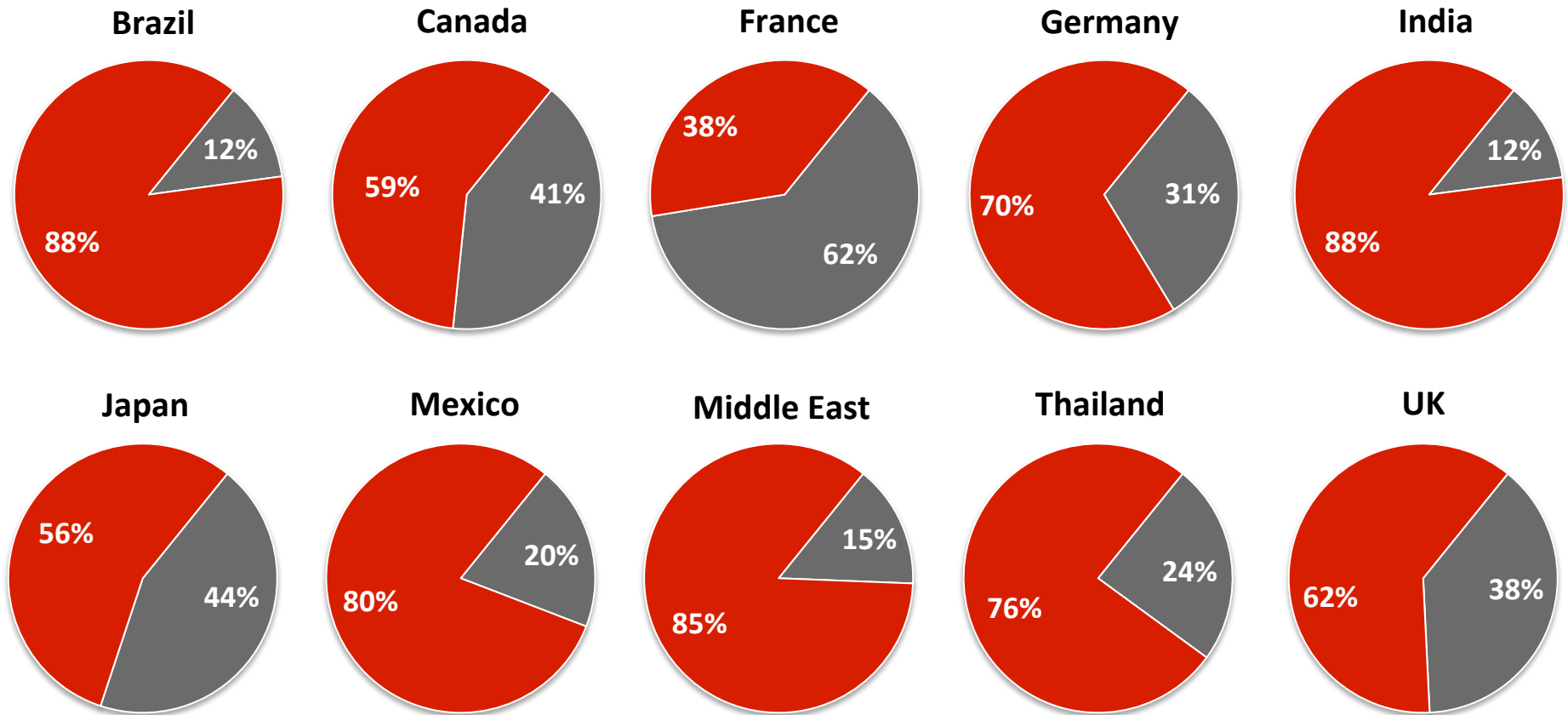


Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Cybersecurity Threat Level Continues to Increase in Many Countries

NET security threat level has INCREASED during past two years

NET security level UNCHANGED or lessened during past years



Change in Security Threat Level Cont.

Change in Security Threat Level Over Past Two Years	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Increasing significantly	38%	17%	6%	28%	44%	7%	30%	40%	39%	9%
Increasing moderately	50%	42%	32%	42%	44%	48%	50%	45%	37%	53%
No change in security threat level	10%	39%	50%	31%	11%	41%	14%	10%	22%	38%
Decreasing moderately	2%	2%	9%	0%	1%	3%	4%	3%	2%	1%
Decreasing significantly	0%	0%	2%	0%	1%	1%	2%	3%	0%	0%

Reasons Behind Cybersecurity Concerns

Contributing Factors	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Volume of security threats exceeding capacity to thwart them	27%	34%	21%	21%	31%	23%	29%	33%	46%	29%
Rise of social networking	42%	48%	33%	31%	42%	26%	42%	54%	54%	38%
Growing criminalization and organization of hackers motivated by financial gain	39%	44%	26%	42%	38%	13%	46%	41%	39%	30%
Sophistication of security threats exceeding IT staff's expertise to thwart them	36%	35%	28%	34%	29%	27%	30%	37%	45%	28%
More reliance on Internet-based applications, i.e. cloud computing, software-as-a-service	30%	38%	26%	29%	32%	23%	37%	38%	40%	28%
Continued use of legacy operating systems, web browsers, etc.	24%	21%	18%	34%	31%	36%	22%	30%	31%	17%
Greater interconnectivity of devices, systems, users	29%	50%	45%	26%	33%	14%	34%	30%	47%	38%
Challenges in finding or training employees with security expertise	25%	24%	15%	24%	33%	23%	25%	29%	36%	14%
Consumerization of IT – greater use of consumer-oriented devices or applications	24%	28%	23%	18%	26%	16%	25%	25%	43%	26%
Greater availability of easy-to-use hacking tools, allowing more individuals to engage in hacking	35%	39%	18%	35%	35%	19%	31%	14%	44%	33%
None of the above	2%	2%	8%	3%	2%	7%	4%	1%	2%	8%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

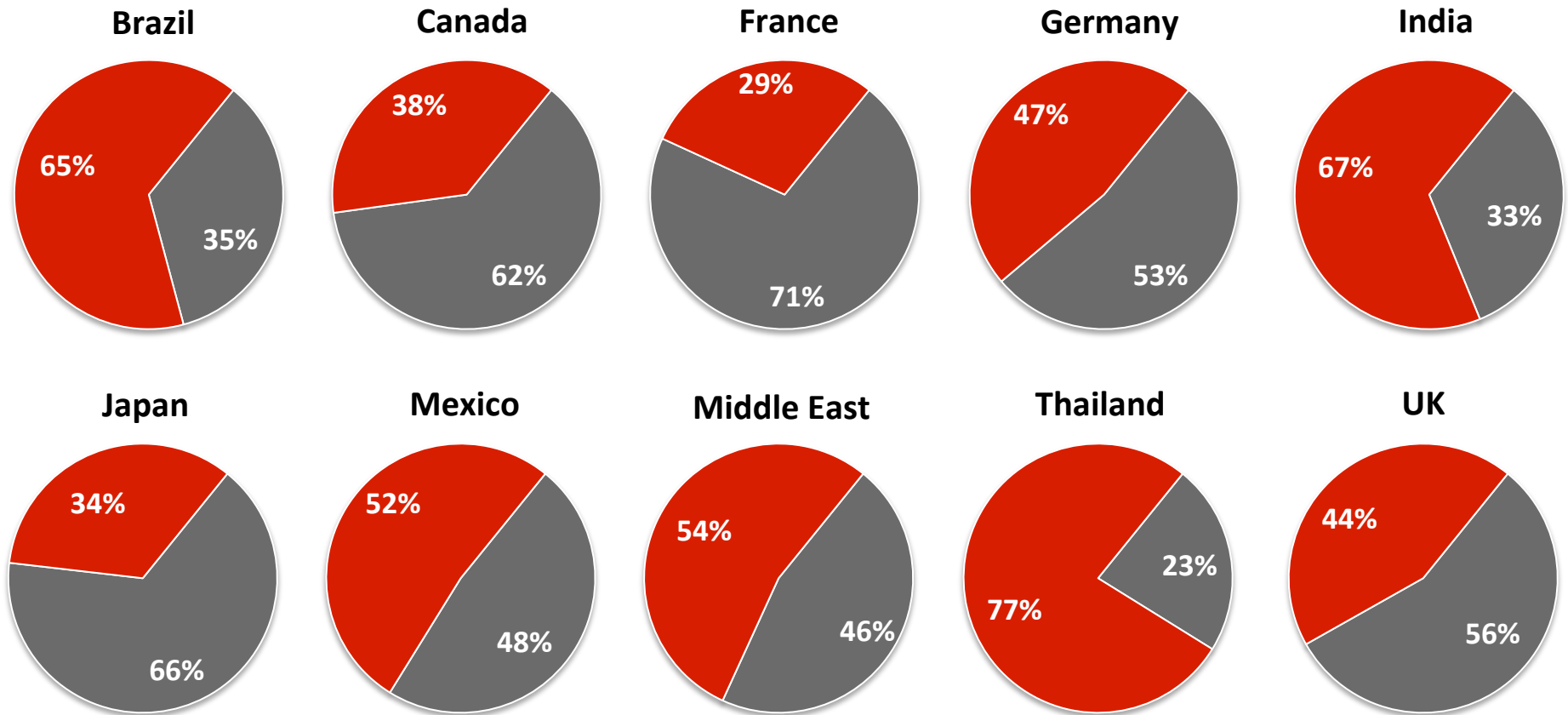


Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Human Error: a Growing Cybersecurity Concern for Many Businesses

NET human error has INCREASED as a security factor during past two years

NET human error UNCHANGED or lessened as a security factor during past years



Human Error as a Security Factor Cont.

Change in Perception of Human Error as a Security Factor Over Past Two Years	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Human error is now significantly more of a factor in security incidents/breaches	26%	12%	6%	15%	31%	6%	17%	14%	37%	6%
Human error is now moderately more of a factor	39%	26%	23%	33%	36%	28%	35%	39%	40%	38%
Human error as a factor has not changed	23%	46%	58%	44%	14%	53%	34%	22%	17%	52%
Human error is now moderately less of a factor	11%	13%	11%	7%	14%	9%	10%	17%	5%	2%
Human error is now significantly less of a factor in security incidents/breaches	1%	2%	2%	2%	5%	5%	4%	8%	2%	2%

Top Reasons Why Human Error is Increasingly a Factor in Security Incidents/Breaches

Top Factors Among Mature Economies

- 1 General negligence / carelessness towards security
- 2 Increased use of social media by staff
- 3 Failure of end-users to follow security procedures and policies
- 4 Lack of security expertise with networks, servers and other infrastructure
- 5 Failure of staff to get up to speed with new threats (e.g. mobility, social media, cloud, etc.)

Top Factors Among Maturing Economies

- 1 Lack of security expertise with websites and applications
- 2 General negligence / carelessness towards security
- 3 Failure of end-users to follow security procedures and policies
- 4 Lack of security expertise with networks, servers and other infrastructure
- 5 Inadequate resources - not enough IT staff time to manage security threats

Reasons Why Human Error is Increasingly a Factor in Security Incidents/Breaches Cont.

Contributing Factors	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
General negligence / carelessness towards security	32%	42%	33%	42%	26%	24%	31%	31%	41%	42%
Increased use of social media by staff	30%	46%	39%	40%	23%	24%	23%	18%	46%	29%
Lack of security expertise with websites and applications	31%	40%	17%	23%	32%	19%	29%	39%	40%	29%
Failure of end-users to follow security procedures and policies	36%	46%	25%	32%	23%	21%	32%	21%	38%	24%
Lack of security expertise with networks, servers and other infrastructure	22%	31%	17%	29%	26%	31%	28%	31%	44%	27%
Inadequate resources – not enough IT staff time to manage security threats	19%	31%	36%	19%	26%	24%	28%	39%	37%	15%
Failure of IT staff to follow security procedures and policies	31%	35%	19%	19%	27%	29%	31%	33%	22%	27%
Failure of staff to get up to speed with new threats (e.g. mobility, social media, cloud, etc.)	26%	29%	19%	21%	23%	14%	31%	25%	31%	38%
Intentional disabling of security to allow for use of a non-approved application, to download a file, access a website, etc.	25%	25%	19%	21%	19%	38%	15%	18%	31%	15%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

Base: 636 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK where human error was at least moderately more of a factor in breaches
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Section 4 – The IT Workforce Landscape

How Businesses Manage the IT Function

IT Management Practices**	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Formal IT department with dedicated IT specialists on staff	51%	46%	55%	64%	53%	41%	50%	70%	55%	50%
Informally with other staff that are not part of a dedicated IT department or IT staff	27%	40%	26%	18%	35%	38%	31%	20%	34%	38%
Periodic use of an outside IT firm/tech consultant for specific projects or work	36%	36%	31%	26%	41%	24%	32%	22%	41%	23%
Regular use of an outside IT firm/tech consultant, also referred to as outsourcing an IT function through a managed IT services engagement	14%	12%	13%	7%	22%	6%	14%	15%	17%	7%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

**Could be greater than 100% because some businesses use multiple IT management practices.



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Businesses Rely on IT Solutions/Service Providers for a Range of IT Needs

IT Outsourcing Engagements Over the Past Two Years	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Repair, maintenance or troubleshooting IT problems	59%	61%	54%	54%	46%	33%	46%	46%	64%	43%
Deployment, installation or integration of IT systems	55%	41%	54%	49%	42%	25%	52%	46%	73%	43%
Web design/web related	38%	50%	33%	30%	46%	44%	39%	59%	51%	57%
General IT consulting / advisory services	36%	41%	33%	28%	32%	11%	39%	42%	37%	32%
Cybersecurity related	30%	25%	32%	19%	45%	14%	29%	20%	46%	14%
Telecom or communications related	29%	30%	19%	26%	28%	6%	23%	44%	31%	22%
Cloud computing initiative	32%	30%	22%	21%	29%	0%	27%	22%	29%	30%
Mobile app development	21%	20%	22%	12%	43%	19%	19%	34%	32%	14%

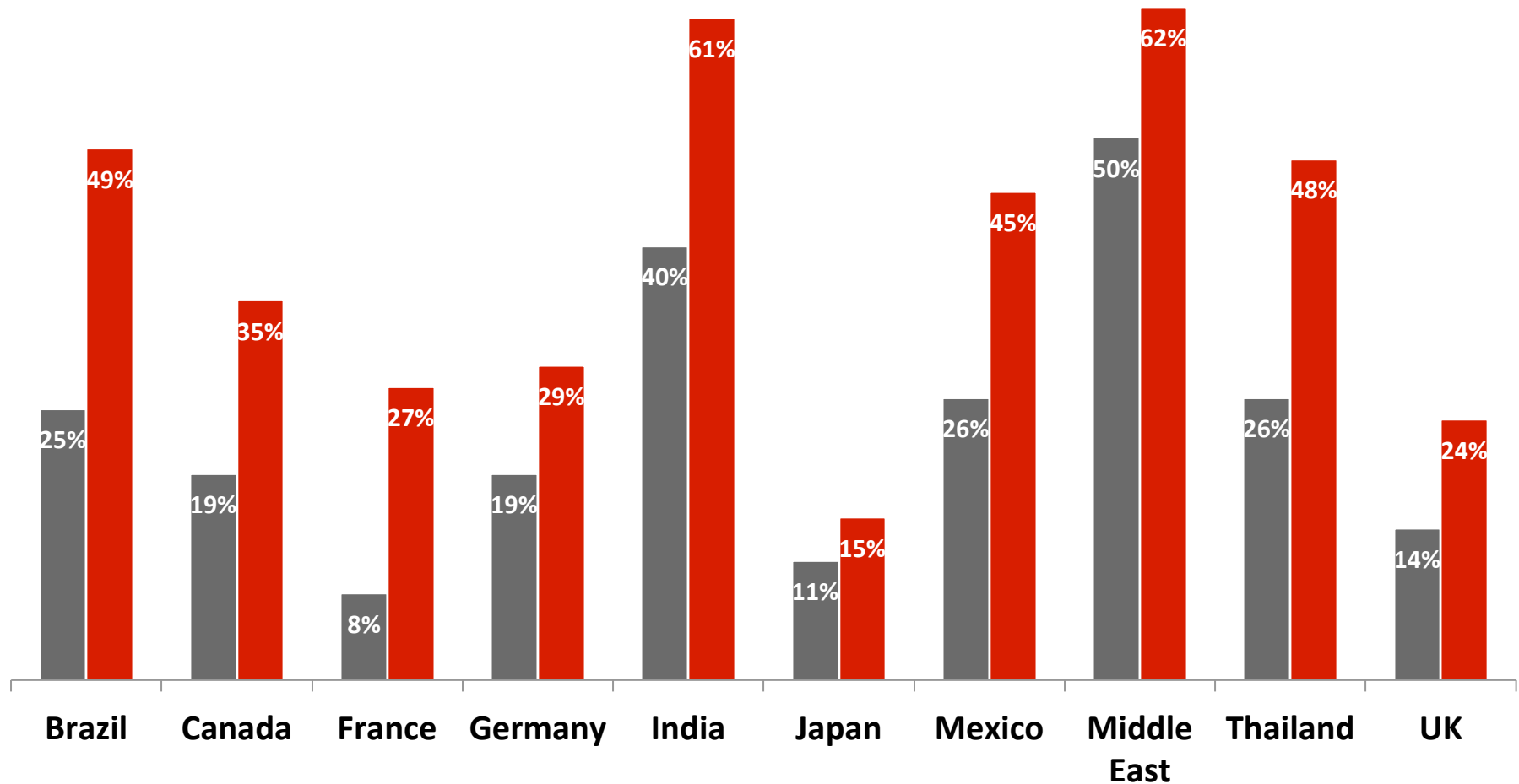
*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



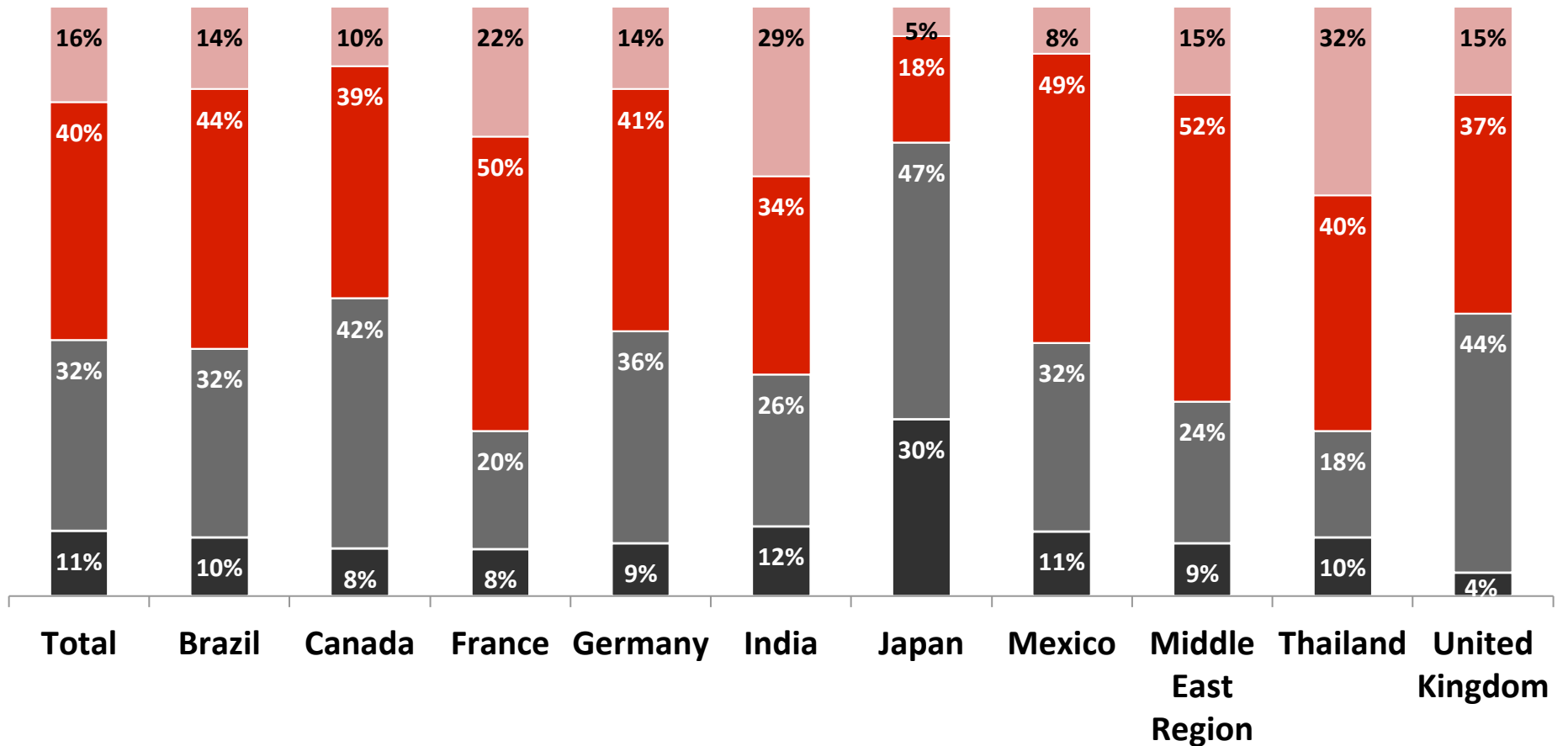
Base: 499 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK using outside IT firms
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Many Businesses Expect to Increase IT Staff Headcount Over Next 12 Months

■ Increase in IT Staff Headcount in 2012 ■ Expected Increase in IT Staff Headcount in 2013



State of Staff IT Skills Versus What Organizations Report Needing



IT Skills Gaps Negatively Affect Businesses in a Number of Ways

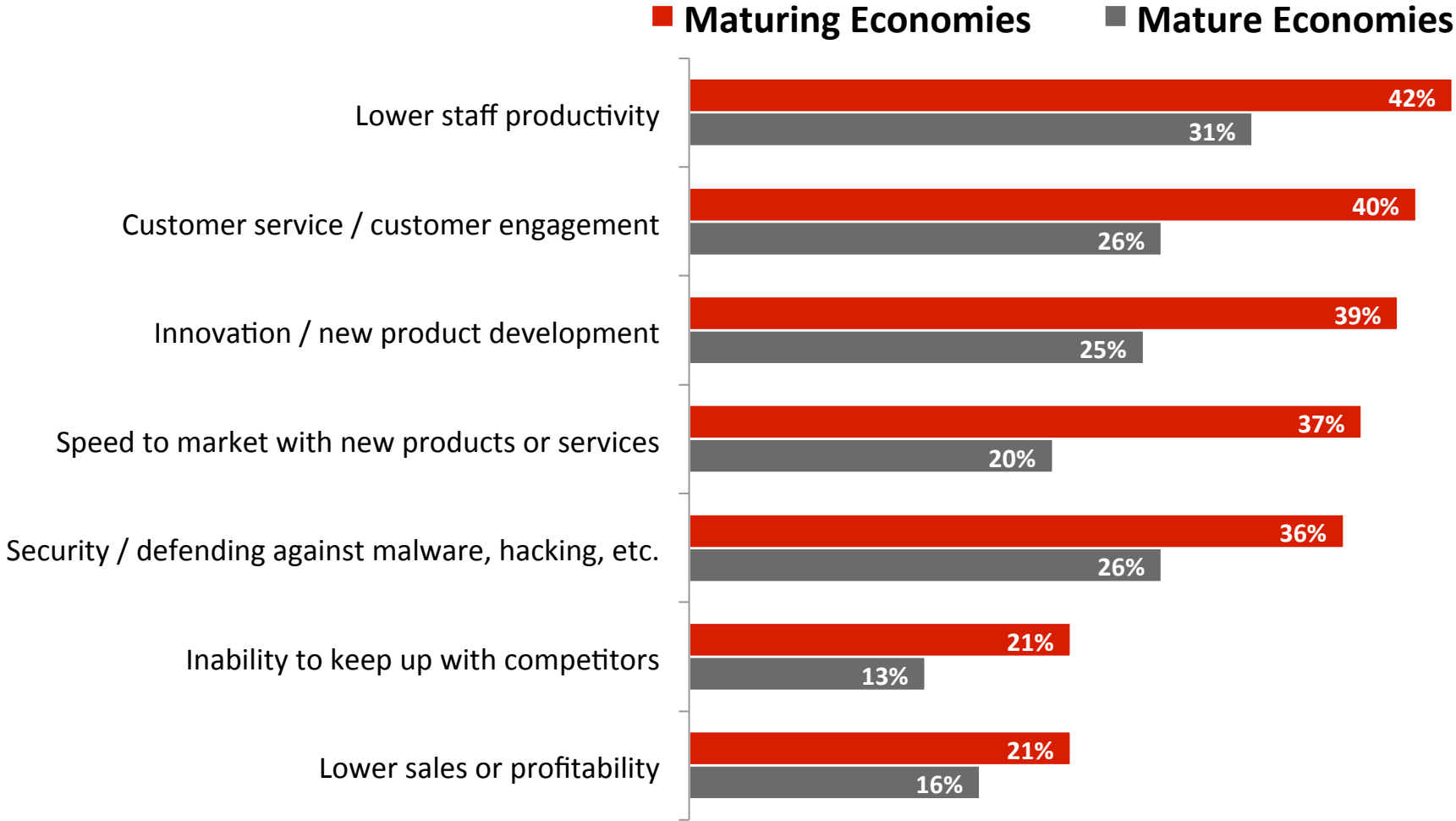
Areas Negatively Affected by IT Skills Gaps	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Lower sales or profitability	22%	19%	19%	15%	22%	22%	19%	22%	22%	10%
Lower staff productivity	41%	38%	27%	28%	53%	29%	40%	53%	25%	30%
Customer service / customer engagement	41%	30%	19%	28%	36%	21%	36%	36%	50%	26%
Speed to market with new products or services	34%	22%	21%	19%	37%	22%	38%	34%	42%	17%
Innovation / new product development	36%	26%	20%	26%	42%	19%	34%	30%	52%	26%
Security / defending against malware, hacking, etc.	32%	26%	26%	31%	32%	30%	32%	34%	52%	22%
Inability to keep up with competitors	9%	14%	18%	8%	27%	18%	18%	22%	30%	11%
Some other impact	6%	5%	6%	9%	6%	6%	7%	13%	11%	4%
None of the above / IT skills gaps are not an issue	8%	16%	26%	15%	4%	12%	9%	6%	5%	22%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Maturing Economy Businesses Report Greater Negative Effects of IT Skills Gaps



Mature Economies Group: Canada, France, Germany and the UK
Maturing Economies Group: Brazil, India, Mexico, Middle East and Thailand



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Perceptions of Factors that Contribute to IT Skills Gaps

	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Insufficient focus on STEM education	25%	17%	21%	14%	31%	12%	27%	28%	36%	17%
IT education/training does not sufficiently translate to workforce performance	33%	32%	22%	18%	46%	26%	39%	32%	49%	27%
IT careers do not attract the best and brightest workers	12%	14%	14%	18%	26%	12%	19%	36%	32%	13%
Competition for a limited pool of skilled IT workers	32%	18%	18%	16%	35%	31%	26%	37%	30%	19%
Difficult to conduct on-the-job training for IT workers	37%	21%	17%	18%	33%	29%	24%	29%	36%	19%
Fast changing technology – difficult for IT workers to stay current with skills	37%	43%	21%	30%	34%	35%	42%	38%	58%	34%
Lack of resources for IT skills development	26%	39%	28%	21%	26%	26%	38%	29%	30%	32%
Some other reason	5%	7%	3%	7%	7%	2%	2%	12%	7%	5%
None of the above / IT skills gaps are not an issue	7%	11%	20%	18%	2%	8%	6%	6%	1%	22%

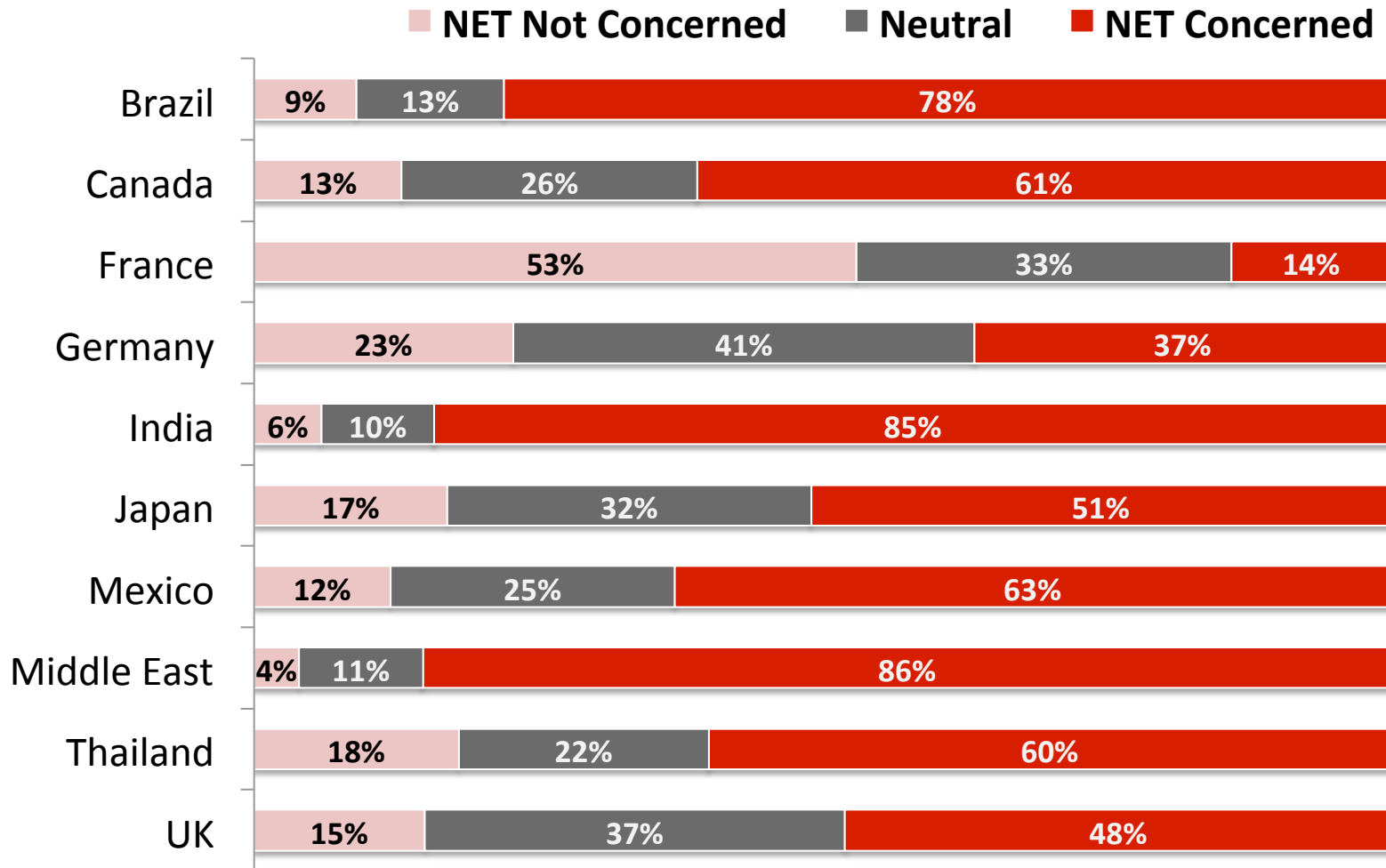
*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Concern Over Being Able to Hire IT Staff with the Desired Level of Skills and Experience

Time period: over next 2 years



IT Skills Rated as Having Greatest Importance*:

Summary of Maturing vs. Mature Economies

Top 10 Among Maturing Economies	
1.	Networks / Infrastructure
2.	Database / Information management
3.	Storage / data back-up
4.	Help Desk / IT support
5.	Server / data center management
6.	Data analytics / Business intelligence
7.	Web design / development
8.	Printers, copiers, multifunction devices
9.	Security / Cybersecurity
10.	Application development / programming

Mature Economies Group: Canada, France, Germany and the UK
 Maturing Economies Group: Brazil, India, Mexico, Middle East and Thailand

Top 10 Among Mature Economies	
1.	Networks / Infrastructure
2.	Storage / data back-up
3.	Server / data center management
4.	Help Desk / IT support
5.	Database / Information management
6.	Data analytics / Business intelligence
7.	Printers, copiers, multifunction devices
8.	Customer relationship management (CRM)
9.	Security / Cybersecurity
10.	Telecommunications (VoIP, UC, etc.)

*Importance in terms of ensuring high levels of staff expertise and minimizing skills gaps

Note: emerging technologies, such as cloud or mobility, often rate important to businesses, yet may not be the highest priority for developing internal IT skills. As businesses move along the adoption curve and engage in more advanced uses of emerging technologies, staff expertise in those areas typically increases. Also, although cloud may be further down the list, there is still a cloud element within many of these job skills such as networks, storage & servers.

IT Skills Rated as Having Greatest Importance: Infrastructure / Endpoints

Infrastructure / Endpoints	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Networks / Infrastructure (LANs, WANs, WiFi, etc.)	58%	58%	35%	66%	62%	50%	74%	68%	81%	45%
Help Desk / IT support	47%	43%	53%	40%	45%	34%	64%	58%	52%	50%
Printers, copiers, multifunction devices	44%	42%	32%	48%	44%	31%	42%	53%	56%	30%
Server / data center management	50%	53%	50%	55%	51%	45%	47%	49%	65%	44%
Storage / data back-up	61%	53%	38%	70%	44%	31%	56%	51%	58%	42%
Telecommunications – phone systems, VoIP, unified communications	34%	32%	29%	37%	40%	15%	38%	42%	36%	25%
Mobile phones / smartphones	28%	31%	26%	34%	32%	18%	31%	30%	42%	30%
Tablets	27%	19%	11%	21%	20%	17%	21%	18%	31%	18%
A/V – projectors, sound systems, digital displays, etc.	10%	12%	7%	12%	22%	3%	19%	25%	26%	7%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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IT Skills Rated as Having Greatest Importance: Information and Data Management

Information/Data Management	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Database / Information management	65%	47%	41%	49%	60%	48%	67%	66%	74%	37%
Data analytics / Business intelligence	47%	43%	38%	44%	54%	35%	46%	50%	49%	42%
Enterprise resource planning (ERP)	46%	26%	29%	35%	46%	18%	22%	40%	54%	30%
Customer relationship management (CRM)	43%	38%	33%	47%	46%	26%	39%	53%	34%	33%
Security / Cybersecurity	35%	39%	32%	49%	40%	36%	47%	40%	58%	27%
Big Data related (Hadoop, NoSQL)	10%	8%	16%	12%	20%	9%	22%	14%	24%	8%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

IT Skills Rated as Having Greatest Importance: Applications, Cloud and Internet Related

Applications / Internet	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Web design / development	37%	39%	20%	28%	48%	24%	54%	50%	58%	30%
Web infrastructure	46%	26%	31%	25%	34%	26%	45%	44%	49%	29%
Search engine optimization (SEO)	31%	21%	22%	28%	42%	17%	22%	33%	41%	28%
Application development / programming	45%	37%	26%	31%	37%	27%	43%	46%	53%	25%
Virtualization	37%	24%	27%	33%	36%	29%	29%	25%	41%	26%
Cloud computing – IaaS or PaaS related	32%	22%	26%	30%	34%	31%	30%	28%	30%	24%
Cloud computing – SaaS related	25%	26%	25%	29%	30%	22%	17%	16%	22%	14%
SharePoint	12%	16%	15%	14%	23%	4%	15%	17%	19%	12%
Mobile app management, development, etc.	28%	20%	29%	24%	32%	14%	32%	34%	27%	16%
Linux	14%	11%	15%	8%	26%	7%	15%	18%	13%	9%
Apple devices / iOS	11%	15%	14%	12%	16%	6%	14%	18%	26%	11%
Java or JavaScript	26%	12%	18%	16%	34%	10%	26%	26%	21%	14%
SQL	15%	8%	15%	12%	22%	12%	20%	15%	14%	5%
HTML or HTML5	18%	15%	13%	18%	25%	6%	20%	18%	26%	12%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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IT Skills Rated as Having Greatest Importance: "Soft Skills" / Non-Technical Skills

"Soft" / Non-Technical	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Project management	55%	44%	40%	42%	57%	26%	47%	55%	54%	39%
Customer service	49%	54%	39%	40%	46%	22%	59%	70%	50%	46%
Verbal and written communication skills	39%	38%	26%	29%	36%	28%	36%	42%	42%	34%
Teamwork	58%	57%	46%	62%	51%	32%	60%	66%	68%	48%
Strong work ethic	36%	54%	34%	44%	39%	35%	45%	49%	51%	37%
Motivation and initiative	47%	48%	26%	47%	40%	41%	39%	38%	54%	38%
Flexibility and adaptability	35%	48%	42%	41%	31%	27%	36%	49%	46%	36%
Analytical skills	30%	37%	31%	41%	28%	17%	36%	34%	51%	29%
Innovation / Creative problem solving	33%	37%	21%	34%	24%	16%	43%	33%	38%	28%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



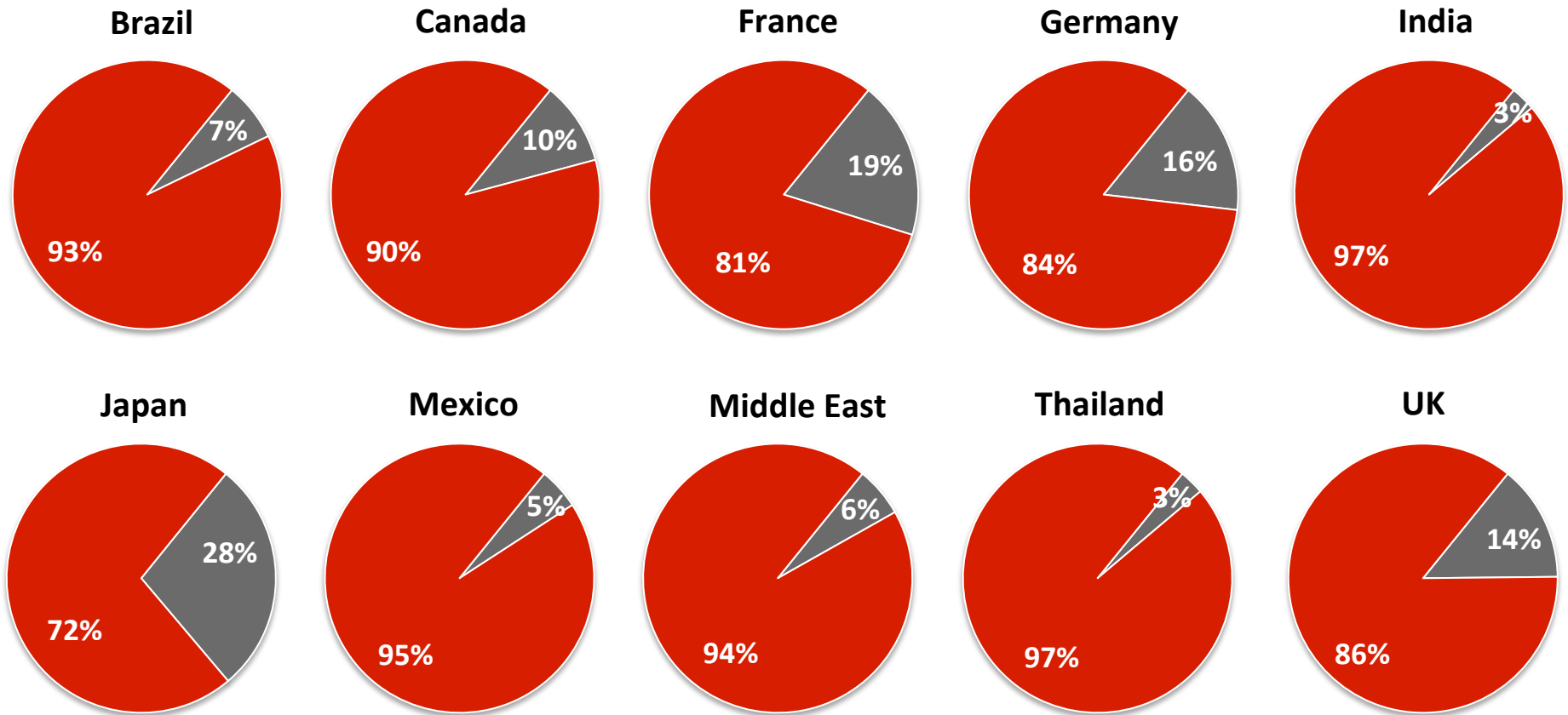
Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Section 5 – IT Training & Certification

Incidence of IT Staff Engaging in IT Training

 Staff engaged in some type of IT training in past 12 months

 Staff engaged in no IT training in past 12 months



Training Methods Utilized by IT Staff

Time period: during past 12 months

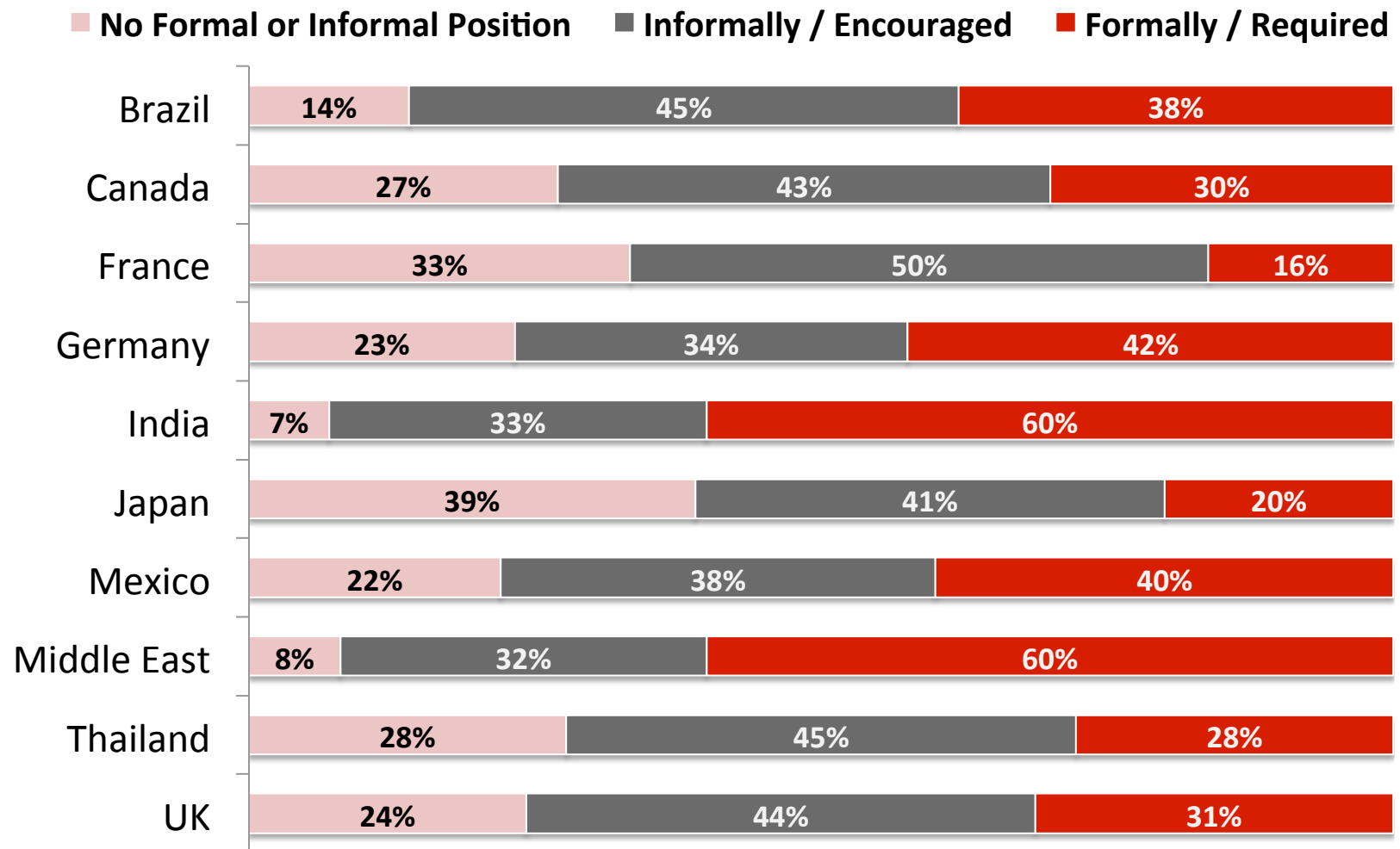
	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Instructor-led classroom	62%	40%	37%	40%	51%	25%	57%	55%	48%	35%
eLearning / Online self-study	33%	49%	27%	34%	46%	29%	43%	43%	56%	42%
Webinars	21%	41%	21%	29%	42%	18%	26%	22%	45%	30%
Industry conference, workshop etc.	38%	36%	33%	35%	46%	28%	49%	42%	43%	28%
Additional college coursework	33%	23%	14%	27%	26%	10%	18%	22%	38%	14%
Industry news, tech journals, etc.	22%	23%	14%	27%	22%	16%	25%	29%	37%	25%
Other	6%	3%	6%	3%	10%	7%	5%	9%	22%	6%
None	7%	10%	19%	16%	3%	28%	5%	6%	3%	14%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



Base: 1,256 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Businesses in Many Countries Have a Formal Policy for the Use of IT Certifications

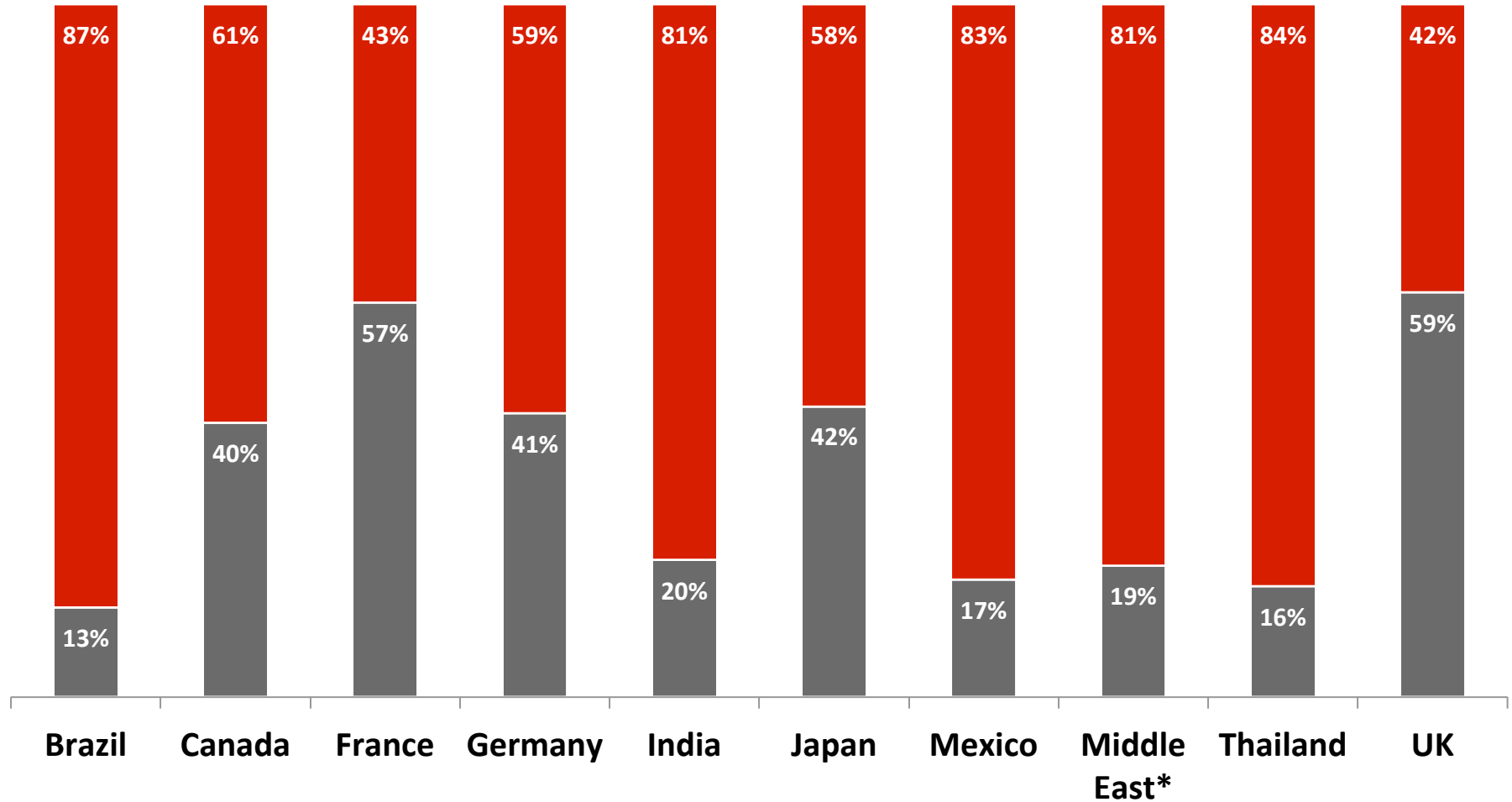


Note: Excludes Don't Know responses

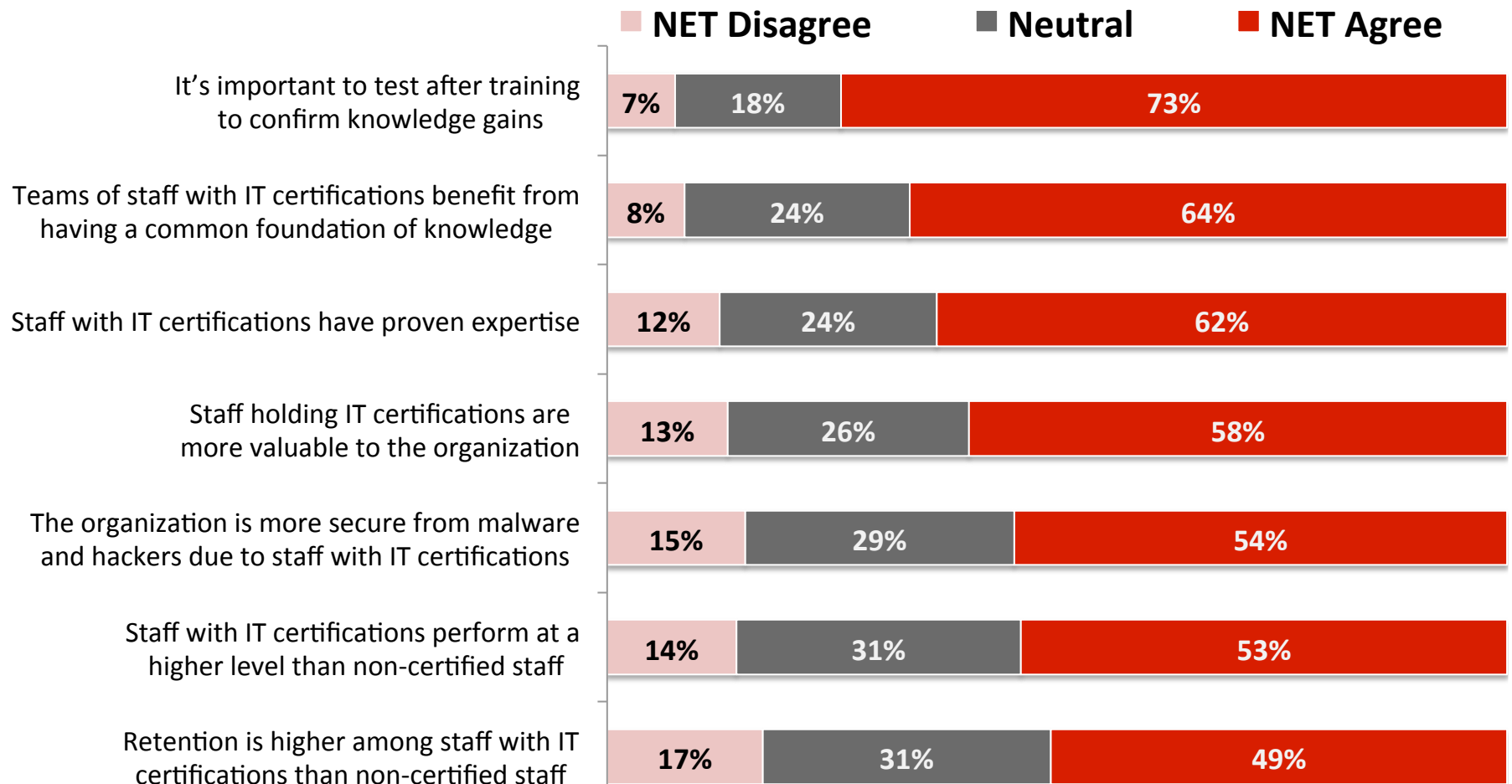
Base: 1,140 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Many Businesses Expect the **Importance** of IT Certifications to Increase Over Next 2 Years

■ NET No Change or Decrease in Importance ■ NET Increase in IT Certifications Importance



Businesses See the Value of IT Certifications in Many Areas



Note: Excludes Don't Know responses

Base: 1,246 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Benefits of Having IT Certified Staff Cont.

NET Agree with Statement	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK
Staff holding IT certifications are more valuable to the organization	76%	54%	40%	59%	61%	45%	69%	82%	56%	42%
Staff with IT certifications have proven expertise	71%	62%	36%	44%	58%	46%	69%	74%	66%	58%
Staff with IT certifications perform at a higher level than non-certified staff	70%	44%	31%	52%	53%	38%	61%	78%	60%	46%
The organization is more secure from malware and hackers due to staff with IT certifications	64%	48%	45%	47%	62%	32%	60%	46%	55%	45%
It's important to test after training to confirm knowledge gains	85%	73%	66%	85%	63%	48%	73%	77%	86%	73%
Retention is higher among staff with IT certifications than non-certified staff	54%	40%	38%	41%	58%	31%	54%	73%	59%	43%
Teams of staff with IT certifications benefit from having a common foundation of knowledge	73%	63%	48%	68%	67%	41%	68%	82%	75%	59%

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.



Base: 1,246 business and IT executives from Brazil, Canada, France, Germany, India, Japan, Mexico, Middle East, Thailand and the UK
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Top IT Certifications IT Staff Plan to Pursue: Maturing Economies Summary

Top **CompTIA Certifications** Planning to Pursue in Next 12 Months

- 1 Network+
- 2 Security+
- 3 Linux+
- 4 Server+
- 5 Project+

Top **Other Certifications** Planning to Pursue in Next 12 Months

- 1 Oracle Database Administrator
- 2 MCITP (Microsoft Certified IT Professional)
- 3 IBM Certified System Administrator
- 4 CCNA (Cisco Certified Network Associate)
- 5 HP Certified Systems Engineer

Top IT Certifications Staff Plan to Pursue: Mature Economies Summary

Top **CompTIA Certifications** Planning to Pursue in Next 12 Months

- 1 Security+
- 2 Network+
- 3 Server+
- 4 Linux+
- 5 Project+

Top **Other Certifications** Planning to Pursue in Next 12 Months

- 1 MCSA (Microsoft Certified Systems Administrator)
- 2 Oracle Database Administrator
- 3 MCITP (Microsoft Certified IT Professional)
- 4 IBM Certified System Administrator
- 5 HP Certified Systems Engineer

Appendix

Respondent Profile

Primary Industry

18%	Information Technology (IT) (e.g. hardware, software, IT services, consulting, reseller, telecom, distributor)
12%	Manufacturing (other than IT related)
11%	Professional services (other than IT related)
10%	Retail/Wholesale (other than IT related)
6%	Healthcare/Medical
6%	Financial/Banking/Insurance
2%	Media/Publishing/Entertainment
7%	Government (federal, state, local)
5%	AMTUC (Agriculture, Mining, Transportation, Utilities, Construction)
8%	Education
3%	Hospitality
13%	Other industry

Staff Size

11%	1 – 9 employees
28%	10 – 99
31%	100 – 499
30%	500 or more employees

Note: A mix of industries, company sizes, and job roles were targeted for this study.

Job Role

14%	Executive Management (CEO, President, Managing Director, Owner, etc.)
16%	Senior Management – IT function (CIO, CSO, VP of IT-related function, etc.)
20%	Middle Management – IT function (Director, Manager, Team Leader etc.)
12%	Staff level – IT function
7%	Senior Management – business function (CFO, VP, GM of business function)
18%	Middle Management – business function (Director, Manager, Team Leader etc.)
8%	Staff level – business function
2%	Business Consultant
3%	IT Consultant

Involvement in Tech (NET very + somewhat involved)

95%	Setting or influencing technology-related strategies*
94%	Installing or managing hardware, software, communications and other technology*
94%	Purchasing or working with vendors, providers or consultants of technology products and services*
82%	Hiring or managing IT staff

*To qualify for the survey, respondents had to be very involved or somewhat involved in at least two of these areas, with the majority of respondents being very involved.

Economic Data Summary by Country

	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK	US
GDP growth 2013 forecast	3.02%	1.46%	-0.07%	0.61%	5.68%	1.58%	3.39%	4.1%	5.88%	0.69%	1.85%
GDP*	\$2.362t 8 th	\$1.446t 14 th	\$2.253t 10 th	\$3.194t 6 th	\$4.735t 4 th	\$4.617t 5 th	\$1.758t 12 th	\$1.102t na	\$646.1b 25 th	\$2.323t 9 th	\$15.66t 2 nd
GDP per capita	\$12,000 103 rd	\$41,500 24 th	\$35,500 37 th	\$39,100 26 th	\$3,900 164 th	\$36,200 36 th	\$15,300 83 rd	\$31,662 na	\$10,000 113 th	\$36,700 33 rd	\$49,800 12 th
Education expenditures (% of GDP)	5.6% 53 rd	5.0% 78 th	5.9% 40 th	5.1% 68 th	3.3% 131 st	3.8% 121 st	5.3% 63 rd	4.4% na	3.8% 199 th	5.6% 52 nd	5.4% 60 th
Schooling expectancy**	14 yrs	17 yrs	16 yrs	16 yrs	10 yrs	15 yrs	14 yrs	13 yrs	12 yrs	16 yrs	16 yrs
Labor Force	107.1m 6 th	18.8 m 32 nd	29.62m 21 st	44.01m 14 th	498.4m 2 nd	65.27m 9 th	50.01m 12 th	13.32m na	39.77m 16 th	31.9m 20 th	154.9m 4 th
% Employed in Services	71%	76%	72%	74%	28%	70%	63%	35%	52%	78%	80%
Core IT workforce***	758.6k	327.3k	517.3k	680.4k	507.4k	1.2m	275.2k	111.4k	139.4k	741.6k	4.3m
Unemployment rate	6.2% 63 rd	7.3% 82 nd	9.8% 106 th	6.5% 69 th	9.9% 108 th	4.4% 43 rd	4.5% 44 th	na	0.9% 3 rd	7.8% 90 th	8.2% 98 th
Median age or population	29.6 yrs	41.2 yrs	40.4 yrs	45.3 yrs	26.5 yrs	45.4 yrs	27.4 yrs	26.3 yrs	34.7 yrs	40.2 yrs	37.1 yrs

*Purchasing Power Parity

**Primary to tertiary

***CompTIA estimate – see appendix for more details

*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

Sources: CIA World Factbook, IMF (GDP growth 2013 forecast), IDC (IT spending & IT labor force), McKinsey (global labor force) | 2009, 2011, 2012 & 2013 data & estimates



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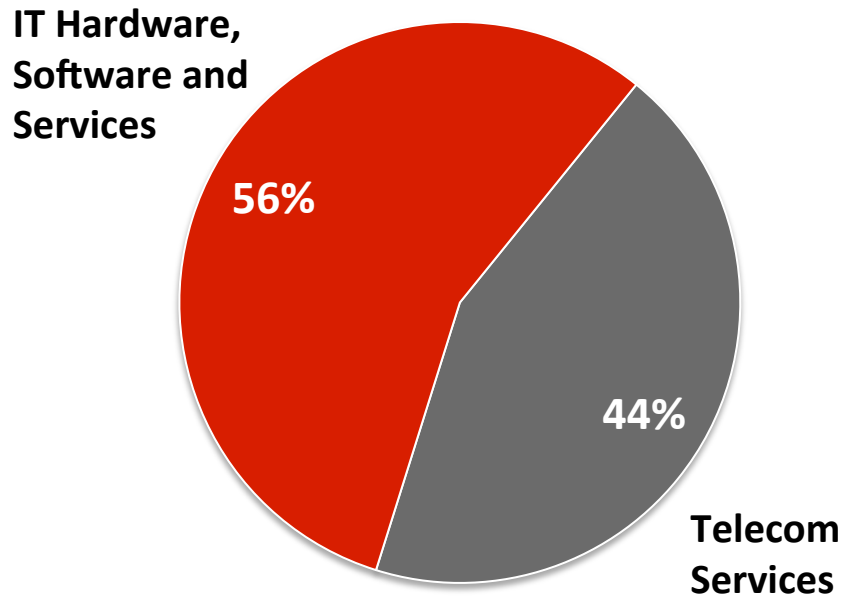
Technology Utilization by Country

	Brazil	Canada	France	Germany	India	Japan	Mexico	Middle East*	Thailand	UK	US
Internet users	75.982m 4 th	26.96m 16 th	45.262m 8 th	65.125m 5 th	61.338m 6 th	99.182m 3 rd	31.02m 12 th	14.688m na	17.483m 23 rd	51.444m 7 th	245m 2 nd
Mobile phone users	244.358m 5 th	27.38m 37 th	59.84m 21 st	108.7m 10 th	893.86m 2 nd	132.76m 7 th	94.565m 13 th	70.627 na	77.605m 18 th	81.612m 17 th	290.3m 3 rd

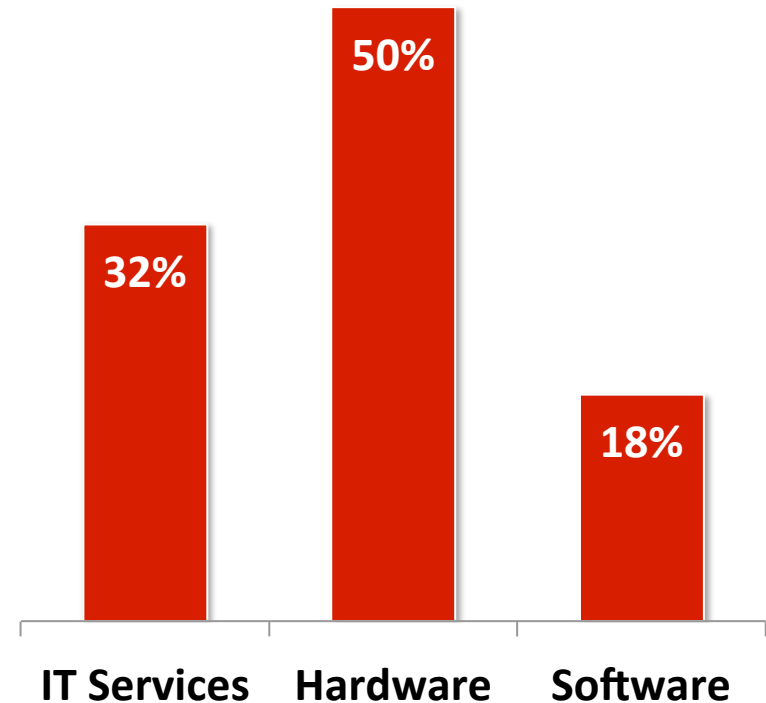
*Middle East is an aggregation of data from Oman, Saudi Arabia and the UAE.

Worldwide IT Spending Forecast 2013: \$3.6 Trillion

**Worldwide Total IT Market:
Distribution of Revenue 2012**



**Worldwide Core IT Market:
Distribution of Revenue 2012**

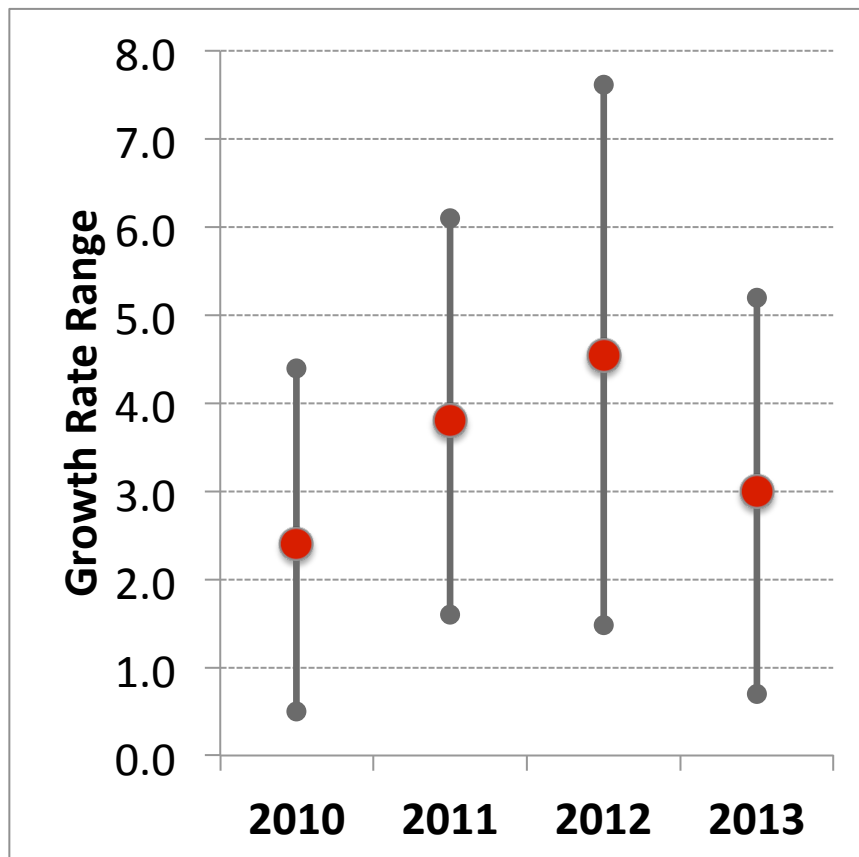


Global IT Growth Forecasts

CompTIA Global IT Growth Forecast

Midpoint forecast: 3.0% growth

Upside forecast: 5.1% growth



CompTIA®

Global IT Growth Forecasts from Other Sources

5.7% IDC

4.1% Gartner

5.4% Forrester

Note: these forecasts are accurate at the time of publication of this report. Research consultancies do update forecasts throughout the year as new data comes available, so these figures will likely change over time.

Additionally, currency fluctuations can greatly impact forecasts. Forecasts not presented in constant dollars can differ significantly.

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Additional Resources

- CompTIA *IT Career Insights* study (annual profiling survey of CompTIA certification holders)
 - US full report: <https://comptia.box.com/s/ca63b83841598300d401>
 - Japan summary: <https://comptia.box.com/s/0mc7n6bhswd3km86otqy>
 - South Africa summary: <https://comptia.box.com/s/dvjk5psfmudqbdy0qtc4>
 - UK summary: <https://comptia.box.com/s/r4zmwp0p7oppbbg8nmwt>
- Other CompTIA industry research that is published, e.g. *IT Industry Outlook 2013*, *Youth Opinions of Careers in IT*, *State of the IT Skills Gap*, *Employer Perceptions of IT Training and Certification*, *IT Training and Certification: Insights and Opportunities*, *10th Annual Information Security Trends*, *2nd Annual Trends in Enterprise Mobility*. CompTIA members and partners can access the full reports here:
 - CompTIA Member Resource Center: <http://www.comptia.org/members/research/KeyTopics/itworkforce.aspx>
 - CompTIA Partner Portal: <http://partners.comptia.org/delivery/research.aspx>
 - Or visit the CompTIA website for more information: <http://www.comptia.org/research.aspx>
- CompTIA educational content and training resources, e.g. CompTIA Quick Start Guides to Cloud Computing, IT Security, Managed IT Services, Unified Communications.
 - Visit the CompTIA website for more information: <http://www.comptia.org/training.aspx>

Sizing the Global IT Workforce

Sizing the global IT workforce is a challenging proposition. Different countries track labor data differently, or, in some cases, not at all. The CompTIA methodology for estimating the IT workforce by countries rests on the assumption that there is a relationship between IT spending and the IT workforce. If businesses are investing in IT hardware, software and services, it follows that they need IT workers to deploy, integrate, maintain and troubleshoot their investment. Using data from a number of sources, CompTIA developed estimates based on this relationship.

For the purposes of this study, CompTIA's IT workforce estimates focused on core IT occupations, which are listed below. For these estimates, certain telecommunications occupations were excluded, such as positions responsible for installing or maintaining cellular towers. Additionally, these estimates exclude 'knowledge worker' type positions, such as technical writer, graphic designer, call center or business analyst.

Core IT Occupations

- Computer Support Specialists
- Software Developers, Applications
- Computer Systems Analysts
- Software Developers, Systems Software
- Network and Computer Systems Administrators
- Computer Programmers
- Computer and Information Systems Managers
- Information Security Analysts, Web Dev., and Computer Network Architects
- Computer Occupations, All Other
- Database Administrators
- Computer Hardware Engineers
- Computer and Information Research Scientists
- Computer Support Specialists