2016 GE Global Innovation Barometer

Detailed Findings
January 2016
Overview

Now in its fifth edition and spanning across 23 countries, the GE Global Innovation Barometer is an international opinion survey of senior innovation executives all actively engaged in the management of their firm’s innovation strategy. In addition, this year, the GE GIB also surveyed the views of Informed Publics in 13 countries.

With both audiences, the Barometer explores how the perception of innovation is changing in a complex, globalized environment, and how they appreciate the framework for innovation their country has developed.

In addition, it explores the perceptions of Informed Publics on the impact and value of innovation, the associated responsibilities with driving and supporting innovation and their opinions on the future of work.
Innovation Business Executives

All respondents’ line of work involves taking part in their company’s innovation process/policies.

Responsible for making decisions related to innovation, product development or research and development (R&D) activities in their company.

2,748 Business Executives, of which 1,915 are C-suite.

Informed Publics/Informed Citizens

University education or above

In the upper quartile income of their country

Regularly consume top tier business news publications

Regularly follow public policy matters in the news

1,346 Informed Publics
Methodology

The research was commissioned by GE and conducted by Edelman Berland between October 13 - December 7, 2015.
2016 Key Findings
Welcoming the Revolution: Pressure Rises, Optimism Prevails

**A Welcome Revolution:** Both Business Executives and citizens are optimistic about the digital transformation of the world. 68% of execs and 64% of citizens cite a positive anticipation of the 4th Industrial Revolution, while all anticipate a radical transformation of the industrial sector by Advanced Manufacturing. Emerging markets feel especially empowered.

**Embracing New Models and Technologies:** Business Executives are adapting through new investments and partnerships. 61% are using big data to inform decision-making (up from 53% in 2014), and 77% are seeing financial results from collaboration (up from 64% in 2014).

**Disruptive Innovation: The Solution and the Challenge:** Although Business Executives recognize they need to innovate radically to keep up—90% think that the most innovative companies create new markets that didn’t previously exist—most are also mindful of the risk of “Digital Darwinism”. 81% worry about being left behind as technology evolves faster than they can adapt, creating a fear of becoming obsolete (FOBO).

**Everybody’s Starting Up?:** Still, 57% favor a “safer” approach, pursuing incremental innovation and protecting their core business. Inertia and risk aversion are growing. Meanwhile 81% of Business Executives recognize the “start-up” ethos is increasingly becoming the example norm for creating an innovation culture within companies of all sizes.
2016 Supporting Findings
Welcoming the Revolution: Pressure Rises, Optimism Prevails

1. Creativity and Problem-Solving Key for Future Workforce:
The future worker is changing. Executives are seeking problem solvers (56%) and creativity (54%), and an expected impact of the 4th Industrial Revolution is that some categories of skilled workers will be in high demand. Citizens are embracing the start-up ethos and value flexible (89%) and remote (79%) work. Only a few countries feel their education system is ready to address future skills, with Informed Citizens in countries like India (81%), China (78%) and Indonesia (76%) most confident.

2. Minds and Machines Working Together:
Business Executives expect the digital revolution will make the workplace safer (43%) and create higher-value roles for workers (48%). Few fear any negative impact on employment as a result of the digital revolution; only 17% of Business Executives and 15% of citizens fear potential negative impact. Executives in the US, India, China or Germany anticipate a positive outcome in their country, while Japanese, French or Swedish execs are more skeptical.

3. The ROI on Collaboration is Increasing:
Jumping from 64% in 2014, 77% of executives say revenue and profit generated by collaborative innovation activities have yielded an increase in financial results. 68% of executives declare their firm is open to risk-sharing associated with innovation, including revenue streams or losses that could be generated through collaborative initiatives.

4. Emerging Markets Fearlessly Embrace Innovation:
Business Executives from emerging markets are feeling more optimistic and more empowered by the 4th Industrial Revolution than their peers in developing economies. Asian markets are amongst the most excited and confident, emerging markets the most curious. Informed Citizens in developed markets are feeling the least in control. Fewer leaders in emerging markets are also reporting difficulty coming up with radical and disruptive ideas.

5. A Call for Greater Government Support:
Executives and citizens alike are calling for public authorities to play a more supportive role in innovation. While few citizens (12%) believe their government is the top driver of innovation in their country, more (30%) think it should be. 57% say their country’s regulations are not supportive of innovative companies, although emerging markets are more positive in their assessment. Most executives agree that data and privacy regulations are preventing more radical innovation by businesses, while citizens (64%) are willing to share access to their data if it leads to better service.

6. The Energy Sector is Ripe for Disruption:
Globally, 61% of citizens believe that the energy sector can benefit greatly from new innovation approaches and answer the many challenges it faces. However, energy companies are less confident about the prospect of the 4th Industrial Revolution compared to other industries (50% confidence vs. 60%).
INNOVATION CHAMPIONS
Innovation champion – Japan is back, Germany down

What is the country that you consider to be the leading innovation champion?

Points difference with 2014 ranking

Q1. What is THE country that you consider to be the leading innovation champion? Base business executives: 2,748
Innovation champion – a consistent perspective from Informed Citizens

What is the country that you consider to be the leading innovation champion?

<table>
<thead>
<tr>
<th>Country</th>
<th>USA</th>
<th>Japan</th>
<th>China</th>
<th>Germany</th>
<th>South Korea</th>
<th>Sweden</th>
<th>India</th>
<th>Singapore</th>
<th>Israel</th>
<th>Canada</th>
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<th>Finland</th>
<th>Switzerland</th>
<th>Saudi Arabia</th>
<th>Points Difference</th>
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<tbody>
<tr>
<td>Percentage</td>
<td>34%</td>
<td>19%</td>
<td>10%</td>
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</tbody>
</table>

Q1. What is THE country that you consider to be the leading innovation champion? Base Informed public: 1,346
2016 GE GLOBAL INNOVATION BAROMETER
KEY FINDINGS
A WELCOME REVOLUTION

Both Business Executives and Informed Citizens are optimistic about the digital transformation of the world.

Business Executives (68%) and Informed Citizens (64%) both cite positive anticipation of the 4th Industrial Revolution, with few worrying that the digital revolution will have a negative impact on employment.

Asian markets feel especially empowered.

86% Business Executives believe Advanced Manufacturing will radically transform the industrial sector.
Executives and citizens alike embrace the 4th Industrial Revolution

How does the prospect of entering a 4th Industrial Revolution make you feel?

- **Curious**: Business Executives: 70%, Informed Publics: 72%
- **Optimistic**
  - Pessimistic: Business Executives: 15%, Informed Publics: 17%
  - Disempowered: Business Executives: 16%, Informed Publics: 17%
  - Scared: Business Executives: 16%, Informed Publics: 14%
  - Anxious: Business Executives: 19%, Informed Publics: 19%
  - Lost: Business Executives: 17%, Informed Publics: 20%

- **Empowered**
  - Confident: Business Executives: 61%, Informed Publics: 65%
  - Excited: Business Executives: 60%, Informed Publics: 60%

OPTIMISTIC about the prospect of entering a 4th Industrial Revolution

68% 64%

Positivity prevails across a majority of surveyed countries

Over index

Indonesia: 88% Israel: 89% Nigeria: 86% Turkey: 84% Algeria: 84% China: 81% Mexico: 81% India: 79% Poland: 77% Malaysia: 76% Brazil: 76% Russia: 75% South Africa: 70% Australia: 66% Canada: 72% USA: 69% Sweden: 63% France: 60% KSA: 59% South Korea: 53% Germany: 50% UAE: 39% Japan: 33%

Under index

Global average 68%

Q25. / Q23 How does the prospect of entering a fourth Industrial Revolution make you feel? Base business executives: 2,748. Base informed public: 1,346
Business leaders from emerging economies are feeling more optimistic and more empowered than their peers in developed markets.

Q25. How does the prospect of entering a fourth industrial revolution make you feel. Base business executives: 2,748
Both business leaders and citizens have a positive view of macro trends shaping the innovation landscape.

**DIGITAL REVOLUTION**
Few fear a potential negative impact on employment of the digital revolution

17% 15%

**ADVANCED MANUFACTURING**
Most believe Advanced Manufacturing will radically transform the industrial sector

86% 90%

Q23.A / Q22.A. There is currently a debate around the impact the digital revolution will have on employment. In your opinion, what will be the impact of the digital revolution? / Q25. / Q23 How does the prospect of entering a fourth Industrial Revolution make you feel? Q4./Q14 How far do you agree or disagree with the following statements? Base business executives: 2,748. Base informed public: 1,346
Executives and citizens anticipate a positive or neutral net impact on employment as a result of the digital revolution.

Q22.A / Q23.A There is currently a debate around the impact the digital revolution will have on employment. In your opinion, what will be the impact of the digital revolution?

Business executives n= 2,748
Informed Publics n= 1,346

- A positive impact on employment: 54% (Business Executives), 61% (Informed Publics)
- A neutral impact on employment: 21% (Business Executives), 15% (Informed Publics)
- A negative impact on employment: 17% (Business Executives), 9% (Informed Publics)
- Don’t know: 8% (Business Executives), 15% (Informed Publics)
EMBRACING NEW MODELS AND TECHNOLOGIES

Businesses are adapting to this new context through investments and partnerships, and it is paying dividends.

The majority of businesses (77%) are seeing financial results from collaboration (up from 64% in 2014).

61% of Business Executives are using big data to inform decision-making (up from 53% in 2014).
Integrating analytics is becoming more natural and delivers better results and outcomes for businesses.

How important do you think the following elements are for a company to be able to innovate successfully?

Use big data and analytics to improve strategic knowledge and inform decision-making 53% (2014 DATA)

61%

Companies increasing their ability to analyze large amounts of data in the last year?

- 73% of companies have increased their ability to analyze, up from 43% in 2014

Of those who have increased their ability...

- 59% have seen a positive outcome
- 41% yet to see a positive outcome

Q7. On a scale from 1 to 10, how important do you think the following elements are for a company to be able to innovate successfully? Top 3. Q19. Has your company increased its ability to analyze large and complex amounts of data over the last year?
Executives are increasingly recognizing the strategic value of data and analytics

Importance to be able to innovate successfully: To use big data and analytics to improve strategic knowledge and inform decision-making (2015)

Q7. On a scale from 1 to 10, how important do you think the following elements are for a company to be able to innovate successfully? Top 3. 2014 – To use analytics and predictive knowledge 2015 - To use big data and analytics to improve strategic knowledge and inform decision-making
Collaboration has increased in most markets

The revenue and profit generated by collaborative innovation activities has been growing over the last year.

Q18A. Has the revenue and profit generated by collaborative innovation activities been growing over the last year? % Yes. Base business executives: 2,748
Leaders are more willing to share both the gains and risks of collaborating, and they are seeing growing results.

More than 77% have increased revenue and profit by collaborative innovation in the last year – up from 64% in 2014. This is even more the case for...

- 85% Those whose innovation strategies are steered towards breakthrough innovations
- 81% Those who find that to come up with radical and disruptive ideas is a challenge preventing their business’ ability to innovate

Say their firm is open to sharing the revenue stream or the revenue losses that could be generated through a collaborative innovation initiative.

- 68% of business executives say their firm is open to sharing revenue stream or losses

The revenue and profit generated by collaborative innovation activities has been growing over the last year – 64% (2014 DATA). This is even more the case for...

Q18A. Has the revenue and profit generated by collaborative innovation activities been growing over the last year? % Yes. Base business executives: 2,748
Q18B. Is your firm open to sharing the revenue stream or the revenue losses that could be generated through a collaborative innovation initiative? % Yes. Base business executives: 2,748
Leaders are seeing an increasing financial return on collaborative innovation

The revenue and profit generated by collaborative innovation activities has been growing over the last year
The biggest increase in collaboration has been amongst smaller businesses

The revenue and profit generated by collaborative innovation activities has been growing over the last year.

- 75% of businesses with < 100 employees
- 79% of businesses with 101 < 1000 employees
- 77% of businesses with 1000+ employees

Q18A. Has the revenue and profit generated by collaborative innovation activities been growing over the last year? % Yes. Base business executives: 2,748.
DISRUPTIVE INNOVATION: THE SOLUTION AND THE CHALLENGE

There is general agreement (90%), among executives and citizens alike, that the most innovative companies not only launch new products and services but also create a new market that didn’t previously exist.

Yet, what if technology evolves faster than businesses can adapt?

81% of Business Executives are mindful of the risk of “Digital Darwinism” or fear of becoming obsolete (FOBO).
Being disruptive is the gold standard for both executives and citizens but remains a challenging goal.

90% The most innovative companies not only launch new products and services but also create a new market that didn't previously exist.

...93% Informed Public

47% In the past few years, the development of entirely new products or services has contributed to the performance of 47% of companies.

60% The difficulty to come up with “radical and disruptive ideas” is a key challenge to innovate efficiently (2015).

...40% Informed Public

Q16. For each of the following challenges preventing businesses' ability to innovate efficiently, please say how far each of them applies to your company. The difficulty to come up with radical and disruptive ideas. Net % apply. Base business executives: 2,748.
Being disruptive is a growing challenge for the “Innovation Champions,” with China as an exception

The difficulty to come up with “radical and disruptive ideas”

Q16. For each of the following challenges preventing businesses’ ability to innovate efficiently, please say how far each of them applies to your company. The difficulty to come up with radical and disruptive ideas. Net % apply. Base business executives: 2,748.
Business Executives and Informed Publics are mindful that more and more businesses face “DIGITAL DARWINISM” - becoming obsolete as technology is evolving faster than they can adapt.

Only few feel their company is performing very well at quickly adapting and implementing emerging technologies.
While Fear of Becoming Obsolete (FOBO) is a view shared across the majority of markets.

Q20. How much do you agree or disagree with the following statements – More and more businesses face “DIGITAL DARWINISM” – becoming obsolete as technology is evolving faster than they can adapt. Base business executives: 2,748 informed public: 1,346

Global average: 81%
Being disruptive is the gold standard and 81% of Business Executives recognize the “start-up” ethos is increasingly becoming the example norm. They recognize they need to innovate radically to keep up, but most business leaders favor a “safer” approach.

With inertia and risk aversion on the rise, incremental innovation is still driving the bottom line for most business leaders, especially those in developed markets.

However, emerging markets, especially in Asia, are embracing radical innovation and opportunities to leapfrog.
The “start-up” ethos is increasingly becoming the example norm

With digital transformation we are observing the rise of ‘nomad employees’

- 71% agree

81% of Business Executives and 79% of Informed Publics believe...

the "start-up" ethos is increasingly becoming the example norm for creating an innovation culture within companies of all sizes

Q4. / Q14. How far do you agree or disagree with the following statements? In my country... The "start-up" ethos is increasingly becoming the example norm for creating an Innovation culture within companies of all sizes / Q19. How much do you agree or disagree that the following types of ways of working might create a more productive work environment? [Agree + Strongly agree] Base business executives: 2,748. Base informed public: 1,346
The majority of Business Executives continue to favor a “safer” approach to Innovation

Maximizing performance of existing revenue streams and business models: 58% favor, 42% do not.

Opening up new revenue streams and inventing new business models: 64% favor, 36% do not.

China: Country most likely to favor opening up new revenue streams and invent new business models.

To protect the core business as much as possible, so it continues to generate the profitability needed to support research and innovation efforts: 64% favor, 36% do not.

To bring innovative products and/or services to market as fast as possible without worrying about the short term impact it can have on the core business: 34% favor, 66% do not.

Q14. We are now going to present different innovation strategies. For each you will be shown two options. Please pick the one you feel is the most relevant to your company’s approach. Q15. We are now going to present different views on the ideal innovation process. For each you will be shown two options. We would like you to pick the one you feel is the truest or the most relevant in driving successful innovation. Q9. In the past few years, what kind of innovations has contributed the most to your company’s performance? The development of new business models. Base business executives: 2,748.

Only 1/3 recognize the development of new business models (re-envisioning how a company generates revenue involving major changes in the way the company is organized, is managed and operates) has contributed to the performance of their company.
Many businesses innovate incrementally as a way to mitigate risks, even while speed to market is increasingly a differentiator.

63% Incremental innovation, improving existing products and solutions

46% To get to market as quickly as possible to keep an edge on competition, even if this means having an imperfect product or service and improving it along the way

45% Hi-tech/IT Sector most likely to favor breakthrough innovation (45%)

Q14. We are now going to present different innovation strategies. For each you will be shown two options. Please pick the one you feel is the most relevant to your company's approach. Q15. We are now going to present different views on the ideal innovation process. For each you will be shown two options. We would like you to pick the one you feel is the truest or the most relevant in driving successful innovation. Base business executives: 2,748.
All markets show a preference for incremental innovation

Incremental innovation, improving existing products and solutions vs. breakthrough innovation, launching products that are completely new and have the ability to disrupt their market

Q14. We are now going to present different innovation strategies. For each you will be shown two options. Please pick the one you feel is the most relevant to your company's approach. Base business executives: 2,748.

Global average: 63%

Over index:
- Sweden: 75%
- Japan: 73%
- Israel: 70%
- South Africa: 70%
- KSA: 67%
- South Korea: 66%
- Poland: 66%
- Turkey: 66%
- Nigeria: 66%
- Germany: 64%
- Mexico: 64%
- UAE: 65%
- USA: 60%
- Algeria: 60%
- Brazil: 59%
- Malaysia: 59%
- Russia: 59%
- China: 58%
- India: 58%
- Australia: 57%
- Indonesia: 56%
- Canada: 55%
- France: 54%

Under index:
Protecting the core business is the priority for most markets

To protect the core business as much as possible, so it continues to generate the profitability needed to support research and innovation efforts vs. bringing innovative products and/or services to market as fast as possible without worrying about the short term impact it can have on the core business.

Q15. We are now going to present different innovation strategies. For each you will be shown two options. Please pick the one you feel is the most relevant to your company's approach. Base business executives: 2,748.
The majority of markets prefer to make the most of existing revenue streams and business models

Maximizing performance of existing revenue streams and business models vs. opening up new revenue streams and inventing new business models

Q14. We are now going to present different innovation strategies. For each you will be shown two options. Please pick the one you feel is the most relevant to your company’s approach. Base business executives: 2,748.
Having an innovation strategy and a performance KPIs framework no longer guarantee success

Does your company have a clear innovation strategy?

62% of those with a clear innovation strategy still struggle to come up with radical and disruptive ideas.

57% of those without a clear innovation strategy struggle to come up with radical and disruptive ideas, too.

73% Do measure the contribution of innovation to their business performance.

Q12. Does your company have a clear innovation strategy? / Q13. Do you measure the contribution of innovation to your business performance? / Q16. For each of the following challenges preventing businesses' ability to innovate efficiently, please say how far each of them applies to your company? Base: business executives: 2,748
We see polarized views in approach to innovation strategies

My company has a clear innovation strategy

Q12. Does your company have a clear innovation strategy? Base business executives: 2,748
Risk taking is also a growing challenge in most markets

Challenges preventing businesses’ ability to innovate efficiently, the incapacity of the business to take risks

Q16. For each of the following challenges preventing businesses’ ability to innovate efficiently, please say how far each of them applies to your company? Top 2. Base business executives: 2,748. Base informed public: 1,346.
Incremental innovation dominates companies’ performance drivers; innovation that has a sustainable dimension at its core is marginally contributing.

In the past few years, what kind of innovation has contributed the most to your company’s performance?

- The improvement of existing products or services: 58%
- The development of new business models: 34%

Q9. In the past few years, what kind of innovations has contributed the most to your company’s performance? Please select up to 5 answers maximum. Base business executives: 2,748.
Willingness to accept a longer-term payoff for innovation is a general challenge, with the exception of the U.S. and Germany.

To be ready to accept long-term ROI to allow for breakthrough innovation (performs extremely well)

Over index

Global average 21%

Under index

Q8.K How does your company currently perform against these success criteria: To be ready to accept a long term ROI to allow for breakthrough innovation. % performs extremely well.
Base business executives: 2,748
Identifying best practices and integrating them internally is a challenge for businesses

<table>
<thead>
<tr>
<th>TOP 3 BEST PRACTICES to foster and enable reliable and radical innovation</th>
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</thead>
<tbody>
<tr>
<td>To have a clear process and structure in place to manage innovation</td>
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<tr>
<td>To encourage and reward innovative people</td>
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<tr>
<td>To create a connected culture where idea sharing is facilitated and where all the contributing parties are recognized and rewarded</td>
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<tr>
<td>To reward those within the organization who create the next innovation that will make one of their products/services obsolete</td>
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<tr>
<td>Turn data and analytics into actionable decision making tool</td>
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<td>To create a set of metrics to decide which product or service should be funded or be killed</td>
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<tr>
<td>To rely on consumer research as a foundation for innovative products/services</td>
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<tr>
<td>To have innovation teams report directly to the CEO on a long term basis</td>
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</tbody>
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<table>
<thead>
<tr>
<th>TOP 3 MOST CHALLENGING best practices to IMPLEMENT</th>
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<tbody>
<tr>
<td>49%</td>
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<td>41%</td>
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The Informed Public think internal inertia and lack of leadership prevent business from innovating efficiently, while execs blame ineffective business models.

Challenges preventing businesses’ ability to innovate efficiently

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Business Executives</th>
<th>Informed Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difficulty to define an effective business model and make them profitable</td>
<td>64%</td>
<td>63%</td>
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<tr>
<td>The ability to acquire and integrate external innovations into the company as a whole</td>
<td>36%</td>
<td>36%</td>
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<tr>
<td>The internal inertia and the incapacity to be nimble, failing at rapidly converting ideas into action</td>
<td>60%</td>
<td>60%</td>
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<tr>
<td>The lack of sufficient investment and financial support</td>
<td>43%</td>
<td>43%</td>
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<tr>
<td>A lack of talent / inadequate skillset</td>
<td>50%</td>
<td>50%</td>
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<tr>
<td>The incapacity of the business to take risks</td>
<td>58%</td>
<td>58%</td>
</tr>
<tr>
<td>The lack of internal support from leadership team/top management</td>
<td>41%</td>
<td>41%</td>
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</tbody>
</table>

Q16. For each of the following challenges preventing businesses’ ability to innovate efficiently, please say how far each of them applies to your company? Top 2. Base business executives: 2,748. Base informed public: 1,346.
2016 GE GLOBAL INNOVATION BAROMETER SUPPORTING FINDINGS
The future worker is changing. Business Executives are seeking problem solvers and creativity and the Informed Public are embracing the start-up ethos, and value flexible and remote work. However, many think we have a lot to do to prepare for tomorrow’s skills needs.
The future worker is changing

Talent acquisition remains the first innovation success factor...

And 81% of Business Executives believe the "start-up" ethos is increasingly becoming the example norm for creating an innovation culture within companies of all sizes.

With digital transformation we are observing the rise of 'NOMAD EMPLOYEES' e.g., individuals that do not necessarily seek full-time employment but favor freelancing or contracting modes.

- Talent: 76%
- Leadership commitment: 75%
- Conducive culture: 73%
- Tech adoption: 70%
- Collaboration: 68%
- Meaningful innovation: 67%
- Knowledge management: 66%
- Private investment: 65%
- LT vision: 63%
- Analytics: 60%
- Societal relevance: 60%
- Impactful: 60%
- New ways of working: 60%
- Digital by design: 58%
- Government incentives: 57%

71% agree (Business Executives)

59% agree (Informed Public)

But just over half believe that the current education system is adapted to fulfill the private sector’s demand for new talent and skills.
The ideal talent are creative problem solvers, but entrepreneurs are not fully embraced

What are the main attributes you look for in CANDIDATES when considering them for a job application?

Q20. Beyond having the necessary technical qualifications for a job, what do you think are the main attributes companies are looking for in candidates when considering them for a job application? Q21. Beyond having the necessary technical qualifications for the job, what are the main attributes you look for in candidates when considering them for a job application? Base business executives: 2,748. Base informed public: 1,346.
The Informed Public thinks the “start-up ethos” provides the most productive work environment.

Top elements thought to create a more productive work environment:

- **Flexible working hours** - where employees have a degree of freedom to choose their own working hours (89%)
- **Participative management principles** - where employees elect corporate leadership and have a say in the appointment and appraisal of their managers (80%)
- **Remote working** - where employees work from home, cafes, etc., on a regular basis (79%)

Q19. How much do you agree or disagree that the following types of ways of working might create a more productive work environment? [Agree + Strongly agree]

Base business executives: 2,748. Base informed public: 1,346
The Informed Public sees value in changing our ways of working to create a more productive work environment

Q19. How much do you agree or disagree that the following types of ways of working might create a more productive work environment? [Agree + Strongly agree]

Base informed public: 1,346.

- Flexible working hours: 89%
- Participative management: 80%
- Remote working: 79%
- Flexible holidays: 75%
- Open plan: 71%
- Minimal hierarchy: 69%
- Satellite offices: 62%
- Participative salary: 60%
- Hot desking: 50%
Only a few countries feel their education system is ready to answer the future skills challenge

“The current education system is adapted to fulfill the private sectors' demand for new talent and skills”

<table>
<thead>
<tr>
<th>Country</th>
<th>Business Executives</th>
<th>Informed Publics</th>
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<tbody>
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<td>India</td>
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<td>Russia</td>
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<tr>
<td>Algeria</td>
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Q4. & Q14. How much do you agree or disagree with the following statements? Base business executives: 2,748. Base informed public: 1,346.
The Informed Public in Asia are the most confident that their education systems are future-facing

“The current education system is preparing the next generation for **the jobs of tomorrow**”

Q25. How much do you agree or disagree with the following statements? The current education system is preparing the next generation for the jobs of today? The current education system is preparing the next generation for the jobs of tomorrow
Many emerging markets think businesses should play an active role in educating their employees for the digital revolution

“The DIGITAL REVOLUTION will increase BUSINESSES’ RESPONSIBILITY to provide educational support to their employees so they ensure their skills are always up-to-date”
Businesses are seen to have a responsibility to skill their workers for a digital reality

“The private sector will have the responsibility to ADDRESS THE IMPACT OF TECHNOLOGY, and in particular to retool, re-skill and find new uses for the labor force”

Q24. Which, if any, of the following outcomes are the most likely to happen in your country? Base business executives: 2,748
MINDS AND MACHINES
WORKING TOGETHER

Business Executives expect the digital revolution will make the workplace safer and create higher-value roles for workers. Few fear any negative impact on employment. Executives in the US, India, China or Germany anticipate a positive outcome in their country, while Japanese, French or Swedish executives are more skeptical.
Believe the digital revolution will have a negative impact on employment

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What do you anticipate the impact of automation to be on jobs in your country?

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<th>Impact</th>
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<td>Positive only</td>
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<td>Positive and negative</td>
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<td>Negative only</td>
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“The digital revolution will have a positive impact on employment”

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New types of jobs will be created:

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Workplace safety will increase:

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Please see notes for question details
Country perceptions of how the digital revolution will affect employment vary widely

“The DIGITAL REVOLUTION will have a POSITIVE IMPACT on employment”

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<thead>
<tr>
<th>Country</th>
<th>Over index (BEs)</th>
<th>Under index (BEs)</th>
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<tbody>
<tr>
<td>India</td>
<td>70%</td>
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<td>Japan</td>
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<td>41%</td>
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Q23. A. & Q22. There is currently a debate around the impact the digital revolution will have on employment. In your opinion, what will be the impact of the digital revolution? Net % positive. Base business executives: 2,748. Base informed public: 1,346.
The digital revolution is expected to change the nature of work

Which are the most likely outcomes in your country?

- Some categories of skilled workers will be in high demand: 53%
- New types of jobs will be created as old ones are lost: 45%
- It will enable new and more flexible ways of working: 48%
- It will improve the quality of existing jobs, making them more enjoyable for employees/workers: 34%
- It will increase businesses’ responsibility to provide educational support to their employees so they ensure their skills are: 32%
- There will be a rise in unemployment due to jobs being destroyed: 29%

Q23B. Which, if any, of the following outcomes are the most likely to happen in your country / Q22B. Which, if any, of the following outcomes are the most likely to happen in your country. Base business executives: 2,748. Base informed public: 1,346.
COUNTRY SPECIFICS: THE IMPACT OF AUTOMATION ON JOBS IN YOUR COUNTRY
There is some polarization concerning the potential displacement of tasks

Impact of automation on job roles: Drive a displacement of tasks in favor of machines

Q24. Which, if any, of the following outcomes are the most likely to happen in your country? Base business executives: 2,748.
The potential negative impact for lower-skilled workers is not a concern for most Business Executives

Impact of automation on job roles: Limit job opportunities and/or drive wages down for individuals with lower skills
Most Business Executives see the opportunities automation can create

Impact of automation on job roles: Offer workers opportunities to assume new, potentially higher-value roles and responsibilities

Q24. We would now like to ask you what you anticipate the impact of automation to be on jobs in your country? Which, if any, of the following outcomes are the most likely to happen in your country? Some can be positive some can be negative. Base business executives: 2,748.
The perception of benefits such as workplace safety are more contrasted

Impact of automation on job roles: Increase workplace safety; Workers will be moved to supervisory roles where they no longer have to perform dangerous applications in hazardous settings

Q24. We would now like to ask you what you anticipate the impact of automation to be on jobs in your country? Which, if any, of the following outcomes are the most likely to happen in your country? Some can be positive some can be negative. Base business executives: 2,748.
Business Executives say revenue and profit generated by collaborative innovation activities have yielded an increase in financial results. They’re open to risk-sharing associated with innovation, including revenue streams or losses that could be generated through collaborative initiatives.
Collaboration has increased in most markets

The revenue and profit generated by **collaborative innovation activities** has been growing over the last year.

Q18A. Has the revenue and profit generated by collaborative innovation activities been growing over the last year? % Yes. Base business executives: 2,748
Revenue and profit generated by collaborative innovation activities have yielded an increase in financial results.

The revenue and profit generated by collaborative innovation activities has been growing over the last year 64% (2014 DATA).

Say their firm is open to sharing the revenue stream or the revenue losses that could be generated through a collaborative innovation initiative 68%.

This is even more the case for...

- Those whose innovation strategies are steered towards breakthrough innovations 85%.
- Those who find that to come up with radical and disruptive ideas is a challenge preventing their business’ ability to innovate 81%.

Q18A. Has the revenue and profit generated by collaborative innovation activities been growing over the last year? % Yes. Base: business executives: 2,748.
Q18B. Is your firm open to sharing the revenue stream or the revenue losses that could be generated through a collaborative innovation initiative? % Yes. Base: business executives: 2,748.
Businesses in most markets are open to sharing the risks of collaboration

My firm is open to sharing the revenue streams or the revenue losses that could be generated through a collaborative innovation initiative.

Q18B. Is your firm open to sharing the revenue stream or the revenue losses that could be generated through a collaborative innovation initiative? % Yes. Base: business executives: 2,748

Global average 68%

India: 83%          USA: 80%          Germany: 80%          France: 78%          Canada: 75%          Russia: 74%          UAE: 73%          Turkey: 72%          Mexico: 72%          Poland: 72%          Australia: 71%          Malaysia: 70%          South Korea: 70%          Indonesia: 69%          KSA: 69%          Sweden: 66%          China: 65%          Brazil: 64%          Nigeria: 62%          Algeria: 53%          Japan: 52%          Israel: 48%          South Africa: 47%
Business Executives from emerging markets are feeling more optimistic and more empowered by the 4th Industrial Revolution than their peers in developing economies. Asian markets are amongst the most excited and confident, emerging markets the most curious. Informed Citizens in developed markets are feeling the least in control.

Fewer leaders in emerging markets are also reporting difficulty coming up with radical and disruptive ideas.
Business Executives from emerging markets feel more optimistic and more empowered by the 4th Industrial Revolution

Q25. How does the prospect of entering a fourth industrial revolution make you feel. Base business executives: 2,748
When it comes to entering a 4\textsuperscript{th} Industrial Revolution, Asian and emerging markets feel more excited…

Q25. / Q23 How does the prospect of entering a fourth Industrial Revolution make you feel? Base business executives: 2,748. Base informed public: 1,346
...and Asian markets also feel most confident
Emerging markets are especially curious about the 4th Industrial Revolution.

Informed Publics in developed markets feel the least in control

Q25 / Q23 How does the prospect of entering a fourth Industrial Revolution make you feel? Base business executives: 2,748. Base informed public: 1,346
And we see being disruptive is a growing challenge for “Innovation champions”, with China an exception

The difficulty to come up with “radical and disruptive ideas”

Q16. For each of the following challenges preventing businesses’ ability to innovate efficiently, please say how far each of them applies to your company. The difficulty to come up with radical and disruptive ideas. Net % apply. Base business executives: 2,748.
Emerging markets are more ready to give access to their personal data

I am willing to allow access to the data I generate if this will allow me to get a better service - 64%

I would rather protect my data and not get a perfect service - 36%

Market focus

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Nigeria</td>
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<td>USA</td>
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<td>Germany</td>
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</table>

Q18. Thinking as a consumer, please select which of the statements falls closer to your opinion. Base informed public: 1,346
Executives and citizens alike call for public authorities to play a more supportive role in innovation. While few citizens (12%) believe their government is the top driver of innovation in their country, more (30%) think it should be. 57% say their country’s regulations are not supportive of innovative companies, although emerging markets are more positive in their assessment. Most executives agree that data and privacy regulations are preventing more radical innovation by businesses.

A CALL FOR GREATER GOVERNMENT SUPPORT

64% Of citizens are willing to share access to their data if it leads to better service.
Executives and citizens call for public authorities to play a more supportive role in innovation.

Most believe the private sector is in the driver’s seat of innovation:

- 64% Few believe their government is driving innovation the most in their country.
- 30% But more think it should be the driving force.

12% 67%
Expectations for governments to make innovation a strategic priority are unequally met

Q7. Thinking about government’s role in innovation - How much do you agree or disagree with the following statements? Our government is making innovation a priority / Our government should focus less on driving innovation in our country [Net % agree]. Base Informed Public: 1,346

Our government is making innovation a priority

<table>
<thead>
<tr>
<th>Country</th>
<th>Agree</th>
<th>Net %</th>
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<tr>
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<td>93%</td>
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<td>India</td>
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<td>Brazil</td>
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Global average: 54%
China is the only country where the government delivers in terms of driving innovation.

Q5. Who do you think is driving innovation the most today in your country? Government. Q6B. Whose responsibility it is to be driving innovation the most in your country? Government. Base informed public: 1,346
Over half of citizens think current regulations are not supporting innovative companies

Regulations in my country today are not supportive of innovative companies

Q18. Thinking as a consumer, please select which of the statements falls closer to your opinion. Base informed public: 1,346.
Data and privacy regulations are seen to prevent the adoption and launch of more radical innovation by businesses.

Business Executives agree

REGULATIONS AROUND PRIVACY and DATA PROTECTION are preventing businesses from LAUNCHING more radical / transformative innovations

REGULATIONS around PRIVACY and DATA PROTECTION are preventing businesses from ADOPTING more radical / transformative innovations

Q4.A & F How far do you agree or disagree with: Regulations around privacy and data protection are preventing businesses from launching more radical / transformative innovations. / Regulations around privacy and data protection are preventing businesses from adopting more radical / transformative innovations.

Base business executives: 2,748.
Citizens are ready to trust innovative businesses with their data IF this allows for better service

Q18. Thinking as a consumer, please select which of the statements falls closer to your opinion. Base informed public: 1,346

- 71% are willing to allow access to the data they generate if this will allow them to get a better service.
- 64% would rather protect their data and not get a perfect service.
- 36% are not sure.

Age groups:
- 25-34 year olds: 71% willing, 29% not sure.
- 35-45 year olds: 62% willing, 38% not sure.
- 46-65 year olds: 55% willing, 45% not sure.
Globally there is a belief that the energy market can still benefit greatly from new innovation approaches. However, energy companies are less positive about the prospect of the 4th Industrial Revolution.
The energy sector can benefit greatly from new innovation approaches

61% of citizens believe the energy industry would benefit the most from investment in new innovation approaches
Innovation in the energy sector is thought to have a number of possible outcomes/benefits

<table>
<thead>
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<th>Benefits</th>
<th>Business Executives</th>
<th>Informed Public</th>
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<tbody>
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<td>Energy Distribution</td>
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<td>43%</td>
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<tr>
<td>Energy Cost</td>
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<td>38%</td>
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<tr>
<td>Carbon Footprint</td>
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<td>40%</td>
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<tr>
<td>Energy Consumption</td>
<td>43%</td>
<td>41%</td>
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<tr>
<td>Energy Independence</td>
<td>43%</td>
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Innovation will improve energy efficiency, helping consumers use less and waste less energy.

Innovation will improve energy distribution.

Innovation will lower the energy cost.

Innovation will help significantly reduce the carbon footprint.

Innovation will enable citizens to manage their own energy consumption.

Innovation will increase the energy independence of your country.

Q27 / Q24. Thinking now about innovation in the energy sector, which of the following outcomes is the most likely to happen in your country? Base business executives: 2,748. Base informed public: 1,346.
The most likely outcomes vary by country

Q24. Thinking now about innovation in the energy sector, which of the following outcomes is the most likely to happen in your country?

Base Informed Public: 1,346
Q27. Thinking now about innovation in the energy sector, which of the following outcomes is the most likely to happen in your country? Base business executives: 2,748

- Energy Efficiency
- Energy distribution
- Carbon footprint
- Energy cost
- Energy consumption
- Energy independence

The most likely outcomes vary by country
Energy companies have seen the biggest contribution from existing products/services over the past few years

Types of innovations that have contributed the most to your company’s performance in the past few years – Energy sector

- The improvement of existing products or services: 58% (Global average 57%)
- The development of new business processes to improve profitability: 46% (Global average 50%)
- The development of more sustainable and eco-friendly processes, products or services: 37% (Global average 46%)
- The development of entirely new products or services: 47% (Global average 44%)
- The development or improvement of products customized to local circumstances or conditions: 44% (Global average 44%)
- The development of new customer services (CRM, After Sales, Loyalty etc.): 38% (Global average 38%)
- The development of more affordable new products and services for the customer: 43% (Global average 37%)
- The development of new business models (re-envisioning how a company generates revenue involving major changes in the way the company is organized, is managed and operates): 34% (Global average 36%)

Q9. In the past few years, what kind of innovations has contributed the most to your company’s performance? Base business executives: 2,748
Energy companies recognize the need for a holistic approach.

Q7. On a scale from 1 to 10, how important do you think the following elements are for a company to be able to innovate successfully? Net: Top 3

- For the top management to proactively support and commit to innovation: 7
- To attract and retain the most talented and skilled individuals: 1
- To create an environment and culture conducive to innovation: 3
- To identify and work collaboratively with the best business partners: 7
- To be ready to accept a long term ROI to allow for breakthrough innovation: 10
- To quickly adapt and implement emerging technologies: 2
- To demonstrate the value of their innovations to clients and users: 5
- To attract private sector investment to fund innovative programs: 4
- To capitalize on and actively share knowledge across functions: 1
- To demonstrate the value of their innovation for Society at large, how it helps address or solve an important issue: 6
- To have a significant impact on the lives of individuals using their products and services: 6
- To use big data and analytics to improve strategic knowledge and inform decision-making: 5
- To put digital capability at the core of their business model: 6
- To make the most of Government incentives for Innovation: 6
- To challenge accepted practices and ways of working: 2

All industries

Energy related

Difference between energy versus all sectors (% pts)

All industries: 75%
Energy related: 82%

Energy companies recognize the need for a holistic approach.
For more information about the GE Global Innovation Barometer, contact or visit:

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