Our time together will focus on:

- Global demographic trends and workforce implications
- Economic trends driving a relook at workforce issues
- Technology trends reshaping the workforce and employer-employee relations
Global flows continue to outpace global GDP growth, despite the financial crisis and slow recovery.

**Goods**
- $17.5 trillion
- 11%

**Services**
- $4.4 trillion
- 10%

**Financial**
- $4.0 trillion
- 6%

**People**
- 194 million people
- 2%

**Data and communication**
- 21.2 million megabits per second
- 52%

---

1. Measured by cross-border migrants; values from 2000 and 2010.
2. Measured by cross-border Internet stock traffic; values from 2005 and 2013.

**SOURCE:** Comtrade; IHS Economics & Country Risk; World Bank; Bank for International Settlements; IMF Balance of Payments; Tele geography; Web of Science, Thomson Innovation; McKinsey Global Institute analysis
Remittance flows are larger than ODA, and more stable than private capital flows.

Sources: World Bank Staff calculations, World Development Indicators, OECD. Private debt includes portfolio investment bonds, and commercial banks and other lending.
Our time together will focus on….

► Global demographic trends and workforce implications
► Economic trends driving a relook at workforce issues
► Technology trends reshaping the workforce and employer-employee relations
The most important number today.....

2.1
### Fertility by Continent

<table>
<thead>
<tr>
<th></th>
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<tr>
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</table>
### Total fertility per woman

<table>
<thead>
<tr>
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UN World Fertility Patterns, 2013 - [www.unpopulation.org](http://www.unpopulation.org)
### Total fertility per woman

<table>
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<td>1.6</td>
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<td>-----------</td>
<td>-----------</td>
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<tr>
<td>Latin America &amp; Caribbean</td>
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<td>2.2</td>
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<tr>
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<td>2.1</td>
<td>1.9</td>
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</tbody>
</table>

UN World Fertility Patterns, 2013 - [www.unpopulation.org](http://www.unpopulation.org)
## North America and Oceana

### Total fertility per woman

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<td>2</td>
<td>1.9</td>
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<tr>
<td><strong>OCEANIA</strong></td>
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<td>2.5</td>
<td>2.5</td>
<td>2.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Australia/New Zealand</td>
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<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
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<td>Melanesia</td>
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<td>4.5</td>
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<td>3.6</td>
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</table>

UN World Fertility Patterns, 2013 - [www.unpopulation.org](http://www.unpopulation.org)
Total fertility 1970-1975

The boundaries on this map do not imply official endorsement or acceptance by the United Nations.
Total fertility 2005-2010

The boundaries on this map do not imply official endorsement or acceptance by the United Nations.
### Simplified population math at 3.0 birthrate

<table>
<thead>
<tr>
<th></th>
<th>Gen 0</th>
<th>Gen 1</th>
<th>Gen 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pop.</td>
<td>100m</td>
<td>150m</td>
<td>225m</td>
</tr>
<tr>
<td>M</td>
<td>50m</td>
<td>75m</td>
<td>112m</td>
</tr>
<tr>
<td>F</td>
<td>50m</td>
<td>75m</td>
<td>112m</td>
</tr>
<tr>
<td></td>
<td>Gen 0</td>
<td>Gen 1</td>
<td>Gen 2</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Pop.</td>
<td>100m</td>
<td>65m</td>
<td>42m</td>
</tr>
<tr>
<td>M</td>
<td>50m</td>
<td>32.5m</td>
<td>21m</td>
</tr>
<tr>
<td>F</td>
<td>50m</td>
<td>32.5m</td>
<td>21m</td>
</tr>
</tbody>
</table>
The Future Demographic Map
Potential surplus population in working age group (2020)

Note: Potential surplus is calculated keeping the ratio of working population (age group 15-59) to total population constant
Source: U.S. Census Bureau; BCG Analysis
Global diversity drives mobility

Gender Diversity
- More women in the workforce

Generational Diversity
- Boomers, Gen X, Gen Y (Millennials)
- Low participation in science and technology education

Ethnic/Other Diversity
- Rapid growth of minority populations
- Low participation in science and technology education (URM’s)

Global Diversity
- Workforce around the world
Global diversity drives mobility

- Cross-border migration reaches a cumulative total of between 194mm and 257mm, depending on the estimate
- Offshoring – up to a quarter of all developed country jobs are highly or somewhat susceptible
- Temporary mobility assignments are on the increase
### Offshoring potential

<table>
<thead>
<tr>
<th>Category</th>
<th>Degree of Offshorability</th>
<th>Examples</th>
<th>Number of Occupations</th>
<th>2004 Employment (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Highly offshorable</td>
<td>computer programmers and systems analysts; telemarketers; bookkeeping, accounting, and auditing clerks</td>
<td>59</td>
<td>8.2</td>
</tr>
<tr>
<td>II</td>
<td>Offshorable</td>
<td>computer software engineers; accountants; machine operators, team assemblers and production worker helpers; bill and account collectors</td>
<td>151</td>
<td>20.7</td>
</tr>
<tr>
<td>III</td>
<td>Hard to offshore</td>
<td>general and operations managers; stock clerks and order fillers; shipping, receiving, and traffic clerks</td>
<td>74</td>
<td>8.8</td>
</tr>
<tr>
<td>IV</td>
<td>Non-offshorable</td>
<td>business operations specialists; health and safety engineers; music directors; photographers; postal service mail sorters</td>
<td>533</td>
<td>92.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>817</strong></td>
<td><strong>130.0</strong></td>
</tr>
</tbody>
</table>

Our time together will focus on....

- Global demographic trends and workforce implications
- Economic trends driving a relook at workforce issues
- Technology trends reshaping the workforce and employer-employee relations
Geopolitical concerns persist, commodity and currency volatility rises

What do you believe to be the greatest economic risk to your business over the next 6–12 months?

- Increased global and regional political instability: 37%
- Increased volatility in commodities and currencies: 35%
- Economic situation in the Eurozone: 10%
- Regulatory environment: 9%
- Slowing growth in key emerging markets: 7%
- Deflation: 2%

- Continuing geopolitical issues in Eastern Europe and the Middle East cause most concern around economic risk.
- The sharp fall in commodity prices and increasing volatility of currencies make it more difficult to plan ahead.
- Divergent monetary policies may impact currency fluctuations.
Seven years after the beginning of the global financial crisis…….

Pre-crisis period
10 years

Early stage of recession
1 – 2 years

Private-sector deleveraging
3 – 6 years

Rebound and public-sector deleveraging
~ 10 years

Real GDP growth
3% – 4%
0% – (5%)
0% – 2%
3% – 4%

Change in Debt/GDP (% points)

• Public sector
  +
  ++
  +++
  – – –

• Private sector
  +++
  +
  – – –
  +++

Private debt/GDP

Public debt/GDP

Real GDP
Seven years after the beginning of the global financial crisis……

<table>
<thead>
<tr>
<th>Pre-crisis period</th>
<th>Early stage of recession</th>
<th>Private-sector deleveraging</th>
<th>Rebound and public-sector deleveraging</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years</td>
<td>1 – 2 years</td>
<td>3 – 6 years</td>
<td>~ 10 years</td>
</tr>
</tbody>
</table>

**Real GDP growth**
(Annual Avg. %)
- Pre-crisis period: 3% – 4%
- Early stage of recession: 0% – (5%)
- Private-sector deleveraging: 0% – 2%
- Rebound and public-sector deleveraging: 3% – 4%

**Change in debt/GDP**
(% points)
- **Public sector**
  - Pre-crisis period: +
  - Early stage of recession: ++
  - Private-sector deleveraging: +++
  - Rebound and public-sector deleveraging: — — —
- **Private sector**
  - Pre-crisis period: +++
  - Early stage of recession: +
  - Private-sector deleveraging: —
  - Rebound and public-sector deleveraging: +++
Eurozone crisis

Scenarios:
► Uncoordinated unwinding of the Euro – very low probability
► Some countries exit the Euro and revert to lower valued currencies, or Germany + exit Euro and revert to higher valued currencies – modest probability
► Greater economic and political integration to further strengthen the Euro – highest probability, >50%
  ► Common bank regulator – ECB
  ► Lender of last resort – ECB
  ► Common bonds – fiscal coordination
Migrants are undertaking dangerous crossings of the Mediterranean

According to the EU’s border control agency, Frontex, more than 276,000 people entered the EU illegally in 2014. Over 220,000 of them crossed the Mediterranean Sea, compared to 60,000 people in 2013. Syrians and Eritreans were the two largest groups. Conflict-torn Libya continues to be the main country of departure. According to UNHCR, over 3,400 people died or were missing while trying to cross the Mediterranean in 2014. In the first three months of 2015, over 15,000 people attempted to cross and 470 died.

Since Italy stopped its rescue operation “Mare Nostrum” in November 2014, Frontex officially launched the maritime operation “Triton” to face the mass attempt of migrants from Africa and Middle East to reach Europe by boat. EU’s “Triton” patrols no further than 30 miles from Italy’s coast. The European Commission expects Italy to continue fulfilling its international obligations and also to rescue people in danger at sea. The new EU policy on migration (the “European Agenda on Migration”), expected to be adopted by May 2015, would address irregular migration and human trafficking, among other issues.
Migrants: Germany could take up to 800,000 this year

19 August 2015 Last updated at 20:51 BST
Rising income and wealth inequality and consumption
Our time together will focus on....

► Global demographic trends and workforce implications
► Economic trends driving a relook at workforce issues
► Technology trends reshaping the workforce and employer-employee relations
World R&D comparison (2013)

Size of circle reflects the relative amount of annual R&D spending by the indicated country.

Source: Battelle, R&D Magazine, International Monetary Fund, World Bank, CIA Fact Book, OECD
Number 1 sector for R&D spending - Information and communications technology (ICT)
Impact of automation via the internet of things

9 settings gave us a cross-sector view of a total potential impact of $3.9 trillion–11.1 trillion per year in 2025:

- Vehicular: Autonomous vehicles and condition-based maintenance ($210B–740B)
- Home: Chore automation and security ($200B–350B)
- Offices: Security and energy ($70B–150B)
- City: Public health and transportation ($930B–1.7T)
- Outside: Logistics and navigation ($560B–850B)
- Human: Health and fitness ($170B–1.6T)
- Worksite: Operations optimization/human health and safety ($160B–930B)
- Factories: Operations and equipment optimization ($1.2T–3.7T)
- Retail environments: Automated checkout ($410B–1.2T)
Strategies to succeed in today’s demographic, technological and global economic environment
Microsoft’s challenge

- PC Era
- Mobile Device Era
S-Curves
Pharmaceuticals - technology

Industry Shifts

Time

Traditional Pharmaceutical Drugs

Biologics
S-Curves
Digital Imaging – technology and business models

Time

Industry Shifts

Analog Imaging
– Kodak, Fuji

Digital Imaging – Canon, Fuji,
Kodak, Sony, Etc.

Smart Imaging – Apple,
Samsung, Facebook,
Instagram, Snapchat, Etc.
S-Curves Retail

Department Stores – Sears, JC Penney, Macys

Discount Stores - Walmart

Category Killers – Home Depot

Warehouse Stores - Costco

Online Retail - Amazon
S-Curves
Automobiles - Technology

Electric vehicles
- ICE – Daimler, Ford, GM
- Advanced ICE - Toyota
- Electric Vehicles - Tesla
- Fuel Cells -- ???

Industry Shifts

Time
S-Curves
Automobiles – Customer outlay

- Owning
- Financing
- Leasing
- Sharing

Industry Shifts vs. Time
S-Curves
Automobiles - Mobility

Time

Industry Shifts

On-demand rentals/sharing – Uber, Lyft.....Taxis (Didi Kuadi), Bla Bla Car

Hourly rentals - Zipcar

Daily/Weekly rentals - Hertz

Taxis

Daily/Weekly rentals - Hertz

Hourly rentals - Zipcar

On-demand rentals/sharing – Uber, Lyft.....Taxis (Didi Kuadi), Bla Bla Car

Taxis
S-Curves
Entertainment - Distribution

Over the Air – NBS, CBS, ABC

Over Cable, Satellite, Telecom – Comcast, DirectTV, Dish, AT&T, Verizon

Over the Top (OTT) – Netflix, Hulu, Youtube
S-Curves
Computing - technology

Mainframes - IBM

Client-server – Sun, HP, IBM, Oracle, SAP, Etc.

Cloud – Amazon, Microsoft, Google, Oracle, IBM, HP, SAP, Etc.
By 2025, online talent platforms could boost global GDP by $2.7 trillion.

<table>
<thead>
<tr>
<th>Share of GDP increase by source, $ trillion</th>
<th>$2.7 trillion&lt;sup&gt;1&lt;/sup&gt;</th>
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</thead>
<tbody>
<tr>
<td>Improved productivity</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>Better matches</td>
</tr>
<tr>
<td></td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>Reduced informality</td>
</tr>
<tr>
<td>Greater employment, 25 million additional FTEs&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>Faster matches</td>
</tr>
<tr>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>New matches</td>
</tr>
<tr>
<td>Higher labor-force participation, 47 million additional FTEs</td>
<td>1.27</td>
</tr>
<tr>
<td></td>
<td>Work for currently inactive people and increased hours for current part-timers</td>
</tr>
</tbody>
</table>

<sup>1</sup>Figures do not sum to total, because of rounding.

<sup>2</sup>Full-time equivalent.

McKinsey&Company
What if There Were a New Type of Worker? Dependent Contractor

On-Demand Workers Need Job Protections, Some Argue
Our time together focused on….

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- Economic trends driving a relook at workforce issues
- Technology trends reshaping the workforce and employer-employee relations