

Tomorrow's Engineers Industry needs and expectations

Trondheim 15. September 2015

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Today's discussion

- How will tomorrow look like ? - “the big picture”
- Are graduates ready to enter the corporate world?
- How to future-fit engineer education

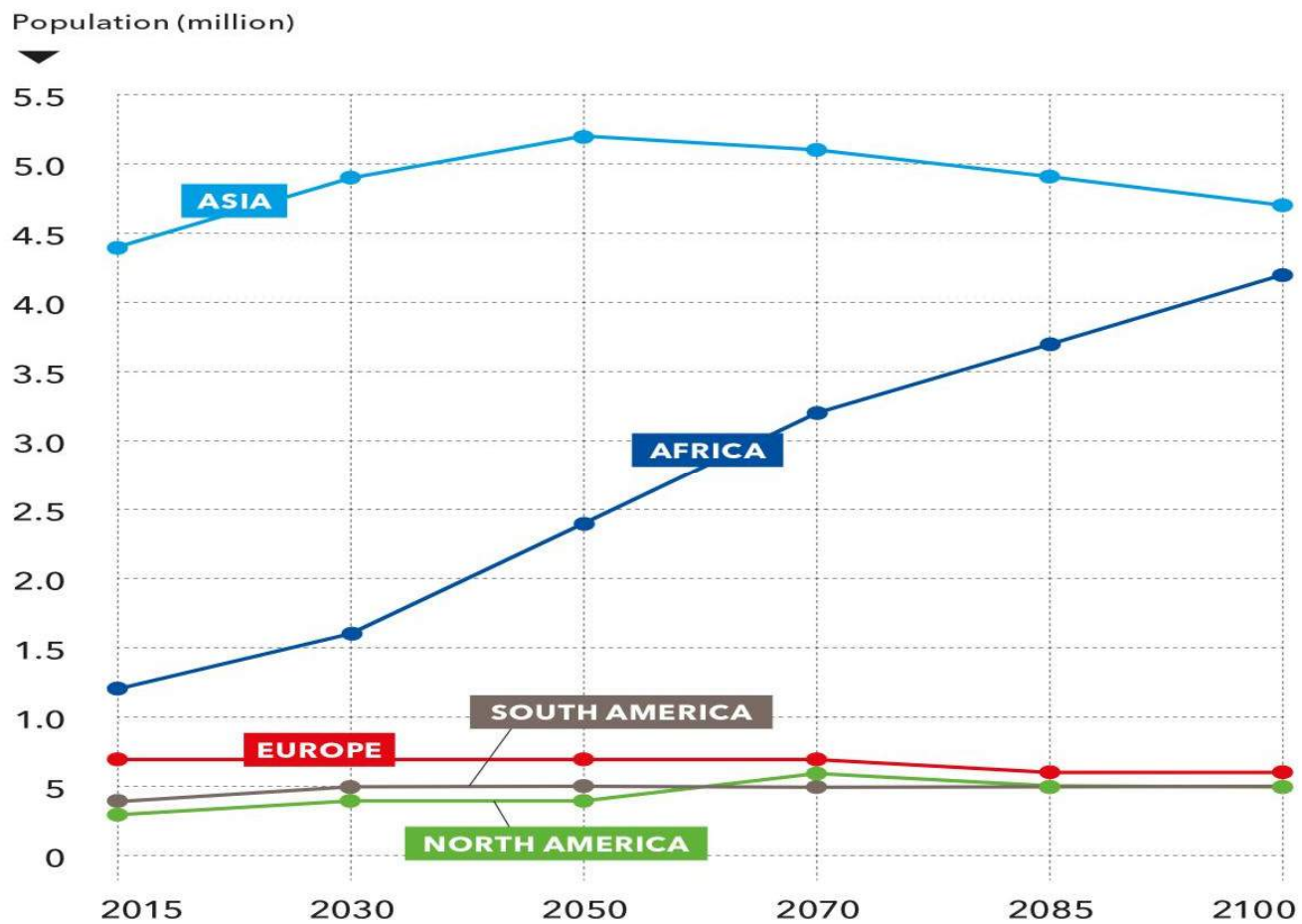
We live in an exciting era



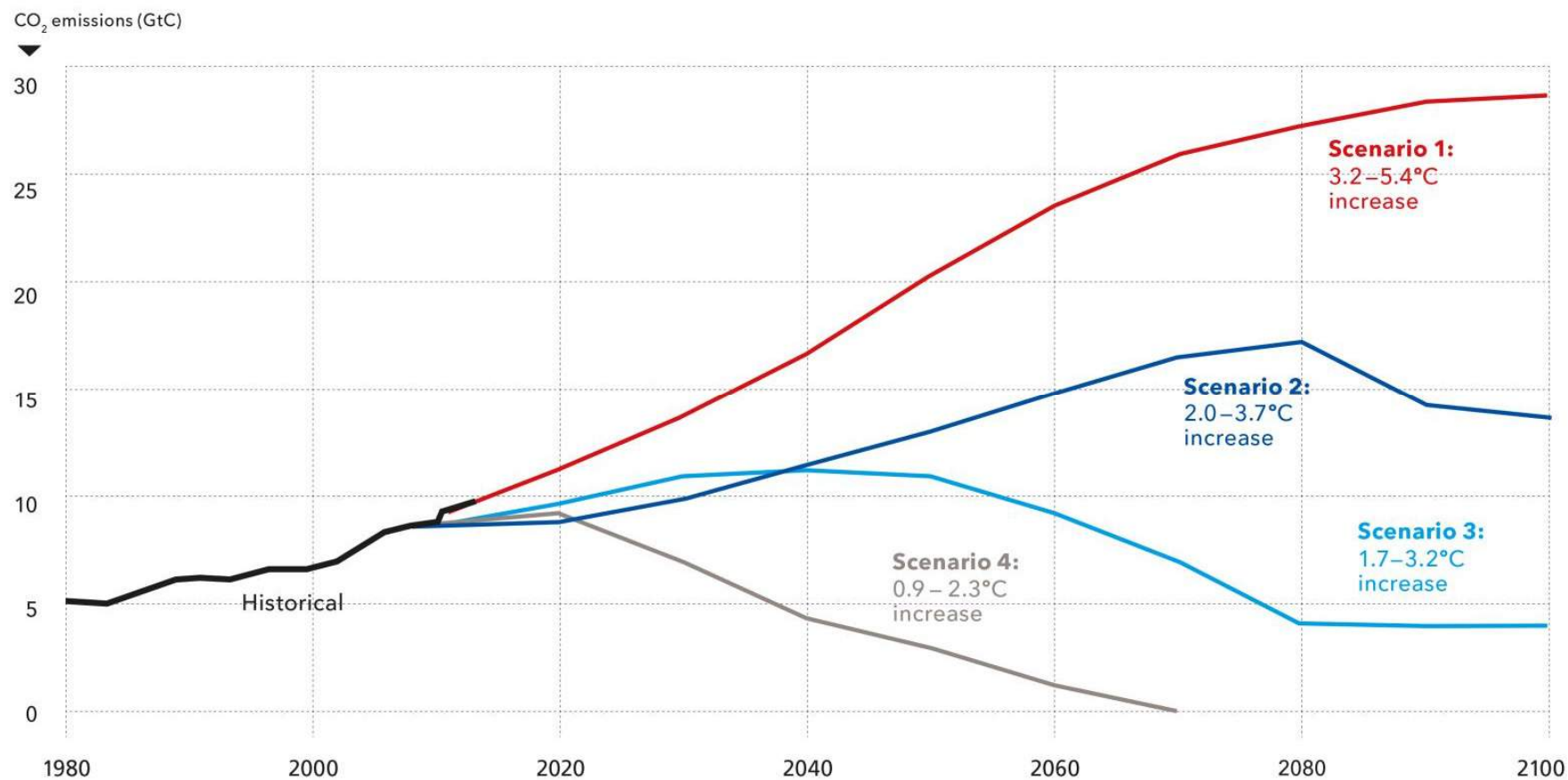
The World in 2050: Where are we headed?



Growing population



Growing emissions



Global trends – expectations and opportunities to business

Urbanisation and growing middle class



Digitalisation and transparency



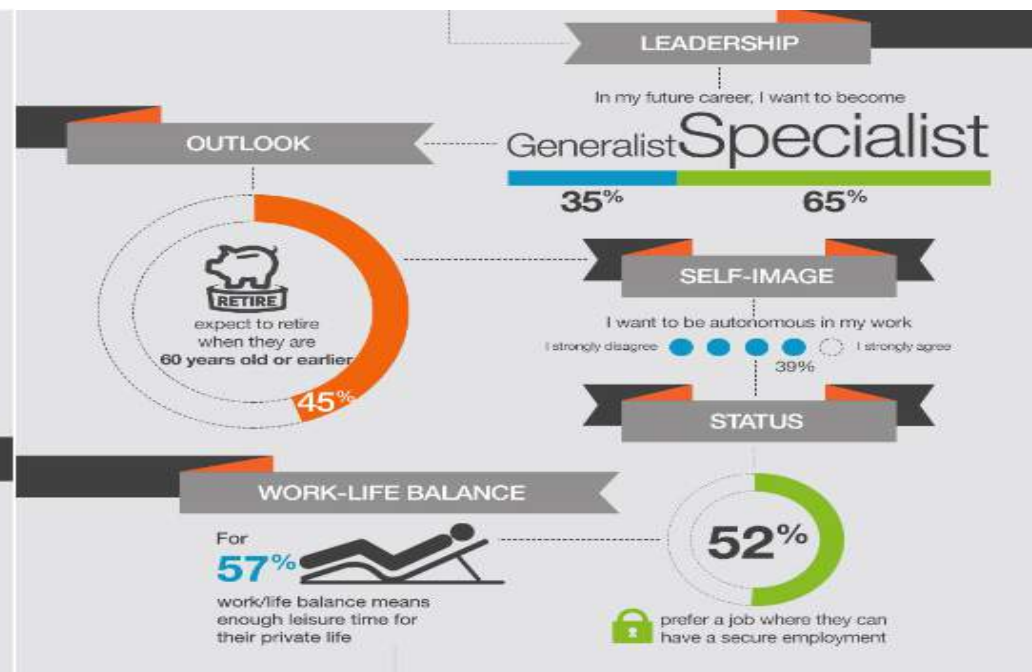
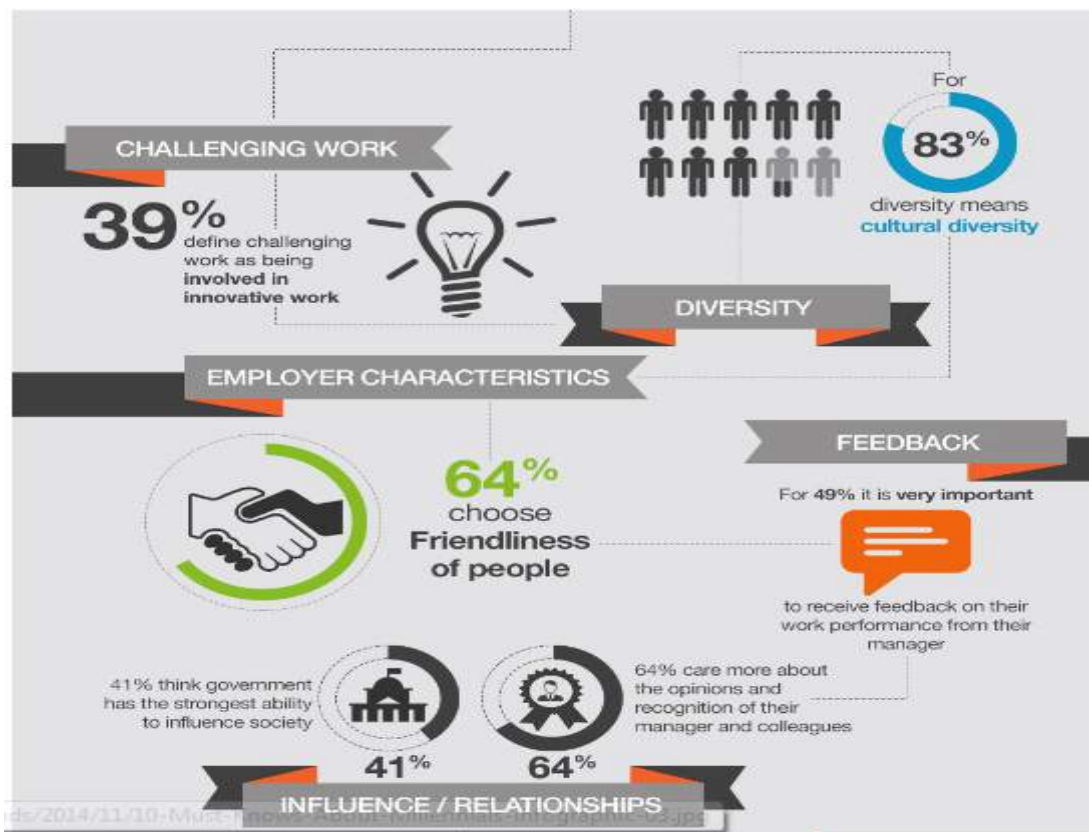
Increased demand for sustainable energy



Constrained resources – circular economy



Millennials – what do they want ?



Undersøkelse blant "Millennials" (født mellom 1984 og 1996)
Universum Global, 2015

Growing need for corporate academies in the business sector

There is an estimated
4,000
formal corporate universities globally



Are the graduates ready for the professional life?

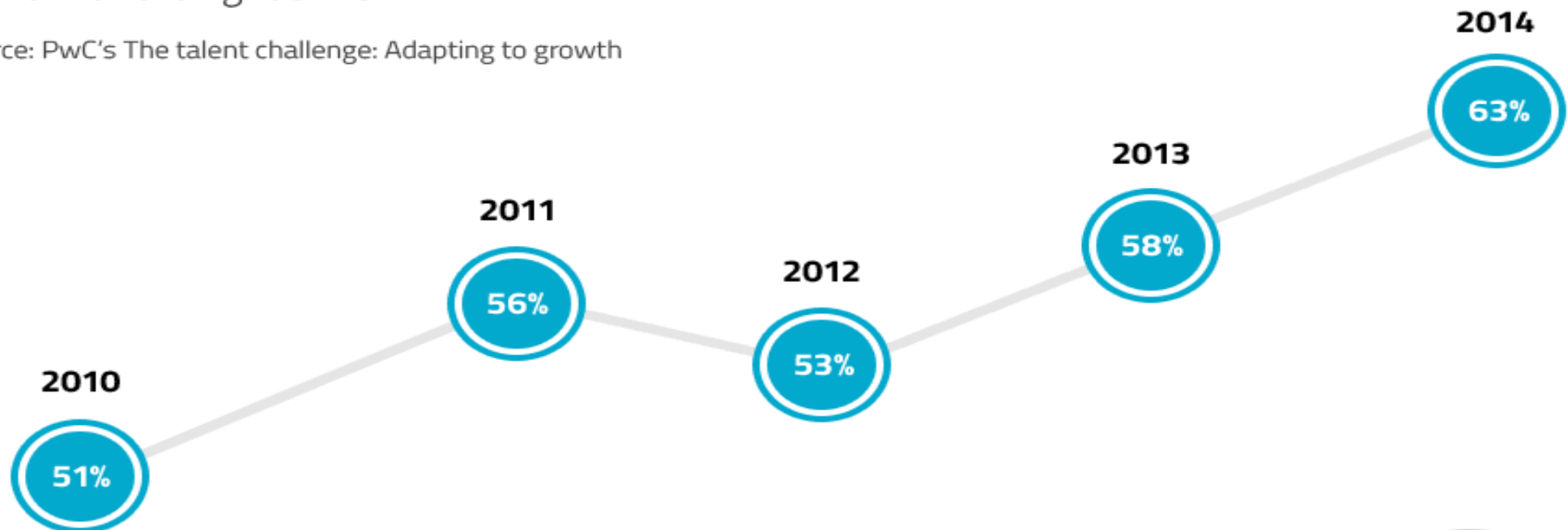


Source: Deloitte, BCG, Universum

Do the graduates have the right skills?

CEOs are increasingly worried about finding talent with the right skills.

Source: PwC's The talent challenge: Adapting to growth

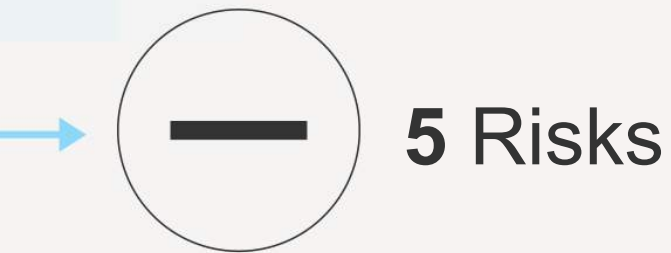


Case study : How can business work on solving society challenges?

Your guide to a world of opportunities



GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS



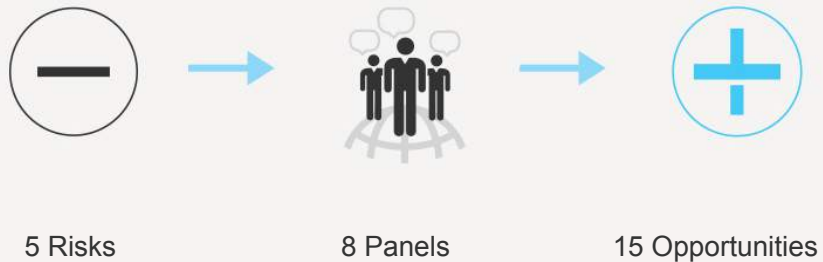
5 Risks

RISK #1	RISK #2	RISK #3	RISK #4	RISK #5
 EXTREME WEATHER	 LACK OF FRESH WATER	 UNSUSTAINABLE URBANIZATION	 NON-COMMUNICABLE DISEASES	 LOCK-IN TO FOSSIL FUELS

GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS



GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS



RISK #5

LOCK-IN TO FOSSIL FUELS

In the energy system, lock-in to fossil fuels inhibits not only the immediate reductions in GHG emissions but also public and private efforts to introduce alternative energy technologies.

OPPORTUNITIES:

REGULATED ENERGY TRANSITION

Regulatory initiatives can accelerate the transition to cleaner and more efficient energy generation and provide dynamic incentives for innovation.

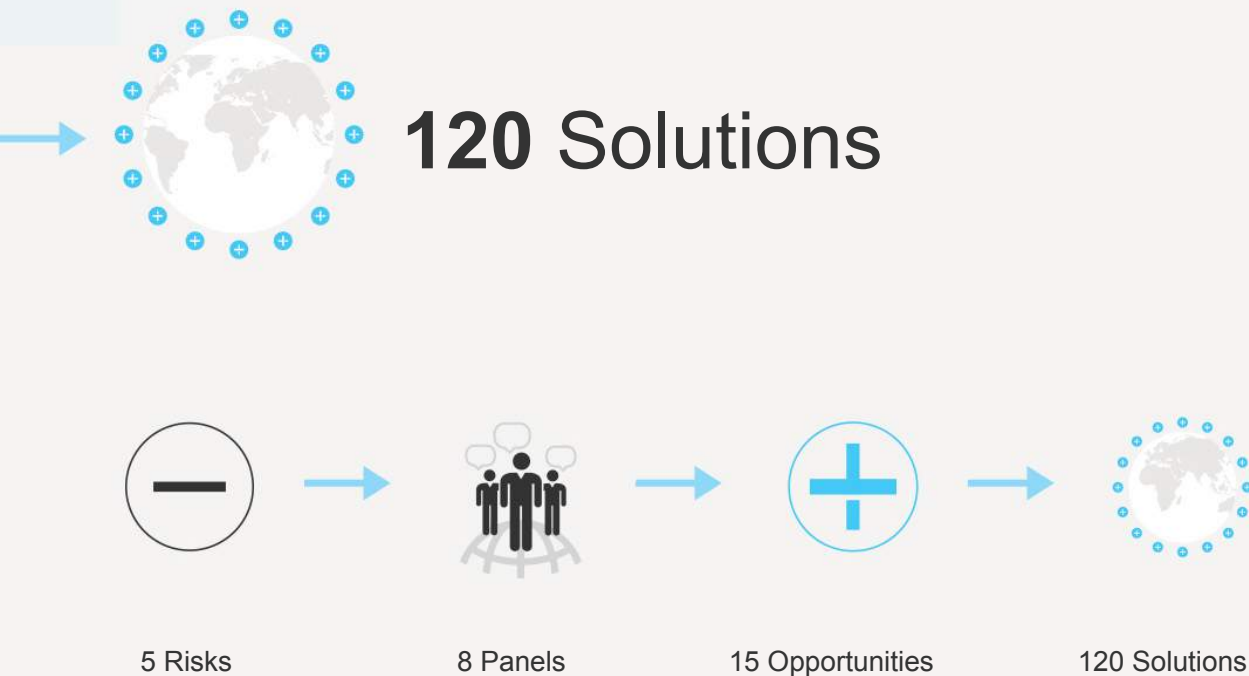
ENERGY AUTONOMY

Autonomous energy generation through off-grid or micro-grid renewable sources is tackling energy poverty and reinventing the role of households in energy systems.

GREEN CONSUMER CHOICES

Consumers' concerns about the environment and climate change can be translated into sustainable choices and initiate larger structural changes.

GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS



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China's Pilot CO₂ Trading Program

China is testing CO₂ trading schemes aimed at reducing emissions of greenhouse gas. The programs cover roughly 40 to 60 percent of emissions from the cities and/or provinces that are part of it. It applies to power and other heavy manufacturing sectors such as steel, cement, and petrochemicals.

Eight such programs are included in the five-year plan for 2011 to 2015. A national program is possible in the coming five-year plan for 2016 to 2020.

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Large-Scale Rural Electrification through Microfinance

A large-scale network of partner organizations providing microfinance allows this solution to provide rural households with access to technology or services for off-grid renewable energy.

IDCOL Solar Home System Program does this by mediating between funding agencies and local organizations that interact directly with households. The aim is to finance four million solar home systems in Bangladesh by 2016.

Incentives for Choosing Electric Cars

Promoting the use of electric cars in Norway has been achieved by providing both financial and everyday usage incentives.

The users of e-cars get free parking and permission to use restricted lanes, thereby receiving clear advantages compared with traditional cars. Consequently, e-cars have proven to be an effective measure, since Norway is now the country with the highest uptake of electric cars globally.

GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS



6,160 private and public sector leaders



5 Risks



8 Panels



15 Opportunities



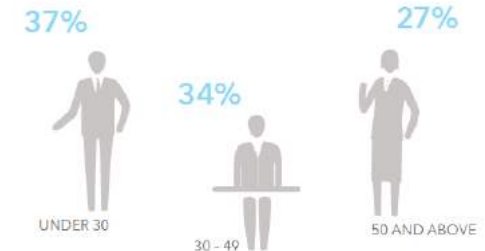
120 Solutions



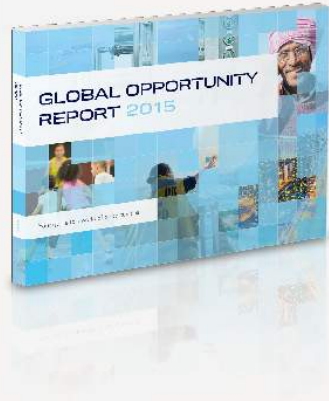
6,160 private and
public sector leaders

YOUNGER GENERATION MORE OPTIMISTIC THAN THE OLDER

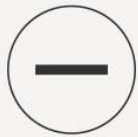
Figure shows the share of most positive responses to all opportunities from specific age groups. Most positive responses rate opportunities above 5 on a scale from -10 to 10 on both the benefits for society and the capacity to pursue them.



GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS



Global Opportunity Report



5 Risks



8 Panels



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120 Solutions



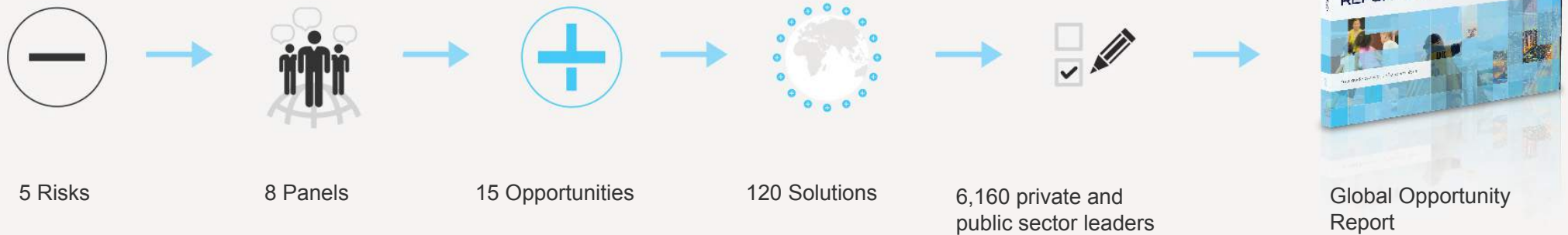
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Global Opportunity
Report

GLOBAL OPPORTUNITY REPORT – BY THE NUMBERS

→ A Collaborative Innovation Platform



Our key findings

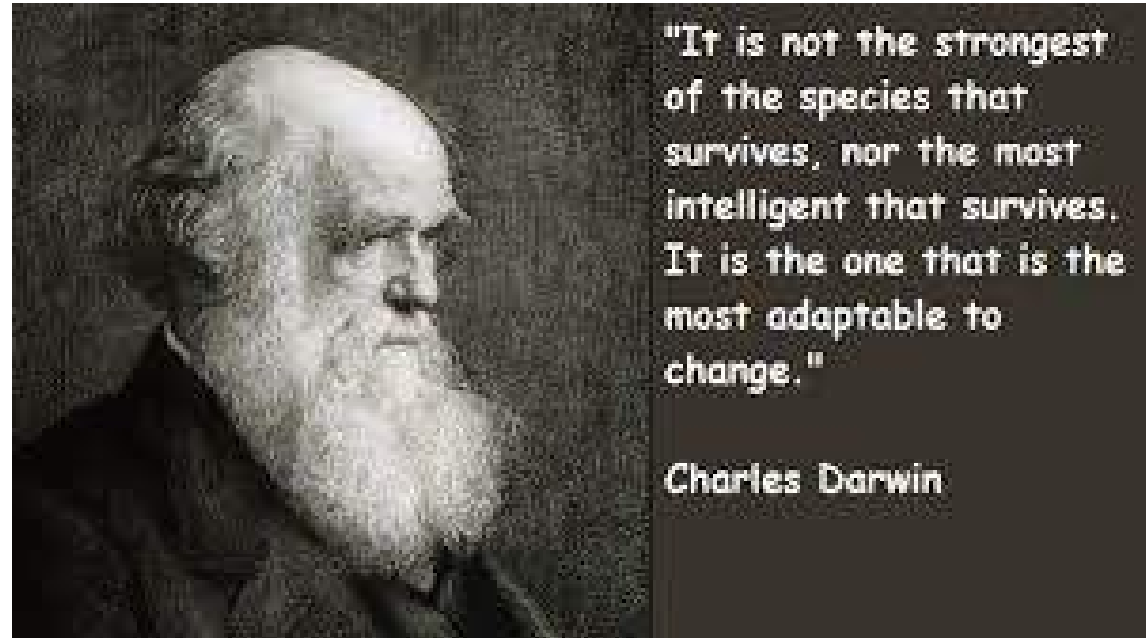
1. **China and India** are better at seeing opportunities than **Europe**
2. **The manufacturing and finance** sectors are most optimistic
3. Strong confidence in **water and renewable energy** related opportunities
4. **Future leaders** are more optimistic – also about **smart regulation**



Summing up – how to future-fit engineer education (1)

Prepared the students for:

- **Energy** transformation
 - low carbon future, decentralized systems
- **Technology** transformation
 - Digitalization & IOT changes everything
- **Education** transformation
 - “googles knows everything”, MOOC
- **Business model** transformation
 - Sharing society and economy



Summing up – how to future-fit engineer education (2)

Technical skills AND "Soft skills"

- **Leadership**
- **Social awareness**
- **Collaboration**
- **Creativity**
- **Communication**

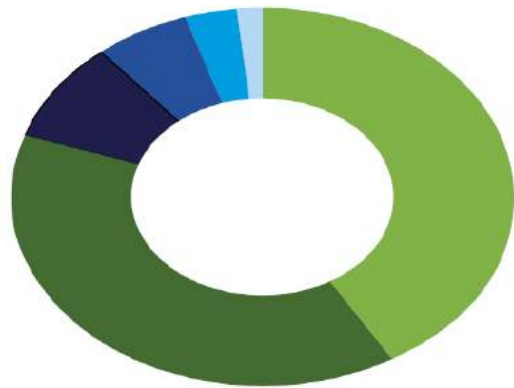


DNV GL - Global reach with local competence



Highly skilled people all around the world

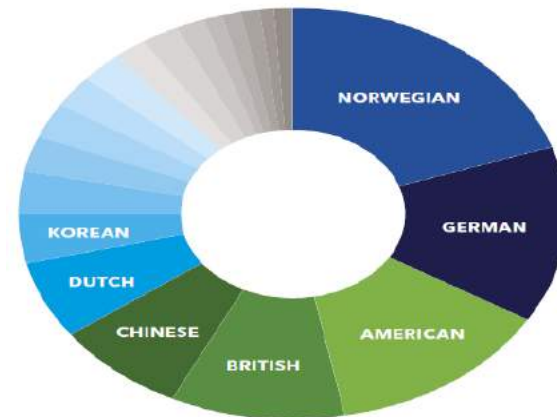
→ EMPLOYEES, LEVEL OF EDUCATION



Master	42%
Bachelor	39%
Basic education	9%
Doctorate	6%
2-year college	3%
Technical / professional	1%
Sum: Bachelor, Master or PhD level degree	87%

Education levels are largely captured through an employee self-service system.

→ EMPLOYEES BY NATIONALITY AS PER 31.12.2014



Norwegian	2,756	Emirati	354
German	1,906	Brazilian	351
American	1,839	Polish	280
British	1,441	Danish	279
Chinese	1,048	Malaysian	237
Dutch	854	Spanish	180
Korean	543	Canadian	152
Singaporean	457	Japanese	132
Indian	399	French	130
Italian	357	Australian	126

Nationalities > 100 shown in table
Nationalities > 500 shown in pie chart

...change can happen fastEaster parade in New York

1900 – Where is the car?



1913 – Where is the horse?



DNV GL purpose and vision

Purpose

To safeguard life, property and the environment

Vision

Global impact for a safe and sustainable future