

# What Industry Needs from ICT Graduates

Australian Council of Deans of ICT  
Annual Council Meeting 2015  
Canberra

Monday 6<sup>th</sup> July 2015

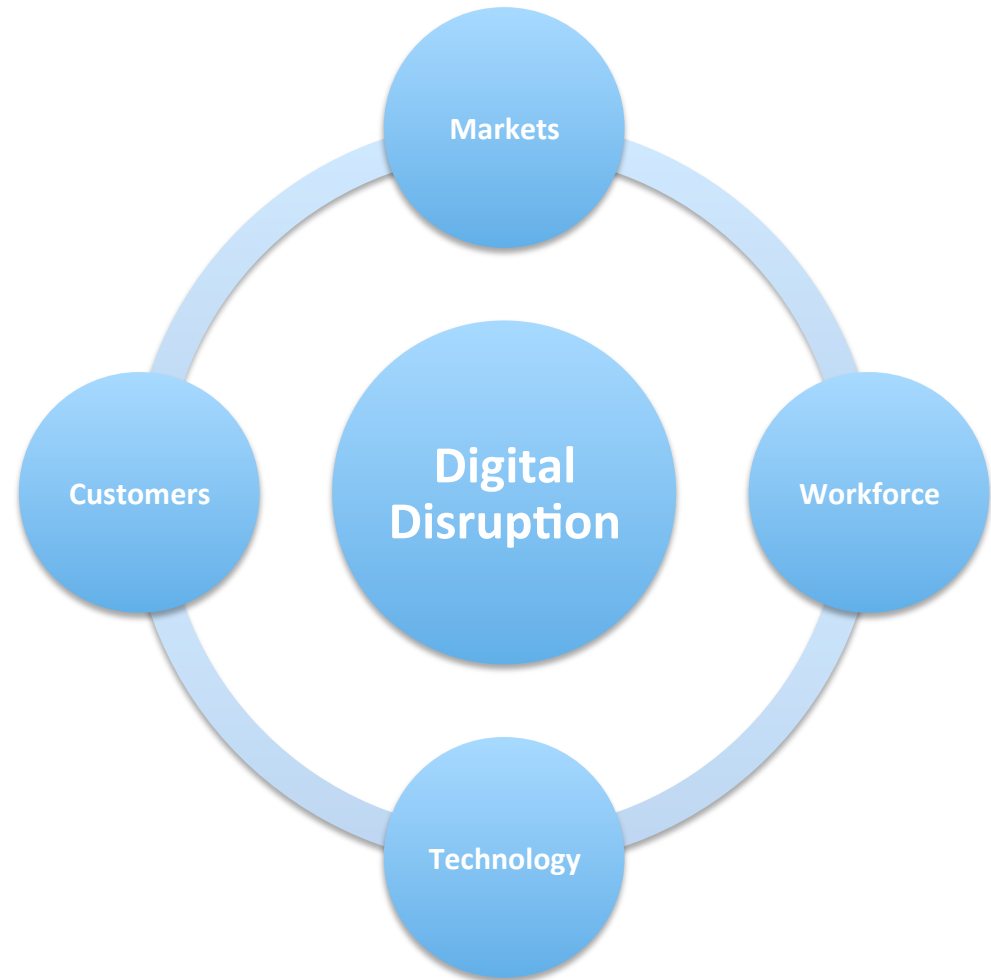
# What is “Digital disruption”

# Digital disruption – four revolutions in one

7/2/2015  
**FINANCIAL TIMES**  
Thanks desert high street for the digital superhighway - FT.com

May 20, 2015 5:14 pm  
**Banks desert high street for the digital superhighway**  
 James Pickford

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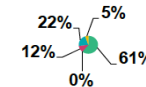
# The Customer Revolution



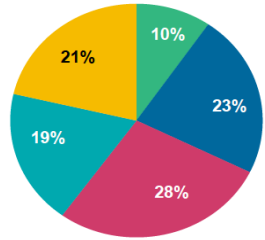
## Top Apps by Usage

Rank	App
①	Facebook
②	WhatsApp
③	Messenger
④	Instagram
⑤	LINE
⑥	Viber
⑦	KakaoTalk
⑧	Clash of Clans
⑨	WeChat
⑩	Twitter

**1995**  
**35MM+ Internet Users**  
 0.6% Population Penetration



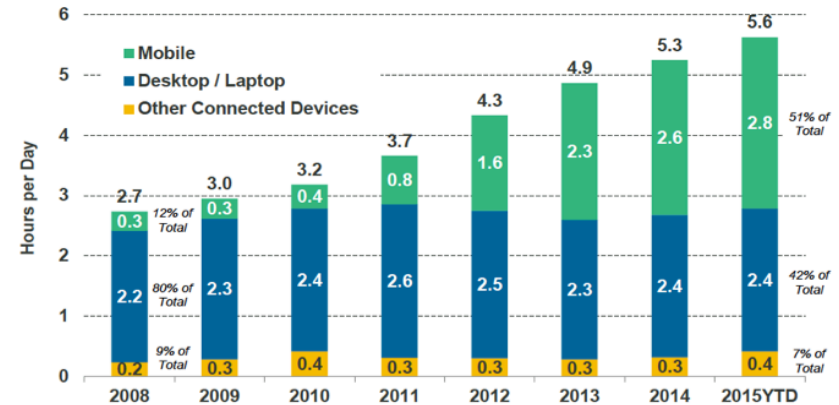
**2014**  
**2.8B Internet Users**  
 39% Population Penetration



■ USA ■ China ■ Asia (ex. China) ■ Europe ■ Rest of World

@KPCB Source: Euromonitor, ITU, US Census.

## Time Spent per Adult User per Day with Digital Media, USA, 2008 – 2015YTD



@KPCB Source: eMarketer 9/14 (2008-2010), eMarketer 4/15 (2011-2015). Note: Other connected devices include OTT and game consoles. Mobile includes smartphone and tablet. Usage includes both home and work. Ages 18+; time spent with each medium includes all time spent with that medium, regardless of multitasking.

# The Market Revolution

U B E R



## Two Uber Executives Indicted in France

Charges include enabling illegal taxi services, illicit storage of personal data



Thibaud Simpal, general director of Uber France. Mr. Simpal and Uber's director for Western Europe, Pierre-Dimitri Gore-Coty, were indicted on charges, including enabling illegal taxi services, that could bring fines and jail time. PHOTO: AGENCE FRANCE-PRESSE/GETTY IMAGES

**New  
Business  
Rules**

*HoneyBook*

We're on a mission to connect the different parts of the events industry by reimagining the way creative professionals work with their colleagues and clients. Whether you're an event planner in charge of a 300-guest wedding, a photographer leading a high-profile fashion shoot, or host of your company's holiday party, HoneyBook organizes your jobs seamlessly, so you can focus on what you do best: creating unforgettable moments.

**Market Networks  
– the next frontier**



FIGURE I-1 Companies involved in the iPad value chain (not comprehensive).

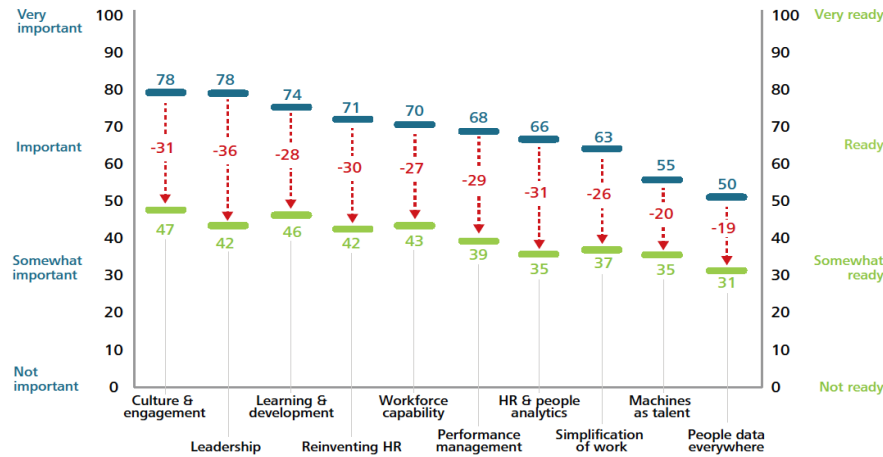
**Integrated  
Value  
Chains**

# The Workforce Revolution

*Far too much of our nation is waiting for new ways of working to arrive. We hear lots of rhetoric about how the nature of work will change, as if it relates to some unknown distant future. The fact is that it is happening now, and we need a broader recognition of this fact and policies and education that reflect it.*

—Charles M. Vest

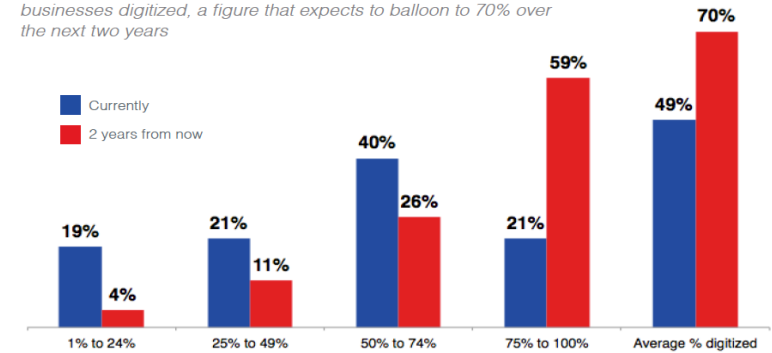
Figure 2. Talent trends: Global importance vs. readiness



Graphic: Deloitte University Press | DUPress.com

Percent of organization that is digitized currently/ two years from now

On average, organizations reported that less than half (49%) of their businesses digitized, a figure that expects to balloon to 70% over the next two years



Source: IDG Research, January 2015

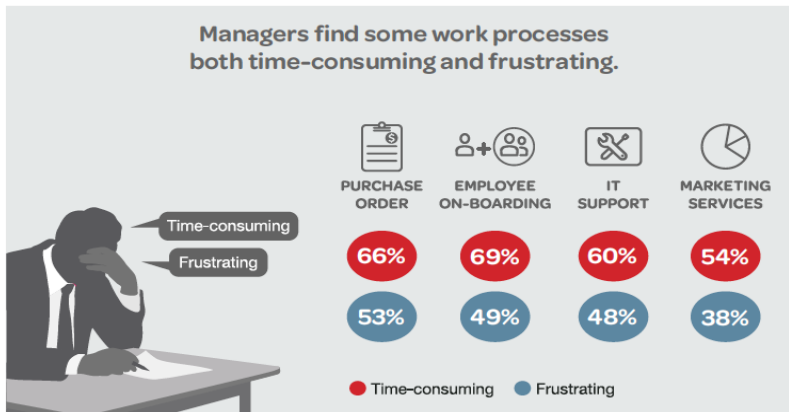
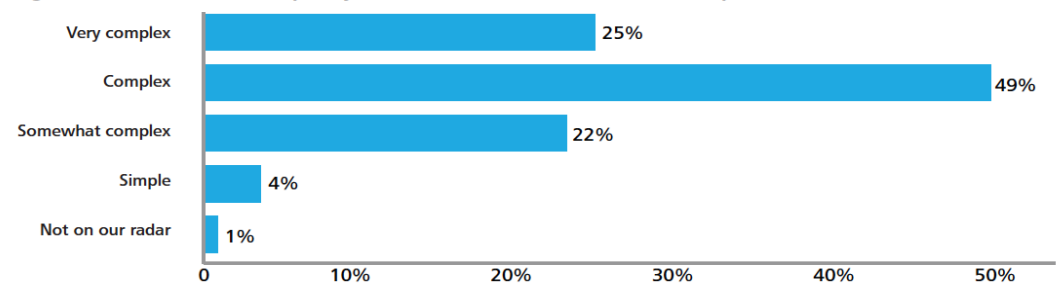


Figure 9. Current state of complexity of the work environment and business practices



Graphic: Deloitte University Press | DUPress.com

# The Technology Revolution

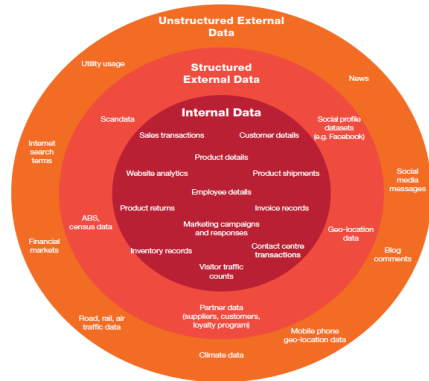
## CONCLUSION

Becoming a digital business is no longer simply about incorporating these technologies into an organization—it's about using digital technology to weave businesses into the broader digital fabric that extends to customers, partners, employees, and industries.

Source: Accenture Technology Vision 2015

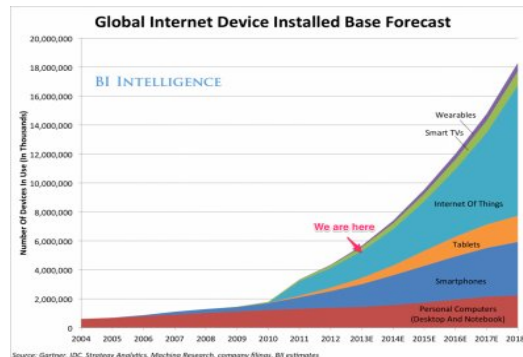
## Big Data

Organisations should start by fully using their internal data then learn to acquire and structure external data.



Source PWC Big Data – the next frontier for innovation 2012

## Internet of Things



Source Business Insider Australia October 2014

# Top 10 Strategic Technology Trends for 2015

## Merging the Real World and the Virtual World

Computing Everywhere



The Internet of Things



3D Printing



## Intelligence Everywhere

Advanced, Pervasive and Invisible Analytics



Context-Rich Systems



Smart Machines



## The New IT Reality Emerges

Cloud/Client Computing



Software-Defined Applications and Infrastructure



Web-Scale IT



Risk-Based Security and Self-Protection



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Gartner.

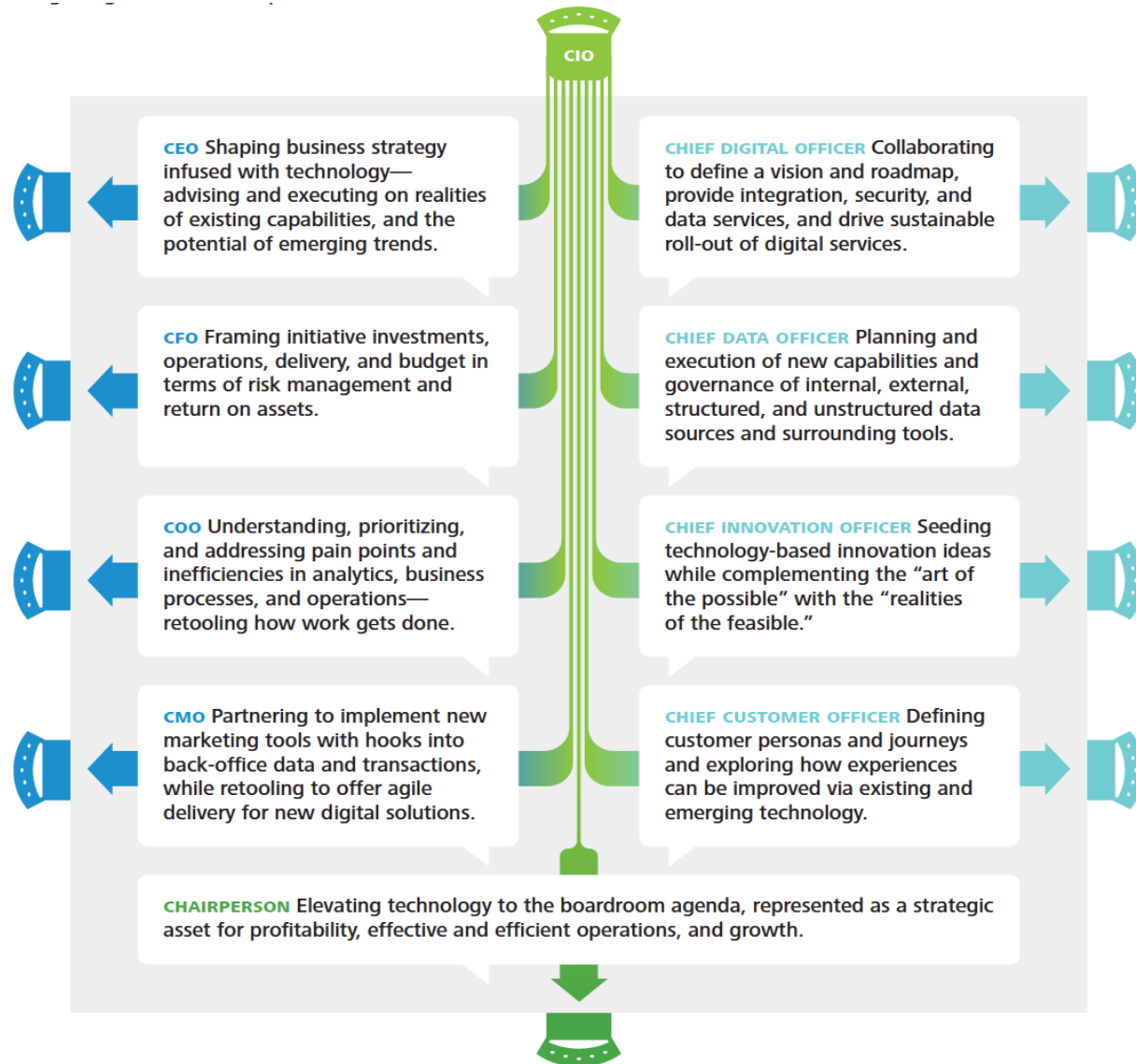
Source: Gartner Top 10 Strategic Technology Trends for 2015 (October 2014)

Craven  
Innovation.

# How is Business Reacting to the Challenges



# IT has a central role in Digital Transformation

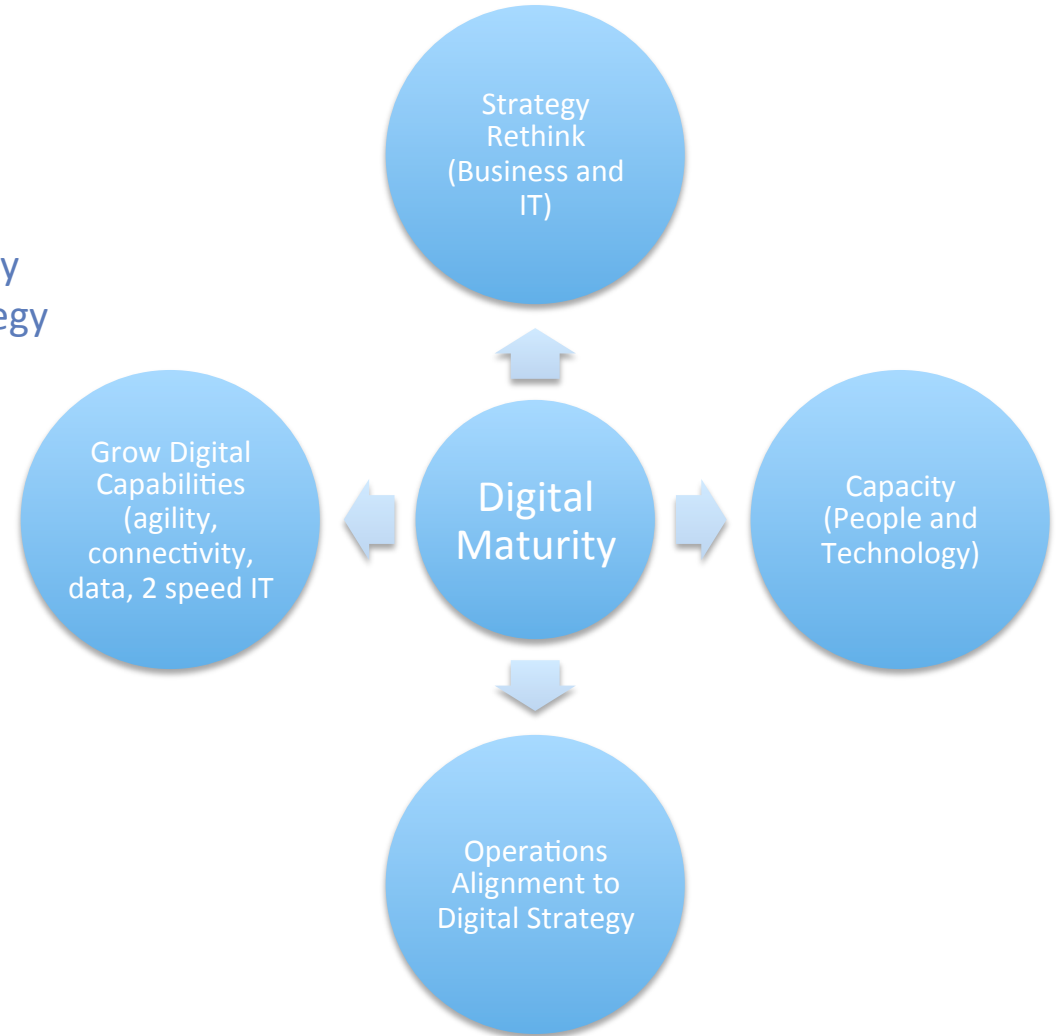


Source: <sup>3</sup> Martin Gill, *Predictions 2014: The Year Of Digital Business*, Forrester Research, Inc., December 19, 2013.

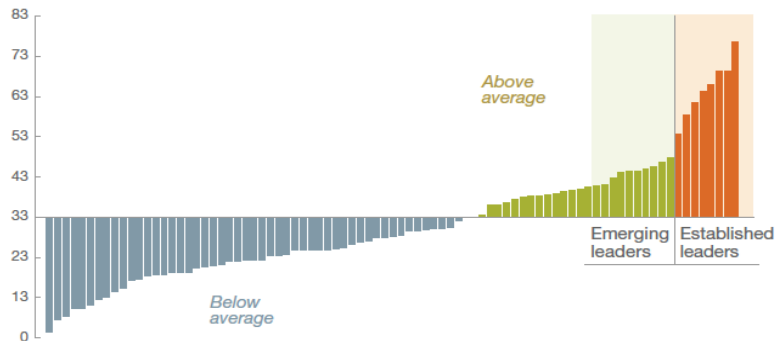
# At the corporation level performance varies widely

The journey to Digital Maturity requires a focus on four things:

1. Strategy – business and IT
2. Capability – grow new Digital Capabilities
3. Capacity – invest in people and technology
4. Operations alignment – to the new Strategy

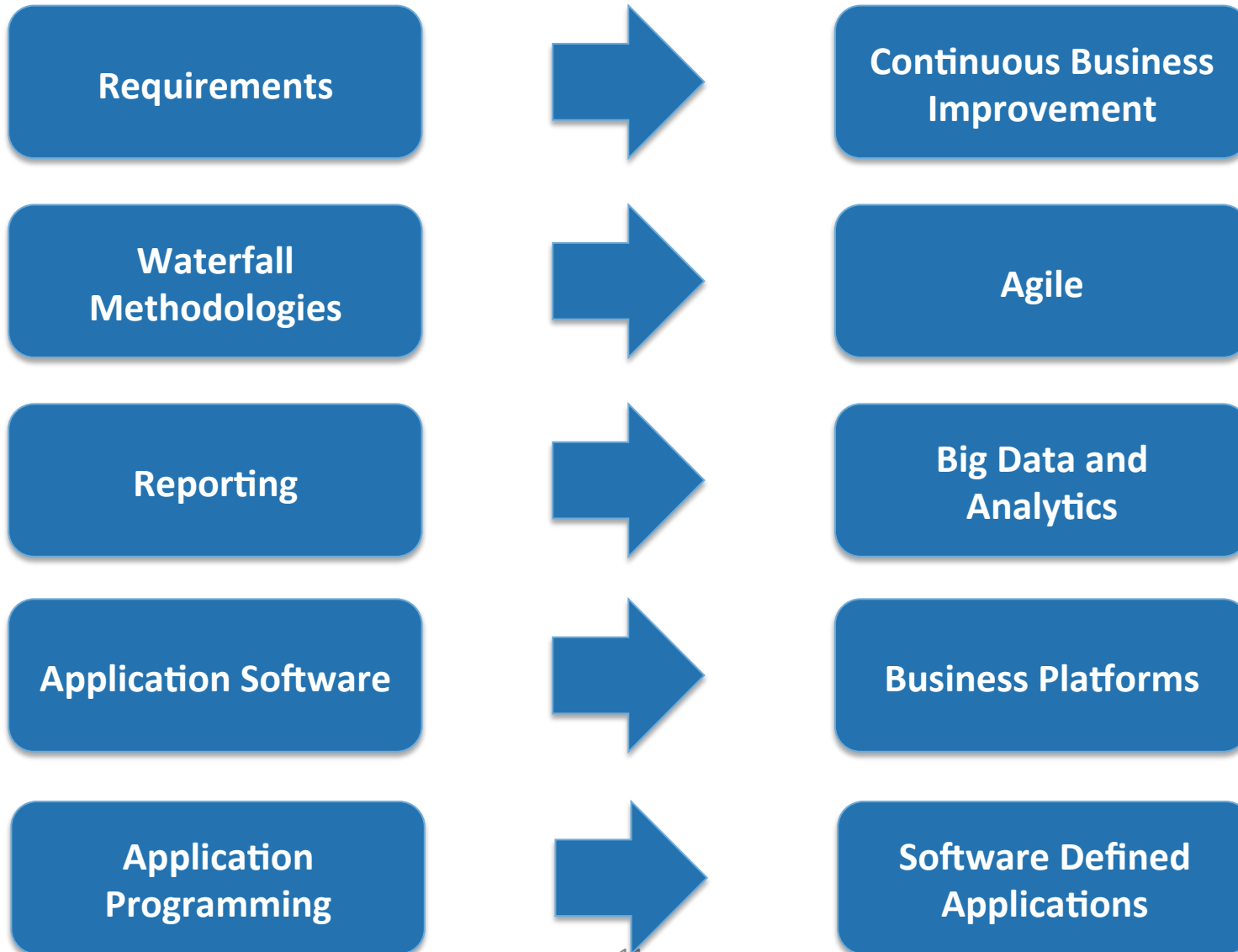


DQ (Digital Quotient) score for 85 companies



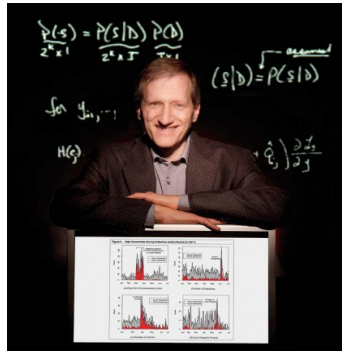
McKinsey&Company | Source: 2014–15 McKinsey DQ survey of 150 global companies

# The ICT Fundamentals have Changed

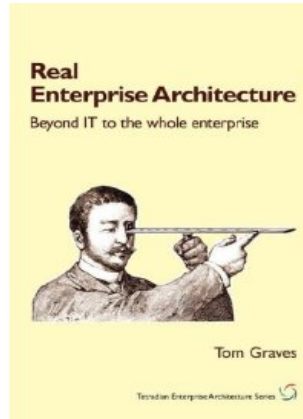


# The “New Age” IT Occupations

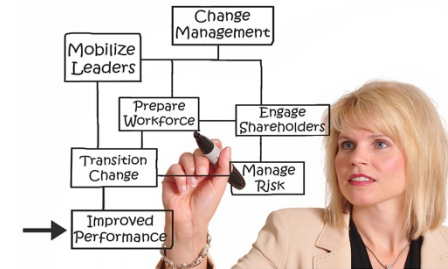
## Data Scientist



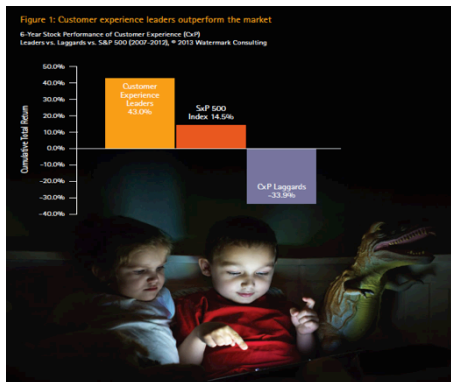
## Architect



## Change Manager



## Digital Experience Designer



Source: Accenture

## Cyber Security Engineer



# Skills Demand is Changing

While the traditional IT Skills will continue to be in demand a new and broader set of skills are needed to meet the demands of the Digital Age. Key skills for the digital age include:

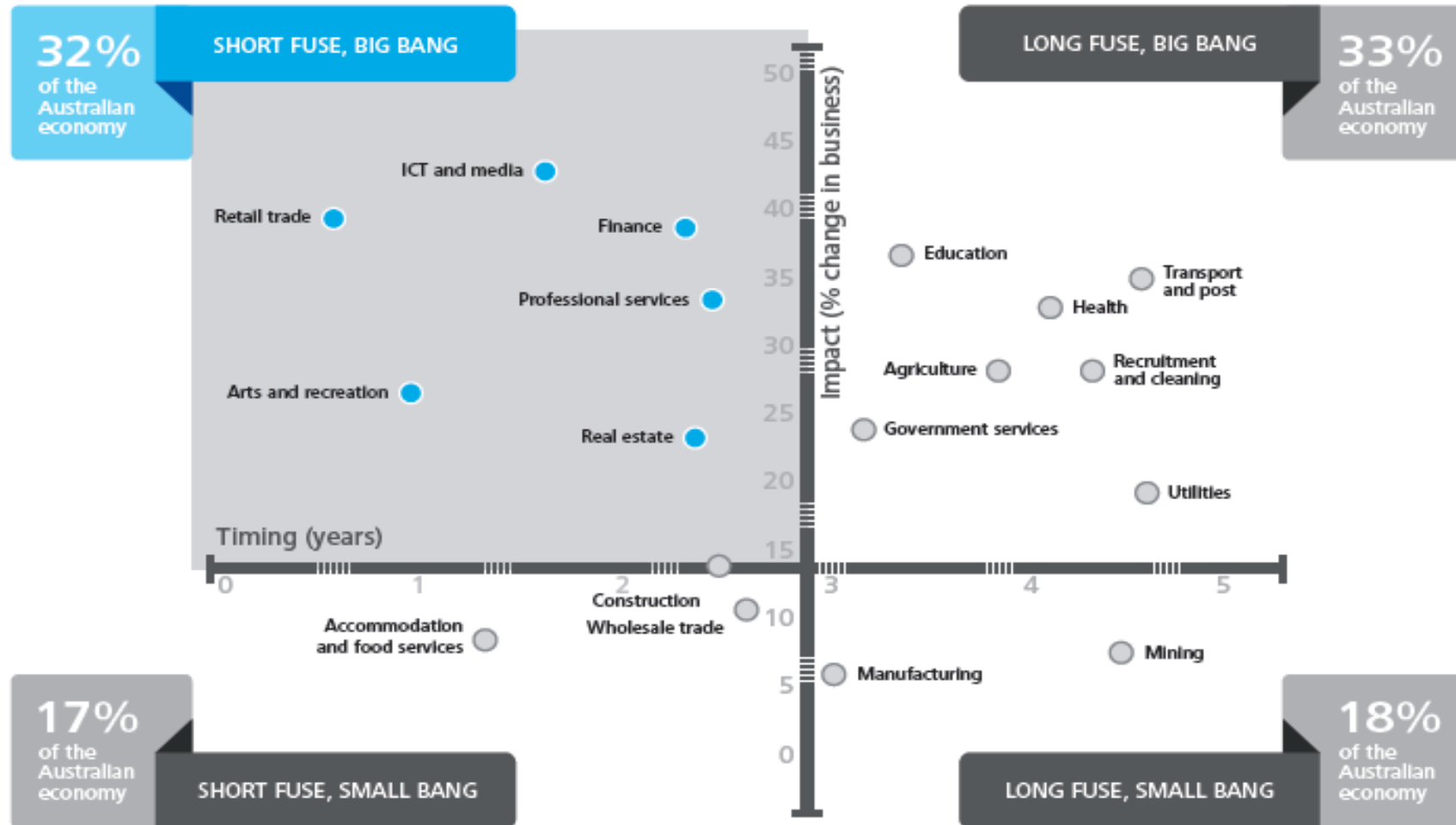
- Innovation
- Communications
- Entrepreneurship
- Design
- Business Acumen



**Australia is beginning to lag the rest of the world**

# Large parts of the Australian Economy are well positioned for Digital Disruption

Figure 1.1: Digital disruption map



Source: Deloitte Access Economics (2012)



# Is Australia beginning to lose the Digital Race ?

In its Compete to Prosper report commissioned by the Business Council of Australia and released a year ago, McKinsey warned that Australian companies are “behind on technology, uptake, external orientation, innovation and learning”

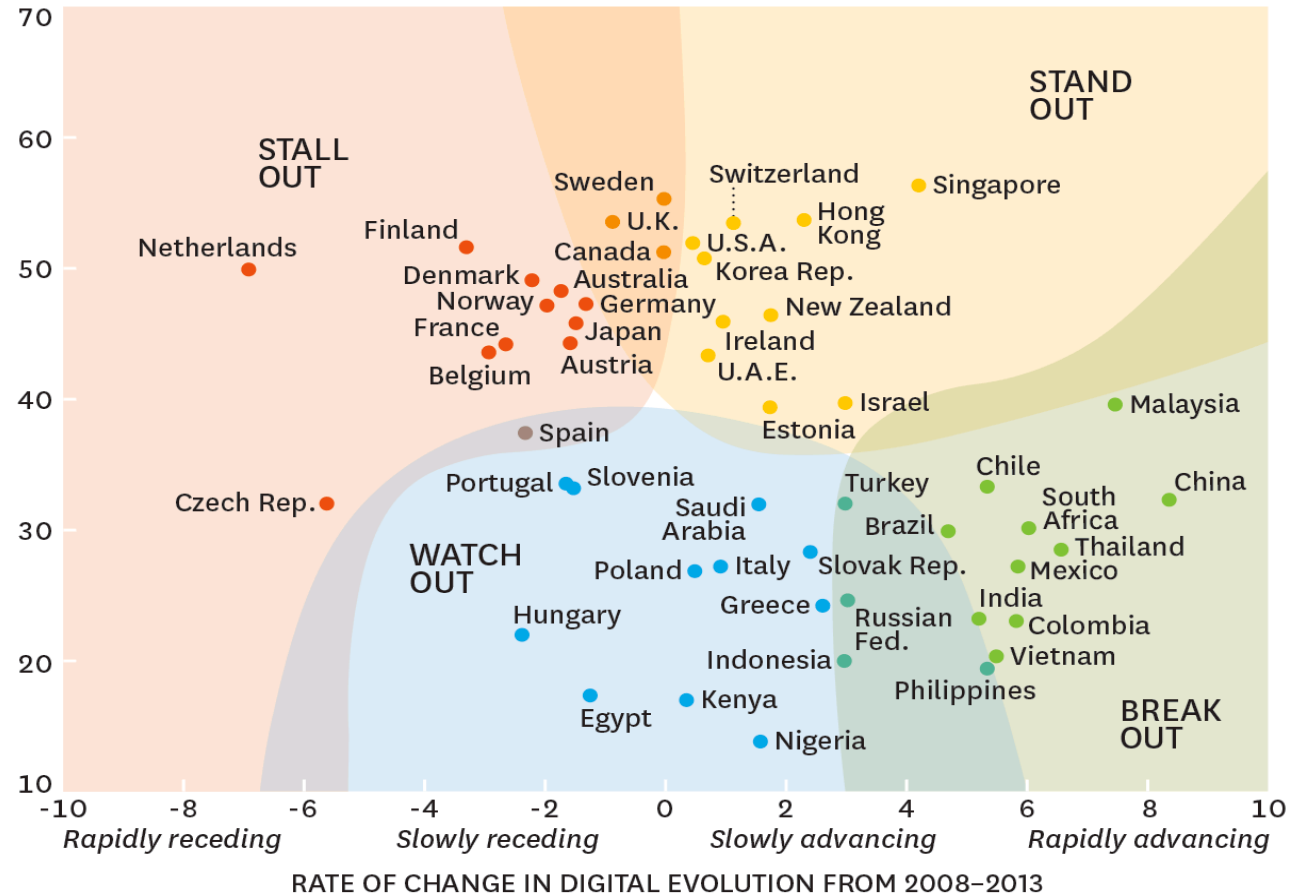
Source: Business Spectator June 2015

“Australia has been Stalling Out. The only way they can jump-start their recovery is to follow what Stand Out countries do best: **redouble on innovation .....**”

## Index Factors:

- Supply – infrastructure, access
- Demand – consumer trends, internet savvy
- Innovation – funding, start up culture
- Institutions – government policy, laws

HOW COUNTRIES SCORED ACROSS FOUR FACTORS ON THE DIGITAL EVOLUTION INDEX (OUT OF 100)



SOURCE DIGITAL EVOLUTION INDEX, THE FLETCHER SCHOOL AT TUFTS UNIVERSITY

HBR.ORG

Source: Harvard Business Review – Where the Digital Economy is Moving Fastest – February 2015



# Universities have a critical role to play

Table 1: ICT employment forecast in selected occupations, 2014 to 2020

Occupation grouping	2014	2020	Average annual growth
ICT management and operations	184,907	222,080	3.1%
ICT technical and professional	213,107	247,919	2.6%
Other ICT occupations	207,738	230,484	1.7%
<b>Total ICT workers</b>	<b>605,752</b>	<b>700,483</b>	<b>2.5%</b>

Source: Deloitte Access Economics (2015)



## Australia's Digital Pulse

Key challenges for our nation – digital skills, jobs and education

Australian Computer Society, 2015

Table 1.5: ICT research and development expenditure by country

	Share of total research and development*	Year**
Korea	54%	2013
United States	32%	2011
Singapore	30%	2011
Canada	27%	2013
New Zealand	19%	2011
Japan	18%	2013
Italy	18%	2012
France	17%	2012
United Kingdom	16%	2012
Spain	15%	2012
Germany	12%	2012
<b>Australia</b>	<b>10%</b>	<b>2011</b>

\* ICT R&D calculated as the sum of R&D in the following industries under ISIC Rev. 4 classifications: D261, D262, D263, D582, D61, D62, D63.

\*\* Latest available year

Source: OECD, STAN R&D Expenditures in Industry (2015)

600,000 ICT workers represents about 5% of the Australian workforce

# What is Business Looking For?

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# THE WAR FOR DIGITAL TALENT HAS BEGUN



# Rethinking the Talent Journey

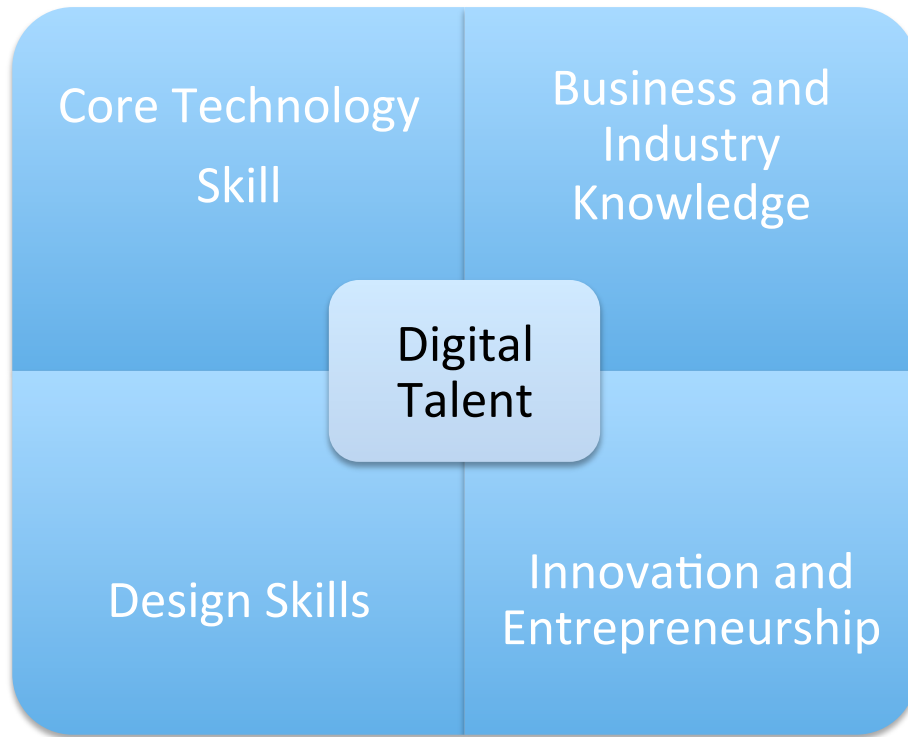
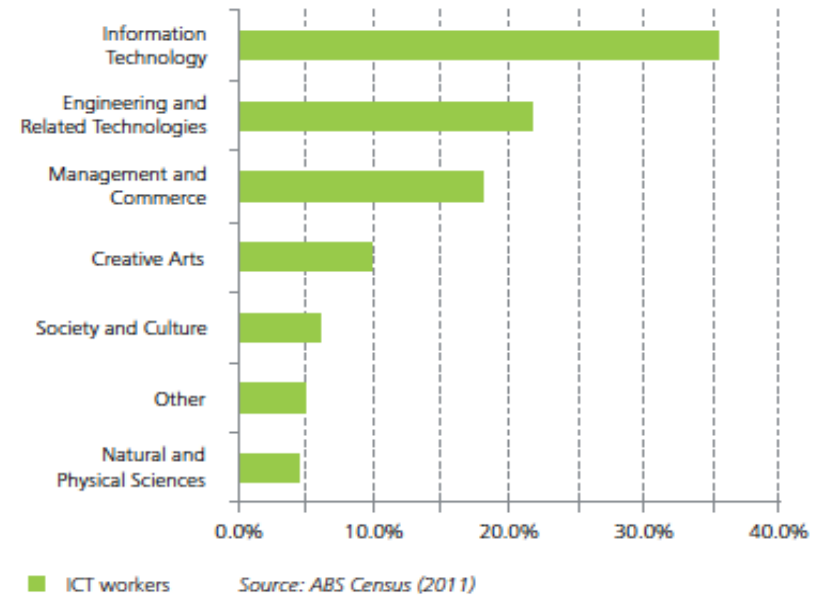


Chart 2.2: ICT workers' field of education, 2011



Source: Australia's Digital Pulse – ACS/Deloitte Access Economics 2015

STEAM: Adding arts skill sets to the IT team

The new IT worker is technical, functional, client-ready, and creative, and may have non-traditional skills.



BEHAVIORAL PSYCHOLOGIST



GRAPHIC DESIGNER



USER EXPERIENCE ENGINEER



SCIENCE FICTION WRITER



ARTIST



CULTURAL ANTHROPOLOGIST

Source: IT Worker of the Future – Deloitte 2015

# The “soft” skills are critical

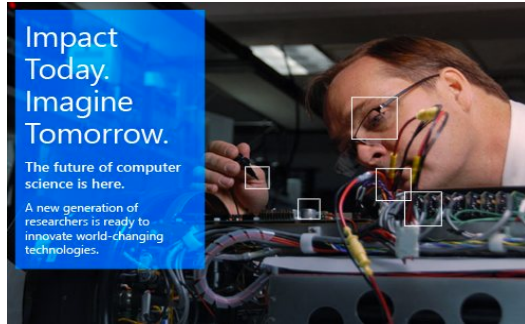
Table 2: Most important selection criteria when recruiting graduates, 2014<sup>7</sup> (%)

<b>Selection Criteria</b>	<b>2014</b>	<b>Selection Criteria</b>	<b>2014</b>
Communication skills	48.6%	Relevant qualifications	14.0%
Academic results	24.3%	Willingness to learn	12.1%
Teamwork skills	22.4%	Problem solving skills	11.2%
Aptitude	21.5%	Passion	10.3%
Interpersonal skills	20.6%	Customer service	8.4%
Leadership skills	19.6%	Analytical skills	6.5%
Work experience	19.6%	Technical skills	6.5%
Cultural fit	18.7%	Integrity	3.7%
Motivational fit	17.8%	Organised	3.7%
Adaptable	14.0%	Extra-curricular activities	3.7%

Source: Graduate Careers Australia – Graduate Outlook 2014



# Looking Forward



Vibrant Research



The Best and Brightest



Lifelong Learning



## 19 partners with a mission

Information technology is a key innovation driver of our economy and critical to the sustainability of Germany. Germany's IT industry therefore needs qualified leaders who can drive innovation and control the transfer of technology.

Business, science and government therefore have the Software Campus initiated to promote the development potential of young talents and train a new generation of leaders with excellent IT background. The Software Campus therefore is responsible for the long-term strengthening of the innovation and business location Germany