



IBM

IBM Institute for Business Value

# Facing the storm

*Navigating the global skills crisis*

**Michael King**

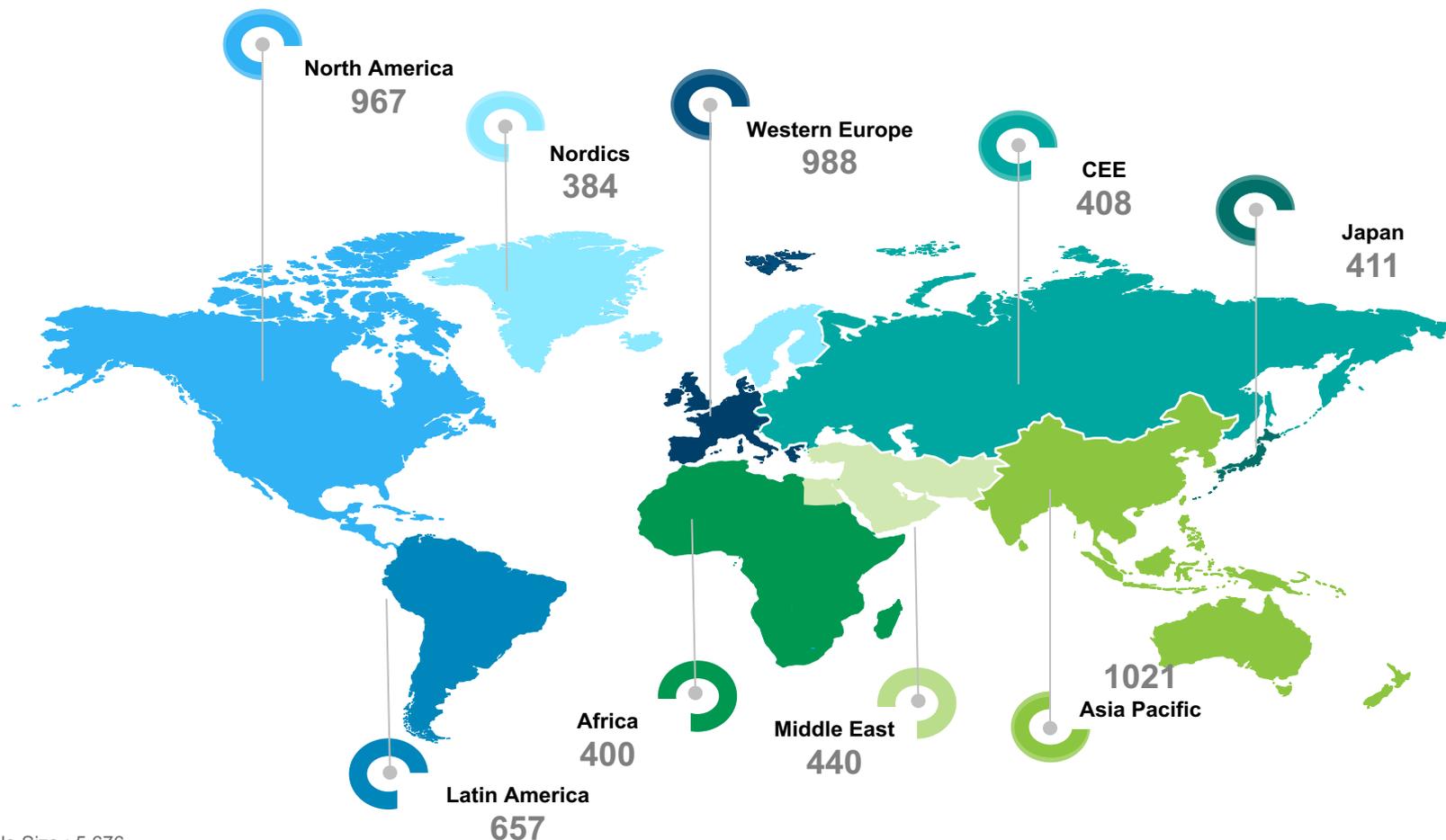
VP & General Manager

IBM Global Education Industry



# IBM surveyed more than 5,600 executives globally across 47 countries

Geographical spread of respondents



Sample Size : 5,676



## Three forces are culminating in unprecedented disruption

- Rapid advancement of digital technologies
- Fundamental disruption of industry value chains and business and operating models
- Increased globalization, social commentary and engagement

# ...redefining customer preferences and creating radical disruption across industries...

## Customer preferences are changing



Executives that believe customer buying behavior is shifting from a strictly product/service basis to an experience basis

## New competition is emerging

80%

Executives that believe competition is coming from new and unexpected sources

## Traditional industries are being reshaped

67%

Executives that believe traditional boundaries between industries are blurring and industries are being reshaped

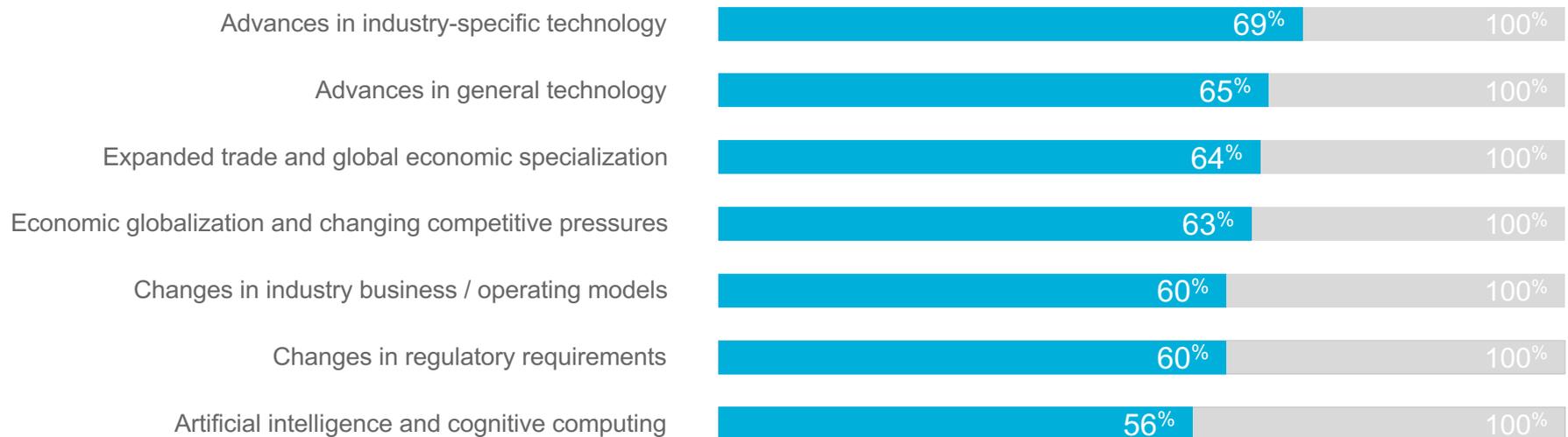


## This disruption is impacting global skills in three ways

- Demand for and types of skills required by industry are changing
- Availability of skills in labor markets is uncertain
- Quality of skills is being challenged

# Respondents believe technology and industry changes and globalization will impact skills

## Factors impacting skills demand in the next 5 years



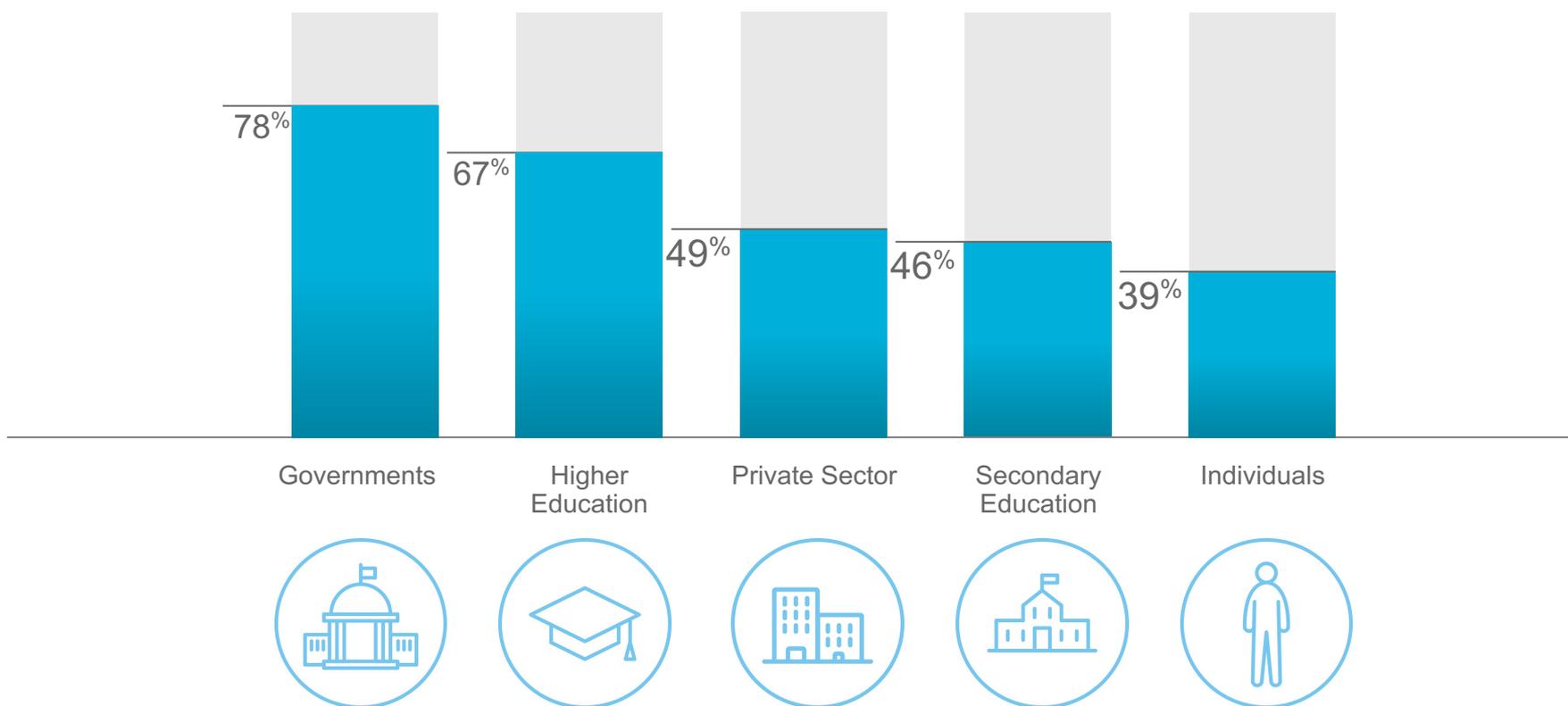


## Leadership in addressing skills challenge has not yet emerged

- Governments have been overwhelmed by the extent and depth of the challenge
- Educational institutions struggle to adapt to changing needs of industry
- Private sector has been underinvesting in necessary engagement and training

# Respondents believe governments should bear most responsibility in developing and maintaining skills...

Who should bear most responsibility in developing and maintaining worker skills



# While most industry executives cite major challenges in finding workers with required skills...



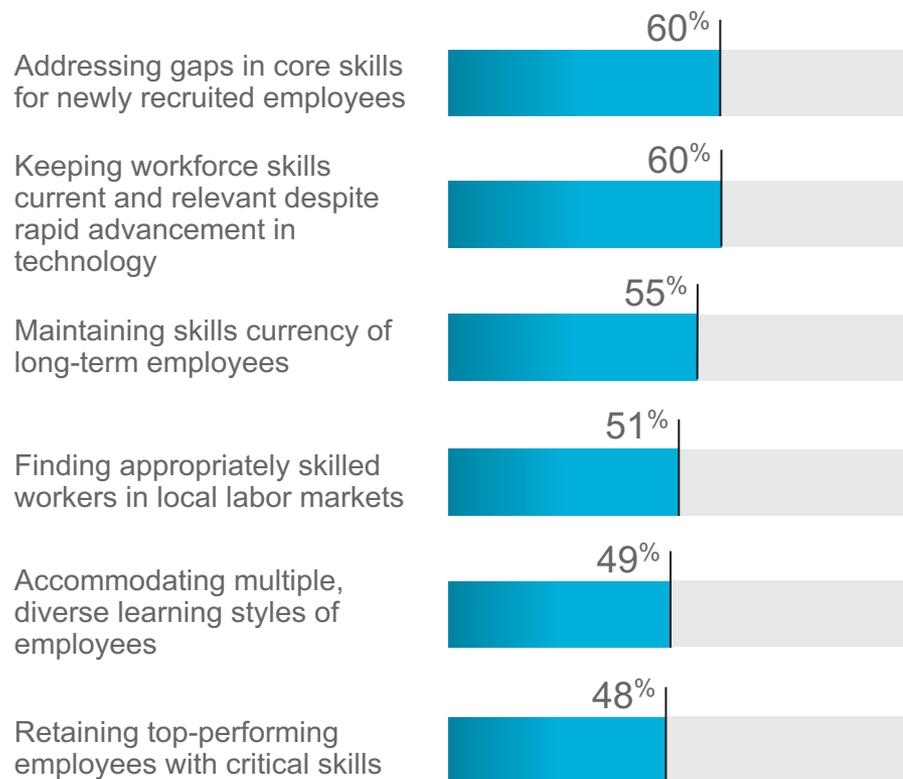
Industry executives citing finding appropriately skilled workers in local labor markets as the greatest challenge related to skills



Corporate recruiters that indicated they cannot find applicants with sufficient practical experience

# Industry has not demonstrated the ability to adequately address skill related challenges

## Industry executives' greatest challenges related to skills



51%

Industry executives that believe their business culture supports employee career development

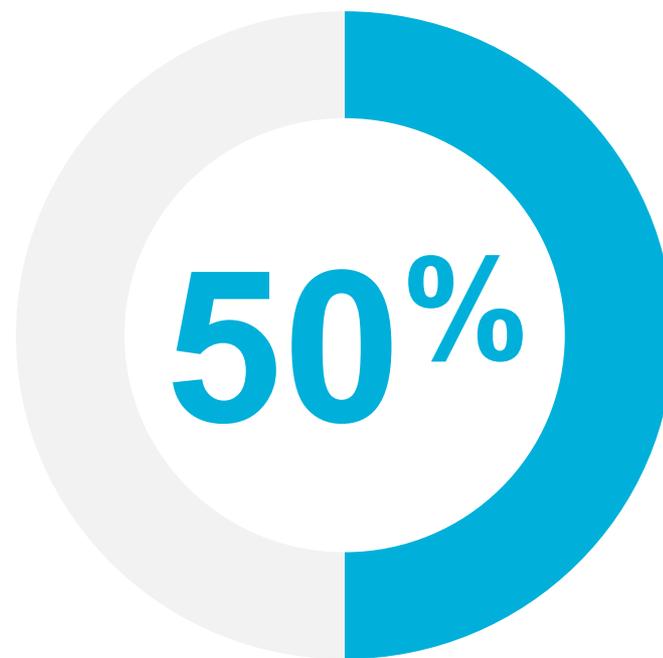
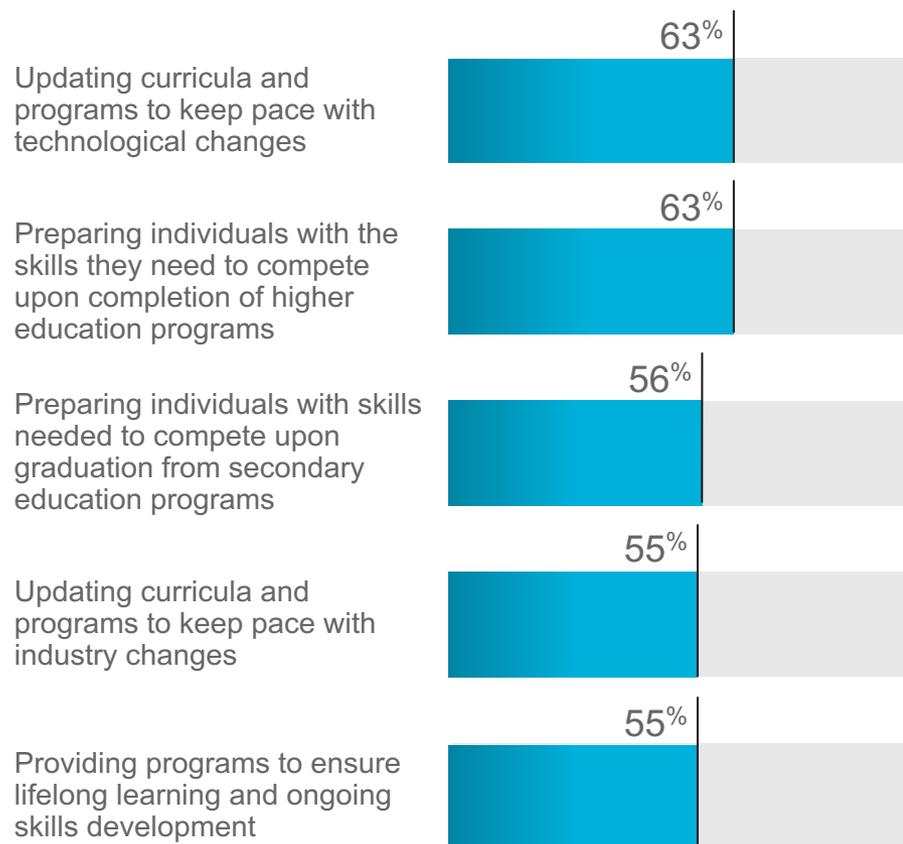
55%

Executives that believe inadequate investments from private industry is the most fundamental challenge in addressing skill development issues



# Confidence in educational systems' abilities to address skills challenges is underwhelming...

## Executives believe educational systems succeed at...



Industry executives believe secondary schools are preparing students to be productive members of the workforce

# The next wave of technology disruption is starting

*AI has spurred an avalanche of worry: from job loss to Terminators . . .*

*"I think we should be very careful about artificial intelligence. If I had to guess at what our biggest existential threat is, it's probably that."*

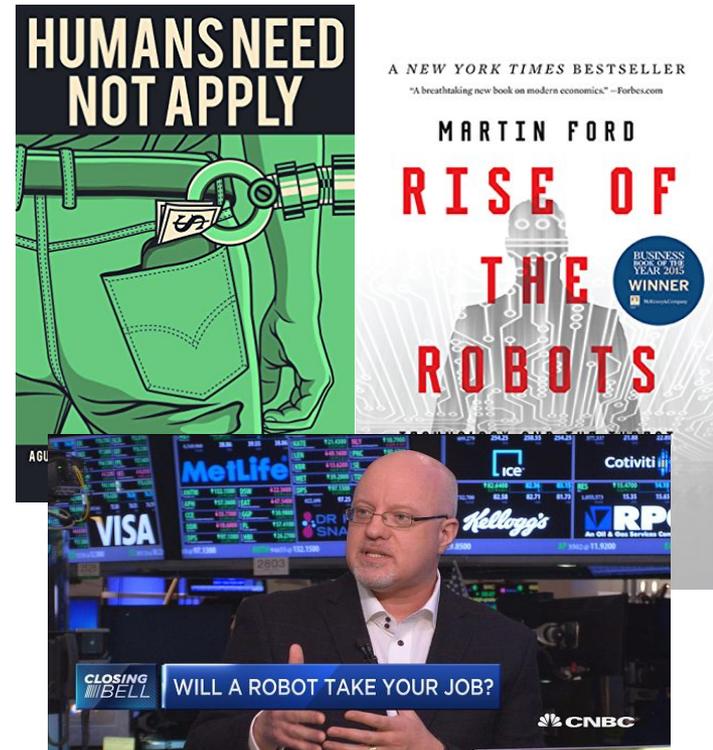
*Elon Musk*

*"I am in the camp that is concerned about super intelligence."*

*Bill Gates*

*"The development of full artificial intelligence could spell the end of the human race."*

*Stephen Hawking*



Sources in notes

# Cognitive computing is a new era of technology that will transform our future

## Tabulating Systems Era



The recording of data on a machine-readable medium automating book-keeping and accounting and managing early “big data” sets, such as Census data

## Programmable Systems Era



Processor-centric management of data stored in table form offering fixed calculations enabling enterprise resource management for HR and Finance

## Cognitive Systems Era



Data centric computing with statistical analytics and automated workload management dealing with uncertainty from data inconsistency and ambiguities

# Cognitive will transform Education

THE WALL STREET JOURNAL.

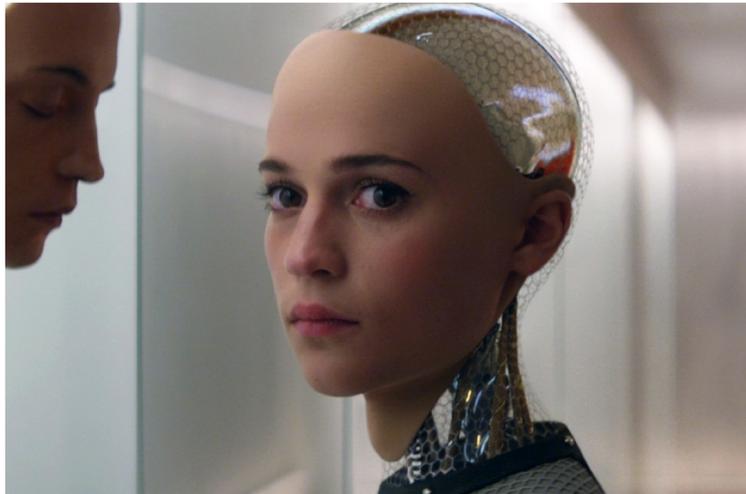
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## Imagine Discovering That Your Teaching Assistant Really Is a Robot

Students mostly couldn't tell 'Jill Watson' wasn't human; 'Yep!'



In the 2015 film 'Ex Machina,' above, a young man assesses the human characteristics of a beautiful robot. PHOTO: EVERETT COLLECTION

science and technology

## Artificial Intelligence Course Creates AI Teaching Assistant

Students didn't know their TA was a computer



### Meet Jill Watson, your new robot teaching assistant

The Georgia Tech experiment demonstrates the range of possibilities for artificial intelligence.

BY DAWN CHMIELEWSKI | JUN 1, 2016, 2:06PM EDT

# The Key Take Away

- **Cognitive Computing** will accelerate the transformation of many jobs and most industries
- Education struggles to stay aligned with **Workplace Needs** – an increasing challenge
- Institutions must embrace **Cognitive** to teach “about” and “with” the technology
- IBM sees a **Five Step Roadmap** as a framework for effective transformation:

-  Organizational Alignment
-  Personalized Learning and Services with Cognitive
-  Institutional Data Strategy
-  Alignment to Workforce
-  Agile Environment



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