

# Understanding and Impact on HR Organisational Development



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- Understanding Industrial Revolution 4.0
  - Effects of digital transformation
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  - Australia's Data Skills & Capability
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...the world is in the early stages of the "Fourth Industrial Revolution": a fundamental shift in how we produce, consume and relate to one another, driven by the convergence of the physical world, the digital world and human beings ourselves



STEAM-BASED MACHINES





# 2<sup>ND</sup> INDUSTRIAL REVOLUTION

ELECTRICAL
ENERGY-BASED
MASS PRODUCTION





# 3<sup>®</sup> INDUSTRIAL REVOLUTION

COMPUTER & INTERNET-BASED KNOWLEDGE





# **4**<sup>™</sup> INDUSTRIAL REVOLUTION

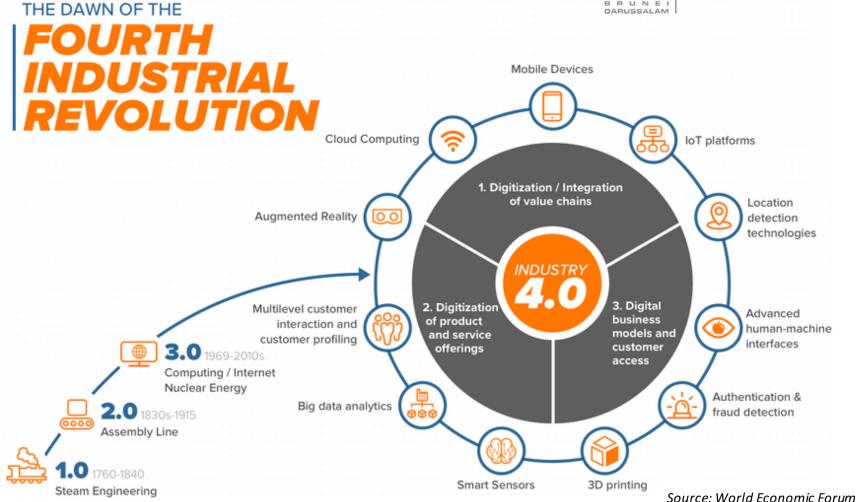
ARTIFICIAL INTELLIGENCE

INFORMATION TECHNOLOGY

**DATA ANALYSIS** 

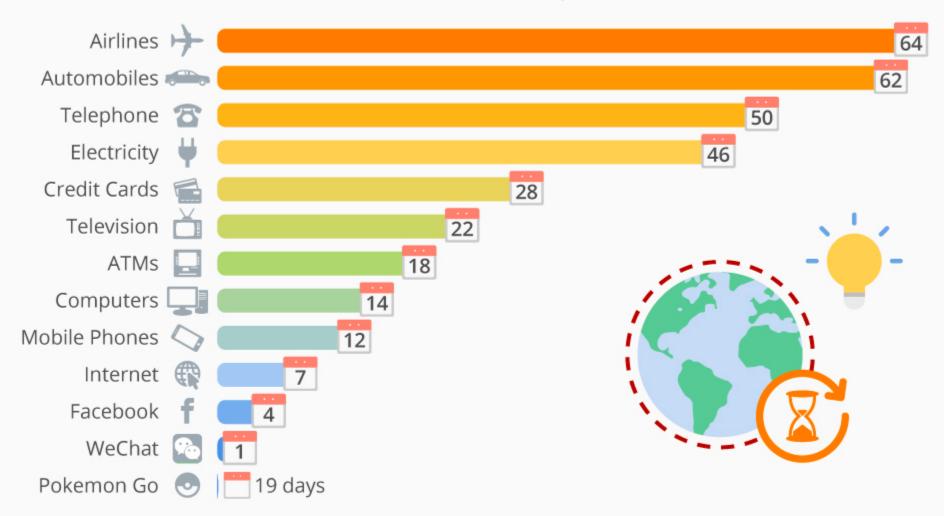






### The Road to Ubiquity is Getting Shorter

Time innovations needed to reach 50 million users (in years)







#### **BRUNEI DARUSSALAM**

THE ESSENTIAL HEADLINE DATA YOU NEED TO UNDERSTAND MOBILE, INTERNET, AND SOCIAL MEDIA USE



TOTAL **POPULATION** 



MOBILE **SUBSCRIPTIONS** 



INTERNET **USERS** 



**ACTIVE SOCIAL MEDIA USERS** 



MOBILE SOCIAL **MEDIA USERS** 



436.7

**THOUSAND** 

**URBANISATION:** 

**78%** 

593.3

**THOUSAND** 

vs. POPULATION:

136%

410.8

**THOUSAND** 

PENETRATION:

94%

410.0

**THOUSAND** 

PENETRATION:

94%

360.0

**THOUSAND** 

PENETRATION:

82%





### **Evolution of HR**



### THE EVOLUTION OF HR

**HOW HR IS PERCEIVED** 

#### **PERSONNEL**

Payroll
Benefits
Police
Sick Leave
Hiring & Firing
Complaints

### HUMAN RESOURCES

Employee Engagement Performance Mgmt. Policies & Procedures Recruitment & Retention On-boarding

#### STRATEGIC HR

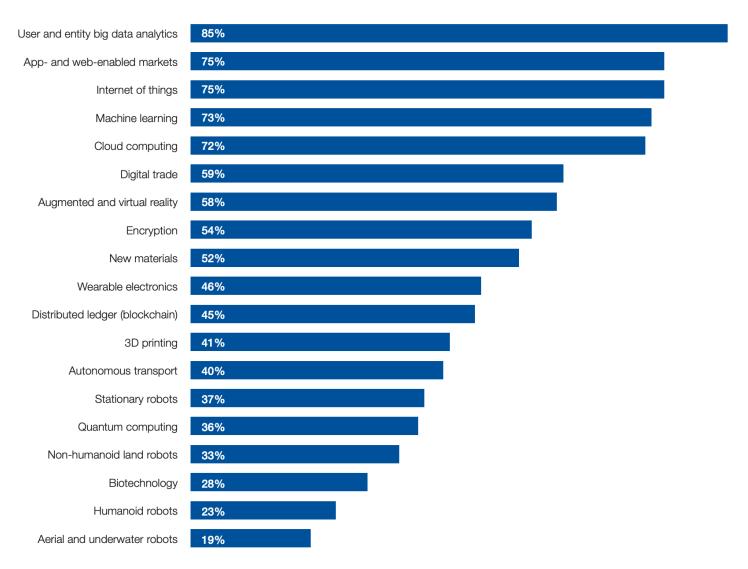
Human Capital
Corporate Culture
Strategizing
Value Propositions
Competitive Advantage
Total Compensation

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# The need for HR transformation



- Key to the successful digitalization of companies
- Opportunity for HR to play strategic role:
  - HR as an Innovator
  - HR as a Driver of Business
  - HR as a Change Agent
  - HR as a Collaborator
- Digitalisation = Productivity (boost efficiency by 20 to 30 percent)
- Need to align skills needed for industry
- Know how to use data



Source: Future of Jobs Survey 2018, World Economic Forum.

# IoT Skills

Individual Community Society Level Connected Cars Smart phones Smart Cities Health devices IoT Wearables Smart Grids Smart homes Intelligent Transport Systems GPS, Fitbits Event Data Recorders (EDRs) Smart metering; Visa PayWave Examples Blood pressure monitors; Smart water meters Mastercard Paypass remote burglar/heating Traffic monitoring Employee passes systems Speed, distance, airbag, Electricity/water Mobile money crash locations/alerts: Data Fitness data, GPS consumption & billing; Heart rate, blood pressure, location-based data Traffic flow data Diet, remote heating data Intended Individual person GP. health authorities: Authorities/regulators Immediate friends/ family; health & car insurance; Utility companies; Audience banks; employers police, social networks Other citizens







# Big Data & Al Skillset



- Around the world, 2.5 quintillion bytes (2.5 x 10<sup>18</sup> bytes) of data are created every day, with 90 per cent of the data in the world generated in the last two years alone (IBM, 2016).
- Government generates and holds a vast amount and diverse array of data, including spatial data, operational data, transactional service data, and data collected from or about citizens and businesses.
- Data literacy across the Government will have a critical role in supporting evidence-based decision making, developing more efficient government policy and delivering services.
- Skills and knowledge in publishing, linking and sharing public data will help to make government services more citizen-focused.

# Why is this important?

# Human Resource:

Key foundation for Data ecosystem

#### Raise awareness

- Commitment to transparency and protection of individual data
- · Provide horizontal direction on strategic and technical data issues
  - Model and support cultural change

- · Engage key influencers, expert users, academics and data providers

# cademics ders ders of communications open and transparent

- communication with Canadians
- Arole-of-gove, · Encourage data sharing, access and collaboration

- strategies
  - Ensure accountabilities for data roles and responsibilities

#### Manage coherence and flexibility

 Maximize public value from data through standardization and prioritization

#### · Government has the data it needs

• Data leads to better

decision-making and

policy development

- · Greater use and availability of data
- · Data use is appropriate, citizenand business-centric, and ethical
  - Data are well managed, secure, and fit for use
    - · Value driven by combining government-held data with data from other sources

#### Data as an asset

- · Review and analysis of data pilots
- · Develop prototype of virtual data lab
  - Update policy requirements towards a new digital policy

#### Modify DM CEPP

- Clarify roles and responsibilities including for a Chief Data Steward
- Data in decision-making Ethics and security
- frameworks

#### **Environment and** digital infrastructure

 Accelerate work to assess legislative and policy frameworks

available

- Develop federal
  - roadmap for digital IDs
- · Encourage horizontality and coherence
- IT architecture supports and facilitates data management and analytics

· Assess required infrastructure

needs

- · Protect data and privacy of information
- Fully harness · Appropriate tools, technological infrastructure and opportunities processes are

#### People and culture

- · Assess state of data literacy
- · Launch digital academy
- Identify · Pilot demand talent map for hiring supply targets sources
  - Data scientist recruitment pilot

by default All public servants

are data agents

Foster data-driven

open and shares

culture that is

- Hire, retain, cultivate, and empower the right talent and capacity
- Increase data literacy of employees



# "Data" as enablers for Digital Economy and Digital Society



- Data as the new "oil"
  - ➤ Data is a vital strategic asset central source of innovation and economic growth.



#### **Data innovation**

- Service efficiency
- Operational enhancement

#### The Economics of Data

- Data trading / data marketplace
- Co-creation of data-based application
- Movement of data

VALUE DRIVERS STAGES TECHNOLOGIE

Graphic: Deloitte University Press | DUPress.com

# Data Strategy and Management Framework Management Framework

- The Digital Government Strategy 2015-2020
- To achieve the mission of leading the digital transformation and making government services simpler, faster, and more accessible, six key focus areas are identified:
  - (i) Service innovation; (ii) collaboration and integration; (iii) capability and mindset; (iv) optimization; (v) security; and (vi) enterprise information management.



# About the future of jobs



- Growing occupations include roles such as Data Analysts, Software and Applications Developers and E-commerce and Social Media Specialists – jobs that are significantly based on, and enhanced by, the use of technology.
- Employers anticipate a significant shift in the division of labour between humans, machines and algorithms for the tasks of today.

# The Jobs Landscape in 2022

emerging roles, global change by 2022 133 Million

declining roles, global change by 2022

75 Million

#### **Top 10 Emerging**

- 1. Data Analysts and Scientists
- 2. Al and Machine Learning Specialists
- 3. General and Operations Managers
- 4. Software and Applications Developers and Analysts
- 5. Sales and Marketing Professionals
- 6. Big Data Specialists
- 7. Digital Transformation Specialists
- 8. New Technology Specialists
- 9. Organisational Development Specialists
- 10. Information Technology Services

#### Top 10 Declining

- 1. Data Entry Clerks
- 2. Accounting, Bookkeeping and Payroll Clerks
- 3. Administrative and Executive Secretaries
- 4. Assembly and Factory Workers
- 5. Client Information and Customer Service Workers
- 6. Business Services and Administration Managers
- 7. Accountants and Auditors
- 8. Material-Recording and Stock-Keeping Clerks
- 9. General and Operations Managers
- 10. Postal Service Clerks

Source: Future of Jobs Report 2018, World Economic Forum

# Why we should address the need for digital skills



**Culture of learning**People think that learning is for the young



**Motivation**People don't see a need for digital skills



**Leadership**Organisations' leaders
need to drive digital
transformation



Resources
Learning puts pressure
on the resources
of businesses and
individuals



Access to training
People can't find training
that is relevant to their
needs

# The supply of digital skills is lagging far behind demand



38% of workplaces in Europe report that a lack of digital skills is harming their business."



40% of employers claim that they struggle to find candidates for ICT roles.<sup>12</sup>



40% of people who use software at work do not know how to do so effectively.<sup>13</sup>

### **TOP SKILLS IN 2015**

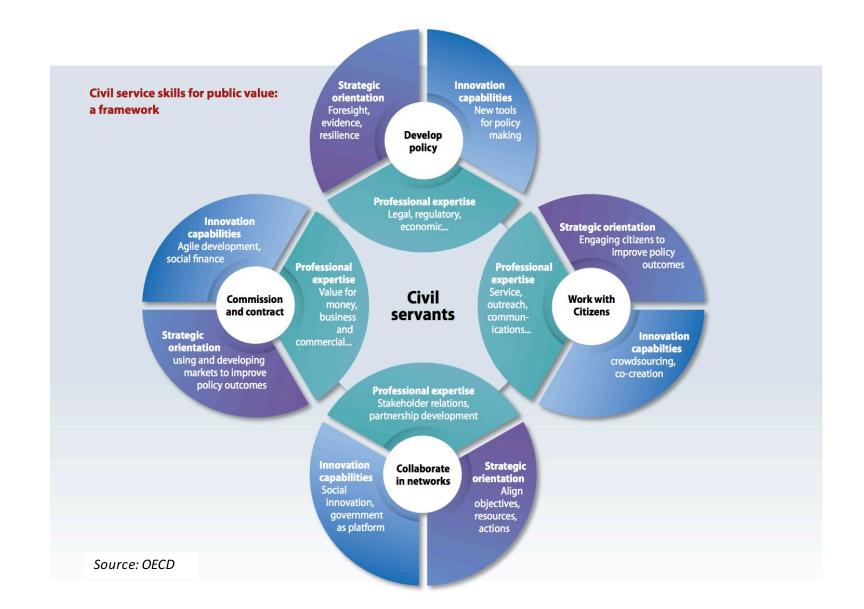
- Complex problem-solving
- 2. Coordinating with others
- 3. People management
- 4. Critical thinking
- 5. Negotiation
- 6. Quality control
- 7. Service orientation
- 8. Judgement and decision-making
- 9. Active listening
- 10. Creativity

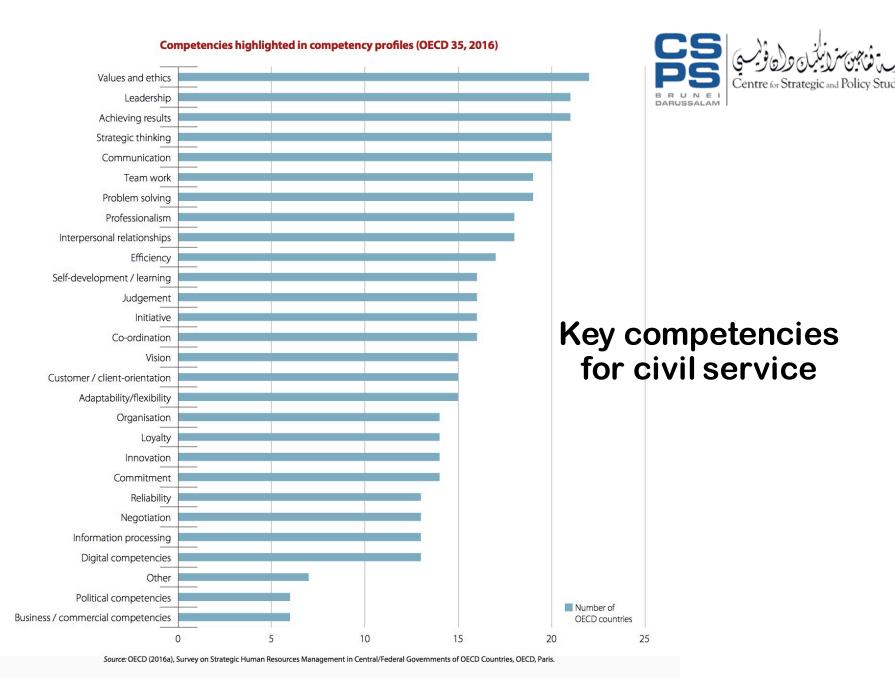
### **TOP SKILLS IN 2020**

- 1. Complex problem-solving
- 2. Critical thinking
- 3. Creativity
- 4. People management
- 5. Coordinating with others
- 6. Emotional intelligence
- 7. Judgement and decision-making
- 8. Service orientation
- Negotiation
- 10. Cognitive flexibility

Source: Future of Jobs Report, World Economic Forum

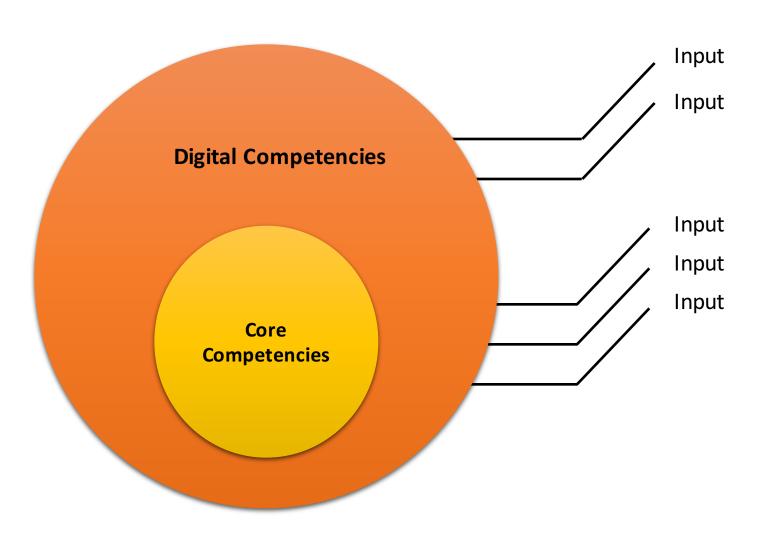
### Skills needed for civil service











# An Inclusive and Responsive Learning Ecosystem



#### SKILLS FORECASTING

To make sure that every individual learns skills that are relevant and useful, those designing curricula and delivering training need to forecast skill demands through up-to-date labour market data.

#### CURRICULUM DEVELOPMENT

The rate of change for digital technology and the skills individuals require means that curricula should be regularly evaluated and updated.

#### PATHWAY GUIDANCE

People need help to find and choose high quality training that fits with their career aspirations and the needs of the labour market.

#### ASSESSMENT

Different people have different abilities, and informal 'on-the-job' learning means that many have skills that they have not recognised. For an individual to get the right type of training, they need to identify what capabilities they already have, and understand where there are gaps in their skills.

#### **FUNDING**

Learning puts a strain on the already pressured resources of individuals and businesses. Many will need financial support or incentives to undertake and complete training.

#### WRAPAROUND SUPPORT

Many individuals need additional support and services that indirectly help and motivate them to complete their training. Such support may include childcare, coaching, networking, and time off from work.

#### TRAINING DELIVERY

Without the right training, people in work will not learn the skills they need. They need access to relevant, high quality training opportunities that fit their lifestyles and preferred approaches to learning.

#### ACCREDITATION

Learners need to know which courses to trust, while employers want to know that candidates and employees are competent in the skills they claim to have. Third party recognition is often necessary to provide this assurance.

#### CAREER SUPPORT

Individuals who have been reskilled will often need help to enter a new sector and put their skills to use.



# SkillsFuture Singapore

• 8 Emerging skills identified by SkillsFuture :

















# Australia Public Service (Data skills and capacity)

