

# FIT1049: IT professional practice

Week 1: Introduction to IT professions and practice



# FIT1049: IT professional practice

Week 1 (alt.): How to use your IT expertise  
in professional contexts



# **FIT1049 Teaching Team (S1, 2019)**

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# Things to cover today...

At the end of this lecture, you will:

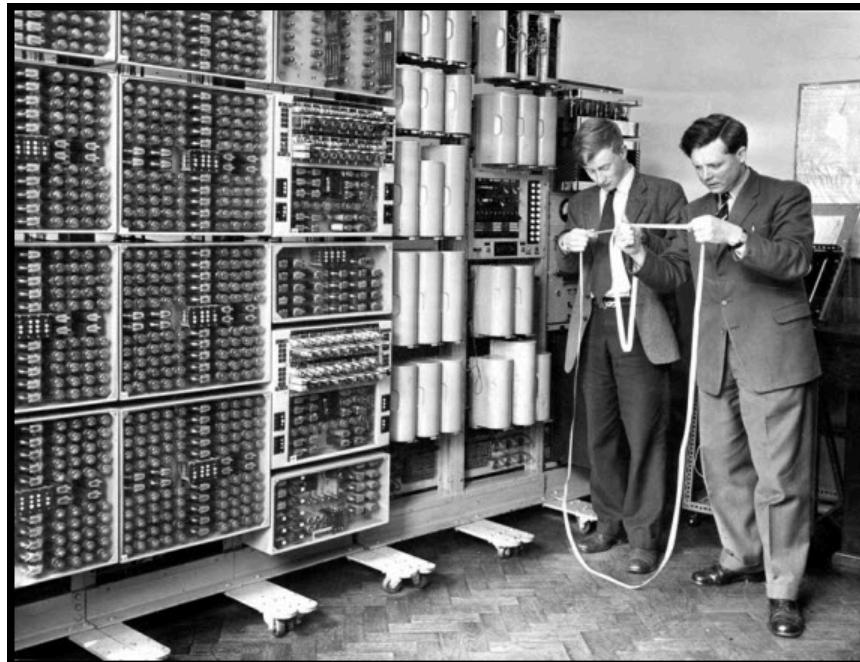
- Understand why ‘professional practice’ matters to *you* and *your* IT expertise;
- Understand how ‘professional practice’ can be learnt; and
- Broadly understand the unit’s objectives, its structure and assessment tasks.

So, why does ‘professional practice’ matters to *you* and *your* IT expertise?

Well, because IT matters.

# The roles with IT expertise

1950s: Computer operators, programmers...



([Pingdom.com, 2019](https://pingdom.com/2019))

# The roles with IT expertise (cont'd)

...and in 2019.

				Learning designers
		Educational technologist		
Data librarian	System administrator		Data analyst	Data manager
Usability consultant	Help desk officer		Business analyst	Visualisation specialist
eResearch manager	Database designer	Hacker		Software quality assurance
Project manager	Game developer	Programmer		Systems analyst
Information manager	Software architect			Multimedia developer
Data integrity officer	Data scientist	Software engineer		
Security advisor	Intelligence analyst		Network administrator	

# Some of the jobs that did not exist 10 years ago...

App developer  
Social media manager  
Uber driver  
Driverless car engineer  
Cloud computing specialist  
Big data analyst/data scientist  
Sustainability manager  
YouTube content creators  
Drone operators  
Millennial generational expert

([World Economic Forum 2018a](#))

DATA

## Data Scientist: The Sexiest Job of the 21st Century

by Thomas H. Davenport and D.J. Patil

FROM THE OCTOBER 2012 ISSUE

 SUMMARY  SAVE  SHARE  COMMENT  TEXT SIZE  PRINT  \$8.95 BUY COPIES

**W**hen Jonathan Goldman arrived for work in June 2006 at LinkedIn, the business networking site, the place still felt like a start-up. The company had just under 8 million accounts, and the number was growing quickly as existing members invited their friends and colleagues to join. But users weren't seeking out connections with the people who were already on the site at the rate executives had expected. Something was apparently missing in the social experience. As one LinkedIn manager put it, "It was like arriving at a conference reception and realizing you don't know anyone. So you just stand in the corner sipping your drink—and

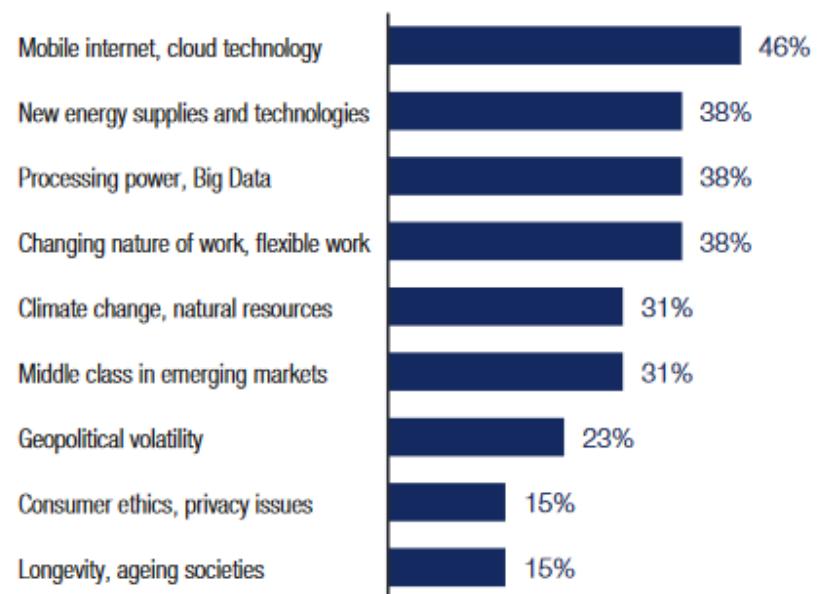
([Davenport & Patil, 2012](#))

# Jobs you will get...

“Jobs exist now that we’d never heard of a decade ago. One estimate suggests that 65% of children entering primary school today will ultimately end up working in completely new job types that aren’t on our radar yet.” ([World Economic Forum 2018a](#))

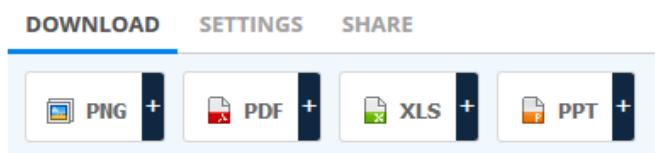
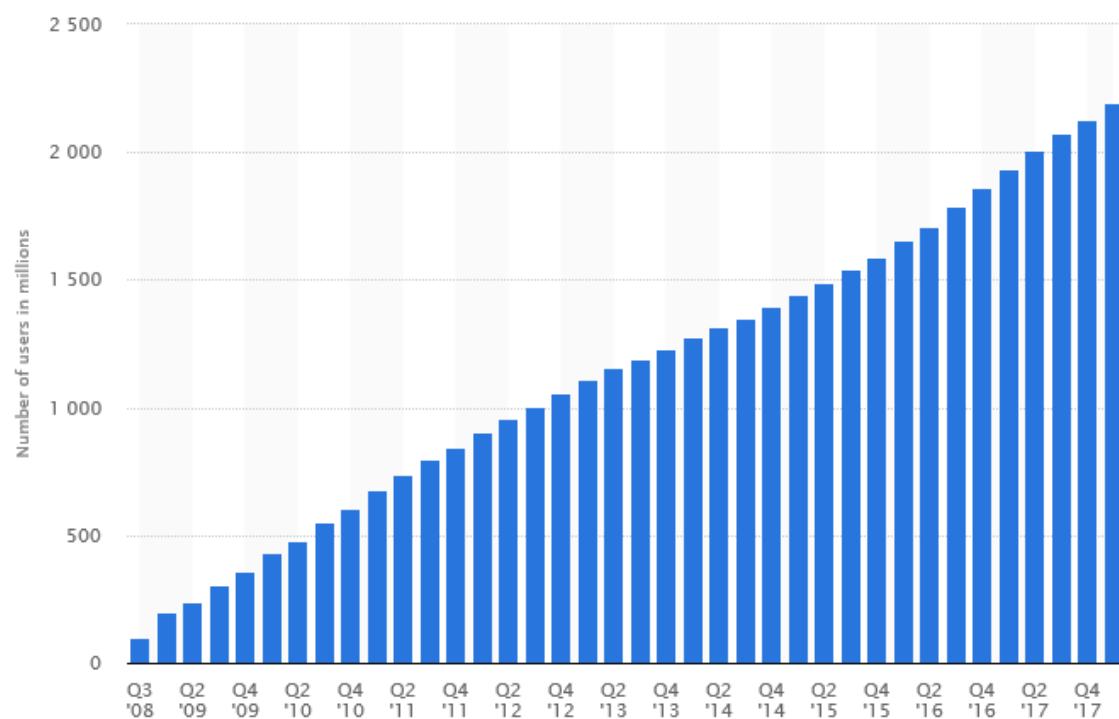
“If you look at almost any workplace – or almost any facet of your life, from phones and games to the Internet of Things – we are using information technology all the time. IT is also important in future developments like robotics and automation, and the capacity for that will grow.” ([CSU, 2018](#))

Driver of change impacting industries importance to ASEAN business leaders



([World Economic Forum 2018b](#))

## Number of monthly active Facebook users worldwide as of 1st quarter 2018 (in millions)



DESCRIPTION SOURCE MORE INFORMATION

This statistic shows a timeline with the worldwide number of monthly active Facebook users from 2008 to 2018. As of the first quarter of 2018, Facebook had 2.19 billion monthly active users. In the third quarter of 2012, the number of active Facebook users had surpassed one billion, making it the first social network ever to do so. Active users are those which have logged in to Facebook during the last 30 days. Furthermore, as of the previous quarter the social network had 1.74 billion mobile MAU. The platform is also the most popular social network worldwide.

Advertisement Data visualized by + a b l e a u

© Statista 2018

Facebook

(Source: [Statista, 2018a](#))

NEWS / UNITED STATES

## Number of active Facebook users increased despite scandals

*Company sees number of monthly active users reach 2.2 billion while facing scrutiny over data breach and harvesting.*

26 Apr 2018



(Source: [Al Jazeera, 2018](#))



### World Population

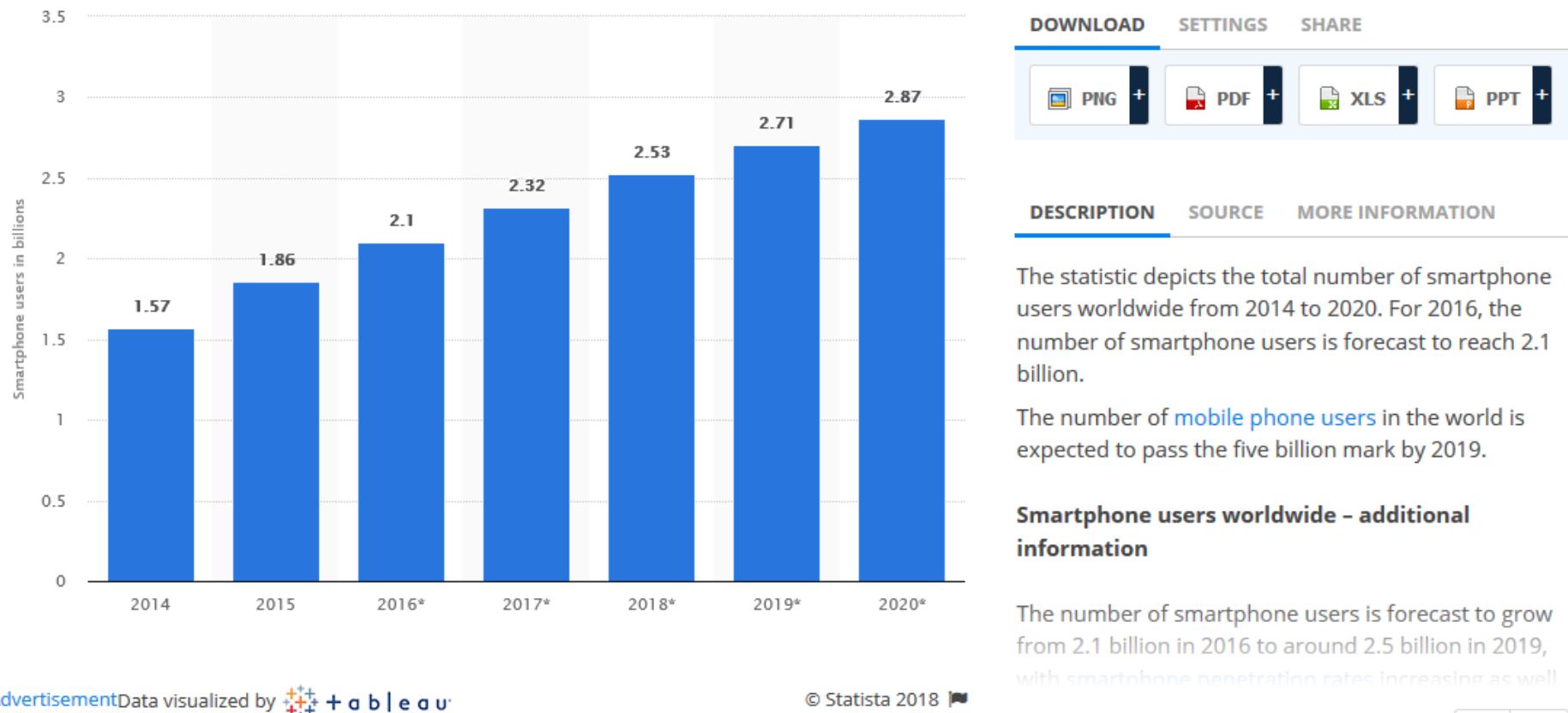
7,487,406,232

#### [TOP 10 MOST POPULOUS COUNTRIES \(July 1, 2018\)](#)

1. China	1,384,688,986	6. Pakistan	207,862,518
2. India	1,296,834,042	7. Nigeria	195,300,343
3. United States	329,256,465	8. Bangladesh	159,453,001
4. Indonesia	262,787,403	9. Russia	142,122,776
5. Brazil	208,846,892	10. Japan	126,168,156

(Source: [United States Census Bureau](#))

## Number of smartphone users worldwide from 2014 to 2020 (in billions)



(Source: [Statista, 2018c](#))

(Source: [Matthews, 2016](#))

INTERNATIONAL • DEVELOPING COUNTRIES

## The World's Poorest Are More Likely to Have a Cellphone Than a Toilet

 MONASH University

LENS

Search here



PUBLISHED JUN 26 2018

[Republish](#)

### The PROTIC project: how mobile phones are changing the lives of Bangladeshi women



Larry Stillman

Senior Research Fellow,  
Faculty of Information  
Technology

(Source: [Stillman, 2018](#))



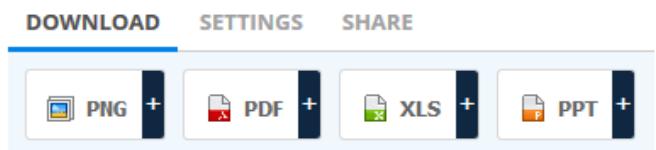
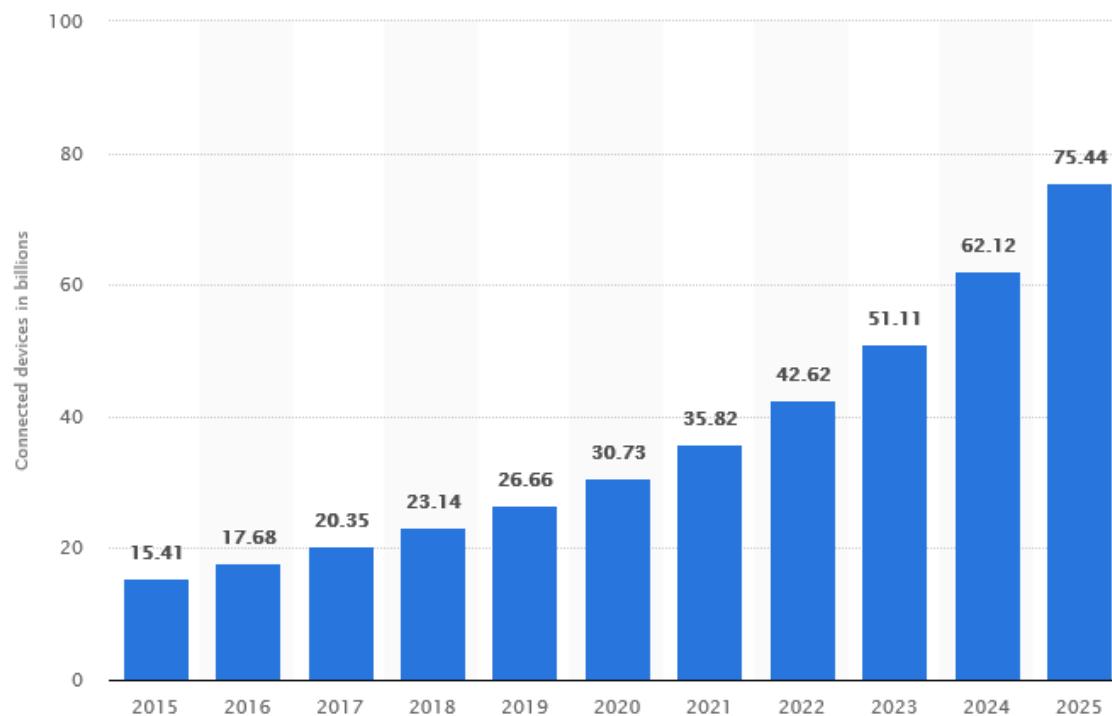
## How smartphones are heating up the planet

March 26, 2018 8:03am AEDT

Smart phones are rarely recycled and that's just one reason tech devices are increasing our carbon footprints. Here Phil Schiller, Apple's senior vice president of worldwide marketing, is seen in 2016 talking about new iPhones. (AP Photo/Marcio Jose Sanchez, File)

(Source: [Belkhir, 2018](#))

## Internet of Things (IoT) connected devices installed base worldwide from 2015 to 2025 (in billions)



DESCRIPTION SOURCE MORE INFORMATION

This statistic shows the number of connected devices (Internet of Things; IoT) worldwide from 2015 to 2025. For 2020, the installed base of Internet of Things devices is forecast to grow to almost 31 billion worldwide. The overall Internet of Things market is projected to be worth more than one billion U.S. dollars annually from 2017 onwards.



# The ‘Fourth Industrial Revolution’?

“By 2020, the Fourth Industrial Revolution will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics.” ([World Economic Forum, 2016c](#))

“[The Fourth Industrial Revolution] is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.” ([World Economic Forum, 2016d](#))

“These developments will transform the way we live, and the way we work. Some jobs will disappear, others will grow and jobs that don’t even exist today will become commonplace. What is certain is that the future workforce will need to align its skillset to keep pace.” ([World Economic Forum, 2016c](#))

**AeRO**  
Australasian eResearch Organisations

ABOUT ACTIVITIES EVENTS RESOURCES NEWS JOBS CONTACT US

**ABOUT**

**AeRO is the industry association focused on eResearch in Australasia**

We play a critical coordination role for our members, who are actively transforming research via Information Technology.

Organisations join AeRO to advance their own capabilities and services, to collaborate and to network with peers.

AeRO believes researchers and the sector significantly benefit from greater communication, coordination and sharing among the increasingly different and evolving service providers.

EARN THE AERO TICK

or keep informed of the project →

**RECENT NEWS**

**QUT joins AeRO**  
The Australasian eResearch Organisations (AeRO) is very excited to announce that Queensland University Of Technology (QUT) – Office of Research has joined

**4 DEC**

(Source: [AeRO, 2019](#))

**aarnet** NETWORK & SERVICES CASE STUDIES NEWS COMMUNITIES ABOUT US

Transforming how researchers work together and share data

Our network supports cross-institution collaborations, virtual labs, imaging, sequencing, and the transport and storage of huge datasets.

(Source: [AARNet, 2019](#))



(Source: [eResearch Australasia, 2018](#))

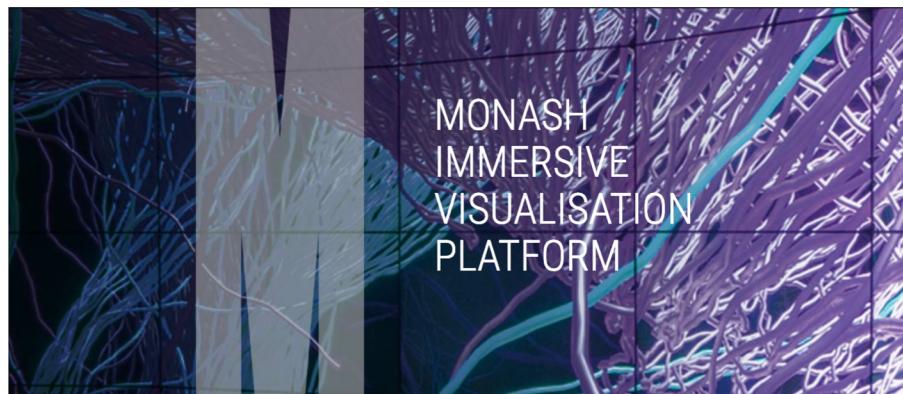
**ENABLING AND ACCELERATING 21ST CENTURY DISCOVERY**

Built with a co-design principle between researchers and technologists

**Monash eResearch Centre**

Enabling and Accelerating 21st Century Discovery at Monash University and beyond, through the application of advanced computing, data informatics, tools and infrastructure, delivered at scale, and built with a co-design principle between researchers and technologists

(Source: [Monash University, 2019a](#))



(Source: [Monash University, 2019b](#))

## Facilities and Capabilities



### Graphics Programming

Our graphics programmers are gurus in the latest shader technology, enabling them to create super-fast algorithms that can render your largest data sets at interactive frame rates.



### Virtual Reality

Our focus in the fast-evolving space of VR is on developing capabilities for visualising big data, and creating possibilities for virtual team work.



### Display and VR Consulting

MIVP operate some of the most advanced AV equipment at Monash, and can contribute to the design and operation of your next smart space.



### Monash CAVE2

The Monash CAVE2 is an immersive hybrid 2D and 3D virtual reality environment, showcasing Monash's leadership in the data visualisation domain.



### Development and Concept Support

Smaller, more flexible visualisation displays, including TRIO and CURV and transparent touch displays, are supported for development use and ideation.



### Scientific Programming

Our expertise in scientific programming is broad, with special focus areas in image processing and analysis, acceleration of computational codes, and solving spatial problems.

(Source: [Monash University, 2019b](#))

# So IT matters.



([Pingdom.com, 2019](https://pingdom.com/2019))

Yet, not many have the expertise,  
and they have to rely on those who do.

# The unit's learning outcome #1

1. Describe a variety of roles for **IT professional** and the personal, social, ethical and legal impacts arising from their work;



# Question 1: The skills you need...

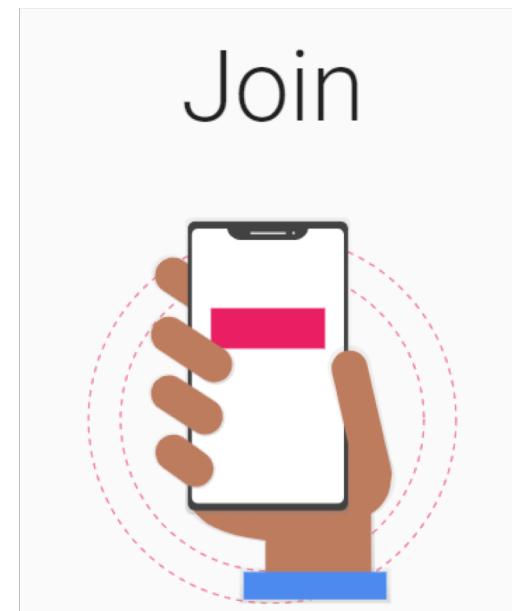
# Question 1: The skills you need...

To enter such an industry environment,  
...aside from the technical skills,  
**what kind of skills do you think you still need to learn?**

Please head to <https://flux.qa> and sign in with your Monash account (you should then stay logged in for the semester).

Hit the plus button in the top right and type in code **8JQJ4J** to join the FIT1049 group. The code is case sensitive.

\*Please note that this is a Monash system, and your responses to questions are not anonymous.



# Question 1: The skills you need...

**Comments:** Thanks for the responses! It is great to see many of the topics covered in the unit appearing in your responses, and we also appreciate some of the interesting responses, such as one that address language skills, or one's frame of mind (e.g. patience).

As we will learn from next week, it is very important for us to be able to apply these skills in a deliberate and systematic manner to be effective in any professional environments, and we shall discuss how we develop these 'skills' further...

# Typical IT graduate attributes – a selection

Capacity to learn new skills

Capacity for enquiry and research

Capacity to analyse and solve problems

Capacity for co-operation and teamwork

Interpersonal skills with colleagues and clients

Effective use of information and communications technologies

Ability to operate in an international and multicultural context

Oral communication skills

Written communication skills

Numeracy and data literacy

# IT graduate attributes – a view from a professional organisation

1. Graduates will have broad and coherent knowledge and skills for ICT professional work and/or further learning in a global economy. This knowledge should extend to being innovative and entrepreneurial as appropriate to the ICT occupation they are pursuing.
2. Graduates will have broad and coherent theoretical and technical knowledge with depth in one or more disciplines or areas of practice in ICT.
3. Graduates will have well-developed cognitive, technical and communication skills to select and apply methods and technologies to:
  1. analyse and evaluate information to complete a range of activities in their ICT area of expertise
  2. analyse, generate and transmit solutions to unpredictable and sometimes complex ICT problems
  3. transmit knowledge, skills and ideas to others
4. Graduates at this level will apply knowledge and skills to demonstrate autonomy, well-developed judgement and
5. responsibility:
  1. in contexts that require self-directed work and learning
  2. within broad parameters to provide specialist advice and functions

([ACS, 2015](#))

# The ‘soft’ skills?

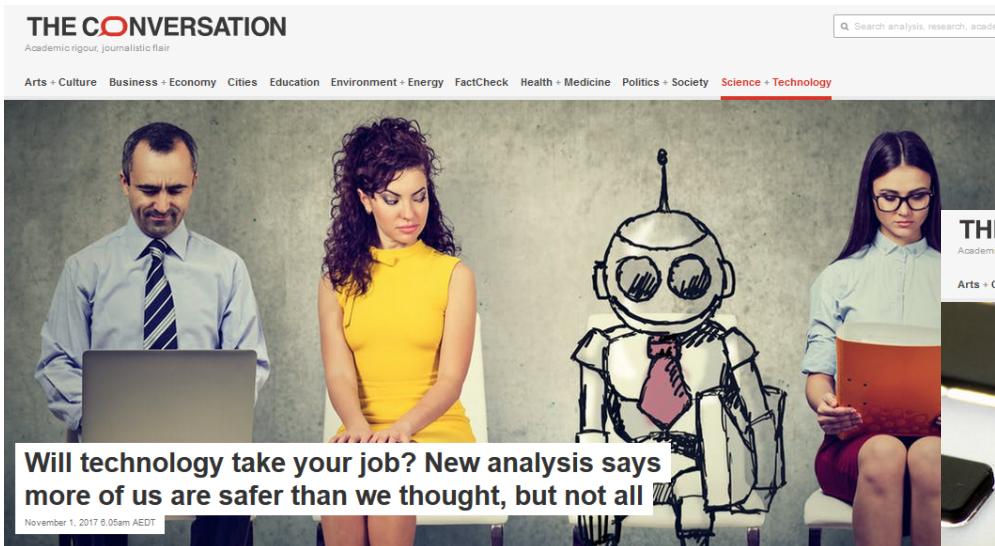
One recent study polled 68 employers on the specific skills that they would like to see in future employees. Ranking the importance of the different skills on a scale of 1-5, 5 being most important.

The average rating for **all technical skills** (e.g. programming and software engineering, operating systems and network management, database management, web technologies) was **3.3**.

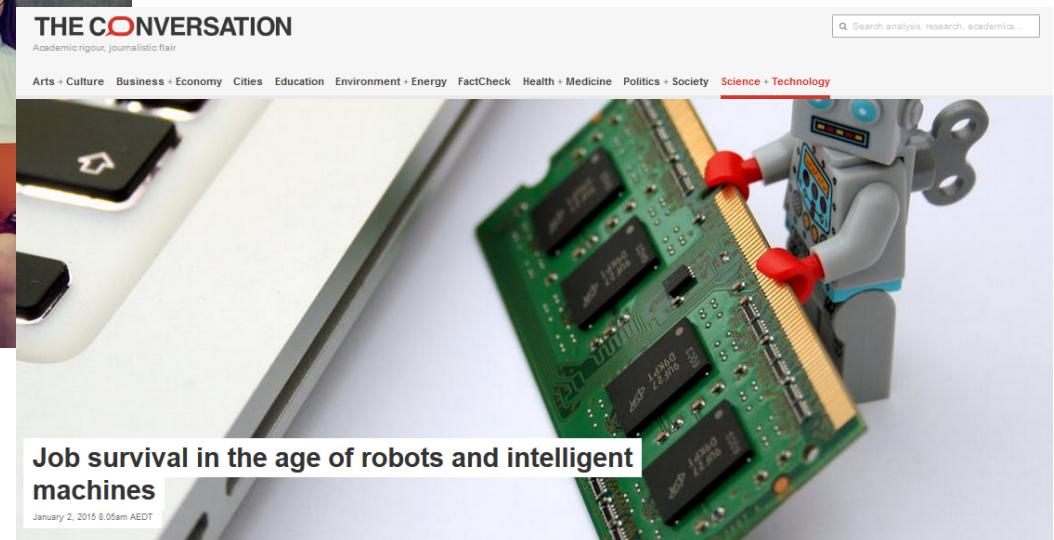
The average ranking for **general (soft) skills** (e.g. problem solving, communications and interpersonal skills) was **4.5**.

(Fernandez & Tedford, 2006)

# And it has been clearly a topic of interest for many...



(Fagan, 2017)



(Tuffley, 2015)

YOUR IT CAREER  
By Eric Bloom, ITworld | JUNE 24, 2014

## 12 characteristics of successful IT professionals

My daughter just graduated college with a degree in Computer Science and landed a job with an insurance company in their IT department. What makes an IT person successful?

MORE GOOD READS  
12 tips to help college grads land their first IT job

Twitter Facebook LinkedIn Google+ Email Print

(Bloom, 2014)

# The skills you need when you graduate?

## Top 10 skills

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility



Source: Future of Jobs Report, World Economic Forum

in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity

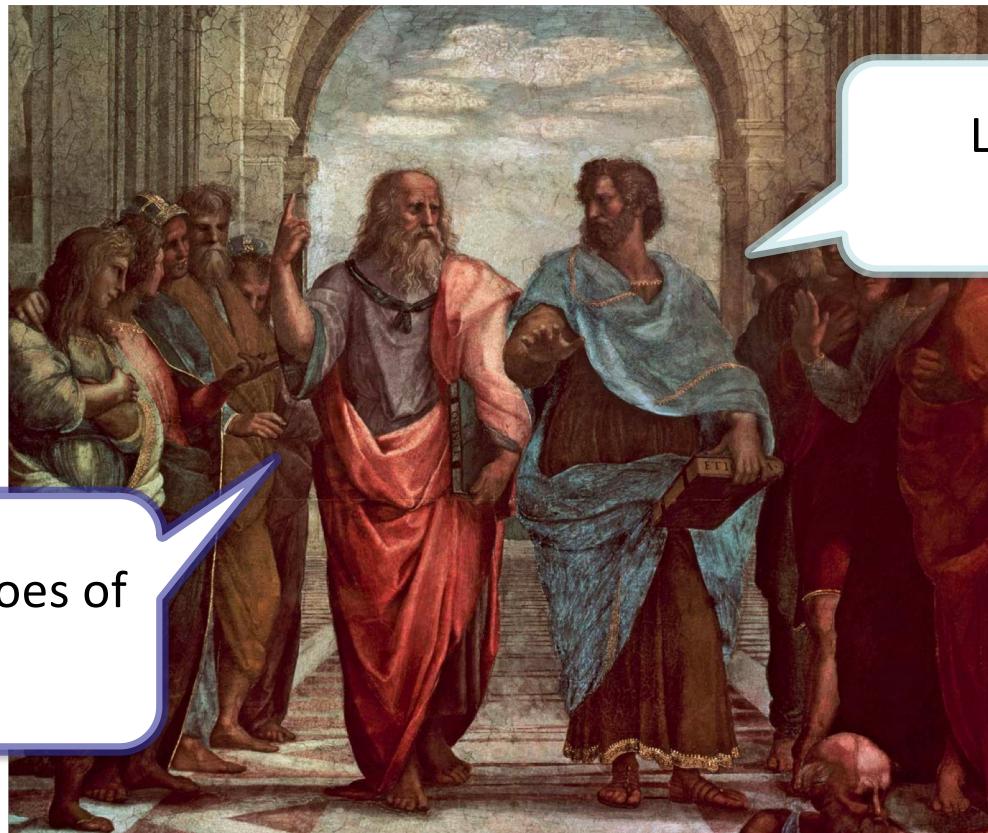


[\(World Economic Forum, 2016b\)](#)

[\(Jonston, 2016\)](#)

A screenshot of the website 'THE CONVERSATION'. The header includes the site's name and a search bar. Below the header, there is a navigation menu with categories like Arts + Culture, Business + Economy, Cities, Education, Environment + Energy, FactCheck, Health + Medicine, Politics + Society, and Science + Technology. The main content area features a photograph of a man wearing glasses and a stethoscope, looking at a large digital screen displaying a patient's medical record. The screen shows a registration number (85), demographic data (Patient Name: Matthew, Smith; Address Line: 243 east 30th street, CITY: New York, PHONE: 123-456-789), and a birthdate (23.05.1987). A banner at the bottom of the screen asks 'Are you ready for the jobs of the future?'. The date 'August 2, 2016 2.28pm AEST' is visible at the bottom left of the screen. A caption at the bottom right states: 'New jobs, such as big data doctor, might be just around the corner. Shutterstock'.

# How do you know that you are learning these skills?



Well, and a healthy does of  
*reflections* too.

Lots of *practice*,  
I reckon?

([Encyclopedia Britanica, 2019](#))

# And the role of education is changing...

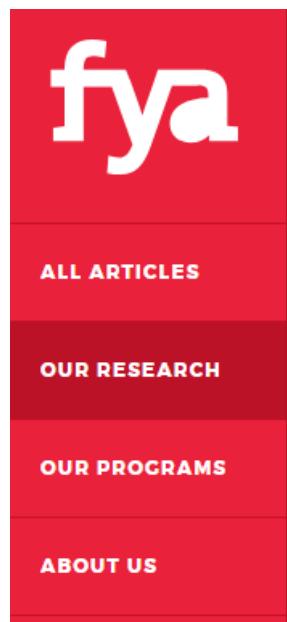
The screenshot shows the homepage of The Conversation. At the top, there's a navigation bar with categories like Arts + Culture, Business + Economy, Cities, Education, Environment + Energy, FactCheck, Health + Medicine, Politics + Society, and Science + Technology. Below the navigation is a search bar. The main content area features a large image of people working in an office. A prominent headline reads "Lack of workers with 'soft skills' demands a shift in teaching". Below the headline is a sub-headline: "A shift to open-plan offices means interpersonal and influencing skills are more important than ever, shutterstock".

(Sander, 2017)

The screenshot shows another article from The Conversation. The navigation bar at the top includes Education as a category. The main headline is "A 21st-century higher education: training for jobs of the future". Below the headline is the date "October 1, 2015 5.42am AEST". To the right, there's a sidebar titled "Authors" featuring two profiles: Belinda Probert and Shirley Alexander. Below the authors is a "Disclosure statement" section. The main content area features an image of a young woman working on a robotic arm.

(Probert & Alexander, 2015)

# Looking for an IT job (or any job): When is too early?



## The New Work Mindset, November 2016

**The fourth report in the series analysed 2.7 million job advertisements to reveal 7 new clusters of work.**

These clusters highlight that jobs are closely related and more portable than previously thought - when a young person trains or works 1 job they acquire skills that will help them get 13 other jobs. What does this mean? Well, for one thing instead of thinking about a 'dream job' we could be preparing for a 'dream cluster' based on skills and interests.

[DOWNLOAD THE REPORT](#)



([The Foundation for Young Australians, 2018](#);  
the source referred above was published in 2016)

# The ‘soft skills’ are only a means...

“... in addition to technical expertise developed over the course of their university courses, scientists are increasingly asked to not only collaborate with industry, manage intellectual property issues and contracts with external consultants but also to manage budgets, work teams and staff.”

(Source: [Professional Scientists Australia, 2018](#))

I sort of knew that.



([The World of the Habsburg, 2019](#))

# Making sense of the unit's structure

<b>Week</b>	<b>Topics</b>
1	Introduction to IT professions and practice
2	Basics of professional communications
3	Information gathering, analysis and processing
4	Narrative construction and dissemination
5	Situational management and intra-/inter-personal communications
6	Teamwork and professional behaviours
7-8	Professional ethics and legal issues
9	Communications in organisations 1: Organisaitonal governance and information management
10	Communications in organisations 2: Stakeholder engagement and risks management
11	IT security: Risks and crisis management
12	Revision

# Our assumptions

- 1. You want to get a job and work at some stage.**
2. You want to use your IT expertise one way or another.
3. You want to feel personally and professionally rewarded from your work.
4. You want to be prepared for any opportunities that may present to you in the future.

The question we asked you earlier....

How do you wish to use your IT expertise in future, and why?

# How this unit works 1: Pre-class activity – something to read...

Please read the Moodle Book before you attend each week's tutorial. This will take about 15-20 minutes.

◀ Week 0 (25 Feb - 3 Mar)Week 1 (4 Mar - 10 Mar)Week 2 (11 Mar - 17 Mar) ▶

**Introduction to IT professions and practice**

After completing the unit's activities in Week 1, you will:

- understand the professional skills and attributes you would need to effectively apply your IT expertise;
- understand the diversity of IT professional roles and environments in which you may work;
- understand the idea of IT as a profession, and consider how this implicates to you as a practitioner; and
- understand the unit's learning outcomes, structure and requirements.

**Pre-class activity: Something to read**

Please read the following Moodle Book prior to your lecture attendance on Friday. It would take approximately 15 minutes to read; this however does not include time to read all the materials and sources linked out from the Book, which are provided only for your interest in case you would like to learn more on specific topics.

*Please also note that from Week 2, you are expected to complete weekly reading before each tutorial class, since the reading material will provide you with some background to the activities to be held in class.*

  [Week 1 reading](#) □

## How this unit works 2: Tutorial – something to do...

1. ...and attend the tutorial on Mondays and Wednesdays, which will (usually) consist of practical activities.
2. These classes are held throughout the semester, i.e. from Week 1 to Week 12.
3. Some of the tutorial outcomes will be submitted as part of your ‘eFolio’ assessment, i.e. a Google Drive folder in which you keep eight (8) assessable items arising from the tutorials throughout the semester.

## How this unit works 3: Lecture – something to think about...

1. Each lecture will (usually) consist of:
  1. Quizzes using Flux (not assessed);
  2. Activities and demonstrations; and
  3. Sample exam questions.
2. We will (aim to) finish each lecture around 10:30-40 (i.e. 100 min. = 50 min. + 50 min. = 2 standard 1-hour lectures), unless we have a guest lecturer/lecturers.

## Tutorial Part 2?

This will only be relevant from Week 7 when you undertake Assignment 2.

# The FIT1049 Moodle Site

1. **The site** is available for you to keep yourself up-to-date with the unit related information. The site will be progressively updated throughout the semester.
2. **Discussion Forum** is to be used only for content-related queries of general interest (e.g. questions about the assessment tasks). Posts that would fall outside this will be deleted as per the Faculty's policies.
3. **Any other queries**, including those specific to your circumstance/situation, feedback, concerns, should be directed to your tutor and/or lecturer.

# Assessment summary

1. eFolio Part A (12%): eight (8) assessable items arising from the tutorials, uploaded on a Google Folder that is shared with the tutor [due in Week 10, with provision of weekly feedback]
2. Assignment 1 (20%): an individual oral presentation (10%) and a worksheet (10%), based on an analysis of a specified article on a particular IT related field/role [due in Week 6]
3. Assignment 2 (20%): a group presentation (10%) and an individual reflective report (18%), based on a research project on a selected topic on IT professional practice [due in Week 11 and 12 respectively]
4. Examination (40%): drawing upon all the materials covered in the unit.

# Some rules to observe...

Please note that passing the unit requires:

1. At least 50% for whole unit (of course!)
2. Meeting hurdle requirements
3. 40% for non-exam assessments
4. 40% for exam
5. **No breach of the University's academic integrity policies**

# Supports available

- **Tutors and Lecturers:** Can be contacted either in person or by email. (See the ‘Unit Information’ page on the Moodle Site for their emails.)
- **Consultation hours:** Will be arranged from Week 3; details to be announced on the Moodle Site
- **Special Consideration:** To be granted in case of an extraordinary circumstance, and conditions apply. A link to the University’s form can be found under the ‘Resources’ section in the ‘Unit Information’ tab on the Moodle Site.

# Support available (cont'd)

- **Disability Support Services** provides a range of services for registered students including:
  - Notetakers and Auslan interpreters
  - Readings in alternative formats
  - Adaptive equipment and software
  - Alternative arrangements for exams
- For further information and details about how to register:
  - Email: [disabilitysupportservices@monash.edu](mailto:disabilitysupportservices@monash.edu)
  - Phone: 03 9905 5704
  - Web: monash.edu/social-justice/disability

## Support available (cont'd)

- **Counselling Service** at Monash (including the number for 24/7 free and confidential emergency support): <https://www.monash.edu/health/counselling/help-online>
- **Safer Community Unit** (for any security or safety concerns, safety escorts and emergencies): <https://www.monash.edu/safer-community/contact-us>

# Things to do this week...

1. Make sure you shared your eFolio and the second activity arising from the Week 1 tutorial.
  2. Read the Moodle Book for Week 2 before the tutorial next week.