

## **ICT and Career Paths**

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Information and communication technology is a promising career path with a multitude of opportunities for today's students.

ICT, Information and Communication Technology is an essential element that almost all industries utilise in today's business world. Deciding on the best IT products for a company to use is a skillset, and consultants in this field are in great demand.

Having a strong level of competency in ICT allows the student to pursue a job that involves working in all sorts of business sectors. New technologies will always be on the rise for decades to follow, and understanding what these skills are and how to develop them through innovation and entrepreneurship can help students no matter what profession or career chosen.

### **Career Opportunities**

The following is a short list of some of the ICT career paths for students to consider:

- Security and Networking Analysts
- Web Designers & Development
- Computer Programmers
- Database Managers
- Data Analysts
- Mobile App Developers
- Technology Support
- Project Managers
- Technical Trainers and Managers
- Marketing Analysts
- Content Marketing of Products
- Branding Specialists
- e-Marketing Specialists
- Social Media Managers
- Digital Tech Specialists
- Public Relations Specialist
- Social Community Managers
- Social Media & Marketing Coordinators
- Marketing Strategists
- AI Specialists
- Online Engagement Specialists
- Corporate Communications Coordinators

Some of the fields of work include:

Education and learning, including e-learning, accounting, bookkeeping, television, internet, advertising and promotions, radio communications, telephone, cellular, computers, electronics, AI, circuitry, software design, AV technology, GPS, editing, music, solar, turbines, energy storage and batteries, manufacturing, retail, engineering, medical, pharmaceutical, surgical, transportation, security, CTTV and monitoring, business analytics and transportation, digital publishing, just to name a few.

## **Australian Statistics**

As the Australian Government reports in 'Skills Priority List Findings', ICT Professionals, Occupation Reports, ANZSCO Sub-Major Group 26, **Occupations in Shortage**

'Across all ICT Professional occupations assessed for the 2021 Skills Priority List (SPL), 21% were found to be in shortage compared with 19% across all occupations (Table 1). Of the Minor Groups, Business and Systems Analysts, and Programmers had the greatest proportion of occupations in shortage (38%), followed by Database and Systems Administrators, and ICT Security Specialists (33%). No shortages were identified for ICT Network and Support Professionals'.

Table 1 - Occupations in shortage, **ICT Professionals Sub-Major Group and Minor Groups:**

Business and Systems Analysts  
Programmers  
ICT Security Specialists  
Database and Systems Administrators,  
ICT Network and Support Professionals

They continue to say: 'The majority (89%) of ICT Professional occupations are projected to have strong future demand, compare with a third of all occupations. All Database and Systems Administrators, and ICT Security Specialists, and ICT Network and Support Professionals occupations are projected to have strong future demand'.

Of the ICT occupations, four shortages were identified:

Multimedia Specialist  
Developer Programmer  
Software Engineer  
ICT Security Specialist

Results by State and Territory shows,

'Of the states and territories, New South Wales had the highest proportion of ICT Professionals occupations assessed in shortage (53%), followed by the Northern Territory (37%), while the remaining states and territories had around 20% of assessed occupations in shortage. It should be noted that the variation across the states and territories, at least in part, reflects differences in the stakeholder input received'.

According to Deloitte, July 2022 from Digital Pulse, they say:

'Australia needs 60,000 additional IT workers annually to meet current demand, however, only 7,000 students are graduating with an IT qualification each year. This shortage is expected to continue for at least the next five-years'.

## Overseas Statistics

As The U.S. Department of Labour (USDL) blog says about projected growth rates for 'data' related jobs:

'Interested in a fast-growing, high-wage career? In celebration of National Technology Day on Jan. 6, 2023 - we're highlighting growing occupations that focus on technology's framework: data.

From 2021 to 2031, employment in the nine occupations shown below is projected to grow more rapidly than the average for all occupations (5.3%); in fact, most are expected to have much faster than average growth. Overall, the increases are projected to create nearly 300,000 new jobs over the decade.

What's more, the median annual wage for each of these occupations was higher than the median annual wage of \$45,760 for all occupations in May 2021. To enter any of these occupations, you'll need at least a bachelor's degree'.

This weblink also notes the growth rates, job numbers, occupational openings, medium annual wage, and education entry level required on average:

<https://blog.dol.gov/2023/01/04/by-the-numbers-projected-growth-in-data-related-jobs>

Further, for Computer and Information Systems managers, the US Bureau of Labour Statistics says:

'Employment of computer and information systems managers is projected to job outlook growth is anticipated at +16 percent from 2021 to 2031, much faster than the average for all other sectors'.

Here's a good reference to the U.S. Bureau of Labor Statistics, *outlook handbook*:

<https://www.bls.gov/ooh/management/computer-and-information-systems-managers.htm>

As I see it from my research and experience as a business owner, lecturer in business administration and entrepreneurship, ICT knowledge and entrepreneurship skillset will go a long way for the 2023 student and well into the future.

This type of learning will also provide the student with creative thinking and realization of what may not as yet exist in the product marketplace to make processes for business and individuals more achievable in a simplified manner. Realizing the needs of processes is an entrepreneurial skill.

## Subscription Based Platforms

There's much to consider especially today, when most, if not all IT products and platforms are subscription based. Recently when analysing my own business requirements, that of a music production library label and music publisher, I realized just how critical each and every product and platform choice is that I have implemented into my business; from online accounting software, marketing platforms, music digital delivery services to and for my global sub-publisher agents, CRM software, F2F meeting software, storage and sharing platforms, audio recording platforms including audiomovers software to record remotely, and many others.

The cost annually can be quite daunting, it does add-up quite substantially. This exercise has made me realize how hidden, so to speak, these costs are - as you never see them come in at the same time. It is absolutely critical to realize what each and every program is doing, why you require them, how you are using them, if they are effective for your purpose and are doing the required job, how many users to allocate in your subscriptions (as each additional user adds to the cost structure), and that you can find a way – such as creating a specific spreadsheet of ‘subscription based product’, in order to track and keep a handle on these operating costs effectively.

## **The Business Plan**

Creating and continually updating your BUSINESS PLAN is essential, and I always advise my students in my class, Entrepreneurship Research Report and IT Industry Research, both post graduate subjects at the Universal Business School Sydney (UBSS), to use the Australian Government templates, located here:

<https://business.gov.au/planning/business-plans/develop-your-business-plan>



When contemplating a business venture, always identify what your business is, what it does and why it does what it does. Determine who will benefit from the products of your business. Consider the risks and risk management of your enterprise. Outline a feasible marketing strategy, including detail about your competitors, consider your strengths and opportunities, as well as your threats and possible weaknesses. Create a financial forecast of projections for sales vs. manufacturing and operation costs so that you can visually see your assumed ‘break-even point’ – the critical number of realization for every business in order to adjust pricing, manufacturing, costs of goods sold (e.g. manufactured), proposed financial structure and what your gross profit, operating and net profit might look like. This is important to accomplish before you open your doors to the business world. And it is thereon critical to continue to analysis these results weekly, and to adjust accordingly.

One that does this in business has the greatest chance of survival. One must also ensure they understand how to conclude a correct 'break-even point calculation', as follows:

How do you calculate the break-even point in terms of sales?

### **Definition of Break-even Point in Sales Dollars**

The break-even point in sales dollars can be calculated by dividing a company's total fixed expenses by the company's contribution margin *ratio*.

### **Definition of Contribution Margin Ratio**

A company's total contribution margin in dollars is the total net sales minus the total amount of variable expenses. Dividing the contribution margin in dollars by the total amount of net sales is the *contribution margin ratio*.

### **Example of Break-even Point in Sales Dollars**

To illustrate the break-even point in sales dollars, let's assume that a company has fixed expenses of \$100,000 per year. The variable expenses are estimated to be 80% of the net sales. This means that the *contribution margin ratio* is 20% of net sales. Since only 20% of the sales dollars are available to cover the \$100,000 fixed expenses, the company will need to have \$500,000 of net sales (\$100,000 divided by 20%). At \$500,000 of net sales, the amount of variable expenses will be \$400,000 (80% X \$500,000). That leaves \$100,000 to cover the \$100,000 of fixed expenses. Hence, at \$500,000 of net sales the company will be at the break-even point, which is the point where sales will be equal to all of the company's expenses. This is the point where the net income will be zero.

### **Conclusion**

I will conclude with saying, ICT learning promotes strong thinking skills, including strength in interaction between others, effective collaboration skill, evaluating, analysing, forecasting, projecting, planning, monitoring, and reflecting. It motivates learning ability itself, and it promotes creative thinking and innovation.

### **References**

Australian Government Statistics 2023, Skills Priority List Findings, ICT Professionals, Occupation Reports, ANZSCO Sub-Major Group 26, **Occupations in Shortage**  
<https://www.nationalskillscommission.gov.au/publications/skills-priority-list-occupations/anzsco-sub-major/ict-professionals>

Australian Government Business Plan, 2023  
<https://business.gov.au/planning/business-plans/develop-your-business-plan>

Deloitte 2022, Digital Pulse,  
<https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-australias-digital-pulse-2021-160621.pdf>

Farrell, R, 2023, U.S. Department of Labour (USDL) BLOG, projected growth rates for 'data' related jobs  
<https://blog.dol.gov/2023/01/04/by-the-numbers-projected-growth-in-data-related-jobs>

U.S. Bureau of Labor Statistics, 2023, *outlook handbook*:

<https://www.bls.gov/ooh/management/computer-and-information-systems-managers.htm>

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