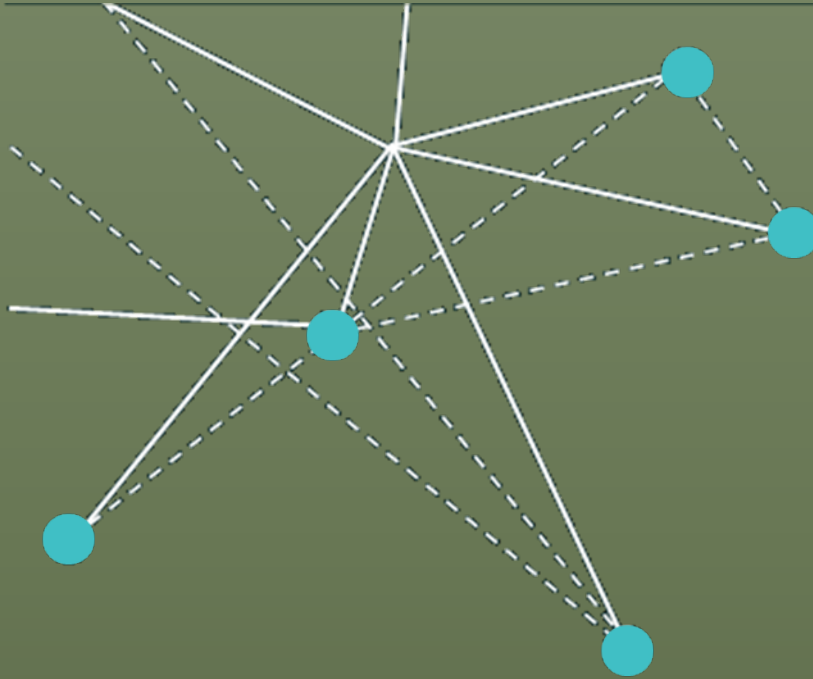


#SCRIPT

2020



Sunshine Coast Digital Skills Demand Survey Findings

SCRIPT'S DIGITAL SKILLS TALENT DEVELOPMENT & ATTRACTION PROJECT

SEEKING TO UNDERSTAND AND VALIDATE OUR REGION'S BUSINESS
NEEDS FOR SPECIALIST DIGITAL TALENT.

OCTOBER 2020

REPORT PREPARED BY RIDLEY CONSULTANCY | www.ridleyconsultancy.com.au

Digital Skills Talent Development & Attraction Project

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Digital Skills Talent Development & Attraction Project

Executive Summary

The Sunshine Coast Regional Innovation Project Team (SCRIPT) has invested in understanding Sunshine Coast technology businesses current and future specialist digital skill demand and talent supply requirements, with the goal of providing industry relevant recommendations to current and future education products, and ultimately build our region's digital skill pipeline.

During August and September 2020, the Sunshine Coast Digital Demand Survey was open to Sunshine Coast technology businesses, organisations, or employers. 33 survey responses were received from 30 separate organisations: 89% were from the Sunshine Coast region; 61% had senior leadership roles; 79% were from organisations with less than 100 staff where on average 76% of their total workforce required digital skills; 64% of respondents were from organisations from either the professional, scientific, and technical services or information media and telecommunications industry sectors.

Whilst the nature of the fast-moving environment of technology, the rapidly changing growth rate of emerging and current skill requirements and vendors, and the impact of Covid-19 is acknowledged, this exploratory project captures valuable information and opinions current at this point in time as well as providing a platform for future investigations to be built on.

By analysing survey responses for both demand and supply requirements, the following digital skills received the highest survey responses (all higher than 30%) for having **both** the greatest demand for and highest difficulty to source skills, noting web app development, website creation and UI/UX design displayed a higher demand yet were considered easy to source:

- ⇒ Information Security (Cyber Security)
- ⇒ Cloud Engineering
- ⇒ Data Analyst
- ⇒ Artificial Intelligence and Machine Learning
- ⇒ Robotics and Process Automation
- ⇒ Specialist Database Developer

Furthermore, **Information Security (Cyber Security)** was the only one of these skills to be in both the top five of the 'often' in demand list and the 'hard' to source list, coming in second on both lists with 45% and 54% of responses respectively.

With 82 separate software development skills identified in the survey the complexity of software development skills requirements for organisations was displayed. This survey captured the following five software development skills as the most frequently mentioned software development skills required by survey participants:

- ⇒ .NET
- ⇒ Python
- ⇒ Java
- ⇒ C/C++/C#/C#
- ⇒ Node

However, as emphasized by project technical advisors further categorizing into vendor specific skills, skill type (e.g. framework, platform etc.) and skill growth areas would be beneficial. The importance of this is illustrated when you consider that 27% of the 15 top software development skills identified in the survey were considered to be of 'high growth' skills, compared with 42% considered to be 'low growth' skill areas. Of the top five most frequently mentioned software development skills only **Python** and **Node** were also considered high growth area skills.

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67% of the respondents indicated they are currently concerned about their organisation meeting its specialist digital skills requirement, noting 24% of these responses indicated high concern. An upward trend in concern was observed when forecasting beyond 12 months, with 'high concern' responses increasing by 7 percentage points to 31%.

Currently 67% of survey responses indicate they are employing 1-10 specialist digital staff and 3% are employing more than 50 staff with specialist digital skills, yet in five years' time 6% of survey participants anticipate they will be employing 1-10 specialist digital staff with 36% anticipating employing 11-20 and 24% more than 50.

The main supply channels for specialist digital skill talent is 'often' via online advertising or their own networks, and organisations are 'often' employing their staff permanently or as contractors sourced from a talent pool across diverse locations, i.e. the Sunshine Coast region, within Queensland, nationally or internationally. The majority staff are 'often' based in regional headquarter offices or working remotely from overseas. 45.5% of respondents indicated they preferred office-based specialist digital talent prior to Covid-19, with 30% of respondents indicating their workplaces have adapted and changed due to Covid-19.

All specialist digital skill roles listed in the survey displayed the majority of survey responses in the category of 'easy to source from **outside** the Sunshine Coast', compared with 50% of those roles having the majority of responses from the category of 'easy to source from **inside** the Sunshine Coast'. The 3 roles with the majority of responses indicating they were difficult to source from within the Sunshine Coast were: developer, mobile app developer and cyber security specialist, with cyber security specialist also having the highest response rate in the 'hard to source outside of the Sunshine Coast' category.

Three quarters of respondents indicated they have concern about the regions supply chain of specialist digital talent both now and into the future, with 45.5% of responses indicated that the organisation they work for is currently considering alternative recruitment strategies.

Many organisations are meeting their current training and education needs via utilising online and vendor training and education providers, preferring their employees to complete short courses with targeted skill development during working hours. The regions education providers, university, TAFE, private RTO's, and private education providers are seldom being utilised or sought after by technology employers. Nearly half of the survey participants are anticipating an increase in their training and education budget in the next twelve months, and 20% are currently considering alternative training and education strategies.

Lastly, the need for a greater understanding regarding the speed of change was reiterated many times in various ways throughout each of the five survey sections, 46.4% of the survey respondents say their responses either would have or may have been different if the survey was conducted pre-Covid-19 pandemic and nearly all survey participants wish to remain connected to this project.

The Project

Background

SCRIPT <https://siliconcoast.org.au/script/> is a collaboration of local entrepreneurs, businesses, government stakeholders and community members dedicated to growing innovation and business capacity within the Sunshine Coast region.

Digital Skills Talent Development & Attraction Project

Sunshine Coast Council, Noosa Council and Regional Development Australia Sunshine Coast along with their project partners (collectively known as SCRIPT) are recipients of Advancing Regional Innovation Program funding. The funding was collectively matched by over 30 Sunshine Coast organisations – providing over \$1 million over three years to develop innovation and entrepreneurial activities across the region.

SCRIPT has invested in the Digital Skills Talent Development & Attraction research project which commenced with this Sunshine Coast Digital Skills Demand Survey.

The survey sought to understand and validate our region's business needs for specialist digital talent, with the goal of providing industry relevant recommendations to current and future education products, and ultimately build our region's digital skill pipeline.

Regional Alignment

This project aligns with the Sunshine Coasts regional investment in developing talent and skills as part of the Sunshine Coast Councils Regional Economic Development Strategy 2013-2033.

This SCRIPT research project supports Goals 2, 3, 4 and some of Goal 5 in the Investment in Talent and Skills Pathway Plan (one of 5 critical pathways of the REDS) as outlined below.

Table 1: SCC Regional Approach:

Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6
Develop Talent			Re-Train Talent	Attract Talent	Retain Talent
Whole of Community	Education and Industry Collaboration & Skill Development			Specialist Employer Alliance	Whole of Community
Local youth are excited about digital skills and future jobs.	Educational institutions have new courses/curriculum /products aligned to digital skill requirements for future careers.	Graduates and early career talent are completing new courses designed to address current digital skill gaps.	The existing workforce are supported by their employers to build and maintain their digital skills, therefore remaining employable and prevent being pushed out of the employment market.	The regions specialist talent pool is meeting Sunshine Coasts growth industries current and projected skill demands.	New specialist talent in the region have access to local networks, groups and activities of interest, and along with their families choose to remain living in the region.

Project Questions

1. What are the current, emerging, and future digital skill requirements of technology businesses in the Sunshine Coast region?
2. Is the supply of specialist digital talent on the Sunshine Coast meeting the current, emerging, and future digital skill requirements of technology businesses in the region?
3. How are the regions education providers building courses and education products to meet employers demand for specialist digital skills?
4. Would technology businesses consider alternative approaches to their current talent training and acquisition strategies?

Digital Skills Talent Development & Attraction Project

Project Goals

1. To validate and quantify the demand for specialist digital skills by technology employers in the region.
2. To understand the specialist digital talent gaps and opportunities for technology businesses in the region.
3. To explore alternative digital talent training and acquisition strategies and opportunities with technology businesses in the region.

The Survey

The survey format, questions and analysis were designed and undertaken in accordance with the scope of SCRIPT's Digital Skills and Talent Development & Attraction project.

The survey was distributed via the networks of Sunshine Coast Council, Noosa Council, and SCRIPT.

33 survey responses were received.

Acknowledge and appreciation goes to the following project technology advisors:

Survey design:

- Myles McNamara - EyeOnIt
- Alan Macdonald - Sunpay
- Daniel McKinnon – App Factory
- Angela Lisle - TAFE
- Carolyn Bullen - Noosa Council
- Chris Boden - Digital Hub
- Anthony Edgar – Sunshine Coast Council

Survey results interpretation:

- Myles McNamara – EyeOnIt
- Craig Josic-Silicon Coast
- Chris Kalle – R4Robotics
- Gary Swanopoel – PixelPixel

Survey Analysis

The survey findings are analysed separately according to the five survey sections:

1. About You & Your Organisation
2. Your Organisations Digital Skill Development
3. Recruitment of Digital Talent
4. Training & Education
5. Covid-19

For detailed information on individual survey question responses refer to **Appendix A**.

Section 1: About You & Your Organisation

Key points regarding the profile of survey participants are outlined below.

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- 33 survey participants
- 30 of the 33 responses were from separate organisations
- 89% of survey participants were from the Sunshine Coast
- 94% of organisations have a local headquarters or satellite office on the Sunshine Coast
- 61 % were CEO's, founders, or directors, with a further 27% representing senior technology roles such as CTO and Head of Core Platforms
- 64% of responses were from 2 industry sectors:
 - Professional, scientific, and technical services
 - Information media and telecommunications
- 79% of responses represented businesses with less than 50 staff
- 64% of survey participants worked in organisations that have been established 5 or more years
- 55% of survey participants have been employed in their organisation for 5 or less years
- Most survey participants have been employed for 1-5 years in an organisation that has been established for 1 – 5 years
- The second most frequent response group of survey participants were those that had been employed for more than 10 years in an organisation that has been established for more than 10 years.
- 58% of survey responses were from organisations that described themselves as start-up or scale-up organisations

54.5% of responses have indicated that their survey responses would not have changed pre Covid-19 pandemic, with 24.2% saying their responses may have changed, and 21.2% saying they would not have provided the same responses pre-Covid-19 pandemic.

Table 2 provides a summary of the organisation types that participated in the survey, displaying sector information, percentage staff with digital skills and business sizes. Further breakdown of organisation staff numbers, staff numbers with digital skills and good and services offered is also provided in Tables 3, 4 and 5 below.

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Table 2: Organisation Type Summary

Industry Sector	# Responses	% total staff with digital skills (ave)	Start Up	Scale Up	# Micro Businesses <9 staff	# Small Businesses 10-49 staff	# Medium Businesses 50 - 999 staff	# Large businesses >1000 staff
Health care and social assistance	1	100%			1			
Manufacturing	1	100%			1			
Professional, scientific, and technical services	12	83%	4	4	7	4	1	
Other services	1	81%		1		1		
Information media and telecommunications	9	61%	3	4	4	4	1	
Education and training	2	53%				1		1
Agriculture, forestry, and fishing	1	50%	1		1			
Public administration and safety	3	18%		2		1		2
Financial and insurance services	3	9%						3
Mining	0							
Electricity, gas, water, and waste services	0							
Construction	0							
Wholesale trade	0							
Retail trade	0							
Accommodation and food services	0							
Transport, postal and warehousing	0							
Rental, hiring and real estate services	0							
Administrative and support services	0							
Arts and recreation services	0							
Totals	33		8	11	14	11	2	6

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Table 3: Categorised Goods and Services

Goods and Services Categories	# Respondents
Robotics / AI / Product Development	7
Services / Systems / Products	7
Online Communities / Support / Training	5
Finance / Insurance / Gov	5
Software Development	4
Web / Design	3
Security	1
Network	1

Table 4: Total Staff Numbers

# Staff	# Respondents	% of Respondents
1-4	6	18%
5-19	17	52%
20-49	2	6%
50-199	2	6%
200-999	0	0%
1000-2000	6	18%
Total	33	100%

Table 5: % Staff with Digital Skills by Organisation Size

# Staff	Average % of Total Staff with Digital Skills
1-4	83%
5-19	72%
20-49	79%
50-199	64%
200-999	Nil businesses in this category
1000-2000	8%

Section 2: Your Organisations Digital Skill Requirements

The demand for and ease of sourcing specialist digital skills data was captured in the survey in two ways. Firstly, from responses to a predefined list of 16 Specialist Digital Skills, and secondly from open text responses to software development skills required.

Demand:

The 16 predefined Specialist Digital Skills were:

1. Artificial Intelligence and Machine Learning
2. Blockchain
3. Cloud Engineering
4. Data Analyst
5. Website Creation

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6. Hardware / IT
7. Information Security (Cyber Security)
8. Internet of Things
9. Mobile App Development
10. Networking
11. SEO/SEM Marketing
12. Specialist Database Developer
13. UI/UX Design
14. Robotic and Process Automation
15. Voice Architects
16. Web App Development

The top five Specialist Digital Skills 'often' in demand, showing between 42-52% of all responses for this category were:

1. Web App Development
2. UI/UX Design
3. Cloud Engineering
4. Information Security (Cyber Security)
5. Website Creation

In the open text responses to Software Development Skills 82 separate skills were listed. The top five Software Development Skills as identified by **survey response frequency**, were:

1. .NET
2. Python
3. Java
4. C/C++/C+/C#
5. Node

Due to interpretation being complex in the fast-moving environment of technology further assessment of the 82 Software Development Skills was sought and gained through the project expert technical advisors. Via this additional input, it was understood that more advanced categorisation of Software Development Skills by the type or skill, vendor and skill growth areas could provide greater insight into the survey response.

The key points for consideration were:

- Further categorisation to understand whether the software development skills required are considered a:
 - Language
 - Framework
 - Platform
 - General
- Identifying whether the names of 'skills' were vendor specific, such as Microsoft, Apple, Google, Oracle etc.
- Understanding whether the skill demand is growing or declining.

The projects technical advisors categorised the 82 Software Development Skills, shown in Table 6 Digital Skills Matrix. The information from this matrix was then utilised to further analyse the Software Development Skills with greater than 1 frequency of survey response (15/82) as listed in Table 7.

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Table 6: Digital Skills Matrix (provided by project technical advisor)

Digital Skills Matrix													
	Software Development												
	Language	Framework	Platform	General	Gaming	Manufacturing	Cyber Security	IoT	IT	AI+ Robotics	Design	Growth	Vendor
Skill													
Software development Patterns													
SCRUM				1								Med	N/A
Kanban				1								Med	N/A
MVC				1								Med	N/A
SASS				1								High	N/A
Code hosting platforms													
Git / GitHub			1									High	Microsoft
Jira			1									Med	Atlassian
Programming languages													
.NET (VB/C#)	10											Med	Microsoft
Python	7											High	Python Software
Java	6											Low	Oracle
C/C++/Embedded C	7											Low	N/A
PHP	4											Low	PHP Group
SQL	2											Low	IBM
ASP.NET (Webforms)	2											Med	Microsoft
JavaScript												High	Oracle
TypeScript												High	Microsoft
HTML / CSS	3											High	N/A
Dart	1											Low	Google
Swift	2											Low	Apple
Ruby	1											Low	N/A
Objective C	1											Low	Apple
Software development frameworks													
React		5											
Angular		4										Med	Google
Flutter		1										Low	Google
Vue		2										Low	N/A
Swagger		1											
Polymer		1										Low	Google
Software development environments (app-building)													
Firebase			1									Low	Google
Platforms for hosting apps, and services for use in apps													
Node			5									High	N/A
IIS			2									Low	Microsoft
Amazon Lambda			2									Med	Amazon
Amazon SQS			1									Med	Amazon
AWS			4									High	Amazon
Google Cloud			1									Med	Google
Azure			1									High	Microsoft
Azure AI			1							1			
IBM Watson			1							1		Low	IBM
Docker			1									High	Docker
Numerical computation, and AI software / languages													
Matlab (Octave)	1									1		Low	
Julia	1									1		Low	
PyTorch, NumPy			1							1		High	Facebook, others
Jupyter Notebooks				1						1		Med	Jupyter
CAD software													
AutoCAD						1						Med	Autodesk
Fusion						1						High	Autodesk
Tinkercad						1						Low	Autodesk
Inventor						1							
Cura						1						Low	N/A
Engineering skills													
CAD						1						Med	N/A
CAM / G-Code						1						Low	N/A
CAE / Generative Design						1						Med	N/A
3D Hard Surface Modelling						1							
PCB Design / Engineering						1							
Gaming skills													
2D Texture Artists					1								
Robotics skills?													
Mindstorms										1			Lego
Ansible									1				Ansible
WordPress									1				WordPress
Windows Server									1				Microsoft
Mongo									1				Mongo
Design skills													
Adobe InDesign											1		Adobe
Graphic Design											1		
IT Skills													
Business automation									1				
IoT								1					
Security Skills							1						
DevOps									1				
ICT Governance									1				
Software Development skills													
Systems Analyst				1									
Solutions Architecture				1									

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Table 7: Top 15 Software Development Skills (by response frequency)

Software Development Skills	Frequency #
1. .NET	10
2. Python	7
3. Java	6
4. C/C++/C+/C#	6
5. node	5
6. React	5
7. Angular	4
8. PHP	4
9. AWS	3
10. CSS	3
11. ICT Governance	2
12. IIS	2
13. Lambda	2
14. SQL	2
15. Vue	2

Analysis of these 15 Software Development skills according to: skill categories, vendor association and growth areas is provided below:

Software Development Skill Categories:

- 7 x Program Languages
- 4 x Platforms for hosting apps, and services for use in apps
- 3 x Software Development Frameworks
- 1 x IT Skills

Vendor association

11 of the 15 top Software Development Skills are specific to a vendor:

- 3 x Google
- 2 x Amazon
- 2 x Microsoft
- 1 x PHP Group
- 1 x Python Software
- 1 x IBM

Growth skills

14 of the 15 had a growth allocation (ICT Governance not included as an IT Skill):

- 5x high - Python (language), JavaScript (language) Node (Platform), AWS (Platform)), HTML/CSS (language)
- 3 x medium - .Net (language), React (Framework), Lambda (Platform)

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- 6 x low – C/C++/Emb C (language), PHP (language), SQL (language), Angular (framework), Vue (framework), IIS (Platform),

Keeping up with skill trends is critical when considering skill training the importance has been highlighted when utilising this additional information as only 27% of the 15 top software development skills identified in the survey were considered to be of 'high growth' skills, compared with 42% considered to be 'low growth' skill areas.

Demand Vs Ease

Table 8 combines the results from survey responses regarding skill demand and ease of sourcing talent.

Table 8: Comparison of Demand and Ease

	DEMAND			EASE		
	Not At All	Sometimes	Often	Easy	Neutral	Hard
Artificial Intelligence and Machine Learning	11	11	11	0	9	20
Blockchain	0	27	5	1	21	5
Cloud Engineering	3	14	15	3	15	10
Data Analyst	4	15	13	4	13	12
Website Creation	7	12	14	21	9	1
Hardware / IT	10	11	11	8	15	6
Information Security (Cyber Security)	6	12	15	2	11	15
Internet of Things	10	13	9	1	21	8
Mobile App Development	8	16	9	7	17	7
Networking	10	11	11	6	17	5
SEO/SEM Marketing	9	17	7	14	16	0
Specialist Database Developer	9	14	10	5	12	11
UI/UX Design	5	12	16	7	18	5
Robotic and Process Automation	14	8	10	2	17	12
Voice Architects	16	12	3	3	18	7
Web App Development	6	10	17	12	14	3

Table 9 extracts the data of the most difficult skills to source and matches it with the greatest skill demand (i.e. % of 'often responses).

Table 9: Highest Demand and Highest Difficulty Sourcing

	DEMAND	EASE
	% Often	% Hard
Artificial Intelligence and Machine Learning	33%	69%
Information Security (Cyber Security)	45%	54%
Data Analyst	41%	41%
Specialist Database Developer	30%	39%
Robotic and Process Automation	31%	39%
Cloud Engineering	47%	36%
Internet of Things	28%	27%
Voice Architects	10%	25%
Mobile App Development	27%	23%
Hardware / IT	34%	21%
Blockchain	16%	19%
Networking	34%	18%

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UI/UX Design	48%	17%
Web App Development	52%	10%
Website Creation	42%	3%
SEO/SEM Marketing	21%	0%

As is shown in the table, the following digital skills received the majority of survey responses (all higher than 30%) for having **both** the greatest demand for and highest difficulty to source skills, noting other skills such as web app development, website creation and UI/UX design displayed a higher demand yet were considered easy to source:

- ⇒ Information Security (Cyber Security)
- ⇒ Cloud Engineering
- ⇒ Data Analyst
- ⇒ Artificial Intelligence and Machine Learning
- ⇒ Robotics and Process Automation
- ⇒ Specialist Database Developer

Concern

The responses indicate a trend upward in concern over time (5-8% growth in respondents), with respondents showing high concern increasing from 24-31% when forecasting beyond 12 months.

Table 10: Concern for Meeting Digital Skill Requirement (Any concern includes both moderate and high concern)

	No Concern %	Any Concern %	Moderate Concern %	High Concern %
Current	31	67	43	24
12 Months	25	75	47	28
> 12 Months	28	72	41	31

Section 2 Summary:

According to survey responses, the top five Specialist Digital Skills 'often' in demand are:

1. Web App Development
2. UI/UX Design
3. Cloud Engineering
4. Information Security (Cyber Security)
5. Website Creation

In the open text survey responses to Software Development Skills 82 separate skills were provided. The top five Software Development Skills as identified by survey response frequency, were:

1. .NET
2. Python
3. Java
4. C/C++/C+/C#
5. Node

From the top 14 Software Development Skills (refer to table 6 above):

- 5 (36%) of the skills were considered 'high growth' skills

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- 3 (21%) of the skills were considered 'medium growth' skills
- 6 (43%) were considered to 'low growth' skills
- 6 different vendors were mentioned

The 5 high growth skills were:

1. Python (language),
2. Node (Platform),
3. AWS (Platform)),
4. HTML/CSS (language),
5. JavaScript (language)

Below are the top five Software Development Skills from above with the growth rating in brackets, illustrating only 2 being considered high growth area skills:

1. .NET (medium)
2. **Python (high)**
3. Java (low)
4. C/C++/C+/C# (low)
5. **Node (high)**

Furthermore, when considering the 45 (of 82) software development skills that were also categorised (refer to Digital Skill Matrix) into areas of growth similar trends where the majority were 'low growth' skills continued:

- 12 (27%) x high growth
- 14 (31%) x medium growth
- 19 (42%) x low growth

The only skill that is both in the top five number of responses of the 'often' in demand list and the 'hard' to source list is **Information Security (Cyber Security)**, noting this represents 45% and 54% of responses, respectively. Following on from this, the following 5 skills received greater than 30% of survey respondents identifying them as 'often' in demand list and the 'hard' to source:

- **Artificial Intelligence and Machine Learning**
- **Data Analyst**
- **Specialist Database Developer**
- **Robotic and Process Automation**
- **Cloud Engineering**

Noting: the five most frequent 'often' responses for skill demand included three skills that were **not** in the top five of difficulty in sourcing. Two of these were however in the top three responses for ease of sourcing, i.e. high demand for the skill and high ease of sourcing, these were:

- **UI/UX Design**
- **Web App Development**

Section 3: Recruitment of Digital Talent

Survey response trends show a shift towards requiring greater numbers of specialist digital skill requirements. 22 responses indicated they require 1-10 specialist digital talent currently compared with 2 in five years' time, whereas the number of responses indicating they require more than 50 specialist digital talent currently is 1 compared with 8 in five years' time.

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Organisations are 'often' employing their staff permanently or as contractors, whereas 'sometimes' or 'never' responses dominated for casual or fixed term employment. Sourcing digital talent from across all locations, i.e. the Sunshine Coast region, within Queensland, nationally or internationally, showed similar trends with 'sometimes' being the majority response for all locations. However, it is interesting to observe that the two categories, the Sunshine Coast region and international, received the top two 'never' and 'often' responses for talent sourcing locations, illustrating the diversity in survey respondent requirements and approaches.

Most organisations are, 'often' basing their staff in their regional headquarter office, 'never' basing their staff in state or national offices or remotely overseas and 'sometimes' having staff working remotely from within Australia.

45.5% of respondents preferred office-based specialist digital talent prior to Covid-19. 30% of respondents indicating their workplaces have adapted and changed due to Covid-19.

The majority of survey participants have indicated their main supply channels for specialist digital skills talent is: 'often' via online advertising (e.g. seek) or their own networks, 'sometimes' via universities, graduate internships, social media and company websites and 'never' via TAFE graduate, recruitment agencies, newspapers and tactical targeting campaigns.

100% of specialist digital talent roles were identified by the majority of responses as 'easy to source from outside the Sunshine Coast', compared with 50% of those roles having the majority of responses indicating they are 'easy to source from inside the Sunshine Coast'. The 3 roles with most responses indicating they were 'hard to source from within the Sunshine Coast' were: developer, mobile app developer and cyber security specialist.

75% of the respondents indicated they are currently concerned about the regions supply chain of specialist digital talent, noting 18% of these responses indicated high concern. Unlike the upward trend observed with concern organisations have in meeting their specialist digital skill requirement, the degree of concern observed for the regions digital talent supply chain showed consistency when forecasting 12 months ahead or beyond.

45.5% of responses indicated that the organisation they work for is currently considering alternative recruitment strategies.

Section 4: Training and Education

Responses indicate that most organisation have trained all their specialist digital talent in the past 12 months, and that most organisations are allocating less than 10% of their budget.

In addition, responses show 45.5% of respondents are anticipating their training and education spending will increase in the next 12 months, compared with 6.1% who anticipate a decrease in spending.

82% of responses describe their training and education as both internal and external, with 50% of survey participants also indicated that the training and education provided to their specialist digital talent is via online training or platform certification / vendor-based training.

Most responses show organisations 'often' supporting their employees through providing learning materials, paying for conference attendance and time allocation for on the job training and education.

Most responses indicate respondents are utilising training and education provider as follows:

- 'often' online training

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- 'sometimes' vendor training and in-house training, and
- 'never' university, TAFE, private RTO, or private education provider.

Furthermore, most respondents showed a preference towards short courses that provide targeted skill development and professional certification / vendor training, rather than regionally based education products / providers, courses associated with TAFE, or content completely designed by an educator. There was also a strong preference to training being completed in employee's working hours rather than in their own time observed.

9% of respondents say their training and education needs are 'never' being met, 39% say they are 'often' being met, with the majority of 52% indicating that their education and training needs are 'sometimes' being met using their current approach to training and education.

An appetite for change seems evident illustrated through more than a quarter of the respondents mentioning a variety of emerging training and education products that align with their needs, mostly online and professional certification course and also with mention of good material from specialist companies in the private sector in the US. 21% of respondents are currently considering alternative training and education strategies.

In summary, many organisations are meeting their current training and education needs via utilising online and vendor training and education providers, preferring their employees to complete short courses with targeted skill development during working hours. Nearly half of the survey participants are anticipating an increase in their training and education budget in the next twelve months, and 20% are currently considering alternative training and education strategies.

Section 5: Covid-19 & Further Comments

46.4% of the survey respondents say their responses would or might have been different if the survey was conducted pre-Covid-19 pandemic.

- 54.5% of the responses indicating they would have responded the same pre-Covid-19 pandemic
- 21.2% of respondents indicating they would not have provided the same responses pre-Covid-19 pandemic
- 24.2% answered that they may not have provided the same response pre-Covid-19 pandemic

27% of open text responses indicated that Covid-19 has impacted their appetite for change in the way they conduct business creating a shift towards remote work and learning, and 7% indicated that financial constraints have impacted their responses.

Final key points or questions raised by survey participants for emphasis or consideration:

- There is a need for a greater understanding of how rapidly it is changing
- Do we need to source skills locally?
- Cloud services maybe providing greater opportunities for entry level jobs
- A focus on increasing the capabilities of existing talent and people in local business
- Universities and TAFE are not addressing the skills gap
- Should we be trying to solve this issue from a greater than regional perspective?
- How do we help Sunshine Coast existing or emerging talent market themselves to the world?
- Where are the funding streams to keep digital training programs running?
- Digital literacy and digital skills for the workforce should be part of the national census.

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Project Questions

1. What are the current, emerging, and future digital skill requirements of technology businesses in the Sunshine Coast region?

The current high requirement by technology businesses for UI/UX design, web app development and website creation are largely being met by organisations. Whereas specialist digital skills such as information security (cyber security), cloud engineering, data analyst, artificial intelligence and machine learning, robotics and process automation, and specialist database developer skills were shown to be often sought after yet difficult to find.

Technology and skill requirements are complex and fast moving, emerging software development skills that are in high demand at this point in time include program languages such as Python, HTML/CSS and JavaScript as well as platforms Node and AWS.

Future digital skill requirements are difficult to predict due to the rapid rate of change, however sites such as the two listed below which focus on skill trends are useful for keeping up with trends:

- Trend over time of top 10 programming languages:
<https://www.youtube.com/watch?v=Og847HVwRSI>
- Dart/Swift/Ruby/Python/Objective C comparison over the last 16 years:
https://trends.google.com/trends/explore?date=all&q=%2Fm%2F010sd4y3,%2Fm%2F0h52xr1,%2Fm%2F06ff5,%2Fm%2F05z1_,%2Fm%2F05q31

2. Is the supply of specialist digital talent on the Sunshine Coast meeting the current, emerging, and future digital skill requirements of technology businesses in the region?

According to survey responses, most Sunshine Coast technology businesses have indicated that sourcing specialist digital talent, for the roles listed in the survey, **outside** of the Sunshine Coast region is often **easy**, compared with 50% of the majority of responses indicating it was **difficult** for them to sourcing talent **within** the Sunshine Coast region for the roles listed in the survey. The three roles **most difficult** to source on the Sunshine Coast were: developer, mobile app developer and cyber security specialist.

67% of the respondents indicated they are currently concerned about their organisation meeting its specialist digital skills requirement, noting 24% of these responses indicated high concern. An upward trend in concern was observed when forecasting beyond 12 months, with 'high concern' responses increasing by 7 percentage points to 31%. Three quarters of respondents indicated they have concern about the regions supply chain of specialist digital talent both now and into the future.

3. How are the regions education providers building courses and education products to meet employers demand for specialist digital skills?

The regions education providers, university, TAFE, private RTO's, and private education providers are currently seldom being utilised or sought after by technology business employers.

Many organisations are meeting their current training and education needs via utilising online and vendor training and education providers, preferring their employees to complete short courses with targeted skill development during working hours. Nearly half of the survey participants are anticipating an increase in their training and education budget in the next twelve months, and 20% are currently considering alternative training and education strategies.

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4. Would technology businesses consider alternative approaches to their current talent training and acquisition strategies?

Alternative approaches to talent training and acquisition strategies would be, and are being, considered by many organisations.

Nearly half of the survey participants are anticipating an increase in their training and education budget in the next twelve months, and 21% are currently considering alternative training and education strategies.

45.5% of responses indicated that the organisation they work for is currently also considering alternative recruitment strategies.

With more than a quarter of the respondents mentioning a variety of emerging training and education products that align with their needs, mostly online and professional certification course and with mention of good material from specialist companies in the private sector in the US, the need for organisations to constantly seek and match their skill training and education need to training products is evident.

In addition, more than a quarter of the responses also mentioned that Covid-19 has acted as a catalyst for their change appetite within their business.

Conclusion

The valuable information provided by the 33 participants of the Sunshine Coast Digital Demand has provided a foundation of exploratory information and opinions, as well as a platform for future investigations to be built on.

With regional technology businesses having their high demand for specialist digital skills 'often' being met by talent outside the region, training and education requirement largely being met via non-traditional education products and providers, and 21% of respondents currently considering alternative training and education strategies, it appears it may be good timing for regional education providers to join with technology businesses to align education products with industry requirements and current and emerging employment trends.

Numerous survey participants have indicated that technology businesses would much prefer to hire locally however the regions talent pipeline quite often does not match their requirements. However, it is also important to note that many businesses do not mind if they continue to source their talent from outside the region, as long as they get the talent they do not mind where they are located.

It must be acknowledged that this survey was designed to gain industry feedback and perspective, of equal importance is feedback and perspective from the other side of the equation – education. Future projects focusing on gaining insight into the content and format of regional education courses and products would be required to understand the current regional educational landscape regarding specialist digital skill development prior to new products being developed.

Covid-19 has increased people's appetite and capacity for doing things differently! Can the Sunshine Coast region lead the way with industry and education working together to ensure education providers and products are being responsive, flexible, and adaptable enough to meet the rapidly changing environment of technology and industry skill requirements?

"The Sunshine Coast is primarily a software development demographic, with the majority of the region's digital skills centered around responsive mobile and web application development. Upcoming

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industries in Gaming, Manufacturing, AI + Robotics, Cybersecurity are largely non-existent in the results collected, with few respondents specialising in skills that are crucial for fostering these emerging and upcoming industries. Digital skills in these areas is vital to remain competitive and to attract further talent and economic benefits to the area."

Chris Kalle CEO R4Robotics

Appendix A: Individual Survey Question Responses

Following is a comprehensive account of the 33 survey responses received broken into the same five sections of the survey.

The five survey sections are:

1. About You & Your Organisation
2. Your Organisations Digital Skill Development
3. Recruitment of Digital Talent
4. Training & Education
5. Covid-19

Section 1 (of 5): About You & Your Organisation

Roles

Survey Question:

What is your role?

Most survey respondents (61%) were CEO's, founders, or directors.

The list below provides a breakdown of the categorised roles from the 33 respondents.

- 20 CEO/Founder /Director
- 5 CTO / CPO / CMO and Marketing
- 4 Head of Core Platforms / VP Engineer / Head of IT / IT Manager
- 1 Management Consultant
- 1 Recruitment Manager
- 2 Education roles

How Long the Organisation has been Established

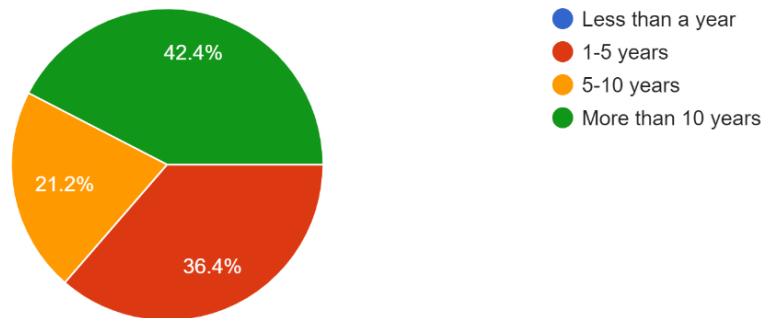
Survey Question:

How long has your organisation been established?

36.4 % of survey participants worked in organisations that have been established 5 or less years.

63.6% of survey participants worked in organisations that have been established 5 or more years.

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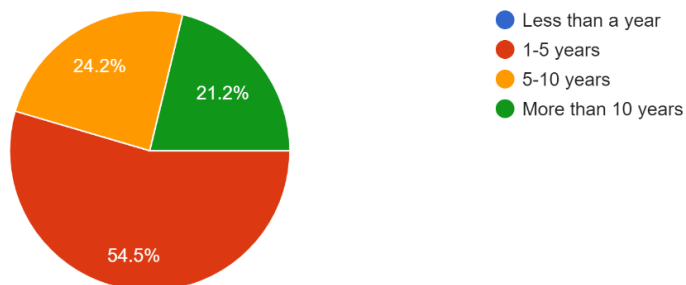


Time Employed in Organisation

Survey Question:

How long have you been involved with the organisation?

- 54.5% of survey participants have been employed in their organisation for 5 or less years.
- 43.2% of survey participants have been employed in their organisation for 5 or more years.



Location

Survey Question:

Where is your organisation located?

The following responses were received:

- 1 x International
- 1 x Sunshine Coast and Brisbane
- 1 x South East Queensland
- 1 x Sunshine Coast and Canberra
- 29 x Sunshine Coast

Industry Sectors

Survey Question:

Your organisations industry sector.

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The following list shows all 'Other Sectors' open text responses. Each of these have been categorised as 'professional, scientific, and technical services' shown in the table below.

- Independent software vendor
- Management Consulting
- Software as a Service
- B2B SaaS
- Online Technology SAAS
- Local Government
- Robotics company
- Entertainment and Media
- Games Development

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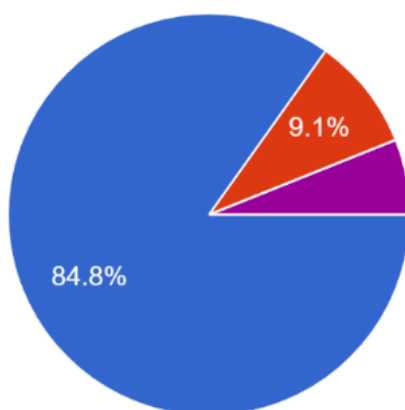
Table 11: Industry Sector Frequency Including Categorised 'Others'

Industry Sector	# Responses
Health care and social assistance	1
Manufacturing	1
Professional, scientific, and technical services	12
Other services	1
Information media and telecommunications	9
Education and training	2
Agriculture, forestry, and fishing	1
Public administration and safety	3
Financial and insurance services	3
Mining	0
Electricity, gas, water, and waste services	0
Construction	0
Wholesale trade	0
Retail trade	0
Accommodation and food services	0
Transport, postal and warehousing	0
Rental, hiring and real estate services	0
Administrative and support services	0
Arts and recreation services	0
Totals	33

Types of Organisations

Survey Question:

Which statement best describes your organisation?



- Locally headquartered on the Sunshine Coast
- Sunshine Coast satellite office for a larger organisation
- A business re-locating to the Sunshine Coast region
- A business considering re-locating to the Sunshine Coast region
- Other - (please provide details below)

Other (open text responses):

- A local govt-owned Digital Hub seeking to grow the digital industry through entrepreneurial support, ecosystem building and talent development to ultimately create high value jobs, attract digital businesses and inspire young people for a more prosperous community.

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- university
- Local Government
- Global entrepreneur residing on the Sunshine Coast

Good and Services

Survey Question:

Please describe your goods and/or services.

Open text responses were categorised and are shown in the below table.

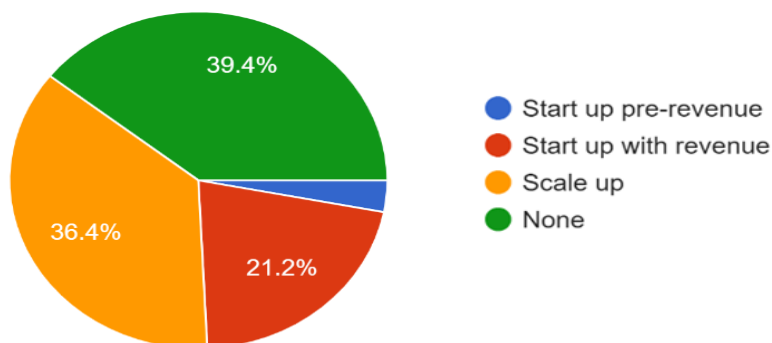
Table 12: Categorised Goods and Services

Goods and Services Categories	# Respondents
Robotics / AI / Product Development	7
Services / Systems / Products	7
Online Communities / Support / Training	5
Finance / Insurance / Gov	5
Software Development	4
Web / Design	3
Security	1
Network	1

Start-up / Scale-up Organisations

Survey Question:

Please indicate if any of the following apply to your organisation.



Staff Numbers

Survey Questions:

Please provide the total number of staff in your organisation.

How many staff in your organisation have specialist digital skills?

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Total Staff #'s	# Staff with Digital Skills	% Staff with Digital Skills
1	1	100%
2	2	100%
2	2	100%
3	3	100%
4	2	50%
4	2	50%
5	5	100%
5	5	100%
5	3	60%
5	2	40%
6	5	83%
6	3	50%
8	8	100%
8	4	50%
10	4	40%
11	10	91%
12	12	100%
14	9	64%
14	4	29%
15	15	100%
15	15	100%
16	13	81%
19	8	42%
39	27	69%
45	40	89%
50	40	80%
170	80	47%
1000	50	5%
1500	200	13%
1500	110	7%
1600	150	9%
1600	110	7%
1900	100	5%

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Table 13: Organisation Type Summary

Section 2 (of 5): Your Organisations Digital Skill Requirements

The Demand – broad skills

Survey Question:

Rate the demand your organisation has for each specialist digital skill listed below, i.e. are you often seeking to recruit for roles that require the skill or is it a skill you rarely recruit for.

Table 14: Skill Demand Sorted by Highest Demand

SKILL	Not At All	Sometimes	Often
Web App Development	6	10	17
UI/UX Design	5	12	16
Cloud Engineering	3	14	15
Information Security (Cyber Security)	6	12	15
Website Creation	7	12	14
Data Analyst	4	15	13
Artificial Intelligence and Machine Learning	11	11	11
Hardware	10	11	11
Networking	10	11	11
Specialist Database Developer	9	14	10
Robotic and Process Automation	14	8	10
Internet of Things	10	13	9
Mobile App Development	8	16	9
SEO/SEM Marketing	9	17	7
Voice Architects	16	12	3
Blockchain	27	5	0

Software Development Skills

Questions:

For organisations requiring talent with software development skills, please help us understand the specific skills that you would be looking for e.g. html, C++, Java, .Net. List below each skill, indicate your demand for these skills and how easy it is to source talent with these skills.

For specialist digital skills not captured in either of the above questions, please provide details of the skill, your organisation's demand for the skill, and the ease you have in finding talent with the skill. Duplications of response entry is captured in the frequency column of the table below.

The following list shows the frequency of response for the 82 separate software development skills that were mentioned in the two open text survey questions above.

Table 15: Frequency of Response for Software Development Skills

Software Development Skills	Frequency
1. .NET	10
2. Python	7
3. Java	6
4. node	5
5. React	5
6. Angular	4

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7. C/C++/C+/C#	6
8. PHP	4
9. AWS	3
10. CSS	3
11. ICT Governance	2
12. IIS	2
13. Lambda	2
14. SQL	2
15. Vue	2
16. Graphic design	1
17. Ansible	1
18. ASP.NET	1
19. Autocad	1
20. azure	1
21. Azure AI	1
22. Cura	1
23. Dart	1
24. db	1
25. Docker	1
26. Embedded C	1
27. fibrebase	1
28. Flutter	1
29. Frameworks - AWS	1
30. Fullstack	1
31. Fusion	1
32. Git	1
33. Google Cloud	1
34. GraphQL	1
35. IBM watson	1
36. ICT	1
37. Integrate plugins	1
38. Inventor	1
39. IOS front end	1
40. IOT	1
41. Jira	1
42. Jupyter Notebooks	1
43. Kanban	1
44. Low code development	1
45. Mindstorms	1
46. ML Studio	1
47. mongo	1
48. MVC	1
49. opjC	1
50. polymer	1
51. Ruby	1
52. Salesforce specialists	1
53. sass	1

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54. SCRUM	1
55. Security	1
56. SQS	1
57. Swagger	1
58. swift	1
59. Tinkercad	1
60. web forms	1
61. Windows servers	1
62. Wordpress	1
63. DevOps	1
64. PyTorch, NumPy, etc	1
65. Matlab, Octave or Julia	1
66. PCB design and Modern Electronics	1
67. Deeplearning engineers	1
68. Microsoft	1
69. Graphic design	1
70. Systems Analyst	1
71. 3D hard surface (vehicle modelling) content creation	1
72. 2D texture painting artists	1
73. Adobe InDesign ExtendScript	1
74. Solutions architecture, design and consulting.	1
75. Integration	1
76. Business automation	1
77. CAD	1
78. CAM	1
79. G-Code	1
80. CAE (computer aided engineering)	1
81. Generative design	1
82. Security skills	1

Ease of Finding Staff

Survey Question:

Rate the ease of finding employees with the following skills:

Table 16: Ease of Finding Employees by Skill

Sorted by those most difficult to source.

SKILL	Easy	Neutral	Hard
Artificial Intelligence and Machine Learning	0	9	20
Information Security (Cyber Security)	2	11	15
Data Analyst	4	13	12
Robotic and Process Automation	2	17	12
Specialist Database Developer	5	12	11
Cloud Engineering	3	15	10
Internet of Things	1	21	8
Mobile App Development	7	17	7
Voice Architects	3	18	7

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Hardware	8	15	6
Blockchain	1	21	5
Networking	6	17	5
UI/UX Design	7	18	5
Web App Development	12	14	3
Website Creation	21	9	1
SEO/SEM Marketing	14	16	0

The flowing table combines the ease and demand into one table:

Table 17: Demand and Ease –(alphabetic sort by skill)

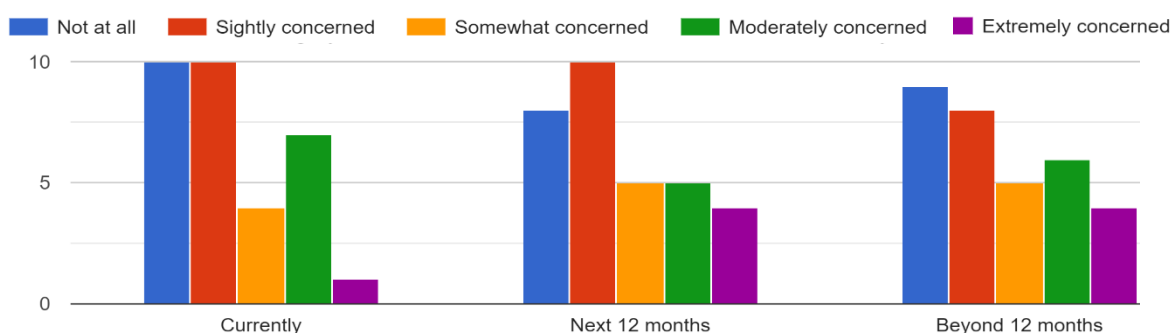
	DEMAND			EASE		
	Not At All	Sometimes	Often	Easy	Neutral	Hard
Artificial Intelligence and Machine Learning	11	11	11	0	9	20
Blockchain	0	27	5	1	21	5
Cloud Engineering	3	14	15	3	15	10
Data Analyst	4	15	13	4	13	12
Website Creation	7	12	14	21	9	1
Hardware / IT	10	11	11	8	15	6
Information Security (Cyber Security)	6	12	15	2	11	15
Internet of Things	10	13	9	1	21	8
Mobile App Development	8	16	9	7	17	7
Networking	10	11	11	6	17	5
SEO/SEM Marketing	9	17	7	14	16	0
Specialist Database Developer	9	14	10	5	12	11
UI/UX Design	5	12	16	7	18	5
Robotic and Process Automation	14	8	10	2	17	12
Voice Architects	16	12	3	3	18	7
Web App Development	6	10	17	12	14	3

The Concern

Survey Question:

How concerned are you about your organisation meeting its specialist digital skills requirements?

67% of the respondents indicated they are currently concerned about their organisation meeting its specialist digital skills requirement, of those 67% 24% are highly concerned.



Anything Else to Share

Survey Question:

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Do you wish to share anything further regarding your specific digital skill requirements?

11 responses are summarised responses below:

- Frustration with the survey intention, suggestions to include questions such as 'asking people on the Sunshine Coast with digital skills how they search for work SOMEWHERE else', and the need to tackle it differently as the challenge is bigger than the Sunshine Coast region,
- Multiple responses highlighting it is easy to source talent just not on the Sunshine Coast
- Training preferences/comments including:
 - A policy of training mature aged candidates in house
 - Happy to recruit young graduates and provide mentorship and training to develop the skills needed.
 - Wanting more local options to upskill staff
 - Frustrations with university and TAFE course content
 - Suggestion for thinking about collaboration/Digital CRC
 - Desire to train and provide jobs to local candidates.
- Advanced requirements and intentions to use Sunshine Coast as a base and recruit from interstate/Brisbane.
- Software replacement, eg Lego, and the ongoing need and associated challenge to re-train teachers

Two specific mentions:

- Upwork web site
- <https://stratappsas.com/seamlessly-align-your-onshore-and-offshore-teams/>

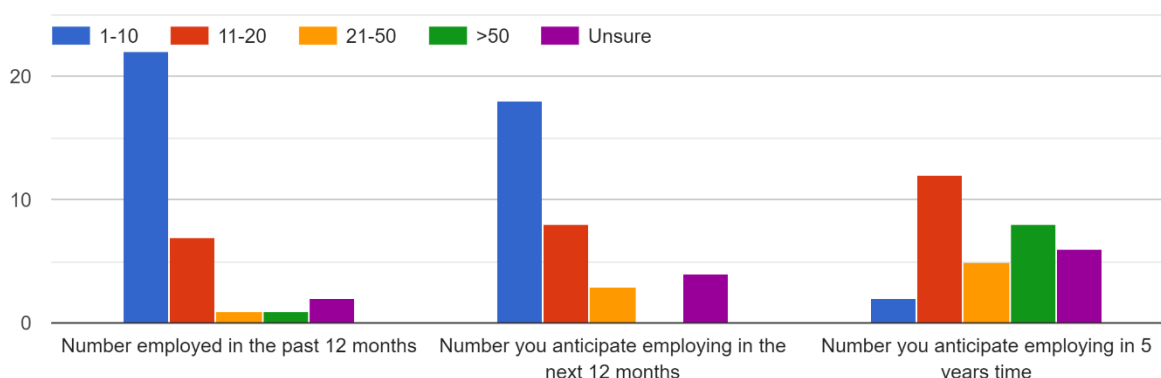
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Section 3 (of 5): Recruitment of Digital Talent

Digital Talent Requirements – Current and Anticipated

Survey Question:

Please indicate below your organisations current and anticipated specialist digital talent recruitment requirements.



Trends show a shift towards greater numbers of specialist digital skill requirements into the future.

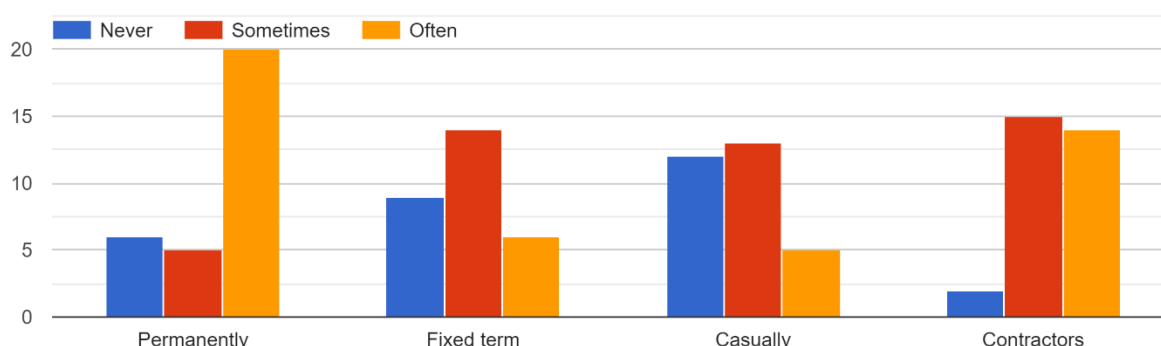
The number of survey participants indicating they require 1-10 specialist digital talent currently is 22 compared with 2 in five years' time.

The number of survey participants indicating they require more than 50 specialist digital talent currently is 1 compared with 8 in five years' time.

Employment Type

Survey Question:

Please indicate below how your organisation currently employs their specialist digital talent.



Responses indicate that organisations are employing staff most often as permanent employees or contractors. Noting also significant number of responses indicating that they never employ fixed term or casually.

Open text responses explaining their answer to the question above are summarised below:

- 18 responses highlighted the need for flexibility in employment depending on budget and the project, some also mentioning employee preference for contract work.

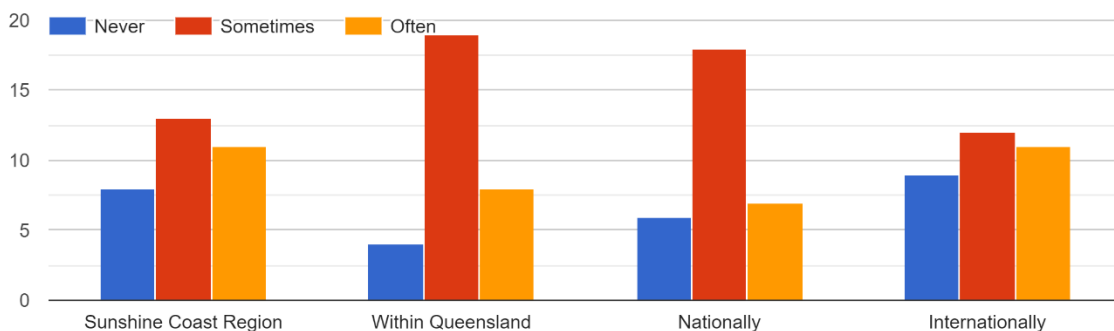
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- 7 responses highlighted the need for long term employees, with some using long term contractors as a feeder to permanent employees.
- One respondent summarised it as 'Funded companies in our network tend to hire full time, as do scaleups. Bootstrapping companies tend to contract. Sole traders tend to use casual/contract.'
- Another respondent stated, 'we would employ more people if we could find them or had options to train them'.

Where Talent is Sourced From – Location

Survey Question:

Please indicate where your organisation sources its specialist digital talent from?



Trends:

- The two locations where the majority of survey participants 'often' source their talent from are the Sunshine Coast region and internationally.
- Respondents displayed a spread in frequency of employment across all regions.
- Organisations 'never' employing from the Sunshine Coast Region and internationally show similar numbers.

Where Specialist Digital Talent are Based

Survey Question:

Where are your specialist digital talent based?

Table 18: Where Staff are Based

	Never	Sometimes	Often
In your regional headquarters office	4	11	17
In your state or national office	16	9	3
They work remotely – from within the Sunshine Coast region	9	18	4
They work remotely – from within the state	12	16	3
They work remotely - from within Australia	11	17	4
They work remotely - from overseas	14	7	11

Trends:

'Never' majority responses were received in two categories:

- Based in state or national offices
- Working remotely from overseas

'Often' majority responses were received in one category:

- Based in regional headquarter offices

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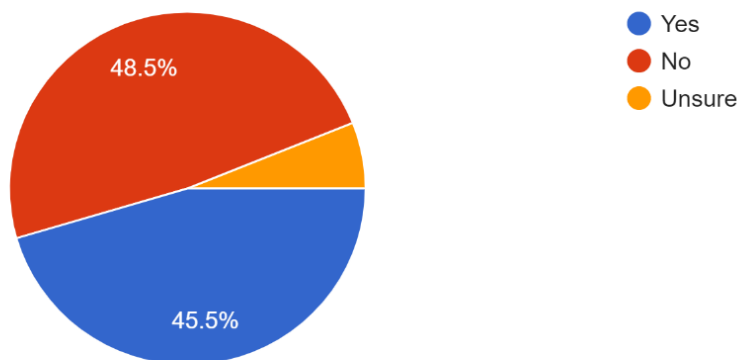
'Sometimes' majority responses were received in three categories:

- Working remotely from within the Sunshine Coast region
- Working remotely from within the state
- Working remotely from within Australia

Generally, there was a spread through all categories with no single category receiving zero in any of the options.

Survey Question:

Prior to Covid-19, please indicate whether your organisation preferred office-based specialist digital talent.



Displaying an almost an even split between survey respondent's preference for office-based specialist digital talent being influenced or not by Covid-19.

Survey Question:

Please explain your answer to the above question below and if it has changed due to Covid-19

Survey participants were asked to explain their response to the above question in open text answers. Below is a categorised and summarised version of their responses, including examples of the themes of responses received.

Remote previously x 15:

- most effective way of attracting the talent needed
- requirement of a collaborative working model
- flexibility of digital skills
- efficiency and talent having their own tools
- right skills in preference to location

Change due to Covid-19 x 9:

- office based now less realistic
- have modified the workshop
- Covid-19 has increased appetites to support remote work by showcasing the advantages, e.g. flexibility.

Office preference x 4:

- face to face interactions very valuable
- work requiring constant collaboration and communication
- supporting talent that is lacking (training)

Sunshine Coast talent x 2:

- preference for local employment due to striving for regular office hours

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- preference for local however would not compromise on skills.

Main supply channel of specialist digital talent

Survey Question:

What are your organisations main supply channels for specialist digital skill talent?

Table 19: Main Supply Channels

	Never	Sometimes	Often
Direct from universities	13	14	3
Graduate internships	13	17	0
TAFE graduates	21	8	1
Recruitment agencies	18	7	5
Social media – e.g. Facebook, LinkedIn	8	16	6
Online advertising - e.g. Seek, Indeed, Gumtree, Jobsearch.gov	8	10	12
Newspapers	29	1	0
Your own network	1	13	18
Tactical targeting attraction campaigns	19	9	2
Company website (internet and intranet)	9	16	6
Other	18	2	4

Other responses included:

- 4 x networks or referrals
- 3 x upworks.com
- 1 x Manila

Trends:

The supply channels with a majority in the 'never' category were:

- TAFE graduates
- Recruitment agencies
- Newspapers
- Tactical targeting attraction campaigns
- Note: universities scored high in 'never', nearly equal to the 'sometimes' responses

The supply channels with a majority in the 'sometimes' category are:

- Graduate internships
- Social media
- Company website

The supply channels with a majority in the 'often' category are:

- Online advertising
- Your own network

Roles Required and Ease of Sourcing

Survey Question:

Please indicate which of the following roles your organisation requires, and the ease of sourcing talent with these skills.

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Table 20: Roles Required and Ease of Sourcing

The table is sorted according to the highest responses for required skills.

	Required	Easy outside SC	Hard outside SC	Easy within SC	Hard within SC
Developer	20	10	2	5	14
UI/UX designer	13	8	2	7	6
Business analyst	11	9	0	5	8
Service desk agent	10	9	0	8	1
Web app designer	10	4	1	7	5
Mobile app developer	9	5	1	4	10
Cyber security specialist	9	5	4	0	10
Systems architect	8	4	1	2	8
Network specialist	7	8	0	6	5
Technical specialist	7	8	2	2	4
Quality assurance manager	7	7	0	6	2
Digital media specialist	7	6	1	7	3
Project manager	7	6	2	3	6
IT security specialist	7	6	1	3	6
Chief information officer (CIO)	7	6	1	2	5
Other	7				
Test specialist	6	9	0	3	5
Database administrator	6	6	1	4	4
Enterprise architect	6	6	2	1	5
IT consultant	5	8	1	6	2
IT operations manager	5	7	1	6	0
Systems administrator	5	6	0	4	2
Business information manager	5	6	1	3	2
IT trainer	3	6	0	4	0
IT security manager	3	5	1	3	3
Systems analyst	2	5	0	1	4

*Please note:

- The survey was changed to allow participants to enter responses only in rows applicable to them. 1 survey participants had completed the survey prior to this.
- As a result of the question format there is reason for concern regarding the quality of responses. For instance, 3 survey participants indicated they required an IT trainer yet the breakdown in outside and within the Sunshine Coast has a total of 6 and 4 responses respectively.

**Red numbers indicate the column with the most responses out of hard and easy columns.

Survey Question:

If you answered other above, please provide details of the role/s required and your ease of sourcing talent for the role/s - both from within and outside the Sunshine Coast region.

- Search Engineer, Data Scientist, Software Engineer, DevOps Systems Engineer
- Would like to find a Salesforce Administrator locally
- Infrastructure specialist, Cloud Engineer, Integration specialist
- AI / ML expert - via Upwork.
- Engineer/ Designer/Machinist. Extremely difficult to fill these roles. I have been trying for 3 years and have not been able to find anyone suitable.
- Machine Learning Engineer - Difficult, Conversation Designer – Difficult

Trends:

- Outside Sunshine Coast:

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- 100% of the roles had most responses stating it was 'ease to source from outside the Sunshine Coast'.
- Within Sunshine Coast:
 - 46% of all roles had most responses stating it was 'hard to source within the Sunshine Coast'.
 - 46% of all roles had most responses stating it was 'easy to source within the Sunshine Coast'.
 - 4% of all roles had most responses stating equally it was both 'easy to source within the Sunshine Coast' and 'hard to source within the Sunshine Coast'.
- The top 5 roles required were: (response numbers range from 10-20)
 - Developer
 - UI/UX designer
 - Business analyst
 - Service desk agent
 - Web app designer
- The top 5 roles that were shown to be **easy** to source **outside** the Sunshine Coast: (response numbers range from 8-10)
 - Developer
 - Business analyst
 - Service desk agent
 - Test specialist
 - UI/UX designer
- The top 5 roles that were shown to be **easy** to source **within** the Sunshine Coast: (response numbers range from 6-8)
 - Service desk agent
 - UI/UX designer
 - Digital media specialist
 - Web app designer
 - Network specialist
- The top 5 roles that were shown to be **hard** to source **outside** the Sunshine Coast: (response numbers range from 2-4 (*note low number))
 - Cyber security specialist
 - Developer
 - Enterprise architect
 - Project manager
 - Technical specialist
- The top 5 roles that were shown to be **hard** to source **within** the Sunshine Coast: (response numbers range from 8-14)
 - Developer
 - Business Analyst
 - Mobile app developer
 - Cyber security specialist
 - Systems architect

Concern

Survey Question:

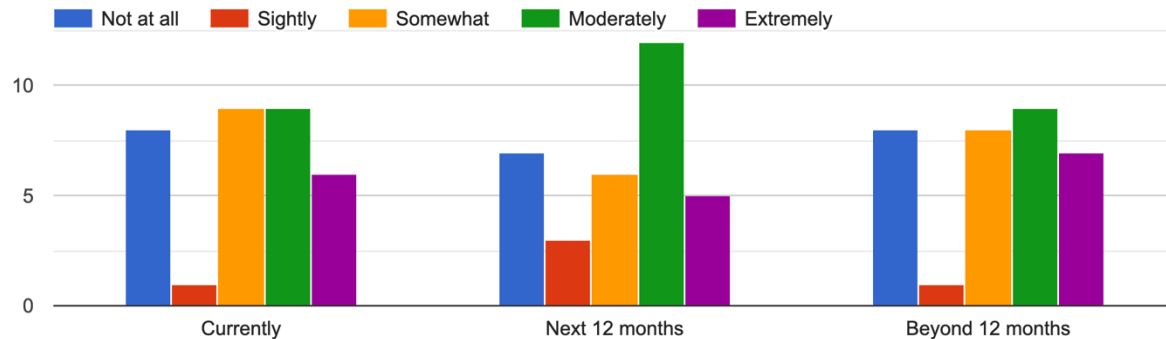
How concerned are you about the regions supply chain of specialist digital talent?

Table 21: Concern for Regions Supply Channel of Specialist Digital Talent (Any concern includes both moderate and high concern)

	No Concern %	Any Concern %	Moderate Concern %	High Concern %

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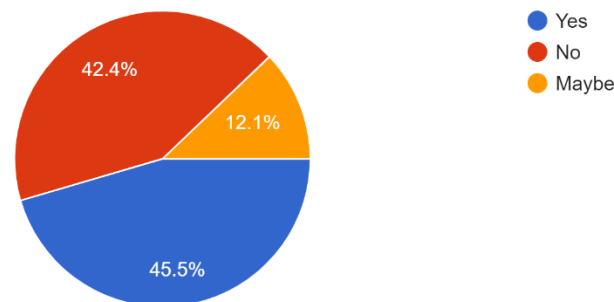
Current	25	75	27	18
12 Months	22	78	36	15
> 12 Months	24	76	27	22



Considering Alternate Strategies?

Survey Question:

Is your organisation currently considering alternative recruitment strategies?



45.5% of respondents considering alternative recruitment strategies, and a further 12.1% maybe considering alternative recruitment strategies.

Further conversations with survey participants could benefit future conversations and project considerations.

Anything further?

Survey Question:

Do you wish to share anything further regarding the supply and recruitment of specialist digital talent?

These were the three main themes provided in the open text responses:

- Limiting the search for talent to the Sunshine Coast is not sensible given the lack of talent supply for specialist digital talent
- Due to the specialist digital roles being able to be conducted remotely, location is not a barrier
- Covid-19 could result in an increase in skilled talent moving to the region

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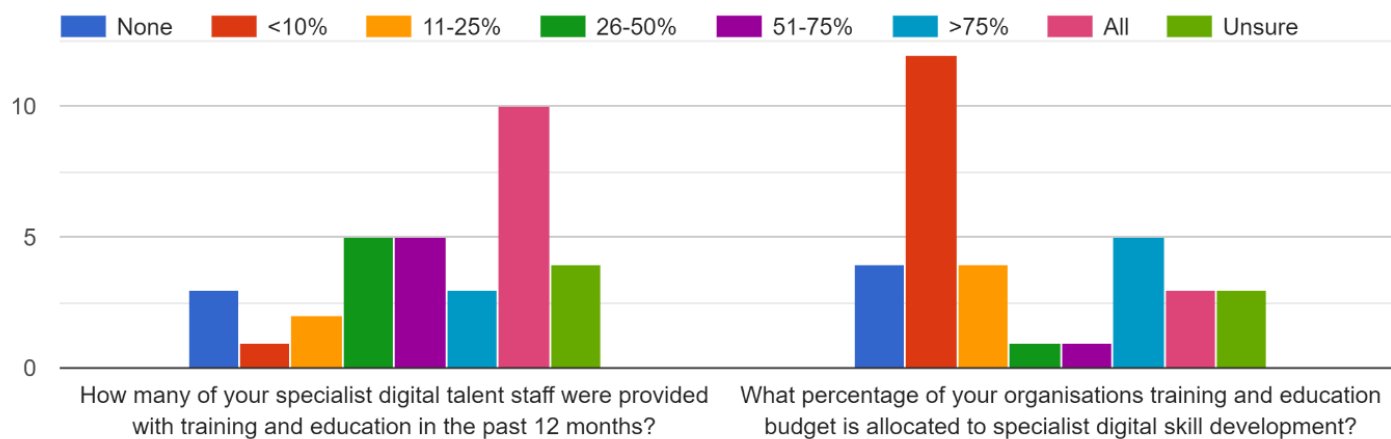
Section 4 (of 5): Training & Education

Number of Staff Trained and Budget Allocation

Survey Question:

Please answer the following two questions regarding training and education in your organisation.

- *How many of your specialist digital talent staff were provided with training and education in the past 12 months?*
- *What percentage of your organisations training and education budget is allocated to specialist digital skill development?*



Responses indicating that most responses have trained all their staff in the past 12 months, and that most organisations are allocating less than 10% of their budget

Type of Training and Education Provided.

Survey Question:

Please provide details of the training and education provided to your specialist digital talent staff.

Themes of responses are split into two, either general or specific. A summary of responses categorised and sorted into these groups is below.

General:

- 1 x varies with the project demands
- 1 x consultants
- 1 x part of recruitment
- 2 x inhouse training / peer to peer
- 2 x industry events / conferences
- 2 x no training, hire with skills
- 6 x online training
- 4 x platform certification / vendor based training
- 1 x self-initiated / self-taught

Specific:

- Pluralsight, Linux Academy, Microsoft Classroom Training

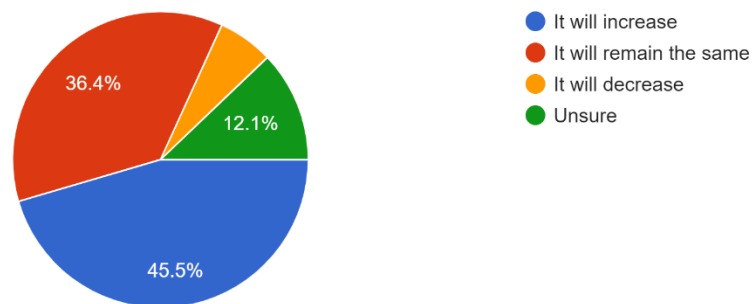
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- Robotics, 3D drawing and printing software
- Different Database methodologies, Agile, Devops, Product Design
- IIS Microsoft online course, Certificate 3 IT online TAFE course, Online Google development skills & a range of local workshops run by Council, Caloundra & Maroochydore Chamber of Commerce.
- Microsoft stack, Cradlepoint, Riverbed, Apple, Samsung, Prince 2 Agile
- Uni course, inhouse training, ITIL training, Customer Experience training
- Network specialisation
- Use of online training platforms such as Udemy and Pluralsight.
- General assembly / Ideo / RMIT
- ** Governance and Security, Legislative compliance, Cloud technologies, Automation
- Amazon AWS conference, Yow! conference, Adobe Creative Pro Week, Adobe MAX, Adobe Summit, Leadership training

Anticipated Change in the Next 12 Months

Survey Question:

How do you anticipate your organisations training and education expenditure for specialist digital skills development to change in the next 12 months?



Responses showing that 45.5% of respondents anticipate their spending will increase, compared with 6.1% anticipating a decrease in spending.

Organisational Support Provided

Survey Question:

What support does your organisation provide its employees with to engage in training and education?

Table 22: Training Support Provided

	Never	Sometimes	Often
Pay for the cost of external training in full	6	17	9
Provide paid leave for external training	9	15	7
Actively promote external training opportunities	5	14	12
Time allocation for on the job training and education	4	14	14
Provide learning materials	4	8	20
Partially pay for the cost of external training	7	17	6
Pay for conference attendance	5	11	16

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Trends:

'Often' responses were in the majority for: (a range of 14-20 responses)

- Time allocation for on the job training and education
- Provide learning materials
- Pay for conference attendance
- Time allocation for on the job training and education (* note equal response numbers with 'sometimes' responses)

'Sometimes' responses were in the majority for: (a range of 14-17 responses)

- Pay for the cost of external training in full
- Provide paid leave for external training
- Actively promote external training opportunities
- Time allocation for on the job training and education (* note equal response numbers with 'often' responses)

'Never' responses were not in majority for any of the categories, however 'never' responses were received for each category response frequency ranging from 4 - 9.

Generally, the responses indicate a preference towards internal training and conference attendance in preference to external paid training.

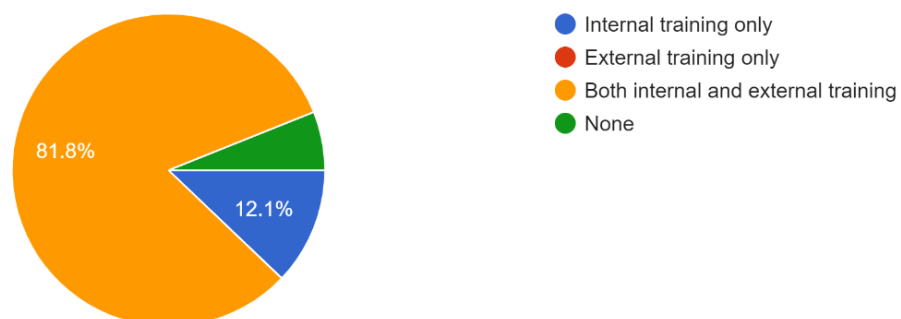
Open text for 'other' responses to the above question are listed below:

- Subscribe to Udemy courses or similar
- It will skew your stats if you use responses from people who SOURCE skills rather than hire them. These need to be separated in the final stats or it will artificially lower the training budget numbers of employees.
- Pay for all exams
- Mentoring programs, Buddy programs,
- We expect to hire only properly train staff.

Internal and External Training Preference

Survey Question:

Which of these best describe your organisations approach to digital skills training and education?



Training and Educational Providers

Survey Question:

Which providers do you use for your training and education needs?

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Table 23: Education Provider Preference

	Never	Sometimes	Often
University	16	8	2
TAFE	21	4	2
Vendor Training – e.g. AWS, Microsoft	3	17	11
Online Training – e.g. YouTube	1	14	16
Private RTO	16	9	3
In-house Trainer	6	17	5
Private Education Provider	14	9	4
Other	12	2	0

Training and Education Provider Preferences

Survey Question:

When considering the selection of a training and education provider, please indicate your preferences below.

Note: question allowed survey participants to enter as many or few as they wanted.

Table 24: Training and Education Provider Preference

Training and Education Types	# Responses	% of Responses
A short course that provides targeted skill development	23	74.2
Professional certification - e.g. Microsoft, Amazon	22	71
Online and free – e.g. YouTube	22	71
Vendor Training – e.g. Microsoft, Amazon	21	67.7
Completed in an employee's working hours	16	51.6
Delivery completely online	15	48.4
Blended delivery – online and in person	13	41.9
Content co-designed between provider and industry	13	41.9
A longer course that develops a wider range of skills	10	32.3
Associated with a university provider	9	29
A regionally based education provider/product	8	25.8
Completed in an employee's own time	8	25.8
Delivery completely in person	7	22.6
Associated with TAFE	6	19.4
Content designed completely by an educator	1	3.2
Other ... create a local pathway via School, TAFE, University, Industry and Business providers	1	3.2
Other ... UNSW Partnership	1	3.2

Trends:

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The top 5 preferences for training and education providers were:

- A short course that provides targeted skill development
- Professional certification - e.g. Microsoft, Amazon
- Online and free – e.g. YouTube
- Vendor Training – e.g. Microsoft, Amazon
- Completed in an employee's working hours

The bottom 5 preferences for training and education providers were: (note: excluding the 2 other responses)

- A regionally based education provider/product
- Completed in an employee's own time
- Delivery completely in person
- Associated with TAFE
- Content designed completely by an educator

Comment:

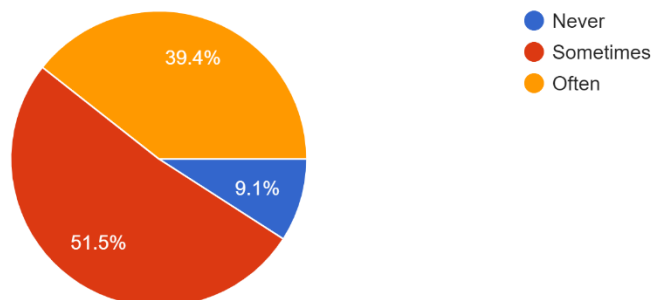
There appears to be a clear preference towards online and vendor training that is targeted and in working time, rather than education provider courses completed in person in an employee's own time.

Are Training and Education Needs Being Met?

Survey Question:

Are your training and education needs currently being met?

9.1% of respondents indicated that their training and education needs are not currently being met, with 39.4% indicating they are often being met.



A summary of the themes provided by respondents in their open text responses to further explaining their answer to the above question is below.

- 4 x online training/resources meets their needs
- 3 x constantly improving their training and education programs
- 3 x misalignment of university / TAFE / RTO courses combined with teachers not having practical industry experience
- 3 x difficult to find / limited options
- 3 x tailored training / professional development investment
- 2 x Microsoft Certifications / US based providers
- 2 x skills not here, it requires a lot of on the job training and sharing skills between employees
- 2 x influence of Covid related challenges – financial
- 2 x hire skilled staff, do not train

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- 2 x not being met, cost prohibitive
- 1 x consultation with platform providers valuable
- 1 x anticipation of future challenges, yet being met now
- 1 x suggestion to have options for emerging sectors such as digital health
- 1 x difficult to answer due to the diversity of skills required

To ensure accurate interpretation of this question, read and interpret these responses in conjunction with the training and education providers being utilised so as not to make assumptions regarding the quality or utilisation of educational products.

Emerging Training and Education Products

Survey Question:

Are there emerging training and education products or services you are aware of that align with your specialist digital skill requirements? If so please provide details below.

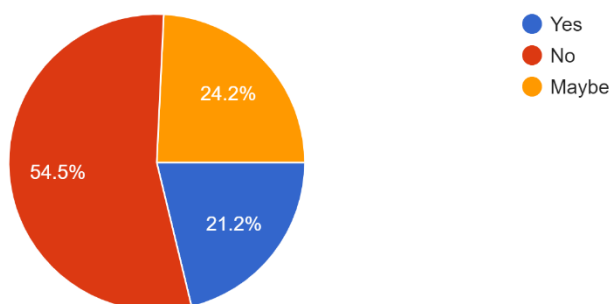
10 responses as below:

- Udemy and other online courses
- Drones, vision
- Voice
- Yes, more and more conversation design resources
- Most of the training for professional certification is heavily reduced and available to everyone
- no
- Certifications for current cloud technology stacks - AWS, Microsoft, Google. OWASP, TOGAF, NIST,
- no.
- IoT and Cyber Security
- There are some very good material being offered by specialist companies in the private sector. (Often out of the US.)

Alternative Training and Education Strategies

Survey Question:

Is your organisation currently considering alternative training and education strategies?



54.5% of respondents are not considering alternative strategies

whereas 21.2% are.

Further conversations with survey participants could benefit future conversations and project considerations.

Anything further

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Survey Question:

Do you wish to share anything further regarding specialist digital skills training and education?

- We were going to work with UNSW / ADFA who were going to give us a Professor and place a PhD student with us for 2 years, however, the business development represented wanted a licence / portion of the IP that was created to flow back to the Professor and we felt it was not quite the right time for that level of commitment.
- We prefer the training we utilise to have a healthy amount of practical/hands-on training.

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Section 5 (of 5) Covid-19 and Further Comments

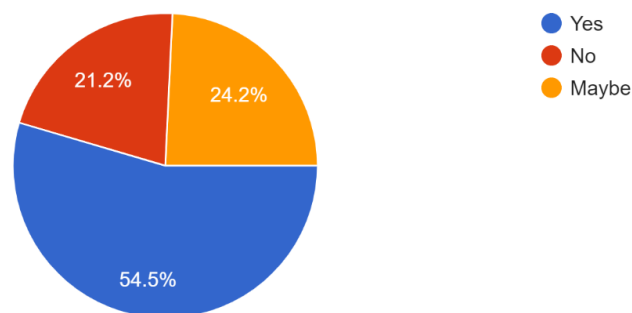
Impact of Covid-19 on Responses:

Survey Question:

In answering these survey questions today, would you have provided the same responses pre-Covid-19 pandemic?

Trends:

- Most responses, 54.5%, indicated that their responses would not have changed.
- 21.2% of respondents have indicated that they would not have provided the same responses pre-Covid pandemic.



Survey Question:

Please provide further details regarding your response to the above question.

Participants were asked to explain their response to the above question in open text answers. Below is a categorised summary of the responses received.

- 19 x Covid-19 has not impacted them at all, or relatively low impact
- 8 x change towards, or an increased appetite for change, towards remote work and learning
- 2 x financial constraints have impacted their answers
- 1 x too early to tell

Further Comments (general)

Survey Question:

Is there anything further at all you wish to share with us?

At the close of the survey participants were asked if they would like to add any additional comments. 7 of the 33 survey participants provided further comments, below summarised list of the comments,

- There is a greater need for an understanding of how rapidly it is changing.
- Changes in needs and demands of types of roles due to cloud services such as Salesforce, AWS etc. There are now greater opportunities for entry level jobs which used to require the specialist skills of programmers, now programmers will need to move into integration, database configuration or cyber security roles etc. The need for specialist digital skills will therefore reduce.
- Inclusion of digital literacy and digital skills for the workforce as part of the national census.
- Shifting the regions focus to increase the capability of existing talent rather than attracting talent.
- Sponsorship requirements to keep digital skills training programs running in the region.

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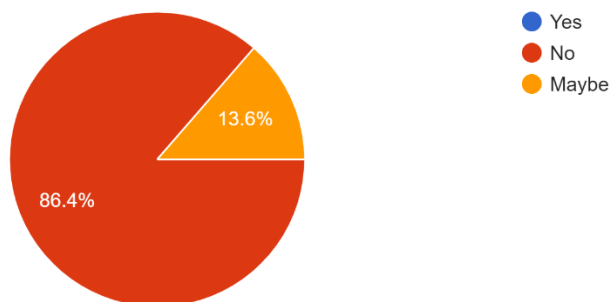
- Sourcing skills Vs training staff. The relevance of some of the survey questions regarding training when sourcing is the question.
- It is not relevant where skills come from, whether from the Sunshine Coast or an internationally is irrelevant to business.
- Questioning the purpose of the survey and whether it would be far better to help people with digital skills who are here on the coast to market themselves to the world.
- The survey needed to include questions asking how business people are getting training to improve their understanding of the power of digital technologies and / or how and when to acquire digital talent, as well as questions about how well our business people are versed in digital opportunities.
- To try and solve the training issues from a broader perspective than the Sunshine Coast region due the issue being Australia wide.
- Skills gaps not addressed by contemporary training from Universities or TAFE
- To look at the skills of people in local business who employ or source digital talent, as they are the group that needs training.

Specific references were made to:

- National survey Capabilities in Aged & Community Care Readiness an Evaluation of Innovation & Technology (CARE IT)
- UPWORK.com
- The Australian Computer Society (who accredit university degrees) and the Federal Department of Education

Survey Question:

Do you have any research within your organisation that you would be happy for us to consider and acknowledge within the final analysis? Specifically: current and future digital skills gaps and shortages in digital skills that affect your organisation or the industry.



Survey Question:

Would you like to remain connected to this project and receive the results of this survey?

