



# Manpower Update Report

## Electrical and Mechanical Services Industry

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# 2021

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Electrical and Mechanical Services  
Training Board

# ACKNOWLEDGEMENT

The Electrical and Mechanical Services Training Board (EMTB) would like to express its gratitude to the members of the focus group for their valuable time and insights on the manpower situation in the Electrical and Mechanical Services industry. Special thanks go to CPJobs and CTgoodjobs who shared with us their database of job vacancies. The views of focus group members and information from major recruitment websites formed an integral part of this report.

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# Introduction

## Background

The Electrical and Mechanical Services Training Board (EMTB) of the Vocational Training Council (VTC) is appointed by the Government of the HKSAR.

According to its Terms of Reference, the EMTB is responsible for determining manpower demand of the industry, assessing whether the manpower supply matches manpower demand, and recommending to the VTC the development of vocational and professional education and training

(VPET) facilities to meet the assessed training needs.

Since 2017, VTC's Training Boards have adopted a four-year cycle approach for collecting manpower information, with a view to enhancing the effectiveness and better reflecting the dynamics of manpower situation in the industries.

Each four-year cycle consists of one full manpower survey and two manpower

updates. The full manpower survey collects companies' manpower data by means of questionnaires whereas the manpower updates rely on desk research and focus group meeting(s).

For the four-year cycle covering April 2017 to March 2021, the EMTB completed its full manpower survey and the two manpower updates in fall 2017, 2019 and 2020 respectively. This report presents the findings of the second manpower update, i.e. the one conducted in 2020, and EMTB's recommendations to training providers, employers and the Government, regarding the manpower development and training needs of the Electrical and Mechanical (E&M) Services industry.

The contents of this manpower update reports are based on two information sources:

- (i) focus group meeting collecting the views of industry experts on the latest development of the industry, its manpower and training needs, recruitment and retention difficulties, and suggested solutions for the challenges; and
- (ii) desk research analysing recruitment advertisements, including the offered salaries, qualification and experience requirements of different principal jobs of the industry.

## Objectives

The objectives of manpower update are:

- (i) to examine the latest trends and development of the industry;
- (ii) to explore the job market situation and training needs;
- (iii) to identify the recruitment and retention challenges; and
- (iv) to recommend measures to meet the training needs and to ease the problem of manpower shortage.

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# Methodology

## Overview

With reference to the 2017 full manpower survey and the 2019 manpower update of the E&M Services industry, this update report aims to provide qualitative descriptions of the recent development of the industry through focus group meeting, supplemented by quantitative findings from desk research.

## Focus Group Meeting

A focus group meeting was held on 6 October 2020. Ten representatives from different sectors of the E&M Services industry, including trade associations, employers, consultant firm, learning society and workers' union, participated in the meeting.

The EMTB Secretary led members to in-depth discussions on topics selected by the Working Party on Manpower Survey of the EMTB. The discussions were recorded and transcribed to facilitate analysis.

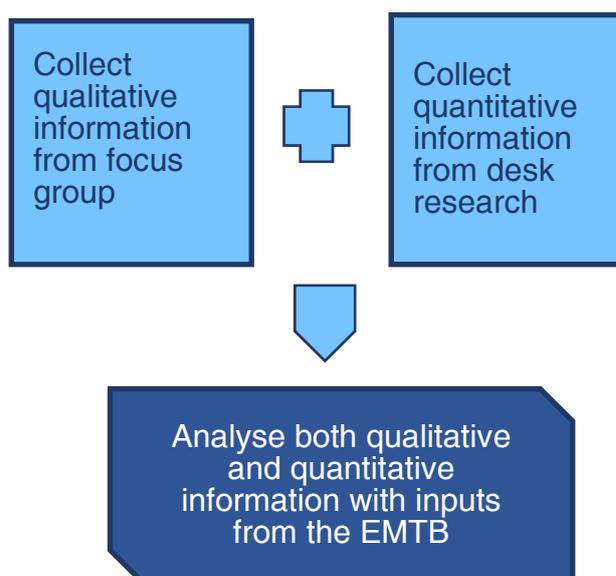
## Desk Research

An employment information system was developed to capture recruitment advertisements from CPJobs, CTgoodJobs and other major online recruitment portals. Around 1.5 million records were collected between Quarter 3 of 2019 and Quarter 2 of 2020 for all industries. After de-duplication and a

mapping process based on the company list under the Hong Kong Standard Industrial Classification, 5 574 records relevant to the E&M Services industry were identified. These 5 574 records were further grouped by skill levels, i.e., professional/technologist, technician, tradesman/craftsmen and semi-skilled/general worker, to facilitate further analysis.

## Data Analysis

The analysis consists of the following three steps:



# Limitations

Unlike traditional manpower surveys where quantitative data are collected with questionnaires, the findings of manpower updates (which rely on focus group meeting(s) and desk research) are more qualitative in nature. Hence, the manpower update reports focus mainly on the manpower trends.

At present, the key information sources of desk research are job advertisements collected from major recruitment websites and the Labour Department. The coverage is definitely not exhaustive as other recruitment channels such as social media and referral by friends, are not

included. As the result, a clear correlation between the number of recruitment advertisements found and the number of employees recorded in the full manpower survey could not be identified. Moreover, the offered salaries mentioned in the recruitment advertisements are often lower than the level recorded in the full manpower surveys, largely due to title inflation in the job market.

In addition, the data collected is a snapshot of particular period without reference to any historical data. Hence, the findings of desk research should be treated as reference only. They should not be directly compared with the figures recorded in the full manpower survey.

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# Findings

## Factors Affecting the Development of the Industry

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### COVID-19

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Since the outbreak of COVID-19 in early 2020, the air passenger traffic has fallen drastically all over the world. As part of the aviation industry, the Aircraft Maintenance sector was hard hit by the pandemic. The chance of a speedy recovery is not optimistic as business may continue to opt for online meetings than business trips after the pandemic is over. Nevertheless, a solid rebound should happen by 2023/24 when the Three Runway System starts its operation.

The impact of COVID-19 to the E&M Engineering and Gas sectors were relatively mild, except for the first few months in 2020 when (i) workers were in a

panic, (ii) some Government services were suspended, (iii) new projects from property developers were slowed down, and (iv) material supply from Mainland China was disturbed.

Starting from the second half of 2020, the operations in the E&M Engineering and Gas sectors have been back to normal as people got used to the precautionary measures for the pandemic. The switching from face-to-face to online meetings and training during the past months was praised by focus group members for the efficiency and cost-saving.

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## Government Policy and Technology

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The Government and the Construction Industry Council (CIC) were keen on pushing new construction technologies and practice like Building Information Modeling (BIM), Design for Manufacture and Assembly (DfMA) and Modular Integrated Construction (MiC). Nevertheless, there was chaos encountered by the E&M Engineering sector during the transitional period. Focus group members attributed the problem to the following: (i) lack of a common BIM standard across the industry, (ii) lack of well-trained practitioners for the technologies, (iii) not

every project is suitable for DfMA and MiC, and (iv) frequent design changes in local construction/E&M projects.

At present, over 90% of the work involving MiC is done in Mainland China. The job of construction workers will inevitably be affected when MiC becomes widely used in future. Nevertheless, focus group members were of view that Hong Kong should also be competitive for the prefabrication works.

As more planning works are required for the adoption of new construction technologies and practice, manpower demand at upper skill levels, i.e. technologists and technicians, should increase in coming years.

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# Manpower Demand

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## Focus Group

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The E&M Engineering sector expected a consistent manpower demand in coming few years as several large-scale government-funded projects would roll out starting from the second half of 2020, to catch up the delay during the first few months of the year. Besides, there would be plenty of maintenance, fitting-out, alterations and additions (A&A), and lift/escalator modernisation works, in the private sector.

The Gas sector used to be very stable but a negative manpower growth was anticipated for the coming few years. This is because the supply of new bloods would be inadequate to replenish the vacancies caused by the retirement wave.

The Aircraft Maintenance sector would encounter manpower surplus during the coming one or two years due to the impact

of COVID-19. New recruitment would slow down.

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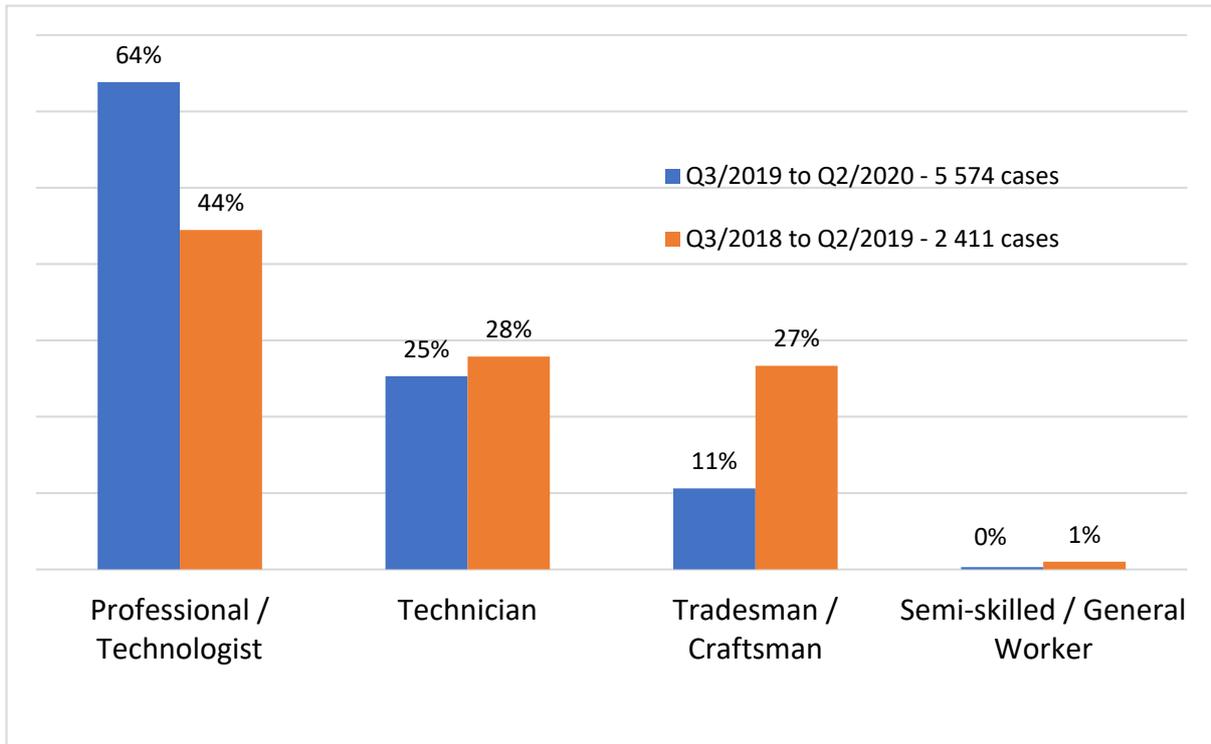
## Desk Research

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For the period of Q3/2019 to Q2/2020, the total number of recruitment advertisements captured by desk research dropped about 40% for all industries, compared with one year ago. On the other hand, the figures of the E&M Services industry remained rather stable. This indicated that compared with other industry sectors, the E&M Services industry was less affected by COVID-19 and the political unrest over the past year.

The distribution of recruitment advertisements related to the E&M Services industry, by skill level, is shown in Figure 1. It is noted that the online recruitment portals had more advertisements at the upper skill levels, i.e. technologists and technicians.

Figure 1 Distribution of Recruitment Advertisements by Skill Levels



N.B. The mapping from recruitment advertisements' post titles to principal jobs defined in EMTB's manpower survey was refined in this round of desk research. Because of that change, the figures of Q3/2018 to Q2/2019 are slightly different from those presented in last year's manpower update report.

Among these 5 574 advertisements, 96.4% belonged to the E&M Engineering sector. The Gas sector accounted for 0.8% (same as last round) and the Aircraft Maintenance sector dropped from 4% (last round) to 2.8% in this round. The detailed breakdown, by skill level, sector and branch, is in Appendix 1.

Appendix 2 lists the top 15 principal jobs which had the largest number of recruitment advertisements during the period of Q3/2019 to Q2/2020.

The distribution of education requirements for each skill level is shown in Appendix 3. It was noted that compared with last round, employers have tightened the education requirements for the advertised posts in this round, i.e. Q3/2019 to Q2/2020. The change is particularly noticeable at technician and craftsman levels, indicating that employers were looking for a workforce with higher qualifications.

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# Training Needs

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## BIM

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Employers saw BIM drawing as an essential skill that all students of E&M engineering-related programmes should master. Employers wished to have more course fee subsidies from the Government to help upgrade their staff with the latest BIM knowledge and skills.

## Smart City Technologies

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The use of IoT and other smart technologies had become more and more popular in E&M engineering systems. Relevant training elements should be included in E&M engineering-related pre-employment training programmes.

## EGTS

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Under the Engineering Graduate Training Scheme (EGTS), employers of the engineering sector providing recognised training under the Scheme “A” Graduate Training of the Hong Kong Institution of Engineers (HKIE) can apply for a monthly subsidy of HKD 5,610 to each new graduate, for a period of 18 months. In 2020, the Government increased the subsidy places from some 300 to 1 000. The E&M Services industry welcomed the move but wished that both the subsidy places and amount could be increased as a regularised policy.

## Soft Skills

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In addition to technical knowledge, employers considered that soft skills such as inter-personal communication and presentation skills as equally important as they would uplift employees’ confidence at work.

## Others

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Employers were of the view that learning by practice is more effective than traditional classroom teaching for the current young generation. This observation is being addressed by the current review of the apprenticeship scheme as well as the introduction of Workplace Learning and Assessment.

There were comments that at present, the curricular of Degree and Higher Diploma programmes do not adequately meet the industry needs. Certain subjects had little relationship with the knowledge and skills required at workplace.

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# Recruitment and Retention Challenges

The E&M Services industry, just like many others, has been encountering the staff succession problem. The challenges and suggested solutions are summarised below:

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## Retirement Wave

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Employers expressed concern on the current baby boomers retirement wave as there were difficulties to recruit quality new bloods for succession.

Not many young people were interested in pursuing their career in the E&M Services industry as the jobs were seen as dangerous, dirty, dull and laborious.

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## Promotion of the Industry

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Employers agreed that extracurricular activities such as career expo, industry visit, competition and project, were more effective than school talks for introducing the job nature of E&M engineering to students and parents. To help employers reach the prospective audience, collaboration with NGOs was a good idea.

Employers wished to have Government's funding support to organise the above-mentioned joint promotional activities for the E&M Services industry.

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## Recruitment of Apprentices

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To attract more young people to join the E&M Services industry, EMSD stepped up their recruitment of technician trainees in recent years. The trainees were arranged with a 30-month workplace attachment in the private sectors. Employers admired this arrangement as

trainees would better understand the industry and some of them would ultimately join the private sector after completing EMSD's training programme.

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## Motivation of Employees

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Employers believed that educating young people about the value of E&M engineering to daily lives, instead of taking it for granted, could help to arouse their interest to join and retain in the E&M Services industry. Employees need to have passion about their jobs in order to put up with the relatively harsh working condition.

Although E&M engineering works are often governed by Government regulations, employers are advised to give employees more freedom at work, to encourage creative/innovative ideas and boost staff motivation.

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# Recommendations

To meet the future development of the industry, it is essential that education institutions, employers and the Government can work together to promote the career prospects of the industry to the young generation. Suitable training opportunities should also be provided to help students and in-service practitioners keep pace with the technology trend. To achieve the above objectives, the following measures are recommended:

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## Education Institutions

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### Equip Students with Updated Knowledge of BIM, DfMA and MiC

Adoption of new construction technologies and practice such as BIM, DfMA and MiC is the trend of the E&M Services industry. Training providers should equip students with the required knowledge and skills.

### Include IoT and other Smart City Technologies in Programme Curricula

IoT and other smart city technologies are now widely used in E&M engineering systems. Relevant training elements should be included in the programme curricula.

### Promote Workplace Learning and Assessment

The duration and mode of delivery of apprenticeship training should be reviewed and properly adjusted to better match the learning mode of the young generation. Training providers are advised to promote Work Place Learning and Assessment (WLA) to employers, to reduce the school hours in apprenticeship training.

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## Employers

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### Organise Joint Activities to Promote the Industry

Employers are advised to organise joint activities such as career expo, industry visit, competition and project to promote the E&M Services industry to students and parents. Collaboration with other parties, e.g. NGO, can expand the coverage of prospective audience.

### Educate Young People about the Value of E&M Engineering

To arouse young people's interest to join and retain in the E&M Services industry, they should be educated about the value of E&M Engineering to daily lives, e.g. reliable electricity supply, convenient transportation by lifts and escalators. Employees should be proud of their work and the passion will drive them to engage a long term career in the industry.

### Encourage Creative / Innovative Ideas at Work

As long as there is no conflict with regulations, employees should be encouraged to make creative / innovative suggestions or enhancements at work. This will boost staff motivation and rectify the

biased perception that E&M engineering is boring.

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## Government

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### Provide more Subsidies for BIM Training

Apart from fresh graduates in recent years, in-service practitioners of the E&M Services industry also need to master BIM. It is suggested that the Government provide more subsidies to BIM-related skills upgrading courses to facilitate the industry to adopt the new technology smoothly.

### Increase EGTS Subsidy Places and Amount

To encourage employers to recruit more fresh graduates of engineering disciplines and provide Scheme “A” Graduate Training of HKIE to these new recruits, it is suggested that the Government increase the places and subsidy amount of EGTS as a regularised policy.

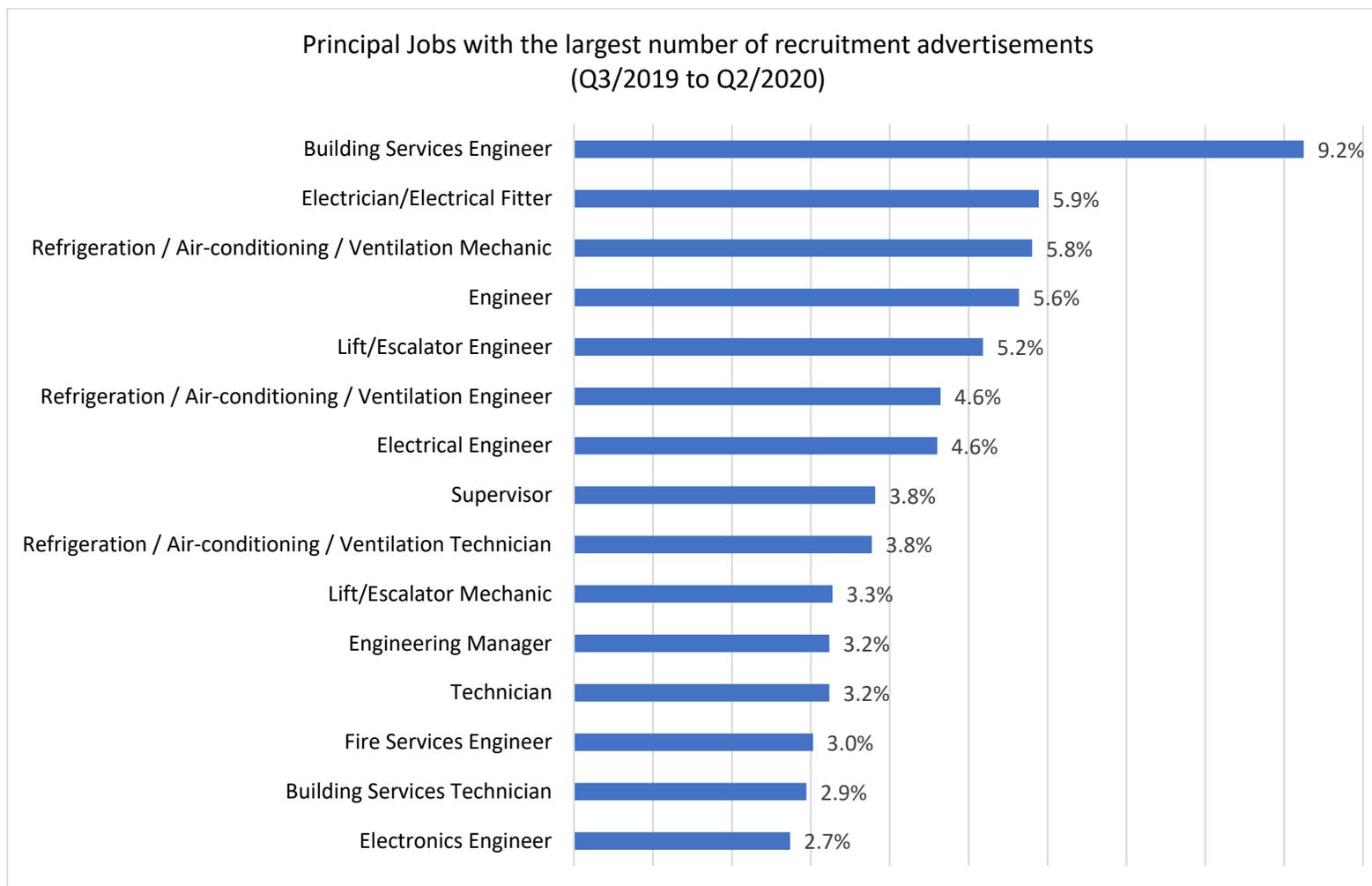
## Take a Leading Role in Attracting and Nurturing New Bloods

Government organisations should collaborate with the E&M services industry to provide more training opportunity to train up more technician trainees for the industry; that supply of new bloods will ultimately benefit the whole industry.

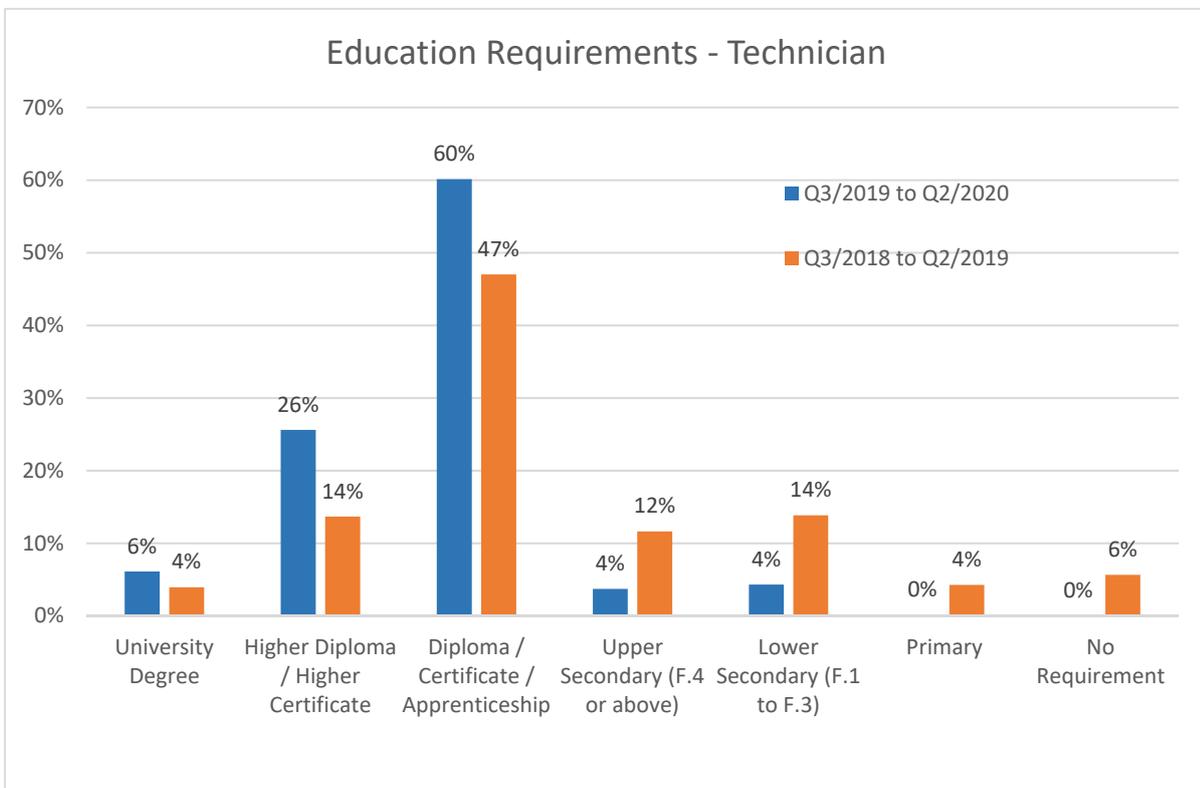
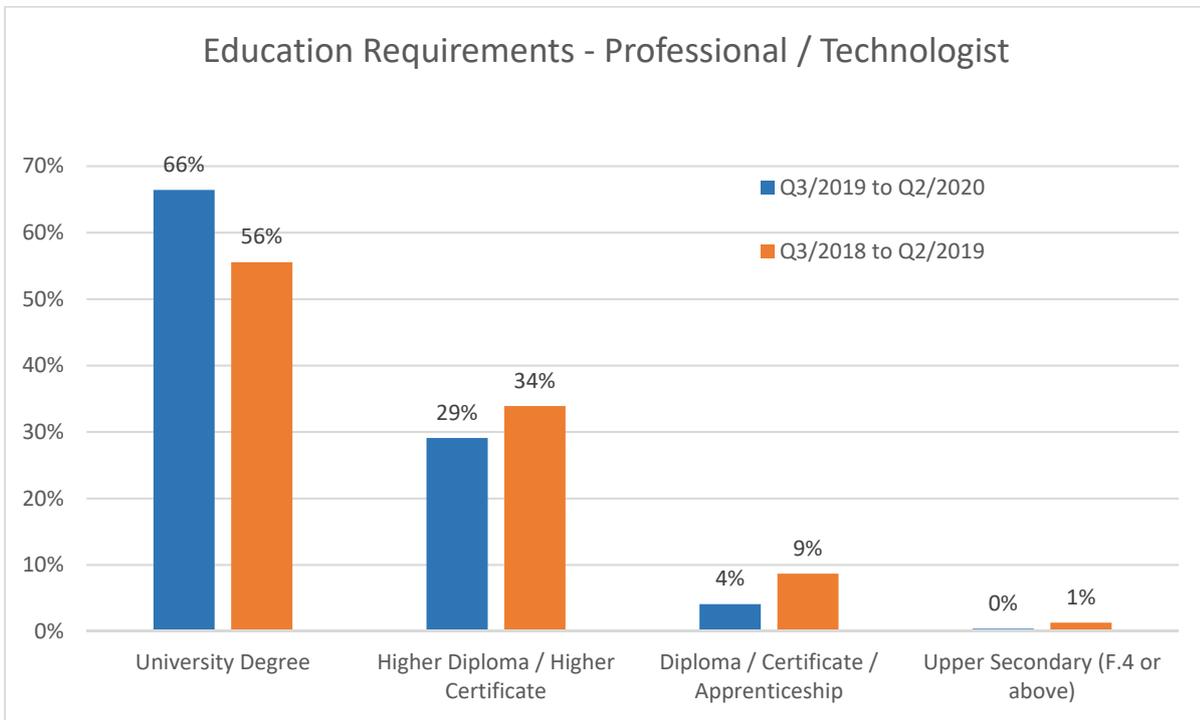
Number of Recruitment Advertisements from Popular Recruitment Media  
(Q3 2019 to Q2 2020, by Skill Level, Sector and Branch)

Sector	Branch	Professional / Technologist	Technician	Tradesman / Craftsman	Semi-skilled / General Worker	All Skill Levels Combined
Electrical and Mechanical Engineering	Contracting (E&M)	31.4%	33.6%	24.0%	18.8%	31.1%
	Electrical Fitting with Water Plumbing	1.6%	0.6%	1.0%	0.0%	1.3%
	Servicing (E&M)	43.7%	37.7%	50.8%	56.3%	43.0%
	Supplementary Samples	20.4%	25.6%	14.9%	0.0%	21.0%
Gas	Gas manufacturing and distribution companies	0.4%	0.6%	0.0%	0.0%	0.4%
	Gas Fitting, Installation and Maintenance	0.1%	0.4%	0.0%	0.0%	0.2%
	Supplementary Samples	0.2%	0.3%	0.0%	0.0%	0.2%
Aircraft Maintenance	Aircraft assembly and manufacture of related machinery	2.2%	1.3%	9.3%	25.0%	2.8%
Total:		100%	100%	100%	100%	100%

Principal Jobs with the Largest Number of Recruitment Advertisements (Q3 2019 to Q2 2020)



Distribution of Recruitment Advertisements by Qualification Requirements



Appendix 3 (cont.)

