



Report on Manpower Projection to 2027

**The Government of the Hong Kong Special Administrative Region
December 2019**

Contents

	Page
Foreword	
Executive Summary	
List of Statistical Tables and Charts Shown in Chapters 1 to 4	
Chapter	
1 Introduction, Projection Framework and Special Notes	3
2 Manpower Supply Projection	
Overall Local Manpower Supply	15
Local Manpower Supply by Age	17
Local Manpower Supply by Sex	20
Local Manpower Supply by Education Level	22
An Overview on Manpower Supply	26
3 Manpower Requirement Projection	
Total Manpower Requirements	30
Manpower Requirements by Economic Sector	30
Manpower Requirements of the Pillar Industries	44
Manpower Requirements of the Selected Industries	50
Manpower Requirements by Occupation Group	55
Manpower Requirements by Education Level	73
4 Manpower Resource Balance	
Projected Overall Manpower Resource Balance	83
Manpower Situation at Different Education Levels	84
Scenario Study	87

Appendices

- I Schema on Compilation of Manpower Supply Projection to 2027**
- II Schema on Compilation of Manpower Requirement Projection to 2027**
- III Projection Methodology of Manpower Requirements by Economic Sector**
- IV Coverage of Education Levels**
- V Coverage of Economic Sectors, Pillar Industries and Selected Industries**
- VI Coverage of Occupation Groups**
- VII Supplementary Statistical Tables (Tables A7.1 – A7.89)**
- VIII Findings from MP-Related Surveys**

Glossary

List of Abbreviations and Symbols

Foreword

Manpower Projection to 2027 (MP2027), with 2017 as the base year, assesses the broad trends of Hong Kong's manpower supply and requirements at the macro level up to 2027, as well as the potential manpower imbalances. Major projection work was undertaken from the fourth quarter of 2017 to the first quarter of 2019, based on the best knowledge at the time of compilation. The key findings of MP2027 were released in May 2019. This report provides a full account of the projection methodology and results, with more breakdown by economic sector, occupation group and education level.

The findings of MP2027 were compiled on the basis of a host of statistics, including the Census and Statistics Department's Population Projections, Labour Force Projections and other manpower statistics. We conducted statistical surveys on specific topics and extensive consultation with businesses, trade associations and public organisations on their outlook for the future manpower requirements of various industries. The projected manpower requirements were based on the quantitative and qualitative information available at the time of compilation and a set of static assumptions, with a view to providing a broad indication on future manpower needs in the medium term, without assessing the short-term year-to-year fluctuations.

This exercise was conducted under the supervision of an inter-departmental working group comprising representatives of relevant Government Bureaux/Departments and statutory training bodies. Many parties helped compile the findings of MP2027. We are grateful to them for their invaluable contributions and suggestions.

Labour and Welfare Bureau
The Government of the Hong Kong Special Administrative Region
December 2019

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Executive Summary

Introduction

The Government has been conducting, at the macro level, periodic Manpower Projection exercises with a view to assessing the broad trends of Hong Kong's future manpower supply and requirements for the medium term. Adopting 2017 as the base year and covering a 10-year projection period, the Manpower Projection to 2027 (MP2027) projects the manpower situation up to 2027 on the basis of the latest available manpower statistics.

Methodology of MP2027

2. MP2027 comprises three major components, namely manpower supply projection, manpower requirement projection and projected manpower resource balance.

3. Manpower supply is virtually equivalent to the labour force comprising both the employed persons and unemployed persons of our economy and excluding foreign domestic helpers (FDHs). The manpower supply projection draws on the latest Population Projections and Labour Force Projections, which have reflected the future population and manpower trends. In projecting the age-sex-education patterns of Hong Kong's future manpower supply, we have taken into consideration various factors, including education statistics and a MP-related Household Survey.

4. The projected manpower requirements up to 2027 were compiled through a two-step statistical process. First, the preliminary estimates of the projected manpower requirements (including vacancies¹) of various economic sectors and industries up to 2027 were derived from statistical projection models drawing on the historical statistics. Second, an inter-departmental task group, with members from relevant Bureaux/Departments and statutory training bodies, reviewed and fine-tuned the preliminary projection results by making reference to a wide range of relevant statistics and information. Sources of such relevant information included the findings of an extensive consultation exercise to gather views from

¹ Vacancies data have been included in compiling the total manpower requirements in 2017.

businesses, trade associations and public organisations on the outlook of the future manpower requirements in various industries; and employers' views on their current and future manpower needs based on a MP-related Establishment Survey covering various economic sectors.

5. Readers are cautioned that the projection is intended to provide the broad trends of manpower needs at the macro level in the medium term, based on the best knowledge at the time of compilation and without assessing any potential short-term year-to-year fluctuations over the projection period.

Key Finding of MP2027

Manpower Supply Projection

Local Manpower Supply

6. The manpower supply in Hong Kong (excluding FDHs) is projected to increase from 3.64 million in 2017 to reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million, and then decrease to 3.57 million in 2027. In other words, the local manpower supply is projected to increase at an average annual rate of 0.2% for 2017 to 2022, and to decrease at an average annual rate of 0.6% for 2022 to 2027. It represents an average annual decreasing rate of 0.2% during 2017 to 2027. Population ageing and low fertility rate are the two major factors contributing to the projected fall in manpower supply in the 10-year period.

Local Manpower Supply by Age

7. The local manpower supply will be ageing along with increasing share of elders aged 65 or over. This will result in notable increases in the number and proportion of workers in the older age groups during the projection period. For instance, the local manpower supply aged 55 or above is projected to increase significantly from 775 200 in 2017 to 869 800 in 2027, which will constitute about 24.4% of the overall local manpower supply in 2027, as against 21.3% in 2017. On the other hand, owing to the low fertility rate of our population, the local manpower supply aged 15-54 is expected to shrink from 2.86 million to 2.70 million, with its share of the

workforce decreasing from 78.7% to 75.6% during the same period. Along with the rapid ageing of our population, the overall labour force participation rate is expected to fall from 59.1% in 2017 to 54.9% in 2027².

Local Manpower Supply by Sex

8. The local female manpower supply is projected to grow slightly at an average annual rate of 0.2% from 1.65 million in 2017 to 1.69 million in 2027. During the same period, its share of the local workforce is anticipated to be edging up from 45.3% to 47.2%. The projected increase in female manpower supply is mainly attributable to a faster expansion of female population³ relative to the overall population, the uptrend of spinsterhood, the tendency of marriage postponement and general improvement in education of the female population over the years. Besides, increased job opportunities and better income prospects (partly due to the implementation and upratings of the Statutory Minimum Wage) in recent years would also induce more people (including females) to enter or re-enter the labour market.

9. On the other hand, the local male manpower supply is expected to decrease at an average annual rate of 0.6% from 1.99 million in 2017 to 1.88 million in 2027. This is largely a result of low fertility rate coupled with a declining male labour force participation rate due to more and more male workers going into retirement relative to the number of new male entrants to the labour market plus an ageing male population in the future. Its share of the total manpower supply is expected to decline from 54.7% in 2017 to 52.8% in 2027.

Local Manpower Supply by Education Level

10. The general education profile of our workforce is anticipated to improve further in the next decade. The manpower supply with

² While the age-specific labour force participation rate (LFPR) for persons aged between 25 and 64 will rise during 2017 to 2027, the number of elders aged 65 or over in the population will increase remarkably (by 676 700) during the same period. The much expanded elderly population will thus water down the overall LFPR.

³ The female population is anticipated to expand at an average annual rate of 0.7%, as against 0.5% for the overall population and 0.3% for the male population (all excluding FDHs), during the projection period from 2017 to 2027.

qualifications of *sub-degree*, *first degree* and *postgraduate* is projected to grow at average annual rates in the range of 1.6% to 2.9% during the period from 2017 to 2027, mainly owing to the abundant pathways available to our youth in pursuing higher education. On the other hand, the manpower supply at the levels of *upper secondary* and *lower secondary and below* is expected to decline, mainly due to the anticipated retirement of many workers with these qualifications, who belong to the post-war baby boomer generation, during the projection period. It is broadly estimated that some 150 000 workers with qualifications of *upper secondary* and some 300 000 workers with qualifications of *lower secondary and below* will retire during this period. The local manpower supply by education level in 2017 and 2027 is set out in **Table 1**.

Table 1: Local Manpower Supply[@] by Education Level in 2017 and 2027

Education level	Actual local manpower supply [@] in 2017		Projected local manpower supply [@] in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	878 600	24.1	605 500	17.0	- 273 000 ##	- 3.7%
Upper secondary	1 282 000	35.2	1 189 300	33.3	- 92 700 ##	- 0.7%
Diploma	116 700	3.2	116 100	3.3	- 600	- 0.1%
Sub-degree	218 400	6.0	255 900	7.2	+ 37 500	+ 1.6%
First degree	888 600	24.4	1 063 200	29.8	+ 174 600	+ 1.8%
Postgraduate	255 600	7.0	339 900	9.5	+ 84 300	+ 2.9%
All levels	3 639 800	100.0	3 569 900	100.0	- 69 800	- 0.2%~

@ Excluding foreign domestic helpers

~ The local manpower supply is projected to increase from 3.64 million in 2017 to reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million (i.e. to increase at an average annual rate of 0.2% for 2017 to 2022), and then decrease to 3.57 million in 2027 (i.e. to decrease at an average annual rate of 0.6% for 2022 to 2027). It represents an average annual decreasing rate of 0.2% during the entire projection period from 2017 to 2027.

The projected decreases in the manpower supply at these two education levels reflect the net changes arising from the retiring post-war baby boomer generation versus the replenished supply with relevant qualifications during the period from 2017 to 2027.

Note: Individual figures may not add up to the totals due to rounding.

Manpower Requirement Projection

Total Manpower Requirements

11. The total manpower requirements in Hong Kong (excluding FDHs) are projected to increase by 127 000 from 3.61 million in 2017⁴ to 3.74 million in 2027, corresponding to an average annual growth rate of 0.3% for the whole economy during the projection period.

Manpower Requirements by Economic Sector

Manpower Requirements of the Conventional Sectors

12. It is projected that the faster growing economic sectors (i.e. those with the projected growth rate faster than that of the overall economy) in terms of manpower requirements during the period from 2017 to 2027 will be *Professional and business services* (at an average annual growth rate of 1.4%); *Information and communications* (1.2%); *Financial services* (1.1%); *Social and personal services* (0.9%); *Real estate* (0.8%); and *Construction* (0.5%). *Import, export, wholesale and retail trades* as well as *Social and personal services* were the two largest sectors in terms of manpower requirements in 2017 and are expected to remain so in 2027.

13. The sectors anticipated to diminish in manpower requirements during the period from 2017 to 2027 will be *Agriculture, fishing and quarrying* (at an average annual decreasing rate of 6.8%); *Manufacturing* (2.9%); *Import, export, wholesale and retail trades* (0.6%); and *Transportation, storage, postal and courier services* (0.2%).

14. The manpower requirements in 2017 and the projections in 2027 by economic sector are set out in **Table 2**.

⁴ Vacancies data have been included in compiling the total manpower requirements in 2017.

Table 2: Manpower Requirements by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017–2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	3 900	0.1	1 900	0.1	- 2 000	- 6.8%
Manufacturing	97 200	2.7	72 700	1.9	- 24 500	- 2.9%
Electricity, gas, water and waste management	16 100	0.4	16 500	0.4	+ 500	+ 0.3%
Construction	348 600	9.6	367 400	9.8	+ 18 800	+ 0.5%
Import, export, wholesale and retail trades	884 000	24.5	830 600	22.2	- 53 400	- 0.6%
Accommodation and food services	288 500	8.0	298 500	8.0	+ 10 000	+ 0.3%
Transportation, storage, postal and courier services	319 600	8.8	313 800	8.4	- 5 700	- 0.2%
Information and communications	115 800	3.2	130 700	3.5	+ 15 000	+ 1.2%
Financial services	264 000	7.3	294 600	7.9	+ 30 500	+ 1.1%
Real estate	140 000	3.9	152 200	4.1	+ 12 200	+ 0.8%
Professional and business services	402 700	11.1	460 900	12.3	+ 58 200	+ 1.4%
Social and personal services	732 200	20.3	799 700	21.4	+ 67 400	+ 0.9%
Total	3 612 600	100.0	3 739 600	100.0	+ 127 000	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Manpower Requirements of the Pillar Industries and Selected Industries

15. The manpower requirements of the four pillar industries (including *Financial services; Trading and logistics; Professional services and other producer services; and Tourism*) taken together are projected to increase at an average annual rate of 0.5% during the period from 2017 to 2027, which is higher than the overall growth rate of 0.3% projected for the whole economy. Among the pillar industries, the manpower requirements of the

Professional services and other producer services are expected to grow the fastest, while those of the *Trading and logistics* are expected to fall. The manpower needs of the pillar industries accounted for about half (at 50.5%) of the total manpower demand of our economy in 2017, and is expected to remain so (at 51.1%) in 2027. The manpower requirements of the pillar industries in 2017 and their projections in 2027 are summarised in **Table 3**.

Table 3: Manpower Requirements of the Pillar Industries in 2017 and 2027

Pillar industry	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Financial services	264 000	294 600	+ 30 500	+ 1.1%
Trading and logistics	739 200	669 600	- 69 600	- 1.0%
Professional services and other producer services [®]	555 600	661 700	+ 106 100	+ 1.8%
Tourism	265 400	284 000	+ 18 700	+ 0.7%
Total	1 824 200	1 909 900	+ 85 700	+ 0.5%

- [®] It covers a wide spectrum of business activities, including
- (i) Software publishing and information technology related services;
 - (ii) Legal services;
 - (iii) Accounting, auditing and bookkeeping services;
 - (iv) Business management and consultancy services, and engineering and technical services not related to construction and real estate activities;
 - (v) Design, advertising and related services;
 - (vi) Architectural, surveying and engineering services related to real estate and construction; and
 - (vii) Other producer services.

Note: Individual figures may not add up to the totals due to rounding.

16. Apart from the pillar industries, the five selected industries having good potential for further driving the development of our economy are also studied. They are *Information technology and information services*; *Innovation and technology industries*; *Cultural and creative industries*; *Environmental industries*; and *Testing and certification services*. The manpower requirements of these selected industries are projected to grow at average annual growth rates ranging from 0.9% to 4.3% during the period from 2017 to 2027, all faster than that of 0.3% for the whole economy. The manpower requirements of the selected industries in 2017 and their projections in 2027 are set out in **Table 4**.

Table 4: Manpower Requirements of the Selected Industries in 2017 and 2027

Selected industry	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Information technology and information services	72 300	90 000	+ 17 800	+ 2.2%
Innovation and technology industries	38 000	57 600	+ 19 600	+ 4.3%
Cultural and creative industries	217 800	238 000	+ 20 200	+ 0.9%
Environmental industries	45 200	51 500	+ 6 300	+ 1.3%
Testing and certification services	14 500	16 600	+ 2 100	+ 1.3%

Manpower Requirements by Occupation Group

17. The projected change in the occupation pattern of manpower requirements is in line with Hong Kong's continued transformation to a knowledge-based and high value-added economy and the potential adoption of automation and technology in business processes. It is expected that the proportions of workers in higher-skilled occupation groups viz. *Managers and administrators, Professionals and Associate professionals* will generally increase (from 42.8% in 2017 to 46.4% in 2027), whereas the proportion of lower-skilled occupation groups (such as *Clerical support workers; Craft and related workers; and workers in the Elementary occupations*) will decrease from 57.2% to 53.6% during the same period. The requirements for *Service and sales workers* is expected to increase slightly. The manpower requirements of the overall economy by occupation group in 2017 and their projections in 2027 are presented in **Table 5**.

Table 5: Manpower Requirements by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	480 500	13.3	539 100	14.4	+ 58 600	+ 1.2%
Professionals	274 700	7.6	302 500	8.1	+ 27 800	+ 1.0%
Associate professionals	790 900	21.9	891 900	23.8	+ 101 000	+ 1.2%
Clerical support workers	526 500	14.6	487 200	13.0	- 39 300	- 0.8%
Service and sales workers	619 100	17.1	633 700	16.9	+ 14 600	+ 0.2%
Craft and related workers	244 700	6.8	236 400	6.3	- 8 300	- 0.3%
Drivers, plant and machine operators, and assemblers	177 000	4.9	164 200	4.4	- 12 800	- 0.7%
Elementary occupations	495 500	13.7	482 500	12.9	- 13 000	- 0.3%
Other occupations ©	3 600	0.1	2 100	0.1	- 1 500	- 5.2%
Total	3 612 600	100.0	3 739 600	100.0	+ 127 000	+ 0.3%

© Including mainly farm workers, animal husbandry workers and fishermen

Note: Individual figures may not add up to the totals due to rounding.

Manpower Requirements by Education Level

18. It is projected that the manpower requirements for workers with higher education qualifications will increase and those with lower qualifications will shrink during the projection period. The requirements for workers with the qualifications of *postgraduate*, *first degree* and *sub-degree* are anticipated to increase at average annual growth rates of 2.3% to 2.5% while those at the level of *upper secondary* will fall at an average annual rate of 0.4% and those at *lower secondary and below* level are anticipated to decline at an average annual rate of 2.5%, during the period from 2017 to 2027. This is again consistent with Hong Kong's ongoing transformation to a knowledge-based and high value-added economy advocating innovation, professionalism and application of technology and artificial intelligence. The projected manpower requirements by education level in 2017 and their projections in 2027 are in **Table 6**.

Table 6: Manpower Requirements by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	879 100	24.3	682 100	18.2	- 197 000	- 2.5%
Upper secondary	1 280 200	35.4	1 231 900	32.9	- 48 300	- 0.4%
Diploma	114 700	3.2	122 500	3.3	+ 7 800	+ 0.7%
Sub-degree	210 900	5.8	265 400	7.1	+ 54 600	+ 2.3%
First degree	874 000	24.2	1 114 000	29.8	+ 240 000	+ 2.5%
Postgraduate	253 700	7.0	323 600	8.7	+ 69 900	+ 2.5%
All levels	3 612 600	100.0	3 739 600	100.0	+ 127 000	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Projected Manpower Resource Balance

19. The manpower resource balance, derived by comparing the projected manpower supply with the projected manpower requirements, provides a measure for assessing if the future manpower of the whole economy and at different education levels will be in balance, shortfall or surplus. In gist, the manpower requirements are expected to grow in tandem with economic growth whilst our labour force is expected to shrink due to population ageing and low fertility rate in the projection period, resulting in an overall manpower shortfall of 169 700 by 2027.

20. Basically, the shortfall will occur across all education levels. For the *lower secondary and below* level, while the projected manpower supply and requirements will both decrease, the decrease in projected supply will be far more apparent when compared with the decrease in projected requirements, leading to the largest shortfall by education level. On the other hand, for the *postgraduate* level, it is not uncommon that jobs with minimum entry requirement of first degree would be taken up by workers with postgraduate qualifications. For analytical purpose, it would therefore be more meaningful to pool together the projected shortfall at *first degree* level (50 900) and the surplus at *postgraduate* level (16 300). The findings

of projected manpower resource balance by education level are set out in **Table 7**.

Table 7: Projected Manpower Resource Balance by Education Level in 2027

Education level	(a) Projected manpower supply in 2027	(b) Projected manpower requirements in 2027	(c) = (a) – (b) Projected manpower resource balance in 2027 [Surplus (+) / shortfall (-)]
Lower secondary and below	605 500	682 100	- 76 500
Upper secondary	1 189 300	1 231 900	- 42 600
Diploma	116 100	122 500	- 6 400
Sub-degree	255 900	265 400	- 9 500
First degree	1 063 200	1 114 000	- 50 900
Postgraduate	339 900	323 600	+ 16 300
All levels	3 569 900	3 739 600	- 169 700

Note: Individual figures may not add up to the totals due to rounding.

Scenario Study

21. A broad-brush scenario study has been conducted at the macro level to take into account the impact of economic conditions on the overall manpower situation up to 2027. The scenario study assumed the projected manpower supply to remain constant under different economic scenarios, as manpower supply in the medium to long term is to a large extent demographically-driven. On the requirement side, the manpower requirements under different scenarios were estimated by making reference to the past statistical relationship between manpower requirement and overall economic growth. In particular, with the main findings of MP2027 taken as the base-case scenario, the high-case and low-case scenarios are constructed by assuming a ± 1 percentage point range for the trend real Gross Domestic Product (GDP) growth over the projection period⁵. With the manpower shortage in 2027 projected at 169 700 under the base-case

⁵ Given that MP2027 covers a 10-year projection period, reference has been drawn to the historical 10-year trend growth rates of real GDP. As the trend growth rates hovered in a range of 2 percentage points in the past 20 years since 1998, a ± 1 percentage point range for the real GDP trend growth over the projection period has been adopted for the scenario study.

scenario, the manpower shortfalls are estimated to be 254 200 and 86 800 under the high-case and low-case scenarios respectively. The findings of projected manpower resource balance under the three scenarios are presented in **Table 8**.

Table 8: Projected Manpower Resource Balance in 2027 under Different Scenarios

Scenario	(a) Projected manpower supply in 2027	(b) Projected manpower requirements in 2027	(c) = (a) – (b) Projected manpower resource balance in 2027 [Surplus (+) / shortfall (-)]
High-case scenario		3 824 100	- 254 200
Base-case scenario [⌘]	3 569 900	3 739 600	- 169 700
Low-case scenario		3 656 700	- 86 800

⌘ Follows the main findings of MP2027

Related Information

22. MP2027, a technical exercise projecting the broad trends of our manpower situation up to 2027, could provide useful reference for the Government, business sector and training bodies to plan mid-term manpower strategies. Nonetheless, given the macro nature of this exercise, we are unable to make projections on the manpower supply of specific sectors and occupations. Relevant Bureaux/Departments and stakeholders may conduct further sector-specific manpower studies/planning.

23. Information on the training needs of the working population and the desire to take up jobs of the non-working population was collected from one Household Survey and one Establishment Survey to help shed light on the topics which are relevant to the development of our workforce.

List of Statistical Tables and Charts Shown in Chapters 1 to 4

	Page	
Table 2.1	Population by Broad Age Group in 1997 – 2037	16
Table 2.2	Local Manpower Supply, 2017 – 2027	17
Table 2.3	Local Manpower Supply and Labour Force Participation Rate by Age Group in 2017 and 2027	19
Table 2.4	Local Manpower Supply and Labour Force Participation Rate by Sex in 2017 and 2027	21
Table 2.5	Local Manpower Supply by Education Level in 2017 and 2027	24
Table 3.1	Manpower Requirements of the Import, Export, Wholesale and Retail Trades Sector and its Sub-sectors in 2017 and 2027	32
Table 3.2	Manpower Requirements of the Accommodation and Food Services Sector and its Sub-sectors in 2017 and 2027	33
Table 3.3	Manpower Requirements of the Transportation, Storage, Postal and Courier Services Sector and its Sub-sectors in 2017 and 2027	35
Table 3.4	Manpower Requirements of the Information and Communications Sector and its Sub-sectors in 2017 and 2027	36
Table 3.5	Manpower Requirements of the Financial Services Sector and its Sub-sectors in 2017 and 2027	37
Table 3.6	Manpower Requirements of the Professional and Business Services Sector and its Sub-sectors in 2017 and 2027	39
Table 3.7	Manpower Requirements of the Social and Personal Services Sector and its Sub-sectors in 2017 and 2027	41
Table 3.8	Manpower Requirements by Economic Sector and Sub-sector in 2017 and 2027	43
Table 3.9	Manpower Requirements of the Trading and Logistics and its Sub-sectors in 2017 and 2027	46
Table 3.10	Manpower Requirements of the Professional Services and Other Producer Services and its Sub-sectors in 2017 and 2027	48
Table 3.11	Manpower Requirements of the Tourism and its Sub-sectors in 2017 and 2027	49
Table 3.12	Manpower Requirements of the Pillar Industries in 2017 and 2027	50

	Page	
Table 3.13	Manpower Requirements of the Information Technology and Information Services and its Sub-sectors in 2017 and 2027	51
Table 3.14	Manpower Requirements of the IT Workers by Economic Sector in 2016 and 2027	52
Table 3.15	Manpower Requirements of the Selected Industries in 2017 and 2027	55
Table 3.16	Manpower Requirements of Managers and Administrators by Economic Sector in 2017 and 2027	57
Table 3.17	Manpower Requirements of Professionals by Economic Sector in 2017 and 2027	58
Table 3.18	Manpower Requirements of Associate Professionals by Economic Sector in 2017 and 2027	59
Table 3.19	Manpower Requirements of Clerical Support Workers by Economic Sector in 2017 and 2027	60
Table 3.20	Manpower Requirements of Service and Sales Workers by Economic Sector in 2017 and 2027	62
Table 3.21	Manpower Requirements of Craft and Related Workers by Economic Sector in 2017 and 2027	63
Table 3.22	Manpower Requirements of Drivers, Plant and Machine Operators, and Assemblers by Economic Sector in 2017 and 2027	65
Table 3.23	Manpower Requirements of Elementary Occupations by Economic Sector in 2017 and 2027	66
Table 3.24	Manpower Requirements by Occupation Group in 2017 and 2027	69
Table 3.25	Manpower Requirements by Economic Sector and Occupation Group in 2017	71
Table 3.26	Projected Manpower Requirements by Economic Sector and Occupation Group in 2027	72
Table 3.27	Manpower Requirements of IT Workers by IT-related Occupation Group in 2016 and 2027	73
Table 3.28	Manpower Requirements by Education Level in 2017 and 2027	76
Table 3.29	Manpower Requirements by Economic Sector and Education Level in 2017	78
Table 3.30	Projected Manpower Requirements by Economic Sector and Education Level in 2027	79
Table 4.1	Projected Manpower Resource Balance by Education Level in 2027	87
Table 4.2	Projected Manpower Resource Balance in 2027 under Different Scenarios	88

		Page
Chart 2.1	Actual / Projected Labour Force, 2006 - 2066	17
Chart 2.2	Percentage Share of Local Manpower Supply by Age Group in 2017 and 2027	18
Chart 2.3	Local Male Manpower Supply and Labour Force Participation Rate by Age Group in 2017 and 2027	21
Chart 2.4	Local Female Manpower Supply and Labour Force Participation Rate by Age Group in 2017 and 2027	22
Chart 2.5	Local Manpower Supply by Education Level in 2017 and 2027	25
Chart 2.6	Percentage Share of Local Manpower Supply by Broad Education Level and Broad Age Group in 2017 and 2027	26
Chart 3.1	Manpower Requirements and Average Annual Rate of Change by Economic Sector in 2017 and 2027	42
Chart 3.2	Percentage Share of Manpower Requirements by Occupation Group in 2017 and 2027	68
Chart 3.3	Manpower Requirements by Education Level in 2017 and 2027	76
Chart 4.1	Projected Manpower Supply and Projected Manpower Requirements by Education Level in 2027	86

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CHAPTER 1

Introduction, Projection Framework and Special Notes

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Introduction, Projection Framework and Special Notes

Introduction

1.1 Hong Kong's flexible and adaptive workforce has all along been the precious resources and foundation of our continued economic development. The rapidly ageing population among advanced economies has brought about tight labour market, extension of working life and talent competition at the international level. Many economies have given attention on their workforce to augment their skills to master new technologies in response to the ever evolving global economic environment. It is crucial for Hong Kong to maintain a sustainable supply of manpower with the right mix of skills and qualifications to support long-term economic growth.

1.2 Hong Kong's labour market has remained tight in the recent years, as reflected by the low unemployment rate and high level of vacancies. The unemployment rate¹ hovered at low levels between 3.3% and 3.4% during the period from 2011 to 2016 and further reduced to 3.1% in 2017. Meanwhile, the number of job vacancies recorded notable growth from 2011 to 2017 and the vacancy rate² rose above 2.0% since 2011.

1.3 As with many other advanced economies, Hong Kong's population is ageing fast. This will have great impact on the workforce. A new round of Manpower Projection (MP), with 2017 as the base year and covering a 10-year projection horizon, was conducted by the Government in 2018 to assess the broad trends of the future manpower supply and requirements of our economy at the macro level up to 2027, as well as the potential manpower imbalances. The findings of Manpower Projection to 2027 (MP2027) were compiled on the basis of a wide range of statistics, including the findings of statistical projection models; consultations with businesses, trade associations and public organisations; a survey on employers on their views on manpower needs; the latest available demographic, manpower and education statistics; the prevailing manpower patterns; as well as the policies and economic situation known at the time when the projections were being prepared.

¹ Source: General Household Survey, Census and Statistics Department

² Sources: Quarterly Survey of Employment and Vacancies and Quarterly Employment Survey of Construction Sites, Census and Statistics Department

1.4 MP2027 comprises three major components, namely the Manpower Supply Projection (MSP), the Manpower Requirement Projection (MRP), and the projected Manpower Resource Balance (MRB). The findings of MSP presented in *Chapter 2* of this report provide the projected manpower supply by age group, sex and education level in 2027. The findings of MRP, which assesses the manpower requirements of various economic sectors and industries by occupation group and education level, are presented in *Chapter 3*. By comparing the findings of MSP with MRP, we can derive the projected MRB for the whole economy and by education level (which is a common analysis element in both MSP and MRP). The findings of MRB, which provide a measure as to whether the future overall manpower of our economy and at different education levels will be in balance, surplus or shortfall, are set out in *Chapter 4* of this report.

1.5 On top of the findings presented in *Chapter 2* to *Chapter 4*, a broad-brush scenario study has been conducted at the macro level to take into account the impact of economic conditions on the overall manpower situations up to 2027. The results are set out in the remaining part of *Chapter 4*.

Projection Framework

1.6 The statistical framework of MP2027 was designed in such a way that there was no pre-determined linkage or interdependence between MSP and MRP. In other words, the findings of MSP and MRP were compiled independent of each other. Such a framework is intended to fully reflect the potential job opportunities that may emerge in the labour market during the projection period. It is important to note this concept of unconstrained manpower requirements in interpreting MRB. In reality, the manpower requirements of an economy will ultimately be constrained by, inter alia, its manpower supply.

1.7 The projection methodologies of MSP and MRP are discussed in the ensuing paragraphs.

Manpower Supply Projection

1.8 MSP in MP2027 evaluates the supply of manpower to the labour market by age group, sex and education level during the period from 2017 to 2027. The actual local manpower supply (excluding foreign domestic helpers) in the base year of 2017 was compiled on the basis of the findings of the Census and Statistics Department (C&SD)'s General Household Survey. The projected manpower supply up to 2027 was worked out by drawing reference to a wide range of statistics and information from different sources, including the following—

- (a) Hong Kong Population Projections 2017–2066 (from C&SD): They provide detailed data and information on the size of the population of Hong Kong in future, taking into account the births, deaths and population movements during the projection period. The population projections have incorporated the findings of the 2016 Population By-census and are analysed by age and sex;
- (b) Hong Kong Labour Force Projections for 2017 to 2066 (from C&SD): They offer statistics and information on the future labour force (or manpower supply) in Hong Kong with breakdowns by age group and sex. Statistically, the relationship between labour force and population is measured by a parameter called the age-sex specific labour force participation rate (LFPR);
- (c) Education statistics: Basically, three sets of education statistics have been used in estimating the education profile of the projected manpower supply. The first set of statistics is about the number of students on local education programmes at different academic levels. The second set is about the students leaving Hong Kong for study outside the territory (including the Mainland and Macao) and students returning to Hong Kong after completing their studies. The third set is concerned with working people upgrading their academic qualifications by taking up continuing studies. These education statistics are primarily sourced from the official statistical systems, the Education Bureau and a MP-related Household Survey. The relevant statistics have been translated into input parameters of the MSP model; and

- (d) Statistics on Holders of Permit for Proceeding to Hong Kong and Macao (or commonly known as One-way Permit Holders (OWPHs)): The number of OWPHs projected to come from the Mainland and reside in Hong Kong during the period from 2017 to 2027 has been reflected in C&SD's population projections. The education profiles of OWPHs at the time of their arriving in Hong Kong have been sourced from the demographic and social characteristics of the OWPHs collected by the Immigration Department. The statistics on demographic and social characteristics have been incorporated into the model of MSP.

1.9 A schematic presentation of the major statistical processes involved in the compilation of MSP is at **Appendix I**.

Manpower Requirement Projection

1.10 In MP2027, the actual manpower requirements in the base year of 2017 were the sum of the number of employed persons and job vacancies³ of all sectors in Hong Kong. In other words, vacancies are regarded as part of the manpower requirements.

1.11 The findings of MP2027 in relation to manpower requirements are analysed by economic sector, occupation group and education level. The actual manpower requirements of various sectors and industries in the base year (i.e. 2017) were worked out primarily on the basis of C&SD's manpower statistics, taking into account job vacancies. The occupation-education patterns of the base year's manpower requirements of various sectors and industries were compiled by drawing reference to the findings of C&SD's General Household Survey and Vocational Training Council (VTC)'s Manpower Surveys.

1.12 The projected manpower requirements up to 2027 were compiled through a sequence of statistical processes as summarised in the schematic diagram in **Appendix II**. First, preliminary MRP estimates up to 2027 were derived by means of statistical projection models drawing on the

³ The statistics of job vacancies are largely based on a regular survey conducted by C&SD. They refer to job openings which are immediately available in, and for which active recruitment steps are being taken by, business establishments on the survey reference date.

historical manpower statistics by economic sector. The preliminary set of projected manpower requirements of various economic sectors and industries were then reviewed and fine-tuned by an inter-departmental task group comprising members from relevant Government Bureaux/ Departments and statutory training bodies. In studying, deliberating and fine-tuning the MRP findings, the task group took into consideration a wide range of statistics and information from various sources such as the sector-specific historical manpower trends; the views gathered through an extensive consultation conducted with businesses, trade associations and public organisations on the outlook of the future manpower requirements of various sectors and industries; as well as the findings from a MP-related Establishment Survey on employers' views on their current and future manpower needs. A list of the social and economic factors that may affect the outlook for future manpower needs, such as population ageing, the use of automation and artificial intelligence, the new business opportunities arising from the Belt and Road Initiative and the Guangdong-Hong Kong-Macao Bay Greater Bay Areas, were listed in the survey questionnaire and consultation document to facilitate respondents' feedbacks on their future manpower requirements. Details of the methodology of projected manpower requirements by economic sector are at **Appendix III**.

1.13 Based on the projection results for individual economic sectors and industries endorsed by the task group as stated in the above paragraph, the next step was to break down the projected sector-specific manpower requirements in 2027 by occupation group and education level. This was done with reference to the historical occupation-education patterns of the manpower requirements of each specific sector based on the findings of C&SD's General Household Survey and VTC's Manpower Surveys, as well as the views on the future occupation-education mix of the workforce collected from the consultation exercise and the aforesaid Establishment Survey.

Education Levels

1.14 MP2027 adopts a six-level education classification, namely *Lower secondary and below*, *Upper secondary*, *Diploma* (including craft), *Sub-degree*, *First degree* and *Postgraduate*, in analysing the findings of MSP and MRP. These education levels largely reflect the mainstream education

structure of Hong Kong. The detailed coverage of each education level is at **Appendix IV**.

Economic Sectors

1.15 In addition to education level, the findings of MRP are analysed by economic sector and occupation group. MP2027 adopts the 12 conventional economic sectors and their sub-sectors as defined by the Hong Kong Standard Industrial Classification Version 2.0 (a standard framework used by C&SD for compilation and analysis of sectoral statistics) in analysing sector-specific manpower requirements. These 12 sectors together make up the whole Hong Kong economy. MP2027 also covers the analyses on the manpower requirements of some other industries that are of sound importance or having good potential to the long-term competitiveness and economic development of Hong Kong. These include the pillar industries and five selected industries. It should be noted that the pillar industries and the selected industries cut across the various conventional economic sectors and sub-sectors and that there is some degree of overlapping in coverage between individual selected industries. For instance, among the selected industries, the *Information technology and information services* include the *Software publishing and information technology related services*. Some of the activities therein (such as computer games publishing, information technology consultancy activities, data processing, web hosting and related activities) are also under the coverage of the *Cultural and creative industries*. The details on the coverage of the conventional economic sectors, the pillar industries and the selected industries adopted in MP2027 are set out at **Appendix V**.

Occupation Groups

1.16 The classification of occupation groups adopted in MP2027 has nine categories, including *Managers and administrators*; *Professionals*; *Associate professionals*; *Clerical support workers*; *Service and sales workers*; *Craft and related workers*; *Drivers, plant and machine operators, and assemblers*; *Elementary occupations* and *Other occupations*. These are broad occupation groups widely adopted by the international statistical agencies in studying manpower statistics. The details on the coverage of these occupation groups are at **Appendix VI**.

Special Notes

1.17 MP2027, which is a technical exercise projecting the broad trends of our manpower situation up to 2027, could provide useful reference for the Government, business sector and training bodies to plan mid-term manpower strategies. Given the macro nature of this exercise, the projection is inevitably subject to a number of caveats. For instance, the findings of MP2027 are intended to provide the broad trends of the future manpower supply and requirements at the macro level, without assessing the short-term year-to-year fluctuations over the 10-year projection period. As the projections were made on the basis of certain assumptions and are subject to projection errors (in particular those estimates of small numerical value), the findings of MP2027, though expressed in quantitative terms, are not meant to be exact in absolute terms. Furthermore, given the fact that global economic, technological and geopolitical environments are ever evolving and factors affecting future manpower supply and demand are constantly changing, it is always hard to predict how these inter-related rapid developments will impact on the future manpower requirements.

1.18 While MP2027 covers analyses on the projected manpower requirements by economic sector and by occupation group, it is unable to make projections on the manpower supply of specific sectors or occupations, given that it is difficult, if not impossible, to ascertain which sector/ profession a person will work in after graduation from school or university. In addition, workers in a particular industry/ profession may change jobs and even work in another industry/ profession altogether over time. Without any projected manpower supply by economic sector or occupation, it is not possible to compile the projected MRB for any specific sectors or occupation groups by 2027.

1.19 Relevant Bureaux/Departments and stakeholders may conduct further sector-specific manpower studies/planning, having regard to the future development and characteristics of the manpower supply and demand of the specific sectors concerned, the policy direction and other practical considerations.

1.20 In MP2027, the projected MRB by education level (the findings of which are set out in *Chapter 4*) is derived by taking the difference between the manpower supply and requirements at any specific education level in

quantitative terms. This method of deriving manpower imbalances assumes perfect substitution of workers with the same qualifications across different sectors, without taking into account factors other than education levels. In reality, the substitutability between workers in some occupations, especially the specialised professions, is rather low. Hence, readers should interpret the projected manpower balance by education level with caution.

1.21 A broad-brush scenario study, which take into account the impact of economic conditions on the overall manpower situation up to 2027, was conducted in collaboration with the Office of the Government Economist on the basis of a number of assumptions (the findings of which are set out in *Chapter 4*). Specifically, implicit in the study is the assumption that the projected manpower supply would remain constant under different economic scenarios, as manpower supply in the medium to long term is to a large extent demographically-driven. On the requirement side, the manpower requirements under different scenarios were estimated by making reference to the past statistical relationship between manpower requirement and overall economic growth. Given the broad-brush nature of the scenario study, potential structural changes in the relationship in the future, such as those brought about by technological advancement and efficiency enhancement, have not been taken into account. In addition, while the relationship between economic growth and manpower requirement could vary among different industries, this study only intends to capture the effect of different economic growth scenarios on the manpower situation up to 2027 at the macro level but not at the sectoral level. Also, since the projection is done on a trend basis, the results are not meant to capture potential year-to-year fluctuations in manpower resource balance.

1.22 *Professional services and other producer services*, which is one of the pillar industries, covers a wide spectrum of business activities including *Software publishing and information technology related services; Legal services; Accounting, auditing and bookkeeping services; Business management and consultancy services, and engineering and technical services not related to construction and real estate activities; Design, advertising and related services; Architectural, surveying and engineering services related to real estate and construction and Other producer services*. In general terms, *Other producer services*, as an industry cluster, refers to the services consumed by business undertakings, other than those already covered in the industries of *Financial services; Trading and logistics;*

Tourism; and *Professional services*. Specifically, *Other producer services*, as an industry cluster, covers retail trade, food and beverage services, accommodation services, transport, telecommunications, real estate, machinery and equipment rental services, miscellaneous business services, various social services and various personal services, yet pertaining only to that segment of services provided to companies in the local economy rather than to local individuals as final consumers.

1.23 There are some differences between *Professional services and other producer services* under the pillar industries and *Professional and business services* under the conventional economic sectors. For instance, *Professional services and other producer services* under the pillar industries include *Software publishing and information technology related services*. They are not covered in *Professional and business services* under the conventional economic sectors. Besides, for *Miscellaneous professional and business services* under *Professional and business services*, some miscellaneous services provided to local individuals as final consumers are outside the scope of *Other producer services* under *Professional services and other producer services*.

1.24 The manpower figures by education level in the context of MP2027 were compiled on the basis of the highest education level completed by a person in an education institution, rather than the highest level of education ever attended by a person in an education institution (regardless of whether that person has completed the relevant course). As an illustrative example, a worker who has completed an education of secondary six and who is still studying a part-time degree course would only be classified as a member of the labour force with education at *upper secondary* in MP2027, which adopts a definition of the highest education level **completed** by a person.

1.25 MP2027 required a host of statistics as input data. Among the various sources, two dedicated surveys (one MP-related Household Survey and one MP-related Establishment Survey) were conducted for generating relevant input parameters for the projection models of MP2027. Besides, these two surveys also collected information on the training needs of the working population and the desire to take up jobs of the non-working population. Relevant key findings are at **Appendix VIII**.

1.26 It should be noted that actual figures without rounding are used to compile the percentage shares and projected average annual rates of change in this report. There may be a slight discrepancy between the sum of individual figures and their corresponding totals as shown in the statistical tables in this report owing to rounding.

CHAPTER 2

Manpower Supply Projection

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Manpower Supply Projection

2.1 The manpower supply in the context of MP2027 refers to the labour force in Hong Kong, including the people in employment and those unemployed. In Hong Kong, a working person must be at least 15 years old. The manpower supply in Hong Kong is assumed to originate wholly from the population of ages 15 or over. Local manpower supply in MP2027 refers to the labour force excluding foreign domestic helpers (FDHs).

2.2 Generally speaking, the demographic factors conducive to an expansion in manpower supply include a growing population, a rising labour force participation rate and a population with a high proportion of young people (all these are the expansionary factors). Conversely, a decreasing population, a falling labour force participation rate and an ageing population usually have a dampening effect on manpower supply (i.e. the contraction factors). In reality, the expansionary and contraction factors can co-exist in an economy. For example, a growing population (an expansionary factor) can be associated with an ageing population (a contraction factor). The resultant manpower supply of an economy reflects the total combined effect of these factors.

2.3 As the growth and composition of our manpower supply is closely related to the demographic profile of our population, the statistics of population are also presented in this report, alongside the manpower statistics, wherever appropriate.

Overall Local Manpower Supply

2.4 Amidst the low fertility rate in Hong Kong, Hong Kong's population will age at a more rapid pace in the years to come. For instance, the share of working age population (i.e. those aged 15-64) hovered at around 70% in the past 20 years. However, with the baby boomers approaching their retirement age, this share is projected to fall to 63.0% in 2027 and 58.7% in 2037. The decline in the working age population of our economy hinders the growth in our manpower supply. At the same time, the share of population aged 65 or over, having risen from 10.6% in 1997 to 17.2%

in 2017, is projected to increase visibly further to 25.4% and 31.5% in 2027 and 2037 respectively (see **Table 2.1**).

Table 2.1: Population[@] by Broad Age Group in 1997 – 2037

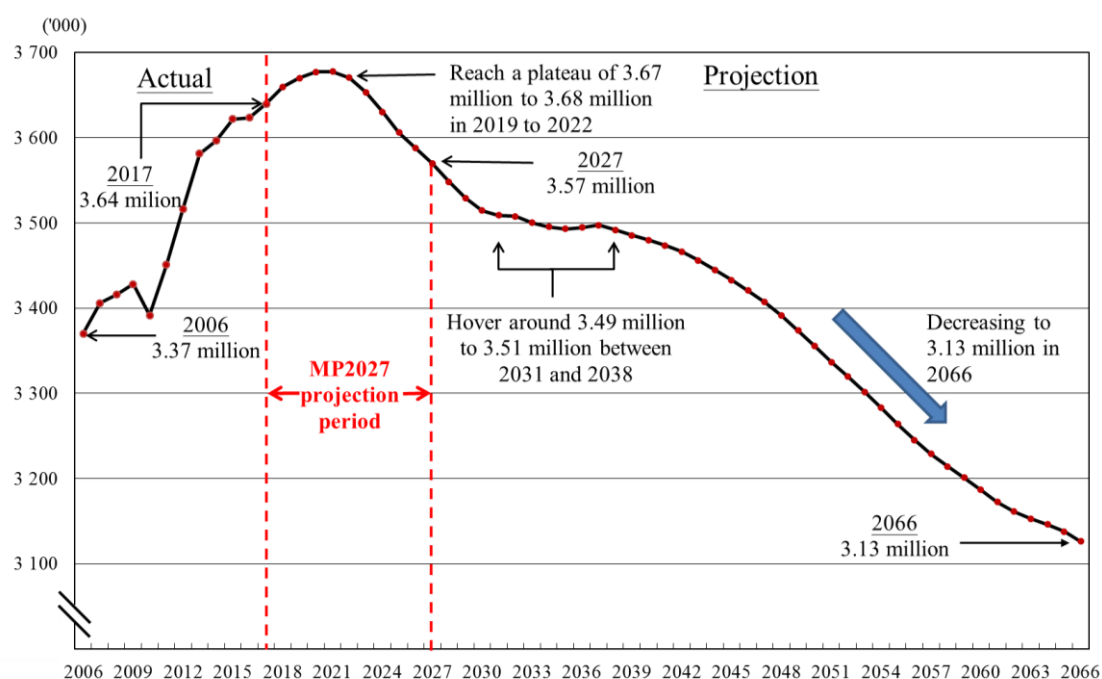
Year	Aged below 15		Aged 15 - 64		Aged 65 or over		Total	
	Number	% share	Number	% share	Number	% share	Number	% share
Actual								
1997	1 178 000	18.6	4 475 000	70.8	671 500	10.6	6 324 500	100.0
2002	1 074 000	16.5	4 653 600	71.5	777 100	11.9	6 504 700	100.0
2007	918 500	13.8	4 886 400	73.2	872 100	13.1	6 677 000	100.0
2012	812 900	11.9	5 053 000	73.8	979 700	14.3	6 845 600	100.0
2017	844 800	12.0	5 010 200	70.9	1 214 100	17.2	7 069 100	100.0
Projected								
2022	920 100	12.6	4 848 600	66.5	1 523 600	20.9	7 292 400	100.0
2027	865 500	11.6	4 692 500	63.0	1 890 800	25.4	7 448 800	100.0
2032	814 600	10.8	4 548 100	60.1	2 201 200	29.1	7 564 000	100.0
2037	751 000	9.8	4 487 600	58.7	2 405 900	31.5	7 644 500	100.0

@ Excluding foreign domestic helpers

Note: Individual figures may not add up to the totals due to rounding.

2.5 The local manpower supply (equivalent to the labour force excluding FDHs) is projected to increase from 3.64 million in 2017 to reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million, and then decrease to 3.57 million in 2027 (see **Chart 2.1**). In other words, the local manpower supply is projected to increase at an average annual rate of 0.2% for 2017 to 2022, and to decrease at an average annual rate of 0.6% for 2022 to 2027. It represents an average annual decreasing rate of 0.2% during 2017 to 2027 (see **Table 2.2**). Population ageing and low fertility rate are the two major factors contributing to the projected fall in manpower supply in the 10-year period.

Chart 2.1: Actual / Projected Labour Force[@], 2006 – 2066



[@] Excluding foreign domestic helpers

Sources: General Household Survey & Hong Kong Population Projections 2017-2066, Census and Statistics Department

Table 2.2: Local Manpower Supply[@], 2017 – 2027

Period	Beginning of the period	End of the period	Projected change	Projected average annual rate of change
2017 – 2022	3 639 800	3 670 700	+ 30 900	+ 0.2%
2022 – 2027	3 670 700	3 569 900	- 100 700	- 0.6%
2017 – 2027	3 639 800	3 569 900	- 69 800	- 0.2%

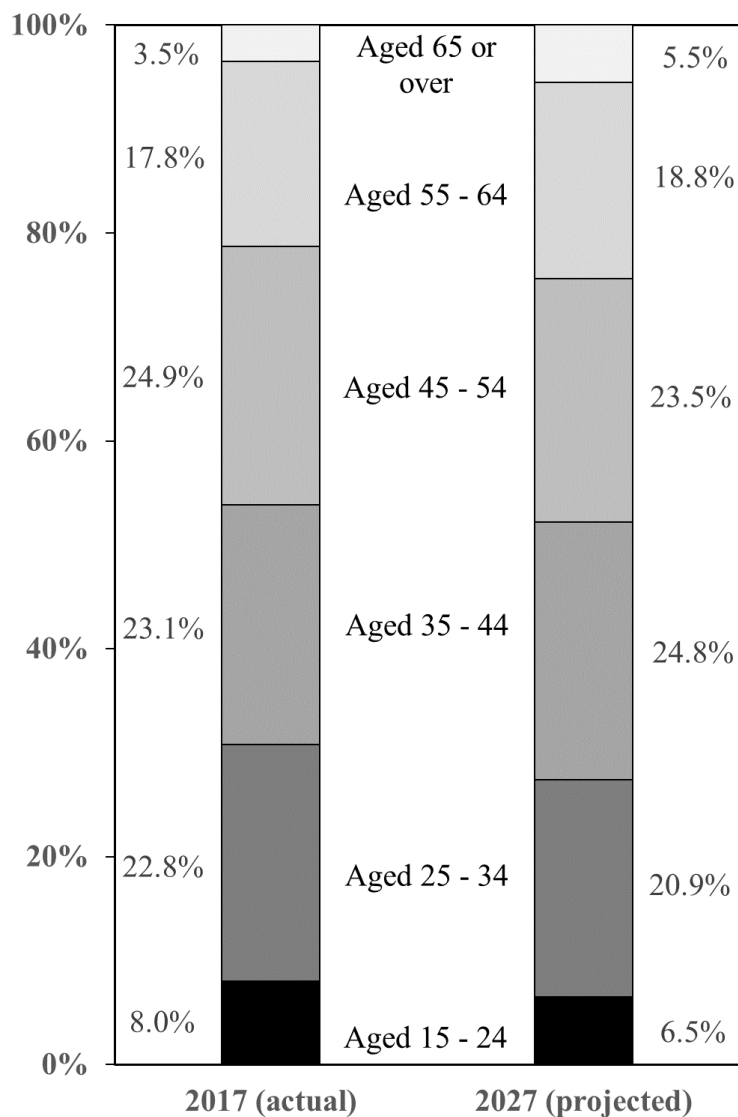
[@] Excluding foreign domestic helpers

Local Manpower Supply by Age

2.6 The local manpower of workforce aged 15 or over will be ageing along with increasing share of elders aged 65 or over. This will result in notable increases in the number and proportion of workers in the older age groups during the projection period (see **Chart 2.2**). For instance, the local manpower supply aged 55 or over is projected to increase significantly at an average annual growth rate of 1.2% from 775 200 in 2017 to 869 800 in 2027, which will constitute about 24.4% of the overall local manpower supply in 2027, as against 21.3% in 2017. On the other hand, the local manpower

supply of comparatively younger workers aged 15-54 is expected to shrink at an average annual rate of 0.6% from 2.86 million in 2017 to 2.70 million in 2027, with its share of the workforce decreasing from 78.7% to 75.6% during the same period. In particular, the decrease in the manpower supply in the age group 15 – 34 is expected to be more prominent, largely owing to the low fertility rate of our population.

Chart 2.2: Percentage Share of Local Manpower Supply[@] by Age Group in 2017 and 2027



@ Excluding foreign domestic helpers

2.7 The projected increase in the number and proportion of workers in the older age groups is one of the dominant features of the local manpower supply. Along with the ageing of our population, the overall labour force participation rate (LFPR) is expected to decrease from 59.1% in 2017 to 54.9% in 2027⁴. This is because more and more workers are expected to go into retirement relative to the number of new entrants to the labour market in future and the number of elders aged 65 or over in the population will increase remarkably, resulting in a smaller proportion of our population in the workforce.

2.8 Statistics of the local manpower supply by age group in 2017 and 2027 are set out in **Table 2.3**.

Table 2.3: Local Manpower Supply[@] and Labour Force Participation Rate[#] by Age Group in 2017 and 2027

Age group (years)	2017 (Actual)			2027 (Projected)			Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Local manpower supply [@]		LFPR [#]	Local manpower supply [@]		LFPR [#]		
	Number	% share		Number	% share			
15 – 24	290 500	8.0	39.0%	232 400	6.5	34.4%	- 58 200	- 2.2%
25 – 34	829 400	22.8	86.9%	744 600	20.9	89.2%	- 84 900	- 1.1%
35 – 44	839 700	23.1	82.1%	885 600	24.8	85.3%	+ 45 900	+ 0.5%
45 – 54	905 000	24.9	79.0%	837 700	23.5	81.4%	- 67 300	- 0.8%
55 – 64	648 700	17.8	57.2%	672 500	18.8	60.5%	+ 23 800	+ 0.4%
65+	126 500	3.5	11.0%	197 300	5.5	10.9%	+ 70 800	+ 4.5%
15–54	2 864 600	78.7	74.0%	2 700 200	75.6	75.5%	- 164 400	- 0.6%
55+	775 200	21.3	33.9%	869 800	24.4	29.7%	+ 94 600	+ 1.2%
Total	3 639 800	100.0	59.1%	3 569 900	100.0	54.9%	- 69 800	- 0.2%~

@ Excluding foreign domestic helpers

Labour force participation rate (LFPR) of the population in the respective age groups

~ The local manpower supply is projected to increase from 3.64 million in 2017 to reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million (i.e. to increase at an average annual rate of 0.2% for 2017 to 2022), and then decrease to 3.57 million in 2027 (i.e. to decrease at an average annual rate of 0.6% for 2022 to 2027). It represents an average annual decreasing rate of 0.2% during the entire projection period from 2017 to 2027.

Note: Individual figures may not add up to the totals due to rounding.

⁴ Labour force participation rate (LFPR) refers to the proportion of labour force as a percentage of the land-based non-institutional population aged 15 or over. It is a measure of the propensity of the persons of working age to be in the labour force. While the age-specific LFPR for persons aged between 25 and 64 will rise during 2017 to 2027, the number of elders aged 65 or over in the population will increase remarkably (by 676 700) during the same period. The much expanded elderly population will thus water down the overall LFPR.

Local Manpower Supply by Sex

2.9 The sex ratio of local manpower supply has been tilted towards the male workers over the past years (i.e. more male workers than female workers in the workforce). Nonetheless, the participation of the female population in the labour market has been picking up over the past decades, narrowing the gap between the two genders in the workforce.

2.10 The local female manpower supply is projected to grow slightly at an average annual rate of 0.2% from 1.65 million in 2017 to 1.69 million in 2027. During the same period, its share of the local workforce is anticipated to be edging up from 45.3% to 47.2%. The projected increase in female manpower supply is mainly attributable to a faster expansion of female population⁵ relative to the overall population, the uptrend of spinsterhood, the tendency of marriage postponement, and general improvement in education of the female population over the years. Besides, increased job opportunities and better income prospects (partly due to the implementation and upratings of the Statutory Minimum Wage) in recent years would also induce more people (including females) to enter or re-enter the labour market.

2.11 On the other hand, the local male manpower supply is expected to decrease at an average annual rate of 0.6% from 1.99 million in 2017 to 1.88 million in 2027. This is largely a result of low fertility rate coupled with a declining male LFPR due to more and more male workers going into retirement relative to the number of new male entrants to the labour market plus an ageing male population in the future. Its share of the total manpower supply is expected to decline from 54.7% in 2017 to 52.8% in 2027.

2.12 The trend of rising female manpower supply, alongside a declining male manpower supply, is expected to continue during the period from 2017 to 2027. Statistics of the local manpower supply by sex in 2017 and 2027 is set out in **Table 2.4**.

⁵ The female population is anticipated to expand at an average annual rate of 0.7%, as against 0.5% for the overall population and 0.3% for the male population (all excluding FDHs), during the projection period from 2017 to 2027.

Table 2.4: Local Manpower Supply[@] and Labour Force Participation Rate[@] by Sex in 2017 and 2027

Sex	2017 (Actual)			2027 (Projected)			Projected change from 2017 to 2027	Projected average annual rate of change (2017-2027)
	Local manpower supply [@]		LFPR [#]	Local manpower supply [@]		LFPR [#]		
	Number	% share		Number	% share			
Male	1 991 700	54.7	68.3%	1 884 500	52.8	62.6%	- 107 200	- 0.6%
Female	1 648 100	45.3	50.9%	1 685 400	47.2	48.3%	+ 37 300	+ 0.2%
Total	3 639 800	100.0	59.1%	3 569 900	100.0	54.9%	- 69 800	- 0.2% [~]

[@] Excluding foreign domestic helpers

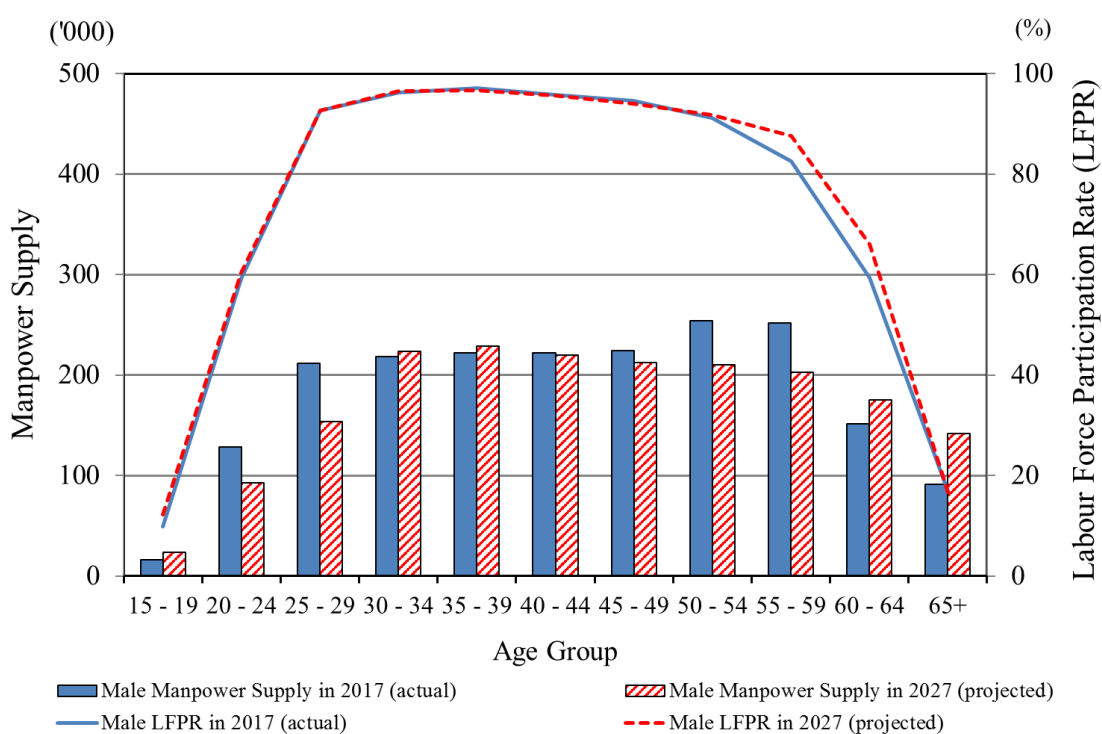
[#] Labour force participation rate (LFPR) of the population in the respective sex

[~] The local manpower supply is projected to increase from 3.64 million in 2017 to reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million (i.e. to increase at an average annual rate of 0.2% for 2017 to 2022), and then decrease to 3.57 million in 2027 (i.e. to decrease at an average annual rate of 0.6% for 2022 to 2027). It represents an average annual decreasing rate of 0.2% during the entire projection period from 2017 to 2027.

Note: Individual figures may not add up to the totals due to rounding.

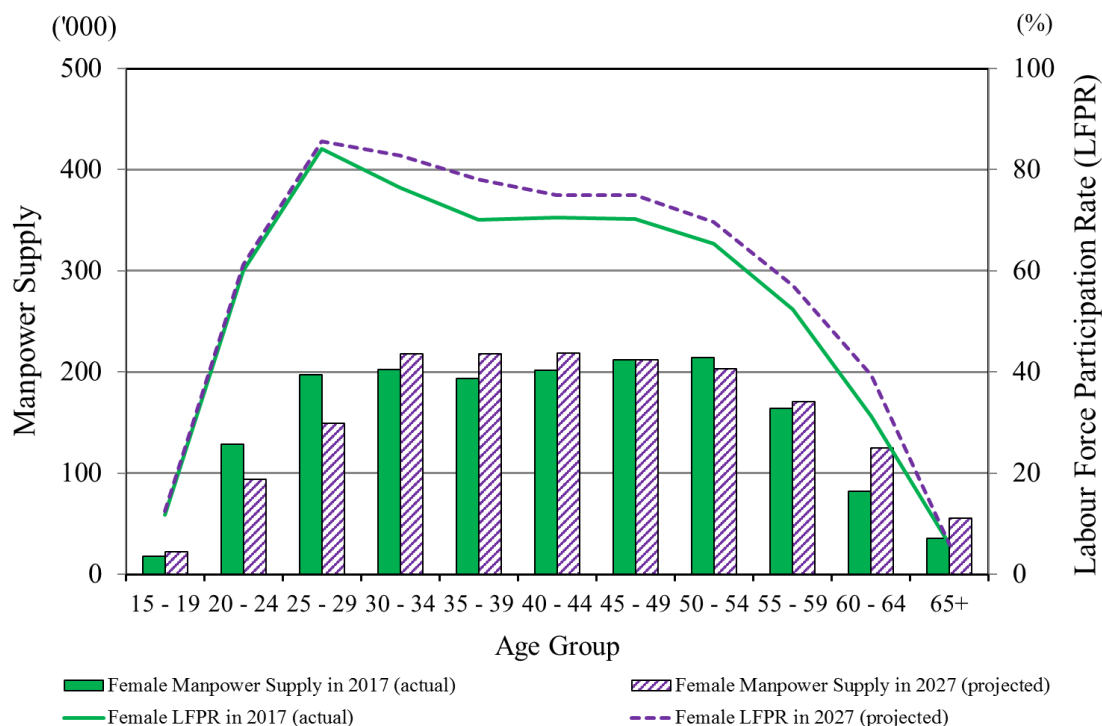
2.13 Both the male and female workforce are projected to be ageing during the projection period. The local male and female manpower supply and LFPRs by age group in 2017 and 2027 are presented in **Chart 2.3** and **Chart 2.4** respectively.

Chart 2.3: Local Male Manpower Supply[@] and Labour Force Participation Rate[@] by Age Group in 2017 and 2027



[@] Excluding foreign domestic helpers

Chart 2.4: Local Female Manpower Supply[@] and Labour Force Participation Rate[@] by Age Group in 2017 and 2027



[@] Excluding foreign domestic helpers

Local Manpower Supply by Education Level

Projected Education Profiles of the Overall Manpower Supply

2.14 The general education profile of our workforce is anticipated to improve further in the next decade, along with the abundant pathways available to the youth in pursuing higher education. The projected changes in the local manpower supply by education level are as follows –

- (a) *Postgraduate* level – it is projected that the local manpower supply with this education qualification will increase significantly at an average annual rate of 2.9% from 255 600 in 2017 to 339 900 in 2027. The proportion of this labour segment to the total local manpower supply is expected to rise from 7.0% in 2017 to 9.5% in 2027. There are more and more people taking up continuing education to upgrade themselves academically in light of their aspirations and interests. This explains why the local manpower supply at *postgraduate* level is projected to expand at a fast pace over the period;

- (b) *First degree* level – the local manpower supply with *first degree* qualifications is projected to grow considerably at an average annual rate of 1.8% from 888 600 in 2017 to 1 063 200 in 2027, along with the increasingly broader and more diversified access to degree level education. The share of this labour segment as a proportion of the local total manpower is expected to increase from 24.4% in 2017 to 29.8% in 2027;
- (c) *Sub-degree* level – the local manpower supply at *sub-degree* level is expected to expand at an average annual rate of 1.6% from 218 400 in 2017 to 255 900 in 2027. The anticipated considerable growth in the manpower with *sub-degree* qualifications is consistent with the parallel development of the subsidised and self-financing *sub-degree* education segment in recent years and onwards;
- (d) *Diploma* level – the local manpower supply at this education level is projected to remain largely stable at 116 700 in 2017 and 116 100 in 2027. Its share of the total local manpower supply will hover between 3.2% and 3.3% in the coming decade;
- (e) *Upper secondary* level – it is projected that local manpower supply with *upper secondary* education will diminish at an average annual rate of 0.7% from 1 282 000 in 2017 to 1 189 300 in 2027. The anticipated decrease in this labour segment is mainly attributable to two factors. First, a large number of workers with *upper secondary* education, who belong to the post-war baby boomer generation, are expected to go into retirement during the period from 2017 to 2027. It is broadly estimated that some 150 000 workers with these qualifications will retire during the projection period. Secondly, the majority of young people are expected to continue with their studies after completing secondary education, thus diminishing the replenishment of manpower supply at the *upper secondary* level; and
- (f) *Lower secondary and below* level – the local manpower supply at this level is projected to decrease significantly at an average annual rate of 3.7% from 878 600 in 2017 to 605 500 in 2027. Its share of the total local manpower supply is expected to decline sharply

from 24.1% to 17.0% during the same period. Similar to the manpower at *upper secondary* level, the projected shrinkage in the workforce with the qualifications of *lower secondary and below* is primarily due to the anticipated retirement of a great number of the workers with such qualifications during the projection period. Some 300 000 of workers with education of *lower secondary and below*, who are mainly post-war baby boomers, are expected to retire during the projection period. This will drive down the supply of workers with an education of *lower secondary and below*.

2.15 The local manpower supply by education level in 2017 and 2027 is set out in **Table 2.5** and **Chart 2.5**.

Table 2.5: Local Manpower Supply[@] by Education Level in 2017 and 2027

Education level	Actual local manpower supply [@] in 2017		Projected local manpower supply [@] in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017-2027)
	Number	% share	Number	% share		
Lower secondary and below	878 600	24.1	605 500	17.0	- 273 000 ##	- 3.7%
Upper secondary	1 282 000	35.2	1 189 300	33.3	- 92 700 ##	- 0.7%
Diploma	116 700	3.2	116 100	3.3	- 600	- 0.1%
Sub-degree	218 400	6.0	255 900	7.2	+ 37 500	+ 1.6%
First degree	888 600	24.4	1 063 200	29.8	+ 174 600	+ 1.8%
Postgraduate	255 600	7.0	339 900	9.5	+ 84 300	+ 2.9%
All levels	3 639 800	100.0	3 569 900	100.0	- 69 800	- 0.2%~

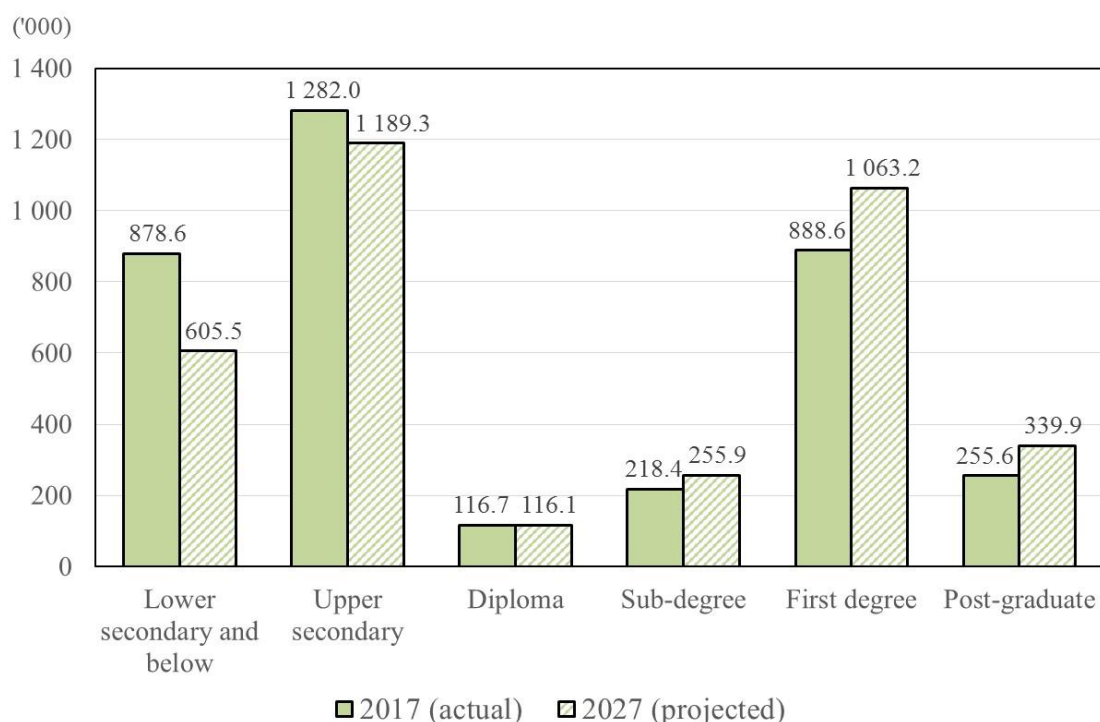
@ Excluding foreign domestic helpers

~ The local manpower supply is projected to increase from 3.64 million in 2017 to reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million (i.e. to increase at an average annual rate of 0.2% for 2017 to 2022), and then decrease to 3.57 million in 2027 (i.e. to decrease at an average annual rate of 0.6% for 2022 to 2027). It represents an average annual decreasing rate of 0.2% during the entire projection period from 2017 to 2027.

The projected decreases in the manpower supply at these two education levels reflect the net changes arising from the retiring post-war baby boomer generation versus the replenished supply with relevant qualifications during the period from 2017 to 2027.

Note: Individual figures may not add up to the totals due to rounding.

Chart 2.5: Local Manpower Supply[@] by Education Level in 2017 and 2027

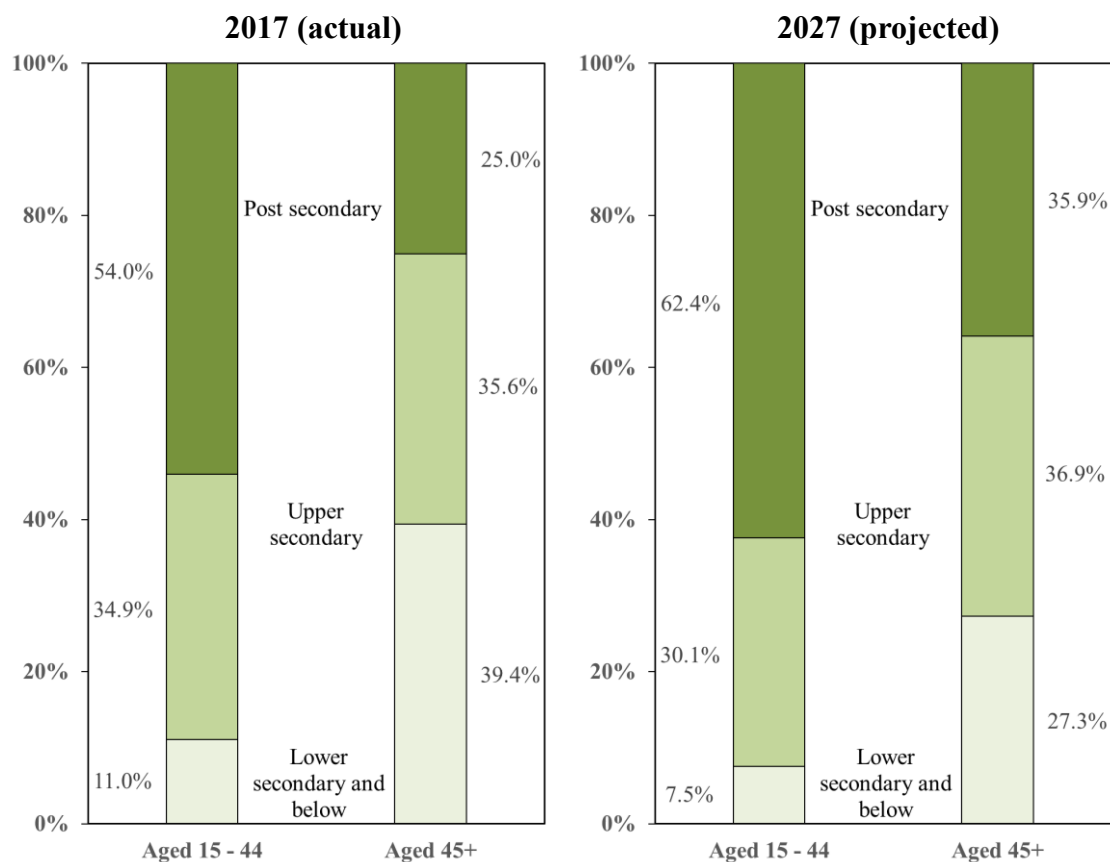


[@] Excluding foreign domestic helpers

Education Profile of Local Manpower Supply by Age

2.16 The younger workers, say, those under the age of 45, generally have better education qualifications than their older counterparts. For instance, in 2017, more than half of the workforce aged 15-44 had post-secondary qualifications (comprising *diploma, sub-degree, first degree and postgraduate*) as against one quarter of the workforce aged 45 or over with the same level of education. This trend is expected to continue during the projection period. In 2027, it is projected that some 62.4% of the workforce aged 15-44 will possess post-secondary qualifications, compared with 35.9% for the workforce aged 45 or over. A comparison of the education levels of the local manpower supply by broad age group in 2017 and 2027 are presented in **Chart 2.6**

Chart 2.6: Percentage Share of Local Manpower Supply[@] by Broad Education Level and Broad Age Group in 2017 and 2027



@ Excluding foreign domestic helpers

An Overview on Manpower Supply

2.17 The size of our workforce will reach a plateau in 2019 to 2022 at 3.67 million to 3.68 million and then decrease gradually afterwards for the rest of the projection period to 3.57 million in 2027. An ageing population and a low fertility rate will lower the future overall LFPR of our economy, which is anticipated to decrease from 59.1% in 2017 to 54.9% in 2027 in tandem with an increasing number of workers going into retirement relative to the number of new entrants to the labour market. Our workforce will be ageing with more and more workers in their mid-50's and beyond. There will be more female workers in our labour force in terms of proportion and number. We will have a better-educated workforce, with an increasing proportion of workers with post-secondary qualifications and a decreasing proportion of workers with an education of *upper secondary* and below.

CHAPTER 3

Manpower Requirement Projection

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Manpower Requirement Projection

3.1 In this Chapter, we assess the Manpower Requirement Projection (MRP) by economic sector up to 2027, with 2017 as the base year. Apart from the analyses covering various conventional economic sectors defined in accordance with the standard industrial classification adopted by the Census and Statistics Department (C&SD), which together make up the whole economy, we have also conducted analyses on the manpower requirements of some other industries that are of sound importance or having good potential to the long-term competitiveness and economic development of Hong Kong. These include the pillar industries comprising *Financial services; Trading and logistics; Professional services and other producer services; and Tourism*, and the selected industries covering *Information technology and information services; Innovation and technology industries; Cultural and creative industries; Environmental industries; and Testing and certification services*.

3.2 In addition to MRP by economic sector, analyses on MRP by occupation group and education level are also presented in this Chapter.

3.3 Manpower demand takes into account job vacancies. The actual manpower requirements of various sectors in the base year (i.e. 2017) were computed by adding job vacancies to the number of employed persons. Moreover, the projected manpower requirements presented in this report were compiled independent of the projected manpower supply with the assumption that manpower demand is not capped by manpower supply. Such a methodology framework is intended to fully reflect the potential job opportunities that may emerge in the labour market during the projection period. This concept of unconstrained manpower requirements⁶ is important in studying the findings on projected manpower resource balance, which is a measure to assess if the future manpower is in balance, and will be discussed in *Chapter 4*.

⁶ In reality, both the businesses and the labour market would respond dynamically and flexibly over time when manpower is in shortage.

Total Manpower Requirements

3.4 The total manpower requirements (excluding foreign domestic helpers) of our economy are projected to increase by 127 000 from 3.61 million in 2017 to 3.74 million in 2027, corresponding to an average annual growth rate of 0.3% during the projection period.

3.5 The total manpower requirements are the aggregate of the manpower requirements of the individual economic sectors in Hong Kong. Different sectors are expected to have different trends of manpower requirements during the projection period from 2017 to 2027, along with the development of our economy. The projected manpower requirements of individual economic sectors and sub-sectors are presented in the ensuing paragraphs.

Manpower Requirements by Economic Sector

Agriculture, Fishing and Quarrying

3.6 The *Agriculture, fishing and quarrying* sector has been a small sector in Hong Kong in the past decades. Over the years, the number of workers engaged in the sector has been very small relative to those of other sectors and were on a general downtrend. With the on-going modernisation of the industry coupled with further urbanisation of Hong Kong, there will be fewer and fewer locations suitable for farming and fishing purposes. The manpower requirements of this sector in 2017 were 3 900 and are expected to decrease at an average annual rate of 6.8% to 1 900 in 2027.

Manufacturing

3.7 The number of workers in the *Manufacturing* sector decreased considerably over the past few decades, in tandem with the relocation of many local manufacturing bases to places outside Hong Kong. The share of *Manufacturing* workers to the total number of employed persons declined from some 38% in 1982 to 7% in 2000 and further to below 3% in 2017, along with the changing economic structure of Hong Kong over the corresponding period. With the advent of re-industrialisation, the Hong

Kong manufacturing industry will continue its development towards high-end and high value-added product offerings with reduced manpower needs. The manpower requirements of the *Manufacturing* sector are expected to decrease at an average annual rate of 2.9% from 97 200 in 2017 to 72 700 in 2027.

Electricity, Gas, Water and Waste Management

3.8 The demand for amounts of electricity, gas and water provided by the local public utility companies are largely driven by population growth, new housing development and economic growth. The derived demand resulting from these factors are expected to increase by different extents in the next decade. Moreover, the increasing awareness of environmental protection among the general public and the related initiatives taken by the Government and other stakeholders to reduce waste at source through various policies and legislation are expected to drive the development of the *Waste management* industry. It is projected that the manpower requirements of *Electricity, gas, water and waste management* as a whole will increase at an average annual rate of 0.3% from 16 100 in 2017 to 16 500 in 2027.

Construction

3.9 The *Construction* sector is expected to remain keen along with the several large-scale infrastructure projects in the pipeline, such as the Three-Runway System of the Hong Kong International Airport, the ten-year hospital development plan, new railway projects and the public housing development plan. The demand for construction workers is expected to persist in conjunction with the anticipated vibrant activities relating to construction and building works in the next few years. On the other hand, the Government is promoting the adoption of technology and innovative construction methods to improve productivity and cost-effectiveness in the sector, with a view to reducing the manpower required to complete the same task. As a result, the manpower requirements of the sector is projected to increase at an average annual rate of 0.5% from 348 600 in 2017 to 367 400 in 2027.

Import, Export, Wholesale and Retail Trades

3.10 In 2017, the *Import, export, wholesale and retail trades* sector was the largest economic sector in Hong Kong in terms of number of workers engaged, and accounted for about 24.5% of the total manpower needs in Hong Kong. The sector comprises three sub-sectors, namely (i) *Import and export trade*, (ii) *Wholesale* and (iii) *Retail trade*. In 2017, Hong Kong's total exports of goods and services grew by 6.5% and 2.9% in real terms respectively. Nonetheless, the US-Mainland trade tensions and other external uncertainties as well as competition from the neighbouring economies may weigh on the outlook of Hong Kong's external trade. Meanwhile, the *Wholesale* sub-sector faces great challenges with the popularity of e-commerce and direct online trading between manufacturers and retailers which both reduce the demand for intermediary wholesale business. On the other hand, the *Retail trade* grew in 2017, supported by the increase in number of tourists in the year. Its demand for workers is expected to grow slightly in the years ahead.

3.11 The manpower requirements of the sector as a whole are projected to decline at an average annual rate of 0.6% from 884 000 in 2017 to 830 600 in 2027. Of the three sub-sectors, both the *Import and export trade* and the *Wholesale* sub-sectors are projected to downsize at average annual rates of 1.2% and 1.4% respectively, whilst the *Retail trade* is projected to grow at an average annual rate of 0.3%, in terms of manpower requirements during the period from 2017 to 2027. The manpower requirements of the three sub-sectors in 2017 and 2027 are set out in **Table 3.1**.

Table 3.1: Manpower Requirements of the Import, Export, Wholesale and Retail Trades Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Import and export trade	493 600	438 900	- 54 700	- 1.2%
Wholesale	60 700	52 600	- 8 100	- 1.4%
Retail trade	329 700	339 100	+ 9 400	+ 0.3%
Whole sector	884 000	830 600	- 53 400	- 0.6%

Note: Individual figures may not add up to the totals due to rounding.

Accommodation and Food Services

3.12 The main business of the *Accommodation* industry is closely related to inbound tourism. Hong Kong has invested heavily to attract visitors from different source markets around the world and to nurture diversified tourism products. The completion of major transport infrastructure projects in Hong Kong in recent years, in particular the road and rail crossings with the Mainland, is expected to provide impetus to the tourism industry. This will also benefit the *Food services* industry. It is projected that the manpower requirements of the *Accommodation and food services* sector as a whole will grow at an average annual rate of 0.3% from 288 500 in 2017 to 298 500 in 2027.

3.13 Within this sector, it is anticipated that the manpower requirements of the *Accommodation* industry will grow faster than those of the *Food services* industry (at an average annual rate of 0.7% and 0.3% respectively) during the period from 2017 to 2027. The manpower requirements of these two sub-sectors in 2017 and 2027 are presented in **Table 3.2**.

Table 3.2: Manpower Requirements of the Accommodation and Food Services Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Accommodation	45 800	48 900	+ 3 100	+ 0.7%
Food services	242 700	249 600	+ 6 900	+ 0.3%
Whole sector	288 500	298 500	+ 10 000	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Transportation, Storage, Postal and Courier Services

3.14 The *Transportation* industry recorded a mixed performance in recent years. The commencement of the operation of two important cross-boundary transport infrastructure, namely the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link and the Hong Kong-Zhuhai-Macao Bridge, spurs growing land-based cross-boundary passenger trips at the expense of water-borne passenger trips. Looking ahead, the

enhanced connectivity between Hong Kong and the Mainland through the railway system would significantly improve the efficiency in the flow of people and goods within the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) resulting in lessened manpower needs. Meanwhile, the rising competition from neighbouring ports in the Pearl River Delta Region which share the same cargo source in southern China as Hong Kong Port would likely cause reduction in direct cargo shipments in Hong Kong and hence the requirement for relevant manpower support. The increasingly widespread application of new technologies such as automation of port operations may also contribute to the drop in manpower demand in the water freight transport segment. On the other hand, there has been ongoing shift towards the provision of high value-added services and handling of high-value and time sensitive goods which are more commonly shipped by air transport instead of sea transport. The increasing demands of the population for leisure and business travel coupled with Hong Kong's strategic geographical location as an international aviation hub with excellent connectivity shall further boost the development of air transport industry and the corresponding manpower requirements.

3.15 The *Warehousing and other transportation support services* is expected to grow on the back of the booming growth of e-commerce worldwide and thus an ever-increasing demand for cross-border logistics and storage services. With the application of innovation and technology and automation measures in the *Postal and courier* business, it is anticipated that the processing and delivery of documents and goods would enhance in efficiency without significant additional manpower requirements.

3.16 The manpower requirements of the *Transportation, storage, postal and courier services* sector as a whole are projected to decline at an average annual rate of 0.2% from 319 600 in 2017 to 313 800 in 2027. For the five sub-sectors, *Land transport* and *Water transport* are projected to decrease at average annual rates of 0.6% and 2.6% respectively, whilst *Air transport*, *Warehousing and other transportation support services* as well as *Postal and courier* are projected to grow at average annual rates of 2.0%, 1.6% and 0.1% respectively during the same period. **Table 3.3** sets out the manpower requirements of the various sub-sectors of the *Transportation, storage, postal and courier services* sector in 2017 and 2027.

Table 3.3: Manpower Requirements of the Transportation, Storage, Postal and Courier Services Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Land transport and related services	174 700	164 400	- 10 300	- 0.6%
Water transport and related services	50 400	38 500	- 11 800	- 2.6%
Air transport and related services	64 400	78 800	+ 14 400	+ 2.0%
Warehousing and other transportation support services	10 600	12 400	+ 1 800	+ 1.6%
Postal and courier	19 500	19 600	+ 200	+ 0.1%
Whole sector	319 600	313 800	- 5 700	- 0.2%

Note: Individual figures may not add up to the totals due to rounding.

Information and Communications

3.17 Hong Kong has made great strides in driving the development of the *Information and communications* sector over the years. Our *Telecommunications* industry is one of the most sophisticated and successful markets in the world. The rolling-out of the fifth generation mobile communications technology (5G) presents new opportunities for Hong Kong to further excel its telecommunication business. The infrastructure works of developing the Lok Ma Chau Loop into the Hong Kong-Shenzhen Innovation and Technology Park as well as the Data Technology Hub at Tseung Kwan O, for instance, will further help shape the future of Hong Kong as a renowned information and communication technology hub and an excellent location for high-end data centres. With the various incentives and strong policy support such as the publication of the *Smart City Blueprint for Hong Kong* in December 2017, it is anticipated that the sub-sectors of *Telecommunication activities* and *Software publishing and information technology related services* will continue its development in the years ahead (with their manpower requirements projected to grow at average annual rates of 1.6% and 2.5% respectively during the period from 2017 to 2027). On the other hand, owing to the continuous shrinkage of the print media and

increasing automation and use of advanced technology in the printing industry, the related manpower demands of the *Miscellaneous activities related to information and communications* sub-sector is expected to fall (at an average annual rate of 0.7% during the period from 2017 to 2027). The manpower requirements of the *Information and communications* sector as a whole were about 115 800 in 2017, and are projected to grow at an average annual rate of 1.2% to 130 700 in 2027.

3.18 The manpower requirements of various sub-sectors in the *Information and communications* sector in 2017 and 2027 are presented in **Table 3.4**.

Table 3.4: Manpower Requirements of the Information and Communications Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Telecommunication activities	21 000	24 500	+ 3 600	+ 1.6%
Software publishing and information technology related services	51 300	65 500	+ 14 200	+ 2.5%
Miscellaneous activities related to information and communications	43 500	40 700	- 2 800	- 0.7%
Whole sector	115 800	130 700	+ 15 000	+ 1.2%

Note: Individual figures may not add up to the totals due to rounding.

Financial Services

3.19 Hong Kong is a major international financial centre. The *Financial services* sector contributed some 18.9% of GDP in 2017. Hong Kong continues to strengthen and consolidate its position as an international financial centre by developing into a global centre for capital formation, asset and wealth management and offshore Renminbi (RMB) business. With the diversification of investment channels and financial products and improvement of the market infrastructure over the years, the *Financial services* sector remains highly competitive and efficient at the international

level. For instance, Hong Kong was the third largest stock market in Asia in terms of market capitalisation as at end-2017, and is the world's largest centre for conducting offshore RMB financing activities. The Government is also adopting multi-pronged strategies to further reinforce Hong Kong's leading international financial centre role by providing extensive cross-border investment channels, and developing Hong Kong into a full-fledged fund service centre. This helps attract Mainland and overseas companies and investors to use Hong Kong as a platform for raising funds and developing regional business arising from the new opportunities of the Belt and Road Initiative (B&R Initiative) and GBA development. Our ageing population provides ample opportunities for the insurance and reinsurance business to develop new insurance products focusing on retirement protection and health insurance in our economy. Together with the development of Financial Technologies (Fintech) and the increasing needs for regulatory and compliance services in the *Financial services* sector, it is projected that the manpower requirements of the sector will continue to expand at an average annual rate of 1.1% from 264 000 in 2017 to 294 600 in 2027.

3.20 The manpower requirements of the three sub-sectors concerned viz. *Banking*; *Financial institutions (other than banks and insurance)*; and *Insurance*, are projected to grow at average annual rates of 0.7%, 1.3% and 1.5% respectively during the same period, as set out in **Table 3.5**.

Table 3.5: Manpower Requirements of the Financial Services Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Banking	105 600	113 200	+ 7 500	+ 0.7%
Financial institutions (other than banks and insurance)	91 400	103 700	+ 12 200	+ 1.3%
Insurance	67 000	77 700	+ 10 700	+ 1.5%
Whole sector	264 000	294 600	+ 30 500	+ 1.1%

Note: Individual figures may not add up to the totals due to rounding.

Real Estate

3.21 The sector mainly covers the buying, selling and renting of real estate, property management and real estate development. According to the latest projections of the 2018 Long Term Housing Strategy Annual Progress Report, the total housing supply target for the coming ten-year period is 450 000 units. The Government has formulated a number of measures and plans to increase land and flat supply in the short, medium and long terms for meeting the socio-economic needs of Hong Kong as well as facilitating stable development of the property market. The real estate development activities and demand for property management services are anticipated to be on the rise along with the increasing land and flat supply during the projection period, driving the growth of the *Real estate* sector. The manpower requirements of this sector were 140 000 in 2017 and are projected to grow at an average annual rate of 0.8% to reach 152 200 in 2027.

Professional and Business Services

3.22 The *Professional and business services* sector comprises a host of service industries including legal, accounting, auditing, engineering, business management and consultancy, design, advertising, architecture, surveying, convention and exhibition services, and miscellaneous business services. Well-known as a leading business hub with a pool of highly qualified professionals, Hong Kong shall be able to grasp the increasing business opportunities arising from the B&R Initiative and GBA development in the future. This new momentum will call for a growing demand for our professional and business services. The *Professional and business services* sector's manpower requirements were 402 700 in 2017, and are expected to grow at an average annual rate of 1.4% to 460 900 in 2027.

3.23 The manpower requirements of the various sub-sectors within *Professional and business services* in 2017 and 2027 are set out in **Table 3.6**.

Table 3.6: Manpower Requirements of the Professional and Business Services Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Legal services	23 300	25 200	+ 1 900	+ 0.8%
Accounting, auditing and bookkeeping services	30 700	32 800	+ 2 100	+ 0.7%
Business management and consultancy services, and engineering and technical services not related to construction and real estate activities	61 200	81 300	+ 20 100	+ 2.9%
Design, advertising and related services	31 000	35 800	+ 4 900	+ 1.5%
Architectural, surveying and engineering services related to real estate and construction	28 900	31 700	+ 2 800	+ 0.9%
Miscellaneous professional and business services	227 600	254 100	+ 26 500	+ 1.1%
Whole sector	402 700	460 900	+ 58 200	+ 1.4%

Note: Individual figures may not add up to the totals due to rounding.

Social and Personal Services

3.24 The sector of *Social and personal services* covers a wide spectrum of economic activities, including healthcare services, education, social work, nursing homes, public administration, arts, entertainment and recreation. Hong Kong has a robust and reliable healthcare system. Hong Kong enjoys a sound and highly efficient public healthcare system and the Government will continue to improve our public healthcare services with enhanced medical hardware facilities and more healthcare personnel to cope with the anticipated increasing demand arising from the ageing population. On education, the Government has allocated considerable resources and will continue to do so with a view to providing our youth with abundant pathways to various education and vocational programmes and a variety of life-wide learning opportunities. On the cultural front, the Government and relevant organisations will continue to provide a conducive environment for the

development of cultural and recreation activities in Hong Kong, such as implementing various cultural hardware projects including the Xiqu Centre, the M+ Museum and the Lyric Theatre Complex in the West Kowloon Cultural District and the Kai Tak Sports Park Project, etc.

3.25 In 2017, the *Social and personal services* sector was the second largest in terms of manpower needs and accounted for 20.3% of the total manpower requirements of the whole economy. It is projected that the manpower requirements of the sector as a whole will increase at an average annual rate of 0.9% from 732 200 in 2017 to 799 700 in 2027.

3.26 The manpower requirements of the three sub-sectors, viz. *Human health activities*; *Nursing homes, residential care activities and social work activities without accommodation for the elderly and persons with disabilities*; and *Other social and personal services* are projected to grow at average annual rates of 2.9%, 2.7% and 0.1% respectively during the period, as presented in **Table 3.7**. The *Human health activities* sub-sector covers the medical activities in both the private and public sectors, such as hospitals, the general private medical and dental practices. The sub-sector of *Nursing homes, residential care activities and social work activities without accommodation for the elderly and persons with disabilities* mainly includes elderly care services and rehabilitation services in both nursing homes and the community. The *Other social and personal services* sub-sector mainly covers activities of education, arts, entertainment and recreation, social work activities for childcare and youth, and public administration.

Table 3.7: Manpower Requirements of the Social and Personal Services Sector and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Human health activities	138 000	183 800	+ 45 800	+ 2.9%
Nursing homes, residential care activities and social work activities without accommodation for the elderly and persons with disabilities	43 500	56 900	+ 13 400	+ 2.7%
Other social and personal services	550 700	559 000	+ 8 200	+ 0.1%
Whole sector	732 200	799 700	+ 67 400	+ 0.9%

Note: Individual figures may not add up to the totals due to rounding.

Summary of Manpower Requirements by Economic Sector

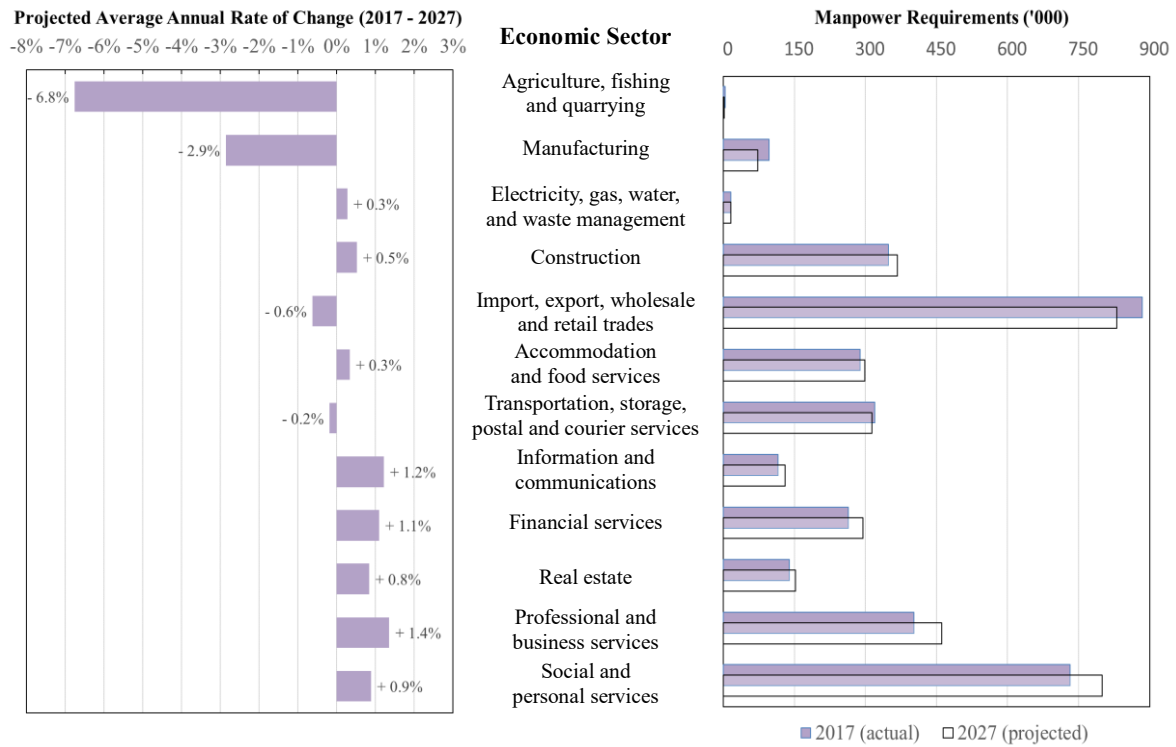
3.27 In gist, it is projected that the faster growing economic sectors (i.e. those with the projected growth rate faster than that of the overall economy) in terms of manpower requirements during the period from 2017 to 2027 will be *Professional and business services* (at an average annual growth rate of 1.4%); *Information and communications* (1.2%); *Financial services* (1.1%); *Social and personal services* (0.9%); *Real estate* (0.8%); and *Construction* (0.5%).

3.28 The sectors anticipated to diminish in manpower requirements during the period from 2017 to 2027 will be *Agriculture, fishing and quarrying* (at an average annual decreasing rate of 6.8%); *Manufacturing* (2.9%); *Import, export, wholesale and retail trades* (0.6%); and *Transportation, storage, postal and courier services* (0.2%).

3.29 In terms of manpower requirements, *Import, export, wholesale and retail trades* and *Social and personal services* were the two largest sectors in 2017 and are expected to remain so in 2027.

3.30 The manpower requirements of various economic sectors in 2017 and 2027 and the corresponding projected average annual rates of change are shown in **Chart 3.1**.

Chart 3.1: Manpower Requirements and Average Annual Rate of Change by Economic Sector in 2017 and 2027



3.31 Various sub-sectors are projected to grow considerably in terms of manpower requirements, with the average annual growth rates of 2.0% or over during the same period. They are *Human health activities* (increase at an average annual rate of 2.9%); *Business management and consultancy services, and engineering and technical services not related to construction and real estate activities* (2.9%); *Nursing homes, residential care activities and social work activities without accommodation for the elderly and persons with disabilities* (2.7%); *Software publishing and information technology related services* (2.5%); and *Air transport and related services* (2.0%).

3.32 **Table 3.8** shows a summary of the manpower requirements of various economic sectors and sub-sectors in 2017 and 2027.

Table 3.8: Manpower Requirements by Economic Sector and Sub-sector in 2017 and 2027

Economic sector / Sub-sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	3 900	0.1	1 900	0.1	- 2 000	- 6.8%
Manufacturing	97 200	2.7	72 700	1.9	- 24 500	- 2.9%
Electricity, gas, water and waste management	16 100	0.4	16 500	0.4	+ 500	+ 0.3%
Construction	348 600	9.6	367 400	9.8	+ 18 800	+ 0.5%
Import, export, wholesale and retail trades	884 000	24.5	830 600	22.2	- 53 400	- 0.6%
– <i>Import and export trade</i>	<i>493 600</i>	<i>13.7</i>	<i>438 900</i>	<i>11.7</i>	<i>- 54 700</i>	<i>- 1.2%</i>
– <i>Wholesale</i>	<i>60 700</i>	<i>1.7</i>	<i>52 600</i>	<i>1.4</i>	<i>- 8 100</i>	<i>- 1.4%</i>
– <i>Retail trade</i>	<i>329 700</i>	<i>9.1</i>	<i>339 100</i>	<i>9.1</i>	<i>+ 9 400</i>	<i>+ 0.3%</i>
Accommodation and food services	288 500	8.0	298 500	8.0	+ 10 000	+ 0.3%
– <i>Accommodation</i>	<i>45 800</i>	<i>1.3</i>	<i>48 900</i>	<i>1.3</i>	<i>+ 3 100</i>	<i>+ 0.7%</i>
– <i>Food services</i>	<i>242 700</i>	<i>6.7</i>	<i>249 600</i>	<i>6.7</i>	<i>+ 6 900</i>	<i>+ 0.3%</i>
Transportation, storage, postal and courier services	319 600	8.8	313 800	8.4	- 5 700	- 0.2%
– <i>Land transport and related services</i>	<i>174 700</i>	<i>4.8</i>	<i>164 400</i>	<i>4.4</i>	<i>- 10 300</i>	<i>- 0.6%</i>
– <i>Water transport and related services</i>	<i>50 400</i>	<i>1.4</i>	<i>38 500</i>	<i>1.0</i>	<i>- 11 800</i>	<i>- 2.6%</i>
– <i>Air transport and related services</i>	<i>64 400</i>	<i>1.8</i>	<i>78 800</i>	<i>2.1</i>	<i>+ 14 400</i>	<i>+ 2.0%</i>
– <i>Warehousing and other transportation support services</i>	<i>10 600</i>	<i>0.3</i>	<i>12 400</i>	<i>0.3</i>	<i>+ 1 800</i>	<i>+ 1.6%</i>
– <i>Postal and courier</i>	<i>19 500</i>	<i>0.5</i>	<i>19 600</i>	<i>0.5</i>	<i>+ 200</i>	<i>+ 0.1%</i>
Information and communications	115 800	3.2	130 700	3.5	+ 15 000	+ 1.2%
– <i>Telecommunication activities</i>	<i>21 000</i>	<i>0.6</i>	<i>24 500</i>	<i>0.7</i>	<i>+ 3 600</i>	<i>+ 1.6%</i>
– <i>Software publishing and information technology related services</i>	<i>51 300</i>	<i>1.4</i>	<i>65 500</i>	<i>1.8</i>	<i>+ 14 200</i>	<i>+ 2.5%</i>
– <i>Miscellaneous activities related to information and communications</i>	<i>43 500</i>	<i>1.2</i>	<i>40 700</i>	<i>1.1</i>	<i>- 2 800</i>	<i>- 0.7%</i>
Financial services	264 000	7.3	294 600	7.9	+ 30 500	+ 1.1%
– <i>Banking</i>	<i>105 600</i>	<i>2.9</i>	<i>113 200</i>	<i>3.0</i>	<i>+ 7 500</i>	<i>+ 0.7%</i>
– <i>Financial institutions (other than banks and insurance)</i>	<i>91 400</i>	<i>2.5</i>	<i>103 700</i>	<i>2.8</i>	<i>+ 12 200</i>	<i>+ 1.3%</i>
– <i>Insurance</i>	<i>67 000</i>	<i>1.9</i>	<i>77 700</i>	<i>2.1</i>	<i>+ 10 700</i>	<i>+ 1.5%</i>

Table 3.8: Manpower Requirements by Economic Sector and Sub-sector in 2017 and 2027 (cont'd)

Economic sector / Sub-sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Real estate	140 000	3.9	152 200	4.1	+ 12 200	+ 0.8%
Professional and business services	402 700	11.1	460 900	12.3	+ 58 200	+ 1.4%
– <i>Legal services</i>	23 300	0.6	25 200	0.7	+ 1 900	+ 0.8%
– <i>Accounting, auditing and bookkeeping services</i>	30 700	0.8	32 800	0.9	+ 2 100	+ 0.7%
– <i>Business management and consultancy services, and engineering and technical services not related to construction and real estate activities</i>	61 200	1.7	81 300	2.2	+ 20 100	+ 2.9%
– <i>Design, advertising and related services</i>	31 000	0.9	35 800	1.0	+ 4 900	+ 1.5%
– <i>Architectural, surveying and engineering services related to real estate and construction</i>	28 900	0.8	31 700	0.8	+ 2 800	+ 0.9%
– <i>Miscellaneous professional and business services</i>	227 600	6.3	254 100	6.8	+ 26 500	+ 1.1%
Social and personal services	732 200	20.3	799 700	21.4	+ 67 400	+ 0.9%
– <i>Human health activities</i>	138 000	3.8	183 800	4.9	+ 45 800	+ 2.9%
– <i>Nursing homes, residential care activities and social work activities without accommodation for the elderly and persons with disabilities</i>	43 500	1.2	56 900	1.5	+ 13 400	+ 2.7%
– <i>Other social and personal services</i>	550 700	15.2	559 000	14.9	+ 8 200	+ 0.1%
Total	3 612 600	100.0	3 739 600	100.0	+ 127 000	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Manpower Requirements of the Pillar Industries

3.33 The four pillar industries are of paramount importance to Hong Kong's economic development. They are *Financial services; Trading and logistics; Professional services and other producer services; and Tourism*. These industries have been a powerful driving force behind Hong Kong's economic growth and provided significant contributions to our GDP. In 2017, about half of the total manpower requirements were attributed to these industries. They cut across various conventional economic sectors

discussed earlier in this chapter and there exists some degree of overlapping between the economic sectors and the pillar industries in terms of coverage.

Financial Services

3.34 Being a mature international financial centre, Hong Kong is characterised by its highly open and professional financial market, sound financial regulatory framework, the rule of law as well as free flow of information and capital. Capitalising on the opportunities arising from the opening up of the Mainland's financial market, Hong Kong could further enhance its renowned status for fund raising by means of Initial Public Offering and its position as an international asset and wealth management centre. Furthermore, the Government has adopted a multi-pronged approach in facilitating the development of financial technologies, giving a fresh impetus to the *Financial services* sector as a whole. The manpower requirements of the sector are projected to increase at an average annual rate of 1.1% from 264 000 in 2017 to 294 600 in 2027.

Trading and Logistics

3.35 *Trading and logistics* industry is the largest of the four pillar industries in terms of GDP contribution and manpower requirements. In 2017, the sector accounted for 21.5% of overall GDP and its manpower requirements reached 739 200. It comprises *Import and export trade*; *Wholesale*; *Freight transportation* (land, water and air); *Warehousing and storage*; and *Postal and courier* activities. In recent years, the *Trading and logistics* industry faced a mix of positive and negative developments. By comparison, with Hong Kong's prime geographic location in the global aviation network together with the efficient and competitive Hong Kong International Airport, air freight throughput rose over the years and the rising trend is expected to continue in the coming years. The major challenges included the slowdown in regional trade, the declining trend in container throughput at the Hong Kong Port and the intense competition from the neighbouring economies for logistics business. The popularity of e-commerce and direct online trading between manufacturers and retailers reduce the demand for intermediary wholesale business on one hand, yet create increasing need for storage and delivery services. Looking ahead, the US-Mainland trade tensions and other external uncertainties as well as

keen competition in the region may weigh on the outlook of Hong Kong's external trade.

3.36 It is projected that the manpower requirements of *Trading and logistics* will decrease at an average annual rate of 1.0% from 739 200 in 2017 to 669 600 in 2027. The manpower requirements of various sub-sectors of *Trading and logistics* in 2017 and 2027 are set out in **Table 3.9**.

Table 3.9: Manpower Requirements of the Trading and Logistics and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Import and export trade	493 600	438 900	- 54 700	- 1.2%
Wholesale	60 700	52 600	- 8 100	- 1.4%
Freight transportation	156 800	147 600	- 9 300	- 0.6%
Warehousing and storage	8 600	10 900	+ 2 300	+ 2.4%
Postal and courier	19 500	19 600	+ 200	+ 0.1%
Whole sector	739 200	669 600	- 69 600	- 1.0%

Note: Individual figures may not add up to the totals due to rounding.

Professional Services and Other Producer Services

3.37 The *Professional services and other producer services* industry⁷ encompasses a wide range of economic activities, including software publishing and information technology related services; legal services;

⁷ It covers a wide spectrum of business activities including *Software publishing and information technology related services; Legal services; Accounting, auditing and bookkeeping services; Business management and consultancy services, and engineering and technical services not related to construction and real estate activities; Design, advertising and related services; Architectural, surveying and engineering services related to real estate and construction; and Other producer services* (such as retail trade, food and beverage services, accommodation services, transport, telecommunications, real estate, machinery and equipment rental services, miscellaneous business services, various social services and various personal services, yet pertaining only to that segment of services provided to companies in the local economy rather than to local individuals as final consumers). There is difference between the *Professional services and other producer services* sector under the pillar industries and the *Professional and business services* presented in Tables 3.6 and 3.8. For instance, the *Professional services and other producer services* sector under the pillar industries includes the *Software publishing and information technology related services* industry, which is not covered in *Professional and business services* in Tables 3.6 and 3.8.

accounting and auditing services; engineering, business management and consultancy services; design and advertising services; architectural and surveying services; and convention and exhibition services. These services have been growing considerably, along with Hong Kong's development into a major global business hub. The B&R Initiative and enhanced connectivity within the GBA upon the operation of the Hong Kong-Zhuhai-Macao Bridge also add new momentum to the sector with vast business opportunities in gaining greater access to the Mainland and international markets, promoting the development of the industry. These professional services are expected to expand further in the years ahead. The anticipated favourable developments in *Financial services* will also benefit related professional and business services activities.

3.38 The manpower requirements of the sector are projected to increase considerably at an average annual rate of 1.8% from 555 600 in 2017 to 661 700 in 2027. The manpower requirements of various sub-sectors in the *Professional services and other producer services* sector in 2017 and 2027 are set out in **Table 3.10**.

Table 3.10: Manpower Requirements of the Professional Services and Other Producer Services and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Software publishing and information technology related services	51 300	65 500	+ 14 200	+ 2.5%
Legal services	23 300	25 200	+ 1 900	+ 0.8%
Accounting, auditing and bookkeeping services	30 700	32 800	+ 2 100	+ 0.7%
Business management and consultancy services, and engineering and technical services not related to construction and real estate activities	61 200	81 300	+ 20 100	+ 2.9%
Design, advertising and related services	31 000	35 800	+ 4 900	+ 1.5%
Architectural, surveying and engineering services related to real estate and construction	28 900	31 700	+ 2 800	+ 0.9%
Other producer services	329 200	389 400	+ 60 200	+ 1.7%
Whole sector	555 600	661 700	+ 106 100	+ 1.8%

Note: Individual figures may not add up to the totals due to rounding.

Tourism

3.39 *Tourism* is one of the key pillar industries in Hong Kong. It embraces a host of economic activities involving tourists, which include hotels, travel agents, cross boundary passenger transport, retail trade and catering. In 2017, there were about 58.5 million visitors to Hong Kong, with a total spending of about \$300 billion. With the promulgation of the “Development Blueprint for Hong Kong’s Tourism Industry” in 2017, the Government and other stakeholders will continue to invest in the tourism-related campaigns and infrastructure to promote the healthy development of the industry, such as nurturing the initiatives on cultural and heritage tourism, further developing our two flagship theme parks, and enhancing our status for Meetings, Incentive travels, Conventions and Exhibitions (MICE)

tourism. In addition, the total number of hotel rooms is expected to increase along with completion of new hotels in the coming few years. It is projected that the manpower requirements of the industry will grow at an average annual rate of 0.7% from 265 400 in 2017 to 284 000 in 2027. The manpower requirements of the inbound and outbound tourism in 2017 and 2027 are set out in **Table 3.11**.

Table 3.11: Manpower Requirements of the Tourism and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Inbound tourism	232 100	249 300	+ 17 300	+ 0.7%
Outbound tourism	33 300	34 700	+ 1 400	+ 0.4%
Whole sector	265 400	284 000	+ 18 700	+ 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Summary of Manpower Requirements of the Pillar Industries

3.40 The total manpower requirements of the pillar industries taken together are projected to increase at an average annual rate of 0.5% from 1.82 million in 2017 to 1.91 million in 2027, which is higher than the overall growth rate of 0.3% projected for the whole economy. The manpower needs of the pillar industries accounted for about half (at 50.5%) of the total manpower demand of our economy in 2017, and is expected to remain so (at 51.1%) in 2027. The manpower requirements of the pillar industries in 2017 and 2027 are set out in **Table 3.12**.

Table 3.12: Manpower Requirements of the Pillar Industries in 2017 and 2027

Pillar industry	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Financial services	264 000	294 600	+ 30 500	+ 1.1%
Trading and logistics	739 200	669 600	- 69 600	- 1.0%
Professional services and other producer services	555 600	661 700	+ 106 100	+ 1.8%
Tourism	265 400	284 000	+ 18 700	+ 0.7%
Total	1 824 200	1 909 900	+ 85 700	+ 0.5%

Note: Individual figures may not add up to the totals due to rounding.

Manpower Requirements of the Selected Industries

3.41 The manpower requirements of some other industries, which display good potential for further driving the development of our economy, are also presented in this report. These industries, termed as selected industries⁸ in MP2027, include *Information technology and information services*; *Innovation and technology industries*; *Cultural and creative industries*; *Environmental industries*; as well as *Testing and certification services*.

Information Technology and Information Services Industries

3.42 This sector covers *Telecommunication activities* and *Software publishing and information technology related services*. The rolling-out of 5G and the development of Hong Kong into a smart city present new opportunities for Hong Kong to further excel its telecommunication- and information technology-related business. The rapid development of Fintech, big data analytics, artificial intelligence and cyber security in

⁸ It should be noted that the selected industries cut across the various conventional economic sectors and sub-sectors and that there is some degree of overlapping in coverage between individual selected industries. For instance, among the selected industries, the *Information technology and information services* include the *Software publishing and information technology related services*. Some of the activities therein (such as computer games publishing, information technology consultancy activities, data processing, web hosting and related activities) are also under the coverage of the *Cultural and creative industries*.

various sectors of our economy calls for huge demand of personnel with comprehensive knowledge and experience on relevant subject matter as well as information technology (IT). In addition, many companies tend to rely on IT vendors external to the companies to develop new technologies for their businesses and many small and medium enterprises even outsource their entire IT operations or moving their operations to the cloud. This offers excellent opportunity for Hong Kong to develop telecommunication- and IT-related business. The advanced telecommunication infrastructure and IT-savvy workers in Hong Kong are conducive to the development of telecommunication and IT services. It is anticipated that the *Information technology and information services (IT&IS)* industry will continue to expand.

3.43 The manpower requirements of this sector are projected to grow considerably at an average annual rate of 2.2% from 72 300 in 2017 to 90 000 in 2027. The manpower requirements of the *IT&IS* sector and its sub-sectors in 2017 and 2027 are set out in **Table 3.13**.

Table 3.13: Manpower Requirements of the Information Technology and Information Services and its Sub-sectors in 2017 and 2027

Sub-sector	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Telecommunication activities	21 000	24 500	+ 3 600	+ 1.6%
Software publishing and information technology related services	51 300	65 500	+ 14 200	+ 2.5%
Whole sector	72 300	90 000	+ 17 800	+ 2.2%

Note: Individual figures may not add up to the totals due to rounding.

3.44 There are IT workers (such as IT managers, system analysts and programmers) engaging in other sectors, apart from the *IT&IS* sector. For instance, there are workers taking up IT jobs in such sectors as *Financial services; Import, export, wholesale and retail trades*, as well as *Social and personal services*. The total number of IT workers required across all economic sectors was about 90 400 in 2016. With wide application of IT to improve work efficiency in various sectors and the trends of adopting technologies, including artificial intelligence, data analytics, cyber security

and Fintech in business processes, the economy-wide requirements for IT workers are anticipated to grow remarkably at an average annual rate of 2.5% to 119 000 in 2027. The manpower requirements for IT workers of various economic sectors in 2016 and 2027 are presented in **Table 3.14**.

Table 3.14: Manpower Requirements of the IT Workers by Economic Sector in 2016[&] and 2027

Economic sector	Actual manpower requirements in 2016 ^{&} Number	Projected manpower requirements in 2027 Number	Projected change from 2016 to 2027	Projected average annual rate of change (2016 – 2027)
Import, export, wholesale and retail trades, accommodation and food services	16 700	16 700	+ 100	**
Information and communications	38 200	59 600	+ 21 400	+ 4.1%
Financial services, real estate, professional and business services	17 100	19 100	+ 2 000	+ 1.0%
Social and personal services	14 500	19 600	+ 5 100	+ 2.8%
Others [#]	4 000	4 000	- 100	- 0.1%
Total	90 400	119 000	+ 28 500	+ 2.5%

& The actual manpower requirements of IT workers were compiled based on findings of the “2016 Manpower Survey on Information Technology Sector” conducted by the Vocational Training Council (VTC), which were the latest available information at the time the projection was being compiled.

“Others” include *Manufacturing; Electricity, gas, water and waste management; Construction; Transportation, storage, postal and courier services.*

** Rate of change within $\pm 0.05\%$

Note: Individual figures may not add up to the totals due to rounding.

Innovation and Technology Industries

3.45 Innovation and technology (I&T) are drivers for economic growth and I&T development is among the top policy priorities of the Government. The Government is determined to develop I&T along eight major areas, namely increasing resources for research and development (R&D), pooling together technology talent, providing investment funding, providing technological research infrastructure, reviewing legislations and regulations, opening up government data, bettering procurement arrangements, and

popularising science education. This term of Government has already committed more than \$100 billion to support I&T development. The planned establishment of two InnoHK research clusters at the Hong Kong Science Park and the Hong Kong-Shenzhen I&T Park at the Lok Ma Chau Loop jointly developed with Shenzhen will provide world-class infrastructure to attract top local, Mainland and overseas R&D institutions to conduct more collaborative research in Hong Kong. Substantial resources have also been set aside for the Hong Kong Science and Technology Parks Corporation and Cyberport to enhance their incubation programmes and support for technology enterprises, including local technology start-ups. All these measures will spur R&D and add further momentum to the development of the *Innovation and technology industries* in Hong Kong. In addition, with the establishment of an international I&T hub being a focus of the “Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area”, the *Innovation and technology industries* in Hong Kong are presented with unprecedented opportunities. It is projected that the manpower requirements of the industry will surge at an average annual rate of 4.3% from 38 000 in 2017 to 57 600 in 2027.

Cultural and Creative Industries

3.46 The *Cultural and creative industries* sector covers a wide array of economic activities that make use of creativity and intellectual property in producing products and services, including advertising, architecture, design, film, music, performing arts, publishing, digital entertainment, etc. Over the past ten years, the Government has injected more than \$3 billion to promote the development of local creative industries through a wide array of initiatives/ measures, such as providing financial support to nurture talent and support start-ups, promote Hong Kong as Asia’s creative capital, and facilitate creative sectors in exploring the Mainland (in particular the GBA) and international (including B&R countries and regions) markets. In view of the population growth, advancement in education and general improvement in quality of life in our economy, more demands for diversified arts and cultural programmes are anticipated. Coupled with the completion of several performance and exhibition venues (including the West Kowloon Cultural District) in the coming decade, the number as well as scale of arts and culture related activities to be organised in Hong Kong are expected to increase. It is projected that the manpower requirements of the *Cultural*

and creative industries sector will increase at an average annual rate of 0.9% from 217 800 in 2017 to 238 000 in 2027.

Environmental Industries

3.47 The *Environmental industries* sector mainly comprises waste management and environmental engineering services which include waste collection, treatment and disposal activities; material recycling; trading of waste; environmental engineering and consultancy services; and landscape care and greenery services. The volume of waste rose steadily along with population increase and economic growth in the past years, and the trend is likely to continue. Waste-related industries, including waste collection and disposal, material recovery, scrap dealing and cleaning service, are expected to grow. On the other hand, with the rising aspiration of Hong Kong people for better environmental protection and the active promotion for a green economy through a multitude of policies and initiatives, the Government and other stakeholders will continue to invest in environmental infrastructure on waste management as well as promoting the development of the related economic activities, such as the recycling industry. It is expected that the sector will develop steadily with its manpower requirements increasing at an average annual rate of 1.3% from 45 200 in 2017 to 51 500 in 2027.

Testing and Certification Services

3.48 The *Testing and certification services* industry in Hong Kong is highly acclaimed. Over the years, the industry has established a good foundation, based on a robust accreditation system, high professional and integrity standards and an excellent reputation. The Government has set up the Hong Kong Council for Testing and Certification to advise the Government on the overall strategy to support the development of the industry. Seizing the business opportunities under the extended Closer Economic Partnership Arrangement (CEPA) framework in 2018, testing organisations in Hong Kong are allowed to undertake testing of products processed or manufactured in the Mainland requiring the China Compulsory Certification. Moreover, with growing health consciousness and greater concern on safety and quality of products, an increase in local demand for *Testing and certification services* (particularly medical testing services) is expected. It is anticipated that Hong Kong's *Testing and certification*

services industry will continue to develop with good potentials and will further explore the markets in the Mainland (especially the GBA) and overseas. It is projected that the manpower requirements of the industry will increase at an average annual growth rate of 1.3% from 14 500 in 2017 to 16 600 in 2027.

Summary of Manpower Requirements of the Selected Industries

3.49 The manpower requirements of the selected industries are all projected to grow faster, at an average annual growth rate ranging from 0.9% to 4.3% during the period from 2017 to 2027, than that of 0.3% for the whole economy. The manpower requirements of the selected industries in 2017 and their projections in 2027 are set out in **Table 3.15**.

Table 3.15: Manpower Requirements of the Selected Industries in 2017 and 2027

Selected industry	Actual manpower requirements in 2017 Number	Projected manpower requirements in 2027 Number	Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
Information technology and information services	72 300	90 000	+ 17 800	+ 2.2%
Innovation and technology industries	38 000	57 600	+ 19 600	+ 4.3%
Cultural and creative industries	217 800	238 000	+ 20 200	+ 0.9%
Environmental industries	45 200	51 500	+ 6 300	+ 1.3%
Testing and certification services	14 500	16 600	+ 2 100	+ 1.3%

Manpower Requirements by Occupation Group

3.50 Manpower requirements are analysed by occupation group. The occupation groups are classified into nine categories in accordance with the nomenclature adopted by C&SD in compiling manpower statistics. These include *Managers and administrators; Professionals; Associate professionals; Clerical support workers; Service and sales workers; Craft and related workers; Drivers, plant and machine operators, and assemblers; Elementary occupations* and *Other occupations*. The statistical coverage

and definitions of these occupation categories are set out in **Appendix VI**. The projected manpower requirements of various occupation groups during the projection period are presented below.

Managers and Administrators

3.51 The *Managers and administrators* occupation group belongs to the group of personnel whose duties and responsibilities are mainly concerned with running or managing the operations of various business establishments or organisations. Examples include general managers, chief executive officers, operation managers, company secretaries, finance managers, administration managers, personnel managers, sales managers and IT managers.

3.52 The manpower requirements of *Managers and administrators* of the whole economy are expected to increase considerably at an average annual rate of 1.2% from 480 500 in 2017 to 539 100 in 2027. The projected shifting of our future manpower requirements towards the higher-skilled workers at the upper end of the occupation hierarchy is consistent with the transformation of Hong Kong into a knowledge-based and high value-added economy. The manpower demand for this occupation group is anticipated to expand in size across most economic sectors.

3.53 The manpower requirements of *Managers and administrators* by economic sector in 2017 and 2027 are shown in **Table 3.16**.

Table 3.16: Manpower Requirements of Managers and Administrators by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	0.1	100	*	- 100	- 6.5%
Manufacturing	17 300	3.6	13 200	2.5	- 4 100	- 2.7%
Electricity, gas, water and waste management	1 600	0.3	1 800	0.3	+ 100	+ 0.7%
Construction	21 300	4.4	25 500	4.7	+ 4 200	+ 1.8%
Import, export, wholesale and retail trades	196 800	40.9	206 800	38.4	+ 10 000	+ 0.5%
Accommodation and food services	27 300	5.7	31 800	5.9	+ 4 500	+ 1.5%
Transportation, storage, postal and courier services	23 900	5.0	24 900	4.6	+ 1 000	+ 0.4%
Information and communications	21 800	4.5	26 500	4.9	+ 4 800	+ 2.0%
Financial services	84 500	17.6	98 200	18.2	+ 13 700	+ 1.5%
Real estate	15 400	3.2	20 700	3.8	+ 5 300	+ 3.0%
Professional and business services	41 300	8.6	51 200	9.5	+ 9 900	+ 2.2%
Social and personal services	29 000	6.0	38 300	7.1	+ 9 300	+ 2.8%
Total	480 500	100.0	539 100	100.0	+ 58 600	+ 1.2%

* Percentage share less than 0.05%

Note: Individual figures may not add up to the totals due to rounding.

Professionals

3.54 The *Professionals* occupation group is defined as those workers with special expertise and knowledge which are essential to handle the jobs in their particular fields of work. For example, engineers, architects, surveyors, medical doctors, lawyers, accountants and IT professionals belong to this occupation category. With Hong Kong's ongoing transformation to a knowledge-based and high value-added economy, the requirements for this occupation group is projected to grow at an average annual rate of 1.0% from 274 700 in 2017 to 302 500 in 2027. The manpower requirements of *Professionals* by economic sector in 2017 and 2027 are set out in **Table 3.17**.

Table 3.17: Manpower Requirements of Professionals by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	^	§	§	§
Manufacturing	2 500	0.9	2 100	0.7	- 400	- 1.8%
Electricity, gas, water and waste management	2 700	1.0	2 900	1.0	+ 200	+ 0.6%
Construction	19 200	7.0	22 500	7.4	+ 3 200	+ 1.6%
Import, export, wholesale and retail trades	19 900	7.2	17 500	5.8	- 2 300	- 1.2%
Accommodation and food services	900	0.3	900	0.3	^^	§§
Transportation, storage, postal and courier services	9 000	3.3	10 500	3.5	+ 1 400	+ 1.5%
Information and communications	35 000	12.7	40 900	13.5	+ 5 900	+ 1.6%
Financial services	24 700	9.0	26 800	8.9	+ 2 100	+ 0.8%
Real estate	3 900	1.4	4 900	1.6	+ 1 000	+ 2.4%
Professional and business services	47 700	17.4	57 000	18.8	+ 9 300	+ 1.8%
Social and personal services	109 200	39.8	116 600	38.6	+ 7 400	+ 0.7%
Total	274 700	100.0	302 500	100.0	+ 27 800	+ 1.0%

^ Figure less than 50

^^ Change within ± 50

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Associate Professionals

3.55 The *Associate professionals* category is the largest cluster in the higher-skilled occupation groups comprising *Managers and administrators*; *Professionals* and *Associate professionals*. Workers in the *Associate professionals* occupation group are responsible for providing professional support and assistance to the other two higher-skilled groups. Examples include engineering technicians, nurses, credit analysts, administration officers, accounting supervisors, merchandisers, insurance representatives and public relations officers.

3.56 In tandem with Hong Kong's continued transformation to a knowledge-based and high value-added economy advocating innovation and technology, the *Associate professionals* in various sectors of our economy are playing a more and more important role on account of their multi-tasking skills and capability in applying automation and adopting technology. It is expected that the manpower requirements of these workers will grow at an average annual rate of 1.2% from 790 900 in 2017 to 891 900 in 2027. The manpower requirements of *Associate professionals* by economic sector in 2017 and 2027 are presented in **Table 3.18**.

Table 3.18: Manpower Requirements of Associate Professionals by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	100	*	^	§	§	§
Manufacturing	17 000	2.2	12 800	1.4	- 4 200	- 2.8%
Electricity, gas, water and waste management	3 800	0.5	4 000	0.4	+ 200	+ 0.4%
Construction	54 900	6.9	65 600	7.4	+ 10 700	+ 1.8%
Import, export, wholesale and retail trades	185 100	23.4	183 700	20.6	- 1 400	- 0.1%
Accommodation and food services	12 500	1.6	13 800	1.5	+ 1 300	+ 1.0%
Transportation, storage, postal and courier services	24 900	3.1	26 900	3.0	+ 2 000	+ 0.8%
Information and communications	36 200	4.6	42 400	4.7	+ 6 200	+ 1.6%
Financial services	100 800	12.7	115 800	13.0	+ 15 000	+ 1.4%
Real estate	40 700	5.1	47 300	5.3	+ 6 600	+ 1.5%
Professional and business services	92 500	11.7	112 300	12.6	+ 19 800	+ 2.0%
Social and personal services	222 500	28.1	267 300	30.0	+ 44 900	+ 1.9%
Total	790 900	100.0	891 900	100.0	+ 101 000	+ 1.2%

^ Figure less than 50

* Percentage share less than 0.05%

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Clerical Support Workers

3.57 The occupation group of *Clerical support workers* provides secretarial or clerical support/assistance in business establishments or organisations across all the economic sectors. With the persistent trend of automation and the widespread adoption of innovation and technology at the workplace, it is projected that the requirements of *Clerical support workers* will decrease at an average annual rate of 0.8% from 526 500 in 2017 to 487 200 in 2027. The manpower requirements of *Clerical support workers* by economic sector in 2017 and 2027 are shown in **Table 3.19**.

Table 3.19: Manpower Requirements of Clerical Support Workers by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	-	-	-	-	-	-
Manufacturing	10 100	1.9	7 700	1.6	- 2 400	- 2.6%
Electricity, gas, water and waste management	2 100	0.4	2 200	0.5	^^	§§
Construction	16 300	3.1	13 700	2.8	- 2 600	- 1.7%
Import, export, wholesale and retail trades	194 800	37.0	160 600	33.0	- 34 200	- 1.9%
Accommodation and food services	12 100	2.3	9 400	1.9	- 2 800	- 2.6%
Transportation, storage, postal and courier services	51 600	9.8	46 800	9.6	- 4 800	- 1.0%
Information and communications	12 300	2.3	11 400	2.3	- 900	- 0.8%
Financial services	49 700	9.4	50 200	10.3	+ 500	+ 0.1%
Real estate	16 200	3.1	15 300	3.1	- 900	- 0.6%
Professional and business services	60 200	11.4	61 100	12.6	+ 1 000	+ 0.2%
Social and personal services	101 000	19.2	108 800	22.3	+ 7 800	+ 0.7%
Total	526 500	100.0	487 200	100.0	- 39 300	- 0.8%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Service and Sales Workers

3.58 This group of workers comprises mainly the sales workers in retail shops, service workers in hotels and restaurants, care workers in elderly homes and healthcare institutions, as well as various types of personal service workers. In gist, the three sectors of *Import, export, wholesale and retail trades; Accommodation and food services; and Social and personal services* together accounted for over 90% of the total manpower requirements of Service and sales workers in 2017 and are projected to take up the same overwhelming share in 2027.

3.59 Taking into account the complementarities between continued development of our service-oriented economy including the growing manpower needs for personal care workers to cope with the ageing population, expanding requirements on diversified types of personal service workers in response to the improved quality of living, as well as the demands on accommodation and food-related service workers along with the increasing number of hotels and catering activities vis-à-vis the manpower savings from the mounting popularity of e-commerce and direct online transactions in the retail trade and other service sectors, it is projected that the requirements for *Service and sales workers* will increase slightly with an average annual increasing rate of 0.2% from 619 100 in 2017 to 633 700 in 2027. The manpower requirements of *Service and sales workers* by economic sector in 2017 and 2027 are presented in **Table 3.20**.

Table 3.20: Manpower Requirements of Service and Sales Workers by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	-	-	-	-	-	-
Manufacturing	600	0.1	400	0.1	- 100	- 2.7%
Electricity, gas, water and waste management	-	-	-	-	-	-
Construction	100	*	100	*	^^	§§
Import, export, wholesale and retail trades	205 500	33.2	194 000	30.6	- 11 500	- 0.6%
Accommodation and food services	190 700	30.8	199 300	31.4	+ 8 500	+ 0.4%
Transportation, storage, postal and courier services	30 600	4.9	35 200	5.6	+ 4 600	+ 1.4%
Information and communications	3 700	0.6	3 800	0.6	+ 100	+ 0.3%
Financial services	200	*	200	*	^^	§§
Real estate	1 400	0.2	1 300	0.2	- 100	- 0.7%
Professional and business services	13 000	2.1	13 200	2.1	+ 200	+ 0.1%
Social and personal services	173 400	28.0	186 400	29.4	+ 12 900	+ 0.7%
Total	619 100	100.0	633 700	100.0	+ 14 600	+ 0.2%

* Percentage share less than 0.05%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Craft and Related Workers

3.60 This occupation group covers skilled workers engaged in different trades in various sectors, such as bricklayers, carpenters, painters, metal moulders, blacksmiths, bakers, machinery repairers and watch makers. A great number of these workers is employed in the *Construction* sector. While wider adoption of technology and innovative construction methods such as off-site prefabrication approach can enhance productivity, the manpower requirements of *Craft and related workers* of the *Construction* sector will remain keen in the coming years due to several forthcoming large-scale infrastructure projects, such as the Three-Runway System of the Hong

Kong International Airport, the ten-year hospital development plan, new railway projects and the public housing development plan. On the other hand, the number of *Craft and related workers* is anticipated to decrease in other sectors, amidst application of modern technology at the workplace and the changing structure of our economy. With the projected decrease in the number of *Craft and related workers* in other sectors more than offsetting the projected increase from the *Construction* sector, it is expected that the overall requirements of these workers will decrease at an average annual rate of 0.3% from 244 700 in 2017 to 236 400 in 2027. The requirements of *Craft and related workers* by economic sector in 2017 and 2027 are presented in **Table 3.21**.

Table 3.21: Manpower Requirements of Craft and Related Workers by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	-	-	-	-	-	-
Manufacturing	27 500	11.2	21 100	8.9	- 6 400	- 2.6%
Electricity, gas, water and waste management	2 900	1.2	2 900	1.2	^^	§§
Construction	152 600	62.3	159 500	67.5	+ 7 000	+ 0.4%
Import, export, wholesale and retail trades	13 600	5.6	10 500	4.5	- 3 100	- 2.6%
Accommodation and food services	3 000	1.2	2 500	1.0	- 500	- 1.8%
Transportation, storage, postal and courier services	8 700	3.5	8 900	3.8	+ 200	+ 0.2%
Information and communications	3 900	1.6	3 600	1.5	- 300	- 0.9%
Financial services	200	0.1	100	*	^^	§§
Real estate	5 500	2.2	5 500	2.3	+ 100	+ 0.1%
Professional and business services	4 000	1.6	4 200	1.8	+ 200	+ 0.5%
Social and personal services	23 000	9.4	17 600	7.4	- 5 400	- 2.6%
Total	244 700	100.0	236 400	100.0	- 8 300	- 0.3%

* Percentage share less than 0.05%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Drivers, Plant and Machine Operators, and Assemblers

3.61 The occupation group of *Drivers, plant and machine operators, and assemblers* mainly covers motor vehicle drivers and workers operating with machines in various sectors. This group covers two kinds of workers, namely *Drivers* and *Plant and machine operators, and assemblers*. A great number of *Drivers* is employed in the *Transportation, storage, postal and courier services* sector. The enhanced connectivity between Hong Kong and the Mainland through the commencement of operation of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link will greatly improve the efficiency in the flow of people and goods within the GBA. Coupled with the rising competition from the container ports in the Mainland, it is expected that the requirements for drivers will reduce. Furthermore, the number of *Plant and machine operators, and assemblers* in various sectors, such as *Manufacturing, Construction and Import, export, wholesale and retail trades* sectors, is projected to decline along with the re-industrialisation development emphasising high-end and high value-added manufacturing and potential adoption of robotics. The overall requirements for *Drivers, plant and machine operators, and assemblers* as a group are expected to decrease at an average annual rate of 0.7% from 177 000 in 2017 to 164 200 in 2027. The requirements of *Drivers, plant and machine operators, and assemblers* by economic sector in 2017 and 2027 are shown in **Table 3.22**.

Table 3.22: Manpower Requirements of Drivers, Plant and Machine Operators, and Assemblers by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	0.2	100	0.1	- 200	- 9.4%
Manufacturing	5 800	3.3	3 700	2.2	- 2 100	- 4.5%
Electricity, gas, water and waste management	1 000	0.6	1 100	0.7	+ 100	+ 0.6%
Construction	14 700	8.3	14 200	8.6	- 500	- 0.3%
Import, export, wholesale and retail trades	14 800	8.4	14 000	8.5	- 800	- 0.6%
Accommodation and food services	700	0.4	700	0.4	- 100	- 0.7%
Transportation, storage, postal and courier services	123 600	69.8	115 100	70.1	- 8 500	- 0.7%
Information and communications	800	0.5	600	0.4	- 200	- 3.4%
Financial services	1 500	0.8	1 200	0.7	- 300	- 2.4%
Real estate	1 000	0.6	900	0.5	- 100	- 0.9%
Professional and business services	4 100	2.3	4 900	3.0	+ 800	+ 1.7%
Social and personal services	8 700	4.9	7 900	4.8	- 800	- 1.0%
Total	177 000	100.0	164 200	100.0	- 12 800	- 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Elementary Occupations

3.62 The *Elementary occupations* group covers unskilled workers who perform primarily menial duties in various sectors, such as cleaners, garbage collectors, messengers, warehouse porters, stevedores, security guards, watchmen, lift operators and labourers (e.g. those in the *Construction* sector). Over the past years, many sectors have reduced their demand for such workers by the employment of workers with multi-tasking skills, or the use of automation and innovative technology in business processes. This trend is expected to continue in the future. Nonetheless, there will be increased requirements for these workers in the *Real estate* sector (more security guards and watchmen along with an increasing housing stock), and the *Professional and business services* sector (which covers establishments

rendering cleansing services) in the years ahead. There were some 495 500 workers in the *Elementary occupations* in 2017. It is expected that the requirements for these workers will decrease at an average annual rate of 0.3% to 482 500 in 2027. The statistics of manpower requirements of these workers by economic sector in 2017 and 2027 are shown in **Table 3.23**.

Table 3.23: Manpower Requirements of Elementary Occupations by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	100	*	^	§	§	§
Manufacturing	16 400	3.3	11 700	2.4	- 4 700	- 3.3%
Electricity, gas, water and waste management	1 800	0.4	1 700	0.3	- 100	- 0.7%
Construction	69 500	14.0	66 300	13.7	- 3 200	- 0.5%
Import, export, wholesale and retail trades	53 500	10.8	43 400	9.0	- 10 000	- 2.1%
Accommodation and food services	41 200	8.3	40 200	8.3	- 1 100	- 0.3%
Transportation, storage, postal and courier services	47 300	9.5	45 600	9.5	- 1 700	- 0.4%
Information and communications	2 100	0.4	1 600	0.3	- 500	- 2.6%
Financial services	2 600	0.5	2 200	0.4	- 400	- 1.7%
Real estate	56 100	11.3	56 400	11.7	+ 300	+ 0.1%
Professional and business services	139 900	28.2	156 900	32.5	+ 17 000	+ 1.2%
Social and personal services	65 200	13.2	56 500	11.7	- 8 700	- 1.4%
Total	495 500	100.0	482 500	100.0	- 13 000	- 0.3%

* Percentage share less than 0.05%

^ Figure less than 50

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Other Occupations

3.63 These workers are the skilled operatives engaged in agricultural and fishery activities. The number of these workers was very small compared with those of other occupation groups over the past few decades. A small

number of these workers is also engaged in sectors such as *Social and personal services* (some workers are employed by the Government in providing agricultural and fishery services, who are grouped under *Social and personal services*) and *Professional and business services* (some workers are engaged in landscaping and greenery services). It is expected that the requirements of workers in *Other occupations* will decline at an average rate of 5.2% from 3 600 in 2017 to 2 100 in 2027.

Overall Occupation Pattern of Manpower Requirements

3.64 The projected change in the occupation pattern of manpower requirements is in line with Hong Kong's continued transformation to a knowledge-based and high value-added economy and the potential adoption of automation and technology in business processes. It is expected that the proportions of workers in higher-skilled occupation groups viz. *Managers and administrators*, *Professionals* and *Associate professionals* will generally increase (from 42.8% in 2017 to 46.4% in 2027), whereas the proportion of lower-skilled occupation groups (such as *Clerical support workers*; *Craft and related workers*; and workers in the *Elementary occupations*) will decrease from 57.2% to 53.6% during the same period.

3.65 *Associate professionals* was the largest group in terms of manpower requirements among all the occupation categories in 2017 (accounting for 21.9% of the overall manpower needs of our economy) and are expected to remain so in 2027 (at 23.8%). *Service and sales workers* ranked second in 2017 (at 17.1% of the overall manpower needs) and are anticipated to keep the same position in 2027 (at 16.9%). *Clerical support workers* is anticipated to slip from the third largest occupation group in 2017 to the fourth in 2027, owing to a decline in their overall demand.

3.66 The manpower requirements of the overall economy by occupation group in 2017 and their projections in 2027 are set out in **Chart 3.2** and **Table 3.24**.

Chart 3.2: Percentage Share of Manpower Requirements by Occupation Group in 2017 and 2027

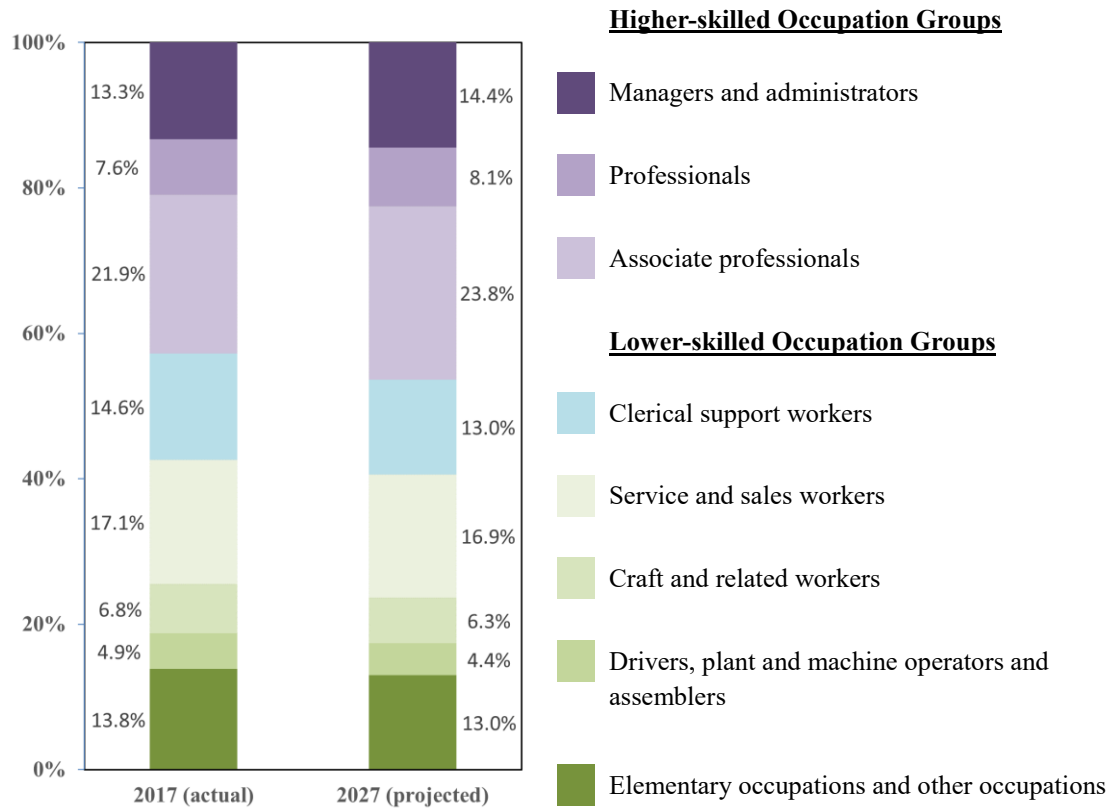


Table 3.24 Manpower Requirements by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	480 500	13.3	539 100	14.4	+ 58 600	+ 1.2%
Professionals	274 700	7.6	302 500	8.1	+ 27 800	+ 1.0%
Associate professionals	790 900	21.9	891 900	23.8	+ 101 000	+ 1.2%
Clerical support workers	526 500	14.6	487 200	13.0	- 39 300	- 0.8%
Service and sales workers	619 100	17.1	633 700	16.9	+ 14 600	+ 0.2%
Craft and related workers	244 700	6.8	236 400	6.3	- 8 300	- 0.3%
Drivers, plant and machine operators, and assemblers	177 000	4.9	164 200	4.4	- 12 800	- 0.7%
Elementary occupations	495 500	13.7	482 500	12.9	- 13 000	- 0.3%
Other occupations	3 600	0.1	2 100	0.1	- 1 500	- 5.2%
Total	3 612 600	100.0	3 739 600	100.0	+ 127 000	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

3.67 In terms of concentration, the proportions of *Managers and administrators*; *Professionals*; and *Associate professionals* are comparatively high in the *Information and communications* sector and the *Financial services* sector, due to the business nature of these two sectors. It is projected that in 2027 over 80% of the manpower required by these two sectors will be related to workers belonging to these three occupation groups.

3.68 Similarly, the proportion of *Service and sales workers* is particularly large in the *Accommodation and food services* sector working as housekeeping staff/ room attendants/ cooks/ waiters, and this occupation group is projected to account for some two-third of the total manpower requirements of the sector in 2027. As for the two occupation groups of *Craft and related workers* and *Drivers, plant and machine operators and assemblers*, they take up the largest share in the total manpower requirements of the *Construction* sector and the *Transportation, storage, postal and courier services* sector respectively. It is projected that in 2027 about 43% of the manpower required by the *Construction* sector is *Craft and related workers* whereas some 37% of the manpower needs of the *Transportation, storage, postal and courier services* sector is *Drivers, plant and machine operators and assemblers*.

3.69 There are workers in *Elementary occupations* across different sectors. Among them, the *Real estate* sector and the *Professional and business services* sector have high proportions of such workers. Plenty of them work as building caretakers/ watchmen/ security guards in the *Real estate* sector and cleansing workers/ garbage collectors of the cleaning companies in the *Professional and business services* sector. It is projected that some 37% of the total manpower requirements in the *Real estate* sector and about 34% in the *Professional and business services* sector in 2027 are workers in *Elementary occupations*. That said, the overall demand for such workers is expected to fall along with Hong Kong's transformation into a knowledge-based and high value-added economy advocating innovation, professionalism and use of technology and artificial intelligence.

3.70 The manpower requirements of different sectors by occupation group in 2017 and 2027 are set out in **Table 3.25** and **Table 3.26**. More detailed statistics on the manpower requirements for workers by occupation group of various sectors, including the pillar industries and the selected industries, are set out in **Tables A7.5 to A7.43** in **Appendix VII**.

**Table 3.25 Manpower Requirements by Economic Sector and Occupation Group
in 2017**

Economic sector		Managers and administrators	Professionals	Associate professionals	Clerical support workers	Service and sales workers	Craft and related workers	Drivers, plant and machine operators, and assemblers	Elementary occupations	Other occupations	Total
Agriculture, fishing and quarrying	Number	300	^	100	-	-	-	300	100	3 100	3 900
	% share	6.5	§	1.8	-	-	-	8.2	2.3	80.4	100.0
Manufacturing	Number	17 300	2 500	17 000	10 100	600	27 500	5 800	16 400	-	97 200
	% share	17.8	2.6	17.5	10.4	0.6	28.3	6.0	16.9	-	100.0
Electricity, gas, water and waste management	Number	1 600	2 700	3 800	2 100	-	2 900	1 000	1 800	-	16 100
	% share	10.2	17.1	23.9	13.3	-	18.1	6.4	11.0	-	100.0
Construction	Number	21 300	19 200	54 900	16 300	100	152 600	14 700	69 500	-	348 600
	% share	6.1	5.5	15.8	4.7	*	43.8	4.2	19.9	-	100.0
Import, export, wholesale and retail trades	Number	196 800	19 900	185 100	194 800	205 500	13 600	14 800	53 500	-	884 000
	% share	22.3	2.2	20.9	22.0	23.2	1.5	1.7	6.0	-	100.0
Accommodation and food services	Number	27 300	900	12 500	12 100	190 700	3 000	700	41 200	-	288 500
	% share	9.5	0.3	4.3	4.2	66.1	1.0	0.3	14.3	-	100.0
Transportation, storage, postal and courier services	Number	23 900	9 000	24 900	51 600	30 600	8 700	123 600	47 300	-	319 600
	% share	7.5	2.8	7.8	16.2	9.6	2.7	38.7	14.8	-	100.0
Information and communications	Number	21 800	35 000	36 200	12 300	3 700	3 900	800	2 100	-	115 800
	% share	18.8	30.2	31.2	10.7	3.2	3.4	0.7	1.8	-	100.0
Financial services	Number	84 500	24 700	100 800	49 700	200	200	1 500	2 600	-	264 000
	% share	32.0	9.4	38.2	18.8	0.1	0.1	0.6	1.0	-	100.0
Real estate	Number	15 400	3 900	40 700	16 200	1 400	5 500	1 000	56 100	-	140 000
	% share	11.0	2.8	29.1	11.6	1.0	3.9	0.7	40.0	-	100.0
Professional and business services	Number	41 300	47 700	92 500	60 200	13 000	4 000	4 100	139 900	100	402 700
	% share	10.2	11.8	23.0	14.9	3.2	1.0	1.0	34.7	*	100.0
Social and personal services	Number	29 000	109 200	222 500	101 000	173 400	23 000	8 700	65 200	300	732 200
	% share	4.0	14.9	30.4	13.8	23.7	3.1	1.2	8.9	*	100.0
Total	Number	480 500	274 700	790 900	526 500	619 100	244 700	177 000	495 500	3 600	3 612 600
	% share	13.3	7.6	21.9	14.6	17.1	6.8	4.9	13.7	0.1	100.0

^ Figure less than 50

* Percentage share less than 0.05%

§ Figure is suppressed owing to small value of the corresponding estimate.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table 3.26 Projected Manpower Requirements by Economic Sector and Occupation Group in 2027

Economic sector		Managers and administrators	Professionals	Associate professionals	Clerical support workers	Service and sales workers	Craft and related workers	Drivers, plant and machine operators, and assemblers	Elementary occupations	Other occupations	Total
Agriculture, fishing and quarrying	Number	100	^	^	-	-	-	100	^	1 600	1 900
	% share	6.6	§	§	-	-	-	6.2	§	83.0	100.0
Manufacturing	Number	13 200	2 100	12 800	7 700	400	21 100	3 700	11 700	-	72 700
	% share	18.2	2.9	17.6	10.6	0.6	29.0	5.1	16.1	-	100.0
Electricity, gas, water and waste management	Number	1 800	2 900	4 000	2 200	-	2 900	1 100	1 700	-	16 500
	% share	10.7	17.6	24.1	13.3	-	17.8	6.5	10.0	-	100.0
Construction	Number	25 500	22 500	65 600	13 700	100	159 500	14 200	66 300	-	367 400
	% share	6.9	6.1	17.9	3.7	*	43.4	3.9	18.1	-	100.0
Import, export, wholesale and retail trades	Number	206 800	17 500	183 700	160 600	194 000	10 500	14 000	43 400	-	830 600
	% share	24.9	2.1	22.1	19.3	23.4	1.3	1.7	5.2	-	100.0
Accommodation and food services	Number	31 800	900	13 800	9 400	199 300	2 500	700	40 200	-	298 500
	% share	10.7	0.3	4.6	3.1	66.8	0.8	0.2	13.5	-	100.0
Transportation, storage, postal and courier services	Number	24 900	10 500	26 900	46 800	35 200	8 900	115 100	45 600	-	313 800
	% share	7.9	3.3	8.6	14.9	11.2	2.8	36.7	14.5	-	100.0
Information and communications	Number	26 500	40 900	42 400	11 400	3 800	3 600	600	1 600	-	130 700
	% share	20.3	31.3	32.4	8.7	2.9	2.7	0.5	1.2	-	100.0
Financial services	Number	98 200	26 800	115 800	50 200	200	100	1 200	2 200	-	294 600
	% share	33.3	9.1	39.3	17.0	0.1	*	0.4	0.7	-	100.0
Real estate	Number	20 700	4 900	47 300	15 300	1 300	5 500	900	56 400	-	152 200
	% share	13.6	3.2	31.1	10.0	0.8	3.6	0.6	37.1	-	100.0
Professional and business services	Number	51 200	57 000	112 300	61 100	13 200	4 200	4 900	156 900	200	460 900
	% share	11.1	12.4	24.4	13.3	2.9	0.9	1.1	34.0	*	100.0
Social and personal services	Number	38 300	116 600	267 300	108 800	186 400	17 600	7 900	56 500	400	799 700
	% share	4.8	14.6	33.4	13.6	23.3	2.2	1.0	7.1	*	100.0
Total	Number	539 100	302 500	891 900	487 200	633 700	236 400	164 200	482 500	2 100	3 739 600
	% share	14.4	8.1	23.8	13.0	16.9	6.3	4.4	12.9	0.1	100.0

^ Figure less than 50

* Percentage share less than 0.05%

§ Figure is suppressed owing to small value of the corresponding estimate.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

3.71 With the wide-spread application of IT at the workplace, the ongoing development on technology measures including artificial intelligence, data analytics and robotics technologies and their potential adoption in various business processes, the total requirements for IT workers are projected to be on an upward trend at an average annual rate of 2.5% during the projection period to 119 000 in 2027. The manpower requirements of IT workers of the economy as a whole by IT-related occupation group in 2016 and 2027 are set out in **Table 3.27**.

Table 3.27 Manpower Requirements of IT Workers by IT-related Occupation Group in 2016[&] and 2027

IT-related occupation group	Actual manpower requirements in 2016 ^{&}		Projected manpower requirements in 2027		Projected change from 2016 to 2027	Projected average annual rate of change (2016 – 2027)
	Number	% share	Number	% share		
IT managers	7 000	7.8	9 200	7.8	+ 2 200	+ 2.5%
IT professionals	47 400	52.4	64 900	54.5	+ 17 500	+ 2.9%
IT associate professionals	30 200	33.4	36 100	30.3	+ 5 800	+ 1.6%
IT sales workers	5 800	6.4	8 800	7.4	+ 3 000	+ 3.8%
IT personnel	90 400	100.0	119 000	100.0	+ 28 500	+ 2.5%

& The actual manpower requirements of IT workers were compiled based on findings of the “2016 Manpower Survey on Information Technology Sector” conducted by the VTC, which were the latest available information at the time the projection was being compiled.

Note: Individual figures may not add up to the totals due to rounding.

Manpower Requirements by Education Level

3.72 Manpower requirements are analysed by education level in addition to economic sector and occupation group. The details on the coverage of each of the six education levels adopted in MP2027 are set out in **Appendix IV**.

3.73 It is projected that the manpower requirements for workers with higher education qualifications will increase and those with lower qualifications will shrink during the period from 2017 to 2027. This is again in line with Hong Kong’s transformation to a knowledge-based and high value-added economy advocating innovation, professionalism and adoption of technology and artificial intelligence. Analyses on manpower requirements by education level are presented in the ensuing paragraphs.

Lower Secondary and Below

3.74 It is projected that the requirements for manpower at *lower secondary and below* qualification will decrease considerably at an average annual rate of 2.5% from 879 100 in 2017 to 682 100 in 2027. The anticipated shrinkage in the requirements for the manpower with this educational attainment is mainly attributable to the following factors. First, the demand for workers in the occupation groups with comparatively higher concentration of lower education level, such as *Craft and related workers; Drivers, plant and machine operators, and assemblers; and Elementary occupations*, is expected to decline during the projection period. Secondly, employers have had higher expectation for the education qualifications of their workers across different occupations in the past years. It is anticipated that this trend will continue in the years ahead. The combined effect would lead to a declining trend in the manpower requirements with education of *lower secondary and below*.

Upper Secondary

3.75 A large proportion of the manpower requirements at *upper secondary* level are related to the occupation groups of *Clerical support workers* and *Service and sales workers*. Under the backdrop of the projected decrease in the requirements for *Clerical support workers* vis-à-vis the slight increase for *Service and sales workers* during the projection period, the manpower needs with education of *upper secondary* are projected to decrease at an average annual rate of 0.4% from 1 280 200 in 2017 to 1 231 900 in 2027.

Diploma

3.76 This education level encompasses an array of post-secondary diplomas/ certificates relating to different disciplines. Workers with *diploma* qualifications are engaged in a wide spectrum of occupations in various sectors. Many of these workers are employed as *Associate professionals, Clerical support workers* as well as *Service and sales workers*. With the projected rise in the requirements for *Associate professionals* and *Service and sales workers* offsetting the projected fall of *Clerical support workers* during the projection period, it is expected that the manpower

requirements at *Diploma* level will increase at an average annual rate of 0.7% from 114 700 in 2017 to 122 500 in 2027.

Sub-degree

3.77 Plenty of workers with *sub-degree* qualifications are engaged in such jobs as *Associate professionals*. Along with the projected increase in the requirements for *Associate professionals* and the higher expectation of employers for the industry-specific knowledge as well as generic academic foundation of their employees across different occupations in various sectors, it is expected that the manpower requirements at *sub-degree* level will expand significantly at an average annual rate of 2.3% from 210 900 in 2017 to 265 400 in 2027.

First Degree

3.78 The demand for better-educated workers is expected to be on an uptrend along with Hong Kong's on-going transformation to a knowledge-based and high value-added economy advocating innovation and professionalism. The requirements for *Managers and administrators*, *Professionals* as well as *Associate professionals* are expected to be on the rise during the projection period from 2017 to 2027. Many workers in these occupation groups are degree holders. It is projected that the manpower requirements at *first degree* level will increase significantly at an average annual rate of 2.5% from 874 000 in 2017 to 1 114 000 in 2027.

Postgraduate

3.79 The requirements for workers with *postgraduate* qualifications are projected to increase during the period in line with a growing demand for *Managers and administrators*, *Professionals* and *Associate professionals*, particularly in *Information and communications*; *Financial services*; and *Social and personal services* (which covers education and human health activities) sectors for which many workers at the management and professional levels possess *postgraduate* qualifications. With an anticipated expansion in these sectors during the projection period, it is expected that the manpower requirements at *postgraduate* level will grow considerably at an average annual rate of 2.5% from 253 700 in 2017 to 323 600 in 2027.

3.80 The manpower requirements of the overall economy by education level in 2017 and 2027 are shown in **Chart 3.3** and **Table 3.28**.

Chart 3.3: Manpower Requirements by Education Level in 2017 and 2027

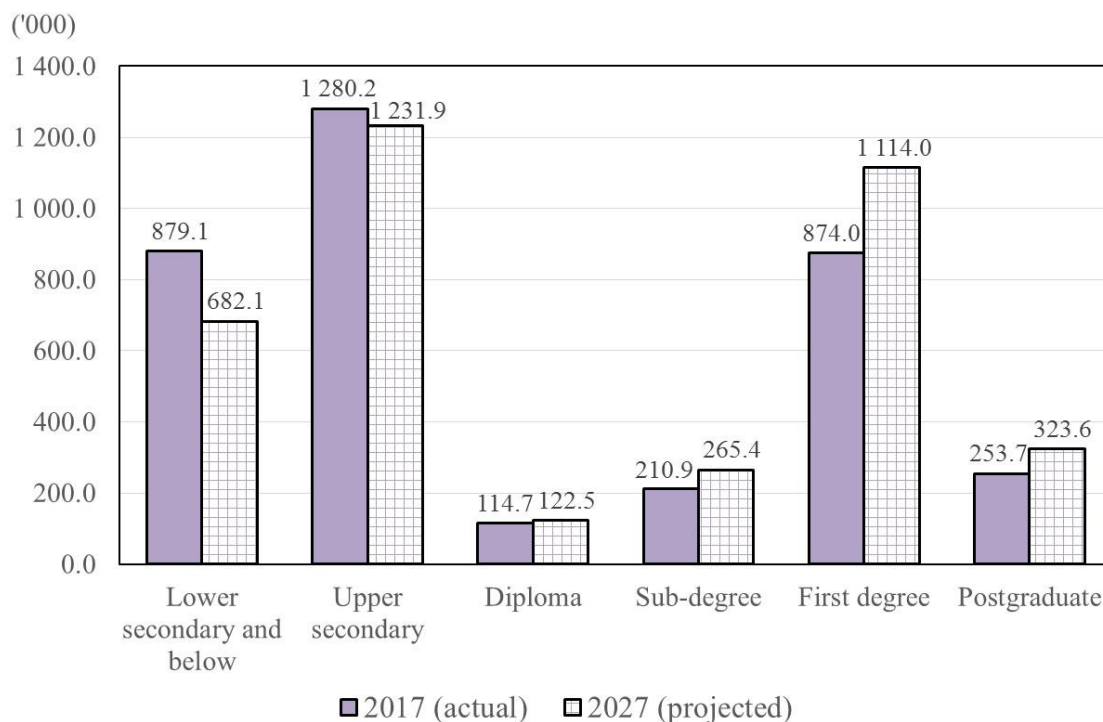


Table 3.28 Manpower Requirements by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	879 100	24.3	682 100	18.2	- 197 000	- 2.5%
Upper secondary	1 280 200	35.4	1 231 900	32.9	- 48 300	- 0.4%
Diploma	114 700	3.2	122 500	3.3	+ 7 800	+ 0.7%
Sub-degree	210 900	5.8	265 400	7.1	+ 54 600	+ 2.3%
First degree	874 000	24.2	1 114 000	29.8	+ 240 000	+ 2.5%
Postgraduate	253 700	7.0	323 600	8.7	+ 69 900	+ 2.5%
All levels	3 612 600	100.0	3 739 600	100.0	+ 127 000	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Overview of Sector-specific Manpower Requirements by Education Level

3.81 The educational composition of the manpower requirements of different sectors varies from one another, reflecting to a large extent the different nature of their business. While the workforce of some sectors has a greater portion of better-educated workers, others employ more workers with comparatively lower education qualifications.

3.82 The economic sectors with a better-educated workforce include *Financial services* and *Information and communications*. It is projected that over three quarters of the manpower needs of *Financial services* and some 70% of those of *Information and communications* will come from the labour force with *first degree* or *postgraduate* qualifications in 2027.

3.83 On the other hand, the sectors anticipated to have higher concentration of relatively lower-educated workforce include *Accommodation and food services* (some 82% of its manpower requirements possess *upper secondary* or below qualifications in 2027), followed by *Construction* (69%), *Transportation, storage, postal and courier services* (68%) and *Manufacturing* (66%).

3.84 The manpower requirements of different sectors by education level in 2017 and 2027 are set out in **Table 3.29** and **Table 3.30**. More detailed statistics on the manpower requirements for workers of each of the six education levels by economic sector are set out in **Tables A7.44 to A7.49** in **Appendix VII**. In addition, more detailed statistics on the projected education profile of the manpower requirements of individual sectors, including the pillar industries and the selected industries, are set out in **Tables A7.50 to A7.89** in **Appendix VII**.

Table 3.29: Manpower Requirements by Economic Sector and Education Level in 2017

Economic sector		Lower secondary and below	Upper secondary	Diploma	Sub-degree	First degree	Post-graduate	All levels
Agriculture, fishing and quarrying	Number	2 900	500	200	100	200	^	3 900
	% share	74.1	13.6	5.3	2.2	4.0	§	100.0
Manufacturing	Number	35 100	35 700	3 700	5 100	14 000	3 600	97 200
	% share	36.1	36.8	3.8	5.3	14.4	3.7	100.0
Electricity, gas, water and waste management	Number	3 400	4 900	800	1 400	4 000	1 600	16 100
	% share	21.0	30.8	5.1	8.5	24.6	9.9	100.0
Construction	Number	153 200	114 000	14 300	19 100	39 000	9 000	348 600
	% share	43.9	32.7	4.1	5.5	11.2	2.6	100.0
Import, export, wholesale and retail trades	Number	159 900	397 900	26 800	53 300	207 300	38 800	884 000
	% share	18.1	45.0	3.0	6.0	23.4	4.4	100.0
Accommodation and food services	Number	135 400	115 100	6 200	9 700	20 200	2 000	288 500
	% share	46.9	39.9	2.2	3.3	7.0	0.7	100.0
Transportation, storage, postal and courier services	Number	111 600	129 100	10 000	15 100	46 000	7 900	319 600
	% share	34.9	40.4	3.1	4.7	14.4	2.5	100.0
Information and communications	Number	4 400	25 300	3 900	9 300	56 600	16 300	115 800
	% share	3.8	21.8	3.4	8.0	48.9	14.1	100.0
Financial services	Number	7 400	67 400	6 400	14 000	119 700	49 100	264 000
	% share	2.8	25.5	2.4	5.3	45.3	18.6	100.0
Real estate	Number	39 200	52 700	4 300	8 900	28 500	6 400	140 000
	% share	28.0	37.7	3.1	6.3	20.4	4.5	100.0
Professional and business services	Number	116 200	105 400	13 200	25 500	112 800	29 600	402 700
	% share	28.9	26.2	3.3	6.3	28.0	7.4	100.0
Social and personal services	Number	110 300	232 100	24 800	49 500	226 000	89 500	732 200
	% share	15.1	31.7	3.4	6.8	30.9	12.2	100.0
Total	Number	879 100	1 280 200	114 700	210 900	874 000	253 700	3 612 600
	% share	24.3	35.4	3.2	5.8	24.2	7.0	100.0

^ Figure less than 50

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Table 3.30: Projected Manpower Requirements by Economic Sector and Education Level in 2027

Economic sector		Lower secondary and below	Upper secondary	Diploma	Sub-degree	First degree	Post-graduate	All levels
Agriculture, fishing and quarrying	Number	1 200	400	100	100	100	^	1 900
	% share	62.0	22.9	5.9	3.6	5.0	§	100.0
Manufacturing	Number	20 700	27 300	2 900	4 900	13 800	3 200	72 700
	% share	28.4	37.5	3.9	6.8	19.0	4.4	100.0
Electricity, gas, water and waste management	Number	2 400	5 300	800	1 800	4 500	1 800	16 500
	% share	14.3	32.0	4.6	10.7	27.4	10.9	100.0
Construction	Number	117 600	136 000	23 300	27 800	51 100	11 400	367 400
	% share	32.0	37.0	6.4	7.6	13.9	3.1	100.0
Import, export, wholesale and retail trades	Number	104 300	345 300	26 300	62 200	248 700	43 800	830 600
	% share	12.6	41.6	3.2	7.5	29.9	5.3	100.0
Accommodation and food services	Number	116 400	129 300	8 300	14 400	27 700	2 300	298 500
	% share	39.0	43.3	2.8	4.8	9.3	0.8	100.0
Transportation, storage, postal and courier services	Number	87 500	126 000	9 300	20 400	61 500	9 100	313 800
	% share	27.9	40.2	3.0	6.5	19.6	2.9	100.0
Information and communications	Number	2 500	21 000	3 500	11 700	70 700	21 300	130 700
	% share	1.9	16.0	2.7	9.0	54.1	16.3	100.0
Financial services	Number	4 400	45 500	4 800	15 500	157 100	67 300	294 600
	% share	1.5	15.5	1.6	5.3	53.3	22.8	100.0
Real estate	Number	32 200	57 300	4 500	11 400	37 800	8 900	152 200
	% share	21.2	37.6	3.0	7.5	24.9	5.9	100.0
Professional and business services	Number	109 100	114 000	14 600	31 500	152 100	39 600	460 900
	% share	23.7	24.7	3.2	6.8	33.0	8.6	100.0
Social and personal services	Number	83 800	224 400	24 100	63 700	288 800	114 900	799 700
	% share	10.5	28.1	3.0	8.0	36.1	14.4	100.0
Total	Number	682 100	1 231 900	122 500	265 400	1 114 000	323 600	3 739 600
	% share	18.2	32.9	3.3	7.1	29.8	8.7	100.0

^ Figure less than 50

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

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CHAPTER 4

Manpower Resource Balance

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Manpower Resource Balance

4.1 Manpower resource balance (MRB) refers to the quantitative difference between manpower supply projection (MSP) and manpower requirement projection (MRP) in the context of MP2027. It provides a measure to assess whether the future manpower of our economy is in balance, surplus or shortfall during the projection period. If MSP is greater than MRP in quantitative terms, there is a positive balance or manpower surplus. Conversely, if MSP is less than MRP, there is a negative balance or manpower shortfall. If MSP is more or less the same as MRP, the manpower supply and requirements are regarded to be in balance.

4.2 The overall MRB can be further analysed by education level. By comparing the findings of MSP with MRP by education level, we can analyse if there are potential manpower imbalances with different qualifications. The components of MSP and MRP were compiled independently of each other, on the assumption that manpower demand is not to be constrained by manpower supply. The concept of unconstrained manpower requirements is important to the interpretation of MRB.

Projected Overall Manpower Resource Balance

4.3 The total manpower supply in 2027 is projected to fall short of the total manpower requirements, with an overall shortage of 169 700. The anticipated manpower shortfall is a result of the projected growth in manpower requirements at an average annual rate of 0.3% in tandem with economic growth and the expected decline in manpower supply at an average annual rate of 0.2% due to population ageing and low fertility rate, during the projection period from 2017 to 2027 (see *Chapters 2 and 3*).

Manpower Situation at Different Education Levels

4.4 On the basis of the analyses on MSP and MRP by education level presented in previous chapters, the projected MRBs at different education levels in 2027 are presented below. Basically, shortfall will occur across all education levels.

- (a) *Lower secondary and below* – it is projected that there will be a shortage of 76 500 for the manpower at the education level of *lower secondary and below* in 2027. It is attributable to an anticipated shrinkage in the supply of manpower with these qualifications as a large number of workers with such qualifications, who belong to the post-war baby boomer generation, is expected to retire during the period from 2017 to 2027. It is broadly estimated that some 300 000 workers with education of *lower secondary and below* will go into retirement during the projection period. While both the projected manpower supply and requirements will decrease during 2017-2027, the decrease in the projected supply by 273 000 is far more apparent when compared with that of the projected requirements by 197 000, leading to the largest manpower shortfall among all education levels;
- (b) *Upper secondary* – it is anticipated that there will be a shortfall of 42 600 for the manpower with *upper secondary* education in 2027. The supply of the labour force with *upper secondary* qualifications is expected to decrease in the years ahead, amidst the abundant pathways available to our youth to pursue higher education and the anticipated retirement of workers with such education level during the projection period. It is broadly estimated that some 150 000 workers with education of *upper secondary* will retire from 2017 to 2027. The projected manpower shortfall is mainly a result of a diminishing manpower pool with such qualifications;
- (c) *Diploma* – the manpower with *diploma* qualifications is expected to see a slight shortfall of 6 400 in 2027, mainly attributable to the relatively stable manpower supply at diploma level vis-à-vis the slight growth in the corresponding manpower requirements during the projection period;

- (d) *Sub-degree* – with the well-accepted development in vocational education and increasing prominence of skilled workers in the labour market, both the manpower supply and requirements at *sub-degree* level are anticipated to grow during the period from 2017 to 2027. It is expected that there will be a manpower shortfall of 9 500 at this education level in 2027, with the projected manpower requirements exceeding the relevant supply during the projection period;
- (e) *First degree* – the demand for workers with qualifications of *first degree* is projected to grow considerably along with Hong Kong’s transformation to a knowledge-based and high value-added economy advocating innovation, professionalism and adoption of technology and artificial intelligence. It is anticipated that there will be a manpower shortfall of 50 900 for this labour segment in 2027; and
- (f) *Postgraduate* – The requirements for manpower with *postgraduate* qualifications are expected to be on an increasing trend along with the innovation and technology development of our economy as well as the projected increasing needs of manpower from higher-skilled occupation groups particularly in the *Information and communications*; *Financial services* and *Social and personal services* (which covers education and human health activities) sectors during the projection period. Meanwhile, the manpower supply of workers with *postgraduate* qualifications is also expected to increase over the projection period, with more and more people pursuing continuing education of higher degrees over the years. As the supply of manpower with *postgraduate* qualifications is anticipated to grow faster than the manpower requirements, leading to a projected manpower surplus of 16 300 at this education level in 2027.

4.5 In the labour market, there is some degree of substitutability between workers at different education levels from the employers’ perspective. For instance, it is not uncommon that jobs with minimum entry requirement of first degree would be taken up by workers with postgraduate qualifications. In this regards, it would be more meaningful to pool together the projected shortfall at *first degree* level (50 900) and the

projected surplus at *postgraduate* level (16 300) for analytical purposes, resulting in the aggregated shortfall of 34 600 at levels of *first degree* or above.

4.6 The projections of MSP and MRP by education level in 2027 are shown in **Chart 4.1** and the projections of MRB at individual education levels in 2027 are set out in **Table 4.1**.

Chart 4.1: Projected Manpower Supply and Projected Manpower Requirements by Education Level in 2027

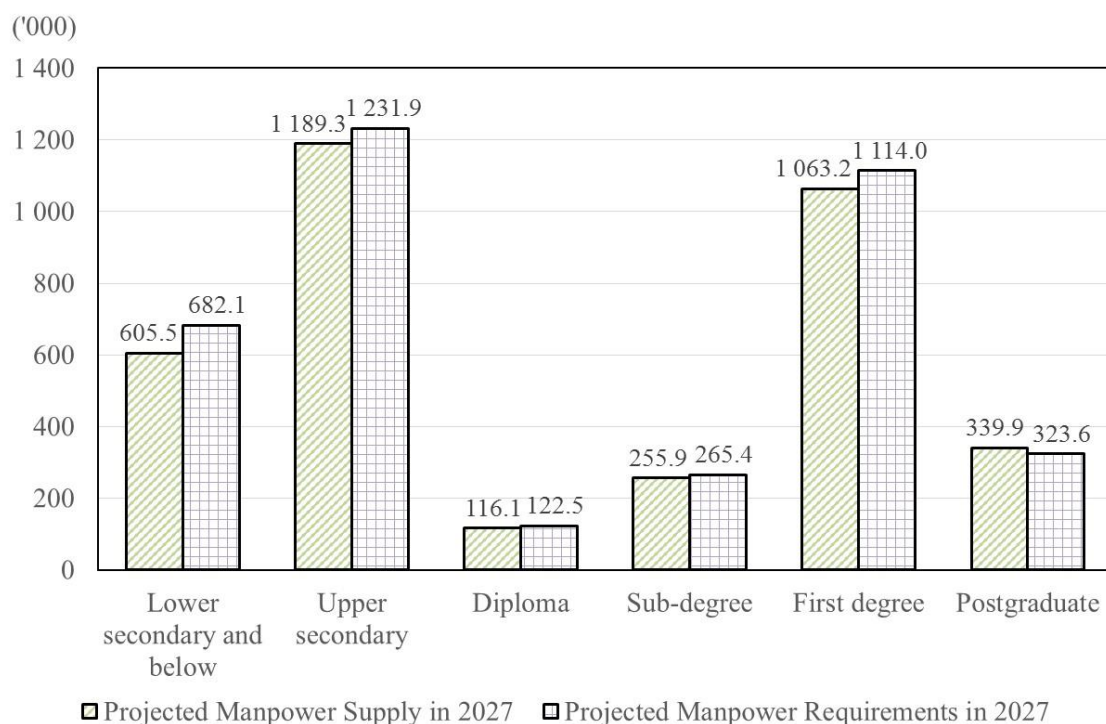


Table 4.1: Projected Manpower Resource Balance by Education Level in 2027

Education level	(a) Projected manpower supply in 2027	(b) Projected manpower requirements in 2027	(c) = (a) – (b) Projected manpower resource balance in 2027 [Surplus (+) / shortfall (-)]
Lower secondary and below	605 500	682 100	- 76 500
Upper secondary	1 189 300	1 231 900	- 42 600
Diploma	116 100	122 500	- 6 400
Sub-degree	255 900	265 400	- 9 500
First degree	1 063 200	1 114 000	- 50 900
Postgraduate	339 900	323 600	+ 16 300
All levels	3 569 900	3 739 600	- 169 700

Note: Individual figures may not add up to the totals due to rounding.

Scenario Study

4.7 On top of the main findings of MSP, MRP and MRB as presented in *Chapters 2 and 3* and paragraphs 4.3 to 4.6 of this Chapter, a broad-brush scenario study⁹ has been conducted at the macro level to take into account the impact of economic conditions on the overall manpower situation up to 2027.

4.8 The scenario study assumed the projected manpower supply to remain constant under different economic scenarios, as manpower supply in the medium to long term is to a large extent demographically-driven. On the requirement side, as economic growth fosters job creation, the manpower requirements under different scenarios were estimated by making reference to the past statistical relationship between manpower requirement and overall economic growth¹⁰. In particular, with the main findings of

⁹ While the relationship between economic growth and manpower resource balance could vary among different industries, this study only intends to capture the effect of different economic growth scenarios on the manpower projection at the macro level but not at the sectoral level. Also, since the projection is done on a trend basis, the results are not meant to capture the potential year-to-year fluctuations in manpower resource balance over the projection period.

¹⁰ Given the broad-brush nature of the scenario study, potential structural changes in the relationship between manpower requirement and overall economic growth in the future, such as those brought about by technological advancement and efficiency enhancement, have not been taken into account.

MP2027 taken as the base-case scenario, the high-case and low-case scenarios are constructed by assuming a ± 1 percentage point range for the trend real Gross Domestic Product (GDP) growth over the projection period ¹¹. Compared with the base-case scenario under which the manpower shortfall in 2027 is projected at 169 700, the manpower shortfall will narrow to 86 800 under the low-case scenario but widen to 254 200 under the high-case scenario. The findings of projected MRBs under the three scenarios are presented in **Table 4.2**.

Table 4.2: Projected Manpower Resource Balance in 2027 under Different Scenarios

Scenario	(a) Projected manpower supply in 2027	(b) Projected manpower requirements in 2027	(c) = (a) – (b) Projected manpower resource balance in 2027 [Surplus (+) / shortfall (-)]
High-case scenario		3 824 100	- 254 200
Base-case scenario [⌘]	3 569 900	3 739 600	- 169 700
Low-case scenario		3 656 700	- 86 800

⌘ Follows the main findings of MP2027

¹¹ Given that MP2027 covers a 10-year projection period, reference has been drawn to the historical 10-year trend growth rates of real GDP. As the trend growth rates hovered in a range of 2 percentage points in the past 20 years since 1998, a ± 1 percentage point range for the real GDP trend growth over the projection period has been adopted for the scenario study.

Appendix I

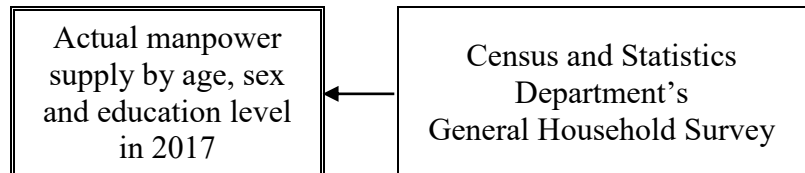
Schema on Compilation of Manpower Supply Projection to 2027

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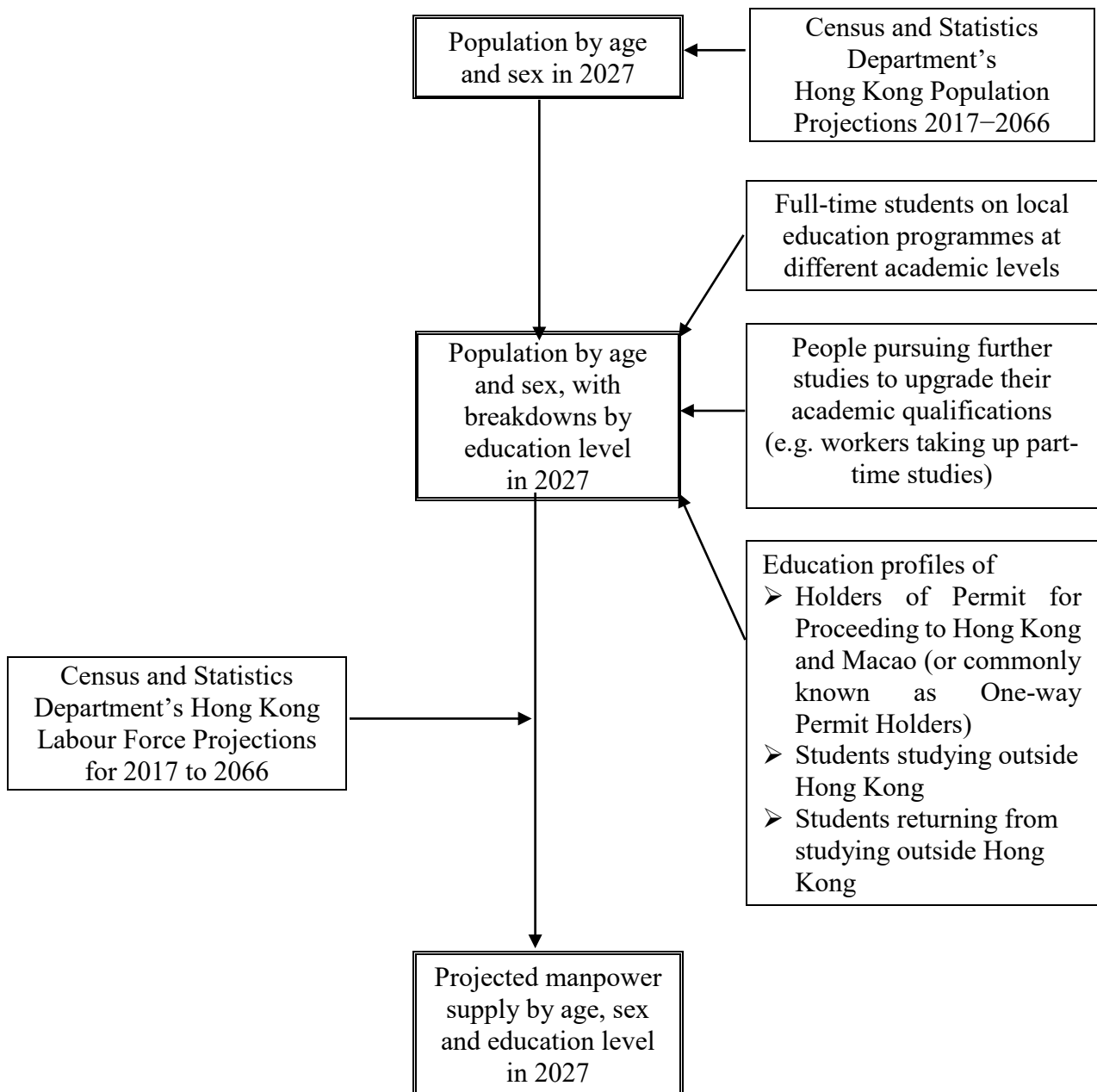
Appendix I

Schema on Compilation of Manpower Supply Projection to 2027

Base Year (i.e. 2017)



Projections up to 2027



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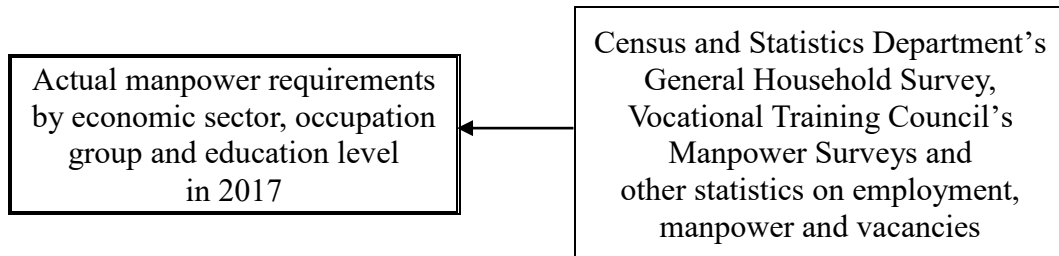
Appendix II

Schema on Compilation of Manpower Requirement Projection to 2027

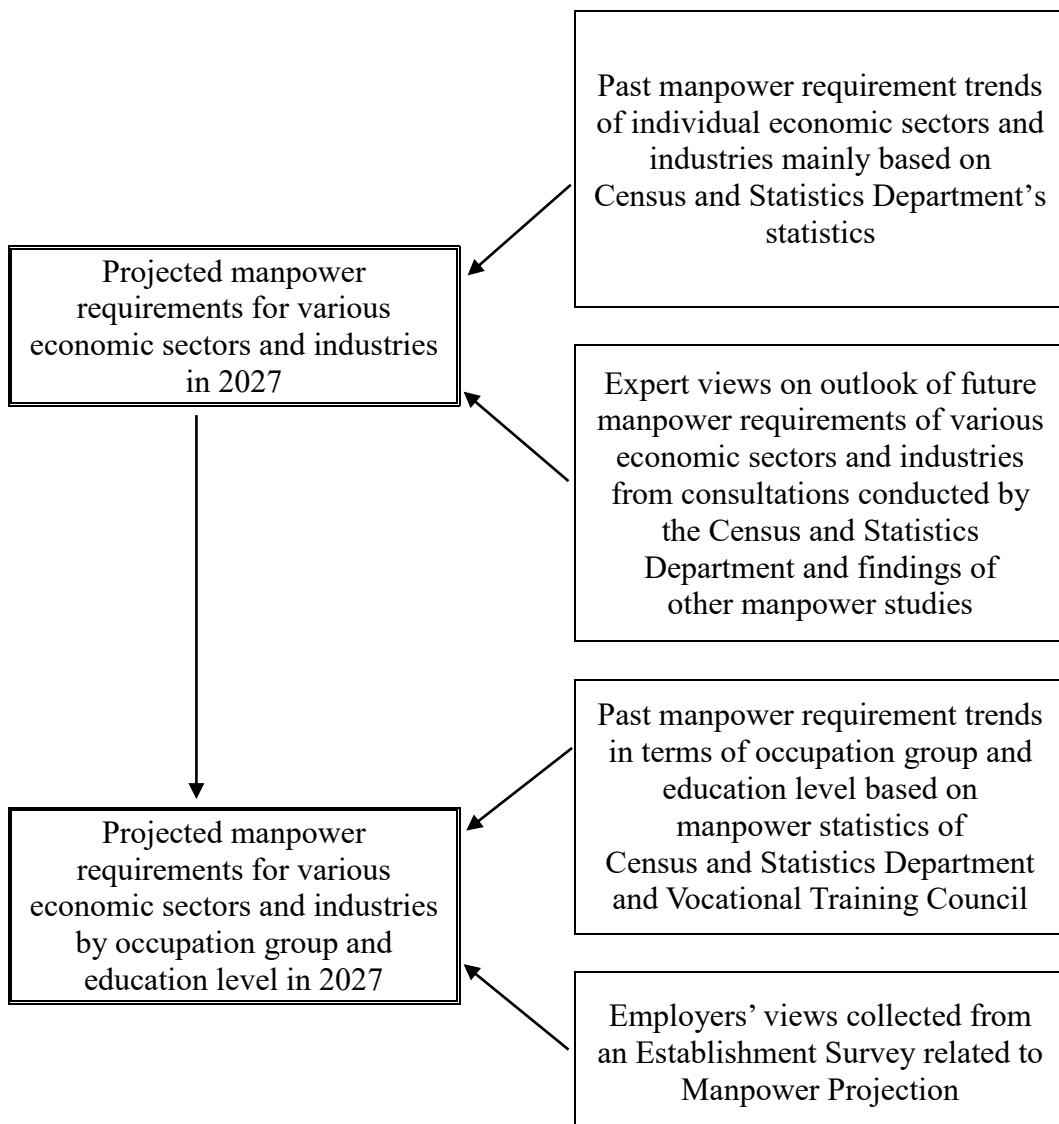
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Schema on Compilation of Manpower Requirement Projection to 2027

Base Year (i.e. 2017)



Projections up to 2027



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Appendix III

Projection Methodology of Manpower Requirements by Economic Sector

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Projection Methodology of Manpower Requirements
by Economic Sector

In the context of MP2027, manpower requirements can be regarded as job opportunities available to Hong Kong residents¹ and Manpower Requirement Projection (MRP) refers to the set of estimated manpower requirement statistics of various economic sectors of our economy in 2027. In compiling MRP, a bottom-up approach was used whereby the projected manpower requirements of individual economic sectors, which together make up the whole economy, were first compiled and then aggregated to give the overall projected manpower requirements for the whole economy. It is noteworthy that the projected manpower requirements were compiled independent of the projected manpower supply and that the actual manpower requirements in the base year of 2017 were the sum of the numbers of employed persons and job vacancies² of various economic sectors in Hong Kong.

Classification of Economic Sector

2. The actual and projected manpower requirements for 30 conventional economic sub-sectors, which constitute the whole economy, were first compiled. The manpower requirements of these economic sub-sectors were then grouped into those of 12 conventional economic sectors. The classification of these economic sectors was based on the Hong Kong Standard Industrial Classification Version 2.0 (HSIC V2.0), which is a framework adapted from the latest International Standard Industrial Classification of All Economic Activities Revision 4 promulgated by the United Nations for classifying economic units into industry classes based on their major economic activities. HSIC V2.0 is widely adopted by the Census and Statistics Department (C&SD) as a standard industrial classification of economic units in Hong Kong for compilation and dissemination of economic statistics.

¹ Excluding foreign domestic helpers (FDHs).

² The statistics of job vacancies are largely based on a regular survey conducted by the C&SD. They refer to job openings which are immediately available in, and for which active recruitment steps are being taken by, business establishments on the survey reference date.

3. Apart from assessing the future manpower requirements of the conventional economic sectors, analyses on the manpower requirements of some industries that are of sound importance or having good potential to the long-term competitiveness and economic development of Hong Kong were also conducted. These include the pillar industries and a number of selected industries. It should be noted that the pillar industries and the selected industries cut across the various conventional economic sectors and sub-sectors and that there is some degree of overlapping in coverage between individual selected industries. For instance, among the selected industries, the *Information technology and information services* include the *Software publishing and information technology related services*. Some of the activities therein (such as computer games publishing, information technology consultancy activities, data processing, web hosting and related activities) are also under the coverage of the *Cultural and creative industries*. In other words, the total manpower requirements of selected industries cannot be derived by simple summation of each of them.

4. Details of the coverage of the conventional economic sectors, the pillar industries and the selected industries adopted in MP2027 are set out at **Appendix V** of this report.

Projection Methodology of Manpower Requirement by Economic Sector

5. In MP2027, the manpower requirements of various economic sectors and industries were projected up to 2027, with 2017 as the base year, through a two-step statistical process.

Step One – Fitting of statistical models for preliminary results

6. The historical manpower requirements of various economic sectors and industries up to the base year were worked out primarily on the basis of C&SD's manpower statistics, taking into account job vacancies. Preliminary estimates of the projected manpower requirements up to 2027 were first derived by means of statistical projection models³ drawing on the historical manpower statistics by economic sector.

³ Various statistical projection models such as linear model, parabola model, log-linear model and reciprocal linear model were fitted to the historical data series.

7. Among all the fitted statistical models, some were selected for intensive study with reference to statistical performance (e.g. measure of goodness of fit). Based on the models selected, the preliminary projected average annual rates of change in respect of individual economic sectors and industries were compiled. The preliminary set of projected manpower requirements up to 2027 were then worked out by applying the derived projected average annual rates of change to the base-year's actual manpower requirements of the relevant economic sectors and industries.

Step Two – Review of preliminary results with regard to consultation findings, survey results and other intelligence

8. The degree of statistical relationship with the past trend was not the sole consideration in selection of projection model. The second step was to review and fine-tune the preliminary projection results derived from the quantitative method described in step one above by taking into consideration a wide range of statistics and information from various sources. These included the views gathered through an extensive consultation exercise from over 100 businesses, trade associations and public organisations on the outlook of the future manpower requirements of various industries; as well as the findings from a MP-related Establishment Survey involving 5 900 establishments of various economic sectors on employers' views on their current and future manpower needs. Such information was important at the time of economic changes and critical to identify new opportunities and challenges. In particular, a list of the social and economic factors that may affect the outlook for future manpower needs, such as population ageing, the use of automation and artificial intelligence, the new business opportunities arising from the Belt and Road Initiative and the Guangdong-Hong Kong-Macao Bay Greater Bay Areas were listed in the survey questionnaire and consultation document to facilitate respondents' responses on their future manpower requirements.

9. An inter-departmental Task Group for Manpower Requirement Projection to 2027, led by the C&SD and comprising members from relevant Government Bureaux/Departments and statutory training bodies, was set up to review, deliberate and endorse the projection results for individual economic sectors and industries. With due regards to the findings and views from the consultation exercise and the Establishment Survey, together with the insights from other manpower studies and desktop researches, the

Task Group fine-tuned the preliminary projected average annual rates of change on manpower requirements compiled from the first step, applied them to the corresponding base year's figures and arrived at the projected manpower requirements on individual economic sectors and industries up to 2027.

Appendix IV

Coverage of Education Levels

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Coverage of Education Levels

Education level	Coverage
Lower secondary and below	Education level below Secondary 5 under the old academic structure and education level below Secondary 6 under the new academic structure, or equivalent.
Upper secondary	Secondary 5 – 7 under the old academic structure and Secondary 6 under the new academic structure, covering the education programmes in relation to the Hong Kong Diploma of Secondary Education (HKDSE) ¹ Examination, the then Hong Kong Certificate of Education Examination (HKCEE), the then Hong Kong Higher Level Examination (HKHLE), the then Hong Kong Advanced Level Examination (HKALE), and Project Yi Jin / Diploma Yi Jin, or equivalent.
Diploma	Technical and vocational education programmes including Diploma / Certificate courses and Foundation Diploma courses offered by the Hong Kong Institute of Vocational Education (HKIVE) and other member institutions of the Vocational Training Council (VTC), publicly-funded and self-financing post-secondary education institutions including their extension arms, Clothing Industry Training Authority, Construction Industry Council, former Polytechnics and other statutory or approved post-secondary colleges; Enrolled Nurse training programmes; general Diploma / Certificate programmes of the Prince Philip Dental Hospital (PPDH); distance learning Diploma / Certificate courses, or equivalent that last for at least one academic year. These technical and vocational education programmes at diploma / certificate level usually require the completion of upper secondary education as the minimum entrance qualifications.

¹ With the implementation of the New Senior Secondary Academic Structure in academic year 2009/10, HKDSE has replaced HKCEE, HKHLE and HKALE.

Education level	Coverage
Diploma (cont'd)	<p>Also included are technical and vocational education programmes at the craft level, such as those offered by HKIVE and other member institutions of the VTC, or equivalent that last for at least one academic year. These craft programmes usually require the completion of lower secondary education as the minimum entrance qualifications (including apprenticeship), or equivalent.</p>
Sub-degree	<p>Higher Certificates, Higher Diplomas, Professional Diplomas, Associate Degrees, Endorsement Certificates, Associateship or equivalent courses offered by the HKIVE and other member institutions of the VTC, publicly-funded and self-financing post-secondary education institutions including their extension arms, and non-local education institutions; sub-degree level Registered Nurse training programmes; Higher / Professional Diplomas of PPDH; distance learning sub-degree level courses, or equivalent.</p>
First Degree	<p>First degrees offered by local or non-local education institutions, or equivalent.</p>
Postgraduate	<p>Higher degrees (e.g. master degrees) offered by local or non-local education institutions for the academic programmes which usually require a first degree, or equivalent, as the minimum entrance qualifications.</p>

Appendix V

Coverage of Economic Sectors, Pillar Industries and Selected Industries

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**Coverage of Economic Sectors,
Pillar Industries and Selected Industries**

(A) Conventional Economic Sectors

Economic sector	Coverage
1. Agriculture, fishing and quarrying	
Agriculture, fishing and quarrying	It includes such activities as growing crops, raising livestock and poultry, growing and harvesting timber, culturing and farming aquatic organisms. It also covers all establishments mainly engaged in mining and quarrying activities.
2. Manufacturing	
Manufacturing	It includes the physical or chemical transformation of materials, substances, or components into new products. Substantial alteration, renovation and reconstruction of goods are generally considered to be manufacturing. Also included in the sector are specialised repair and maintenance of industrial and commercial machinery and equipment.
3. Electricity, gas, water, and waste management	
Electricity, gas, water, and waste management	It includes the activities of providing and distributing electricity, gas and water. It also includes activities related to the management of various forms of waste, such as industrial or household waste, as well as contaminated sites.
4. Construction	
Construction	It includes general construction and specialised construction activities for buildings and civil engineering works, which cover new works, repair, additions and alterations, the erection of prefabricated building structure on the site and also construction of a temporary nature.

Economic sector	Coverage
5. Import, export, wholesale and retail Trades	
Import and export trade	It includes activities related to the import of goods for domestic wholesaling or export as well as off-shore transactions. Buying agents or commission agents arranging for import, export of goods or off-shore transactions are also included.
Wholesale	It includes the resale (sale without transformation) of new and used goods to retailers, business-to-business trade, or resale to other wholesalers, or involves acting as an agent or broker in buying merchandise for, or selling merchandise to, such persons companies.
Retail trade	It includes the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilisation, by shops, department stores, stalls, mail-order houses, hawkers and peddlers, consumer cooperatives, auction houses, etc.
6. Accommodation and food services	
Accommodation	It includes the provision of short-stay lodging services to tourists or local residents.
Food services	It includes the sale of meals and/or drinks, generally for immediate consumption on the premises. It also includes the sale of take-out meals; catering activities; as well as restaurant and bar activities, connected to transportation (e.g. in a train or a ship), when carried out by separate units.

Economic sector	Coverage
7. Transportation, storage, postal and courier services	
Land transport and related services	It includes railway and cable transport; public bus services; taxi services; scheduled and non-scheduled public light bus services; school bus services; rental of passenger vehicles with drivers; freight transport by road (including tractors); and other land transport services. It also includes service activities incidental to land transportation such as car park operation; vehicular tunnel, bridge and highway operations; loading and unloading of luggage or freight during land transport, and land cargo forwarding services.
Water transport and related services	It includes ship agents and managers; local representative offices of overseas shipping companies; ship owners and operators of sea-going vessels; ship owners and operators of vessels moving between Hong Kong and the ports in Pearl River Delta; and inland water transport. It also includes service activities incidental to water transportation such as container terminals and marine cargo terminal operators; mid-stream operation; port facilities operators (except container and marine cargo terminals); container back-up activities, and sea cargo forwarding services.
Air transport and related services	It includes Hong Kong-based airline and helicopter companies; local representative offices of overseas airline companies; air transport services not elsewhere classified; services activities incidental to air transportation; and air cargo forwarding services.
Warehousing and other transportation services	It includes operation of storage and warehouse facilities for all kind of goods such as general merchandise warehouses, refrigerated warehouses or storage tanks, but container yards and container freight stations are excluded. It also includes packing and crating services; cargo inspection, sampling and weighing services; shipbrokers; and other miscellaneous transportation support activities not elsewhere classified.

Economic sector	Coverage
Postal and courier	It includes postal and courier activities, such as pickup, transport and delivery of letters and parcels under various arrangements. Local delivery and messenger services are also included.
8. Information and communications	
Telecommunication activities	It includes the activities of providing telecommunications and related service activities, i.e. transmitting data, signal, text, sound and video, etc.
Software publishing and information technology related services	It includes publishing of ready-made (non-customised) software including operating systems, computer games for all platforms, business and other applications, as well as online game websites which design, reproduce and distribute the software games by themselves. It also includes computer software design, computer system integration and other information technology services. Also included are the provision of infrastructure for web hosting, data processing services and related activities, as well as the provision of search facilities and other portal services for the Internet.
Miscellaneous activities related to information and communications	It includes publishing of books, periodicals and other publishing activities; motion pictures, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities; and other information service activities.

Economic sector	Coverage
9. Financial services	
Banking	It includes licensed banks, restricted licensed banks, deposit-taking companies, and local representative offices of foreign banks.
Financial institutions (other than banks and insurance)	It includes monetary authorities; investment and holding companies; trusts, funds and similar financial entities; other financial service activities such as financial leasing, credit granting and other financial service activities without loan making; activities auxiliary to financial service activities (except insurance and pension funding) and fund management.
Insurance	It includes underwriting annuities and insurance policies and investing premiums to build up a portfolio of financial assets to be used against future claims. Provision of direct insurance and reinsurance is included. It also includes insurers and insurance intermediaries (i.e. insurance agents and brokers) in selling annuities and insurance policies or providing other employee benefits, as well as insurance and pension related services such as claims adjustment and administration of policies, as applicable.
10. Real estate	
Real estate	It includes buying, selling and renting real estate, as well as relevant activities facilitating and leading to such transactions. Also included are real estate development and property management.

Economic sector	Coverage
11. Professional and business services	
Legal services	It consists of establishments providing legal services such as solicitors' and barristers' firms.
Accounting, auditing and bookkeeping services	It consists of establishments providing accounting, auditing and bookkeeping services. Also included is tax reporting service.
Business management and consultancy services, and engineering and technical services not related to construction and real estate activities	It includes activities of head offices; management and management consultancy activities; technical testing and analyses; engineering, technical and consultancy services not related to construction and real estate activities not elsewhere classified (n.e.c.); scientific research and development, veterinary activities; photographic activities; translation and interpretation services; and other miscellaneous professional, scientific and technical activities n.e.c.
Design, advertising and related services	It includes the provision of advertising services; market research and public opinion polling; and specialised design activities such as fashion design, industrial design, activities of graphic designers and interior decorators, and other specialised design n.e.c.
Architectural, surveying and engineering services related to real estate and construction	It consists of establishments engaged in architectural design services, surveying services related to real estate and construction, structural engineering services, building services engineering services, civil and geotechnical engineering services, environmental engineering services and related consultancy services, town planning and urban design activities, as well as combination of architectural, surveying and engineering services related to construction.
Miscellaneous professional and business services	It includes rental and leasing activities; employment activities; travel agency, reservation service and related activities; security and investigation activities; services to buildings and landscape care activities; and office administrative, office support and other business support activities.

Economic sector	Coverage
12. Social and personal services	
Human health activities	It includes activities of hospitals and other human health institutions which have accommodation facilities and provide diagnostic and medical treatment to inpatients; medical consultation and treatment by general practitioners and medical specialists and surgeons; dental practice activities of a general or specialised nature and orthodontic activities; activities for human health not performed by hospitals or by practicing medical doctors but by paramedical practitioners legally recognised to treat patients.
Nursing homes, residential care activities and social work activities without accommodation for the elderly and persons with disabilities	It includes activities of nursing homes such as nursing homes for the elderly, residential care activities and social work activities without accommodation for the elderly and persons with disabilities.
Other social and personal services	It includes public administration; education; Other social work activities, such as residential care activities / social work activities without accommodation for persons other than the elderly and persons with disabilities, youth centres, child day-care centres, etc.; arts, entertainment and recreation; other service activities; work activities within domestic households; and activities of extraterritorial organisation and bodies.

(B) Pillar Industries

Pillar industry	Coverage
Financial services	
Banking	It includes licensed banks, restricted licensed banks, deposit-taking companies, and local representative offices of foreign banks.
Financial institutions (other than banks and insurance)	It includes monetary authorities; investment and holding companies; trusts, funds and similar financial entities; other financial service activities such as financial leasing, credit granting and other financial service activities without loan making; activities auxiliary to financial service activities (except insurance and pension funding) and fund management.
Insurance	It includes underwriting annuities and insurance policies and investing premiums to build up a portfolio of financial assets to be used against future claims. Provision of direct insurance and reinsurance is included. It also includes insurers and insurance intermediaries (i.e. insurance agents and brokers) in selling annuities and insurance policies or providing other employee benefits, as well as insurance and pension related services such as claims adjustment and administration of policies, as applicable.
Trading and logistics	
Import and export trade	It includes activities related to the import of goods for domestic wholesaling or export as well as off-shore transactions. Buying agents or commission agents arranging for import, export of goods or off-shore transactions are also included.
Wholesale	It includes the resale (sale without transformation) of new and used goods to retailers, business-to-business trade, or resale to other wholesalers, or involves acting as an agent or broker in buying merchandise for, or selling merchandise to, such persons companies.

Pillar industry	Coverage
Freight transportation	It includes freight transport by road, transport by tractors and loading and unloading of luggage or freight during land transport; and ship agents and managers, local representative offices of overseas shipping companies, ship owners and operators of sea-going freight vessels, and freight vessels moving between Hong Kong and the ports in Pearl River Delta, inland freight water transport, and service activities incidental to freight water transportation. It also includes air transport (freight) and service activities incidental to air transportation, as well as other transportation support activities.
Warehousing and storage	It includes operation of storage and warehouse facilities for all kind of goods such as general merchandise warehouses, refrigerated warehouses or storage tanks, but container yards and container freight stations are excluded.
Postal and courier	It includes postal and courier activities, such as pickup, transport and delivery of letters and parcels under various arrangements. Local delivery and messenger services are also included.
Professional services and other producer services	
Software publishing and information technology related services	It includes publishing of ready-made (non-customised) software including operating systems, computer games for all platforms, business and other applications, as well as online game websites which design, reproduce and distribute the software games by themselves. It also includes computer software design, computer system integration and other information technology services. Also included are the provision of infrastructure for web hosting, data processing services and related activities, as well as the provision of search facilities and other portal services for the Internet.
Legal services	It consists of establishments providing legal services such as solicitors' and barristers' firms.
Accounting, auditing and bookkeeping services	It consists of establishments providing accounting, auditing and bookkeeping services. Also included is tax reporting service.

Pillar industry	Coverage
Business management and consultancy services, and engineering and technical services not related to construction and real estate activities	It includes activities of head offices; management and management consultancy activities; technical testing and analyses; engineering, technical and consultancy services not related to construction and real estate activities n.e.c.; scientific research and development, veterinary activities; photographic activities; translation and interpretation services; and other miscellaneous professional, scientific and technical activities n.e.c.
Design, advertising and related services	It includes the provision of advertising services; market research and public opinion polling; and specialised design activities such as fashion design, industrial design, activities of graphic designers and interior decorators, and other specialised design n.e.c.
Architectural, surveying and engineering services related to real estate and construction	It consists of establishments engaged in architectural design services, surveying services related to real estate and construction, structural engineering services, building services engineering services, civil and geotechnical engineering services, environmental engineering services and related consultancy services, town planning and urban design activities, as well as combination of architectural, surveying and engineering services related to construction.
Other producer services	It includes retail trade, food and beverage services, accommodation services, transport, telecommunications, real estate, machinery and equipment rental services, miscellaneous business services, various social services and various personal services, yet pertaining only to that segment of services provided to companies in the local economy rather than to local individuals as final consumers.

Pillar industry	Coverage
Tourism	
<u>Inbound tourism</u>	
Retail trade	It includes the retail sales in non-specialised stores such as department stores and supermarkets; the retail sales of food, beverage and tobacco, information and communications equipment, household equipment, cultural and recreation goods, etc. in specialised stores. It covers only that segment of services provided to visitors to Hong Kong.
Accommodation	It covers the provision of short-stay lodging services to visitors to Hong Kong.
Food and beverage services	It includes the sale of meals and/or drinks, generally for consumption immediately on the premises. It also includes the sale of take-out meals; catering activities; as well as restaurant and bar activities, connected to transportation (e.g. in a train or a ship), when carried out by separate units. It covers only that segment of services provided to visitors to Hong Kong.
Cross-boundary passenger transport services	It includes rental of passenger vehicles with drivers (with cross-border transportation services); ship owners and operators of sea-going passenger vessels, and passenger vessels moving between Hong Kong and the ports in Pearl River Delta; air transport (other than freight); and port facilities operators (except container and marine cargo terminals). It covers only that segment of services provided to visitors to Hong Kong.
Other activities related to inbound tourism	It includes travel agency, reservation service and related activities; domestic transport, entertainment, convention, telecommunications and real estate development/ leasing. It covers only that segment of services provided to visitors to Hong Kong.

Pillar industry	Coverage
<u>Outbound tourism</u>	
Travel agency, reservation service and related activities	It includes the travel agency, reservation service and related activities. It covers only that segment of services provided to Hong Kong residents travelling abroad.
Cross-boundary passenger transport services	It includes rental of passenger vehicles with drivers (with cross-border transportation services); ship owners and operators of sea-going passenger vessels, and passenger vessels moving between Hong Kong and the ports in Pearl River Delta; air transport (other than freight); and port facilities operators (except container and marine cargo terminals). It covers only that segment of services provided to Hong Kong residents travelling abroad.

(C) Selected Industries

Selected industry	Coverage
Information technology and information services	<p>It includes the activities of providing telecommunications and related service activities, i.e. transmitting data, signal, text, sound and video, etc.</p> <p>It includes publishing of ready-made (non-customised) software including operating systems, computer games for all platforms, business and other applications, as well as online game websites which design, reproduce and distribute the software games by themselves.</p> <p>It also includes computer software design, computer system integration and other information technology services. Also included are the provision of infrastructure for web hosting, data processing services and related activities, as well as the provision of search facilities and other portal services for the Internet.</p>

Selected industry	Coverage
Innovation and technology industries	<p>It mainly covers Research and Development (R&D) activities in the business sector as well as higher education and public technology support organisations¹. It also covers activities relating to commercialisation of R&D outputs in the process of product and process innovation in the business sector. Strictly speaking, the Innovation and technology industries sector is not an industry in the conventional sense but rather it relates to science, technology and innovation activities that may exist in any industry and organisation.</p> <p>In the context of manpower resources, employment in the Innovation and technology industries sector covers R&D personnel (including researchers, scientists and engineers) with scientific or technological training and engaged in professional work of R&D activities. They also include administrators and other high-level personnel who direct R&D activities as well as those employees deployed to commercialisation of R&D performed in-house or technology and know-how (related to product and process innovation) acquired from other parties. Examples of activities related to commercialisation of R&D include production start-up; tooling up and industrial engineering for production or delivery of new products; market introduction of new products and training of staff on use of new production technology or new processes.</p>
Testing and certification services	It includes business establishments engaged in technical testing and analysis; cargo inspection, sampling and weighting; and medical and X-ray laboratories as their major economic activities.
Cultural and creative industries	It comprises different sectors, which mainly include advertising; architecture; art, antiques and crafts; design; film, video and music; performing arts; publishing; software, computer games and interactive media; and television and radio.

¹ Public technology support organisations include Hong Kong Productivity Council (Automotive Parts and Accessory Systems R&D Centre), Hong Kong Applied Science and Technology Research Institute Company Limited (Hong Kong R&D Centre for Information and Communications Technologies), Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies, the Hong Kong Research Institute of Textiles and Apparel, and Nano and Advanced Materials Institute Limited.

Selected industry	Coverage
Environmental industries	It mainly includes sewerage and waste management, environmental related cleaning services, landscape care and greenery services, environmental engineering and consultancy services as well as import/export and wholesale trading of waste and scrap.

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Appendix VI

Coverage of Occupation Groups

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Coverage of Occupation Groups

Occupation group	Job duties	Examples
1. Managers and administrators	<ul style="list-style-type: none"> ➤ To plan, formulate, organise, co-ordinate, control and direct policies and operations of enterprises and organisations 	<p>Managing directors, chief executive officers, presidents, finance director, general managers; company secretaries; administration managers, operations managers, corporation branch managers, personnel managers, sales managers, production managers, building and construction project managers; chief information officers, communication technology services managers; accounting managers, finance managers, hotel or restaurant managers, factory managers.</p>
2. Professionals	<ul style="list-style-type: none"> ➤ To engage in the practical application of generally recognised professional scientific and artistic knowledge and know-how in their work ➤ To increase the existing stock of knowledge by means of research and creativeness ➤ To teach about the foregoing in a systematic manner 	<p>Physicists, chemists, actuaries; architects, engineers, landscape architects, town and traffic planners, surveyors; aircraft pilots; medical doctors, registered Chinese medicine practitioners, dentist, veterinarians, pharmacists; chancellors, directors, lecturers, professors and administrators of universities and post-secondary colleges, principals and teachers of secondary schools; mathematicians; lawyers, accountants, auditors, investment consultants, business management consultants, public relations consultants; system analysts, IT strategist, multimedia production managers, network engineers, Information and Communication Technology (ICT) researchers; social workers, religious professionals; news editors, journalists and reporters; writers; librarians; translators and interpreters; film, television and stage directors and producers; musicians.</p>

Occupation group	Job duties	Examples
3. Associate professionals	<ul style="list-style-type: none"> ➤ To assume operational responsibility and to give technical support to professionals in different fields, such as engineering, businesses, natural sciences, social sciences, and humanities 	<p>Science technicians, ICT technicians; architectural, surveying and engineering technicians; safety officers; draughtsman, optical technicians, electronic engineering technicians; photographers; optometrists, physiotherapists, occupational therapists, nurses and midwives, dental hygienists, medical laboratory technologists, radiographers; principals and teachers of primary schools and pre-primary schools; training instructors; ship pilots and air traffic controllers; statistical officers; computer operators; law clerks; accounting supervisors, credit analysts; sales representatives, estate agents, estate managers and officers; public relation officers; sportsmen; film, television and stage actors, singers and dancers.</p>
4. Clerical support workers	<ul style="list-style-type: none"> ➤ To record, organise, store and retrieve information; compute numerical, financial and statistical data; and perform a number of client-oriented clerical duties, especially in connection with money-handling operations, travel arrangements, business information and appointments 	<p>Stenographers, secretaries, typists, general clerks; tellers; receptionists, customer enquiry clerks; accounting and bookkeeping clerks, shipping clerks, purchasing clerks, stock clerks, tally clerks; ICT assistants, electronic data processing clerks.</p>

Occupation group	Job duties	Examples
5. Service and sales workers	<ul style="list-style-type: none"> ➤ To provide personal services related to travel, housekeeping, catering, personal care, etc. ➤ To sell and demonstrate goods for wholesale or retail shops and similar establishments 	<p>Flight attendants, travel guides; chefs, cooks and waiters; hairdressers and beauticians; housekeeping supervisors; private tutors, masseurs; salespersons, shop assistants, cashiers and ticket sellers; fashion and other models; baby-sitters and child care workers; personal care workers; life guards; transport conductors and railway station officers.</p>
6. Craft and related workers	<ul style="list-style-type: none"> ➤ To extract and treat raw materials; manufacture and repair goods; construct, maintain and repair roads, structures and machinery 	<p>Bricklayers, carpenters and other skilled construction workers; metal moulders; blacksmiths; machinery mechanics and repairers; electrical equipment, electronics and telecommunications installers and repairers; handicraft workers specialising in jewellery, precious metal, pottery moulders, glass and precision instrument such as acoustical musical instrument and camera; printing trade workers; bakers, food and beverage processors; garment, leather, shoes making and repair workers; rubber and plastic trades workers.</p>
7. Drivers, plant and machine operators, and assemblers	<ul style="list-style-type: none"> ➤ To operate vehicles and other mobile equipment ➤ To tend, control and monitor the operation of industrial plant and machinery on the spot or by remote control ➤ To assemble products from component parts according to strict rules and procedures 	<p>Drivers; sawmill sawyers; paper makers; chemical and photographic products and machine operators; power-generating plant operators; heating and ventilation equipment operators; concrete mixer operators; metal finishers and electroplaters; food processing machine operators; machine operators for production of textile, rubber, plastic and paper products; assemblers; seamen.</p>

Occupation group	Job duties	Examples
8. Elementary occupations	<ul style="list-style-type: none"> ➤ To perform mostly simple and routine tasks, involving the use of simple hand-held tools and, in some cases, certain physical effort and only limited personal initiative or judgment 	<p>Domestic, hotel and office cleaners and helpers; street vendors; messengers and deliverers; warehouse porters and transport labourers; security guards, watchmen; freight handlers; lift operators; construction labourers; hand packers; food preparation assistants, dishwashers; handbill and news distributors; garbage collectors.</p>
9. Other occupations	<ul style="list-style-type: none"> ➤ To engage in activities such as growing crops, vegetables and flowers; raising livestock and poultry; growing and harvesting timber; and culturing and farming of aquatic organisms ➤ To engage in activities other than those occupation group numbered 1 to 8 	<p>Market gardeners and crop growers; mixed crop and animal producers; fishery workers, hunters and trappers; subsistence crop farmers; subsistence livestock farmers; subsistence mixed crop and livestock farmers; subsistence fishers, hunters, trappers and gatherers.</p>

Appendix VII

Supplementary Statistical Tables (Tables A7.1 – A7.89)

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Supplementary Statistical Tables

Table A7.1	Population by Age Group, Sex and Education Level in 2017
Table A7.2	Projected Population by Age Group, Sex and Education Level in 2027
Table A7.3	Manpower Supply by Age Group, Sex and Education Level in 2017
Table A7.4	Projected Manpower Supply by Age Group, Sex and Education Level in 2027
Table A7.5	Manpower Requirements of the Agriculture, Fishing and Quarrying Sector by Occupation Group in 2017 and 2027
Table A7.6	Manpower Requirements of the Manufacturing Sector by Occupation Group in 2017 and 2027
Table A7.7	Manpower Requirements of the Electricity, Gas, Water and Waste Management Sector by Occupation Group in 2017 and 2027
Table A7.8	Manpower Requirements of the Construction Sector by Occupation Group in 2017 and 2027
Table A7.9	Manpower Requirements of the Import and Export Trade Sub-sector by Occupation Group in 2017 and 2027
Table A7.10	Manpower Requirements of the Wholesale Sub-sector by Occupation Group in 2017 and 2027
Table A7.11	Manpower Requirements of the Retail Trade Sub-sector by Occupation Group in 2017 and 2027
Table A7.12	Manpower Requirements of the Accommodation Sub-sector by Occupation Group in 2017 and 2027
Table A7.13	Manpower Requirements of the Food Services Sub-sector by Occupation Group in 2017 and 2027
Table A7.14	Manpower Requirements of the Land Transport and Related Services Sub-sector by Occupation Group in 2017 and 2027
Table A7.15	Manpower Requirements of the Water Transport and Related Services Sub-sector by Occupation Group in 2017 and 2027
Table A7.16	Manpower Requirements of the Air Transport and Related Services Sub-sector by Occupation Group in 2017 and 2027
Table A7.17	Manpower Requirements of the Warehousing and Other Transportation Support Services Sub-sector by Occupation Group in 2017 and 2027

- Table A7.18 Manpower Requirements of the Postal and Courier Sub-sector by Occupation Group in 2017 and 2027
- Table A7.19 Manpower Requirements of the Telecommunication Activities Sub-sector by Occupation Group in 2017 and 2027
- Table A7.20 Manpower Requirements of the Software Publishing and Information Technology Related Services Sub-sector by Occupation Group in 2017 and 2027
- Table A7.21 Manpower Requirements of the Miscellaneous Activities Related to Information and Communications Sub-sector by Occupation Group in 2017 and 2027
- Table A7.22 Manpower Requirements of the Banking Sub-sector by Occupation Group in 2017 and 2027
- Table A7.23 Manpower Requirements of the Financial Institutions (other than Banks and Insurance) Sub-sector by Occupation Group in 2017 and 2027
- Table A7.24 Manpower Requirements of the Insurance Sub-sector by Occupation Group in 2017 and 2027
- Table A7.25 Manpower Requirements of the Real Estate Sector by Occupation Group in 2017 and 2027
- Table A7.26 Manpower Requirements of the Legal Services Sub-sector by Occupation Group in 2017 and 2027
- Table A7.27 Manpower Requirements of the Accounting, Auditing and Bookkeeping Services Sub-sector by Occupation Group in 2017 and 2027
- Table A7.28 Manpower Requirements of the Business Management and Consultancy Services, and Engineering and Technical Services not related to Construction and Real Estate Activities Sub-sector by Occupation Group in 2017 and 2027
- Table A7.29 Manpower Requirements of the Design, Advertising and Related Services Sub-sector by Occupation Group in 2017 and 2027
- Table A7.30 Manpower Requirements of the Architectural, Surveying and Engineering Services Related to Real Estate and Construction Sub-sector by Occupation Group in 2017 and 2027
- Table A7.31 Manpower Requirements of the Miscellaneous Professional and Business Services Sub-sector by Occupation Group in 2017 and 2027
- Table A7.32 Manpower Requirements of the Human Health Activities Sub-sector by Occupation Group in 2017 and 2027

- Table A7.33 Manpower Requirements of the Nursing Homes, Residential Care Activities and Social Work Activities without Accommodation for the Elderly and Persons with Disabilities Sub-sector by Occupation Group in 2017 and 2027
- Table A7.34 Manpower Requirements of the Other Social and Personal Services Sub-sector by Occupation Group in 2017 and 2027
- Table A7.35 Manpower Requirements of the Financial Services Industry by Occupation Group in 2017 and 2027
- Table A7.36 Manpower Requirements of the Trading and Logistics Industry by Occupation Group in 2017 and 2027
- Table A7.37 Manpower Requirements of the Professional Services and Other Producer Services Industry by Occupation Group in 2017 and 2027
- Table A7.38 Manpower Requirements of the Tourism Industry by Occupation Group in 2017 and 2027
- Table A7.39 Manpower Requirements of the Information Technology and Information Services Industry by Occupation Group in 2017 and 2027
- Table A7.40 Manpower Requirements of the Innovation and Technology Industries by Occupation Group in 2017 and 2027
- Table A7.41 Manpower Requirements of the Testing and Certification Services Industry by Occupation Group in 2017 and 2027
- Table A7.42 Manpower Requirements of the Cultural and Creative Industries by Occupation Group in 2017 and 2027
- Table A7.43 Manpower Requirements of the Environmental Industries by Occupation Group in 2017 and 2027
- Table A7.44 Manpower Requirements for Workers at Lower Secondary and Below Level by Economic Sector in 2017 and 2027
- Table A7.45 Manpower Requirements for Workers at Upper Secondary Level by Economic Sector in 2017 and 2027
- Table A7.46 Manpower Requirements for Workers at Diploma Level by Economic Sector in 2017 and 2027
- Table A7.47 Manpower Requirements for Workers at Sub-degree Level by Economic Sector in 2017 and 2027
- Table A7.48 Manpower Requirements for Workers at First Degree Level by Economic Sector in 2017 and 2027

Table A7.49	Manpower Requirements for Workers at Postgraduate Level by Economic Sector in 2017 and 2027
Table A7.50	Manpower Requirements of the Agriculture, Fishing and Quarrying Sector by Education Level in 2017 and 2027
Table A7.51	Manpower Requirements of the Manufacturing Sector by Education Level in 2017 and 2027
Table A7.52	Manpower Requirements of the Electricity, Gas, Water and Waste Management Sector by Education Level in 2017 and 2027
Table A7.53	Manpower Requirements of the Construction Sector by Education Level in 2017 and 2027
Table A7.54	Manpower Requirements of the Import and Export Trade Sub-sector by Education Level in 2017 and 2027
Table A7.55	Manpower Requirements of the Wholesale Sub-sector by Education Level in 2017 and 2027
Table A7.56	Manpower Requirements of the Retail Trade Sub-sector by Education Level in 2017 and 2027
Table A7.57	Manpower Requirements of the Accommodation Sub-sector by Education Level in 2017 and 2027
Table A7.58	Manpower Requirements of the Food Services Sub-sector by Education Level in 2017 and 2027
Table A7.59	Manpower Requirements of the Land Transport and Related Services Sub-sector by Education Level in 2017 and 2027
Table A7.60	Manpower Requirements of the Water Transport and Related Services Sub-sector by Education Level in 2017 and 2027
Table A7.61	Manpower Requirements of the Air Transport and Related Services Sub-sector by Education Level in 2017 and 2027
Table A7.62	Manpower Requirements of the Warehousing and Other Transportation Support Services Sub-sector by Education Level in 2017 and 2027
Table A7.63	Manpower Requirements of the Postal and Courier Sub-sector by Education Level in 2017 and 2027
Table A7.64	Manpower Requirements of the Telecommunication Activities Sub-sector by Education Level in 2017 and 2027
Table A7.65	Manpower Requirements of the Software Publishing and Information Technology Related Services Sub-sector by Education Level in 2017 and 2027

- Table A7.66 Manpower Requirements of the Miscellaneous Activities Related to Information and Communications Sub-sector by Education Level in 2017 and 2027
- Table A7.67 Manpower Requirements of the Banking Sub-sector by Education Level in 2017 and 2027
- Table A7.68 Manpower Requirements of the Financial Institutions (other than Banks and Insurance) Sub-sector by Education Level in 2017 and 2027
- Table A7.69 Manpower Requirements of the Insurance Sub-sector by Education Level in 2017 and 2027
- Table A7.70 Manpower Requirements of the Real Estate Sector by Education Level in 2017 and 2027
- Table A7.71 Manpower Requirements of the Legal Services Sub-sector by Education Level in 2017 and 2027
- Table A7.72 Manpower Requirements of the Accounting, Auditing and Bookkeeping Services Sub-sector by Education Level in 2017 and 2027
- Table A7.73 Manpower Requirements of the Business Management and Consultancy Services, and Engineering and Technical Services not related to Construction and Real Estate Activities Sub-sector by Education Level in 2017 and 2027
- Table A7.74 Manpower Requirements of the Design, Advertising and Related Services Sub-sector by Education Level in 2017 and 2027
- Table A7.75 Manpower Requirements of the Architectural, Surveying and Engineering Services Related to Real Estate and Construction Sub-sector by Education Level in 2017 and 2027
- Table A7.76 Manpower Requirements of the Miscellaneous Professional and Business Services Sub-sector by Education Level in 2017 and 2027
- Table A7.77 Manpower Requirements of the Human Health Activities Sub-sector by Education Level in 2017 and 2027
- Table A7.78 Manpower Requirements of the Nursing Homes, Residential Care Activities and Social Work Activities without Accommodation for the Elderly and Persons with Disabilities Sub-sector by Education Level in 2017 and 2027
- Table A7.79 Manpower Requirements of the Other Social and Personal Services Sub-sector by Education Level in 2017 and 2027
- Table A7.80 Manpower Requirements of the Financial Services Industry by Education Level in 2017 and 2027

- Table A7.81 Manpower Requirements of the Trading and Logistics Industry by Education Level in 2017 and 2027
- Table A7.82 Manpower Requirements of the Professional Services and Other Producer Services Industry by Education Level in 2017 and 2027
- Table A7.83 Manpower Requirements of the Tourism Industry by Education Level in 2017 and 2027
- Table A7.84 Manpower Requirements of the Information Technology and Information Services Industry by Education Level in 2017 and 2027
- Table A7.85 Manpower Requirements of the Innovation and Technology Industries by Education Level in 2017 and 2027
- Table A7.86 Manpower Requirements of the Testing and Certification Services Industry by Education Level in 2017 and 2027
- Table A7.87 Manpower Requirements of the Cultural and Creative Industries by Education Level in 2017 and 2027
- Table A7.88 Manpower Requirements of the Environmental Industries by Education Level in 2017 and 2027
- Table A7.89 Manpower Requirements of IT Workers by Education Level in 2016 and 2027

Table A7.1: Population by Age Group, Sex and Education Level in 2017

Age group	Sex	Lower secondary and below	Upper secondary	Diploma	Sub-degree	First degree	Post-graduate	Total
0 - 4	Male	143 300	-	-	-	-	-	143 300
	Female	133 700	-	-	-	-	-	133 700
	Both sexes	277 000	-	-	-	-	-	277 000
5 - 9	Male	158 500	-	-	-	-	-	158 500
	Female	146 300	-	-	-	-	-	146 300
	Both sexes	304 800	-	-	-	-	-	304 800
10 - 14	Male	134 300	-	-	-	-	-	134 300
	Female	128 700	-	-	-	-	-	128 700
	Both sexes	263 000	-	-	-	-	-	263 000
15 - 19	Male	82 900	78 200	1 700	400	200	-	163 500
	Female	70 200	81 000	400	600	-	-	152 200
	Both sexes	153 100	159 200	2 200	1 000	200	-	315 700
20 - 24	Male	15 400	129 300	8 700	24 400	38 000	2 100	217 900
	Female	7 700	115 200	7 400	25 000	55 400	2 800	213 500
	Both sexes	23 100	244 500	16 100	49 400	93 400	4 800	431 400
25 - 29	Male	18 400	71 700	8 200	25 200	91 500	14 800	229 800
	Female	11 100	67 200	7 100	24 200	104 600	18 400	232 700
	Both sexes	29 500	138 900	15 300	49 400	196 100	33 300	462 500
30 - 34	Male	23 800	75 200	7 000	16 800	81 200	24 300	228 300
	Female	27 500	87 300	7 900	19 700	95 300	23 700	261 300
	Both sexes	51 300	162 500	14 900	36 400	176 500	48 000	489 600
35 - 39	Male	33 800	77 400	9 700	13 400	68 500	27 000	229 700
	Female	47 000	102 100	10 400	14 900	74 700	24 500	273 600
	Both sexes	80 800	179 400	20 000	28 400	143 200	51 500	503 300
40 - 44	Male	50 200	84 500	8 000	12 500	55 000	22 700	233 000
	Female	71 100	107 800	10 200	11 900	64 500	19 500	284 900
	Both sexes	121 400	192 300	18 200	24 400	119 500	42 200	517 900
45 - 49	Male	61 900	87 600	7 200	9 500	50 700	21 500	238 500
	Female	93 600	121 200	10 200	10 800	51 800	14 200	301 800
	Both sexes	155 500	208 800	17 400	20 400	102 500	35 800	540 300
50 - 54	Male	89 100	108 600	8 500	11 100	44 800	19 100	281 100
	Female	123 200	140 700	8 500	9 700	35 100	10 500	327 700
	Both sexes	212 300	249 300	17 000	20 700	79 800	29 600	608 800
55 - 59	Male	134 500	104 200	7 300	11 400	32 700	16 600	306 600
	Female	158 200	109 500	6 600	6 700	24 500	8 900	314 500
	Both sexes	292 700	213 700	13 900	18 100	57 200	25 500	621 100
60 - 64	Male	141 500	72 700	5 300	6 700	23 300	7 900	257 400
	Female	170 900	65 700	5 000	4 000	13 500	3 000	262 200
	Both sexes	312 500	138 400	10 300	10 700	36 800	10 900	519 600
65 +	Male	382 700	112 000	10 100	13 200	41 200	7 500	566 700
	Female	525 500	83 400	9 600	6 700	19 900	2 300	647 400
	Both sexes	908 200	195 400	19 700	19 900	61 100	9 800	1 214 100
Total	Male	1 470 400	1 001 600	81 700	144 500	527 000	163 400	3 388 600
	Female	1 714 800	1 080 800	83 400	134 300	539 300	127 900	3 680 500
	Both sexes	3 185 300	2 082 400	165 000	278 800	1 066 300	291 300	7 069 100

- Nil figure

Notes: The above figures exclude foreign domestic helpers.

Individual figures may not add up to the totals due to rounding.

Table A7.2: Projected Population by Age Group, Sex and Education Level in 2027

Age group	Sex	Lower secondary and below	Upper secondary	Diploma	Sub-degree	First degree	Post-graduate	Total
0 - 4	Male	134 000	-	-	-	-	-	134 000
	Female	125 100	-	-	-	-	-	125 100
	Both sexes	259 100	-	-	-	-	-	259 100
5 - 9	Male	150 000	-	-	-	-	-	150 000
	Female	140 200	-	-	-	-	-	140 200
	Both sexes	290 300	-	-	-	-	-	290 300
10 - 14	Male	165 500	-	-	-	-	-	165 500
	Female	150 700	-	-	-	-	-	150 700
	Both sexes	316 200	-	-	-	-	-	316 200
15 - 19	Male	101 000	91 300	600	1 000	-	-	193 900
	Female	92 800	82 100	400	1 000	-	-	176 300
	Both sexes	193 800	173 400	1 000	1 900	-	-	370 100
20 - 24	Male	5 800	80 900	8 700	26 000	32 400	1 100	155 000
	Female	5 900	80 400	4 900	23 300	35 700	2 500	152 800
	Both sexes	11 700	161 400	13 600	49 400	68 100	3 600	307 700
25 - 29	Male	6 300	48 500	12 500	20 600	70 400	8 900	167 200
	Female	8 200	58 800	3 300	12 900	70 800	17 500	171 500
	Both sexes	14 500	107 300	15 800	33 500	141 200	26 500	338 700
30 - 34	Male	14 500	53 300	11 600	30 800	106 600	16 700	233 400
	Female	24 500	59 100	6 900	22 000	117 000	27 900	257 400
	Both sexes	39 000	112 400	18 500	52 800	223 600	44 600	490 800
35 - 39	Male	21 100	68 700	7 500	23 000	90 900	26 900	238 100
	Female	32 900	77 600	5 000	23 000	103 300	32 300	274 200
	Both sexes	54 000	146 300	12 500	46 100	194 100	59 200	512 300
40 - 44	Male	29 100	73 400	6 500	16 000	75 300	31 900	232 200
	Female	45 700	95 300	5 900	18 900	92 200	31 300	289 300
	Both sexes	74 900	168 700	12 400	34 900	167 500	63 200	521 500
45 - 49	Male	39 400	76 200	8 200	13 600	62 000	28 700	228 200
	Female	61 800	102 200	9 400	13 600	67 400	27 500	281 800
	Both sexes	101 200	178 400	17 700	27 100	129 400	56 200	510 000
50 - 54	Male	53 200	86 300	7 100	12 300	49 500	22 900	231 400
	Female	81 900	107 100	10 100	10 900	59 500	22 000	291 400
	Both sexes	135 100	193 500	17 200	23 300	109 000	44 900	522 900
55 - 59	Male	60 700	87 500	6 700	8 900	47 900	21 300	233 000
	Female	96 100	119 700	9 900	10 200	47 300	16 300	299 500
	Both sexes	156 700	207 200	16 600	19 100	95 200	37 600	532 400
60 - 64	Male	83 800	103 500	7 800	9 600	42 600	19 700	267 100
	Female	122 000	135 700	8 700	9 200	32 500	10 800	318 900
	Both sexes	205 800	239 200	16 600	18 900	75 100	30 500	585 900
65 +	Male	487 600	239 800	23 000	24 400	76 400	28 900	880 000
	Female	672 000	236 700	22 300	15 300	51 200	13 300	1 010 800
	Both sexes	1 159 600	476 400	45 200	39 700	127 700	42 200	1 890 800
Total	Male	1 352 200	1 009 400	100 200	186 200	654 100	207 000	3 509 000
	Female	1 659 600	1 154 900	86 800	160 400	676 600	201 500	3 939 800
	Both sexes	3 011 800	2 164 200	187 000	346 600	1 330 700	408 500	7 448 800

- Nil figure

Notes: The above figures exclude foreign domestic helpers.

Individual figures may not add up to the totals due to rounding.

Table A7.3: Manpower Supply by Age Group, Sex and Education Level in 2017

Age group	Sex	Lower secondary and below	Upper secondary	Diploma	Sub-degree	First degree	Post-graduate	Total
15 - 19	Male	4 400	10 600	900	200	-	-	16 100
	Female	1 900	15 300	400	300	-	-	17 800
	Both sexes	6 400	25 900	1 200	400	-	-	33 900
20 - 24	Male	12 600	55 300	7 200	19 400	31 900	2 000	128 400
	Female	5 200	49 100	6 100	19 400	46 000	2 500	128 300
	Both sexes	17 800	104 400	13 300	38 800	77 900	4 500	256 600
25 - 29	Male	15 900	65 000	7 900	23 400	86 700	12 900	211 800
	Female	5 600	52 600	6 300	21 200	95 400	15 900	197 000
	Both sexes	21 500	117 600	14 200	44 600	182 100	28 800	408 800
30 - 34	Male	21 100	72 700	6 500	16 300	79 100	22 700	218 400
	Female	12 100	62 000	5 800	16 400	84 000	21 900	202 200
	Both sexes	33 200	134 700	12 400	32 700	163 100	44 600	420 600
35 - 39	Male	30 700	74 900	9 100	13 300	67 000	26 700	221 900
	Female	20 600	70 800	7 200	11 100	63 300	20 900	193 800
	Both sexes	51 200	145 700	16 300	24 400	130 300	47 700	415 700
40 - 44	Male	45 500	80 500	7 800	11 900	54 100	22 200	222 000
	Female	41 000	75 600	7 400	8 500	52 700	16 900	201 900
	Both sexes	86 500	156 000	15 200	20 400	106 800	39 100	424 000
45 - 49	Male	55 300	83 200	6 700	9 100	49 200	20 900	224 400
	Female	59 600	85 200	6 800	7 900	40 600	12 100	212 200
	Both sexes	114 800	168 400	13 400	17 000	89 800	33 100	436 500
50 - 54	Male	76 500	99 500	7 900	10 100	42 300	18 100	254 400
	Female	69 200	94 400	6 200	8 400	27 200	8 600	214 000
	Both sexes	145 700	193 900	14 100	18 500	69 500	26 700	468 400
55 - 59	Male	108 400	84 800	6 400	9 700	27 400	14 900	251 500
	Female	74 300	59 000	3 800	3 800	15 800	7 100	163 800
	Both sexes	182 600	143 800	10 200	13 500	43 100	22 000	415 300
60 - 64	Male	87 200	42 200	2 200	3 400	11 800	4 900	151 700
	Female	51 800	20 600	1 700	1 800	4 800	1 000	81 700
	Both sexes	139 000	62 800	3 900	5 200	16 600	5 900	233 500
65 +	Male	55 400	21 600	1 500	2 400	7 500	2 700	91 100
	Female	24 600	7 100	900	400	1 800	500	35 400
	Both sexes	79 900	28 700	2 400	2 900	9 300	3 200	126 500
Total	Male	512 900	690 300	64 100	119 200	457 200	148 000	1 991 700
	Female	365 600	591 700	52 600	99 200	431 400	107 500	1 648 100
	Both sexes	878 600	1 282 000	116 700	218 400	888 600	255 600	3 639 800

- Nil figure

Notes: The above figures exclude foreign domestic helpers.

Individual figures may not add up to the totals due to rounding.

Table A7.4: Projected Manpower Supply by Age Group, Sex and Education Level in 2027

Age group	sex	Lower secondary and below	Upper secondary	Diploma	Sub-degree	First degree	Post-graduate	Total
15 - 19	Male	5 900	17 200	300	400	-	-	23 800
	Female	2 800	18 200	400	500	-	-	21 900
	Both sexes	8 700	35 400	700	900	-	-	45 700
20 - 24	Male	4 400	36 600	6 700	19 000	25 200	900	92 900
	Female	3 900	37 000	3 600	18 100	29 100	2 200	93 800
	Both sexes	8 300	73 600	10 300	37 100	54 300	3 100	186 700
25 - 29	Male	5 400	44 200	11 700	18 800	65 700	7 700	153 600
	Female	4 300	47 900	2 800	11 700	67 000	15 900	149 600
	Both sexes	9 700	92 000	14 500	30 600	132 700	23 600	303 200
30 - 34	Male	13 100	51 100	10 900	29 700	102 900	15 800	223 500
	Female	11 400	45 300	5 800	19 400	108 900	27 000	217 900
	Both sexes	24 600	96 400	16 700	49 000	211 800	42 800	441 400
35 - 39	Male	19 200	65 700	7 200	22 300	87 900	26 200	228 400
	Female	15 500	58 000	3 900	18 000	93 000	29 700	218 000
	Both sexes	34 600	123 700	11 100	40 300	180 900	55 800	446 400
40 - 44	Male	26 500	69 200	6 300	15 100	72 100	31 000	220 200
	Female	27 600	69 500	4 400	14 200	75 900	27 400	219 000
	Both sexes	54 100	138 700	10 700	29 300	148 000	58 400	439 100
45 - 49	Male	35 100	71 500	7 500	12 900	58 600	27 100	212 700
	Female	40 800	75 400	6 400	10 200	54 700	24 200	211 700
	Both sexes	75 900	147 000	13 800	23 100	113 300	51 300	424 400
50 - 54	Male	46 300	78 900	6 600	11 200	45 600	21 700	210 300
	Female	47 900	73 800	7 100	8 400	47 000	18 700	203 000
	Both sexes	94 200	152 700	13 700	19 600	92 600	40 400	413 300
55 - 59	Male	52 100	75 300	6 100	7 400	42 100	19 500	202 400
	Female	48 300	68 000	6 100	6 200	29 400	12 300	170 400
	Both sexes	100 400	143 300	12 200	13 500	71 500	31 800	372 800
60 - 64	Male	56 800	69 500	3 800	5 200	25 400	14 300	175 000
	Female	46 700	53 600	3 800	3 000	12 900	4 700	124 800
	Both sexes	103 500	123 100	7 600	8 200	38 300	19 000	299 700
65 +	Male	64 800	45 400	2 600	3 500	14 900	10 600	141 800
	Female	26 600	18 100	2 100	900	4 800	3 000	55 500
	Both sexes	91 400	63 600	4 700	4 300	19 700	13 600	197 300
Total	Male	329 600	624 500	69 600	145 400	540 500	174 800	1 884 500
	Female	275 900	564 800	46 400	110 500	522 700	165 100	1 685 400
	Both sexes	605 500	1 189 300	116 100	255 900	1 063 200	339 900	3 569 900

- Nil figure

Notes: The above figures exclude foreign domestic helpers.

Individual figures may not add up to the totals due to rounding.

Table A7.5: Manpower Requirements of the Agriculture, Fishing and Quarrying Sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	300	6.5	100	6.6	- 100	- 6.5%
Professionals	^	§	^	§	§	§
Associate professionals	100	1.8	^	§	§	§
Clerical support workers	-	-	-	-	-	-
Service and sales workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machine operators, and assemblers	300	8.2	100	6.2	- 200	- 9.4%
Elementary occupations	100	2.3	^	§	§	§
Other occupations	3 100	80.4	1 600	83.0	- 1 500	- 6.4%
Total	3 900	100.0	1 900	100.0	- 2 000	- 6.8%

^ Figure less than 50

- Nil figure

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.6: Manpower Requirements of the Manufacturing Sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	17 300	17.8	13 200	18.2	- 4 100	- 2.7%
Professionals	2 500	2.6	2 100	2.9	- 400	- 1.8%
Associate professionals	17 000	17.5	12 800	17.6	- 4 200	- 2.8%
Clerical support workers	10 100	10.4	7 700	10.6	- 2 400	- 2.6%
Service and sales workers	600	0.6	400	0.6	- 100	- 2.7%
Craft and related workers	27 500	28.3	21 100	29.0	- 6 400	- 2.6%
Drivers, plant and machine operators, and assemblers	5 800	6.0	3 700	5.1	- 2 100	- 4.5%
Elementary occupations	16 400	16.9	11 700	16.1	- 4 700	- 3.3%
Other occupations	-	-	-	-	-	-
Total	97 200	100.0	72 700	100.0	- 24 500	- 2.9%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.7: Manpower Requirements of the Electricity, Gas, Water and Waste Management Sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	1 600	10.2	1 800	10.7	+ 100	+ 0.7%
Professionals	2 700	17.1	2 900	17.6	+ 200	+ 0.6%
Associate professionals	3 800	23.9	4 000	24.1	+ 200	+ 0.4%
Clerical support workers	2 100	13.3	2 200	13.3	^^	§§
Service and sales workers	-	-	-	-	-	-
Craft and related workers	2 900	18.1	2 900	17.8	^^	§§
Drivers, plant and machine operators, and assemblers	1 000	6.4	1 100	6.5	+ 100	+ 0.6%
Elementary occupations	1 800	11.0	1 700	10.0	- 100	- 0.7%
Other occupations	-	-	-	-	-	-
Total	16 100	100.0	16 500	100.0	+ 500	+ 0.3%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.8: Manpower Requirements of the Construction Sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	21 300	6.1	25 500	6.9	+ 4 200	+ 1.8%
Professionals	19 200	5.5	22 500	6.1	+ 3 200	+ 1.6%
Associate professionals	54 900	15.8	65 600	17.9	+ 10 700	+ 1.8%
Clerical support workers	16 300	4.7	13 700	3.7	- 2 600	- 1.7%
Service and sales workers	100	*	100	*	^^	§§
Craft and related workers	152 600	43.8	159 500	43.4	+ 7 000	+ 0.4%
Drivers, plant and machine operators, and assemblers	14 700	4.2	14 200	3.9	- 500	- 0.3%
Elementary occupations	69 500	19.9	66 300	18.1	- 3 200	- 0.5%
Other occupations	-	-	-	-	-	-
Total	348 600	100.0	367 400	100.0	+ 18 800	+ 0.5%

* Percentage share less than 0.05%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.9: Manpower Requirements of the Import and Export Trade Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	145 100	29.4	142 900	32.5	- 2 300	- 0.2%
Professionals	15 300	3.1	12 300	2.8	- 3 000	- 2.1%
Associate professionals	130 500	26.4	120 800	27.5	- 9 800	- 0.8%
Clerical support workers	158 900	32.2	127 800	29.1	- 31 100	- 2.2%
Service and sales workers	4 300	0.9	2 200	0.5	- 2 100	- 6.4%
Craft and related workers	5 000	1.0	3 300	0.7	- 1 800	- 4.2%
Drivers, plant and machine operators, and assemblers	9 200	1.9	8 800	2.0	- 400	- 0.4%
Elementary occupations	25 200	5.1	20 900	4.8	- 4 300	- 1.9%
Other occupations	-	-	-	-	-	-
Total	493 600	100.0	438 900	100.0	- 54 700	- 1.2%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.10: Manpower Requirements of the Wholesale Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	12 900	21.2	12 800	24.3	- 100	- 0.1%
Professionals	900	1.5	1 000	2.0	+ 100	+ 1.4%
Associate professionals	17 700	29.1	15 700	29.8	- 2 000	- 1.2%
Clerical support workers	13 200	21.8	12 200	23.3	- 1 000	- 0.8%
Service and sales workers	2 400	3.9	1 300	2.5	- 1 100	- 6.0%
Craft and related workers	1 000	1.6	600	1.2	- 300	- 4.1%
Drivers, plant and machine operators, and assemblers	3 700	6.1	2 700	5.2	- 1 000	- 3.0%
Elementary occupations	8 900	14.7	6 200	11.7	- 2 800	- 3.6%
Other occupations	-	-	-	-	-	-
Total	60 700	100.0	52 600	100.0	- 8 100	- 1.4%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.11: Manpower Requirements of the Retail Trade Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	38 700	11.7	51 200	15.1	+ 12 400	+ 2.8%
Professionals	3 700	1.1	4 200	1.2	+ 500	+ 1.3%
Associate professionals	36 900	11.2	47 300	13.9	+ 10 400	+ 2.5%
Clerical support workers	22 700	6.9	20 600	6.1	- 2 100	- 1.0%
Service and sales workers	198 800	60.3	190 500	56.2	- 8 300	- 0.4%
Craft and related workers	7 600	2.3	6 600	2.0	- 1 000	- 1.4%
Drivers, plant and machine operators, and assemblers	1 900	0.6	2 400	0.7	+ 600	+ 2.7%
Elementary occupations	19 300	5.9	16 300	4.8	- 3 000	- 1.6%
Other occupations	-	-	-	-	-	-
Total	329 700	100.0	339 100	100.0	+ 9 400	+ 0.3%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.12: Manpower Requirements of the Accommodation Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	6 600	14.5	7 400	15.0	+ 700	+ 1.0%
Professionals	800	1.7	800	1.6	^^	§§
Associate professionals	6 300	13.8	7 400	15.0	+ 1 000	+ 1.5%
Clerical support workers	7 600	16.6	5 700	11.6	- 1 900	- 2.9%
Service and sales workers	16 600	36.1	18 900	38.6	+ 2 300	+ 1.3%
Craft and related workers	2 100	4.6	1 700	3.5	- 400	- 2.1%
Drivers, plant and machine operators, and assemblers	300	0.7	300	0.7	^^	§§
Elementary occupations	5 500	12.0	6 800	13.9	+ 1 300	+ 2.2%
Other occupations	-	-	-	-	-	-
Total	45 800	100.0	48 900	100.0	+ 3 100	+ 0.7%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.13: Manpower Requirements of the Food Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	20 700	8.5	24 400	9.8	+ 3 800	+ 1.7%
Professionals	100	0.1	100	0.1	^^	§§
Associate professionals	6 200	2.5	6 500	2.6	+ 300	+ 0.5%
Clerical support workers	4 500	1.9	3 700	1.5	- 800	- 2.0%
Service and sales workers	174 200	71.8	180 400	72.3	+ 6 200	+ 0.3%
Craft and related workers	900	0.4	800	0.3	- 100	- 1.2%
Drivers, plant and machine operators, and assemblers	400	0.2	300	0.1	- 100	- 1.5%
Elementary occupations	35 700	14.7	33 400	13.4	- 2 400	- 0.7%
Other occupations	-	-	-	-	-	-
Total	242 700	100.0	249 600	100.0	+ 6 900	+ 0.3%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.14: Manpower Requirements of the Land Transport and Related Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	5 800	3.3	5 700	3.5	- 100	- 0.2%
Professionals	2 900	1.7	3 300	2.0	+ 300	+ 1.1%
Associate professionals	7 600	4.4	8 000	4.8	+ 300	+ 0.4%
Clerical support workers	12 600	7.2	10 900	6.7	- 1 700	- 1.4%
Service and sales workers	6 800	3.9	6 800	4.1	^^	§§
Craft and related workers	6 800	3.9	6 900	4.2	+ 100	+ 0.2%
Drivers, plant and machine operators, and assemblers	108 300	62.0	101 500	61.7	- 6 900	- 0.7%
Elementary occupations	23 700	13.6	21 300	13.0	- 2 400	- 1.0%
Other occupations	-	-	-	-	-	-
Total	174 700	100.0	164 400	100.0	- 10 300	- 0.6%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.15: Manpower Requirements of the Water Transport and Related Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	8 500	16.9	7 500	19.4	- 1 100	- 1.3%
Professionals	1 300	2.5	1 100	2.9	- 200	- 1.3%
Associate professionals	6 700	13.3	5 500	14.2	- 1 200	- 2.0%
Clerical support workers	13 000	25.8	9 300	24.2	- 3 700	- 3.3%
Service and sales workers	3 700	7.4	2 700	7.0	- 1 100	- 3.3%
Craft and related workers	1 000	1.9	700	1.9	- 200	- 2.7%
Drivers, plant and machine operators, and assemblers	9 900	19.7	7 000	18.1	- 2 900	- 3.4%
Elementary occupations	6 300	12.5	4 700	12.3	- 1 500	- 2.8%
Other occupations	-	-	-	-	-	-
Total	50 400	100.0	38 500	100.0	- 11 800	- 2.6%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.16: Manpower Requirements of the Air Transport and Related Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	6 900	10.7	8 400	10.6	+ 1 500	+ 2.0%
Professionals	4 500	7.0	5 700	7.2	+ 1 200	+ 2.4%
Associate professionals	8 200	12.7	10 400	13.3	+ 2 200	+ 2.4%
Clerical support workers	14 000	21.8	14 800	18.7	+ 800	+ 0.5%
Service and sales workers	18 600	28.9	24 000	30.5	+ 5 400	+ 2.6%
Craft and related workers	800	1.2	1 100	1.4	+ 300	+ 2.9%
Drivers, plant and machine operators, and assemblers	3 600	5.5	4 700	5.9	+ 1 100	+ 2.8%
Elementary occupations	7 800	12.2	9 800	12.5	+ 2 000	+ 2.3%
Other occupations	-	-	-	-	-	-
Total	64 400	100.0	78 800	100.0	+ 14 400	+ 2.0%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.17: Manpower Requirements of the Warehousing and Other Transportation Support Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	1 500	14.3	2 000	15.9	+ 500	+ 2.7%
Professionals	100	1.3	200	1.4	^^	§§
Associate professionals	1 400	13.0	1 800	14.1	+ 400	+ 2.4%
Clerical support workers	3 500	33.3	3 800	30.3	+ 200	+ 0.6%
Service and sales workers	900	8.3	1 100	9.2	+ 300	+ 2.7%
Craft and related workers	100	1.1	100	1.1	^^	§§
Drivers, plant and machine operators, and assemblers	1 000	9.0	1 100	8.7	+ 100	+ 1.3%
Elementary occupations	2 100	19.6	2 400	19.3	+ 300	+ 1.4%
Other occupations	-	-	-	-	-	-
Total	10 600	100.0	12 400	100.0	+ 1 800	+ 1.6%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.18: Manpower Requirements of the Postal and Courier Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	1 200	6.0	1 400	7.1	+ 200	+ 1.9%
Professionals	200	1.0	200	1.2	^^	§§
Associate professionals	900	4.9	1 200	6.2	+ 300	+ 2.5%
Clerical support workers	8 500	43.4	8 000	40.9	- 400	- 0.5%
Service and sales workers	500	2.6	500	2.7	^^	§§
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machine operators, and assemblers	900	4.5	900	4.7	^^	§§
Elementary occupations	7 400	37.8	7 300	37.2	- 100	- 0.1%
Other occupations	-	-	-	-	-	-
Total	19 500	100.0	19 600	100.0	+ 200	+ 0.1%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.19: Manpower Requirements of the Telecommunication Activities Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	4 100	19.5	5 100	20.7	+ 1 000	+ 2.2%
Professionals	2 400	11.7	3 300	13.6	+ 900	+ 3.1%
Associate professionals	6 800	32.3	7 900	32.2	+ 1 100	+ 1.5%
Clerical support workers	3 800	18.2	4 100	16.8	+ 300	+ 0.8%
Service and sales workers	1 300	6.3	1 400	5.6	^^	§§
Craft and related workers	2 200	10.4	2 400	9.8	+ 200	+ 1.0%
Drivers, plant and machine operators, and assemblers	100	0.6	100	0.5	^^	§§
Elementary occupations	200	0.9	200	0.7	^^	§§
Other occupations	-	-	-	-	-	-
Total	21 000	100.0	24 500	100.0	+ 3 600	+ 1.6%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.20: Manpower Requirements of the Software Publishing and Information Technology Related Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	12 200	23.8	16 200	24.7	+ 4 000	+ 2.9%
Professionals	18 500	36.1	23 800	36.4	+ 5 300	+ 2.6%
Associate professionals	17 200	33.4	22 400	34.2	+ 5 200	+ 2.7%
Clerical support workers	2 900	5.6	2 700	4.1	- 200	- 0.6%
Service and sales workers	^	§	^	§	§	§
Craft and related workers	100	0.2	^	§	§	§
Drivers, plant and machine operators, and assemblers	100	0.3	100	0.1	- 100	- 5.3%
Elementary occupations	300	0.6	200	0.3	- 100	- 5.4%
Other occupations	-	-	-	-	-	-
Total	51 300	100.0	65 500	100.0	+ 14 200	+ 2.5%

^ Figure less than 50

- Nil figure

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.21: Manpower Requirements of the Miscellaneous Activities Related to Information and Communications Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	5 500	12.7	5 300	12.9	- 300	- 0.5%
Professionals	14 000	32.3	13 700	33.6	- 300	- 0.2%
Associate professionals	12 200	28.1	12 100	29.7	- 200	- 0.1%
Clerical support workers	5 700	13.0	4 600	11.3	- 1 100	- 2.1%
Service and sales workers	2 300	5.3	2 400	5.8	+ 100	+ 0.4%
Craft and related workers	1 600	3.7	1 100	2.7	- 500	- 3.6%
Drivers, plant and machine operators, and assemblers	600	1.3	400	0.9	- 200	- 3.9%
Elementary occupations	1 600	3.7	1 200	3.0	- 400	- 2.5%
Other occupations	-	-	-	-	-	-
Total	43 500	100.0	40 700	100.0	- 2 800	- 0.7%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.22: Manpower Requirements of the Banking Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	39 500	37.4	44 900	39.7	+ 5 400	+ 1.3%
Professionals	8 600	8.1	8 500	7.5	- 100	- 0.1%
Associate professionals	30 000	28.4	32 300	28.6	+ 2 300	+ 0.8%
Clerical support workers	26 300	24.9	26 500	23.4	+ 200	+ 0.1%
Service and sales workers	-	-	-	-	-	-
Craft and related workers	100	0.1	^	§	§	§
Drivers, plant and machine operators, and assemblers	200	0.1	100	0.1	^^	§§
Elementary occupations	1 000	1.0	800	0.7	- 300	- 2.9%
Other occupations	-	-	-	-	-	-
Total	105 600	100.0	113 200	100.0	+ 7 500	+ 0.7%

^ Figure less than 50

^^ Change within ±50

- Nil figure

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.23: Manpower Requirements of the Financial Institutions (other than Banks and Insurance) Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	33 600	36.7	40 700	39.2	+ 7 100	+ 1.9%
Professionals	12 400	13.6	14 200	13.7	+ 1 800	+ 1.4%
Associate professionals	30 000	32.8	34 300	33.1	+ 4 300	+ 1.4%
Clerical support workers	12 800	14.0	12 300	11.8	- 600	- 0.5%
Service and sales workers	200	0.2	200	0.1	^^	§§
Craft and related workers	100	0.1	^	§	§	§
Drivers, plant and machine operators, and assemblers	1 100	1.2	900	0.8	- 300	- 2.5%
Elementary occupations	1 300	1.4	1 100	1.1	- 100	- 1.0%
Other occupations	-	-	-	-	-	-
Total	91 400	100.0	103 700	100.0	+ 12 200	+ 1.3%

^ Figure less than 50

^^ Change within ±50

- Nil figure

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.24: Manpower Requirements of the Insurance Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	11 400	17.1	12 600	16.2	+ 1 100	+ 0.9%
Professionals	3 700	5.5	4 100	5.3	+ 400	+ 1.1%
Associate professionals	40 800	60.8	49 200	63.2	+ 8 400	+ 1.9%
Clerical support workers	10 500	15.7	11 400	14.7	+ 900	+ 0.8%
Service and sales workers	-	-	-	-	-	-
Craft and related workers	^	§	^	§	§	§
Drivers, plant and machine operators, and assemblers	200	0.3	200	0.2	^^	§§
Elementary occupations	300	0.4	300	0.3	^^	§§
Other occupations	-	-	-	-	-	-
Total	67 000	100.0	77 700	100.0	+ 10 700	+ 1.5%

^ Figure less than 50

^^ Change within ±50

- Nil figure

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.25: Manpower Requirements of the Real Estate Sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	15 400	11.0	20 700	13.6	+ 5 300	+ 3.0%
Professionals	3 900	2.8	4 900	3.2	+ 1 000	+ 2.4%
Associate professionals	40 700	29.1	47 300	31.1	+ 6 600	+ 1.5%
Clerical support workers	16 200	11.6	15 300	10.0	- 900	- 0.6%
Service and sales workers	1 400	1.0	1 300	0.8	- 100	- 0.7%
Craft and related workers	5 500	3.9	5 500	3.6	+ 100	+ 0.1%
Drivers, plant and machine operators, and assemblers	1 000	0.7	900	0.6	- 100	- 0.9%
Elementary occupations	56 100	40.0	56 400	37.1	+ 300	+ 0.1%
Other occupations	-	-	-	-	-	-
Total	140 000	100.0	152 200	100.0	+ 12 200	+ 0.8%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.26: Manpower Requirements of the Legal Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	900	4.0	1 000	4.1	+ 100	+ 1.1%
Professionals	9 500	40.8	11 100	44.0	+ 1 600	+ 1.5%
Associate professionals	5 100	22.0	6 000	23.9	+ 900	+ 1.6%
Clerical support workers	7 000	30.2	6 400	25.4	- 600	- 0.9%
Service and sales workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machine operators, and assemblers	100	0.3	100	0.2	^^	§§
Elementary occupations	600	2.6	600	2.4	^^	§§
Other occupations	-	-	-	-	-	-
Total	23 300	100.0	25 200	100.0	+ 1 900	+ 0.8%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.27: Manpower Requirements of the Accounting, Auditing and Bookkeeping Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	4 100	13.2	5 100	15.7	+ 1 100	+ 2.4%
Professionals	8 600	28.1	9 200	27.9	+ 500	+ 0.6%
Associate professionals	9 000	29.2	10 200	31.1	+ 1 200	+ 1.3%
Clerical support workers	8 700	28.3	8 000	24.3	- 700	- 0.8%
Service and sales workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machine operators, and assemblers	-	-	-	-	-	-
Elementary occupations	400	1.2	300	1.1	^^	§§
Other occupations	-	-	-	-	-	-
Total	30 700	100.0	32 800	100.0	+ 2 100	+ 0.7%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.28: Manpower Requirements of the Business Management and Consultancy Services, and Engineering and Technical Services not Related to Construction and Real Estate Activities Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	11 200	18.3	14 300	17.6	+ 3 100	+ 2.5%
Professionals	13 200	21.5	17 900	22.0	+ 4 700	+ 3.1%
Associate professionals	24 300	39.7	35 800	44.0	+ 11 500	+ 3.9%
Clerical support workers	8 700	14.1	9 200	11.3	+ 500	+ 0.6%
Service and sales workers	1 300	2.1	1 600	1.9	+ 300	+ 2.1%
Craft and related workers	1 200	1.9	1 500	1.8	+ 300	+ 2.2%
Drivers, plant and machine operators, and assemblers	200	0.4	100	0.1	- 100	- 6.5%
Elementary occupations	1 200	2.0	1 100	1.3	- 200	- 1.4%
Other occupations	^	§	^	§	§	§
Total	61 200	100.0	81 300	100.0	+ 20 100	+ 2.9%

^ Figure less than 50

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.29: Manpower Requirements of the Design, Advertising and Related Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	5 600	18.2	6 600	18.5	+ 1 000	+ 1.6%
Professionals	4 700	15.3	5 700	15.9	+ 1 000	+ 1.9%
Associate professionals	16 800	54.1	20 100	56.0	+ 3 300	+ 1.8%
Clerical support workers	3 100	9.9	2 700	7.7	- 300	- 1.1%
Service and sales workers	100	0.3	100	0.3	^^	§§
Craft and related workers	300	0.8	200	0.5	- 100	- 3.4%
Drivers, plant and machine operators, and assemblers	100	0.2	^	§	§	§
Elementary occupations	400	1.3	400	1.1	^^	§§
Other occupations	-	-	-	-	-	-
Total	31 000	100.0	35 800	100.0	+ 4 900	+ 1.5%

^ Figure less than 50

^^ Change within ±50

- Nil figure

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.30: Manpower Requirements of the Architectural, Surveying and Engineering Services Related to Real Estate and Construction Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	2 700	9.2	3 400	10.8	+ 800	+ 2.5%
Professionals	8 300	28.8	9 900	31.2	+ 1 600	+ 1.8%
Associate professionals	12 200	42.3	13 100	41.3	+ 900	+ 0.7%
Clerical support workers	3 600	12.4	3 200	10.2	- 400	- 1.0%
Service and sales workers	-	-	-	-	-	-
Craft and related workers	1 200	4.2	1 300	4.1	+ 100	+ 0.7%
Drivers, plant and machine operators, and assemblers	100	0.5	100	0.3	^^	§§
Elementary occupations	800	2.6	700	2.1	- 100	- 1.3%
Other occupations	-	-	-	-	-	-
Total	28 900	100.0	31 700	100.0	+ 2 800	+ 0.9%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.31: Manpower Requirements of the Miscellaneous Professional and Business Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	16 800	7.4	20 700	8.1	+ 3 800	+ 2.1%
Professionals	3 300	1.5	3 300	1.3	^^	§§
Associate professionals	25 100	11.0	27 200	10.7	+ 2 100	+ 0.8%
Clerical support workers	29 100	12.8	31 600	12.4	+ 2 500	+ 0.8%
Service and sales workers	11 700	5.1	11 600	4.6	- 100	- 0.1%
Craft and related workers	1 400	0.6	1 200	0.5	- 100	- 0.8%
Drivers, plant and machine operators, and assemblers	3 600	1.6	4 500	1.8	+ 1 000	+ 2.5%
Elementary occupations	136 500	60.0	153 900	60.6	+ 17 300	+ 1.2%
Other occupations	100	*	100	*	^^	§§
Total	227 600	100.0	254 100	100.0	+ 26 500	+ 1.1%

* Percentage share less than 0.05%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.32: Manpower Requirements of the Human Health Activities Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	3 600	2.6	4 700	2.6	+ 1 100	+ 2.8%
Professionals	26 600	19.3	31 600	17.2	+ 4 900	+ 1.7%
Associate professionals	57 500	41.7	77 400	42.1	+ 19 900	+ 3.0%
Clerical support workers	24 500	17.8	33 900	18.4	+ 9 300	+ 3.3%
Service and sales workers	14 000	10.2	22 100	12.0	+ 8 100	+ 4.7%
Craft and related workers	900	0.7	1 100	0.6	+ 200	+ 1.9%
Drivers, plant and machine operators, and assemblers	900	0.6	1 400	0.8	+ 500	+ 4.7%
Elementary occupations	9 900	7.2	11 600	6.3	+ 1 700	+ 1.6%
Other occupations	-	-	-	-	-	-
Total	138 000	100.0	183 800	100.0	+ 45 800	+ 2.9%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.33: Manpower Requirements of the Nursing Homes, Residential Care Activities and Social Work Activities without Accommodation for the Elderly and Persons with Disabilities Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	1 300	2.9	1 700	3.0	+ 400	+ 3.0%
Professionals	4 200	9.7	5 500	9.6	+ 1 300	+ 2.6%
Associate professionals	5 500	12.6	7 600	13.4	+ 2 100	+ 3.4%
Clerical support workers	3 200	7.4	3 500	6.1	+ 300	+ 0.8%
Service and sales workers	24 300	56.0	32 600	57.3	+ 8 200	+ 3.0%
Craft and related workers	100	0.3	200	0.3	^^	§§
Drivers, plant and machine operators, and assemblers	700	1.7	900	1.5	+ 100	+ 1.5%
Elementary occupations	4 100	9.4	5 000	8.8	+ 900	+ 2.1%
Other occupations	-	-	-	-	-	-
Total	43 500	100.0	56 900	100.0	+ 13 400	+ 2.7%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.34: Manpower Requirements of the Other Social and Personal Services Sub-sector by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	24 200	4.4	31 900	5.7	+ 7 700	+ 2.8%
Professionals	78 400	14.2	79 600	14.2	+ 1 200	+ 0.2%
Associate professionals	159 500	29.0	182 200	32.6	+ 22 800	+ 1.3%
Clerical support workers	73 200	13.3	71 400	12.8	- 1 800	- 0.3%
Service and sales workers	135 100	24.5	131 700	23.6	- 3 400	- 0.3%
Craft and related workers	21 900	4.0	16 300	2.9	- 5 600	- 2.9%
Drivers, plant and machine operators, and assemblers	7 000	1.3	5 600	1.0	- 1 400	- 2.3%
Elementary occupations	51 100	9.3	39 800	7.1	- 11 300	- 2.5%
Other occupations	300	0.1	400	0.1	^^	§§
Total	550 700	100.0	559 000	100.0	+ 8 200	+ 0.1%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.35: Manpower Requirements of the Financial Services Industry by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	84 500	32.0	98 200	33.3	+ 13 700	+ 1.5%
Professionals	24 700	9.4	26 800	9.1	+ 2 100	+ 0.8%
Associate professionals	100 800	38.2	115 800	39.3	+ 15 000	+ 1.4%
Clerical support workers	49 700	18.8	50 200	17.0	+ 500	+ 0.1%
Service and sales workers	200	0.1	200	0.1	^^	§§
Craft and related workers	200	0.1	100	*	^^	§§
Drivers, plant and machine operators, and assemblers	1 500	0.6	1 200	0.4	- 300	- 2.4%
Elementary occupations	2 600	1.0	2 200	0.7	- 400	- 1.7%
Other occupations	-	-	-	-	-	-
Total	264 000	100.0	294 600	100.0	+ 30 500	+ 1.1%

* Percentage share less than 0.05%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.36: Manpower Requirements of the Trading and Logistics Industry by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	176 500	23.9	174 900	26.1	- 1 500	- 0.1%
Professionals	19 200	2.6	16 600	2.5	- 2 600	- 1.5%
Associate professionals	163 800	22.2	152 500	22.8	- 11 200	- 0.7%
Clerical support workers	214 500	29.0	178 600	26.7	- 35 900	- 1.8%
Service and sales workers	19 100	2.6	17 200	2.6	- 1 900	- 1.0%
Craft and related workers	7 600	1.0	5 400	0.8	- 2 100	- 3.3%
Drivers, plant and machine operators, and assemblers	66 200	9.0	60 300	9.0	- 5 900	- 0.9%
Elementary occupations	72 400	9.8	64 000	9.6	- 8 400	- 1.2%
Other occupations	-	-	-	-	-	-
Total	739 200	100.0	669 600	100.0	- 69 600	- 1.0%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.37: Manpower Requirements of the Professional Services and Other Producer Services Industry by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	64 300	11.6	84 000	12.7	+ 19 700	+ 2.7%
Professionals	86 500	15.6	104 900	15.9	+ 18 400	+ 2.0%
Associate professionals	146 600	26.4	185 400	28.0	+ 38 800	+ 2.4%
Clerical support workers	72 800	13.1	76 300	11.5	+ 3 500	+ 0.5%
Service and sales workers	63 700	11.5	71 500	10.8	+ 7 800	+ 1.2%
Craft and related workers	11 000	2.0	11 000	1.7	^^	§§
Drivers, plant and machine operators, and assemblers	11 300	2.0	12 000	1.8	+ 700	+ 0.6%
Elementary occupations	99 300	17.9	116 500	17.6	+ 17 200	+ 1.6%
Other occupations	100	*	100	*	^^	+ 0.9%
Total	555 600	100.0	661 700	100.0	+ 106 100	+ 1.8%

* Percentage share less than 0.05%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.38: Manpower Requirements of the Tourism Industry by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	29 000	10.9	36 100	12.7	+ 7 100	+ 2.2%
Professionals	6 700	2.5	7 600	2.7	+ 900	+ 1.2%
Associate professionals	29 700	11.2	35 800	12.6	+ 6 100	+ 1.9%
Clerical support workers	26 000	9.8	23 900	8.4	- 2 200	- 0.9%
Service and sales workers	130 900	49.3	137 400	48.4	+ 6 600	+ 0.5%
Craft and related workers	6 500	2.4	6 000	2.1	- 400	- 0.7%
Drivers, plant and machine operators, and assemblers	13 300	5.0	13 500	4.8	+ 300	+ 0.2%
Elementary occupations	23 300	8.8	23 700	8.3	+ 400	+ 0.2%
Other occupations	^	§	^	§	§	§
Total	265 400	100.0	284 000	100.0	+ 18 700	+ 0.7%

^ Figure less than 50

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.39: Manpower Requirements of the Information Technology and Information Services Industry by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	16 300	22.5	21 300	23.6	+ 5 000	+ 2.7%
Professionals	21 000	29.0	27 200	30.2	+ 6 200	+ 2.6%
Associate professionals	23 900	33.1	30 300	33.7	+ 6 400	+ 2.4%
Clerical support workers	6 700	9.2	6 800	7.6	+ 100	+ 0.2%
Service and sales workers	1 400	1.9	1 400	1.6	^^	§§
Craft and related workers	2 300	3.2	2 500	2.7	+ 200	+ 0.7%
Drivers, plant and machine operators, and assemblers	300	0.4	200	0.2	- 100	- 2.3%
Elementary occupations	500	0.7	400	0.4	- 100	- 3.0%
Other occupations	-	-	-	-	-	-
Total	72 300	100.0	90 000	100.0	+ 17 800	+ 2.2%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.40: Manpower Requirements of the Innovation and Technology Industries by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	2 500	6.6	4 000	6.9	+ 1 500	+ 4.8%
Professionals	27 200	71.6	40 800	70.8	+ 13 600	+ 4.1%
Associate professionals	5 400	14.2	8 900	15.5	+ 3 500	+ 5.2%
Clerical support workers	2 600	6.7	3 400	5.9	+ 800	+ 2.9%
Service and sales workers	-	-	-	-	-	-
Craft and related workers	300	0.9	500	0.8	+ 200	+ 3.9%
Drivers, plant and machine operators, and assemblers	-	-	-	-	-	-
Elementary occupations	-	-	-	-	-	-
Other occupations	-	-	-	-	-	-
Total	38 000	100.0	57 600	100.0	+ 19 600	+ 4.3%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.41: Manpower Requirements of the Testing and Certification Services Industry by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	2 900	19.8	3 400	20.7	+ 600	+ 1.8%
Professionals	3 000	20.8	3 600	21.8	+ 600	+ 1.8%
Associate professionals	3 800	26.4	4 500	26.8	+ 600	+ 1.5%
Clerical support workers	3 000	20.3	3 100	18.7	+ 200	+ 0.5%
Service and sales workers	700	5.0	900	5.7	+ 200	+ 2.7%
Craft and related workers	300	2.2	400	2.2	+ 100	+ 1.6%
Drivers, plant and machine operators, and assemblers	100	0.9	100	0.6	^^	§§
Elementary occupations	700	4.6	600	3.5	- 100	- 1.4%
Other occupations	-	-	-	-	-	-
Total	14 500	100.0	16 600	100.0	+ 2 100	+ 1.3%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.42: Manpower Requirements of the Cultural and Creative Industries by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	34 800	16.0	42 100	17.7	+ 7 300	+ 1.9%
Professionals	47 400	21.8	55 800	23.5	+ 8 500	+ 1.7%
Associate professionals	71 500	32.8	83 900	35.3	+ 12 400	+ 1.6%
Clerical support workers	24 400	11.2	22 100	9.3	- 2 400	- 1.0%
Service and sales workers	17 900	8.2	17 300	7.3	- 600	- 0.3%
Craft and related workers	9 400	4.3	7 500	3.1	- 2 000	- 2.3%
Drivers, plant and machine operators, and assemblers	2 500	1.1	1 700	0.7	- 800	- 3.7%
Elementary occupations	9 800	4.5	7 500	3.2	- 2 200	- 2.6%
Other occupations	-	-	-	-	-	-
Total	217 800	100.0	238 000	100.0	+ 20 200	+ 0.9%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.43: Manpower Requirements of the Environmental Industries by Occupation Group in 2017 and 2027

Occupation group	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Managers and administrators	1 900	4.3	2 300	4.5	+ 400	+ 1.8%
Professionals	900	1.9	1 000	2.0	+ 200	+ 1.8%
Associate professionals	3 400	7.5	4 000	7.8	+ 600	+ 1.6%
Clerical support workers	2 800	6.1	2 900	5.6	+ 100	+ 0.4%
Service and sales workers	400	1.0	400	0.8	^^	§§
Craft and related workers	600	1.3	700	1.3	+ 100	+ 1.6%
Drivers, plant and machine operators, and assemblers	1 300	2.8	1 700	3.2	+ 400	+ 2.9%
Elementary occupations	33 900	75.0	38 500	74.7	+ 4 600	+ 1.3%
Other occupations	^	§	^	§	§	§
Total	45 200	100.0	51 500	100.0	+ 6 300	+ 1.3%

^ Figure less than 50

^^ Change within ±50

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.44: Manpower Requirements for Workers at Lower Secondary and Below Level by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	2 900	0.3	1 200	0.2	- 1 700	- 8.4%
Manufacturing	35 100	4.0	20 700	3.0	- 14 500	- 5.2%
Electricity, gas, water and waste management	3 400	0.4	2 400	0.3	- 1 000	- 3.5%
Construction	153 200	17.4	117 600	17.2	- 35 500	- 2.6%
Import, export, wholesale and retail trades	159 900	18.2	104 300	15.3	- 55 600	- 4.2%
Accommodation and food services	135 400	15.4	116 400	17.1	- 19 000	- 1.5%
Transportation, storage, postal and courier services	111 600	12.7	87 500	12.8	- 24 100	- 2.4%
Information and communications	4 400	0.5	2 500	0.4	- 2 000	- 5.6%
Financial services	7 400	0.8	4 400	0.6	- 3 100	- 5.2%
Real estate	39 200	4.5	32 200	4.7	- 7 000	- 1.9%
Professional and business services	116 200	13.2	109 100	16.0	- 7 200	- 0.6%
Social and personal services	110 300	12.5	83 800	12.3	- 26 500	- 2.7%
Total	879 100	100.0	682 100	100.0	- 197 000	- 2.5%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.45: Manpower Requirements for Workers at Upper Secondary Level by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	500	*	400	*	- 100	- 1.8%
Manufacturing	35 700	2.8	27 300	2.2	- 8 400	- 2.7%
Electricity, gas, water and waste management	4 900	0.4	5 300	0.4	+ 400	+ 0.7%
Construction	114 000	8.9	136 000	11.0	+ 22 000	+ 1.8%
Import, export, wholesale and retail trades	397 900	31.1	345 300	28.0	- 52 600	- 1.4%
Accommodation and food services	115 100	9.0	129 300	10.5	+ 14 300	+ 1.2%
Transportation, storage, postal and courier services	129 100	10.1	126 000	10.2	- 3 000	- 0.2%
Information and communications	25 300	2.0	21 000	1.7	- 4 300	- 1.9%
Financial services	67 400	5.3	45 500	3.7	- 21 800	- 3.8%
Real estate	52 700	4.1	57 300	4.6	+ 4 500	+ 0.8%
Professional and business services	105 400	8.2	114 000	9.3	+ 8 600	+ 0.8%
Social and personal services	232 100	18.1	224 400	18.2	- 7 800	- 0.3%
Total	1 280 200	100.0	1 231 900	100.0	- 48 300	- 0.4%

* Percentage share less than 0.05%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.46: Manpower Requirements for Workers at Diploma Level by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	200	0.2	100	0.1	- 100	- 5.8%
Manufacturing	3 700	3.2	2 900	2.3	- 800	- 2.5%
Electricity, gas, water and waste management	800	0.7	800	0.6	- 100	- 0.8%
Construction	14 300	12.5	23 300	19.1	+ 9 000	+ 5.0%
Import, export, wholesale and retail trades	26 800	23.4	26 300	21.4	- 600	- 0.2%
Accommodation and food services	6 200	5.4	8 300	6.8	+ 2 100	+ 2.9%
Transportation, storage, postal and courier services	10 000	8.7	9 300	7.6	- 700	- 0.7%
Information and communications	3 900	3.4	3 500	2.9	- 400	- 1.1%
Financial services	6 400	5.6	4 800	3.9	- 1 700	- 2.9%
Real estate	4 300	3.7	4 500	3.7	+ 300	+ 0.6%
Professional and business services	13 200	11.5	14 600	11.9	+ 1 400	+ 1.0%
Social and personal services	24 800	21.6	24 100	19.7	- 700	- 0.3%
Total	114 700	100.0	122 500	100.0	+ 7 800	+ 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.47: Manpower Requirements for Workers at Sub-degree Level by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	100	*	100	*	^^	§§
Manufacturing	5 100	2.4	4 900	1.9	- 200	- 0.4%
Electricity, gas, water and waste management	1 400	0.6	1 800	0.7	+ 400	+ 2.6%
Construction	19 100	9.0	27 800	10.5	+ 8 800	+ 3.9%
Import, export, wholesale and retail trades	53 300	25.3	62 200	23.4	+ 8 900	+ 1.5%
Accommodation and food services	9 700	4.6	14 400	5.4	+ 4 700	+ 4.1%
Transportation, storage, postal and courier services	15 100	7.1	20 400	7.7	+ 5 400	+ 3.1%
Information and communications	9 300	4.4	11 700	4.4	+ 2 400	+ 2.4%
Financial services	14 000	6.6	15 500	5.8	+ 1 500	+ 1.0%
Real estate	8 900	4.2	11 400	4.3	+ 2 500	+ 2.5%
Professional and business services	25 500	12.1	31 500	11.9	+ 6 000	+ 2.1%
Social and personal services	49 500	23.5	63 700	24.0	+ 14 200	+ 2.5%
Total	210 900	100.0	265 400	100.0	+ 54 600	+ 2.3%

* Percentage share less than 0.05%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.48: Manpower Requirements for Workers at First Degree Level by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	200	*	100	*	- 100	- 4.7%
Manufacturing	14 000	1.6	13 800	1.2	- 100	- 0.1%
Electricity, gas, water and waste management	4 000	0.5	4 500	0.4	+ 600	+ 1.4%
Construction	39 000	4.5	51 100	4.6	+ 12 200	+ 2.8%
Import, export, wholesale and retail trades	207 300	23.7	248 700	22.3	+ 41 400	+ 1.8%
Accommodation and food services	20 200	2.3	27 700	2.5	+ 7 500	+ 3.2%
Transportation, storage, postal and courier services	46 000	5.3	61 500	5.5	+ 15 500	+ 2.9%
Information and communications	56 600	6.5	70 700	6.4	+ 14 200	+ 2.3%
Financial services	119 700	13.7	157 100	14.1	+ 37 400	+ 2.8%
Real estate	28 500	3.3	37 800	3.4	+ 9 400	+ 2.9%
Professional and business services	112 800	12.9	152 100	13.7	+ 39 300	+ 3.0%
Social and personal services	226 000	25.9	288 800	25.9	+ 62 800	+ 2.5%
Total	874 000	100.0	1 114 000	100.0	+ 240 000	+ 2.5%

* Percentage share less than 0.05%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.49: Manpower Requirements for Workers at Postgraduate Level by Economic Sector in 2017 and 2027

Economic sector	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	^	§	§	§
Manufacturing	3 600	1.4	3 200	1.0	- 400	- 1.0%
Electricity, gas, water and waste management	1 600	0.6	1 800	0.6	+ 200	+ 1.2%
Construction	9 000	3.6	11 400	3.5	+ 2 400	+ 2.4%
Import, export, wholesale and retail trades	38 800	15.3	43 800	13.5	+ 5 000	+ 1.2%
Accommodation and food services	2 000	0.8	2 300	0.7	+ 300	+ 1.5%
Transportation, storage, postal and courier services	7 900	3.1	9 100	2.8	+ 1 200	+ 1.4%
Information and communications	16 300	6.4	21 300	6.6	+ 5 000	+ 2.7%
Financial services	49 100	19.3	67 300	20.8	+ 18 200	+ 3.2%
Real estate	6 400	2.5	8 900	2.8	+ 2 600	+ 3.4%
Professional and business services	29 600	11.7	39 600	12.3	+ 10 000	+ 3.0%
Social and personal services	89 500	35.3	114 900	35.5	+ 25 400	+ 2.5%
Total	253 700	100.0	323 600	100.0	+ 69 900	+ 2.5%

^ Figure less than 50

§ Figure is suppressed owing to small value of the corresponding estimate.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.50: Manpower Requirements of the Agriculture, Fishing and Quarrying Sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	2 900	74.1	1 200	62.0	- 1 700	- 8.4%
Upper secondary	500	13.6	400	22.9	- 100	- 1.8%
Diploma	200	5.3	100	5.9	- 100	- 5.8%
Sub-degree	100	2.2	100	3.6	^^	§§
First degree	200	4.0	100	5.0	- 100	- 4.7%
Postgraduate	^	§	^	§	§	§
All levels	3 900	100.0	1 900	100.0	- 2 000	- 6.8%

^ Figure less than 50

^^ Change within ±50

§ Figure is suppressed owing to small value of the corresponding estimate.

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.51: Manpower Requirements of the Manufacturing Sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	35 100	36.1	20 700	28.4	- 14 500	- 5.2%
Upper secondary	35 700	36.8	27 300	37.5	- 8 400	- 2.7%
Diploma	3 700	3.8	2 900	3.9	- 800	- 2.5%
Sub-degree	5 100	5.3	4 900	6.8	- 200	- 0.4%
First degree	14 000	14.4	13 800	19.0	- 100	- 0.1%
Postgraduate	3 600	3.7	3 200	4.4	- 400	- 1.0%
All levels	97 200	100.0	72 700	100.0	- 24 500	- 2.9%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.52: Manpower Requirements of the Electricity, Gas, Water and Waste Management Sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	3 400	21.0	2 400	14.3	- 1 000	- 3.5%
Upper secondary	4 900	30.8	5 300	32.0	+ 400	+ 0.7%
Diploma	800	5.1	800	4.6	- 100	- 0.8%
Sub-degree	1 400	8.5	1 800	10.7	+ 400	+ 2.6%
First degree	4 000	24.6	4 500	27.4	+ 600	+ 1.4%
Postgraduate	1 600	9.9	1 800	10.9	+ 200	+ 1.2%
All levels	16 100	100.0	16 500	100.0	+ 500	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.53: Manpower Requirements of the Construction Sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	153 200	43.9	117 600	32.0	- 35 500	- 2.6%
Upper secondary	114 000	32.7	136 000	37.0	+ 22 000	+ 1.8%
Diploma	14 300	4.1	23 300	6.4	+ 9 000	+ 5.0%
Sub-degree	19 100	5.5	27 800	7.6	+ 8 800	+ 3.9%
First degree	39 000	11.2	51 100	13.9	+ 12 200	+ 2.8%
Postgraduate	9 000	2.6	11 400	3.1	+ 2 400	+ 2.4%
All levels	348 600	100.0	367 400	100.0	+ 18 800	+ 0.5%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.54: Manpower Requirements of the Import and Export Trade Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	50 700	10.3	30 700	7.0	- 19 900	- 4.9%
Upper secondary	209 900	42.5	160 500	36.6	- 49 400	- 2.6%
Diploma	16 200	3.3	13 300	3.0	- 2 900	- 2.0%
Sub-degree	35 000	7.1	36 300	8.3	+ 1 200	+ 0.3%
First degree	150 800	30.5	165 500	37.7	+ 14 800	+ 0.9%
Postgraduate	31 000	6.3	32 600	7.4	+ 1 500	+ 0.5%
All levels	493 600	100.0	438 900	100.0	- 54 700	- 1.2%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.55: Manpower Requirements of the Wholesale Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	17 300	28.6	9 400	18.0	- 7 900	- 5.9%
Upper secondary	25 300	41.7	21 100	40.2	- 4 200	- 1.8%
Diploma	1 100	1.8	1 100	2.0	^^	§§
Sub-degree	2 600	4.4	3 300	6.2	+ 600	+ 2.2%
First degree	12 700	20.9	15 800	30.1	+ 3 100	+ 2.2%
Postgraduate	1 600	2.7	1 800	3.4	+ 200	+ 1.2%
All levels	60 700	100.0	52 600	100.0	- 8 100	- 1.4%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.56: Manpower Requirements of the Retail Trade Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	91 900	27.9	64 100	18.9	- 27 800	- 3.5%
Upper secondary	162 700	49.3	163 700	48.3	+ 1 000	+ 0.1%
Diploma	9 500	2.9	11 900	3.5	+ 2 400	+ 2.3%
Sub-degree	15 700	4.8	22 700	6.7	+ 7 000	+ 3.8%
First degree	43 800	13.3	67 300	19.9	+ 23 500	+ 4.4%
Postgraduate	6 100	1.9	9 400	2.8	+ 3 300	+ 4.4%
All levels	329 700	100.0	339 100	100.0	+ 9 400	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.57: Manpower Requirements of the Accommodation Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	12 500	27.2	12 800	26.1	+ 300	+ 0.2%
Upper secondary	17 600	38.4	16 600	33.9	- 1 000	- 0.6%
Diploma	2 200	4.8	2 400	5.0	+ 200	+ 0.9%
Sub-degree	3 600	7.9	4 500	9.2	+ 900	+ 2.2%
First degree	8 900	19.4	11 400	23.3	+ 2 500	+ 2.6%
Postgraduate	1 100	2.3	1 200	2.5	+ 200	+ 1.6%
All levels	45 800	100.0	48 900	100.0	+ 3 100	+ 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.58: Manpower Requirements of the Food Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	122 900	50.6	103 600	41.5	- 19 300	- 1.7%
Upper secondary	97 500	40.2	112 800	45.2	+ 15 300	+ 1.5%
Diploma	4 000	1.6	5 900	2.3	+ 1 900	+ 3.9%
Sub-degree	6 100	2.5	9 900	4.0	+ 3 900	+ 5.0%
First degree	11 300	4.7	16 300	6.5	+ 5 000	+ 3.7%
Postgraduate	1 000	0.4	1 100	0.4	+ 100	+ 1.4%
All levels	242 700	100.0	249 600	100.0	+ 6 900	+ 0.3%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.59: Manpower Requirements of the Land Transport and Related Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	83 700	47.9	66 300	40.3	- 17 400	- 2.3%
Upper secondary	67 800	38.8	69 800	42.4	+ 2 000	+ 0.3%
Diploma	4 000	2.3	3 900	2.3	- 100	- 0.3%
Sub-degree	5 600	3.2	7 600	4.6	+ 2 000	+ 3.2%
First degree	11 300	6.5	14 500	8.8	+ 3 200	+ 2.5%
Postgraduate	2 300	1.3	2 400	1.4	^^	§§
All levels	174 700	100.0	164 400	100.0	- 10 300	- 0.6%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.60: Manpower Requirements of the Water Transport and Related Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	12 600	25.0	6 500	16.8	- 6 100	- 6.4%
Upper secondary	20 800	41.2	15 000	39.0	- 5 700	- 3.2%
Diploma	2 100	4.2	1 700	4.4	- 400	- 2.1%
Sub-degree	2 600	5.2	2 900	7.5	+ 300	+ 1.0%
First degree	9 800	19.5	10 100	26.3	+ 300	+ 0.3%
Postgraduate	2 500	4.9	2 300	5.9	- 200	- 0.8%
All levels	50 400	100.0	38 500	100.0	- 11 800	- 2.6%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.61: Manpower Requirements of the Air Transport and Related Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	9 000	14.0	9 200	11.7	+ 200	+ 0.3%
Upper secondary	24 400	37.8	24 500	31.1	+ 200	+ 0.1%
Diploma	2 800	4.3	2 800	3.5	^^	§§
Sub-degree	5 300	8.3	7 900	10.0	+ 2 600	+ 4.0%
First degree	20 700	32.2	31 100	39.4	+ 10 300	+ 4.1%
Postgraduate	2 200	3.5	3 300	4.2	+ 1 100	+ 4.0%
All levels	64 400	100.0	78 800	100.0	+ 14 400	+ 2.0%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.62: Manpower Requirements of the Warehousing and Other Transportation Support Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	2 400	22.3	2 300	18.4	- 100	- 0.3%
Upper secondary	5 100	47.9	5 500	44.5	+ 400	+ 0.8%
Diploma	400	4.0	400	3.3	^^	§§
Sub-degree	600	5.7	900	6.9	+ 300	+ 3.6%
First degree	1 700	16.4	2 800	22.6	+ 1 100	+ 4.9%
Postgraduate	400	3.6	500	4.3	+ 100	+ 3.3%
All levels	10 600	100.0	12 400	100.0	+ 1 800	+ 1.6%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.63: Manpower Requirements of the Postal and Courier Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	3 900	20.0	3 200	16.2	- 700	- 2.0%
Upper secondary	11 100	56.9	11 200	57.0	+ 100	+ 0.1%
Diploma	700	3.6	500	2.8	- 200	- 2.5%
Sub-degree	900	4.8	1 200	5.9	+ 200	+ 2.3%
First degree	2 400	12.6	3 000	15.4	+ 600	+ 2.1%
Postgraduate	400	2.1	500	2.8	+ 100	+ 2.8%
All levels	19 500	100.0	19 600	100.0	+ 200	+ 0.1%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.64: Manpower Requirements of the Telecommunication Activities Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	1 100	5.3	900	3.7	- 200	- 2.1%
Upper secondary	7 500	35.6	6 700	27.5	- 700	- 1.0%
Diploma	1 200	5.6	1 200	5.0	^^	§§
Sub-degree	1 600	7.4	2 300	9.4	+ 700	+ 4.0%
First degree	7 400	35.5	10 300	42.1	+ 2 900	+ 3.3%
Postgraduate	2 200	10.5	3 000	12.3	+ 800	+ 3.2%
All levels	21 000	100.0	24 500	100.0	+ 3 600	+ 1.6%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.65: Manpower Requirements of the Software Publishing and Information Technology Related Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	500	1.1	300	0.4	- 300	- 6.2%
Upper secondary	6 000	11.7	5 300	8.1	- 700	- 1.2%
Diploma	1 300	2.6	1 600	2.4	+ 300	+ 1.8%
Sub-degree	4 100	7.9	5 400	8.3	+ 1 400	+ 3.0%
First degree	29 900	58.3	39 200	59.9	+ 9 300	+ 2.7%
Postgraduate	9 500	18.5	13 600	20.8	+ 4 200	+ 3.7%
All levels	51 300	100.0	65 500	100.0	+ 14 200	+ 2.5%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.66: Manpower Requirements of the Miscellaneous Activities Related to Information and Communications Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	2 800	6.4	1 300	3.2	- 1 500	- 7.4%
Upper secondary	11 800	27.2	8 900	21.9	- 2 900	- 2.8%
Diploma	1 400	3.2	700	1.7	- 700	- 6.8%
Sub-degree	3 700	8.4	4 000	9.8	+ 300	+ 0.8%
First degree	19 200	44.2	21 200	52.1	+ 2 000	+ 1.0%
Postgraduate	4 600	10.6	4 600	11.4	^^	§§
All levels	43 500	100.0	40 700	100.0	- 2 800	- 0.7%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.67: Manpower Requirements of the Banking Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	1 300	1.2	800	0.7	- 500	- 5.2%
Upper secondary	26 100	24.7	15 200	13.4	- 10 900	- 5.3%
Diploma	1 800	1.7	1 000	0.9	- 800	- 5.5%
Sub-degree	5 000	4.7	4 500	4.0	- 400	- 0.9%
First degree	53 000	50.1	67 400	59.6	+ 14 500	+ 2.4%
Postgraduate	18 500	17.5	24 200	21.4	+ 5 700	+ 2.7%
All levels	105 600	100.0	113 200	100.0	+ 7 500	+ 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.68: Manpower Requirements of the Financial Institutions (other than Banks and Insurance) Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	3 700	4.0	2 100	2.0	- 1 600	- 5.5%
Upper secondary	15 900	17.3	8 200	7.9	- 7 700	- 6.4%
Diploma	2 000	2.2	1 700	1.7	- 300	- 1.4%
Sub-degree	4 100	4.4	4 800	4.7	+ 800	+ 1.8%
First degree	42 000	45.9	54 000	52.1	+ 12 000	+ 2.5%
Postgraduate	23 800	26.1	32 800	31.7	+ 9 000	+ 3.3%
All levels	91 400	100.0	103 700	100.0	+ 12 200	+ 1.3%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.69: Manpower Requirements of the Insurance Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	2 500	3.7	1 500	1.9	- 1 000	- 4.9%
Upper secondary	25 400	38.0	22 200	28.5	- 3 200	- 1.4%
Diploma	2 700	4.0	2 100	2.6	- 600	- 2.6%
Sub-degree	5 000	7.4	6 100	7.9	+ 1 200	+ 2.1%
First degree	24 700	36.9	35 700	45.9	+ 10 900	+ 3.7%
Postgraduate	6 700	10.0	10 200	13.1	+ 3 500	+ 4.3%
All levels	67 000	100.0	77 700	100.0	+ 10 700	+ 1.5%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.70: Manpower Requirements of the Real Estate Sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	39 200	28.0	32 200	21.2	- 7 000	- 1.9%
Upper secondary	52 700	37.7	57 300	37.6	+ 4 500	+ 0.8%
Diploma	4 300	3.1	4 500	3.0	+ 300	+ 0.6%
Sub-degree	8 900	6.3	11 400	7.5	+ 2 500	+ 2.5%
First degree	28 500	20.4	37 800	24.9	+ 9 400	+ 2.9%
Postgraduate	6 400	4.5	8 900	5.9	+ 2 600	+ 3.4%
All levels	140 000	100.0	152 200	100.0	+ 12 200	+ 0.8%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.71: Manpower Requirements of the Legal Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	700	2.8	400	1.5	- 300	- 5.2%
Upper secondary	5 800	25.0	4 500	17.7	- 1 400	- 2.7%
Diploma	800	3.5	700	2.7	- 100	- 2.0%
Sub-degree	1 200	5.3	1 400	5.4	+ 100	+ 1.0%
First degree	10 300	44.4	12 700	50.5	+ 2 400	+ 2.1%
Postgraduate	4 400	18.9	5 600	22.2	+ 1 200	+ 2.4%
All levels	23 300	100.0	25 200	100.0	+ 1 900	+ 0.8%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.72: Manpower Requirements of the Accounting, Auditing and Bookkeeping Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	500	1.5	300	0.9	- 200	- 4.3%
Upper secondary	4 600	15.1	2 700	8.4	- 1 900	- 5.1%
Diploma	1 100	3.5	700	2.0	- 400	- 4.6%
Sub-degree	2 000	6.5	2 200	6.7	+ 200	+ 0.9%
First degree	20 300	66.1	24 400	74.3	+ 4 100	+ 1.9%
Postgraduate	2 300	7.4	2 600	7.8	+ 300	+ 1.2%
All levels	30 700	100.0	32 800	100.0	+ 2 100	+ 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.73: Manpower Requirements of the Business Management and Consultancy Services, and Engineering and Technical Services not Related to Construction and Real Estate Activities Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	2 600	4.2	1 400	1.7	- 1 200	- 5.8%
Upper secondary	13 200	21.6	13 200	16.2	^^	§§
Diploma	2 300	3.7	2 400	3.0	+ 200	+ 0.7%
Sub-degree	4 900	8.0	6 000	7.4	+ 1 100	+ 2.0%
First degree	26 600	43.5	40 400	49.7	+ 13 800	+ 4.3%
Postgraduate	11 700	19.0	17 800	21.9	+ 6 200	+ 4.3%
All levels	61 200	100.0	81 300	100.0	+ 20 100	+ 2.9%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.74: Manpower Requirements of the Design, Advertising and Related Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 – 2027)
	Number	% share	Number	% share		
Lower secondary and below	1 200	3.8	700	1.8	- 500	- 5.7%
Upper secondary	7 500	24.3	6 600	18.4	- 900	- 1.3%
Diploma	2 100	6.7	2 500	6.9	+ 400	+ 1.8%
Sub-degree	5 000	16.2	6 000	16.7	+ 1 000	+ 1.8%
First degree	13 500	43.5	17 800	49.7	+ 4 400	+ 2.8%
Postgraduate	1 700	5.5	2 300	6.5	+ 600	+ 3.1%
All levels	31 000	100.0	35 800	100.0	+ 4 900	+ 1.5%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.75: Manpower Requirements of the Architectural, Surveying and Engineering Services Related to Real Estate and Construction Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	1 400	4.8	1 000	3.3	- 300	- 2.9%
Upper secondary	6 200	21.4	5 900	18.7	- 300	- 0.4%
Diploma	1 500	5.2	1 400	4.4	- 100	- 0.6%
Sub-degree	3 500	12.2	3 500	11.2	^^	§§
First degree	11 400	39.4	13 600	42.8	+ 2 200	+ 1.8%
Postgraduate	5 000	17.2	6 200	19.6	+ 1 200	+ 2.3%
All levels	28 900	100.0	31 700	100.0	+ 2 800	+ 0.9%

^^ Change within ±50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.76: Manpower Requirements of the Miscellaneous Professional and Business Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	110 000	48.3	105 300	41.4	- 4 700	- 0.4%
Upper secondary	68 000	29.9	81 100	31.9	+ 13 000	+ 1.8%
Diploma	5 400	2.4	6 900	2.7	+ 1 500	+ 2.5%
Sub-degree	8 800	3.9	12 400	4.9	+ 3 600	+ 3.5%
First degree	30 700	13.5	43 200	17.0	+ 12 500	+ 3.5%
Postgraduate	4 700	2.0	5 200	2.0	+ 500	+ 1.0%
All levels	227 600	100.0	254 100	100.0	+ 26 500	+ 1.1%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.77: Manpower Requirements of the Human Health Activities Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	14 200	10.3	14 100	7.7	- 100	- 0.1%
Upper secondary	33 300	24.1	44 200	24.0	+ 10 900	+ 2.9%
Diploma	7 200	5.2	9 000	4.9	+ 1 900	+ 2.4%
Sub-degree	11 600	8.4	16 300	8.8	+ 4 700	+ 3.5%
First degree	52 800	38.2	72 000	39.2	+ 19 200	+ 3.2%
Postgraduate	19 000	13.8	28 200	15.4	+ 9 200	+ 4.0%
All levels	138 000	100.0	183 800	100.0	+ 45 800	+ 2.9%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.78: Manpower Requirements of the Nursing Homes, Residential Care Activities and Social Work Activities without Accommodation for the Elderly and Persons with Disabilities Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	16 300	37.4	16 800	29.5	+ 500	+ 0.3%
Upper secondary	14 200	32.6	21 200	37.2	+ 7 000	+ 4.1%
Diploma	1 700	3.8	2 500	4.5	+ 900	+ 4.3%
Sub-degree	2 900	6.7	4 900	8.6	+ 2 000	+ 5.3%
First degree	7 000	16.0	9 600	16.9	+ 2 700	+ 3.3%
Postgraduate	1 500	3.5	1 800	3.2	+ 300	+ 1.9%
All levels	43 500	100.0	56 900	100.0	+ 13 400	+ 2.7%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.79: Manpower Requirements of the Other Social and Personal Services Sub-sector by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	79 800	14.5	52 900	9.5	- 26 900	- 4.0%
Upper secondary	184 700	33.5	159 000	28.5	- 25 600	- 1.5%
Diploma	16 000	2.9	12 600	2.2	- 3 400	- 2.4%
Sub-degree	35 000	6.4	42 500	7.6	+ 7 500	+ 2.0%
First degree	166 300	30.2	207 100	37.1	+ 40 900	+ 2.2%
Postgraduate	69 000	12.5	84 800	15.2	+ 15 900	+ 2.1%
All levels	550 700	100.0	559 000	100.0	+ 8 200	+ 0.1%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.80: Manpower Requirements of the Financial Services Industry by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	7 400	2.8	4 400	1.5	- 3 100	- 5.2%
Upper secondary	67 400	25.5	45 500	15.5	- 21 800	- 3.8%
Diploma	6 400	2.4	4 800	1.6	- 1 700	- 2.9%
Sub-degree	14 000	5.3	15 500	5.3	+ 1 500	+ 1.0%
First degree	119 700	45.3	157 100	53.3	+ 37 400	+ 2.8%
Postgraduate	49 100	18.6	67 300	22.8	+ 18 200	+ 3.2%
All levels	264 000	100.0	294 600	100.0	+ 30 500	+ 1.1%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.81: Manpower Requirements of the Trading and Logistics Industry by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	127 400	17.2	85 600	12.8	- 41 800	- 3.9%
Upper secondary	317 200	42.9	260 700	38.9	- 56 500	- 1.9%
Diploma	23 200	3.1	19 600	2.9	- 3 500	- 1.6%
Sub-degree	45 400	6.1	49 500	7.4	+ 4 100	+ 0.9%
First degree	188 600	25.5	214 100	32.0	+ 25 500	+ 1.3%
Postgraduate	37 400	5.1	40 000	6.0	+ 2 600	+ 0.7%
All levels	739 200	100.0	669 600	100.0	- 69 600	- 1.0%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.82: Manpower Requirements of the Professional Services and Other Producer Services Industry by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	112 900	20.3	106 100	16.0	- 6 800	- 0.6%
Upper secondary	154 400	27.8	168 100	25.4	+ 13 700	+ 0.9%
Diploma	18 700	3.4	21 000	3.2	+ 2 200	+ 1.1%
Sub-degree	38 100	6.9	50 100	7.6	+ 11 900	+ 2.8%
First degree	179 000	32.2	244 200	36.9	+ 65 200	+ 3.2%
Postgraduate	52 500	9.4	72 200	10.9	+ 19 800	+ 3.3%
All levels	555 600	100.0	661 700	100.0	+ 106 100	+ 1.8%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.83: Manpower Requirements of the Tourism Industry by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	79 400	29.9	66 800	23.5	- 12 600	- 1.7%
Upper secondary	111 700	42.1	115 000	40.5	+ 3 300	+ 0.3%
Diploma	8 600	3.2	10 000	3.5	+ 1 400	+ 1.5%
Sub-degree	14 900	5.6	20 900	7.4	+ 6 100	+ 3.5%
First degree	45 000	17.0	63 600	22.4	+ 18 600	+ 3.5%
Postgraduate	5 800	2.2	7 600	2.7	+ 1 900	+ 2.9%
All levels	265 400	100.0	284 000	100.0	+ 18 700	+ 0.7%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.84: Manpower Requirements of the Information Technology and Information Services Industry by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	1 700	2.3	1 200	1.3	- 500	- 3.3%
Upper secondary	13 400	18.6	12 000	13.4	- 1 400	- 1.1%
Diploma	2 500	3.5	2 800	3.1	+ 300	+ 1.2%
Sub-degree	5 600	7.8	7 700	8.6	+ 2 100	+ 3.3%
First degree	37 400	51.7	49 600	55.1	+ 12 200	+ 2.9%
Postgraduate	11 700	16.2	16 700	18.5	+ 5 000	+ 3.6%
All levels	72 300	100.0	90 000	100.0	+ 17 800	+ 2.2%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.85: Manpower Requirements of the Innovation and Technology Industries by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	-	-	-	-	-	-
Upper secondary	3 200	8.5	3 600	6.2	+ 400	+ 1.1%
Diploma	700	1.7	800	1.4	+ 200	+ 2.1%
Sub-degree	1 600	4.1	2 500	4.4	+ 1 000	+ 4.8%
First degree	18 000	47.5	28 200	48.9	+ 10 100	+ 4.6%
Postgraduate	14 500	38.2	22 500	39.1	+ 8 000	+ 4.5%
All levels	38 000	100.0	57 600	100.0	+ 19 600	+ 4.3%

- Nil figure

Note: Individual figures may not add up to the totals due to rounding.

Table A7.86: Manpower Requirements of the Testing and Certification Services Industry by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	1 100	7.5	700	4.4	- 400	- 4.0%
Upper secondary	4 200	28.8	4 100	24.7	- 100	- 0.2%
Diploma	2 000	14.0	2 300	13.8	+ 300	+ 1.2%
Sub-degree	1 000	6.5	1 200	7.0	+ 200	+ 2.0%
First degree	4 800	33.1	6 400	38.3	+ 1 600	+ 2.8%
Postgraduate	1 500	10.0	2 000	11.8	+ 500	+ 3.0%
All levels	14 500	100.0	16 600	100.0	+ 2 100	+ 1.3%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.87: Manpower Requirements of the Cultural and Creative Industries by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	21 700	10.0	13 300	5.6	- 8 400	- 4.8%
Upper secondary	57 100	26.2	49 400	20.8	- 7 700	- 1.4%
Diploma	8 300	3.8	8 300	3.5	^^	§§
Sub-degree	19 400	8.9	23 500	9.9	+ 4 100	+ 1.9%
First degree	86 700	39.8	111 100	46.7	+ 24 500	+ 2.5%
Postgraduate	24 600	11.3	32 300	13.6	+ 7 700	+ 2.8%
All levels	217 800	100.0	238 000	100.0	+ 20 200	+ 0.9%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Table A7.88: Manpower Requirements of the Environmental Industries by Education Level in 2017 and 2027

Education level	Actual manpower requirements in 2017		Projected manpower requirements in 2027		Projected change from 2017 to 2027	Projected average annual rate of change (2017 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	31 000	68.7	32 600	63.3	+ 1 600	+ 0.5%
Upper secondary	8 700	19.3	11 600	22.5	+ 2 900	+ 2.9%
Diploma	600	1.3	800	1.6	+ 200	+ 3.3%
Sub-degree	1 000	2.2	1 500	2.9	+ 500	+ 3.9%
First degree	3 100	6.9	4 100	8.0	+ 1 000	+ 2.9%
Postgraduate	700	1.6	900	1.7	+ 200	+ 2.2%
All levels	45 200	100.0	51 500	100.0	+ 6 300	+ 1.3%

Note: Individual figures may not add up to the totals due to rounding.

Table A7.89: Manpower Requirements of IT Workers by Education Level in 2016 and 2027

Education level	Actual manpower requirements in 2016		Projected manpower requirements in 2027		Projected change from 2016 to 2027	Projected average annual rate of change (2016 - 2027)
	Number	% share	Number	% share		
Lower secondary and below	400	0.4	400	0.3	^^	§§
Upper secondary	14 200	15.7	15 700	13.2	+ 1 500	+ 0.9%
Diploma	2 600	2.9	3 100	2.6	+ 500	+ 1.7%
Sub-degree	7 800	8.6	12 800	10.8	+ 5 000	+ 4.6%
First degree	52 000	57.5	69 400	58.3	+ 17 400	+ 2.7%
Postgraduate	13 500	14.9	17 600	14.8	+ 4 100	+ 2.4%
All levels	90 400	100.0	119 000	100.0	+ 28 500	+ 2.5%

^^ Change within ± 50

§§ Figure is suppressed owing to small value of the estimated projected change.

Note: Individual figures may not add up to the totals due to rounding.

Appendix VIII

Findings from MP-Related Surveys

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Findings from MP-Related Surveys

As one related activity under the Manpower Projection to 2027 (MP2027), two dedicated statistical surveys were completed. They were the “Thematic Household Survey on Training Needs and Desire to Take up Jobs”¹ (Household Survey) conducted by a private contractor under the coordination of the Census and Statistics Department (C&SD) during March to June 2018 and the “2017 Establishment Survey on Manpower and Job Skills Requirements”² (Establishment Survey) conducted by C&SD during November 2017 to March 2018. In addition to collecting information for generating relevant input parameters for the projection models of MP2027, information on training needs of the working population was collected from both surveys and that on the desire to take up jobs of the non-working population was collected from the Household Survey to help shed light on these topics which are relevant to the development of our workforce. Key survey findings are presented in the ensuing paragraphs.

Training Needs

2. Based on the findings of the Household Survey, 752 800 economically active persons (corresponding to 20.4% of the total labour force) had attended job-related training / retraining courses during the 12 months before enumeration. Among them, 674 400 persons (18.3%) had attended training / retraining courses arranged by employers and 160 400 persons (4.3%) had done so on their own initiative. Furthermore, 240 400 economically active persons (corresponding to 6.5% of the total labour force) said they had plans

¹ The “Thematic Household Survey on Training Needs and Desire to Take up Jobs” was packaged under a series of Thematic Household Survey (THS) to collect statistical data on social topics proposed by individual Government Bureaux and Departments. Each round of THS is an independent and territory-wide survey commissioned to a private research firm by C&SD. This round of THS, together with the two other topics conducted side-by-side, collected information on Hong Kong residents having studied outside Hong Kong, training needs of economically active persons and desire of economically inactive persons to take up jobs. Around 10 000 households within a scientifically selected sample of quarters were successfully enumerated, constituting a response rate of 75%.

² The “2017 Establishment Survey on Manpower and Job Skills Requirements” was an economy-wide survey conducted by C&SD, covering establishments from all economic sectors in Hong Kong’s economy, except government institutions and the establishments which either had relatively insignificant contribution to the economy (e.g. agriculture, fishing and quarrying) or were difficult to be located for the purpose of interview (e.g. operators of taxis and public light buses). Data collected in the survey referred to the position as of 29 September 2017. About 5 900 establishments under a stratified sampling method were successfully enumerated, representing a response rate of 87%.

to attend job-related training / retraining courses in the future.

3. The most popular job-related training / retraining courses attended by those 674 400 persons arranged by employers were related to job-specific skills (attended by 45.1% of those persons). This was followed by courses related to management skills (35.4%) and interpersonal and intrapersonal skills (22.0%). Similarly, of the 160 400 persons who had attended job-related training / retraining courses on own initiative, 49.6% of the courses attended were related to job-specific skills, followed by 21.5% on interpersonal and intrapersonal skills and 16.8% on management skills.

Table A8.1: Economically active persons by type of job-related training / retraining courses attended during the 12 months before enumeration

Type of job-related training / retraining courses attended [#]	Arranged by employers		On own initiative	
	No. of persons	%	No. of persons	%
Job-specific skills	304 000	45.1	79 600	49.6
Management skills	238 700	35.4	27 000	16.8
Interpersonal and intrapersonal skills	148 300	22.0	34 600	21.5
IT skills	44 200	6.6	14 200	8.8
Language skills	19 800	2.9	15 800	9.9
Mainland-related knowledge and world vision	9 900	1.5	3 400	2.1
Overall	674 400		160 400	

Multiple answers were allowed.

4. At the time of enumeration, 240 400 economically active persons (corresponding to 6.5% of the total labour force) said they had plans to attend job-related training / retraining courses in the future. Analysed by occupation category, training on knowledge of products and services offered was the most cited type of courses that employed persons of all occupation categories planned to attend. Training on leadership and teamwork as well as problem-solving and decision-making were more commonly cited by managers and administrators, professionals and associate professionals, whilst IT skills and spoken English were more commonly cited by clerical support workers, craft and related workers as well as plant and machine operators and assemblers.

Table A8.2: Employed persons who had plans to attend job-related training / retraining courses in the future by occupation category / top 3 cited courses planned to attend

Occupation category / top 3 cited job-related training / retraining courses [#] planned to attend	No. of persons	% ^Ψ
<i>Managers and administrators, professionals and associate professionals</i>		
Knowledge of products and services offered	45 000	37.9
Leadership and teamwork	18 300	15.4
Problem-solving and decision-making	11 200	9.5
<i>Clerical support workers</i>		
Knowledge of products and services offered	11 500	24.6
Advanced or specialised IT skills	6 400	13.7
Spoken English	6 000	12.7
<i>Service and sales workers</i>		
Knowledge of products and services offered	11 000	33.6
Spoken English	4 800	14.7
Customer service skills	4 000	12.1
<i>Craft and related workers, plant and machine operators and assemblers</i>		
Knowledge of products and services offered	4 700	32.1
Basic computer literacy and IT skills	3 600	24.9
Spoken English	2 400	16.7
<i>Elementary occupations</i>		
Knowledge of products and services offered	4 600	28.3
Leadership and teamwork	3 000	18.3
Basic computer literacy and IT skills	2 800	17.6

Multiple answers were allowed.

Ψ As a percentage of all employed persons who had plans at the time of enumeration to attend job-related training / retraining courses in the future in the respective occupation categories.

5. From the perspective of the employers, according to the Establishment Survey, some 1.02 million persons engaged in various economic sectors (corresponding to 35.6% of all persons engaged within the survey scope) were considered necessary to receive skill training by their companies as at the survey reference period.

6. Training needs of different skills were recorded in different occupation categories. Taking service and sales workers as an example, the top three cited skills were rather job-specific, viz. knowledge of products and services offered, customer service skills and sales skills. As for clerical support workers, the most cited skills were all language related, viz. ability to read, understand and write English, as well as ability to communicate in English/ Putonghua. On the other hand, creativity and problem-solving capability was one of the top three skills cited for managers and administrators, as well as professionals.

Table A8.3: Number of establishments with staff of the respective occupation categories requiring training of skills by occupation category and the top three skills cited

Occupation category and the top three skills cited	No. of establishments	Proportion (%)
<i>Managers and administrators</i>		
Instructing, managing or motivating others	8 980	58.2
Creativity and problem-solving capability	8 290	53.7
Team working	7 960	51.6
<i>Professionals</i>		
Creativity and problem-solving capability	7 440	41.7
Ability to manage own time and prioritise own tasks	6 960	39.0
Ability to communicate in Putonghua	6 210	34.8
<i>Associate professionals</i>		
Customer service skills	18 340	46.0
Knowledge of products and services offered	17 760	44.6
Sales skills	16 000	40.1
<i>Clerical support workers</i>		
Ability to read, understand and write English	13 390	61.3
Ability to communicate in English	12 500	57.2
Ability to communicate in Putonghua	10 990	50.3
<i>Service and sales workers</i>		
Knowledge of products and services offered	9 150	58.2
Customer service skills	8 570	54.5
Sales skills	7 980	50.8
<i>Craft and related workers</i>		
Team working	1 120	51.6
Adapting to new work procedures or new equipment	980	45.4
Other job specific skills	750	34.7
<i>Drivers, plant and machine operators and assemblers</i>		
Team working	2 080	57.5
Ability to manage own time and prioritise own tasks	1 400	38.6
Ability to communicate in English	1 120	30.9
<i>Elementary occupations</i>		
Team working	2 760	48.2
Ability to read, understand and write Chinese	1 490	26.0
Managing own feelings/ handling those of others	1 440	25.1

Notes: (1) An establishment might select more than one type of skills.

- (2) The proportion figures were compiled with respect to the total number of establishments with staff of the respective occupation categories requiring training of skills, i.e. excluding establishments indicating no skills training requirements for their staff under the respective occupation categories. The Survey did not collect data on the number or relative share of staff requiring training for each type of skills.

Desire to Take Up Jobs

7. Some 66 600 persons, including 50 100 female homemakers aged 30-59 and 16 500 early retirees aged 50-64 (corresponding to 10% and 5% of the respective population subgroups), indicated that they would be willing to take up jobs if being offered “suitable” employment meeting their specific needs. Their main considerations for taking up jobs included “flexible / convenient working hours”, “work place near home”, “high / reasonable salary” and “simple / comfortable / safe job”. Most of them preferred part-time jobs and less than 10% (or some 6 300 persons) would prefer full-time jobs. This group of persons can probably be an alternative solution when employers faced difficulties in hiring full-time employees under the tight manpower situation.

Table A8.4: Female homemakers aged 30-59 and early retirees aged 50-64 who were willing to take up jobs if being offered suitable employment by top 6 main considerations for taking up jobs

Top 6 main considerations [#] for taking up jobs	Female homemakers aged 30-59 willing to take up jobs		Early retirees aged 50-64 willing to take up jobs		Total	
	No. of persons	%	No. of persons	%	No. of persons	%
Flexible / convenient working hours	34 100	68.1	9 800	59.1	43 900	65.9
Work place near home	20 300	40.6	4 500	27.3	24 800	37.3
High / reasonable salary	16 300	32.6	6 700	40.6	23 000	34.6
Simple / comfortable / safe job	11 000	22.0	6 600	40.1	17 600	26.5
Work place with easy transportation available	11 200	22.4	5 300	32.3	16 600	24.9
Children at home being taken care of	15 700	31.3	‡	‡	16 000	24.0
Overall	50 100		16 500		66 600	

Respondents can choose at most three considerations for taking up jobs.

‡ Statistics are not released due to large sampling error.

Table A8.5: Female homemakers aged 30-59 and early retirees aged 50-64 who were willing to take up jobs if being offered suitable employment by preference for taking up a full-time or part-time job

Preference for taking up a full-time or part-time job	Female homemakers aged 30-59 willing to take up jobs		Early retirees aged 50-64 willing to take up jobs		Total	
	No. of persons	%	No. of persons	%	No. of persons	%
Full-time job	5 200	10.4	‡	‡	6 300	9.4
Part-time job	29 400	58.7	11 100	67.1	40 500	60.8
No preference	15 500	30.9	4 400	26.5	19 800	29.8
Overall	50 100	100.0	16 500	100.0	66 600	100.0

‡ Statistics are not released due to large sampling error.

Further Reference

8. Detailed findings of the Household Survey, together with the population coverage and concepts/definitions of key terms, are presented in the Thematic Household Survey Report No. 66 available at the C&SD website (www.statistics.gov.hk/pub/B11302662019XXXXB0100.pdf).

9. Relevant findings of the Establishment Survey are presented in the feature article entitled “Statistics on Employers’ Views on the Training Needs of their Employees” available at the C&SD website (www.censtatd.gov.hk/hkstat/sub/sp220.jsp?productCode=FA100280).

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Glossary

Economic sector is defined on the basis of the Hong Kong Standard Industrial Classification Version 2.0, which is a framework devised, maintained and commonly used by the Census and Statistics Department in compiling manpower-related statistics as well as economic statistics of Hong Kong. In the context of Manpower Projection to 2027, the following 12 *conventional economic sectors* together make up the whole economy.

1. *Agriculture, fishing and quarrying*
2. *Manufacturing*
3. *Electricity, gas, water and waste management*
4. *Construction*
5. *Import, export, wholesale and retail trades*
6. *Accommodation and food services*
7. *Transportation, storage, postal and courier services*
8. *Information and communications*
9. *Financial services*
10. *Real estate*
11. *Professional and business services*
12. *Social and personal services*

Education level (or educational attainment) refers to the highest level of education completed by a person in an education institution.

Establishment is defined as an economic unit which engages, under a single ownership or control, in one or predominantly one kind of economic activity at a single physical location. Examples include an individual factory, workshop, retail shop or office.

Hong Kong residents at a given reference time point, according to the Census and Statistics Department's definition, refer to (a) Hong Kong's permanent residents who stay in Hong Kong for at least one month during the six months before or after that reference time point; and (b) non-permanent residents who are in Hong Kong at the reference time point.

Job vacancies refer to job openings which are immediately available in, and for which active recruitment steps are being taken by, business establishments on the survey reference date. The statistics of job vacancies are largely based on a regular survey conducted by the Census and Statistics Department.

Labour force participation rate refers to the proportion of labour force as a percentage of the population aged 15 or over. It is a measure of the propensity of the persons of working age to be in the labour force.

Manpower requirements refer to the job opportunities in various economic sectors and industries which are available to Hong Kong residents.

Manpower resource balance (MRB) is the quantitative difference between manpower supply and requirements. The resultant figure provides an indication as to whether there may be any imbalance between manpower supply and requirements. A positive MRB means manpower surplus, an imbalance with manpower supply exceeding manpower requirements. A negative MRB indicates manpower shortfall, signaling that manpower supply is less than manpower requirement. If manpower supply is more or less the same as manpower requirements, the manpower situation is said to be in balance.

Manpower supply is the same as labour force, which refers to the people in employment and those unemployed. In Hong Kong, a working person must be at least 15 years old. Hence, the manpower supply in Hong Kong is assumed to come from the population of ages 15 or over. Specifically, *local manpower supply* refers to the manpower supply (or labour force) excluding foreign domestic helpers.

Occupation refers to a broad cluster of jobs whose main tasks and duties are characterised by a high degree of similarity. The classification of occupations in Manpower Projection to 2027 follows that of the Census and Statistics Department, which largely adopts the International Standard Classification of Occupations 2008 devised and maintained by the International Labour Organization.

Pillar industries refer to *Financial services; Trading and logistics; Professional services and other producer services; and Tourism*. These industries propel Hong Kong's economic growth and provide significant contributions to our Gross Domestic Product.

Selected industries in the context of Manpower Projection to 2027 refer to the industries which have been specifically identified for analyses relating to their manpower requirements, in addition to those of the conventional economic sectors, by virtue of their importance to our economy. The selected industries include *Information technology and information services; Innovation and technology industries; Testing and certification services; Cultural and creative industries; and Environmental industries*. These industries have good potential to drive the development of our economy.

Unemployment rate refers to the proportion of unemployed persons in the labour force.

Vacancy rate is defined as the ratio of the number of job vacancies to the number of job opportunities available (the sum of the number of employed persons and job vacancies).

List of Abbreviations

5G	The fifth generation mobile communications technology
B&R Initiative	Belt and Road Initiative
C&SD	Census and Statistics Department
CEPA	Closer Economic Partnership Arrangement
FDHs	Foreign domestic helpers
Fintech	Financial Technologies
GBA	Guangdong-Hong Kong-Macao Greater Bay Area
GDP	Gross Domestic Product
HKALE	Hong Kong Advanced Level Examination
HKCEE	Hong Kong Certificate of Education Examination
HKDSE	Hong Kong Diploma of Secondary Education
HKHLE	Hong Kong Higher Level Examination
HKIVE	Hong Kong Institute of Vocational Education
HSIC	Hong Kong Standard Industrial Classification
I&T	Innovation and Technology
ICT	Information and Communication Technologies
IT	Information Technology
IT&IS	Information technology and information services
LFPR	Labour force participation rate
MICE	Meetings, Incentive travels, Conventions and Exhibitions
MP	Manpower Projection
MP2027	Manpower Projection to 2027
MRB	Manpower Resource Balance
MRP	Manpower Requirement Projection
MSP	Manpower Supply Projection
n.e.c.	Not elsewhere classified
OWPHs	One-way Permit Holders
PPDH	Prince Philip Dental Hospital
RMB	Renminbi
R&D	Research and development
VTC	Vocational Training Council

List of Symbols

@	Excluding foreign domestic helpers
*	Percentage share less than 0.05%
**	Rate of change within $\pm 0.05\%$
-	Nil figure
^	Figure less than 50
^^	Change within ± 50
§	Figure is suppressed owing to small value of the corresponding estimate.
§§	Figure is suppressed owing to small value of the estimated projected change.