



Report on Manpower Projection to 2022

Government of The Hong Kong Special Administrative Region

April 2015

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Foreword

This report presents the findings of the Manpower Projection to 2022 (MP2022) compiled by the Government of the Hong Kong Special Administrative Region.

MP2022, with 2012 as the base year, assesses the broad trends of Hong Kong's manpower supply and requirements at the macro level up to 2022, as well as the potential manpower imbalances at different education levels.

The findings of MP2022 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 also conducted statistical studies and surveys to collect data for constructing the projection models of MP2022. The Census and Statistics Department conducted extensive consultation with businesses, trade associations and academics on their outlook for the future manpower requirements of various industries. The views collected were suitably incorporated as we compiled the findings of MP2022.

This report was prepared 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 MP2022. We are grateful to them for their invaluable contributions and suggestions to the report.

The report is divided into four chapters. *Chapter 1* includes a description of the technical framework of MP2022 and some special notes in interpreting the findings of MP2022; *Chapter 2* presents Manpower Supply Projection; *Chapter 3* discusses Manpower Requirement Projection; and *Chapter 4* sets out the analyses on Manpower Resource Balance.

Labour and Welfare Bureau
The Government of the Hong Kong Special Administrative Region
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Executive Summary

Manpower Supply Projection (MSP)

Local Manpower Supply

The manpower supply in Hong Kong (excluding foreign domestic helpers (FDHs)) is projected to increase by 157 500, or at an average annual growth rate of 0.4%, from 3.52 million in 2012 to 3.68 million in 2022. The slow growth in the local manpower supply¹ is attributable to an ageing population and its low fertility level.

Local Manpower Supply by Age

2. Like many other developed economies, the local manpower of workforce aged 15 or over will be ageing along with the greying of our population. 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 over is projected to increase significantly at an average annual rate of 4.3% from 554 800 in 2012 to 841 400 in 2022. It is anticipated that this labour segment will constitute about 22.9% of the overall local manpower supply in 2022, as against 15.8% in 2012. On the other hand, owing to the low fertility rate of our population, the supply of the younger workforce, say, workers aged below 55, is expected to shrink from 2.96 million to 2.83 million, with its share of the workforce decreasing from 84.2% to 77.1% during the same period. The expected increase in the number and proportion of workers in the older age groups, in tandem with a declining number and proportion of younger workers, will be one of the dominant features of the local manpower supply during the projection period.

¹ The average annual growth rate of local manpower supply during the period from 2002 to 2012 was about 0.7%, compared with 0.4% projected for the period from 2012 to 2022.

Local Manpower Supply by Sex

3. The local female manpower supply is projected to grow at an average annual rate of 1.0% from 1.55 million in 2012 to 1.72 million in 2022. During the same period, its share of the local workforce is anticipated to be edging up from 44.0% to 46.7%. The projected increase in female manpower supply is mainly attributable to a faster expansion of female population² relative to the overall population, the uptrend of spinsterhood, the tendency of marriage postponement, and a general improvement in education of the female population over the years. Besides, increased job opportunities and better income prospects (such as the introduction of the Statutory Minimum Wage) in recent years would also induce more people (including females) to enter the labour market.

4. On the other hand, the local male manpower supply is expected to decrease slightly at an average annual rate of 0.1% from 1.97 million in 2012 to 1.96 million in 2022. This is largely a result of an ageing male workforce 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 in the future. Its share of the total manpower supply is expected to decline from 56.0% in 2012 to 53.3% in 2022.

Local Manpower Supply by Education Level

5. The general education profile of our workforce is anticipated to improve further in the next decade. The manpower supply with qualifications of *diploma*, *sub-degree*, *first degree* and *postgraduate* is projected to grow appreciably during the period from 2012 to 2022, owing to the multiple quality progression pathways available to our youth in pursuing post-secondary education these days. 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 from 2012 to 2022.

² The female population (excluding FDHs) is anticipated to expand at an average annual rate of 1.0%, as against 0.7% for the overall population (excluding FDHs), during the projection period from 2012 to 2022.

It is broadly estimated that some 100 000 workers with qualifications of *upper secondary* and some 250 000 workers with qualifications of *lower secondary and below* will retire during this period. The local manpower supply by education level in 2012 and 2022 is set out in **Table 1**.

Table 1: Local Manpower Supply[@] by Education Level in 2012 and 2022

Education level	Actual local manpower supply [@] in 2012		Projected local manpower supply [@] in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	948 200	26.9	717 000	19.5	- 231 100 ##	- 2.8%
Upper secondary	1 333 300	37.9	1 272 100	34.6	- 61 200 ##	- 0.5%
Diploma	143 600	4.1	204 600	5.6	+ 61 000	+ 3.6%
Sub-degree	186 800	5.3	251 300	6.8	+ 64 600	+ 3.0%
First degree	714 200	20.3	914 300	24.9	+ 200 100	+ 2.5%
Postgraduate	192 800	5.5	317 000	8.6	+ 124 200	+ 5.1%
All levels	3 518 800	100.0	3 676 300	100.0	+ 157 500	+ 0.4%

@ Excluding foreign domestic helpers

During the period from 2012 to 2022, some 250 000 workers with qualifications of *lower secondary and below* and some 100 000 workers with qualifications of *upper secondary* are expected to retire. These two figures are not the same as the projected reduction in manpower supply of 231 100 workers and 61 200 workers at the corresponding education levels during the same period. This is because there will be some replenished manpower supply with the qualifications of *lower secondary and below* and *upper secondary* during the period. The projected decreases in the manpower supply at these two education levels reflect the net changes during the period from 2012 to 2022.

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

6. In sum, our workforce will be ageing with more and more workers in their 50's and 60's, along with a shrinkage in the workforce of ages below 50. There will be more female workers in our labour force in terms of proportion and number, and a better-educated workforce. Our economy will also witness an unprecedented slow growth in our workforce during the projection period.

Manpower Requirement Projection (MRP)

Total Manpower Requirements

7. The total manpower requirements (excluding FDHs) are projected to increase by 319 100, or at an average annual growth rate of 0.9%, from 3.48 million in 2012³ to 3.79 million in 2022 (vis-à-vis the growth rate of 0.4% for total manpower supply).

Manpower Requirements by Economic Sector

Manpower Requirements of the Conventional Sectors

8. It is projected that the fastest growing economic sectors in terms of manpower requirements during the period from 2012 to 2022 will be *Financial services* (at an average annual growth rate of 2.2%); *Professional and business services* (1.5%); *Information and communications*; and *Construction* (both at 1.4%). In terms of manpower requirements, *Import, export, wholesale and retail trades* as well as *Social and personal services* were the two largest sectors in 2012 and are expected to remain so in 2022.

9. The sectors anticipated to have their manpower requirements diminished during the period from 2012 to 2022 will be *Agriculture, fishing and quarrying* (at an average annual decreasing rate of 0.7%); *Manufacturing* (0.6%); and *Electricity, gas, water and waste management* (0.4%).

10. The manpower requirements in 2012 and the projections in 2022 by economic sector are set out in **Table 2**.

³ The actual manpower requirements in 2012 were the sum of the number of employed persons and job vacancies of various sectors that made up the whole economy.

Table 2: Manpower Requirements by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	5 400	0.2	5 100	0.1	- 400	- 0.7%
Manufacturing	114 200	3.3	107 600	2.8	- 6 700	- 0.6%
Electricity, gas, water and waste management	15 100	0.4	14 500	0.4	- 600	- 0.4%
Construction	300 600	8.6	345 400	9.1	+ 44 800	+ 1.4%
Import, export, wholesale and retail trades	915 600	26.3	960 600	25.3	+ 45 000	+ 0.5%
Accommodation and food services	280 500	8.1	307 500	8.1	+ 27 000	+ 0.9%
Transportation, storage, postal and courier services	324 300	9.3	339 200	8.9	+ 14 900	+ 0.4%
Information and communications	104 200	3.0	119 900	3.2	+ 15 700	+ 1.4%
Financial services	233 000	6.7	290 500	7.7	+ 57 600	+ 2.2%
Real estate	130 200	3.7	143 800	3.8	+ 13 600	+ 1.0%
Professional and business services	364 100	10.5	422 300	11.1	+ 58 200	+ 1.5%
Social and personal services	687 700	19.8	737 700	19.4	+ 50 100	+ 0.7%
Total	3 475 100	100.0	3 794 200	100.0	+ 319 100	+ 0.9%

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

Manpower Requirements of the Pillar Industries

11. The manpower requirements of the four pillar industries (i.e. *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 1.1% during the period from 2012 to 2022, which is higher than the overall growth rate of 0.9% projected for the whole economy. Among the pillar industries, the manpower requirements of *Tourism* and *Financial services* are expected to grow faster. The manpower needs of the pillar industries accounted for some 50.8% of the total manpower demand of our economy in 2012, and this figure is expected to edge up to about 51.9% in 2022. The manpower requirements of the pillar industries in 2012 and their projections in 2022 are summarised in **Table 3**.

Table 3: Manpower Requirements of the Pillar Industries in 2012 and 2022

Pillar Industry	Actual manpower requirements in 2012	Projected manpower requirements in 2022	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	Number		
Financial services	233 000	290 500	+ 57 600	+ 2.2%
Trading and logistics	779 900	784 500	+ 4 600	+ 0.1%
Professional services and other producer services	502 600	578 200	+ 75 700	+ 1.4%
Tourism	250 000	314 800	+ 64 900	+ 2.3%
Total	1 765 500	1 968 100	+ 202 600	+ 1.1%

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

Manpower Requirements of the Selected Industries

12. Apart from the pillar industries, some other industries are also of importance to our economy. These industries, termed as selected industries in MP2022, have great potential for driving the development of our economy. These selected industries are *Information technology and information services; Innovation and technology industries; Testing and certification services; Cultural and creative industries; Environmental industries*; as well as the four industry clusters under the ambit of the Economic Development Commission (EDC), namely (i) EDC industry cluster 1 – *Transportation*⁴; (ii) EDC industry cluster 2 – *Convention and exhibition industries and tourism*⁵; (iii) EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*⁶; and (iv) EDC industry cluster 4 – *Professional services*⁷. The manpower requirements of these selected industries are expected to grow at various average annual rates ranging from 0.4% to 5.8% during the

⁴ EDC industry cluster 1 covers *Freight transportation and Cross-boundary passenger transport services related to tourism*.

⁵ EDC industry cluster 2 covers *Convention and trade show organising services and Tourism*.

⁶ EDC industry cluster 3 covers *Manufacturing; Cultural and creative industries; and Innovation and technology industries*.

⁷ EDC industry cluster 4 covers *Legal services; Accounting, auditing and bookkeeping services; Engineering and technical services not related to construction and real estate activities, business management and consultancy services; and Architectural, surveying and engineering services related to real estate and construction*. It does not include *Software publishing and information technology related services; Design, advertising and related services and Other producer services* which are part of the *Professional services and other producer services* under the pillar industries.

period from 2012 to 2022. Save for EDC industry cluster 1 – *Transportation* and EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*, the manpower requirements of the selected industries are projected to grow at a faster rate than the overall growth rate of 0.9% for the whole economy during the projection period. The manpower requirements of the selected industries in 2012 and their projections in 2022 are set out in **Table 4**.

Table 4: Manpower Requirements of the Selected Industries in 2012 and 2022

Selected Industry	Actual manpower requirements in 2012	Projected manpower requirements in 2022	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	Number		
Information technology and information services	62 000	74 600	+ 12 600	+ 1.9%
Innovation and technology industries	29 900 ##	36 000	+ 6 100	+ 1.7%
Testing and certification services	13 300 ##	15 700	+ 2 400	+ 1.5%
Cultural and creative industries	197 100 ##	227 200	+ 30 100	+ 1.3%
Environmental industries	38 900 ##	72 400	+ 33 400	+ 5.8%
EDC industry cluster 1 – Transportation	190 200	197 100	+ 6 900	+ 0.4%
EDC industry cluster 2 – Convention and exhibition industries and tourism	252 500	318 000	+ 65 500	+ 2.3%
EDC industry cluster 3 – Manufacturing industries, innovative technology, and cultural and creative industries	311 200 ~	338 100	+ 26 900	+ 0.8%
EDC industry cluster 4 – Professional services	128 600	153 200	+ 24 600	+ 1.8%

The figures refer to 2011 as those for 2012 were not yet available when the manpower requirement projections were being compiled.

~ The figure was estimated on the basis of the manpower figure of *Manufacturing* sector in 2012 and the manpower figures of *Innovation and technology industries* and *Cultural and creative industries* in 2011.

Manpower Requirements by Occupation Group

13. The occupation pattern of manpower requirements, i.e. percentage distribution of different occupation groups, is projected to change in a direction in line with the continued transformation of Hong Kong into a knowledge-based, high value-added economy. It is expected that the proportions of *Managers and administrators; Professionals; and Associate professionals* will generally increase along with a shifting of manpower requirements towards higher-skilled, better-educated workers. The proportions of those lower in the occupational hierarchy such as *Clerical support workers; Drivers, plant and machinery operators, and assemblers;* and workers in the *Elementary occupations* are anticipated to decrease, owing to the employment of workers with multi-tasking skills by employers and a wide application of automation and modern technology at the workplace. The requirements for *Craft and related workers* are projected to increase amidst a booming *Construction* sector in the years ahead, and those for *Service and sales workers* are also expected to be on the rise with the continued development of our service-oriented economy. The manpower requirements of the overall economy by occupation group in 2012 and their projections in 2022 are presented in **Table 5**.

Table 5: Manpower Requirements by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	402 800	11.6	469 800	12.4	+ 67 000	+ 1.6%
Professionals	265 000	7.6	317 400	8.4	+ 52 300	+ 1.8%
Associate professionals	719 900	20.7	850 700	22.4	+ 130 800	+ 1.7%
Clerical support workers	515 300	14.8	502 000	13.2	- 13 400	- 0.3%
Service and sales workers	622 900	17.9	705 500	18.6	+ 82 600	+ 1.3%
Agricultural and fishery workers	4 400	0.1	3 900	0.1	- 500	- 1.2%
Craft and related workers	246 800	7.1	257 300	6.8	+ 10 500	+ 0.4%
Drivers, plant and machinery operators, and assemblers	188 000	5.4	185 200	4.9	- 2 800	- 0.1%
Elementary occupations	510 000	14.7	502 500	13.2	- 7 500	- 0.1%
Total	3 475 100	100.0	3 794 200	100.0	+ 319 100	+ 0.9%

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

Manpower Requirements by Education Level

14. It is projected that the demand for workers with higher education qualifications will increase and those with lower qualifications will shrink during the period from 2012 to 2022. In tandem with Hong Kong's continued transformation into a high value-added economy, the requirements for workers with the qualifications of *postgraduate, first degree, sub-degree* or *diploma* are anticipated to increase appreciably with average annual growth rates ranging from 2.9% to 3.3%; those with *upper secondary* education are expected to increase slightly at an average annual rate of 0.4%; and those at the level of *lower secondary and below* are projected to decline at an average annual rate of 2.1%. The projected manpower requirements by education level in 2012 and their projections in 2022 are in **Table 6**.

Table 6: Manpower Requirements by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	955 700	27.5	772 800	20.4	- 182 900	- 2.1%
Upper secondary	1 314 100	37.8	1 366 200	36.0	+ 52 100	+ 0.4%
Diploma	138 900	4.0	188 200	5.0	+ 49 300	+ 3.1%
Sub-degree	178 900	5.1	238 400	6.3	+ 59 500	+ 2.9%
First degree	696 600	20.0	965 000	25.4	+ 268 400	+ 3.3%
Postgraduate	190 900	5.5	263 600	6.9	+ 72 700	+ 3.3%
All levels	3 475 100	100.0	3 794 200	100.0	+ 319 100	+ 0.9%

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

Manpower Resource Balance (MRB)

15. The MRB, derived by comparing the projected manpower supply with the projected manpower requirements, provides a measure for assessing whether the future manpower of the whole economy and at different education levels will be in balance, shortfall or surplus.

16. The total manpower supply in 2022 is projected to fall short of the total manpower requirements, with an overall shortage of 117 900. The anticipated overall manpower shortage is a result of the projected manpower requirements growing faster than the projected manpower supply during the period.

17. On the MRBs at different education levels in 2022, it is expected that there will be manpower shortfalls of 94 100 at the *upper secondary* level and 55 700 at the level of *lower secondary and below*. On the other hand, it is anticipated that there will be surpluses of 16 300 for the manpower with *diploma* qualifications and 13 000 for the manpower with *sub-degree* qualifications. The manpower at the levels of *first degree* or above is expected to be more or less in balance with only a slight surplus of about 2 600. The findings of MRBs by education level are set out in **Table 7**.

Table 7: Projected Manpower Resource Balance by Education Level in 2022

Education level	(a) Projected manpower supply in 2022	(b) Projected manpower requirements in 2022	(c) = (a) – (b) Projected manpower resource balance in 2022 [Surplus (+) / shortfall (-)]
Lower secondary and below	717 000	772 800	- 55 700
Upper secondary	1 272 100	1 366 200	- 94 100
Diploma	204 600	188 200	+ 16 300
Sub-degree	251 300	238 400	+ 13 000
First degree	914 300	965 000	- 50 800
Postgraduate	317 000	263 600	+ 53 400
All levels	3 676 300	3 794 200	- 117 900

Notes: The overall manpower supply, manpower requirements and manpower resource balance presented in this table correspond to a scenario of 4% real Gross Domestic Product trend growth, which was the official medium-term forecast when the findings of MP2022 were being compiled.

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

Scenario Study

18. A broad-brush scenario study has been conducted at the macro level to take into account the impact of economic cycles and fluctuations on the total manpower supply, total manpower requirements and the overall MRB in MP2022, by assuming a ± 1 percentage point range for the real Gross Domestic Product (GDP) trend growth over the projection period⁸. As manpower requirements bear a stronger positive relationship with changes in economic situation when compared with manpower supply, the projected manpower shortfall in 2022 would be smaller when the economy is assumed to grow at a slower trend rate and vice versa. The projected MRBs are estimated to range from -59 700 (an assumed 3% real GDP trend growth) to -177 700 (an assumed 5% real GDP trend growth). The findings of projected MRBs under different assumptions on real GDP trend growth are presented in **Table 8**.

Table 8: Projected Manpower Resource Balance in 2022 under Different Real GDP Trend Growth Rates

Real GDP trend growth	(a) Projected manpower supply in 2022	(b) Projected manpower requirements in 2022	(c) = (a) – (b) Projected manpower resource balance in 2022 [Surplus (+) / shortfall (-)]
5%	3 703 600	3 881 300	- 177 700
4%*	3 676 300	3 794 200	- 117 900
3%	3 649 200	3 708 900	- 59 700

* Adopted for the main findings of MP2022

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

⁸ Since MP2022 covers a 10-year projection period, reference has been made to the historical 10-year real GDP trend growth. As the trend growth rate largely hovered within a range of 2 percentage points during 1998 to 2012, a ± 1 percentage point range for the real GDP trend growth over the projection period has been adopted when conducting the scenario study for MP2022.

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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 cornerstone and precious resources of our economic development. Globalisation has brought about competition at the international level among different economies across the world. Many economies have focused attention on their workforce to enhance their ability to compete effectively in the global market. 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 and witnessed a surge in the number of job vacancies in the recent years. The unemployment rate¹ hovered at low levels between 3.3% and 3.4% during the period from 2011 to 2013 whereas the vacancy rate² went up from 2.1% in 2011 to 2.8% in 2013.

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, with 2012 as the base year and covering a 10-year projection horizon, was conducted by the Government in 2013 to assess the broad trends of the future manpower supply and requirements of our economy at the macro level up to 2022, as well as the potential manpower imbalances at different education levels. The findings of Manpower Projection to 2022 (MP2022) were compiled on the basis of a wide range of statistics, including the findings of statistical forecasting models and consultations with businesses, trade associations and academics, a survey on employers on their views on manpower needs, the latest available demographic and manpower statistics, the prevailing manpower patterns, as well as the policies 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 MP2022 comprises three major components, namely, the Manpower Supply Projection (MSP), the Manpower Requirement Projection (MRP), and the 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 2022. 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 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 The findings presented in *Chapter 2* to *Chapter 4* correspond to a scenario setting of 4% real Gross Domestic Product (GDP) trend growth, which was the official medium-term forecast when the findings of MP2022 were being compiled. A broad-brush scenario study was also conducted at the macro level to take into account the impact of economic cycles and fluctuations on the total manpower supply, total manpower requirements and the overall MRB of MP2022. The results are set out in *Chapter 4*.

Projection Framework

1.6 The statistical framework of MP2022 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 MP2022 evaluates the supply of manpower to the labour market by age group, sex and education level during the period from 2012 to 2022. The actual local manpower supply (excluding foreign domestic helpers (FDHs)) in the base year of 2012 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 2022 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 2012–2041 (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 2011 Population Census and are analysed by age and sex;
- (b) Updated Hong Kong Labour Force Projections for 2013 to 2041 (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 returning to Hong Kong after completing overseas 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 an MP-related household survey. The relevant statistics have been translated into input parameters of the MSP model; and

- (d) Statistics on One-way Permit Holders (OWPHs): The daily quota for OWPHs from the Mainland is 150. The number of OWPHs projected to come and reside in Hong Kong during the period from 2012 to 2022 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 a regular survey on the demographic and social characteristics of the OWPHs conducted by the Home Affairs 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 The findings of MP2022 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. 2012) 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.

1.11 The projected manpower requirements up to 2022 were compiled through a two-step statistical process as summarised in the schematic diagram in **Appendix II**. First, the projected manpower requirements of various economic sectors and industries up to 2022 were devised under an inter-departmental task group, with members from relevant government bureaux/departments and statutory training bodies. The task group took into consideration the sector-specific historical manpower trends; the findings of an extensive consultation conducted with businesses, trade associations and academics on the outlook for the future manpower requirements of various sectors and industries; as well as the employers' views on the future manpower requirements based on an MP-related establishment survey, in coming up with the findings of MRP. Details of

the methodology of projected manpower requirements by economic sector are at **Appendix III**.

1.12 The second step was to break down the projected sector-specific manpower requirements in 2022 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 employers' views on the future occupation-education mix of their workers collected from the MP-related establishment survey.

Education Levels

1.13 MP2022 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 formal education structure of Hong Kong. The detailed coverage of each education level is at **Appendix IV**.

Economic Sectors

1.14 In addition to education level, the findings of MRP are analysed by economic sector and occupation group. MP2022 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 sectors together make up the whole Hong Kong economy. MP2022 also covers the analyses of the manpower requirements of some other industries that are of importance to the long-term competitiveness and economic development of Hong Kong. These include the pillar industries and some other industries (termed as the selected industries in MP2022) such as the four industry clusters under the ambit of the Economic Development Commission (EDC). It should be noted that the pillar industries and the selected industries cut across the various conventional economic sectors and that there is some degree of overlapping in coverage between these industries. The details on the coverage of the conventional economic

sectors, the pillar industries and the selected industries adopted in MP2022 are set out at **Appendix V**.

Occupation Groups

1.15 The classification of occupation groups adopted in MP2022 has nine categories, including *Managers and administrators; Professionals; Associate professionals; Clerical support workers; Service and sales workers; Agricultural and fishery workers; Craft and related workers; Drivers, plant and machinery operators, and assemblers; and Elementary 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

1.16 The findings of MP2022 are intended to provide the broad trends of the future manpower supply and requirements at the macro level, without assessing the short-term year-on-year fluctuations. 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 MP2022, though expressed in quantitative terms, are not meant to be exact in absolute terms.

1.17 In MP2022, the actual manpower requirements in the base year of 2012 were the sum of the number of employed persons and job vacancies³ of various sectors in Hong Kong. In other words, vacancies are regarded as part of manpower requirements.

1.18 As mentioned in paragraph 1.10 above, the actual manpower requirements of various sectors and industries in 2012 were compiled by adding employment figures to vacancy figures. As the employment statistics for the pillar industries for 2012 were not finalised yet at the time the projections were being compiled in the latter half of 2013, the base year's manpower requirements of these industries in this report are

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.

estimated figures derived on the basis of the latest available statistics as well as the relevant historical manpower statistics. The employment statistics of the pillar industries for 2012 were later released by C&SD in early 2014. Hence, the manpower figures of the pillar industries for 2012 presented in this report may be different from those published by C&SD.

1.19 As for *Innovation and technology industries; Testing and certification services; Culture and creative industries; and Environmental industries* (these are termed as selected industries in MP2022), 2011 was set as the base year of their projections (instead of 2012 as for other sectors and industries) as their manpower statistics for 2012 were unavailable at the time the projections were being compiled in the latter half of 2013. The employment statistics of these selected industries for 2012 were later released by C&SD in early 2014.

1.20 While MP2022 covers analyses on the projected manpower requirements by economic sector and by occupation group, it is unable to project the sector- or occupation-specific manpower supply, and hence the unavailability of MRB for any specific sectors or occupation groups. The reason is that we cannot ascertain in which sector/profession a person will take up a job after leaving school or university. In addition, workers in a particular industry/profession may change jobs and work in another industry/profession over time for more than once.

1.21 In MP2022, the 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 education attainment across different sectors, without taking into account factors other than education qualifications. In reality, the substitutability between workers in some occupations, especially the specialised professions, is rather low. Hence, readers should interpret the MRB by education level with caution.

1.22 A broad-brush scenario study, which assesses the impact of economic cycles and fluctuations on the findings of MP2022, was conducted in collaboration with the Economic Analysis and Business Facilitation Unit 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 structural relationships between the growth of overall manpower supply/requirements and the real GDP trend growth over the projection period would be broadly the same as those observed in the past. Besides, the relationships between manpower supply/requirements and economic growth would vary among different economic sectors and any unforeseen fluctuations of the local economy would affect some sectors more than others. The scenario study is intended to capture the effect of economic fluctuations or cycles on MSP and MRP, and hence MRB, at the overall level but not at the sectoral level.

1.23 *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; Engineering and technical services not related to construction and real estate activities, business management and consultancy services; 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.

1.24 There is some difference 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*.

1.25 Under the ambit of EDC, *Professional services*, as an industry cluster, covers *Legal services; Accounting, auditing and bookkeeping services; Engineering and technical services not related to construction and real estate activities, business management and consultancy services;* and *Architectural, surveying and engineering services related to real estate and construction*. It is a subset of the *Professional services and other producer services* under the pillar industries. This EDC industry cluster of *Professional services* does not include *Software publishing and information technology related services; Design, advertising and related services;* and *Other producer services* which are part of the *Professional services and other producer services*.

1.26 The manpower figure of *Manufacturing industries, innovative technology, and cultural and creative industries* in 2012 was estimated on the basis of the manpower figure of *Manufacturing* sector in 2012 and the manpower figures of *Innovation and technology industries* and *Cultural and creative industries* in 2011.

1.27 The manpower figures by education level in the context of MP2022 were compiled on the basis of the highest education level completed by a person in an education institution. Manpower statistics can be compiled according to the highest level of education ever attained 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 MP2022, which adopts a definition of the highest education level **completed** by a person.

1.28 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.

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CHAPTER 2

Manpower Supply Projection

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Manpower Supply Projection

2.1 The manpower supply in the context of MP2022 refers to the labour force in Hong Kong, including the people in employment and those unemployed but in the process of seeking jobs. 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 MP2022 refers to the labour force excluding 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 an ageing population and a low fertility rate in Hong Kong, the population of ages 15–54, from which the bulk of our working population originates, is projected to decrease from 4.09 million in 2012 to 3.70 million in 2022 (see **Table 2.1**). The decline in this prime-working-age population of our economy hinders the growth in our manpower supply. With the population of ages 55 or over soaring from 1.94 million in 2012 to 2.74 million in 2022, the local manpower supply will be ageing along with the greying of our population.

Table 2.1: Population[@] by Age Group in 2012 and 2022

Age group (years)	Actual population [@] in 2012		Projected population [@] in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
0 – 14	813 200	11.9	890 100	12.1	+ 76 900	+ 0.9%
15 – 24	867 000	12.7	603 500	8.2	- 263 500	- 3.6%
25 – 34	945 900	13.8	947 900	12.9	+ 2 000	**
35 – 44	1 037 500	15.2	1 043 600	14.2	+ 6 100	+ 0.1%
45 – 54	1 241 900	18.1	1 106 500	15.1	- 135 400	- 1.1%
55 – 64	961 300	14.0	1 219 600	16.6	+ 258 300	+ 2.4%
65+	979 900	14.3	1 520 100	20.7	+ 540 200	+ 4.5%
15 – 54	4 092 300	59.8	3 701 400	50.5	- 390 900	- 1.0%
55+	1 941 200	28.4	2 739 800	37.4	+ 798 600	+ 3.5%
Total	6 846 700	100.0	7 331 300	100.0	+ 484 600	+ 0.7%

@ Excluding foreign domestic helpers

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

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

2.5 The total local manpower supply is projected to increase by 157 500, or at an average annual rate of 0.4%, from about 3.52 million in 2012 to 3.68 million in 2022. To put the growth rate of manpower supply during the projection period into perspective, we can look at the comparative statistics in **Table 2.2**. The average annual growth rate of the manpower supply projected for the period from 2012 to 2022 is significantly lower than those of the manpower supply for the preceding two decades.

Table 2.2: Local Manpower Supply[@], 1992 – 2022

Period	Beginning of the period	End of the period	Absolute change	Average annual rate of change
1992 – 2002 (actual)	2.71 million	3.28 million	+ 0.57 million	+ 1.9%
2002 – 2012 (actual)	3.28 million	3.52 million	+ 0.24 million	+ 0.7%
2012 – 2022 (projection)	3.52 million	3.68 million	+ 0.16 million	+ 0.4%

@ Excluding foreign domestic helpers

Local Manpower Supply by Age

2.6 Owing to the ageing of our population, it is anticipated that there will be notable increases in the number and proportion of workers in the older age groups during the projection period (see **Table 2.3**). For instance, the local manpower supply aged 55 or over is projected to increase significantly at an average annual rate of 4.3% from 554 800 in 2012 to 841 400 in 2022. It is anticipated that this labour segment will constitute about 22.9% of the overall local manpower supply in 2022, as against 15.8% in 2012. On the other hand, the supply of comparatively younger workers aged below 55 is expected to shrink from 2.96 million to 2.83 million, with its share of the workforce decreasing from 84.2% to 77.1% during the same period. In particular, the decrease in the manpower supply in the age group 15 – 24 is expected to be more prominent, largely owing to the low fertility rate of our population.

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)⁴ is expected to decrease from 58.8% in 2012 to 58.0% in 2022. 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, resulting in a smaller proportion of our population in the workforce.

2.8 Statistics of the local manpower supply by age group in 2012 and 2022 are set out in **Table 2.3**.

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.

Table 2.3: Local Manpower Supply[@] and Labour Force Participation Rate[@] by Age Group in 2012 and 2022

Age group (years)	2012 (Actual)			2022 (Projected)			Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Local manpower supply [@]		LFPR [#]	Local manpower supply [@]		LFPR [#]		
	Number	% share		Number	% share			
15 – 24	309 000	8.8	35.9%	215 400	5.9	35.9%	- 93 600	- 3.5%
25 – 34	831 800	23.6	87.2%	834 800	22.7	88.5%	+ 3 000	**
35 – 44	858 800	24.4	81.6%	887 300	24.1	85.4%	+ 28 600	+ 0.3%
45 – 54	964 400	27.4	77.4%	897 300	24.4	81.5%	- 67 100	- 0.7%
55 – 64	489 600	13.9	51.1%	706 300	19.2	58.2%	+ 216 700	+ 3.7%
65+	65 200	1.9	7.1%	135 100	3.7	9.3%	+ 69 900	+ 7.6%
15–54	2 964 000	84.2	72.1%	2 834 900	77.1	77.0%	- 129 100	- 0.4%
55+	554 800	15.8	29.6%	841 400	22.9	31.6%	+ 286 600	+ 4.3%
Total	3 518 800	100.0	58.8%	3 676 300	100.0	58.0%	+ 157 500	+ 0.4%

@ Excluding foreign domestic helpers

Labour force participation rate of the population in the respective age groups

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

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

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 continue its expansion at an average annual rate of 1.0% from 1.55 million in 2012 to 1.72 million in 2022. During the same period, its share of the local workforce is anticipated to be edging up from 44.0% to 46.7%. 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 a

⁵ The female population (excluding FDHs) is anticipated to expand at an average annual rate of 1.0% compared with 0.7% for the overall population (excluding FDHs) during the projection period from 2012 to 2022.

general improvement in education of the female population over the years. Besides, increased job opportunities and better income prospects (such as the introduction of the Statutory Minimum Wage) in recent years would also induce more people (including females) to enter the labour market.

2.11 On the other hand, the local male manpower supply is projected to decrease slightly at an average annual rate of 0.1% from 1.97 million in 2012 to 1.96 million in 2022, which is largely a result of an ageing male workforce. Its share of the total manpower supply is expected to decline from 56.0% in 2012 to 53.3% in 2022.

2.12 The trend of rising female manpower supply, alongside a declining male manpower supply, is expected to continue during the period from 2012 to 2022. The local manpower supply by sex in 2012 and 2022 is set out in **Table 2.4**. The male, female and overall LFPRs (excluding FDHs) in 2002, 2012 and 2022 are presented in **Table 2.5**.

Table 2.4: Local Manpower Supply[@] by Sex in 2012 and 2022

Sex	Actual local manpower supply [@] in 2012		Projected local manpower supply [@] in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Male	1 969 300	56.0	1 958 500	53.3	- 10 800	- 0.1%
Female	1 549 500	44.0	1 717 800	46.7	+ 168 300	+ 1.0%
Overall	3 518 800	100.0	3 676 300	100.0	+ 157 500	+ 0.4%

[@] Excluding foreign domestic helpers

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

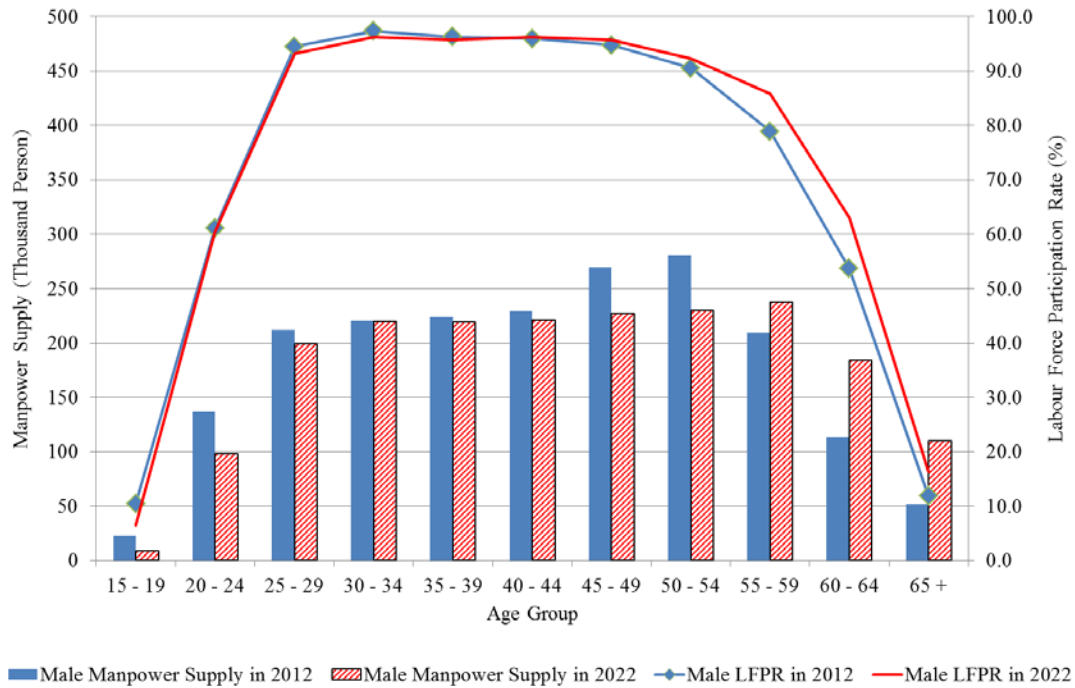
Table 2.5: Labour Force Participation Rate[@] by Sex in 2002, 2012 and 2022

Sex	Actual LFPR in 2002	Actual LFPR in 2012	Projected LFPR in 2022
Male	72.4%	68.7%	66.5%
Female	48.6%	49.6%	50.5%
Overall	60.4%	58.8%	58.0%

@ Excluding foreign domestic helpers

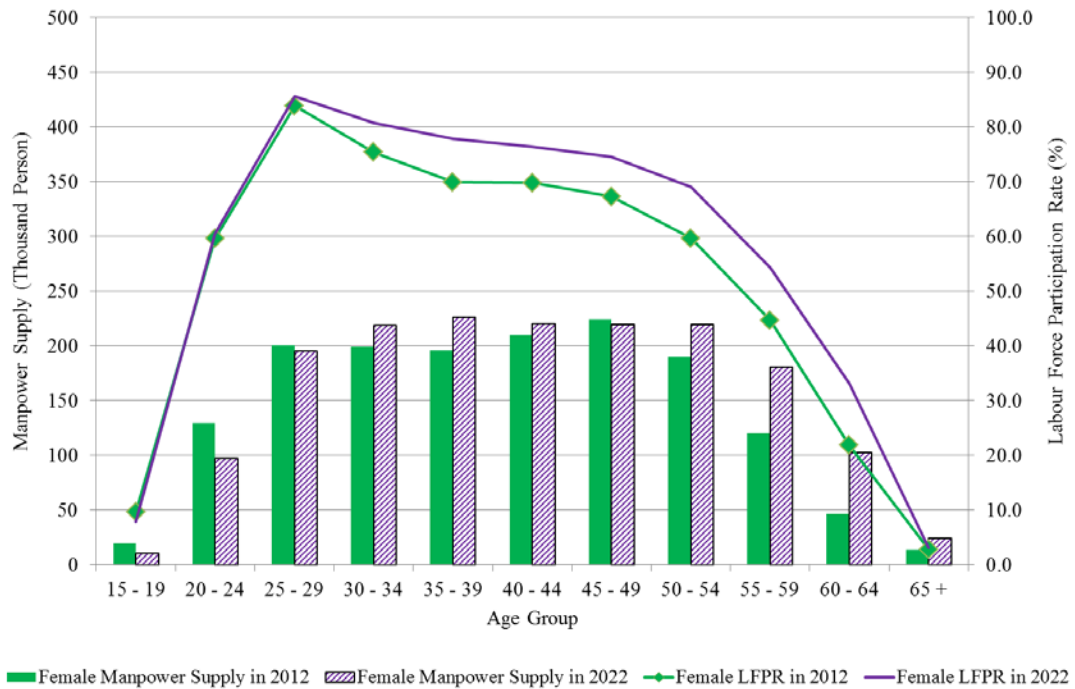
2.13 Both the male workforce and female workforce are projected to be ageing during the projection period. The local male and female manpower supply and LFPRs by age group in 2012 and 2022 are presented in **Chart 2.1** and **Chart 2.2** respectively.

Chart 2.1: Local Male Manpower Supply[@] and Labour Force Participation Rate[@] by Age Group in 2012 and 2022



@ Excluding foreign domestic helpers

Chart 2.2: Local Female Manpower Supply[@] and Labour Force Participation Rate[@] by Age Group in 2012 and 2022



@ 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 manpower is anticipated to improve further in the years ahead, along with the expansion of our post-secondary education programmes and the multiple quality progression pathways available to our youth for pursuing a wide variety of post-secondary education programmes. 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 5.1% from 192 800 in 2012 to 317 000 in 2022. The proportion of this labour segment to the total local manpower supply is expected to rise from 5.5% in 2012 to 8.6% in 2022. There are more and more people taking up lifelong learning to upgrade themselves academically for various reasons. 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 2.5% from 714 200 in 2012 to 914 300 in 2022, along with the increasing access to degree level education for our youth. The share of this labour segment as a proportion of the local total manpower is expected to increase from 20.3% in 2012 to 24.9% in 2022;
- (c) *Sub-degree* level – the local manpower supply at *sub-degree* level is expected to expand at an average annual rate of 3.0% from 186 800 in 2012 to 251 300 in 2022. The anticipated considerable growth in the manpower with *sub-degree* qualifications is consistent with a notable expansion in the *sub-degree* education segment over the past years;

- (d) *Diploma* level – the local manpower supply at this education level is projected to surge at an average annual rate of 3.6% from 143 600 in 2012 to 204 600 in 2022. Its share of the total local manpower supply will increase from 4.1% to 5.6% in the same period. The projected increase in the manpower supply with *diploma* qualifications is attributable to a notable expansion in the tertiary programmes, including various *craft* and *diploma* courses, in the past years;
- (e) *Upper secondary* level – it is projected that local manpower supply with *upper secondary* education will diminish at an average annual rate of 0.5% from 1 333 300 in 2012 to 1 272 100 in 2022. 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 2012 to 2022. It is broadly estimated that some 100 000 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 2.8% from 948 200 in 2012 to 717 000 in 2022. Its share of the total local manpower supply is expected to decline from 26.9% to 19.5% during the corresponding 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. This will drive down the supply of workers with an education of *lower secondary and below*. Some 250 000 of workers with education of *lower secondary and below*, who are mainly post-war baby boomers, are expected to retire during the projection period.

2.15 The local manpower supply by education level in 2012 and 2022 is set out in **Table 2.6**.

Table 2.6: Local Manpower Supply[@] by Education Level in 2012 and 2022

Education level	Actual local manpower supply [@] in 2012		Projected local manpower supply [@] in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	948 200	26.9	717 000	19.5	- 231 100 ##	- 2.8%
Upper secondary	1 333 300	37.9	1 272 100	34.6	- 61 200 ##	- 0.5%
Diploma	143 600	4.1	204 600	5.6	+ 61 000	+ 3.6%
Sub-degree	186 800	5.3	251 300	6.8	+ 64 600	+ 3.0%
First degree	714 200	20.3	914 300	24.9	+ 200 100	+ 2.5%
Postgraduate	192 800	5.5	317 000	8.6	+ 124 200	+ 5.1%
All levels	3 518 800	100.0	3 676 300	100.0	+ 157 500	+ 0.4%

@ Excluding foreign domestic helpers

During the period from 2012 to 2022, some 250 000 workers with qualifications of *lower secondary and below* and some 100 000 workers with qualifications of *upper secondary* are expected to retire. These two figures are not the same as the projected reduction in manpower supply of 231 100 workers and 61 200 workers at the corresponding education levels during the same period. This is because there will be some replenished manpower supply with the qualifications of *lower secondary and below* and *upper secondary* during the period. The projected decreases in the manpower supply at these two education levels reflect the net changes during the period from 2012 to 2022.

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

Education Profile of Local Manpower Supply by Age

2.16 The younger workers, say, those at the age under 45, generally have better education qualifications than their older counterparts. For instance, in 2012, almost half of the workforce aged below 45 had post-secondary education qualifications (comprising *diploma, sub-degree, first degree and postgraduate*) as against some one-fifth of the workforce aged 45 or over with the same levels of education. This trend is expected to continue during the projection period. In 2022, it is projected that some 58% of the workforce aged below 45 will possess post-secondary qualifications, compared with one-third for the workforce aged 45 or over. A comparison of the education qualifications of the local manpower supply by broad age group in 2012 and 2022 are presented in **Table 2.7**.

Table 2.7: Local Manpower Supply[@] by Education Level and Broad Age Group in 2012 and 2022

Education level		Actual local manpower supply [@] in 2012			Projected local manpower supply [@] in 2022		
		Aged below 45	Aged 45 or over	Total	Aged below 45	Aged 45 or over	Total
Lower secondary and below	Number	284 600	663 600	948 200	181 100	535 900	717 000
	% share [#]	14.2	43.7	26.9	9.3	30.8	19.5
Upper secondary	Number	797 800	535 500	1 333 300	638 300	633 800	1 272 100
	% share [#]	39.9	35.2	37.9	32.9	36.5	34.6
Diploma	Number	100 900	42 700	143 600	136 200	68 300	204 600
	% share [#]	5.0	2.8	4.1	7.0	3.9	5.6
Sub-degree	Number	129 800	56 900	186 800	180 600	70 700	251 300
	% share [#]	6.5	3.7	5.3	9.3	4.1	6.8
First degree	Number	552 500	161 600	714 200	613 700	300 600	914 300
	% share [#]	27.6	10.6	20.3	31.7	17.3	24.9
Postgraduate	Number	133 900	58 900	192 800	187 600	129 400	317 000
	% share [#]	6.7	3.9	5.5	9.7	7.4	8.6
All levels	Number	1 999 600	1 519 200	3 518 800	1 937 500	1 738 800	3 676 300
	% share [#]	100.0	100.0	100.0	100.0	100.0	100.0

@ Excluding foreign domestic helpers

% share by education level in the respective broad age group

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

An Overview on Manpower Supply

2.17 Our economy will witness an unprecedented slow average rate of growth in our workforce, at 0.4% per annum, during the projection period. An ageing population and a low fertility rate will lower the future overall LFPR of our economy, which is anticipated to decrease from 58.8% in 2012 to 58.0% in 2022 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 50's and 60's, along with a shrinkage in the workforce of ages below 50. There will be more female workers in our labour force in numerical and proportional terms in 2022. We will have a better-educated workforce, with an increasing proportion of workers with qualifications of *first degree* or above and a decreasing proportion of workers with an education of *upper secondary* and below.

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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 2022, with 2012 as the base year. Apart from the analyses covering various conventional economic sectors defined in accordance with the standard industrial classification adopted by C&SD, which together make up the whole economy, we have also conducted analyses on the manpower requirements of other sectors that are of importance to the long-term competitiveness of Hong Kong. These sectors include the pillar industries⁶ and the selected industries (covering *Information technology and information services; Innovation and technology industries; Testing and certification services; Cultural and creative industries; Environmental industries*; as well as the four industry clusters under the ambit of the EDC, namely (i) EDC industry cluster 1 – *Transportation*⁷; (ii) EDC industry cluster 2 – *Convention and exhibition industries and tourism*⁸; (iii) EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*⁹; and (iv) EDC industry cluster 4 – *Professional services*¹⁰).

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. 2012) 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 reflect the full

⁶ The pillar industries include *Financial services; Trading and logistics; Professional services and other producer services* and *Tourism*.

⁷ EDC industry cluster 1 covers *Freight transportation* and *Cross-boundary passenger transport services related to tourism*.

⁸ EDC industry cluster 2 covers *Convention and trade show organising services* and *Tourism*.

⁹ EDC industry cluster 3 covers *Manufacturing; Cultural and creative industries*; and *Innovation and technology industries*.

¹⁰ EDC industry cluster 4 covers *Legal services; Accounting, auditing and bookkeeping services; Engineering and technical services not related to construction and real estate activities, business management and consultancy services*; and *Architectural, surveying and engineering services related to real estate and construction*.

potential job opportunities that may emerge in the labour market during the projection period. This concept of unconstrained manpower requirements¹¹ is important in studying the findings on MRB, which is a measure to assess if the future manpower is in balance, surplus or shortfall and will be discussed in *Chapter 4*.

Total Manpower Requirements

3.4 The total manpower requirements (excluding FDHs) of our economy are projected to increase by some 319 100, or at an average annual rate of 0.9%, from 3.48 million in 2012 to 3.79 million in 2022.

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 growth patterns of manpower requirements during the projection period from 2012 to 2022, 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. With the further urbanisation of Hong Kong, there will be less and less locations suitable for farming and fishing purposes. The manpower requirements of this sector in 2012 were 5 400 and are expected to decrease at an average annual rate of 0.7% to 5 100 in 2022.

¹¹ In reality, when manpower is in shortage, manpower demand is eventually capped by manpower supply. This may undermine the competitiveness of an economy.

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 just over 3% in 2012, along with the changing economic structure of Hong Kong over the corresponding period. The manpower requirements of the *Manufacturing* sector are expected to decrease at an average annual rate of 0.6% from 114 200 in 2012 to 107 600 in 2022.

Electricity, Gas, Water and Waste Management

3.8 The 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. Owing to the advances in technology and automation in electricity and gas production in recent years, there is potential for the public utility companies to cope with expansion in their business with reduced manpower in the future. The *Waste management* industry is still very small relative to other industries under this sector in terms of manpower needs. The increasing awareness of environmental protection among the general public and the related initiatives taken by the Government and other stakeholders are expected to drive the development of the *Waste management* industry. With the anticipated reduction in the manpower of public utility companies, it is projected that the manpower requirements of *Electricity, gas, water and waste management* as a whole will decrease at an average annual rate of 0.4% from 15 100 in 2012 to 14 500 in 2022.

Construction

3.9 The *Construction* sector is expected to flourish along with the rolling out of several major infrastructure projects and other construction works during the projection period. Major infrastructure projects under construction include the Shatin to Central Link, the South Island Line (East), the Tuen Mun-Chek Lap Kok Link, the Central-Wan Chai Bypass, the Hong Kong-Zhuhai-Macao Bridge, the Hong Kong Section of the

Guangzhou-Shenzhen-Hong Kong Express Rail Link and the Kai Tak Development. The high demand for construction workers is anticipated to persist along with the anticipated booming activities relating to construction and building works in the next few years. It is projected that the manpower requirements of the sector will increase at an average annual rate of 1.4% from 300 600 in 2012 to 345 400 in 2022.

Import, Export, Wholesale and Retail Trades

3.10 In 2012, 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 26.3% 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 2012, Hong Kong's total exports of goods and services grew year-on-year by 1.8% and 2.2% in real terms respectively. Nonetheless, our export trade has met with many challenges in recent years, such as the weakening market in the United States and European countries, as well as competition from the neighboring economies. The *Retail trade* industry of the sector has grown enormously with an increasing number of tourists visiting Hong Kong over the years. Its demand for workers is expected to continue to increase in the years ahead. On the other hand, the *Wholesale* industry is expected to face great challenges with the growing popularity of Internet shopping and direct trades between manufacturers and retailers, which reduce the demand for intermediary business.

3.11 The manpower requirements of the sector as a whole are projected to grow at an average annual rate of 0.5% from 915 600 in 2012 to 960 600 in 2022. Of the three sub-sectors, the *Retail trade* industry is projected to grow the fastest in terms of manpower requirements during the period from 2012 to 2022. The manpower requirements of the three sub-sectors in 2012 and 2022 are set out in **Table 3.1**.

Table 3.1: Manpower Requirements of Import, Export, Wholesale and Retail Trades Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Import and export trade	524 800	535 400	+ 10 600	+ 0.2%
Wholesale	65 400	58 600	- 6 800	- 1.1%
Retail trade	325 500	366 700	+ 41 200	+ 1.2%
Whole sector	915 600	960 600	+ 45 000	+ 0.5%

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 in its tourism infrastructure and diversified its tourist attractions in recent years, along with an increasing number of visitors coming to Hong Kong. The completion of more transport infrastructure projects in Hong Kong in the next few 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 *Accommodation and Food Services* sector. It is projected that the manpower requirements of the sector as a whole will grow at an average annual rate of 0.9% from 280 500 in 2012 to 307 500 in 2022.

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 during the period from 2012 to 2022. The manpower requirements of these two sub-sectors in 2012 and 2022 are presented in **Table 3.2**.

Table 3.2: Manpower Requirements of Accommodation and Food Services Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Accommodation	44 300	56 700	+ 12 400	+ 2.5%
Food services	236 200	250 800	+ 14 600	+ 0.6%
Whole sector	280 500	307 500	+ 27 000	+ 0.9%

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

Transportation, Storage, Postal and Courier Services

3.14 The huge passenger and cargo traffic flow between Hong Kong and the Mainland, coupled with the excellent infrastructure and the growing tourism activities, spurs the development of the *Transportation* industry. The Hong Kong-Zhuhai-Macao Bridge, which is being constructed, will become part of a strategic road network linking Hong Kong, Zhuhai, Macao and Shenzhen. The continuous improvement of the aviation, maritime, land transport facilities and their connectivity will reinforce Hong Kong as a regional hub for passenger and cargo traffic. Nonetheless, certain transportation businesses will face challenges in the years ahead. For instance, the *Freight transport* industry is expected to encounter competition with the Mainland operators amidst a probable diversion of part of freight flow to other ports on the Mainland along with an improvement in the port facilities there. The *Warehousing and storage* business of the sector is expected to grow on the back of Hong Kong's well-established logistic operations. With the increasing popularity of information technology (IT) applications, more and more traditional mode of delivery of letters and documents will be replaced, impacting on the *Postal and courier* business to a certain extent. The manpower requirements of the sector as a whole are projected to increase at an average growth rate of 0.4% from 324 300 in 2012 to 339 200 in 2022.

3.15 The manpower requirements of the various sub-sectors, including *Freight transportation*; *Miscellaneous transportation services*; *Warehousing and storage*; and *Postal and courier*, of this sector during the period from 2012 to 2022 are set out in **Table 3.3**.

Table 3.3: Manpower Requirements of Transportation, Storage, Postal and Courier Services Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Freight transportation	164 800	165 600	+ 800	+ 0.1%
Miscellaneous transportation services	134 600	148 600	+ 14 100	+ 1.0%
Warehousing and storage	6 500	6 800	+ 300	+ 0.5%
Postal and courier	18 500	18 100	- 400	- 0.2%
Whole sector	324 300	339 200	+ 14 900	+ 0.4%

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

Information and Communications

3.16 With heavy investment in the information and communications infrastructure over the years, Hong Kong has made great strides in driving the development of the *Information and communications* sector. Hong Kong offers an excellent location for high-end data centres and is a telecommunication hub in the region, owing to its advanced telecommunication infrastructure and robust regulatory environment. The manpower requirements of the sector as a whole were about 104 200 in 2012, and are projected to grow at an average annual rate of 1.4% to 119 900 in 2022.

3.17 The manpower requirements of various sub-sectors in the *Information and communications* sector during the period from 2012 to 2022 are presented in **Table 3.4**.

Table 3.4: Manpower Requirements of Information and Communications Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Telecommunication activities	19 000	19 600	+ 600	+ 0.3%
Software publishing and information technology related services	43 000	55 000	+ 12 000	+ 2.5%
Miscellaneous activities related to information and communications	42 200	45 300	+ 3 100	+ 0.7%
Whole sector	104 200	119 900	+ 15 700	+ 1.4%

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

Financial Services

3.18 Hong Kong is an international financial centre (IFC). The *Financial services* sector contributed some 15.9% of GDP in 2012. Hong Kong continues to strengthen and consolidate its position as an IFC by developing into a global centre for capital formation, asset management and offshore Renminbi (RMB) business. With the diversification of its business 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 became the largest offshore RMB business centre outside the Mainland, with the total RMB deposits and outstanding RMB certificates of deposits exceeding RMB 1,000 billion in end-2013. The Government is also adopting multi-pronged strategies to further consolidate Hong Kong's leading role as the asset management centre in the Asia-Pacific region, and develop Hong Kong into a more comprehensive fund and asset management centre. This helps attract Mainland and overseas companies to use Hong Kong as a platform for raising funds and developing regional business. The presence of a large number of multinational insurers in Hong Kong promotes the development of insurance and reinsurance business in our economy. Against this backdrop, it is projected that the manpower requirements of the *Financial services* sector will increase considerably at an average annual rate of 2.2% from 233 000 in 2012 to 290 500 in 2022.

3.19 The manpower requirements of various sub-sectors in the *Financial services* sector, including *Banking*; *Financial institutions (other than banks and insurance)*; and *Insurance*, in 2012 and 2022 are set out in **Table 3.5**.

Table 3.5: Manpower Requirements of Financial Services Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Banking	99 200	124 500	+ 25 300	+ 2.3%
Financial institutions (other than banks and insurance)	85 300	109 100	+ 23 900	+ 2.5%
Insurance	48 500	56 900	+ 8 300	+ 1.6%
Whole sector	233 000	290 500	+ 57 600	+ 2.2%

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

Real Estate

3.20 The sector mainly covers the buying, selling and renting of real estate, property management and real estate development. The Government aims to ensure an adequate land supply for the property market to meet the housing target for the next decade, as well as facilitating stable development of the property market. The 2014 Policy Address adopted a total housing supply target of 470 000 units in the coming ten years. It is expected that the supply of new domestic housing units will increase over the long term. The real estate development activities and demand for property management services are anticipated to be on the rise during the projection period, driving the growth of the *Real estate* sector. The manpower requirements of this sector were 130 200 in 2012 and are projected to grow at an average annual rate of 1.0% to reach 143 800 in 2022.

Professional and Business Services

3.21 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. Hong Kong is a leading business hub and has a pool of highly qualified professionals. Along with the continued economic growth of Hong Kong and in the Asia-Pacific region, there would be a growing demand for our professional and business services. The Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) also provides the sector with vast business opportunities in gaining greater access to the Mainland market, promoting the development of the sector. The *Professional and business services* sector's manpower requirements were 364 100 in 2012, and are expected to grow at an average annual rate of 1.5% to 422 300 in 2022.

3.22 The manpower requirements of the various sub-sectors within *Professional and business services* in 2012 and 2022 are set out in **Table 3.6**.

Table 3.6: Manpower Requirements of Professional and Business Services Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Legal services	21 200	25 800	+ 4 600	+ 2.0%
Accounting, auditing and bookkeeping services	29 200	33 800	+ 4 700	+ 1.5%
Engineering and technical services not related to construction and real estate activities, business management and consultancy services	52 400	63 800	+ 11 500	+ 2.0%
Design, advertising and related services	28 800	36 200	+ 7 400	+ 2.3%
Architectural, surveying and engineering services related to real estate and construction	25 800	29 700	+ 3 900	+ 1.4%
Miscellaneous professional and business services	206 800	233 000	+ 26 200	+ 1.2%
Whole sector	364 100	422 300	+ 58 200	+ 1.5%

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

Social and Personal Services

3.23 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. The Government will continue to enhance the quality of public healthcare services, which are expected to expand further to cope with the anticipated increasing demand attributable to an ageing population. On education, the Government has devoted considerable resources to providing our youth with greater access to various education programmes and a variety of learning opportunities. On the cultural front, the Government and relevant organisations will continue to improve the relevant facilities to provide more favourable conditions for the development of cultural and arts activities in Hong Kong, such as the West Kowloon Cultural District (WKCD).

3.24 In 2012, the *Social and personal services* sector was the second largest in terms of manpower needs and accounted for 19.8% 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 0.7% from 687 700 in 2012 to 737 700 in 2022.

3.25 This sector comprises two sub-sectors, i.e. *Human health activities* and *Social and personal services (other than human health activities)*. 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, as well as infirmaries. The *Social and personal services (other than human health activities)* sub-sector mainly covers activities of education, arts, entertainment and recreation, social work activities, residential care and public administration. The manpower requirements of the two sub-sectors in 2012 and 2022 are presented in **Table 3.7**.

Table 3.7: Manpower Requirements of Social and Personal Services Sector and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Human health activities	122 900	155 800	+ 32 900	+ 2.4%
Social and personal services (other than human health activities)	564 800	582 000	+ 17 200	+ 0.3%
Whole sector	687 700	737 700	+ 50 100	+ 0.7%

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

Summary of Manpower Requirements by Economic Sector

3.26 It is projected that the fastest growing economic sectors in terms of manpower requirements during the period from 2012 to 2022 will be *Financial services* (at an average annual growth rate of 2.2%), *Professional and business services* (1.5%), *Information and communications*; and *Construction* (both at 1.4%). The sub-sectors of *Accommodation*; *Banking*; *Design, advertising and related services*; *Financial institutions (other than banks and insurance)*; *Human health activities*; and *Software publishing and information technology related services* are projected to grow considerably in their manpower requirements, with the average annual growth rates ranging from 2.3% to 2.5%, during the corresponding period.

3.27 It is anticipated that manpower requirements will diminish for the sectors of *Agriculture, fishing and quarrying* (at an average annual decreasing rate of 0.7%); *Manufacturing* (0.6%); and *Electricity, gas, water and waste management* (0.4%) during the period from 2012 to 2022. The sub-sectors of *Wholesale* and *Postal and courier* are also projected to downsize in manpower during the same period.

3.28 In terms of manpower requirements, *Import, export, wholesale and retail trades* and *Social and personal services* were the two largest sectors in 2012 and are expected to remain so in 2022. The manpower requirements of various economic sectors and various specific sub-sectors within these sectors in 2012 and 2022 are set out in **Table 3.8**.

Table 3.8: Manpower Requirements by Economic Sector and Sub-sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	5 400	0.2	5 100	0.1	- 400	- 0.7%
Manufacturing	114 200	3.3	107 600	2.8	- 6 700	- 0.6%
Electricity, gas, water and waste management	15 100	0.4	14 500	0.4	- 600	- 0.4%
Construction	300 600	8.6	345 400	9.1	+ 44 800	+ 1.4%
Import, export, wholesale and retail trades	915 600	26.3	960 600	25.3	+ 45 000	+ 0.5%
– <i>Import and export trade</i>	<i>524 800</i>	<i>15.1</i>	<i>535 400</i>	<i>14.1</i>	<i>+ 10 600</i>	<i>+ 0.2%</i>
– <i>Wholesale</i>	<i>65 400</i>	<i>1.9</i>	<i>58 600</i>	<i>1.5</i>	<i>- 6 800</i>	<i>- 1.1%</i>
– <i>Retail trade</i>	<i>325 500</i>	<i>9.4</i>	<i>366 700</i>	<i>9.7</i>	<i>+ 41 200</i>	<i>+ 1.2%</i>
Accommodation and food services	280 500	8.1	307 500	8.1	+ 27 000	+ 0.9%
– <i>Accommodation</i>	<i>44 300</i>	<i>1.3</i>	<i>56 700</i>	<i>1.5</i>	<i>+ 12 400</i>	<i>+ 2.5%</i>
– <i>Food services</i>	<i>236 200</i>	<i>6.8</i>	<i>250 800</i>	<i>6.6</i>	<i>+ 14 600</i>	<i>+ 0.6%</i>
Transportation, storage, postal and courier services	324 300	9.3	339 200	8.9	+ 14 900	+ 0.4%
– <i>Freight transportation</i>	<i>164 800</i>	<i>4.7</i>	<i>165 600</i>	<i>4.4</i>	<i>+ 800</i>	<i>+ 0.1%</i>
– <i>Miscellaneous transportation services</i>	<i>134 600</i>	<i>3.9</i>	<i>148 600</i>	<i>3.9</i>	<i>+ 14 100</i>	<i>+ 1.0%</i>
– <i>Warehousing and storage</i>	<i>6 500</i>	<i>0.2</i>	<i>6 800</i>	<i>0.2</i>	<i>+ 300</i>	<i>+ 0.5%</i>
– <i>Postal and courier</i>	<i>18 500</i>	<i>0.5</i>	<i>18 100</i>	<i>0.5</i>	<i>- 400</i>	<i>- 0.2%</i>
Information and communications	104 200	3.0	119 900	3.2	+ 15 700	+ 1.4%
– <i>Telecommunication activities</i>	<i>19 000</i>	<i>0.5</i>	<i>19 600</i>	<i>0.5</i>	<i>+ 600</i>	<i>+ 0.3%</i>
– <i>Software publishing and information technology related services</i>	<i>43 000</i>	<i>1.2</i>	<i>55 000</i>	<i>1.5</i>	<i>+ 12 000</i>	<i>+ 2.5%</i>
– <i>Miscellaneous activities related to information and communications</i>	<i>42 200</i>	<i>1.2</i>	<i>45 300</i>	<i>1.2</i>	<i>+ 3 100</i>	<i>+ 0.7%</i>
Financial services	233 000	6.7	290 500	7.7	+ 57 600	+ 2.2%
– <i>Banking</i>	<i>99 200</i>	<i>2.9</i>	<i>124 500</i>	<i>3.3</i>	<i>+ 25 300</i>	<i>+ 2.3%</i>
– <i>Financial institutions (other than banks and insurance)</i>	<i>85 300</i>	<i>2.5</i>	<i>109 100</i>	<i>2.9</i>	<i>+ 23 900</i>	<i>+ 2.5%</i>
– <i>Insurance</i>	<i>48 500</i>	<i>1.4</i>	<i>56 900</i>	<i>1.5</i>	<i>+ 8 300</i>	<i>+ 1.6%</i>
Real estate	130 200	3.7	143 800	3.8	+ 13 600	+ 1.0%
Professional and business services	364 100	10.5	422 300	11.1	+ 58 200	+ 1.5%
– <i>Legal services</i>	<i>21 200</i>	<i>0.6</i>	<i>25 800</i>	<i>0.7</i>	<i>+ 4 600</i>	<i>+ 2.0%</i>
– <i>Accounting, auditing and bookkeeping services</i>	<i>29 200</i>	<i>0.8</i>	<i>33 800</i>	<i>0.9</i>	<i>+ 4 700</i>	<i>+ 1.5%</i>
– <i>Engineering and technical services not related to construction and real estate activities, business management and consultancy services</i>	<i>52 400</i>	<i>1.5</i>	<i>63 800</i>	<i>1.7</i>	<i>+ 11 500</i>	<i>+ 2.0%</i>
– <i>Design, advertising and related services</i>	<i>28 800</i>	<i>0.8</i>	<i>36 200</i>	<i>1.0</i>	<i>+ 7 400</i>	<i>+ 2.3%</i>
– <i>Architectural, surveying and engineering services related to real estate and construction</i>	<i>25 800</i>	<i>0.7</i>	<i>29 700</i>	<i>0.8</i>	<i>+ 3 900</i>	<i>+ 1.4%</i>
– <i>Miscellaneous professional and business services</i>	<i>206 800</i>	<i>5.9</i>	<i>233 000</i>	<i>6.1</i>	<i>+ 26 200</i>	<i>+ 1.2%</i>
Social and personal services	687 700	19.8	737 700	19.4	+ 50 100	+ 0.7%
– <i>Human health activities</i>	<i>122 900</i>	<i>3.5</i>	<i>155 800</i>	<i>4.1</i>	<i>+ 32 900</i>	<i>+ 2.4%</i>
– <i>Social and personal services (other than human health activities)</i>	<i>564 800</i>	<i>16.3</i>	<i>582 000</i>	<i>15.3</i>	<i>+ 17 200</i>	<i>+ 0.3%</i>
Total	3 475 100	100.0	3 794 200	100.0	+ 319 100	+ 0.9%

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

Manpower Requirements of the Pillar Industries

3.29 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 2012, 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

3.30 Hong Kong has clear advantages as an IFC, such as a highly open market, a sound financial regulatory framework, the rule of law as well as free flow of information and capital. Being an established capital formation and asset management centre, Hong Kong has achieved many breakthroughs in strengthening its position as an IFC. With increasing economic co-operation with the Mainland and expansion in its financial services, Hong Kong will further consolidate its position as an IFC. The manpower requirements of the sector are projected to increase considerably at an average annual rate of 2.2% from 233 000 in 2012 to 290 500 in 2022.

Trading and Logistics

3.31 *Trading and logistics* industry is the largest of the four pillar industries in terms of GDP contribution and manpower requirements. It comprises *Import and export trade; Wholesale; Freight transportation (land, water and air); Warehousing and storage; and Postal and courier activities*. Hong Kong's strengths as a trading and logistics hub lie with its prime geographic location, free port status, sound legal system and world-class infrastructure. In 2012, the sector accounted for 24.6% of GDP and its manpower requirements reached 779 900. In recent years, the *Trading and logistics* industry has faced many challenges, including the weakening market for our exports in the United States and European

countries, and an intense competition from the neighboring economies for trading and logistics business. Hong Kong will continue to invest in its logistics facilities, such as the construction of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link and Hong Kong-Zhuhai-Macao Bridge projects. Upon the completion of more logistics facilities in the next decade, it would help maintain Hong Kong's competitive advantage as a trading and logistics hub.

3.32 It is projected that the manpower requirements of *Trading and logistics* will increase slightly at an average annual rate of 0.1% from 779 900 in 2012 to 784 500 in 2022. The manpower requirements of various sub-sectors of *Trading and logistics* in 2012 and 2022 are set out in **Table 3.9**.

Table 3.9: Manpower Requirements of Trading and Logistics and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Import and export trade	524 800	535 400	+ 10 600	+ 0.2%
Wholesale	65 400	58 600	- 6 800	- 1.1%
Freight transportation	164 800	165 600	+ 800	+ 0.1%
Warehousing and Storage	6 500	6 800	+ 300	+ 0.5%
Postal and Courier	18 500	18 100	- 400	- 0.2%
Whole sector	779 900	784 500	+ 4 600	+ 0.1%

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

Professional Services and Other Producer Services

3.33 The *Professional services and other producer services* industry¹² encompasses a wide range of economic activities, including software publishing and information technology related services; legal services; 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. Many of the international legal, accounting, advertising and engineering firms are operating in Hong Kong. In addition, many trades of the professional services have gained access to the Mainland market under CEPA. 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.

3.34 The manpower requirements of the sector are projected to increase considerably at an average annual rate of 1.4% from 502 600 in 2012 to 578 200 in 2022. The manpower requirements of various sub-sectors in the *Professional services and other producer services* sector in 2012 and 2022 are set out in **Table 3.10**.

¹² It covers a wide spectrum of business activities including *Software publishing and information technology related services; Legal services; Accounting, auditing and bookkeeping services; Engineering and technical services not related to construction and real estate activities, business management and consultancy services; 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 some 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.

Table 3.10: Manpower Requirements of Professional Services and Other Producer Services and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Software publishing and information technology related services	43 000	55 000	+ 12 000	+ 2.5%
Legal services	21 200	25 800	+ 4 600	+ 2.0%
Accounting, auditing and bookkeeping services	29 200	33 800	+ 4 700	+ 1.5%
Engineering and technical services not related to construction and real estate activities, business management and consultancy services	52 400	63 800	+ 11 500	+ 2.0%
Design, advertising and related services	28 800	36 200	+ 7 400	+ 2.3%
Architectural, surveying and engineering services related to real estate and construction	25 800	29 700	+ 3 900	+ 1.4%
Other producer services	302 200	333 800	+ 31 600	+ 1.0%
Whole sector	502 600	578 200	+ 75 700	+ 1.4%

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

Tourism

3.35 *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 2012, there were about 48.6 million visitors to Hong Kong, with a total spending of about \$300 billion. The Government and other stakeholders will continue to invest in the tourism-related infrastructure to promote the healthy development of the industry, including the further development of our two flagship theme parks. In addition, the total number of hotel rooms is expected to increase along with completion of more new hotels in the coming few years. With more tourist facilities coming on stream in the years ahead, we are optimistic about the future development of the *Tourism* industry.

3.36 It is projected that the manpower requirements of the industry will grow considerably at an average annual rate of 2.3% from 250 000 in 2012 to 314 800 in 2022. The manpower requirements of the inbound and outbound *Tourism* in 2012 and 2022 are set out in **Table 3.11**.

Table 3.11: Manpower Requirements of Tourism and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Inbound tourism	218 600	279 700	+ 61 100	+ 2.5%
Outbound tourism	31 300	35 100	+ 3 800	+ 1.1%
Whole sector	250 000	314 800	+ 64 900	+ 2.3%

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

Summary of Manpower Requirements of the Pillar Industries

3.37 The total manpower requirements of the pillar industries taken together are projected to increase at an average annual rate of 1.1% from 1.77 million in 2012 to 1.97 million in 2022. In 2012, the manpower requirements of these industries accounted for some 50.8% of the total manpower needs of the whole economy. The figure is expected to climb to 51.9% in 2022. The manpower requirements of the pillar industries in 2012 and 2022 are set out in **Table 3.12**.

Table 3.12: Manpower Requirements of the Pillar Industries in 2012 and 2022

Pillar Industry	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Financial services	233 000	290 500	+ 57 600	+ 2.2%
Trading and logistics	779 900	784 500	+ 4 600	+ 0.1%
Professional services and other producer services	502 600	578 200	+ 75 700	+ 1.4%
Tourism	250 000	314 800	+ 64 900	+ 2.3%
Total	1 765 500	1 968 100	+ 202 600	+ 1.1%

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

Manpower Requirements of the Selected Industries

3.38 The manpower requirements of some other industries, which play an important role in our economy, are also presented in this report. These industries, termed as selected industries in MP2022, include *Information technology and information services; Innovation and technology industries; Testing and certification services; Cultural and creative industries; Environmental industries*; as well as the four industry clusters under EDC's ambit, namely (i) EDC industry cluster 1 – *Transportation*; (ii) EDC industry cluster 2 – *Convention and exhibition industries and tourism*; (iii) EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*; and (iv) EDC industry cluster 4 – *Professional services*. These industries have great potential to propel the development of our economy.

Information Technology and Information Services Sector

3.39 This sector covers *Telecommunication activities and Software publishing and information technology related services*. As a business hub in the Asia-Pacific region, Hong Kong is home to many logistics, financial and professional services companies. 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)* sector will continue to expand.

3.40 The manpower requirements of this sector are projected to grow considerably at an average annual rate of 1.9% from 62 000 in 2012 to 74 600 in 2022. The manpower requirements of the *IT&IS* sector and its sub-sectors in 2012 and 2022 are set out in **Table 3.13**.

Table 3.13: Manpower Requirements of Information Technology and Information Services and its Sub-sectors in 2012 and 2022

Sub-sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Telecommunication activities	19 000	19 600	+ 600	+ 0.3%
Software publishing and information technology related services	43 000	55 000	+ 12 000	+ 2.5%
Whole sector	62 000	74 600	+ 12 600	+ 1.9%

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

3.41 The personnel of the *IT&IS* sector is not equivalent to IT workers. The workforce of the *IT&IS* sector includes both IT workers (such as IT managers, system analysts and programmers) as well as non-IT workers (such as clerical support workers and service and sales workers) in the sector.

3.42 On the other hand, there are IT workers engaging in other sectors, apart from the *IT&IS* sector. For instance, there are workers taking up IT jobs in such sectors as *Social and personal services* as well as *Financial services*. The total number of IT workers required across all economic sectors was about 80 500 in 2012. With wide application of IT to improve work efficiency in various sectors, the total requirements for IT workers economy-wide have been on the increase over the past decade and are anticipated to be on an upward trend during the projection period, growing at an average annual rate of 2.0% to 98 000 in 2022. The manpower requirements for IT workers of various economic sectors in 2012 and 2022 are presented in **Table 3.14**.

Table 3.14: Manpower Requirements of IT Workers by Economic Sector in 2012 and 2022

Economic Sector	Actual manpower requirements in 2012 Number	Projected manpower requirements in 2022 Number	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
Import, export, wholesale and retail trades, accommodation and food services	16 300	18 100	+ 1 900	+ 1.1%
Information and communications	32 600	42 600	+ 10 000	+ 2.7%
Financial services, real estate, professional and business services	14 100	16 700	+ 2 600	+ 1.7%
Social and personal services	12 800	15 800	+ 3 000	+ 2.1%
Others [#]	4 700	4 800	+ 200	+ 0.3%
Total	80 500	98 000	+ 17 500	+ 2.0%

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

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

Innovation and Technology Industries

3.43 The *Innovation and technology industries* sector is important for enhancing the competitiveness of our economy. The number of research and development (R&D) personnel and the expenditure on R&D activities in Hong Kong have been increasing steadily over the last decade. The Government is committed to creating a vibrant ecosystem with excellent software and hardware support for the key players to collaborate on research, development and innovation activities. The major support measures are focused on (i) providing world-class technology infrastructure, (ii) offering policy and financial support to R&D and technology transfer activities, and (iii) nurturing talent and fostering a vibrant innovation culture. It is projected that the manpower requirements of the industry will increase at an average annual rate of 1.7% during the period to 36 000 in 2022.

Testing and Certification Services

3.44 The *Testing and certification services* industry in Hong Kong is highly acclaimed for its professionalism, integrity and credibility. Over the years, the industry has established a good foundation, based on a robust accreditation system, high professional 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. Under CEPA, laboratories in Hong Kong are allowed to undertake testing, in collaboration with designated Mainland certification bodies, of products processed in Hong Kong for the China Compulsory Certification System. It is expected that Hong Kong's *Testing and certification services* industry will continue to benefit from further liberalisation of the Mainland market under CEPA. It is projected that the manpower requirements of the industry will increase at an average annual growth rate of 1.5% during the period to 15 700 in 2022.

Cultural and Creative Industries

3.45 The *Cultural and creative industries* sector has been developing steadily over the past decade. The 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. The Government has set up a dedicated office, Create Hong Kong, to support local creative industries. The WKCD project will, upon its completion, be a major propeller of the cultural and creative activities. The Government has been promoting the nurturing of artistic talents and arts administrators to support the development of WKCD as well as the arts and cultural sector as a whole. It is projected that the manpower requirements of the *Cultural and creative industries* sector will increase at an average annual rate of 1.3% during the projection period to 227 200 in 2022.

Environmental Industries

3.46 The *Environmental industries* sector has been growing impressively in recent years, along with the rising aspiration of Hong Kong people for better environmental protection and the active promotion of the Government for a green economy through a multitude of policies and initiatives. Measures in promoting energy saving, enhancing energy efficiency and improving air quality have gained wide public support. The Government will continue to invest in environmental infrastructure on solid waste, waste water and air quality, as well as promoting the development of the related economic activities, such as the recycling industry. It is expected that the sector will expand appreciably during the projection period, with its manpower requirements increasing significantly at an average annual rate of 5.8% during the projection period to 72 400 in 2022.

Industry Clusters under EDC

3.47 The EDC provides the Government with advice on the overall strategy and policy to broaden Hong Kong's economic base and to enhance Hong Kong's economic growth and development. There are four industry clusters identified by the EDC as having great potential to drive the development of our economy. They are (i) EDC industry cluster 1 – *Transportation*; (ii) EDC industry cluster 2 – *Convention and exhibition industries and tourism*; (iii) EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*; and (iv) EDC industry cluster 4 – *Professional Services*. The manpower requirements of these industry clusters are expected to grow at various average annual rates ranging from 0.4% to 2.3% during the projection period from 2012 to 2022 (see **Table 3.15**).

Summary of Manpower Requirements of the Selected Industries

3.48 The manpower requirements of the selected industries are expected to grow at various average annual rates ranging from 0.4% to 5.8% during the period from 2012 to 2022. Save for EDC industry cluster 1 – *Transportation* and EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*, the manpower requirements of different selected industries are projected to grow at a faster rate than the overall growth rate of 0.9% for the whole economy during the period. The manpower requirements of the selected industries in 2012 and their projections in 2022 are set out in **Table 3.15**.

Table 3.15: Manpower Requirements of the Selected Industries in 2012 and 2022

Selected Industry	Actual manpower requirement in 2012	Projected manpower requirement in 2022	Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	Number		
Information technology and information services	62 000	74 600	+ 12 600	+ 1.9%
Innovation and technology industries	29 900 ##	36 000	+ 6 100	+ 1.7%
Testing and certification services	13 300 ##	15 700	+ 2 400	+ 1.5%
Cultural and creative industries	197 100 ##	227 200	+ 30 100	+ 1.3%
Environmental industries	38 900 ##	72 400	+ 33 400	+ 5.8%
EDC industry cluster 1 – Transportation	190 200	197 100	+ 6 900	+ 0.4%
EDC industry cluster 2 – Convention and exhibition industries and tourism	252 500	318 000	+ 65 500	+ 2.3%
EDC industry cluster 3 – Manufacturing industries, innovative technology, and cultural and creative industries	311 200 ~	338 100	+ 26 900	+ 0.8%
EDC industry cluster 4 – Professional services	128 600	153 200	+ 24 600	+ 1.8%

The figures refer to 2011 as those for 2012 were not yet available when the manpower requirement projections were being compiled.

~ The figure was estimated on the basis of the manpower figure of *Manufacturing* sector in 2012 and the manpower figures of *Innovation and technology industries* and *Cultural and creative industries* in 2011.

Manpower Requirements by Occupation Group

3.49 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; Agricultural and fishery workers; Craft and related workers; Drivers, plant and machinery operators, and assemblers; and Elementary occupations*. The statistical coverage and definitions of these occupation categories are set out in **Appendix VI**. The structure and business environment of our economy are constantly evolving. This has an impact on the composition of workers (i.e. types of workers) required by our economy. The projected manpower requirements of various occupation groups during the projection period are presented below.

Managers and Administrators

3.50 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, financial managers, administration managers, personnel managers, sales managers and IT managers.

3.51 The manpower requirements of *Managers and administrators* of the whole economy are expected to increase considerably at an average annual rate of 1.6% from 402 800 in 2012 to 469 800 in 2022. 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, high value-added economy. This occupation group is anticipated to expand in size across most economic sectors.

3.52 The manpower requirements of *Managers and administrators* by economic sector in 2012 and 2022 are shown in **Table 3.16**.

Table 3.16: Manpower Requirements of Managers and Administrators by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	0.1	300	0.1	^^	- 0.6%
Manufacturing	24 300	6.0	23 300	5.0	- 1 000	- 0.4%
Electricity, gas, water and waste management	1 100	0.3	1 200	0.2	^^	+ 0.2%
Construction	16 800	4.2	18 500	3.9	+ 1 600	+ 0.9%
Import, export, wholesale and retail trades	176 400	43.8	197 400	42.0	+ 21 100	+ 1.1%
Accommodation and food services	23 200	5.8	28 000	6.0	+ 4 800	+ 1.9%
Transportation, storage, postal and courier services	19 800	4.9	22 900	4.9	+ 3 200	+ 1.5%
Information and communications	15 700	3.9	19 200	4.1	+ 3 500	+ 2.0%
Financial services	64 300	16.0	84 100	17.9	+ 19 800	+ 2.7%
Real estate	11 000	2.7	12 800	2.7	+ 1 700	+ 1.5%
Professional and business services	28 600	7.1	38 500	8.2	+ 9 800	+ 3.0%
Social and personal services	21 200	5.3	23 600	5.0	+ 2 400	+ 1.1%
Total	402 800	100.0	469 800	100.0	+ 67 000	+ 1.6%

^^ Change within ± 50

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

Professionals

3.53 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. Along with the development of various sectors in our economy, this occupation group is projected to grow considerably at an average annual rate of 1.8% from 265 000 in 2012 to 317 400 in 2022. Among all occupation groups, *Professionals* is expected to grow at the fastest rate from 2012 to 2022. The manpower requirements of *Professionals* by economic sector in 2012 and 2022 are set out in **Table 3.17**.

Table 3.17: Manpower Requirements of Professionals by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	200	0.1	300	0.1	+ 100	+ 6.1%
Manufacturing	3 800	1.4	3 600	1.1	- 200	- 0.6%
Electricity, gas, water and waste management	2 000	0.7	2 000	0.6	^^	+ 0.2%
Construction	12 800	4.8	15 600	4.9	+ 2 700	+ 1.9%
Import, export, wholesale and retail trades	21 600	8.2	26 900	8.5	+ 5 300	+ 2.2%
Accommodation and food services	600	0.2	900	0.3	+ 300	+ 4.0%
Transportation, storage, postal and courier services	8 100	3.1	11 000	3.5	+ 2 800	+ 3.0%
Information and communications	33 700	12.7	40 600	12.8	+ 6 800	+ 1.9%
Financial services	24 900	9.4	33 300	10.5	+ 8 400	+ 3.0%
Real estate	3 000	1.1	3 500	1.1	+ 500	+ 1.5%
Professional and business services	45 600	17.2	57 100	18.0	+ 11 500	+ 2.3%
Social and personal services	108 700	41.0	122 700	38.7	+ 14 100	+ 1.2%
Total	265 000	100.0	317 400	100.0	+ 52 300	+ 1.8%

^^ Change within ± 50

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

Associate Professionals

3.54 The *Associate professionals* occupation group falls into the middle layer of the occupational spectrum and provide *Managers and administrators*, as well as *Professionals*, with professional support and assistance. Examples include engineering technicians, nurses, banking loan officers, administration officers, accounting supervisors, merchandisers, insurance representatives and public relations officers.

3.55 It is expected that the manpower requirements of these workers will grow at an average annual rate of 1.7% from 719 900 in 2012 to 850 700 in 2022. *Associate professionals* was the largest group in terms of manpower requirements among all the occupation categories

in 2012 and are expected to remain so in 2022. The manpower requirements of *Associate professionals* by economic sector in 2012 and 2022 are presented in **Table 3.18**.

Table 3.18: Manpower Requirements of Associate Professionals by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	200	*	400	*	+ 100	+ 4.5%
Manufacturing	20 700	2.9	19 800	2.3	- 800	- 0.4%
Electricity, gas, water and waste management	4 600	0.6	4 800	0.6	+ 100	+ 0.2%
Construction	46 200	6.4	53 300	6.3	+ 7 100	+ 1.4%
Import, export, wholesale and retail trades	193 100	26.8	215 000	25.3	+ 21 800	+ 1.1%
Accommodation and food services	9 400	1.3	11 200	1.3	+ 1 800	+ 1.7%
Transportation, storage, postal and courier services	25 400	3.5	33 800	4.0	+ 8 400	+ 2.9%
Information and communications	33 300	4.6	39 600	4.7	+ 6 300	+ 1.7%
Financial services	90 800	12.6	117 900	13.9	+ 27 100	+ 2.7%
Real estate	35 800	5.0	44 300	5.2	+ 8 500	+ 2.2%
Professional and business services	76 500	10.6	100 900	11.9	+ 24 400	+ 2.8%
Social and personal services	183 900	25.5	209 800	24.7	+ 25 800	+ 1.3%
Total	719 900	100.0	850 700	100.0	+ 130 800	+ 1.7%

* Percentage share less than 0.05%

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

Clerical Support Workers

3.56 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 continuing trend of automation and the widespread application of modern technology at the workplace, it is projected that the requirements of *Clerical support workers* will decrease at an average annual rate of 0.3% from 515 300 in 2012 to 502 000 in 2022. *Clerical support workers* is anticipated to

slip from the third largest occupation group in 2012 to the fourth in 2022, owing to a decline in their overall demand. The manpower requirements of *Clerical support workers* by economic sector in 2012 and 2022 are shown in **Table 3.19**.

Table 3.19: Manpower Requirements of Clerical Support Workers by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	^	§	§	§
Manufacturing	10 600	2.1	10 200	2.0	- 400	- 0.4%
Electricity, gas, water and waste management	1 700	0.3	1 400	0.3	- 300	- 2.1%
Construction	13 000	2.5	14 300	2.8	+ 1 300	+ 0.9%
Import, export, wholesale and retail trades	203 100	39.4	180 700	36.0	- 22 400	- 1.2%
Accommodation and food services	10 800	2.1	11 100	2.2	+ 300	+ 0.3%
Transportation, storage, postal and courier services	49 600	9.6	49 200	9.8	- 400	- 0.1%
Information and communications	10 100	2.0	9 900	2.0	- 200	- 0.2%
Financial services	49 100	9.5	53 100	10.6	+ 3 900	+ 0.8%
Real estate	14 500	2.8	15 000	3.0	+ 500	+ 0.3%
Professional and business services	50 500	9.8	52 200	10.4	+ 1 700	+ 0.3%
Social and personal services	102 100	19.8	104 900	20.9	+ 2 800	+ 0.3%
Total	515 300	100.0	502 000	100.0	- 13 400	- 0.3%

^ 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.

Service and Sales Workers

3.57 This group of workers comprises mainly the sales assistants in *Retail trade* industry, service workers in *Accommodation and food services* sector, as well as care workers in elderly homes and healthcare institutions. The manpower requirements for these workers were 622 900 in 2012, accounting for 17.9% of the overall manpower

needs of our economy. *Service and sales workers* was the second largest occupation group in 2012 and is expected to remain so in 2022. With the anticipated expansion of the *Retail trade, Accommodation, Food services* and *Human health activities* industries during the projection period, it is projected that the number of *Service and sales workers* will increase at an average annual rate of 1.3% to 705 500 in 2022. The manpower requirements of *Service and sales workers* by economic sector in 2012 and 2022 are presented in **Table 3.20**.

Table 3.20: Manpower Requirements of Service and Sales Workers by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	^	§	§	§
Manufacturing	800	0.1	800	0.1	^^	- 0.4%
Electricity, gas, water and waste management	100	*	200	*	+ 100	+ 3.9%
Construction	100	*	100	*	^^	- 5.0%
Import, export, wholesale and retail trades	228 500	36.7	264 200	37.4	+ 35 700	+ 1.5%
Accommodation and food services	187 000	30.0	206 300	29.2	+ 19 300	+ 1.0%
Transportation, storage, postal and courier services	27 800	4.5	33 100	4.7	+ 5 200	+ 1.7%
Information and communications	3 000	0.5	3 100	0.4	+ 100	+ 0.4%
Financial services	400	0.1	200	*	- 200	- 6.9%
Real estate	1 000	0.2	1 700	0.2	+ 700	+ 5.6%
Professional and business services	11 400	1.8	16 100	2.3	+ 4 700	+ 3.5%
Social and personal services	162 700	26.1	179 800	25.5	+ 17 100	+ 1.0%
Total	622 900	100.0	705 500	100.0	+ 82 600	+ 1.3%

^ Figure less than 50

^^ Change within ± 50

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

* Percentage share less than 0.05%

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

Agricultural and Fishery Workers

3.58 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. The requirements for such workers were about 4 400 in 2012, reflecting the small size of the *Agriculture, fishing and quarrying* sector in Hong Kong. It is expected that the requirements of *Agricultural and fishery workers* will decline at an average rate of 1.2% from 4 400 in 2012 to 3 900 in 2022. A small number of *Agricultural and fishery 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). The requirements of these workers of the *Agriculture, fishing and quarrying* sector and other sectors in 2012 and 2022 are set out in **Table 3.21**.

Table 3.21: Manpower Requirements of Agricultural and Fishery Workers by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	4 100	92.9	3 600	91.6	- 500	- 1.3%
Other sectors	300	7.1	300	8.4	^^	+ 0.4%
Total	4 400	100.0	3 900	100.0	- 500	- 1.2%

^^ Change within ± 50

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

Craft and Related Workers

3.59 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. With the rolling out of several major infrastructure projects during the projection period, there will be strong demand for *Craft and related*

workers from the *Construction* sector, which is expected to require 173 300 such workers in 2022. 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. It is projected that the overall requirements of these workers will increase at an average annual rate of 0.4% from 246 800 in 2012 to 257 300 in 2022. The requirements of *Craft and related workers* by economic sector in 2012 and 2022 are presented in **Table 3.22**.

Table 3.22: Manpower Requirements of Craft and Related Workers by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	^	§	§	§
Manufacturing	29 400	11.9	27 800	10.8	- 1 600	- 0.6%
Electricity, gas, water and waste management	2 800	1.2	2 300	0.9	- 500	- 2.1%
Construction	150 200	60.8	173 300	67.4	+ 23 200	+ 1.4%
Import, export, wholesale and retail trades	15 400	6.2	11 800	4.6	- 3 600	- 2.6%
Accommodation and food services	3 000	1.2	3 000	1.2	^^	- 0.1%
Transportation, storage, postal and courier services	8 100	3.3	6 900	2.7	- 1 200	- 1.5%
Information and communications	5 200	2.1	4 900	1.9	- 400	- 0.7%
Financial services	-	-	-	-	-	-
Real estate	4 800	1.9	3 400	1.3	- 1 400	- 3.4%
Professional and business services	4 200	1.7	4 200	1.6	^^	+ 0.1%
Social and personal services	23 700	9.6	19 700	7.7	- 3 900	- 1.8%
Total	246 800	100.0	257 300	100.0	+ 10 500	+ 0.4%

^ Figure less than 50

^^ Change within ± 50

§ 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.

Drivers, Plant and Machinery Operators, and Assemblers

3.60 The occupation group of *Drivers, plant and machinery 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 machinery operators, and assemblers*. The number of *Plant and machinery operators, and assemblers* in various sectors, such as *Manufacturing* and *Import, export, wholesale and retail trades* sectors, is projected to decline along with an increasing application of automation and modern technology at the workplace and the changing structure of our economy. An exception is the *Construction* sector, which will see an increase in the number of such workers from 2012 to 2022. A large proportion of *Drivers* are engaged in the *Miscellaneous transportation services* industry of the *Transportation, storage, postal and courier services* sector. Owing to the anticipated expansion of the transportation and freight industries, the demand for *Drivers* is expected to increase during the projection period. With the projected decrease in the number of *Plant and machinery operators, and assemblers* more than offsetting the projected increase in the number of *Drivers*, the overall requirements for *Drivers, plant and machinery operators, and assembler* as a group are expected to decrease slightly at an average annual rate of 0.1% from 188 000 in 2012 to 185 200 in 2022. The requirements of *Drivers, plant and machinery operators, and assemblers* by economic sector in 2012 and 2022 are shown in **Table 3.23**.

Table 3.23: Manpower Requirements of Drivers, Plant and Machinery Operators, and Assemblers by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	0.2	200	0.1	- 100	- 2.3%
Manufacturing	8 500	4.5	7 600	4.1	- 900	- 1.1%
Electricity, gas, water and waste management	800	0.4	800	0.5	^^	+ 0.2%
Construction	9 100	4.8	10 000	5.4	+ 900	+ 0.9%
Import, export, wholesale and retail trades	15 500	8.3	13 300	7.2	- 2 300	- 1.6%
Accommodation and food services	1 000	0.5	900	0.5	^^	- 0.1%
Transportation, storage, postal and courier services	138 100	73.5	138 600	74.8	+ 500	**
Information and communications	900	0.5	800	0.4	- 100	- 1.7%
Financial services	1 100	0.6	500	0.3	- 600	- 7.4%
Real estate	800	0.4	800	0.4	^^	- 0.4%
Professional and business services	4 900	2.6	5 100	2.7	+ 200	+ 0.4%
Social and personal services	7 000	3.7	6 600	3.6	- 400	- 0.5%
Total	188 000	100.0	185 200	100.0	- 2 800	- 0.1%

^^ Change within ± 50

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

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

Elementary Occupations

3.61 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 modern technology at the workplace. 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), the *Professional and business services* sector (which covers establishments rendering cleansing services), and the *Construction* sector (because of the expected booming business) in the years ahead. There were some 510 000 workers in the *Elementary occupations* in 2012. It is expected that the requirements for these workers will decrease slightly at an average annual rate of 0.1% to 502 500 in 2022. The statistics of manpower requirements of these workers by economic sector in 2012 and 2022 are shown in **Table 3.24**.

Table 3.24 : Manpower Requirements of Elementary Occupations by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	0.1	200	*	- 100	- 2.3%
Manufacturing	16 100	3.2	14 500	2.9	- 1 700	- 1.1%
Electricity, gas, water and waste management	1 800	0.4	1 800	0.4	^^	+ 0.1%
Construction	52 300	10.3	60 400	12.0	+ 8 100	+ 1.4%
Import, export, wholesale and retail trades	61 900	12.1	51 300	10.2	- 10 600	- 1.9%
Accommodation and food services	45 600	8.9	46 200	9.2	+ 500	+ 0.1%
Transportation, storage, postal and courier services	47 400	9.3	43 800	8.7	- 3 600	- 0.8%
Information and communications	2 200	0.4	1 900	0.4	- 300	- 1.7%
Financial services	2 400	0.5	1 400	0.3	- 1 000	- 5.2%
Real estate	59 200	11.6	62 400	12.4	+ 3 100	+ 0.5%
Professional and business services	142 400	27.9	148 300	29.5	+ 5 900	+ 0.4%
Social and personal services	78 300	15.3	70 400	14.0	- 7 800	- 1.0%
Total	510 000	100.0	502 500	100.0	- 7 500	- 0.1%

* Percentage share less than 0.05%

^^ Change within ± 50

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

Overall Occupation Pattern of Manpower Requirements

3.62 The occupation pattern in relation to manpower requirements, i.e. percentage distribution of different occupation groups, is projected to evolve in line with the development and changing structure of our economy. The manpower requirements of the overall economy by occupation group in 2012 and 2022 are set out in **Table 3.25**.

Table 3.25: Manpower Requirements by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	402 800	11.6	469 800	12.4	+ 67 000	+ 1.6%
Professionals	265 000	7.6	317 400	8.4	+ 52 300	+ 1.8%
Associate professionals	719 900	20.7	850 700	22.4	+ 130 800	+ 1.7%
Clerical support workers	515 300	14.8	502 000	13.2	- 13 400	- 0.3%
Service and sales workers	622 900	17.9	705 500	18.6	+ 82 600	+ 1.3%
Agricultural and fishery workers	4 400	0.1	3 900	0.1	- 500	- 1.2%
Craft and related workers	246 800	7.1	257 300	6.8	+ 10 500	+ 0.4%
Drivers, plant and machinery operators, and assemblers	188 000	5.4	185 200	4.9	- 2 800	- 0.1%
Elementary occupations	510 000	14.7	502 500	13.2	- 7 500	- 0.1%
Total	3 475 100	100.0	3 794 200	100.0	+ 319 100	+ 0.9%

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

3.63 The demand for higher-skilled, better-educated workers, including *Managers and administrators*; *Professionals*; and *Associate professionals*, is expected to rise across all sectors amidst the transformation of Hong Kong into a knowledge-based, high value-added economy. In particular, the proportions of *Managers and administrators*; *Professionals*; and *Associate professionals* are comparatively high in *Information and communications* sector and *Financial services* sector, due to the business nature of these two sectors. It is projected that in 2022 over 80% of the manpower required by these two sectors will be related to workers belonging to these three occupation groups.

3.64 The overall demand for *Clerical support workers* is projected to decline during the period, owing to the wide utilisation of automation and modern technology at the workplace and employment of workers with multi-tasking skills by business establishments or organisations. A great portion of the requirements for *Clerical support workers* comes from four sectors, including *Import, export, wholesale and retail trades; Financial services; Professional and business services*; as well as *Social and personal services*. It is projected that the requirements for *Clerical support workers* of these four sectors together will account for over 77% of the requirements for such workers economy-wide in 2022.

3.65 The requirements for *Service and sales workers* are expected to increase in tandem with the continued development of our service-oriented economy. The *Import, export, wholesale and retail trades; Accommodation and food services*; and *Social and personal services* sectors have the highest concentration of *Service and sales workers*. The requirements of the three sectors for these workers are expected to account for over 92% of the overall manpower requirements for such workers in 2022.

3.66 Of all sectors, the *Construction* sector requires the most number of *Craft and related workers*. Owing to the rolling out of several major infrastructure projects in the years ahead, the overall requirements for *Craft and related workers* are anticipated to increase during the projection period. The *Construction* sector alone is expected to require about 67% of the total number of such workers of the whole economy in 2022.

3.67 During the projection period, the demand for “Drivers” is expected to increase with the anticipated expansion of the *Transportation* industry. However, the requirements for “Plant and machinery operators, and assemblers” are projected to decline as a result of the falling demand for such workers in various sectors (e.g. the *Manufacturing* sector) along with the changing structure of our economy and the use of automation and modern technology at the workplace. It is projected that the overall requirements for *Drivers, plant and machinery operators, and assemblers* as a group will decrease marginally over the projection period along with the changing structure of our economy.

3.68 There are workers in *Elementary occupations* across different sectors. In particular, 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 workers in *Elementary occupations* will account for some 43% of the total manpower requirements in the *Real estate* sector and about 35% in the *Professional and business services* sector in 2022. The overall demand for such workers is expected to decline slightly along with Hong Kong's transformation into a knowledge-based, high value-added economy.

3.69 The manpower requirements of different sectors by occupation group in 2012 and 2022 are set out in **Table 3.26** and **Table 3.27**. 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 A7.45** in **Appendix VII**.

Table 3.26: Manpower Requirements by Economic Sector and Occupation Group in 2012

Economic sector		Managers and administrators	Professionals	Associate professionals	Clerical support workers	Service and sales workers	Agricultural and fishery workers	Craft and related workers	Drivers, plant and machinery operators, and assemblers	Elementary occupations	Total
Agriculture, fishing and quarrying	Number	300	200	200	^	^	4 100	^	300	300	5 400
	% share	5.6	3.1	4.4	§	§	75.0	§	5.5	5.1	100.0
Manufacturing	Number	24 300	3 800	20 700	10 600	800	-	29 400	8 500	16 100	114 200
	% share	21.3	3.3	18.1	9.3	0.7	-	25.7	7.4	14.1	100.0
Electricity, gas, water and waste management	Number	1 100	2 000	4 600	1 700	100	-	2 800	800	1 800	15 100
	% share	7.5	13.1	30.7	11.5	1.0	-	18.8	5.5	11.9	100.0
Construction	Number	16 800	12 800	46 200	13 000	100	-	150 200	9 100	52 300	300 600
	% share	5.6	4.3	15.4	4.3	*	-	50.0	3.0	17.4	100.0
Import, export, wholesale and retail trades	Number	176 400	21 600	193 100	203 100	228 500	-	15 400	15 500	61 900	915 600
	% share	19.3	2.4	21.1	22.2	25.0	-	1.7	1.7	6.8	100.0
Accommodation and food services	Number	23 200	600	9 400	10 800	187 000	-	3 000	1 000	45 600	280 500
	% share	8.3	0.2	3.4	3.8	66.7	-	1.1	0.3	16.3	100.0
Transportation, storage, postal and courier services	Number	19 800	8 100	25 400	49 600	27 800	-	8 100	138 100	47 400	324 300
	% share	6.1	2.5	7.8	15.3	8.6	-	2.5	42.6	14.6	100.0
Information and communications	Number	15 700	33 700	33 300	10 100	3 000	-	5 200	900	2 200	104 200
	% share	15.1	32.4	31.9	9.7	2.9	-	5.0	0.9	2.1	100.0
Financial services	Number	64 300	24 900	90 800	49 100	400	-	-	1 100	2 400	233 000
	% share	27.6	10.7	39.0	21.1	0.2	-	-	0.5	1.0	100.0
Real estate	Number	11 000	3 000	35 800	14 500	1 000	-	4 800	800	59 200	130 200
	% share	8.5	2.3	27.5	11.1	0.8	-	3.7	0.6	45.5	100.0
Professional and business services	Number	28 600	45 600	76 500	50 500	11 400	^	4 200	4 900	142 400	364 100
	% share	7.9	12.5	21.0	13.9	3.1	§	1.1	1.3	39.1	100.0
Social and personal services	Number	21 200	108 700	183 900	102 100	162 700	300	23 700	7 000	78 300	687 700
	% share	3.1	15.8	26.7	14.8	23.7	*	3.4	1.0	11.4	100.0
Total	Number	402 800	265 000	719 900	515 300	622 900	4 400	246 800	188 000	510 000	3 475 100
	% share	11.6	7.6	20.7	14.8	17.9	0.1	7.1	5.4	14.7	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 3.27: Projected Manpower Requirements by Economic Sector and Occupation Group in 2022

Economic sector		Managers and administrators	Professionals	Associate professionals	Clerical support workers	Service and sales workers	Agricultural and fishery workers	Craft and related workers	Drivers, plant and machinery operators, and assemblers	Elementary occupations	Total
Agriculture, fishing and quarrying	Number	300	300	400	^	^	3 600	^	200	200	5 100
	% share	5.7	6.0	7.4	§	§	70.3	§	4.7	4.4	100.0
Manufacturing	Number	23 300	3 600	19 800	10 200	800	-	27 800	7 600	14 500	107 600
	% share	21.7	3.4	18.4	9.5	0.7	-	25.8	7.1	13.4	100.0
Electricity, gas, water and waste management	Number	1 200	2 000	4 800	1 400	200	-	2 300	800	1 800	14 500
	% share	8.0	13.9	32.7	9.7	1.5	-	15.8	5.8	12.5	100.0
Construction	Number	18 500	15 600	53 300	14 300	100	-	173 300	10 000	60 400	345 400
	% share	5.3	4.5	15.4	4.1	*	-	50.2	2.9	17.5	100.0
Import, export, wholesale and retail trades	Number	197 400	26 900	215 000	180 700	264 200	-	11 800	13 300	51 300	960 600
	% share	20.6	2.8	22.4	18.8	27.5	-	1.2	1.4	5.3	100.0
Accommodation and food services	Number	28 000	900	11 200	11 100	206 300	-	3 000	900	46 200	307 500
	% share	9.1	0.3	3.6	3.6	67.1	-	1.0	0.3	15.0	100.0
Transportation, storage, postal and courier services	Number	22 900	11 000	33 800	49 200	33 100	-	6 900	138 600	43 800	339 200
	% share	6.8	3.2	10.0	14.5	9.7	-	2.0	40.8	12.9	100.0
Information and communications	Number	19 200	40 600	39 600	9 900	3 100	-	4 900	800	1 900	119 900
	% share	16.1	33.8	33.0	8.3	2.6	-	4.0	0.6	1.6	100.0
Financial services	Number	84 100	33 300	117 900	53 100	200	-	-	500	1 400	290 500
	% share	29.0	11.5	40.6	18.3	0.1	-	-	0.2	0.5	100.0
Real estate	Number	12 800	3 500	44 300	15 000	1 700	-	3 400	800	62 400	143 800
	% share	8.9	2.4	30.8	10.4	1.2	-	2.4	0.6	43.4	100.0
Professional and business services	Number	38 500	57 100	100 900	52 200	16 100	^	4 200	5 100	148 300	422 300
	% share	9.1	13.5	23.9	12.4	3.8	§	1.0	1.2	35.1	100.0
Social and personal services	Number	23 600	122 700	209 800	104 900	179 800	300	19 700	6 600	70 400	737 700
	% share	3.2	16.6	28.4	14.2	24.4	*	2.7	0.9	9.5	100.0
Total	Number	469 800	317 400	850 700	502 000	705 500	3 900	257 300	185 200	502 500	3 794 200
	% share	12.4	8.4	22.4	13.2	18.6	0.1	6.8	4.9	13.2	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.

3.70 With the wide application of IT at the workplace, the total requirements for IT workers are projected to be on an upward trend during the projection period, increasing at an average annual rate of 2.0% from 80 500 in 2012 to 98 000 in 2022. The manpower requirements of IT workers of the economy as a whole by IT-related occupation group in 2012 and 2022 are set out in **Table 3.28**.

Table 3.28: Manpower Requirements of IT Workers by IT-related Occupation Group in 2012 and 2022

IT-related Occupation Group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
IT managers	6 300	7.8	7 600	7.8	+ 1 300	+ 2.0%
IT professionals	41 200	51.2	51 700	52.8	+ 10 500	+ 2.3%
IT associate professionals	27 400	34.1	31 800	32.4	+ 4 300	+ 1.5%
IT sales workers	5 600	6.9	6 900	7.1	+ 1 400	+ 2.2%
IT personnel	80 500	100.0	98 000	100.0	+ 17 500	+ 2.0%

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

Manpower Requirements by Education Level

3.71 Manpower requirements are analysed by education level in addition to economic sector and occupation group. The details on the coverage of each education level adopted in MP2022 are set out in **Appendix IV**.

3.72 The overall demand for the manpower of different education levels will evolve in tandem with the development of our economy. Along with Hong Kong's transformation into a knowledge-based, high value-added economy, it is projected that the requirements for better-educated manpower in general will increase, while those of the less-educated manpower will decline, during the projection period from 2012 to 2022. Analyses on manpower requirements by education level are presented in the ensuing paragraphs.

Lower Secondary and Below

3.73 This education level covers the academic qualifications below Secondary Five. It is projected that the requirements for manpower at this education level will decrease considerably at an average annual rate of 2.1% from 955 700 in 2012 to 772 800 in 2022. The anticipated shrinkage in the requirements for the manpower with this education attainment is mainly attributable to the following factors. First, the demand for workers in the occupation groups associated with lower education attainment, such as *Craft and related workers; Drivers, plant and machinery operators, and assemblers; and Elementary occupations*, is expected to decline or grow only slightly 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

3.74 A large proportion of the manpower requirements at *upper secondary* level (i.e. Secondary Five, Six and Seven) are related to the occupation groups of *Clerical support workers* and *Service and sales workers*. There is a projected decrease in the requirements for *Clerical support workers* but the demand for *Service and sales workers* is anticipated to increase considerably during the projection period. The manpower needs with education of *upper secondary* are projected to grow at an average annual rate of 0.4% from 1 314 100 in 2012 to 1 366 200 in 2022.

Diploma

3.75 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* and *Clerical support workers*. The requirements for *Associate professionals* are expected to increase appreciably during the projection period. It is projected that the manpower requirements at the *diploma* level will increase considerably at an average annual rate of 3.1% from 138 900 in 2012 to 188 200 in 2022.

Sub-degree

3.76 Plenty of workers with *sub-degree* qualifications are engaged in such jobs as *Associate professionals*. Along with a projected increase in the requirements for *Associate professionals* and the higher expectation of employers for the education qualifications 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 2.9% from 178 900 in 2012 to 238 400 in 2022.

First Degree

3.77 The demand for better-educated workers is expected to be on an uptrend along with Hong Kong's transformation into a knowledge-based, high value-added economy. The requirements for *Managers and administrators*; *Professionals* as well as *Associate professionals* are expected to be on the rise during the projection period from 2012 to 2022. 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 3.3% from 696 600 in 2012 to 965 000 in 2022.

Postgraduate

3.78 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 3.3% from 190 900 in 2012 to 263 600 in 2022.

3.79 The manpower requirements of the overall economy by education level in 2012 and 2022 are shown in **Table 3.29**.

Table 3.29: Manpower Requirements by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	955 700	27.5	772 800	20.4	- 182 900	- 2.1%
Upper secondary	1 314 100	37.8	1 366 200	36.0	+ 52 100	+ 0.4%
Diploma	138 900	4.0	188 200	5.0	+ 49 300	+ 3.1%
Sub-degree	178 900	5.1	238 400	6.3	+ 59 500	+ 2.9%
First degree	696 600	20.0	965 000	25.4	+ 268 400	+ 3.3%
Postgraduate	190 900	5.5	263 600	6.9	+ 72 700	+ 3.3%
All levels	3 475 100	100.0	3 794 200	100.0	+ 319 100	+ 0.9%

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

Overview of Sector-specific Manpower Requirements by Education Level

3.80 The composition of the manpower of different sectors in terms of educational mix 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 lower education qualifications.

3.81 The economic sectors with a better-educated workforce include *Financial services* and *Information and communications*. It is projected that more than 70% of the manpower needs of *Financial services* and over 60% of those of *Information and communications* will come from the labour force with *first degree* or *postgraduate* qualifications in 2022.

3.82 On the other hand, the sectors with a workforce of relatively lower education attainment include *Accommodation and food services* (some 86% of its manpower requirements are expected to possess qualifications of *upper secondary* or below in 2022), *Construction* (75%), *Transportation, storage, postal and courier services* (74%), *Manufacturing* (68%) and *Real estate* (64%).

3.83 The manpower requirements of different sectors by education level in 2012 and 2022 are set out in **Table 3.30** and **Table 3.31**. More detailed statistics on the manpower requirements for workers of each of the six education levels by economic sector are set out in **Tables A7.46** to **A7.51** in **Appendix VII**.

Table 3.30: Manpower Requirements by Economic Sector and Education Level in 2012

Economic sector		Lower Secondary & below	Upper Secondary	Diploma	Sub- degree	First degree	Post- graduate	All levels
Agriculture, fishing and quarrying	Number	3 700	1 100	^	^	300	300	5 400
	% share	67.5	20.3	§	§	5.4	5.8	100.0
Manufacturing	Number	42 700	43 100	5 100	6 400	14 200	2 800	114 200
	% share	37.4	37.7	4.4	5.6	12.4	2.5	100.0
Electricity, gas, water and waste management	Number	4 100	4 500	1 200	1 200	3 000	1 100	15 100
	% share	27.4	29.8	7.7	8.1	19.8	7.2	100.0
Construction	Number	148 200	92 000	16 400	11 500	27 700	4 600	300 600
	% share	49.3	30.6	5.5	3.8	9.2	1.5	100.0
Import, export, wholesale and retail trades	Number	185 700	437 900	38 800	50 200	172 800	30 300	915 600
	% share	20.3	47.8	4.2	5.5	18.9	3.3	100.0
Accommodation and food services	Number	144 100	110 100	6 000	5 600	12 500	2 200	280 500
	% share	51.4	39.3	2.1	2.0	4.5	0.8	100.0
Transportation, storage, postal and courier services	Number	126 900	136 700	10 300	11 000	33 600	5 800	324 300
	% share	39.1	42.1	3.2	3.4	10.4	1.8	100.0
Information and communications	Number	4 500	28 600	6 100	8 400	44 900	11 800	104 200
	% share	4.3	27.4	5.8	8.1	43.1	11.3	100.0
Financial services	Number	5 600	72 000	8 000	12 700	101 500	33 100	233 000
	% share	2.4	30.9	3.4	5.5	43.6	14.2	100.0
Real estate	Number	42 400	51 500	4 100	7 500	20 200	4 500	130 200
	% share	32.6	39.6	3.1	5.7	15.5	3.4	100.0
Professional and business services	Number	122 400	102 900	14 200	21 000	81 900	21 800	364 100
	% share	33.6	28.3	3.9	5.8	22.5	6.0	100.0
Social and personal services	Number	125 400	233 700	28 700	43 300	184 000	72 600	687 700
	% share	18.2	34.0	4.2	6.3	26.8	10.6	100.0
Total	Number	955 700	1 314 100	138 900	178 900	696 600	190 900	3 475 100
	% share	27.5	37.8	4.0	5.1	20.0	5.5	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 3.31: Projected Manpower Requirements by Economic Sector and Education Level in 2022

Economic sector		Lower Secondary & below	Upper Secondary	Diploma	Sub- degree	First degree	Post- graduate	All levels
Agriculture, fishing and quarrying	Number	2 700	1 400	^	200	300	500	5 100
	% share	53.4	27.7	§	3.6	5.5	9.7	100.0
Manufacturing	Number	30 600	42 400	5 900	8 100	17 100	3 500	107 600
	% share	28.5	39.4	5.5	7.5	15.9	3.3	100.0
Electricity, gas, water and waste management	Number	3 400	3 800	1 100	1 400	3 700	1 200	14 500
	% share	23.5	26.4	7.3	9.3	25.2	8.2	100.0
Construction	Number	144 400	115 100	22 400	13 700	42 200	7 600	345 400
	% share	41.8	33.3	6.5	4.0	12.2	2.2	100.0
Import, export, wholesale and retail trades	Number	123 000	444 000	50 000	68 200	233 100	42 400	960 600
	% share	12.8	46.2	5.2	7.1	24.3	4.4	100.0
Accommodation and food services	Number	121 000	142 500	10 400	9 200	20 400	3 900	307 500
	% share	39.4	46.3	3.4	3.0	6.6	1.3	100.0
Transportation, storage, postal and courier services	Number	100 500	149 500	13 300	16 500	50 400	9 000	339 200
	% share	29.6	44.1	3.9	4.9	14.9	2.7	100.0
Information and communications	Number	2 800	24 700	7 900	10 600	57 800	16 100	119 900
	% share	2.4	20.6	6.6	8.8	48.2	13.4	100.0
Financial services	Number	3 100	52 100	11 000	17 800	156 300	50 100	290 500
	% share	1.1	17.9	3.8	6.1	53.8	17.3	100.0
Real estate	Number	37 600	54 500	4 700	9 500	30 800	6 700	143 800
	% share	26.1	37.9	3.3	6.6	21.4	4.7	100.0
Professional and business services	Number	120 200	108 900	19 200	28 900	113 700	31 400	422 300
	% share	28.5	25.8	4.6	6.9	26.9	7.4	100.0
Social and personal services	Number	83 400	227 300	42 300	54 300	239 300	91 200	737 700
	% share	11.3	30.8	5.7	7.4	32.4	12.4	100.0
Total	Number	772 800	1 366 200	188 200	238 400	965 000	263 600	3 794 200
	% share	20.4	36.0	5.0	6.3	25.4	6.9	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.

3.84 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 A7.52 to A7.93** in **Appendix VII**.

CHAPTER 4

Manpower Resource Balance

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Manpower Resource Balance

4.1 Manpower resource balance (MRB) refers to the quantitative difference between MSP and MRP in the context of MP2022. 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, derived by comparing the total MSP with the total MRP, evaluates the manpower resource balance of the whole economy. By comparing the findings of MSP with MRP by education attainment, we can analyse if there are potential manpower imbalances at different education levels. 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 2022 is projected to fall short of the total manpower requirements, with an overall shortage of 117 900. The anticipated manpower shortfall is a result of a slower growth in the projected manpower supply than in the projected manpower requirements during the projection period from 2012 to 2022. During this period, the total projected manpower requirements of our economy are expected to increase at an average annual rate of 0.9%, as against 0.4% for the total manpower supply (see *Chapters 2 and 3*). The slow growth in the local manpower supply is attributable to an ageing population and its low fertility rate.

Manpower Situation at Different Education Levels

4.4 On the basis of the analyses on MSP and MRP by education attainment presented in previous chapters, the projected MRBs at different education levels in 2022 are presented below.

- (a) *Lower secondary and below* – it is projected that there will be a shortage of 55 700 for the manpower at the education level of *lower secondary and below* in 2022. 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 2012 to 2022. It is broadly estimated that some 250 000 workers with an education of *lower secondary and below* will go into retirement during the projection period;
- (b) *Upper secondary* – it is anticipated that there will be a shortfall of 94 100 for the manpower with this education attainment in 2022. The supply of the labour force with *upper secondary* qualifications is expected to decrease in the years ahead, amidst the multiple quality progression pathways available to our youth to pursue post-secondary education and the anticipated retirement of the workers with such education attainment during the projection period. It is broadly estimated that some 100 000 workers with education of *upper secondary* will retire from 2012 to 2022. The projected manpower shortfall is mainly a result of a diminishing manpower pool with such qualifications in the future;
- (c) *Diploma* – the manpower with *diploma* qualifications is expected to expand appreciably during the period from 2012 to 2022, along with the development of Hong Kong's diversified post-secondary education programmes. It is projected that there will be a manpower surplus of 16 300 at this education level in 2022, with the relevant manpower supply growing faster than the manpower requirements during the projection period;

- (d) *Sub-degree* – with the expansion of the sub-degree programmes over the past decade, the manpower supply with *sub-degree* qualifications is projected to grow significantly during the period from 2012 to 2022. It is expected that there will be a manpower surplus of 13 000 at this education level in 2022, with the relevant manpower supply exceeding the manpower requirements during the projection period;
- (e) *First degree* – the demand for workers with qualifications of *first degree* is projected to be growing considerably along with Hong Kong’s continuous transformation into a knowledge-based, high value-added economy. It is anticipated that there will be a manpower shortfall of 50 800 for this labour segment in 2022. Since it is common for workers with *postgraduate* qualifications to take up jobs offered to *first degree* holders, the MRB at *first degree* level should be merged with that at *postgraduate* level for a more comprehensive analysis (see paragraphs 4.5 and 4.6); and
- (f) *Postgraduate* – with our society embracing life-long learning culture, more and more people have been pursuing education of higher degrees over the years. The requirements for manpower with *postgraduate* qualifications are expected to be on an increasing trend along with the development of our economy during the projection period. Nonetheless, the supply of manpower with *postgraduate* qualifications is anticipated to grow faster than the manpower requirements, leading to a projected manpower surplus of 53 400 at this education level in 2022. As mentioned in (e) above, the MRB of the manpower at *postgraduate* level should be merged with that of *first degree* for a more comprehensive analysis (see paragraphs 4.5 and 4.6).

Projected MRBs by Broad Education Level

4.5 In the labour market, there is some degree of substitutability between workers at different education levels from employers’ perspective. For instance, it is common for workers with *postgraduate* qualifications to take up jobs offered to *first degree* holders. Thus, the MRBs at *first degree* and *postgraduate* levels can be pooled together for analytical

purposes. With the plentiful supply of workers with *diploma* and *sub-degree* qualifications and as Hong Kong transforms into a knowledge-based and high value-added economy in the years ahead, employers may take this opportunity to enhance their competitiveness and productivity by engaging more workers with these qualifications, who would possess more discipline-specific knowledge, for jobs requiring education attainment below *sub-degree* level. Thus, the analyses of MRBs at broad education levels, namely, (i) *lower secondary and below*; (ii) the aggregate education levels encompassing *upper secondary, diploma* and *sub-degree*; and (iii) the aggregate category of *first degree* and *postgraduate*, serve useful purposes.

4.6 Analysed at broad education levels, it is projected that there will be manpower shortfalls of 55 700 at the levels of *lower secondary and below* and 64 800 at the aggregate education levels encompassing *upper secondary, diploma* and *sub-degree* in 2022. The manpower at the levels of *first degree* or above is expected to be more or less in balance with only a slight surplus of about 2 600.

4.7 The projections of MRB at detailed and broad education levels in 2022 are set out in **Table 4.1**.

Table 4.1: Projected Manpower Resource Balance by Education Level in 2022

Education level	(a) Projected manpower supply in 2022	(b) Projected manpower requirements in 2022	(c) = (a) – (b) Projected manpower resource balance in 2022 [Surplus (+) / shortfall (-)]
Lower secondary and below	717 000	772 800	- 55 700
Upper secondary	1 272 100	1 366 200	- 94 100
Diploma	204 600	188 200	+ 16 300
Sub-degree	251 300	238 400	+ 13 000
First degree	914 300	965 000	- 50 800
Postgraduate	317 000	263 600	+ 53 400
All levels	3 676 300	3 794 200	- 117 900

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

Scenario Study

4.8 Our economy has seen cycles and fluctuations over years, which would in turn affect the manpower supply and requirements. The findings of MSP, MRP and MRB presented in *Chapters 2 and 3* and paragraphs 4.3 to 4.7 of this Chapter correspond to a scenario which assumes the trend growth of real GDP to be around 4% per annum over the projection period (the official medium-term forecast at the time when the findings of MP2022 were being compiled).

4.9 A broad brush scenario study has also been conducted at the macro level to take into account the impact of economic cycles and fluctuations on the total manpower supply, total manpower requirements and the overall MRB in MP2022, by assuming a ± 1 percentage point range for the real GDP trend growth over the projection period¹³. As manpower requirements bear a stronger positive relationship with changes in economic situation when compared with manpower supply, the projected manpower shortfall in 2022 would be smaller when the economy is assumed to grow at a slower trend rate and vice versa. The projected MRBs are estimated to range from -59 700 (an assumed 3% real GDP trend growth) to -177 700 (an assumed 5% real GDP trend growth). The findings of projected MRBs under different assumptions on real GDP trend growth are presented in **Table 4.2**.

¹³ Since MP2022 covers a 10-year projection period, reference has been made to the historical 10-year real GDP trend growth. As the trend growth rate largely hovered within a range of 2 percentage points during 1998 to 2012, a ± 1 percentage point range for the real GDP trend growth over the projection period has been adopted when conducting the scenario study for MP2022.

Table 4.2: Projected Manpower Resource Balance in 2022 under Different Real GDP Trend Growth Rates

Real GDP trend growth	(a) Projected manpower supply in 2022	(b) Projected manpower requirements in 2022	(c) = (a) – (b) Projected manpower resource balance in 2022 [Surplus (+) / shortfall (-)]
5%	3 703 600	3 881 300	- 177 700
4%*	3 676 300	3 794 200	- 117 900
3%	3 649 200	3 708 900	- 59 700

* Adopted for the main findings of MP2022

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

Appendix I

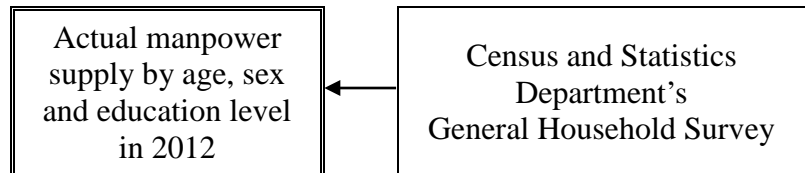
Schema on Compilation of Manpower Supply Projection to 2022

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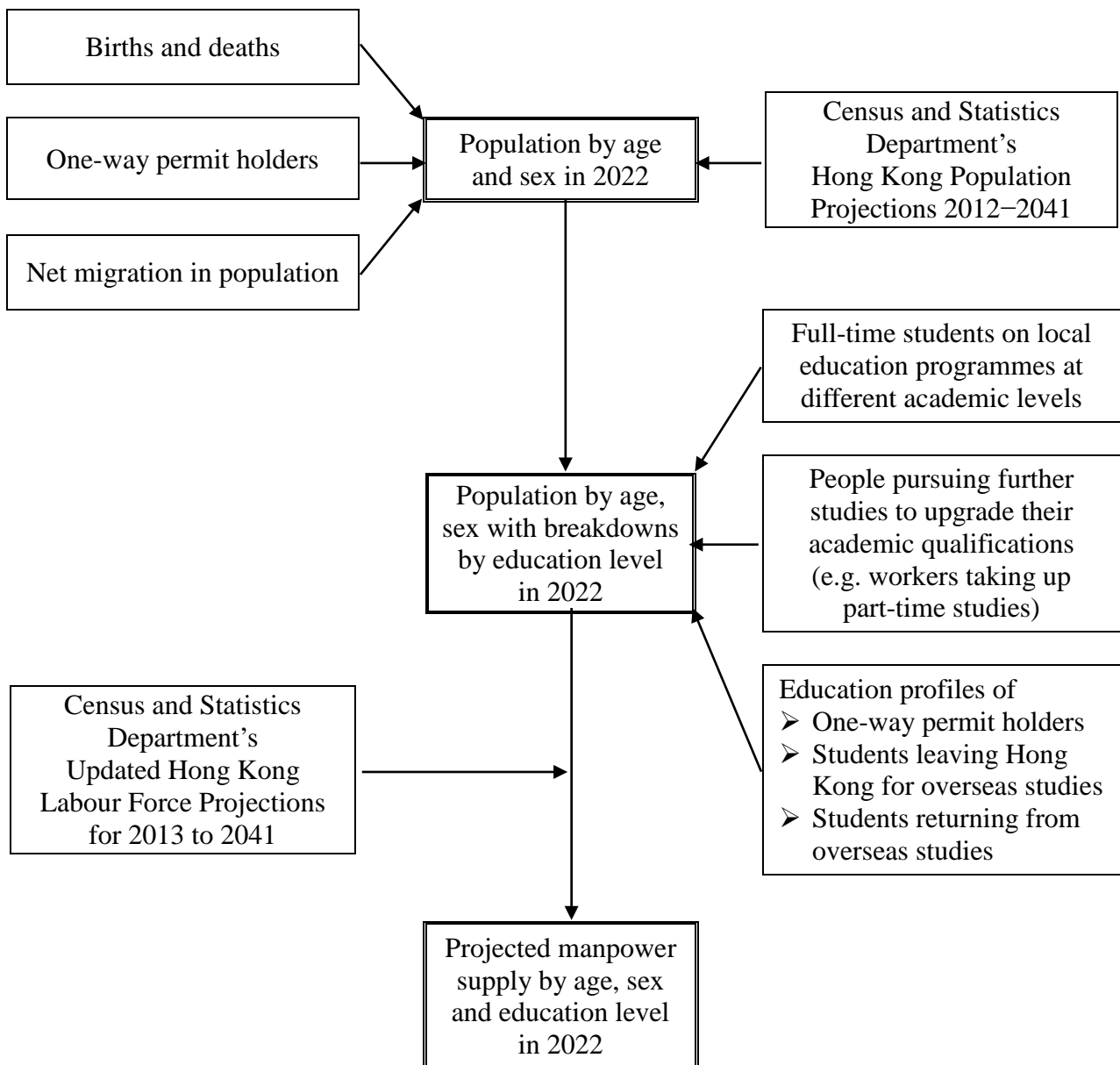
Appendix I

Schema on Compilation of Manpower Supply Projection to 2022

Base Year (i.e. 2012)



Projections up to 2022



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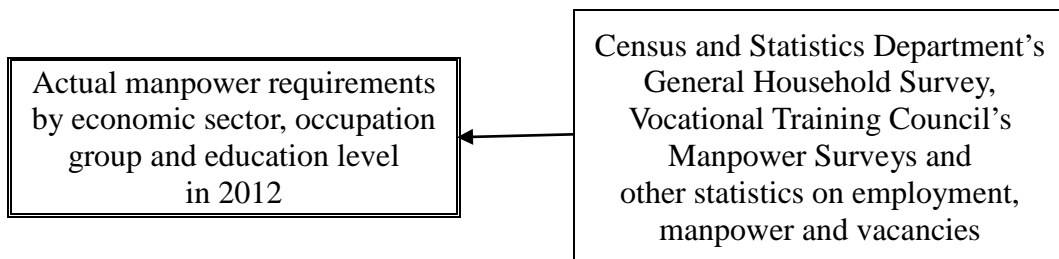
Appendix II

Schema on Compilation of Manpower Requirement Projection to 2022

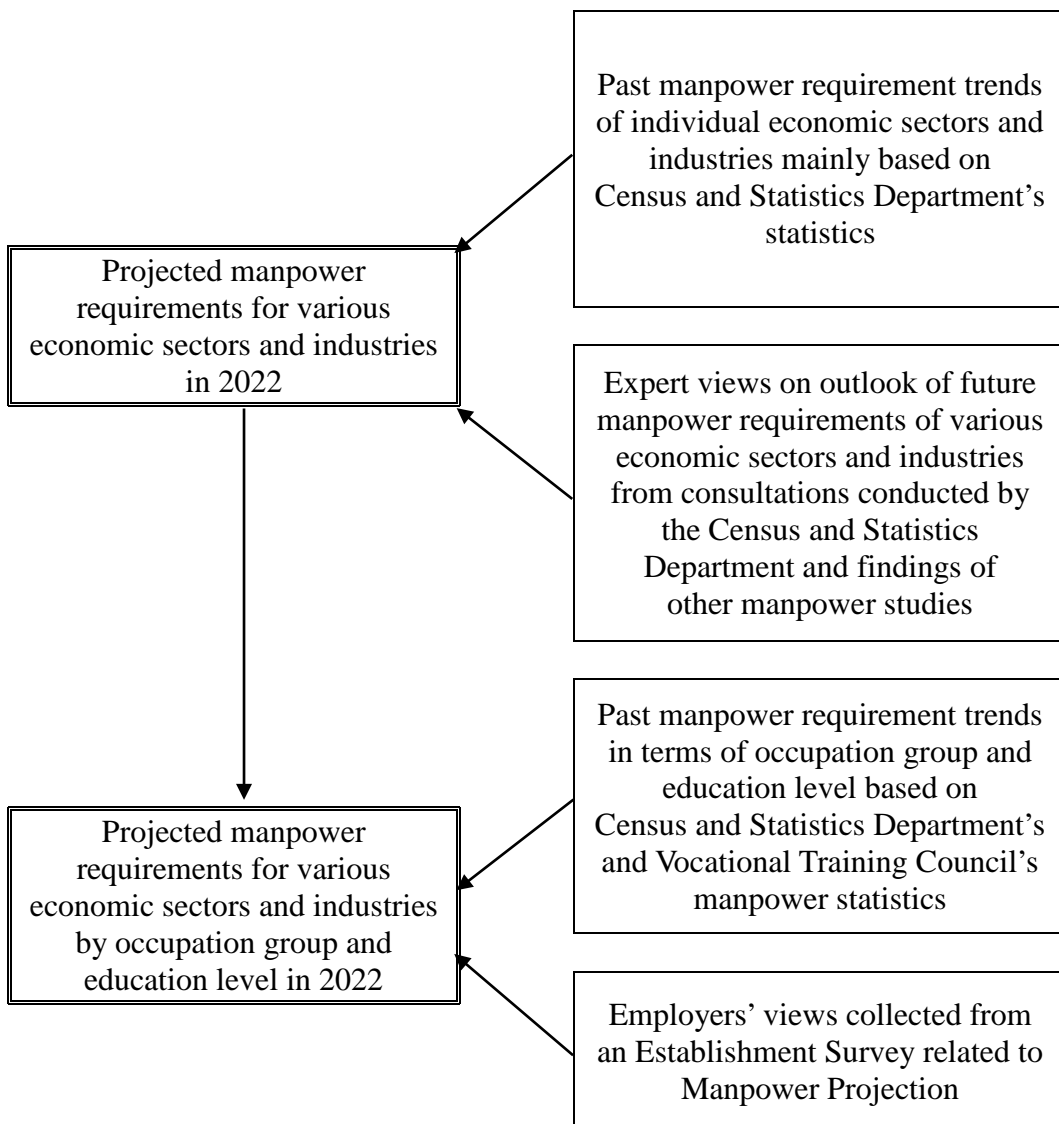
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Schema on Compilation of Manpower Requirement Projection to 2022

Base Year (i.e. 2012)



Projections up to 2022



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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 MP2022, 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 2022. 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 2012 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 28 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 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 selected industries that are of importance 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, such as the four industry clusters under the Economic Development Commission's ambit. It should be noted that the pillar industries and the selected industries cut across the various conventional economic sectors and that there is some degree of overlapping in coverage between these industries. Thus, the total manpower requirements of these industries cannot be derived by simple summation of the manpower figures of the individual pillar/selected industries.

4. Details of the coverage of the conventional economic sectors, the pillar industries and the selected industries adopted in MP2022 are set out at **Appendix V** of this report.

Projection Methodology of Manpower Requirement by Economic Sector

5. In MP2022, the manpower requirements of various economic sectors and industries were projected up to 2022, with 2012 as the base year. An inter-departmental task group with members from relevant government bureaux/departments and statutory training bodies was set up to oversee the compilation of MRP. A two-step statistical process (i.e. a quantitative projection method and then followed by a qualitative review) was adopted to project the manpower requirements of individual economic sectors and industries in 2022.

Step 1 – Quantitative projection

6. The manpower requirements of individual economic sectors and industries in the base year were worked out primarily on the basis of C&SD's employment³ and vacancy statistics. As the employment statistics on the pillar industries for 2012 were not finalised yet at the time the projections were being compiled in the latter half of 2013, reference was made to the provisional employment figures derived on the basis of the latest available statistics together with the relevant historical

³ Employment statistics refer to the Composite Employment Estimates compiled by C&SD.

manpower statistics in compiling MRP of these pillar industries. As for *Innovation and technology industries; Testing and certification services; Culture and creative industries and Environmental industries*, 2011 was set as the base year of their projections (instead of 2012 as for other sectors and industries) as their manpower statistics for 2012 were unavailable at the time the projections were being compiled in the latter half of 2013. The employment statistics of the pillar industries and selected industries concerned for 2012 were later released by C&SD in early 2014.

7. Preliminary estimates of the projected manpower requirements in 2022 were first derived, if feasible, by means of statistical projection models⁴ drawing on the broad trends of the actual manpower requirements of different economic sectors and industries during the period from 2000 to 2012. The operational details are as follows. The projection models which could describe the historical underlying manpower trends of the individual economic sectors and industries nicely (i.e. with good fitting performance statistically) were identified and the average annual rates of change in respect of these economic sectors and industries within the projection period were calculated. The preliminary set of MRP in 2022 in respect of those economic sectors and industries with good-fit models was 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.

8. For those economic sectors and industries for which the trend-fitting statistical models were considered not good enough (e.g. because of abrupt or erratic changes in their manpower requirements over the past years), various alternative statistical processes were employed to estimate their projected annual average rates of change. For example, a truncated data series would be used for the trend analysis, or the actual average annual rate of change from 2000 to 2012 would be adopted for projection using extrapolation method, if deemed appropriate.

9. The statistical model-fitting approach was not applied to project the manpower requirements of some selected industries, including *Innovation*

⁴ Various statistical projection models such as linear model, parabola model, log linear model and reciprocal linear model were fitted to the historical data series.

and technology industries; Testing and certification services; Cultural and creative industries; and Environmental industries, owing to the short series of their historical manpower statistics. Instead, the Delphi method⁵ was adopted to estimate the future manpower trends of these selected industries. Under the Delphi method, a panel of experts was set up in consultation with the relevant government bureaux/departments in relation to each of the selected industries. These experts were invited to provide views on the future growth rates of the manpower requirements of the industries under their purview on an anonymous basis. General consensus of opinions among the experts was obtained after two rounds of iterative data collection process. The estimated average annual rate of change of a specific industry during the projection period derived on the basis of the industry experts' combined opinion was then applied to the base-year actual manpower requirements of that industry for compiling its projected manpower requirements in 2022.

Step 2 – Qualitative review

10. The second step was to review and fine-tune the preliminary projection results derived from the quantitative method described in step 1 above with reference to a host of information obtained from various sources. These include, inter alia, the findings of a consultation with businesses, trade associations, academia, relevant government bureaux/departments and statutory training bodies on the future manpower requirements of individual economic sectors and industries, as well as an MP-related establishment survey on employers' views on the current and future manpower needs. This information, coupled with relevant data obtained from other C&SD's or the Vocational Training Council's manpower-related surveys and new government initiatives known at the time the projections were being prepared, provided the inter-departmental task group with useful references on the outlook of the manpower requirements in different economic sectors and industries in reviewing and fine-tuning the preliminary set of projections.

⁵ The Delphi method is an effective and common forecasting technique. Knowledge and experience of a selected group of 5 to 20 experts in the area of interest are tapped to form a consensus of combined opinion about what is likely to occur in specified time periods by administering a series of questionnaires. Through a facilitator who will prepare anonymous summary of the experts' forecasts from the previous round of questionnaire and the reasons they provided for their forecasts, the experts are encouraged to revise their earlier estimates, if deemed appropriate. During the interactive processes, the range of forecasts provided by individual experts will be narrowed down to an acceptable level, usually in two to three rounds of answering the questionnaires.

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, or equivalent.
Upper secondary	Secondary 5 – 7, 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), or equivalent.
Diploma	<p>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; Enrolled Nurse training programmes; general Diploma/Certificate programmes of the Prince Philip Dental Hospital (PPDH); or equivalent. These diploma programmes usually require the completion of upper secondary education as the minimum entrance qualifications.</p> <p>Also included are technical and vocational education programmes at the craft level, such as those offered by HKIVE and other member institutions of VTC, or equivalent. These craft programmes usually require the completion of lower secondary education as the minimum entrance qualifications (including apprenticeship), or equivalent.</p>

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
Sub-degree	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; Registered Nurse training programmes; Higher/Professional Diplomas of PPDH; or equivalent.
First Degree	First degrees offered by local or non-local education institutions, or equivalent.
Postgraduate	Higher degrees (e.g. master's 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.

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 domestic wholesale trade on own account or on a fee or contract basis (commission trade), with goods procured from local manufacturers, local importers or other local wholesalers.
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	
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.
Miscellaneous transportation 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, and other land transport services; and ship owners and operators of sea-going passenger vessels, and passenger vessels moving between Hong Kong and the ports in Pearl River Delta, inland passenger water transport. It also includes air transport (other than freight), as well as car park operation; vehicular tunnel, bridge and highway operators; service activities incidental to land transportation; and port facilities operators (except container and marine cargo terminals).
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.
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.

Economic sector	Coverage
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 the 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 are included. It also includes establishments acting as agents (i.e. 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.
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.
Engineering and technical services not related to construction and real estate activities, business management and consultancy services	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. It also includes activities of nursing homes such as nursing homes for the elderly.
Social and personal services (other than human health activities)	It includes public administration; education; residential care activities (except nursing homes); social work activities without accommodation; 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 the 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 are included. It also includes establishments acting as agents (i.e. 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.
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 domestic wholesale trade on own account or on a fee or contract basis (commission trade), with goods procured from local manufacturers, local importers or other local wholesalers.

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.
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
Engineering and technical services not related to construction and real estate activities, business management and consultancy services	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 services	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 researches, 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.

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
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.
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.
Industry clusters of Economic Development Commission	
EDC industry cluster 1 – Transportation	<p>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.</p> <p>It also 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).</p>
EDC industry cluster 2 – Convention and exhibition industries and tourism	It includes convention and trade show organising services, which refer to exhibition organising services (except athletic and art), seminar organising services, etc. It also includes inbound and outbound tourism (please refer to the coverage of tourism under pillar industry for details).

Selected industry	Coverage
<p>EDC industry cluster 3</p> <ul style="list-style-type: none"> – Manufacturing industries, innovative technology, and cultural and creative industries 	<p>Manufacturing 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 are the specialised repair and maintenance of industrial and commercial machinery and equipment.</p> <p>The Innovative technology industries sector mainly covers Research and Development (R&D) activities in the business sector as well as higher education and public technology support organisations. 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 Innovative 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>The Cultural and creative industries sector covers 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.</p>
<p>EDC industry cluster 4</p> <ul style="list-style-type: none"> – Professional services 	<p>It includes legal services, accounting, auditing and bookkeeping services, engineering and technical services not related to construction and real estate activities, business management and consultancy services, architectural, surveying and engineering services related to real estate and construction.</p>

Appendix VI

Coverage of Occupation Groups

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Coverage of Occupation Groups

Occupation Group	Job Duties	Examples
1. Managers and administrators	➤ To plan, formulate, organise, co-ordinate, control and direct policies and operations of enterprises and organisations	Managing directors, chief executive officers, finance director, general managers; company secretaries; medical personnel (such as doctors) with managerial and administrative duties as their major duties, 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 and restaurant managers, factory managers.

Occupation Group	Job Duties	Examples
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; lawyers, accountants, auditors, investment consultants, business management consultants, public relations consultants; system analysts, IT strategist, multimedia production managers, network engineers, Information and Communication Technologies (ICT) researchers; social workers, religious professionals; news editors, journalists and reporters; translators and interpreters; film, television and stage directors and producers, creative and performing artists.</p>
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, nurses and midwives; principals and teachers of primary schools and pre-primary schools; training instructors; ship pilots and air traffic controllers; statistical officers, law clerks; accounting supervisors, credit analysts; sales representatives, estate agents, estate managers and officers, customer services officers, public relation officers; film, television and stage actors.</p>

Occupation Group	Job Duties	Examples
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 	Stenographers, personal 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.
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 	Flight attendants, travel guides; chefs and cooks; waiters and bartenders; hairdressers, beauticians and masseurs; housekeeping supervisors; private tutors; shop salespersons; cashiers and ticket clerks; models; baby-sitters and child care workers; care workers in health institutions, residential care home for the elderly; life guards; transport conductors and railway station officers.
6. Agricultural and fishery workers	<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 	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.

Occupation Group	Job Duties	Examples
7. 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. 	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.
8. 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 	Drivers; sawmill sawyers; paper makers; chemical and photographic products plant and machine operators; power-generating plant operators; heating and ventilation equipment operators; concrete mixer operators; metal finishers and electroplaters; food processing machine operators; textile, rubber, plastic and paper products machine operators; mechanical and electrical machinery assemblers; electronic equipment assemblers; metal, rubber, plastic and leather products assemblers; wood and related materials products assemblers; seamen.
9. 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 	Domestic helpers and cleaners; messengers and couriers; warehouse porters and transport labourers; security guards, watchmen; ward attendants; freight handlers; lift operators; dishwashers; handbill and news distributors; garbage collectors.

Appendix VII

Supplementary Statistical Tables (Tables A7.1 – A7.93)

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- Table A7.69 Manpower Requirements of Financial Institutions (other than Banks and Insurance) Industry by Education Level in 2012 and 2022
- Table A7.70 Manpower Requirements of Insurance Industry by Education Level in 2012 and 2022
- Table A7.71 Manpower Requirements of Real Estate Industry by Education Level in 2012 and 2022
- Table A7.72 Manpower Requirements of Legal Services Industry by Education Level in 2012 and 2022
- Table A7.73 Manpower Requirements of Accounting, Auditing and Bookkeeping Services Industry by Education Level in 2012 and 2022
- Table A7.74 Manpower Requirements of Engineering and Technical Services not Related to Construction and Real Estate Activities, Business Management and Consultancy Services Industry by Education Level in 2012 and 2022
- Table A7.75 Manpower Requirements of Design, Advertising and Related Services Industry by Education Level in 2012 and 2022
- Table A7.76 Manpower Requirements of Architectural, Surveying and Engineering Services Related to Real Estate and Construction Industry by Education Level in 2012 and 2022
- Table A7.77 Manpower Requirements of Miscellaneous Professional and Business Services Industry by Education Level in 2012 and 2022
- Table A7.78 Manpower Requirements of Human Health Activities Industry by Education Level in 2012 and 2022
- Table A7.79 Manpower Requirements of Social and Personal Services (other than Human Health Activities) Industry by Education Level in 2012 and 2022
- Table A7.80 Manpower Requirements of Financial Services Industry by Education Level in 2012 and 2022
- Table A7.81 Manpower Requirements of Trading and Logistics Industry by Education Level in 2012 and 2022

- Table A7.82 Manpower Requirements of Professional Services and Other Producer Services Industry by Education Level in 2012 and 2022
- Table A7.83 Manpower Requirements of Tourism Industry by Education Level in 2012 and 2022
- Table A7.84 Manpower Requirements of Information Technology and Information Services Industry by Education Level in 2012 and 2022
- Table A7.85 Manpower Requirements of Innovation and Technology Industries by Education Level in 2011 and 2022
- Table A7.86 Manpower Requirements of Testing and Certification Services Industry by Education Level in 2011 and 2022
- Table A7.87 Manpower Requirements of Cultural and Creative Industries by Education Level in 2011 and 2022
- Table A7.88 Manpower Requirements of Environmental Industries by Education Level in 2011 and 2022
- Table A7.89 Manpower Requirements of EDC Industry Cluster 1 - Transportation by Education Level in 2012 and 2022
- Table A7.90 Manpower Requirements of EDC Industry Cluster 2 - Convention and Exhibition Industries and Tourism by Education Level in 2012 and 2022
- Table A7.91 Manpower Requirements of EDC Industry Cluster 3 - Manufacturing Industries, Innovative Technology and Cultural and Creative Industries by Education Level in 2012 and 2022
- Table A7.92 Manpower Requirements of EDC Industry Cluster 4 - Professional Services by Education Level in 2012 and 2022
- Table A7.93 Manpower Requirements of IT Workers by Education Level in 2012 and 2022

Table A7.1: Population by Age Group, Sex and Education Level in 2012

Age Group	sex	Lower Secondary and below	Upper Secondary	Diploma	Sub-degree	First Degree	Post-graduate	Total
0 - 4	Male	136 400						136 400
	Female	126 100						126 100
	Both sexes	262 500						262 500
5 - 9	Male	125 800						125 800
	Female	118 500						118 500
	Both sexes	244 300						244 300
10 - 14	Male	158 200						158 200
	Female	148 200						148 200
	Both sexes	306 400						306 400
15 - 19	Male	118 400	94 900	1 300	500			215 000
	Female	102 500	100 000	1 000	600			204 100
	Both sexes	220 900	194 900	2 300	1 000			419 100
20 - 24	Male	18 400	140 500	11 900	19 900	33 500	2 100	226 300
	Female	9 600	137 800	9 900	20 000	42 200	2 100	221 600
	Both sexes	28 000	278 300	21 800	39 900	75 700	4 200	447 900
25 - 29	Male	21 900	84 200	11 700	18 200	78 500	11 000	225 500
	Female	19 200	86 400	11 500	17 300	88 300	14 700	237 400
	Both sexes	41 100	170 600	23 200	35 600	166 800	25 600	462 900
30 - 34	Male	33 600	82 800	11 600	13 500	64 700	21 800	227 800
	Female	37 700	97 200	12 400	13 700	73 500	20 700	255 200
	Both sexes	71 300	179 900	23 900	27 200	138 200	42 400	483 000
35 - 39	Male	47 100	81 900	11 900	12 500	59 700	20 400	233 600
	Female	62 400	106 300	10 900	12 500	60 900	17 400	270 500
	Both sexes	109 500	188 200	22 900	25 000	120 700	37 800	504 100
40 - 44	Male	57 900	92 700	9 100	9 600	52 900	18 200	240 500
	Female	81 700	123 600	11 100	12 000	49 300	15 200	292 900
	Both sexes	139 600	216 300	20 200	21 600	102 200	33 400	533 400
45 - 49	Male	88 000	114 000	10 000	13 800	42 800	16 900	285 500
	Female	115 200	145 700	11 400	10 600	35 900	9 600	328 300
	Both sexes	203 200	259 600	21 400	24 400	78 600	26 500	613 800
50 - 54	Male	128 200	111 900	8 400	13 600	34 600	14 700	311 300
	Female	150 300	121 100	7 800	8 900	22 000	6 600	316 800
	Both sexes	278 500	233 000	16 200	22 500	56 600	21 400	628 100
55 - 59	Male	144 200	75 600	4 400	10 200	25 000	7 700	267 200
	Female	172 500	69 200	4 500	5 400	11 600	4 200	267 400
	Both sexes	316 700	144 800	8 900	15 600	36 600	11 900	534 600
60 - 64	Male	127 300	57 800	2 800	7 100	13 800	4 600	213 500
	Female	152 200	45 000	2 800	3 400	8 500	1 300	213 200
	Both sexes	279 500	102 900	5 600	10 600	22 200	5 900	426 700
65 +	Male	322 700	81 700	6 900	8 200	32 900	3 500	455 900
	Female	435 600	56 000	7 400	7 100	17 000	1 000	524 000
	Both sexes	758 300	137 700	14 300	15 300	49 900	4 500	979 900
Total	Male	1 528 100	1 018 000	90 000	127 100	438 400	120 900	3 322 500
	Female	1 731 800	1 088 300	90 600	111 500	409 200	92 800	3 524 200
	Both sexes	3 259 900	2 106 200	180 600	238 600	847 600	213 700	6 846 700

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 2022

Age Group	sex	Lower Secondary and below	Upper Secondary	Diploma	Sub-degree	First Degree	Post-graduate	Total
0 - 4	Male	134 800						134 800
	Female	124 600						124 600
	Both sexes	259 400						259 400
5 - 9	Male	147 600						147 600
	Female	136 200						136 200
	Both sexes	283 800						283 800
10 - 14	Male	182 800						182 800
	Female	164 000						164 000
	Both sexes	346 800						346 800
15 - 19	Male	73 600	67 200	1 700	600	300		143 500
	Female	67 400	64 000	1 700	900	600		134 500
	Both sexes	141 000	131 200	3 400	1 500	900		278 000
20 - 24	Male	500	96 900	18 400	22 000	25 200	1 100	164 200
	Female	1 400	69 900	15 200	15 400	57 700	1 800	161 300
	Both sexes	1 900	166 800	33 600	37 400	82 900	2 900	325 500
25 - 29	Male	8 500	94 500	23 000	33 800	42 900	13 400	216 100
	Female	15 900	69 700	17 400	16 500	87 600	21 800	229 000
	Both sexes	24 400	164 200	40 500	50 300	130 500	35 100	445 000
30 - 34	Male	17 900	64 100	17 300	33 300	75 100	23 000	230 600
	Female	38 000	68 200	15 900	25 900	91 000	33 200	272 200
	Both sexes	55 900	132 300	33 100	59 200	166 100	56 200	502 800
35 - 39	Male	24 500	81 900	10 700	16 900	74 400	22 400	230 900
	Female	54 200	91 100	11 500	16 100	90 100	28 800	291 900
	Both sexes	78 800	173 100	22 300	32 900	164 500	51 200	522 800
40 - 44	Male	38 600	79 000	12 500	12 700	61 400	27 200	231 400
	Female	67 900	98 000	11 100	12 500	71 600	28 400	289 400
	Both sexes	106 600	176 900	23 600	25 200	133 000	55 500	520 800
45 - 49	Male	53 000	79 800	13 000	11 400	58 900	23 200	239 300
	Female	86 500	105 900	10 300	11 400	59 000	23 000	296 000
	Both sexes	139 500	185 600	23 300	22 800	117 900	46 100	535 200
50 - 54	Male	64 100	94 400	8 700	9 300	54 700	20 200	251 300
	Female	99 100	127 100	12 100	12 100	51 200	18 400	320 000
	Both sexes	163 100	221 500	20 800	21 300	105 900	38 600	571 300
55 - 59	Male	88 400	110 300	9 400	13 100	40 800	17 500	279 500
	Female	122 700	141 400	13 800	10 400	35 100	10 800	334 200
	Both sexes	211 100	251 600	23 200	23 600	76 000	28 300	613 700
60 - 64	Male	123 200	104 200	7 800	12 800	31 900	14 500	294 300
	Female	152 800	114 000	7 900	9 200	20 000	7 700	311 600
	Both sexes	276 000	218 100	15 700	22 000	51 900	22 100	605 900
65 +	Male	430 600	173 900	10 900	21 100	55 000	14 000	705 500
	Female	600 700	149 800	12 800	13 900	29 900	7 500	814 600
	Both sexes	1 031 300	323 700	23 700	35 000	84 900	21 500	1 520 100
Total	Male	1 388 300	1 046 100	133 500	187 000	520 700	176 400	3 451 900
	Female	1 731 400	1 099 000	129 700	144 100	593 800	181 400	3 879 400
	Both sexes	3 119 700	2 145 100	263 200	331 100	1 114 500	357 700	7 331 300

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 2012

Age Group	sex	Lower Secondary and below	Upper Secondary	Diploma	Sub-degree	First Degree	Post-graduate	Total
15 - 19	Male	6 800	14 400	900	200			22 400
	Female	3 200	15 500	700	200			19 600
	Both sexes	10 100	29 900	1 600	400			42 000
20 - 24	Male	14 700	66 900	9 800	15 100	29 000	1 800	137 400
	Female	6 200	63 200	8 300	15 300	34 600	1 900	129 600
	Both sexes	20 900	130 100	18 100	30 500	63 600	3 800	267 000
25 - 29	Male	20 000	77 900	11 300	17 500	74 900	10 100	211 700
	Female	9 800	71 600	10 000	15 700	80 800	12 900	200 800
	Both sexes	29 700	149 500	21 300	33 200	155 700	23 000	412 500
30 - 34	Male	31 600	79 700	11 300	13 100	63 300	21 300	220 300
	Female	17 700	73 600	10 100	11 900	67 100	18 700	199 000
	Both sexes	49 300	153 300	21 400	24 900	130 400	40 000	419 300
35 - 39	Male	42 900	78 600	11 600	12 200	58 200	20 100	223 500
	Female	30 600	78 900	8 700	9 900	52 100	15 900	196 100
	Both sexes	73 600	157 500	20 300	22 100	110 300	35 900	419 600
40 - 44	Male	53 800	88 000	8 900	9 400	51 700	17 600	229 400
	Female	47 300	89 300	9 200	9 400	40 800	13 700	209 700
	Both sexes	101 100	177 400	18 100	18 800	92 500	31 300	439 200
45 - 49	Male	80 500	108 600	9 600	13 400	41 000	16 300	269 400
	Female	69 400	101 600	9 600	7 700	27 600	8 300	224 200
	Both sexes	149 900	210 200	19 200	21 200	68 500	24 600	493 600
50 - 54	Male	111 800	102 100	7 900	12 800	32 100	14 000	280 600
	Female	80 300	76 400	5 300	5 900	16 500	5 900	190 300
	Both sexes	192 100	178 500	13 200	18 700	48 500	19 900	470 800
55 - 59	Male	111 600	58 700	3 700	8 000	20 900	6 600	209 500
	Female	71 800	32 000	2 600	3 400	7 000	3 100	120 000
	Both sexes	183 400	90 600	6 300	11 400	28 000	9 800	329 500
60 - 64	Male	68 900	30 300	1 800	3 600	6 800	2 200	113 600
	Female	31 600	10 300	900	900	2 100	700	46 500
	Both sexes	100 500	40 600	2 700	4 500	8 900	2 900	160 100
65 +	Male	29 400	12 600	1 100	900	6 100	1 500	51 500
	Female	8 300	3 000	300	300	1 600	300	13 700
	Both sexes	37 700	15 600	1 400	1 200	7 700	1 700	65 200
Total	Male	571 800	717 900	77 900	106 400	383 900	111 500	1 969 300
	Female	376 300	615 500	65 700	80 400	330 300	81 300	1 549 500
	Both sexes	948 200	1 333 300	143 600	186 800	714 200	192 800	3 518 800

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 2022

Age Group	sex	Lower Secondary and below	Upper Secondary	Diploma	Sub-degree	First Degree	Post-graduate	Total
15 - 19	Male	2 900	5 300	800	200			9 300
	Female	2 400	7 100	900	300			10 600
	Both sexes	5 300	12 400	1 700	500			19 900
20 - 24	Male	400	44 900	14 900	16 100	21 000	900	98 200
	Female	800	29 600	11 300	10 800	43 300	1 500	97 300
	Both sexes	1 200	74 500	26 200	26 900	64 300	2 500	195 600
25 - 29	Male	7 500	86 100	21 900	32 100	40 200	12 000	199 900
	Female	7 600	58 100	14 500	15 000	80 800	19 300	195 400
	Both sexes	15 100	144 200	36 500	47 100	121 000	31 400	395 300
30 - 34	Male	16 500	60 800	16 600	31 900	72 400	22 200	220 300
	Female	17 600	51 700	13 500	22 500	83 600	30 200	219 200
	Both sexes	34 100	112 500	30 100	54 300	156 000	52 400	439 500
35 - 39	Male	22 000	77 500	10 200	16 300	71 500	21 700	219 200
	Female	27 100	69 700	9 800	13 100	79 700	27 200	226 500
	Both sexes	49 100	147 100	20 000	29 400	151 200	48 900	445 700
40 - 44	Male	35 600	74 900	12 200	12 400	59 800	26 200	221 200
	Female	40 600	72 600	9 500	10 100	61 300	26 300	220 400
	Both sexes	76 300	147 500	21 700	22 500	121 200	52 500	441 600
45 - 49	Male	48 500	76 200	12 400	11 100	56 600	22 400	227 300
	Female	54 600	78 500	9 200	8 800	48 000	20 900	220 000
	Both sexes	103 100	154 700	21 700	19 900	104 600	43 300	447 300
50 - 54	Male	56 100	86 700	8 200	8 800	51 000	19 300	230 000
	Female	56 800	86 700	8 900	8 700	41 300	17 800	220 100
	Both sexes	112 800	173 300	17 100	17 400	92 300	37 000	450 000
55 - 59	Male	74 100	91 600	8 300	11 200	36 800	16 200	238 300
	Female	57 500	73 800	9 100	7 300	24 100	9 100	180 900
	Both sexes	131 600	165 400	17 500	18 500	61 000	25 300	419 100
60 - 64	Male	79 200	64 800	6 000	7 700	18 700	8 000	184 300
	Female	45 400	37 100	3 600	3 500	7 300	6 000	102 900
	Both sexes	124 600	101 900	9 600	11 100	25 900	14 000	287 200
65 +	Male	52 000	31 300	2 200	3 300	14 300	7 500	110 500
	Female	11 800	7 300	300	400	2 500	2 200	24 600
	Both sexes	63 800	38 600	2 500	3 800	16 800	9 700	135 100
Total	Male	394 900	700 000	113 800	150 900	442 400	156 500	1 958 500
	Female	322 200	572 100	90 700	100 400	471 900	160 500	1 717 800
	Both sexes	717 000	1 272 100	204 600	251 300	914 300	317 000	3 676 300

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 Agriculture, Fishing and Quarrying Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	300	5.6	300	5.7	^^	- 0.6%
Professionals	200	3.1	300	6.0	+ 100	+ 6.1%
Associate professionals	200	4.4	400	7.4	+ 100	+ 4.5%
Clerical support workers	^	§	^	§	§	§
Service and sales workers	^	§	^	§	§	§
Agricultural and fishery workers	4 100	75.0	3 600	70.3	- 500	- 1.3%
Craft and related workers	^	§	^	§	§	§
Drivers, plant and machinery operators, and assemblers	300	5.5	200	4.7	- 100	- 2.3%
Elementary occupations	300	5.1	200	4.4	- 100	- 2.3%
Total	5 400	100.0	5 100	100.0	- 400	- 0.7%

^ Figure less than 50

^^ Change within ±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 A7.6: Manpower Requirements of Manufacturing Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	24 300	21.3	23 300	21.7	- 1 000	- 0.4%
Professionals	3 800	3.3	3 600	3.4	- 200	- 0.6%
Associate professionals	20 700	18.1	19 800	18.4	- 800	- 0.4%
Clerical support workers	10 600	9.3	10 200	9.5	- 400	- 0.4%
Service and sales workers	800	0.7	800	0.7	^^	- 0.4%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	29 400	25.7	27 800	25.8	- 1 600	- 0.6%
Drivers, plant and machinery operators, and assemblers	8 500	7.4	7 600	7.1	- 900	- 1.1%
Elementary occupations	16 100	14.1	14 500	13.4	- 1 700	- 1.1%
Total	114 200	100.0	107 600	100.0	- 6 700	- 0.6%

^^ Change within ±50

- Nil figure

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

Table A7.7: Manpower Requirements of Electricity, Gas, Water and Waste Management Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	1 100	7.5	1 200	8.0	^^	+ 0.2%
Professionals	2 000	13.1	2 000	13.9	^^	+ 0.2%
Associate professionals	4 600	30.7	4 800	32.7	+ 100	+ 0.2%
Clerical support workers	1 700	11.5	1 400	9.7	- 300	- 2.1%
Service and sales workers	100	1.0	200	1.5	+ 100	+ 3.9%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	2 800	18.8	2 300	15.8	- 500	- 2.1%
Drivers, plant and machinery operators, and assemblers	800	5.5	800	5.8	^^	+ 0.2%
Elementary occupations	1 800	11.9	1 800	12.5	^^	+ 0.1%
Total	15 100	100.0	14 500	100.0	- 600	- 0.4%

^^ Change within ±50

- Nil figure

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

Table A7.8: Manpower Requirements of Construction Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	16 800	5.6	18 500	5.3	+ 1 600	+ 0.9%
Professionals	12 800	4.3	15 600	4.5	+ 2 700	+ 1.9%
Associate professionals	46 200	15.4	53 300	15.4	+ 7 100	+ 1.4%
Clerical support workers	13 000	4.3	14 300	4.1	+ 1 300	+ 0.9%
Service and sales workers	100	*	100	*	^^	- 5.0%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	150 200	50.0	173 300	50.2	+ 23 200	+ 1.4%
Drivers, plant and machinery operators, and assemblers	9 100	3.0	10 000	2.9	+ 900	+ 0.9%
Elementary occupations	52 300	17.4	60 400	17.5	+ 8 100	+ 1.4%
Total	300 600	100.0	345 400	100.0	+ 44 800	+ 1.4%

* Percentage share less than 0.05%

^^ Change within ±50

- Nil figure

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

Table A7.9: Manpower Requirements of Import and Export Trade Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	139 200	26.5	150 900	28.2	+ 11 800	+ 0.8%
Professionals	17 600	3.4	21 700	4.1	+ 4 100	+ 2.1%
Associate professionals	148 900	28.4	161 500	30.2	+ 12 600	+ 0.8%
Clerical support workers	173 300	33.0	160 900	30.0	- 12 400	- 0.7%
Service and sales workers	3 100	0.6	2 500	0.5	- 600	- 2.1%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	6 300	1.2	5 100	1.0	- 1 200	- 2.1%
Drivers, plant and machinery operators, and assemblers	9 400	1.8	7 600	1.4	- 1 800	- 2.1%
Elementary occupations	27 000	5.1	25 000	4.7	- 1 900	- 0.7%
Total	524 800	100.0	535 400	100.0	+ 10 600	+ 0.2%

- Nil figure

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

Table A7.10: Manpower Requirements of Wholesale Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	11 000	16.8	9 900	16.9	- 1 100	- 1.1%
Professionals	800	1.3	800	1.3	^^	- 0.6%
Associate professionals	18 300	28.1	17 300	29.5	- 1 100	- 0.6%
Clerical support workers	11 800	18.0	11 100	18.9	- 700	- 0.6%
Service and sales workers	6 000	9.1	4 900	8.3	- 1 100	- 2.0%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	1 800	2.8	1 500	2.6	- 300	- 1.7%
Drivers, plant and machinery operators, and assemblers	4 400	6.7	3 600	6.1	- 800	- 2.0%
Elementary occupations	11 300	17.3	9 500	16.2	- 1 800	- 1.7%
Total	65 400	100.0	58 600	100.0	- 6 800	- 1.1%

^^ Change within ±50

- Nil figure

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

Table A7.11: Manpower Requirements of Retail Trade Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	26 200	8.1	36 600	10.0	+ 10 400	+ 3.4%
Professionals	3 100	1.0	4 400	1.2	+ 1 200	+ 3.4%
Associate professionals	25 900	8.0	36 200	9.9	+ 10 300	+ 3.4%
Clerical support workers	18 100	5.6	8 700	2.4	- 9 400	- 7.0%
Service and sales workers	219 400	67.4	256 800	70.0	+ 37 400	+ 1.6%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	7 300	2.2	5 100	1.4	- 2 100	- 3.4%
Drivers, plant and machinery operators, and assemblers	1 800	0.5	2 100	0.6	+ 300	+ 1.6%
Elementary occupations	23 700	7.3	16 700	4.6	- 6 900	- 3.4%
Total	325 500	100.0	366 700	100.0	+ 41 200	+ 1.2%

- Nil figure

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

Table A7.12: Manpower Requirements of Accommodation Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	6 900	15.5	10 300	18.1	+ 3 400	+ 4.1%
Professionals	500	1.1	700	1.3	+ 200	+ 4.1%
Associate professionals	4 700	10.7	7 100	12.5	+ 2 300	+ 4.1%
Clerical support workers	6 700	15.1	8 500	15.0	+ 1 800	+ 2.4%
Service and sales workers	17 400	39.2	22 000	38.9	+ 4 700	+ 2.4%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	1 900	4.2	1 900	3.3	^^	- 0.1%
Drivers, plant and machinery operators, and assemblers	500	1.2	500	1.0	^^	- 0.1%
Elementary occupations	5 700	12.9	5 700	10.0	^^	- 0.1%
Total	44 300	100.0	56 700	100.0	+ 12 400	+ 2.5%

^^ Change within ±50

- Nil figure

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

Table A7.13: Manpower Requirements of Food Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	16 300	6.9	17 700	7.1	+ 1 400	+ 0.8%
Professionals	100	*	100	*	^^	+ 3.6%
Associate professionals	4 700	2.0	4 100	1.6	- 600	- 1.3%
Clerical support workers	4 000	1.7	2 600	1.0	- 1 500	- 4.5%
Service and sales workers	169 600	71.8	184 300	73.5	+ 14 600	+ 0.8%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	1 200	0.5	1 100	0.5	^^	- 0.2%
Drivers, plant and machinery operators, and assemblers	400	0.2	400	0.2	^^	- 0.2%
Elementary occupations	39 900	16.9	40 500	16.1	+ 600	+ 0.1%
Total	236 200	100.0	250 800	100.0	+ 14 600	+ 0.6%

* Percentage share less than 0.05%

^^ Change within ±50

- Nil figure

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

Table A7.14: Manpower Requirements of Freight Transportation Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	13 000	7.9	13 900	8.4	+ 900	+ 0.6%
Professionals	2 900	1.8	3 600	2.2	+ 600	+ 2.0%
Associate professionals	14 200	8.6	18 500	11.2	+ 4 300	+ 2.7%
Clerical support workers	29 800	18.1	31 100	18.8	+ 1 300	+ 0.4%
Service and sales workers	9 700	5.9	10 100	6.1	+ 400	+ 0.4%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	1 400	0.9	1 500	0.9	^^	+ 0.2%
Drivers, plant and machinery operators, and assemblers	61 900	37.6	57 500	34.7	- 4 400	- 0.7%
Elementary occupations	31 700	19.3	29 500	17.8	- 2 300	- 0.7%
Total	164 800	100.0	165 600	100.0	+ 800	+ 0.1%

^^ Change within ±50

- Nil figure

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

Table A7.15: Manpower Requirements of Miscellaneous Transportation Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	5 200	3.9	7 400	5.0	+ 2 200	+ 3.6%
Professionals	5 000	3.7	7 200	4.8	+ 2 200	+ 3.6%
Associate professionals	9 600	7.2	13 600	9.1	+ 4 000	+ 3.5%
Clerical support workers	8 600	6.4	7 000	4.7	- 1 600	- 2.0%
Service and sales workers	17 400	13.0	22 200	14.9	+ 4 800	+ 2.4%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	6 600	4.9	5 400	3.6	- 1 200	- 2.0%
Drivers, plant and machinery operators, and assemblers	74 900	55.7	79 800	53.7	+ 4 900	+ 0.6%
Elementary occupations	7 200	5.4	6 100	4.1	- 1 100	- 1.7%
Total	134 600	100.0	148 600	100.0	+ 14 100	+ 1.0%

- Nil figure

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

Table A7.16: Manpower Requirements of Warehousing and Storage Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	800	11.7	800	12.3	+ 100	+ 1.0%
Professionals	100	2.2	200	2.3	^^	+ 1.0%
Associate professionals	1 000	14.9	1 100	15.6	+ 100	+ 1.0%
Clerical support workers	2 100	32.2	2 300	33.8	+ 200	+ 1.0%
Service and sales workers	500	8.2	600	8.6	+ 100	+ 1.0%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	100	1.5	100	1.3	^^	- 0.7%
Drivers, plant and machinery operators, and assemblers	600	9.2	600	8.2	^^	- 0.7%
Elementary occupations	1 300	20.2	1 200	17.9	- 100	- 0.7%
Total	6 500	100.0	6 800	100.0	+ 300	+ 0.5%

^^ Change within ±50

- Nil figure

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

Table A7.17: Manpower Requirements of Postal and Courier Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	800	4.2	800	4.6	+ 100	+ 0.8%
Professionals	100	0.4	100	0.4	^^	+ 0.8%
Associate professionals	600	3.0	600	3.3	^^	+ 0.8%
Clerical support workers	9 100	49.1	8 700	48.2	- 300	- 0.4%
Service and sales workers	200	0.8	100	0.8	^^	- 0.2%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	700	3.9	700	4.1	^^	+ 0.2%
Elementary occupations	7 100	38.6	7 000	38.6	- 200	- 0.2%
Total	18 500	100.0	18 100	100.0	- 400	- 0.2%

^^ Change within ±50

- Nil figure

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

Table A7.18: Manpower Requirements of Telecommunication Activities Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	3 200	17.1	3 700	18.9	+ 500	+ 1.3%
Professionals	2 100	11.3	2 300	11.7	+ 100	+ 0.6%
Associate professionals	5 800	30.3	5 800	29.6	^^	**
Clerical support workers	3 300	17.5	3 300	17.0	^^	**
Service and sales workers	1 600	8.3	1 600	8.0	^^	**
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	2 700	14.0	2 700	13.5	^^	**
Drivers, plant and machinery operators, and assemblers	100	0.3	100	0.3	^^	- 1.5%
Elementary occupations	200	1.2	200	1.0	^^	- 1.5%
Total	19 000	100.0	19 600	100.0	+ 600	+ 0.3%

** Rate of change within ±0.05%

^^ Change within ±50

- Nil figure

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

Table A7.19: Manpower Requirements of Software Publishing and Information Technology Related Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	8 200	19.0	10 800	19.6	+ 2 600	+ 2.8%
Professionals	15 900	37.0	21 000	38.1	+ 5 100	+ 2.8%
Associate professionals	15 800	36.8	20 900	37.9	+ 5 000	+ 2.8%
Clerical support workers	2 400	5.6	1 700	3.2	- 700	- 3.3%
Service and sales workers	100	0.2	100	0.1	^^	- 3.1%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	400	0.8	400	0.7	^^	+ 0.8%
Drivers, plant and machinery operators, and assemblers	100	0.1	100	0.1	^^	+ 0.8%
Elementary occupations	100	0.3	100	0.3	^^	+ 0.8%
Total	43 000	100.0	55 000	100.0	+ 12 000	+ 2.5%

^^ Change within ±50

- Nil figure

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

Table A7.20: Manpower Requirements of Miscellaneous Activities Related to Information and Communications Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	4 300	10.2	4 700	10.5	+ 400	+ 1.0%
Professionals	15 700	37.1	17 300	38.2	+ 1 600	+ 1.0%
Associate professionals	11 700	27.7	12 900	28.5	+ 1 200	+ 1.0%
Clerical support workers	4 400	10.4	4 900	10.7	+ 500	+ 1.0%
Service and sales workers	1 300	3.1	1 500	3.2	+ 100	+ 1.0%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	2 200	5.2	1 800	4.0	- 400	- 1.9%
Drivers, plant and machinery operators, and assemblers	800	1.9	600	1.4	- 100	- 1.9%
Elementary occupations	1 900	4.4	1 500	3.4	- 300	- 1.9%
Total	42 200	100.0	45 300	100.0	+ 3 100	+ 0.7%

- Nil figure

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

Table A7.21: Manpower Requirements of Banking Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	33 000	33.2	42 800	34.4	+ 9 800	+ 2.6%
Professionals	8 500	8.5	11 300	9.1	+ 2 800	+ 2.9%
Associate professionals	28 900	29.1	38 600	31.0	+ 9 700	+ 2.9%
Clerical support workers	27 500	27.8	30 800	24.7	+ 3 200	+ 1.1%
Service and sales workers	-	-	-	-	-	-
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	300	0.3	200	0.2	- 100	- 2.3%
Elementary occupations	1 000	1.0	800	0.7	- 200	- 2.3%
Total	99 200	100.0	124 500	100.0	+ 25 300	+ 2.3%

- Nil figure

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

Table A7.22: Manpower Requirements of Financial Institutions (other than Banks and Insurance) Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	22 800	26.8	31 200	28.6	+ 8 400	+ 3.2%
Professionals	13 900	16.3	19 100	17.5	+ 5 100	+ 3.2%
Associate professionals	32 700	38.3	44 800	41.0	+ 12 100	+ 3.2%
Clerical support workers	13 700	16.0	13 600	12.4	- 100	- 0.1%
Service and sales workers	300	0.4	100	0.1	- 200	- 13.2%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	700	0.8	200	0.2	- 500	- 13.2%
Elementary occupations	1 100	1.3	300	0.2	- 900	- 13.2%
Total	85 300	100.0	109 100	100.0	+ 23 900	+ 2.5%

- Nil figure

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

Table A7.23: Manpower Requirements of Insurance Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	8 500	17.5	10 100	17.7	+ 1 600	+ 1.7%
Professionals	2 500	5.1	2 900	5.2	+ 500	+ 1.7%
Associate professionals	29 200	60.2	34 600	60.8	+ 5 400	+ 1.7%
Clerical support workers	7 900	16.3	8 700	15.4	+ 800	+ 1.0%
Service and sales workers	100	0.2	100	0.2	^^	+ 2.8%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	100	0.1	100	0.2	^^	+ 2.8%
Elementary occupations	200	0.5	300	0.6	+ 100	+ 2.8%
Total	48 500	100.0	56 900	100.0	+ 8 300	+ 1.6%

^^ Change within ±50

- Nil figure

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

Table A7.24: Manpower Requirements of Real Estate Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	11 000	8.5	12 800	8.9	+ 1 700	+ 1.5%
Professionals	3 000	2.3	3 500	2.4	+ 500	+ 1.5%
Associate professionals	35 800	27.5	44 300	30.8	+ 8 500	+ 2.2%
Clerical support workers	14 500	11.1	15 000	10.4	+ 500	+ 0.3%
Service and sales workers	1 000	0.8	1 700	1.2	+ 700	+ 5.6%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	4 800	3.7	3 400	2.4	- 1 400	- 3.4%
Drivers, plant and machinery operators, and assemblers	800	0.6	800	0.6	^^	- 0.4%
Elementary occupations	59 200	45.5	62 400	43.4	+ 3 100	+ 0.5%
Total	130 200	100.0	143 800	100.0	+ 13 600	+ 1.0%

^^ Change within ±50

- Nil figure

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

Table A7.25: Manpower Requirements of Legal Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	800	3.9	1 200	4.5	+ 400	+ 3.6%
Professionals	7 900	37.4	9 900	38.2	+ 1 900	+ 2.2%
Associate professionals	3 600	16.9	5 600	21.7	+ 2 000	+ 4.6%
Clerical support workers	7 600	35.8	7 900	30.4	+ 300	+ 0.3%
Service and sales workers	-	-	-	-	-	-
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	200	0.9	200	0.8	^^	+ 0.3%
Elementary occupations	1 100	5.2	1 100	4.4	^^	+ 0.3%
Total	21 200	100.0	25 800	100.0	+ 4 600	+ 2.0%

^^ Change within ±50

- Nil figure

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

Table A7.26: Manpower Requirements of Accounting, Auditing and Bookkeeping Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	3 500	11.9	4 200	12.4	+ 700	+ 1.9%
Professionals	8 800	30.1	10 600	31.4	+ 1 900	+ 1.9%
Associate professionals	8 100	27.8	10 400	30.6	+ 2 300	+ 2.5%
Clerical support workers	8 400	28.9	8 100	23.9	- 300	- 0.4%
Service and sales workers	-	-	-	-	-	-
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	^	§	^	§	§	§
Elementary occupations	400	1.3	500	1.6	+ 200	+ 3.6%
Total	29 200	100.0	33 800	100.0	+ 4 700	+ 1.5%

^ 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 A7.27: Manpower Requirements of Engineering and Technical Services not Related to Construction and Real Estate Activities, Business Management and Consultancy Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	6 700	12.9	8 300	13.0	+ 1 600	+ 2.1%
Professionals	12 700	24.3	15 700	24.6	+ 3 000	+ 2.1%
Associate professionals	21 800	41.7	27 700	43.3	+ 5 800	+ 2.4%
Clerical support workers	6 900	13.1	8 700	13.6	+ 1 800	+ 2.4%
Service and sales workers	1 000	1.8	1 200	1.9	+ 200	+ 2.1%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	1 100	2.1	800	1.2	- 300	- 3.3%
Drivers, plant and machinery operators, and assemblers	800	1.6	600	0.9	- 200	- 3.3%
Elementary occupations	1 400	2.6	1 000	1.5	- 400	- 3.3%
Total	52 400	100.0	63 800	100.0	+ 11 500	+ 2.0%

- Nil figure

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

Table A7.28: Manpower Requirements of Design, Advertising and Related Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	3 800	13.3	5 000	13.9	+ 1 200	+ 2.7%
Professionals	7 000	24.3	9 200	25.3	+ 2 100	+ 2.7%
Associate professionals	14 100	49.0	18 500	51.0	+ 4 300	+ 2.7%
Clerical support workers	2 400	8.2	2 200	6.0	- 200	- 0.8%
Service and sales workers	100	0.3	100	0.2	^^	- 0.8%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	400	1.4	400	1.0	^^	- 0.8%
Drivers, plant and machinery operators, and assemblers	^	§	^	§	§	§
Elementary occupations	1 000	3.4	900	2.5	- 100	- 0.8%
Total	28 800	100.0	36 200	100.0	+ 7 400	+2.3%

^ Figure less than 50

^^ Change within ±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 A7.29: Manpower Requirements of Architectural, Surveying and Engineering Services Related to Real Estate and Construction Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	2 100	8.3	3 100	10.6	+ 1 000	+ 3.9%
Professionals	6 700	25.8	8 100	27.4	+ 1 500	+ 2.0%
Associate professionals	11 100	43.0	13 500	45.6	+ 2 400	+ 2.0%
Clerical support workers	3 600	14.0	3 200	10.8	- 400	- 1.2%
Service and sales workers	^	§	^	§	§	§
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	1 100	4.1	700	2.4	- 300	- 3.8%
Drivers, plant and machinery operators, and assemblers	500	1.9	400	1.3	- 100	- 2.5%
Elementary occupations	700	2.8	600	2.0	- 100	- 1.9%
Total	25 800	100.0	29 700	100.0	+ 3 900	+ 1.4%

^ 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 A7.30: Manpower Requirements of Miscellaneous Professional and Business Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	11 600	5.6	16 600	7.1	+ 5 000	+ 3.6%
Professionals	2 500	1.2	3 600	1.5	+ 1 100	+ 3.6%
Associate professionals	17 700	8.6	25 300	10.9	+ 7 600	+ 3.6%
Clerical support workers	21 700	10.5	22 200	9.5	+ 500	+ 0.2%
Service and sales workers	10 300	5.0	14 800	6.3	+ 4 400	+ 3.6%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	1 600	0.8	2 400	1.0	+ 700	+ 3.6%
Drivers, plant and machinery operators, and assemblers	3 300	1.6	3 900	1.7	+ 500	+ 1.5%
Elementary occupations	137 900	66.7	144 200	61.9	+ 6 300	+ 0.4%
Total	206 800	100.0	233 000	100.0	+ 26 200	+ 1.2%

^ 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 A7.31: Manpower Requirements of Human Health Activities Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	2 600	2.1	3 400	2.2	+ 800	+ 2.7%
Professionals	21 800	17.7	28 400	18.2	+ 6 600	+ 2.7%
Associate professionals	44 700	36.4	58 600	37.6	+ 13 900	+ 2.7%
Clerical support workers	26 100	21.2	30 900	19.8	+ 4 800	+ 1.7%
Service and sales workers	13 800	11.3	18 100	11.6	+ 4 300	+ 2.7%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	900	0.7	700	0.4	- 200	- 2.3%
Drivers, plant and machinery operators, and assemblers	800	0.7	600	0.4	- 200	- 3.1%
Elementary occupations	12 200	9.9	15 100	9.7	+ 2 900	+ 2.2%
Total	122 900	100.0	155 800	100.0	+ 32 900	+ 2.4%

- Nil figure

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

Table A7.32: Manpower Requirements of Social and Personal Services (other than Human Health Activities) Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	18 600	3.3	20 100	3.5	+ 1 600	+ 0.8%
Professionals	86 900	15.4	94 400	16.2	+ 7 500	+ 0.8%
Associate professionals	139 200	24.6	151 200	26.0	+ 12 000	+ 0.8%
Clerical support workers	76 000	13.5	74 000	12.7	- 2 000	- 0.3%
Service and sales workers	148 800	26.3	161 600	27.8	+ 12 800	+ 0.8%
Agricultural and fishery workers	300	*	300	*	^^	+ 0.3%
Craft and related workers	22 800	4.0	19 000	3.3	- 3 800	- 1.8%
Drivers, plant and machinery operators, and assemblers	6 100	1.1	6 000	1.0	- 100	- 0.2%
Elementary occupations	66 100	11.7	55 300	9.5	- 10 800	- 1.8%
Total	564 800	100.0	582 000	100.0	+ 17 200	+ 0.3%

* Percentage share less than 0.05%

^^ Change within ±50

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

Table A7.33: Manpower Requirements of Financial Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	64 300	27.6	84 100	29.0	+ 19 800	+ 2.7%
Professionals	24 900	10.7	33 300	11.5	+ 8 400	+ 3.0%
Associate professionals	90 800	39.0	117 900	40.6	+ 27 100	+ 2.7%
Clerical support workers	49 100	21.1	53 100	18.3	+ 3 900	+ 0.8%
Service and sales workers	400	0.2	200	0.1	- 200	- 6.9%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	1 100	0.5	500	0.2	- 600	- 7.4%
Elementary occupations	2 400	1.0	1 400	0.5	- 1 000	- 5.2%
Total	233 000	100.0	290 500	100.0	+ 57 600	+ 2.2%

- Nil figure

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

Table A7.34: Manpower Requirements of Trading and Logistics Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	164 700	21.1	176 400	22.5	+ 11 700	+ 0.7%
Professionals	21 600	2.8	26 300	3.4	+ 4 700	+ 2.0%
Associate professionals	183 000	23.5	199 000	25.4	+ 16 000	+ 0.8%
Clerical support workers	226 000	29.0	214 100	27.3	- 11 900	- 0.5%
Service and sales workers	19 500	2.5	18 300	2.3	- 1 200	- 0.6%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	9 700	1.2	8 200	1.0	- 1 500	- 1.6%
Drivers, plant and machinery operators, and assemblers	77 000	9.9	70 000	8.9	- 7 000	- 1.0%
Elementary occupations	78 400	10.1	72 200	9.2	- 6 200	- 0.8%
Total	779 900	100.0	784 500	100.0	+ 4 600	+ 0.1%

- Nil figure

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

Table A7.35: Manpower Requirements of Professional Services and Other Producer Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	44 500	8.9	57 300	9.9	+ 12 700	+ 2.5%
Professionals	82 200	16.4	101 100	17.5	+ 18 900	+ 2.1%
Associate professionals	123 600	24.6	156 100	27.0	+ 32 600	+ 2.4%
Clerical support workers	63 700	12.7	64 300	11.1	+ 600	+ 0.1%
Service and sales workers	58 400	11.6	67 900	11.8	+ 9 600	+ 1.5%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	11 200	2.2	9 800	1.7	- 1 400	- 1.4%
Drivers, plant and machinery operators, and assemblers	10 900	2.2	11 200	1.9	+ 300	+ 0.3%
Elementary occupations	108 000	21.5	110 500	19.1	+ 2 400	+ 0.2%
Total	502 600	100.0	578 200	100.0	+ 75 700	+ 1.4%

^ 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 A7.36: Manpower Requirements of Tourism Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	20 300	8.1	30 500	9.7	+ 10 200	+ 4.2%
Professionals	4 600	1.8	6 700	2.1	+ 2 100	+ 3.9%
Associate professionals	20 100	8.1	29 900	9.5	+ 9 800	+ 4.0%
Clerical support workers	18 500	7.4	17 700	5.6	- 800	- 0.4%
Service and sales workers	122 400	48.9	161 500	51.3	+ 39 100	+ 2.8%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	6 300	2.5	5 900	1.9	- 400	- 0.7%
Drivers, plant and machinery operators, and assemblers	18 700	7.5	22 400	7.1	+ 3 700	+ 1.8%
Elementary occupations	39 200	15.7	40 300	12.8	+ 1 100	+ 0.3%
Total	250 000	100.0	314 800	100.0	+ 64 900	+ 2.3%

^ 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 A7.37: Manpower Requirements of Information Technology and Information Services Industry by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	11 400	18.4	14 500	19.4	+ 3 100	+ 2.4%
Professionals	18 100	29.1	23 300	31.2	+ 5 200	+ 2.6%
Associate professionals	21 600	34.8	26 600	35.7	+ 5 100	+ 2.1%
Clerical support workers	5 800	9.3	5 100	6.8	- 700	- 1.2%
Service and sales workers	1 700	2.7	1 600	2.2	^^	- 0.1%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	3 000	4.9	3 000	4.1	^^	**
Drivers, plant and machinery operators, and assemblers	100	0.2	100	0.2	^^	- 0.4%
Elementary occupations	400	0.6	300	0.4	^^	- 0.6%
Total	62 000	100.0	74 600	100.0	+ 12 600	+ 1.9%

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

^^ Change within ± 50

- Nil figure

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

Table A7.38: Manpower Requirements of Innovation and Technology Industries by Occupation Group in 2011 and 2022

Occupation group	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 – 2022)
	Number	% share	Number	% share		
Managers and administrators	1 100	3.6	1 200	3.4	+ 100	+ 1.1%
Professionals	24 400	81.4	29 400	81.7	+ 5 000	+ 1.7%
Associate professionals	3 400	11.3	4 200	11.7	+ 800	+ 2.0%
Clerical support workers	1 100	3.6	1 200	3.3	+ 100	+ 0.7%
Service and sales workers	-	-	-	-	-	-
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	-	-	-	-	-	-
Drivers, plant and machinery operators, and assemblers	-	-	-	-	-	-
Elementary occupations	-	-	-	-	-	-
Total	29 900	100.0	36 000	100.0	+ 6 100	+ 1.7%

- Nil figure

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

Table A7.39: Manpower Requirements of Testing and Certification Services Industry by Occupation Group in 2011 and 2022

Occupation group	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 – 2022)
	Number	% share	Number	% share		
Managers and administrators	1 600	11.9	1 900	12.3	+ 300	+ 1.8%
Professionals	3 200	24.0	4 000	25.5	+ 800	+ 2.0%
Associate professionals	3 100	23.4	3 800	24.3	+ 700	+ 1.8%
Clerical support workers	2 600	19.4	3 100	19.8	+ 500	+ 1.7%
Service and sales workers	800	5.8	1 000	6.1	+ 200	+ 2.0%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	300	2.0	200	1.2	- 100	- 2.8%
Drivers, plant and machinery operators, and assemblers	800	5.9	700	4.4	- 100	- 1.3%
Elementary occupations	1 000	7.5	1 000	6.3	^^	- 0.1%
Total	13 300	100.0	15 700	100.0	+ 2 400	+ 1.5%

^^ Change within ±50

- Nil figure

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

Table A7.40: Manpower Requirements of Cultural and Creative Industries by Occupation Group in 2011 and 2022

Occupation group	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 – 2022)
	Number	% share	Number	% share		
Managers and administrators	25 300	12.8	31 200	13.7	+ 5 900	+ 1.9%
Professionals	45 700	23.2	56 300	24.8	+ 10 700	+ 1.9%
Associate professionals	60 000	30.5	73 900	32.6	+ 13 900	+ 1.9%
Clerical support workers	18 800	9.5	17 900	7.9	- 900	- 0.4%
Service and sales workers	20 500	10.4	23 700	10.4	+ 3 100	+ 1.3%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	10 900	5.5	10 000	4.4	- 900	- 0.8%
Drivers, plant and machinery operators, and assemblers	3 200	1.6	2 900	1.3	- 300	- 1.0%
Elementary occupations	12 700	6.4	11 300	5.0	- 1 300	- 1.0%
Total	197 100	100.0	227 200	100.0	+ 30 100	+ 1.3%

^ 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 A7.41: Manpower Requirements of Environmental Industries by Occupation Group in 2011 and 2022

Occupation group	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 – 2022)
	Number	% share	Number	% share		
Managers and administrators	2 500	6.5	5 700	7.9	+ 3 200	+ 7.7%
Professionals	800	2.0	1 700	2.3	+ 900	+ 7.2%
Associate professionals	4 100	10.6	9 200	12.7	+ 5 000	+ 7.5%
Clerical support workers	4 400	11.3	7 400	10.2	+ 3 000	+ 4.8%
Service and sales workers	2 000	5.1	4 600	6.3	+ 2 600	+ 8.0%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	600	1.5	1 100	1.5	+ 500	+ 5.8%
Drivers, plant and machinery operators, and assemblers	700	1.8	1 300	1.8	+ 600	+ 5.8%
Elementary occupations	23 800	61.2	41 500	57.3	+ 17 700	+ 5.2%
Total	38 900	100.0	72 400	100.0	+ 33 400	+ 5.8%

^ 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 A7.42: Manpower Requirements of EDC Industry Cluster 1 - Transportation by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	14 000	7.4	15 500	7.8	+ 1 400	+ 1.0%
Professionals	3 900	2.0	5 100	2.6	+ 1 200	+ 2.8%
Associate professionals	16 000	8.4	21 400	10.9	+ 5 400	+ 2.9%
Clerical support workers	31 500	16.5	32 600	16.5	+ 1 100	+ 0.4%
Service and sales workers	13 000	6.8	14 800	7.5	+ 1 800	+ 1.3%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	2 700	1.4	2 600	1.3	- 100	- 0.3%
Drivers, plant and machinery operators, and assemblers	76 000	40.0	74 400	37.7	- 1 700	- 0.2%
Elementary occupations	33 100	17.4	30 700	15.6	- 2 300	- 0.7%
Total	190 200	100.0	197 100	100.0	+ 6 900	+ 0.4%

- Nil figure

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

Table A7.43: Manpower Requirements of EDC Industry Cluster 2 - Convention and Exhibition Industries and Tourism by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	20 400	8.1	30 700	9.7	+ 10 300	+ 4.2%
Professionals	4 600	1.8	6 700	2.1	+ 2 100	+ 3.9%
Associate professionals	20 300	8.1	30 300	9.5	+ 9 900	+ 4.1%
Clerical support workers	18 700	7.4	18 000	5.6	- 800	- 0.4%
Service and sales workers	122 500	48.5	161 700	50.8	+ 39 200	+ 2.8%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	6 300	2.5	5 900	1.9	- 400	- 0.7%
Drivers, plant and machinery operators, and assemblers	18 700	7.4	22 500	7.1	+ 3 800	+ 1.8%
Elementary occupations	40 800	16.2	42 200	13.3	+ 1 400	+ 0.3%
Total	252 500	100.0	318 000	100.0	+ 65 500	+ 2.3%

^ 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 A7.44: Manpower Requirements of EDC Industry Cluster 3 - Manufacturing Industries, Innovative Technology, and Cultural and Creative Industries by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	46 200	14.9	50 800	15.0	+ 4 600	+ 0.9%
Professionals	67 300	21.6	81 500	24.1	+ 14 100	+ 1.9%
Associate professionals	76 700	24.6	89 400	26.4	+ 12 700	+ 1.5%
Clerical support workers	27 800	8.9	26 700	7.9	- 1 100	- 0.4%
Service and sales workers	19 400	6.2	22 300	6.6	+ 2 800	+ 1.4%
Agricultural and fishery workers	^	§	^	§	§	§
Craft and related workers	36 800	11.8	34 400	10.2	- 2 300	- 0.7%
Drivers, plant and machinery operators, and assemblers	10 700	3.4	9 600	2.8	- 1 100	- 1.1%
Elementary occupations	26 300	8.4	23 500	7.0	- 2 700	- 1.1%
Total	311 200	100.0	338 100	100.0	+ 26 900	+ 0.8%

^ 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 A7.45: Manpower Requirements of EDC Industry Cluster 4 - Professional Services by Occupation Group in 2012 and 2022

Occupation group	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Managers and administrators	13 200	10.2	16 800	11.0	+ 3 700	+ 2.5%
Professionals	36 100	28.1	44 300	28.9	+ 8 200	+ 2.1%
Associate professionals	44 600	34.7	57 200	37.3	+ 12 500	+ 2.5%
Clerical support workers	26 500	20.6	27 800	18.2	+ 1 300	+ 0.5%
Service and sales workers	1 000	0.8	1 200	0.8	+ 200	+ 2.0%
Agricultural and fishery workers	-	-	-	-	-	-
Craft and related workers	2 100	1.7	1 500	1.0	- 700	- 3.5%
Drivers, plant and machinery operators, and assemblers	1 500	1.2	1 200	0.8	- 300	- 2.4%
Elementary occupations	3 500	2.8	3 200	2.1	- 300	- 0.9%
Total	128 600	100.0	153 200	100.0	+ 24 600	+ 1.8%

- Nil figure

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

Table A7.46: Manpower Requirements for Workers at Lower Secondary and Below Level by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	3 700	0.4	2 700	0.3	- 1 000	- 3.0%
Manufacturing	42 700	4.5	30 600	4.0	- 12 100	- 3.3%
Electricity, gas, water and waste management	4 100	0.4	3 400	0.4	- 700	- 1.9%
Construction	148 200	15.5	144 400	18.7	- 3 800	- 0.3%
Import, export, wholesale and retail trades	185 700	19.4	123 000	15.9	- 62 700	- 4.0%
Accommodation and food services	144 100	15.1	121 000	15.7	- 23 100	- 1.7%
Transportation, storage, postal and courier services	126 900	13.3	100 500	13.0	- 26 400	- 2.3%
Information and communications	4 500	0.5	2 800	0.4	- 1 600	- 4.4%
Financial services	5 600	0.6	3 100	0.4	- 2 500	- 5.7%
Real estate	42 400	4.4	37 600	4.9	- 4 800	- 1.2%
Professional and business services	122 400	12.8	120 200	15.6	- 2 100	- 0.2%
Social and personal services	125 400	13.1	83 400	10.8	- 42 000	- 4.0%
Total	955 700	100.0	772 800	100.0	- 182 900	- 2.1%

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

Table A7.47: Manpower Requirements for Workers at Upper Secondary Level by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	1 100	0.1	1 400	0.1	+ 300	+ 2.4%
Manufacturing	43 100	3.3	42 400	3.1	- 700	- 0.2%
Electricity, gas, water and waste management	4 500	0.3	3 800	0.3	- 700	- 1.6%
Construction	92 000	7.0	115 100	8.4	+ 23 100	+ 2.3%
Import, export, wholesale and retail trades	437 900	33.3	444 000	32.5	+ 6 100	+ 0.1%
Accommodation and food services	110 100	8.4	142 500	10.4	+ 32 400	+ 2.6%
Transportation, storage, postal and courier services	136 700	10.4	149 500	10.9	+ 12 800	+ 0.9%
Information and communications	28 600	2.2	24 700	1.8	- 3 800	- 1.4%
Financial services	72 000	5.5	52 100	3.8	- 19 900	- 3.2%
Real estate	51 500	3.9	54 500	4.0	+ 3 000	+ 0.6%
Professional and business services	102 900	7.8	108 900	8.0	+ 5 900	+ 0.6%
Social and personal services	233 700	17.8	227 300	16.6	- 6 300	- 0.3%
Total	1 314 100	100.0	1 366 200	100.0	+ 52 100	+ 0.4%

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

Table A7.48: Manpower Requirements for Workers at Diploma Level by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	^	§	§	§
Manufacturing	5 100	3.7	5 900	3.1	+ 800	+ 1.5%
Electricity, gas, water and waste management	1 200	0.8	1 100	0.6	- 100	- 0.9%
Construction	16 400	11.8	22 400	11.9	+ 6 000	+ 3.1%
Import, export, wholesale and retail trades	38 800	27.9	50 000	26.6	+ 11 200	+ 2.6%
Accommodation and food services	6 000	4.3	10 400	5.5	+ 4 400	+ 5.6%
Transportation, storage, postal and courier services	10 300	7.4	13 300	7.0	+ 2 900	+ 2.5%
Information and communications	6 100	4.4	7 900	4.2	+ 1 800	+ 2.7%
Financial services	8 000	5.8	11 000	5.8	+ 3 000	+ 3.2%
Real estate	4 100	2.9	4 700	2.5	+ 600	+ 1.4%
Professional and business services	14 200	10.2	19 200	10.2	+ 5 100	+ 3.1%
Social and personal services	28 700	20.7	42 300	22.5	+ 13 600	+ 3.9%
Total	138 900	100.0	188 200	100.0	+ 49 300	+ 3.1%

^ 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 A7.49: Manpower Requirements for Workers at Sub-degree Level by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	^	§	200	0.1	+ 100	+ 15.5%
Manufacturing	6 400	3.6	8 100	3.4	+ 1 600	+ 2.3%
Electricity, gas, water and waste management	1 200	0.7	1 400	0.6	+ 100	+ 1.1%
Construction	11 500	6.5	13 700	5.7	+ 2 100	+ 1.7%
Import, export, wholesale and retail trades	50 200	28.0	68 200	28.6	+ 18 000	+ 3.1%
Accommodation and food services	5 600	3.1	9 200	3.9	+ 3 600	+ 5.1%
Transportation, storage, postal and courier services	11 000	6.1	16 500	6.9	+ 5 600	+ 4.2%
Information and communications	8 400	4.7	10 600	4.5	+ 2 200	+ 2.3%
Financial services	12 700	7.1	17 800	7.5	+ 5 100	+ 3.5%
Real estate	7 500	4.2	9 500	4.0	+ 2 000	+ 2.4%
Professional and business services	21 000	11.7	28 900	12.1	+ 7 900	+ 3.3%
Social and personal services	43 300	24.2	54 300	22.8	+ 11 000	+ 2.3%
Total	178 900	100.0	238 400	100.0	+ 59 500	+ 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 A7.50: Manpower Requirements for Workers at First Degree Level by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	*	300	*	^^	- 0.6%
Manufacturing	14 200	2.0	17 100	1.8	+ 2 900	+ 1.9%
Electricity, gas, water and waste management	3 000	0.4	3 700	0.4	+ 700	+ 2.0%
Construction	27 700	4.0	42 200	4.4	+ 14 500	+ 4.3%
Import, export, wholesale and retail trades	172 800	24.8	233 100	24.2	+ 60 300	+ 3.0%
Accommodation and food services	12 500	1.8	20 400	2.1	+ 8 000	+ 5.1%
Transportation, storage, postal and courier services	33 600	4.8	50 400	5.2	+ 16 800	+ 4.1%
Information and communications	44 900	6.4	57 800	6.0	+ 12 800	+ 2.5%
Financial services	101 500	14.6	156 300	16.2	+ 54 800	+ 4.4%
Real estate	20 200	2.9	30 800	3.2	+ 10 600	+ 4.3%
Professional and business services	81 900	11.8	113 700	11.8	+ 31 700	+ 3.3%
Social and personal services	184 000	26.4	239 300	24.8	+ 55 300	+ 2.7%
Total	696 600	100.0	965 000	100.0	+ 268 400	+ 3.3%

* Percentage share less than 0.05%

^^ Change within ±50

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

Table A7.51: Manpower Requirements for Workers at Postgraduate Level by Economic Sector in 2012 and 2022

Economic sector	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Agriculture, fishing and quarrying	300	0.2	500	0.2	+ 200	+ 4.4%
Manufacturing	2 800	1.5	3 500	1.3	+ 700	+ 2.3%
Electricity, gas, water and waste management	1 100	0.6	1 200	0.5	+ 100	+ 0.9%
Construction	4 600	2.4	7 600	2.9	+ 3 000	+ 5.1%
Import, export, wholesale and retail trades	30 300	15.9	42 400	16.1	+ 12 100	+ 3.4%
Accommodation and food services	2 200	1.1	3 900	1.5	+ 1 700	+ 5.9%
Transportation, storage, postal and courier services	5 800	3.1	9 000	3.4	+ 3 200	+ 4.5%
Information and communications	11 800	6.2	16 100	6.1	+ 4 300	+ 3.1%
Financial services	33 100	17.4	50 100	19.0	+ 17 000	+ 4.2%
Real estate	4 500	2.4	6 700	2.6	+ 2 200	+ 4.1%
Professional and business services	21 800	11.4	31 400	11.9	+ 9 600	+ 3.7%
Social and personal services	72 600	38.0	91 200	34.6	+ 18 600	+ 2.3%
Total	190 900	100.0	263 600	100.0	+ 72 700	+ 3.3%

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

Table A7.52: Manpower Requirements of Agriculture, Fishing and Quarrying Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	3 700	67.5	2 700	53.4	- 1 000	- 3.0%
Upper secondary	1 100	20.3	1 400	27.7	+ 300	+ 2.4%
Diploma	^	§	^	§	§	§
Sub-degree	^	§	200	3.6	+ 100	+ 15.5%
First degree	300	5.4	300	5.5	^^	- 0.6%
Postgraduate	300	5.8	500	9.7	+ 200	+ 4.4%
All levels	5 400	100.0	5 100	100.0	- 400	- 0.7%

^ Less than 50

^^ Change within ±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 A7.53: Manpower Requirements of Manufacturing Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	42 700	37.4	30 600	28.5	- 12 100	- 3.3%
Upper secondary	43 100	37.7	42 400	39.4	- 700	- 0.2%
Diploma	5 100	4.4	5 900	5.5	+ 800	+ 1.5%
Sub-degree	6 400	5.6	8 100	7.5	+ 1 600	+ 2.3%
First degree	14 200	12.4	17 100	15.9	+ 2 900	+ 1.9%
Postgraduate	2 800	2.5	3 500	3.3	+ 700	+ 2.3%
All levels	114 200	100.0	107 600	100.0	- 6 700	- 0.6%

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

Table A7.54: Manpower Requirements of Electricity, Gas, Water and Waste Management Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	4 100	27.4	3 400	23.5	- 700	- 1.9%
Upper secondary	4 500	29.8	3 800	26.4	- 700	- 1.6%
Diploma	1 200	7.7	1 100	7.3	- 100	- 0.9%
Sub-degree	1 200	8.1	1 400	9.3	+ 100	+ 1.1%
First degree	3 000	19.8	3 700	25.2	+ 700	+ 2.0%
Postgraduate	1 100	7.2	1 200	8.2	+ 100	+ 0.9%
All levels	15 100	100.0	14 500	100.0	- 600	- 0.4%

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

Table A7.55: Manpower Requirements of Construction Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	148 200	49.3	144 400	41.8	- 3 800	- 0.3%
Upper secondary	92 000	30.6	115 100	33.3	+ 23 100	+ 2.3%
Diploma	16 400	5.5	22 400	6.5	+ 6 000	+ 3.1%
Sub-degree	11 500	3.8	13 700	4.0	+ 2 100	+ 1.7%
First degree	27 700	9.2	42 200	12.2	+ 14 500	+ 4.3%
Postgraduate	4 600	1.5	7 600	2.2	+ 3 000	+ 5.1%
All levels	300 600	100.0	345 400	100.0	+ 44 800	+ 1.4%

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

Table A7.56: Manpower Requirements of Import and Export Trade Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	60 500	11.5	43 100	8.1	- 17 400	- 3.3%
Upper secondary	240 500	45.8	206 700	38.6	- 33 900	- 1.5%
Diploma	25 900	4.9	32 400	6.1	+ 6 500	+ 2.3%
Sub-degree	35 700	6.8	45 500	8.5	+ 9 800	+ 2.5%
First degree	136 500	26.0	173 200	32.4	+ 36 700	+ 2.4%
Postgraduate	25 500	4.9	34 500	6.4	+ 9 000	+ 3.1%
All levels	524 800	100.0	535 400	100.0	+ 10 600	+ 0.2%

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

Table A7.57: Manpower Requirements of Wholesale Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	21 300	32.6	13 900	23.8	- 7 400	- 4.2%
Upper secondary	28 500	43.6	26 000	44.3	- 2 600	- 0.9%
Diploma	2 400	3.6	2 800	4.8	+ 500	+ 1.8%
Sub-degree	3 000	4.6	3 700	6.3	+ 600	+ 1.9%
First degree	8 800	13.4	10 600	18.1	+ 1 800	+ 1.9%
Postgraduate	1 400	2.1	1 600	2.7	+ 200	+ 1.4%
All levels	65 400	100.0	58 600	100.0	- 6 800	- 1.1%

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

Table A7.58: Manpower Requirements of Retail Trade Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	103 800	31.9	66 000	18.0	- 37 900	- 4.4%
Upper secondary	168 800	51.9	211 300	57.6	+ 42 500	+ 2.3%
Diploma	10 500	3.2	14 800	4.0	+ 4 300	+ 3.5%
Sub-degree	11 400	3.5	19 000	5.2	+ 7 600	+ 5.2%
First degree	27 500	8.4	49 300	13.4	+ 21 800	+ 6.0%
Postgraduate	3 400	1.0	6 300	1.7	+ 2 900	+ 6.4%
All levels	325 500	100.0	366 700	100.0	+ 41 200	+ 1.2%

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

Table A7.59: Manpower Requirements of Accommodation Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	11 900	26.9	11 100	19.6	- 800	- 0.7%
Upper secondary	18 900	42.7	20 800	36.8	+ 1 900	+ 1.0%
Diploma	2 300	5.2	4 000	7.0	+ 1 700	+ 5.6%
Sub-degree	2 500	5.7	4 900	8.6	+ 2 300	+ 6.8%
First degree	6 800	15.4	12 500	22.0	+ 5 700	+ 6.2%
Postgraduate	1 800	4.2	3 400	6.1	+ 1 600	+ 6.4%
All levels	44 300	100.0	56 700	100.0	+ 12 400	+ 2.5%

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

Table A7.60: Manpower Requirements of Food Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	132 200	56.0	109 900	43.8	- 22 300	- 1.8%
Upper secondary	91 200	38.6	121 700	48.5	+ 30 500	+ 2.9%
Diploma	3 700	1.6	6 400	2.6	+ 2 700	+ 5.7%
Sub-degree	3 100	1.3	4 400	1.7	+ 1 300	+ 3.5%
First degree	5 700	2.4	8 000	3.2	+ 2 300	+ 3.4%
Postgraduate	300	0.1	400	0.2	+ 100	+ 2.6%
All levels	236 200	100.0	250 800	100.0	+ 14 600	+ 0.6%

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

Table A7.61: Manpower Requirements of Freight Transportation Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	64 300	39.0	46 700	28.2	- 17 600	- 3.1%
Upper secondary	72 500	44.0	77 300	46.7	+ 4 800	+ 0.6%
Diploma	4 900	3.0	6 500	3.9	+ 1 600	+ 2.9%
Sub-degree	5 300	3.2	8 600	5.2	+ 3 400	+ 5.1%
First degree	15 200	9.2	22 400	13.5	+ 7 200	+ 4.0%
Postgraduate	2 600	1.6	4 100	2.5	+ 1 500	+ 4.6%
All levels	164 800	100.0	165 600	100.0	+ 800	+ 0.1%

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

Table A7.62: Manpower Requirements of Miscellaneous Transportation Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	56 900	42.3	49 100	33.0	- 7 800	- 1.5%
Upper secondary	48 900	36.4	56 800	38.2	+ 7 900	+ 1.5%
Diploma	4 500	3.4	5 800	3.9	+ 1 300	+ 2.6%
Sub-degree	4 800	3.6	6 800	4.6	+ 2 000	+ 3.5%
First degree	16 600	12.3	25 700	17.3	+ 9 100	+ 4.5%
Postgraduate	2 800	2.1	4 400	3.0	+ 1 500	+ 4.4%
All levels	134 600	100.0	148 600	100.0	+ 14 100	+ 1.0%

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

Table A7.63: Manpower Requirements of Warehousing and Storage Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 600	24.7	1 300	19.5	- 300	- 1.9%
Upper secondary	3 300	50.3	3 300	48.7	+ 100	+ 0.2%
Diploma	300	4.2	300	4.0	^^	- 0.2%
Sub-degree	300	4.5	400	5.9	+ 100	+ 3.2%
First degree	900	13.5	1 200	18.0	+ 400	+ 3.4%
Postgraduate	200	2.7	300	4.0	+ 100	+ 4.3%
All levels	6 500	100.0	6 800	100.0	+ 300	+ 0.5%

^^ Change within ±50

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

Table A7.64: Manpower Requirements of Postal and Courier Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	4 100	22.1	3 300	18.2	- 800	- 2.1%
Upper secondary	12 000	64.9	12 100	66.7	+ 100	+ 0.1%
Diploma	600	3.4	700	3.6	^^	+ 0.5%
Sub-degree	600	3.2	700	3.7	+ 100	+ 1.5%
First degree	1 000	5.4	1 100	6.1	+ 100	+ 1.1%
Postgraduate	200	1.1	300	1.7	+ 100	+ 4.2%
All levels	18 500	100.0	18 100	100.0	- 400	- 0.2%

^^ Change within ± 50

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

Table A7.65: Manpower Requirements of Telecommunication Activities Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 100	5.6	700	3.8	- 300	- 3.6%
Upper secondary	8 400	44.1	7 700	39.1	- 700	- 0.9%
Diploma	1 200	6.2	1 600	7.9	+ 400	+ 2.8%
Sub-degree	1 300	6.9	1 500	7.8	+ 200	+ 1.5%
First degree	5 400	28.2	6 200	31.4	+ 800	+ 1.4%
Postgraduate	1 700	9.1	2 000	10.0	+ 200	+ 1.3%
All levels	19 000	100.0	19 600	100.0	+ 600	+ 0.3%

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

Table A7.66: Manpower Requirements of Software Publishing and Information Technology Related Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	300	0.7	200	0.4	- 100	- 2.1%
Upper secondary	6 400	14.9	5 100	9.3	- 1 300	- 2.3%
Diploma	2 300	5.2	3 200	5.8	+ 1 000	+ 3.6%
Sub-degree	3 600	8.4	5 100	9.3	+ 1 500	+ 3.5%
First degree	24 200	56.4	33 000	60.0	+ 8 800	+ 3.1%
Postgraduate	6 100	14.3	8 400	15.2	+ 2 200	+ 3.1%
All levels	43 000	100.0	55 000	100.0	+ 12 000	+ 2.5%

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

Table A7.67: Manpower Requirements of Miscellaneous Activities Related to Information and Communications Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	3 100	7.3	1 800	4.1	- 1 200	- 5.0%
Upper secondary	13 800	32.6	12 000	26.4	- 1 800	- 1.4%
Diploma	2 700	6.3	3 200	7.0	+ 500	+ 1.8%
Sub-degree	3 500	8.3	4 000	8.8	+ 500	+ 1.3%
First degree	15 300	36.3	18 600	41.1	+ 3 300	+ 2.0%
Postgraduate	3 900	9.3	5 700	12.6	+ 1 800	+ 3.9%
All levels	42 200	100.0	45 300	100.0	+ 3 100	+ 0.7%

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

Table A7.68: Manpower Requirements of Banking Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	900	0.9	600	0.5	- 300	- 3.3%
Upper secondary	31 400	31.7	22 800	18.3	- 8 700	- 3.2%
Diploma	3 000	3.0	4 700	3.8	+ 1 700	+ 4.7%
Sub-degree	5 800	5.9	9 200	7.4	+ 3 400	+ 4.7%
First degree	44 000	44.4	66 100	53.1	+ 22 100	+ 4.1%
Postgraduate	14 000	14.1	21 000	16.9	+ 7 000	+ 4.1%
All levels	99 200	100.0	124 500	100.0	+ 25 300	+ 2.3%

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

Table A7.69: Manpower Requirements of Financial Institutions (other than Banks and Insurance) Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	3 000	3.5	1 000	0.9	- 2 000	- 10.3%
Upper secondary	20 200	23.6	14 000	12.9	- 6 100	- 3.6%
Diploma	2 900	3.4	4 300	3.9	+ 1 400	+ 4.0%
Sub-degree	3 700	4.4	5 600	5.1	+ 1 900	+ 4.1%
First degree	40 500	47.6	61 500	56.4	+ 21 000	+ 4.3%
Postgraduate	15 000	17.6	22 700	20.8	+ 7 700	+ 4.2%
All levels	85 300	100.0	109 100	100.0	+ 23 900	+ 2.5%

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

Table A7.70: Manpower Requirements of Insurance Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 800	3.7	1 500	2.6	- 300	- 1.7%
Upper secondary	20 400	42.1	15 300	26.9	- 5 100	- 2.8%
Diploma	2 100	4.4	2 000	3.4	- 200	- 0.8%
Sub-degree	3 200	6.5	3 000	5.3	- 100	- 0.4%
First degree	16 900	34.9	28 700	50.4	+ 11 700	+ 5.4%
Postgraduate	4 100	8.5	6 400	11.3	+ 2 300	+ 4.5%
All levels	48 500	100.0	56 900	100.0	+ 8 300	+ 1.6%

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

Table A7.71: Manpower Requirements of Real Estate Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	42 400	32.6	37 600	26.1	- 4 800	- 1.2%
Upper secondary	51 500	39.6	54 500	37.9	+ 3 000	+ 0.6%
Diploma	4 100	3.1	4 700	3.3	+ 600	+ 1.4%
Sub-degree	7 500	5.7	9 500	6.6	+ 2 000	+ 2.4%
First degree	20 200	15.5	30 800	21.4	+ 10 600	+ 4.3%
Postgraduate	4 500	3.4	6 700	4.7	+ 2 200	+ 4.1%
All levels	130 200	100.0	143 800	100.0	+ 13 600	+ 1.0%

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

Table A7.72: Manpower Requirements of Legal Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 100	5.0	900	3.3	- 200	- 2.1%
Upper secondary	6 700	31.9	6 400	25.0	- 300	- 0.5%
Diploma	800	3.7	1 100	4.2	+ 300	+ 3.2%
Sub-degree	1 400	6.8	2 200	8.5	+ 700	+ 4.2%
First degree	8 100	38.1	11 000	42.6	+ 2 900	+ 3.1%
Postgraduate	3 100	14.5	4 300	16.5	+ 1 200	+ 3.3%
All levels	21 200	100.0	25 800	100.0	+ 4 600	+ 2.0%

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

Table A7.73: Manpower Requirements of Accounting, Auditing and Bookkeeping Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	400	1.5	400	1.0	- 100	- 1.9%
Upper secondary	5 200	17.9	4 100	12.1	- 1 100	- 2.4%
Diploma	1 300	4.4	1 500	4.6	+ 300	+ 1.9%
Sub-degree	1 700	5.9	2 200	6.6	+ 500	+ 2.6%
First degree	17 700	60.9	21 600	64.0	+ 3 900	+ 2.0%
Postgraduate	2 800	9.5	4 000	11.7	+ 1 200	+ 3.7%
All levels	29 200	100.0	33 800	100.0	+ 4 700	+ 1.5%

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

Table A7.74: Manpower Requirements of Engineering and Technical Services not Related to Construction and Real Estate Activities, Business Management and Consultancy Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	2 500	4.8	2 000	3.1	- 500	- 2.4%
Upper secondary	13 800	26.4	15 500	24.3	+ 1 700	+ 1.2%
Diploma	2 700	5.1	3 000	4.7	+ 300	+ 1.2%
Sub-degree	5 100	9.7	6 000	9.4	+ 900	+ 1.7%
First degree	20 100	38.4	26 900	42.1	+ 6 800	+ 2.9%
Postgraduate	8 200	15.6	10 400	16.3	+ 2 300	+ 2.5%
All levels	52 400	100.0	63 800	100.0	+ 11 500	+ 2.0%

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

Table A7.75: Manpower Requirements of Design, Advertising and Related Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 – 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 700	5.8	1 300	3.6	- 400	- 2.6%
Upper secondary	8 800	30.7	7 800	21.7	- 1 000	- 1.2%
Diploma	2 900	10.2	4 100	11.2	+ 1 100	+ 3.3%
Sub-degree	4 200	14.5	5 900	16.3	+ 1 700	+ 3.5%
First degree	9 800	34.1	15 000	41.4	+ 5 200	+ 4.3%
Postgraduate	1 400	4.8	2 100	5.9	+ 800	+ 4.5%
All levels	28 800	100.0	36 200	100.0	+ 7 400	+ 2.3%

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

Table A7.76: Manpower Requirements of Architectural, Surveying and Engineering Services Related to Real Estate and Construction Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 500	5.6	800	2.8	- 600	- 5.3%
Upper secondary	6 100	23.5	5 100	17.1	- 1 000	- 1.8%
Diploma	1 800	6.8	1 900	6.4	+ 100	+ 0.7%
Sub-degree	3 400	13.3	4 500	15.1	+ 1 000	+ 2.6%
First degree	9 600	37.1	11 700	39.3	+ 2 100	+ 2.0%
Postgraduate	3 500	13.6	5 700	19.3	+ 2 200	+ 5.0%
All levels	25 800	100.0	29 700	100.0	+ 3 900	+ 1.4%

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

Table A7.77: Manpower Requirements of Miscellaneous Professional and Business Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	115 200	55.7	114 900	49.3	- 300	**
Upper secondary	62 200	30.1	69 900	30.0	+ 7 700	+ 1.2%
Diploma	4 700	2.3	7 600	3.3	+ 2 900	+ 4.9%
Sub-degree	5 100	2.5	8 100	3.5	+ 3 000	+ 4.8%
First degree	16 600	8.0	27 500	11.8	+ 10 900	+ 5.2%
Postgraduate	2 900	1.4	4 900	2.1	+ 2 000	+ 5.4%
All levels	206 800	100.0	233 000	100.0	+ 26 200	+ 1.2%

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

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

Table A7.78: Manpower Requirements of Human Health Activities Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	18 200	14.8	14 900	9.6	- 3 300	- 2.0%
Upper secondary	33 800	27.5	39 900	25.6	+ 6 100	+ 1.7%
Diploma	6 600	5.4	10 500	6.8	+ 3 900	+ 4.7%
Sub-degree	9 500	7.7	14 500	9.3	+ 5 000	+ 4.4%
First degree	43 600	35.5	59 500	38.2	+ 15 900	+ 3.2%
Postgraduate	11 100	9.0	16 400	10.5	+ 5 300	+ 4.0%
All levels	122 900	100.0	155 800	100.0	+ 32 900	+ 2.4%

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

Table A7.79: Manpower Requirements of Social and Personal Services (other than Human Health Activities) Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	107 100	19.0	68 500	11.8	- 38 700	- 4.4%
Upper secondary	199 800	35.4	187 400	32.2	- 12 400	- 0.6%
Diploma	22 100	3.9	31 800	5.5	+ 9 700	+ 3.7%
Sub-degree	33 900	6.0	39 800	6.8	+ 5 900	+ 1.6%
First degree	140 300	24.8	179 700	30.9	+ 39 400	+ 2.5%
Postgraduate	61 500	10.9	74 800	12.9	+ 13 300	+ 2.0%
All levels	564 800	100.0	582 000	100.0	+ 17 200	+ 0.3%

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

Table A7.80: Manpower Requirements of Financial Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	5 600	2.4	3 100	1.1	- 2 500	- 5.7%
Upper secondary	72 000	30.9	52 100	17.9	- 19 900	- 3.2%
Diploma	8 000	3.4	11 000	3.8	+ 3 000	+ 3.2%
Sub-degree	12 700	5.5	17 800	6.1	+ 5 100	+ 3.5%
First degree	101 500	43.6	156 300	53.8	+ 54 800	+ 4.4%
Postgraduate	33 100	14.2	50 100	17.3	+ 17 000	+ 4.2%
All levels	233 000	100.0	290 500	100.0	+ 57 600	+ 2.2%

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

Table A7.81: Manpower Requirements of Trading and Logistics Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	151 900	19.5	108 400	13.8	- 43 500	- 3.3%
Upper secondary	356 800	45.8	325 300	41.5	- 31 500	- 0.9%
Diploma	34 100	4.4	42 700	5.4	+ 8 600	+ 2.3%
Sub-degree	44 900	5.8	58 900	7.5	+ 14 000	+ 2.8%
First degree	162 300	20.8	208 500	26.6	+ 46 200	+ 2.5%
Postgraduate	29 900	3.8	40 700	5.2	+ 10 800	+ 3.1%
All levels	779 900	100.0	784 500	100.0	+ 4 600	+ 0.1%

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

Table A7.82: Manpower Requirements of Professional Services and Other Producer Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	118 600	23.6	105 300	18.2	- 13 400	- 1.2%
Upper secondary	153 800	30.6	160 500	27.7	+ 6 600	+ 0.4%
Diploma	21 800	4.3	29 300	5.1	+ 7 500	+ 3.0%
Sub-degree	32 600	6.5	43 700	7.6	+ 11 100	+ 3.0%
First degree	137 200	27.3	186 100	32.2	+ 48 900	+ 3.1%
Postgraduate	38 500	7.7	53 500	9.3	+ 15 000	+ 3.3%
All levels	502 600	100.0	578 200	100.0	+ 75 700	+ 1.4%

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

Table A7.83: Manpower Requirements of Tourism Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	96 000	38.4	86 000	27.3	- 10 000	- 1.1%
Upper secondary	108 000	43.2	146 700	46.6	+ 38 600	+ 3.1%
Diploma	8 000	3.2	13 400	4.3	+ 5 400	+ 5.2%
Sub-degree	8 700	3.5	15 600	5.0	+ 6 900	+ 6.0%
First degree	24 200	9.7	44 300	14.1	+ 20 100	+ 6.2%
Postgraduate	5 000	2.0	8 900	2.8	+ 3 900	+ 5.9%
All levels	250 000	100.0	314 800	100.0	+ 64 900	+ 2.3%

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

Table A7.84: Manpower Requirements of Information Technology and Information Services Industry by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 400	2.2	1 000	1.3	- 400	- 3.2%
Upper secondary	14 800	23.9	12 800	17.1	- 2 000	- 1.5%
Diploma	3 400	5.5	4 800	6.4	+ 1 300	+ 3.3%
Sub-degree	4 900	7.9	6 600	8.9	+ 1 700	+ 3.0%
First degree	29 600	47.7	39 200	52.5	+ 9 600	+ 2.8%
Postgraduate	7 900	12.7	10 300	13.8	+ 2 500	+ 2.8%
All levels	62 000	100.0	74 600	100.0	+ 12 600	+ 1.9%

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

Table A7.85: Manpower Requirements of Innovation and Technology Industries by Education Level in 2011 and 2022

Education level	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	-	-	-	-	-	-
Upper secondary	900	3.0	700	2.0	- 200	- 1.9%
Diploma	1 200	3.9	1 400	3.9	+ 300	+ 1.8%
Sub-degree	2 000	6.5	2 500	6.9	+ 500	+ 2.2%
First degree	16 000	53.4	19 300	53.6	+ 3 300	+ 1.7%
Postgraduate	9 900	33.2	12 100	33.5	+ 2 100	+ 1.8%
All levels	29 900	100.0	36 000	100.0	+ 6 100	+ 1.7%

- Nil figure

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

Table A7.86: Manpower Requirements of Testing and Certification Services Industry by Education Level in 2011 and 2022

Education level	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	1 700	12.8	1 300	8.2	- 400	- 2.4%
Upper secondary	3 900	29.5	4 400	28.2	+ 500	+ 1.1%
Diploma	1 700	13.0	2 200	13.9	+ 500	+ 2.1%
Sub-degree	1 000	7.9	1 400	8.8	+ 300	+ 2.6%
First degree	4 000	30.2	5 300	33.5	+ 1 200	+ 2.4%
Postgraduate	900	6.6	1 100	7.3	+ 300	+ 2.4%
All levels	13 300	100.0	15 700	100.0	+ 2 400	+ 1.5%

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

Table A7.87: Manpower Requirements of Cultural and Creative Industries by Education Level in 2011 and 2022

Education level	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	26 200	13.3	18 500	8.1	- 7 800	- 3.1%
Upper secondary	61 300	31.1	59 600	26.2	- 1 700	- 0.2%
Diploma	11 400	5.8	15 100	6.7	+ 3 700	+ 2.6%
Sub-degree	16 500	8.4	22 100	9.7	+ 5 600	+ 2.7%
First degree	64 800	32.9	87 800	38.7	+ 23 000	+ 2.8%
Postgraduate	16 800	8.5	24 000	10.6	+ 7 200	+ 3.3%
All levels	197 100	100.0	227 200	100.0	+ 30 100	+ 1.3%

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

Table A7.88: Manpower Requirements of Environmental Industries by Education Level in 2011 and 2022

Education level	Actual manpower requirements in 2011		Projected manpower requirements in 2022		Projected change from 2011 to 2022	Projected average annual rate of change (2011 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	20 400	52.4	33 600	46.4	+ 13 200	+ 4.6%
Upper secondary	12 000	30.8	21 900	30.3	+ 9 900	+ 5.6%
Diploma	1 000	2.6	2 600	3.5	+ 1 500	+ 8.7%
Sub-degree	1 100	3.0	2 900	4.0	+ 1 700	+ 8.7%
First degree	3 600	9.4	9 500	13.2	+ 5 900	+ 9.1%
Postgraduate	700	1.8	1 900	2.6	+ 1 200	+ 9.2%
All levels	38 900	100.0	72 400	100.0	+ 33 400	+ 5.8%

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

Table A7.89: Manpower Requirements of EDC Industry Cluster 1 - Transportation by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	75 100	39.5	57 100	29.0	- 18 000	- 2.7%
Upper secondary	81 700	43.0	89 300	45.3	+ 7 600	+ 0.9%
Diploma	5 700	3.0	7 700	3.9	+ 2 000	+ 3.0%
Sub-degree	6 200	3.3	10 100	5.1	+ 3 900	+ 5.0%
First degree	18 300	9.6	27 800	14.1	+ 9 500	+ 4.3%
Postgraduate	3 100	1.7	5 000	2.5	+ 1 900	+ 4.7%
All levels	190 200	100.0	197 100	100.0	+ 6 900	+ 0.4%

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

Table A7.90: Manpower Requirements of EDC Industry Cluster 2 - Convention and Exhibition Industries and Tourism by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	97 400	38.6	87 500	27.5	- 9 900	- 1.1%
Upper secondary	108 800	43.1	147 600	46.4	+ 38 800	+ 3.1%
Diploma	8 100	3.2	13 500	4.2	+ 5 400	+ 5.2%
Sub-degree	8 800	3.5	15 700	5.0	+ 6 900	+ 6.0%
First degree	24 400	9.7	44 700	14.0	+ 20 300	+ 6.2%
Postgraduate	5 000	2.0	8 900	2.8	+ 3 900	+ 5.9%
All levels	252 500	100.0	318 000	100.0	+ 65 500	+ 2.3%

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

Table A7.91: Manpower Requirements of EDC Industry Cluster 3 - Manufacturing Industries, Innovative Technology, and Cultural and Creative Industries by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	62 800	20.2	44 800	13.2	- 18 100	- 3.3%
Upper secondary	96 000	30.8	93 700	27.7	- 2 300	- 0.2%
Diploma	16 100	5.2	20 500	6.1	+ 4 400	+ 2.4%
Sub-degree	22 700	7.3	29 800	8.8	+ 7 100	+ 2.7%
First degree	86 600	27.8	113 300	33.5	+ 26 700	+ 2.7%
Postgraduate	27 000	8.7	36 100	10.7	+ 9 200	+ 3.0%
All levels	311 200	100.0	338 100	100.0	+ 26 900	+ 0.8%

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

Table A7.92: Manpower Requirements of EDC Industry Cluster 4 - Professional Services by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	5 500	4.2	4 000	2.6	- 1 400	- 3.0%
Upper secondary	31 900	24.8	31 100	20.3	- 700	- 0.2%
Diploma	6 500	5.1	7 500	4.9	+ 1 000	+ 1.5%
Sub-degree	11 700	9.1	14 900	9.7	+ 3 200	+ 2.4%
First degree	55 500	43.2	71 200	46.5	+ 15 700	+ 2.5%
Postgraduate	17 500	13.6	24 400	15.9	+ 6 900	+ 3.4%
All levels	128 600	100.0	153 200	100.0	+ 24 600	+ 1.8%

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

Table A7.93: Manpower Requirements of IT Workers by Education Level in 2012 and 2022

Education level	Actual manpower requirements in 2012		Projected manpower requirements in 2022		Projected change from 2012 to 2022	Projected average annual rate of change (2012 - 2022)
	Number	% share	Number	% share		
Lower secondary and below	300	0.4	300	0.3	^^	- 0.1%
Upper secondary	12 100	15.0	13 500	13.8	+ 1 400	+ 1.1%
Diploma	4 200	5.2	4 500	4.6	+ 300	+ 0.6%
Sub-degree	5 400	6.6	7 500	7.7	+ 2 200	+ 3.5%
First degree	44 700	55.5	54 000	55.1	+ 9 400	+ 1.9%
Postgraduate	13 900	17.2	18 200	18.5	+ 4 300	+ 2.7%
All levels	80 500	100.0	98 000	100.0	+ 17 500	+ 2.0%

^^ Change within ± 50

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

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 2022, 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 **education 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 but in the process of seeking jobs. 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 2022 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 2022 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; Environmental industries* as well as the four industry clusters under the ambit of the Economic Development Commission (EDC), namely (i) EDC industry cluster 1 – *Transportation*; (ii) EDC industry cluster 2 – *Convention and exhibition industries and tourism*; (iii) EDC industry cluster 3 – *Manufacturing industries, innovative technology, and cultural and creative industries*; and (iv) EDC industry cluster 4 – *Professional services*. These industries have great 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

C&SD	Census and Statistics Department
CEPA	Closer Economic Partnership Arrangement
EDC	Economic Development Commission
FDHs	Foreign domestic helpers
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
ICT	Information and Communication Technologies
IFC	International Financial Centre
IT	Information Technology
IT&IS	Information technology and information services
LFPR	Labour force participation rate
MP2022	Manpower Projection to 2022
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
WKCD	West Kowloon Cultural District

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.