



# Redefining the **Finance Function** with **Job Redesign**

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# REDEFINING THE FINANCE FUNCTION WITH JOB REDESIGN

## EXECUTIVE SUMMARY

The Covid-19 pandemic has upped the game for businesses. Technology adoption is no longer a future need but an immediate requisite for survival, if one does not want to risk being left behind. Not only is it more pressing than ever to ride the fast-surfing waves of the technology revolution, more importantly, it is essential to know how to do it well. To do so, it is vital to have visibility of the path ahead, prepare for potential pitfalls, and plan for how best to navigate the journey ahead. This report provides a view into the future to reimagine roles in the finance function, and recommends ways to manage the changes.

Within the next three to five years, we expect to see an economy-wide expansion in the use of technological enablers such as robotic process automation (RPA), artificial intelligence (AI), advanced analytics/big data and blockchain. This shift will have a pronounced impact on the finance functions of 2025.

Our research found that more than half of the 11 job roles in the finance function will be moderately or highly impacted due to technology adoption. The two most junior roles – Accounts Executive/Accounts Assistant in the Financial Accounting (FA) track, and Accounting Executive in the Management Accounting (MA) track – will likely be diminished with all tasks displaced by technology as much of their work scope involves repetitive, time-consuming and labour-intensive tasks that can be taken over by machines. Junior-level finance tasks are also likely to shift towards providing insights from data analytics, and to provide input to train machines. The five mid-level roles will be transformed where certain key tasks would be displaced and/or redesigned as a result of technology adoption. The four most senior-level roles will face incremental changes, where they will continue to deliver outcomes with increased efficiency due to technology.

The impact on mid-level roles such as Finance Manager, Financial Planning and Analysis Manager, and Treasury Manager, will be more measured. While digital solutions provide useful outputs, human intervention remains essential, such as in the areas of problem-solving, exercising commercial acumen, identifying strategic insights and conveying them across the organisation. Another aspect would be to manage the digital systems, troubleshoot, validate outputs, and ensure compliance with internal policies and controls.

The most senior roles are least impacted by emerging technologies, with change happening more incrementally. Even so, there will be shifts. The Chief Financial Officer (CFO), for example, will move away from being the custodian of financial reporting to focus on optimising resources for business growth. As a case in point, new technologies enable predictive and prescriptive analyses which, when combined with the CFO's established stakeholder management skills, experience and personal influence, can elevate the value-add of the finance function.

Concurrent with the diminishing of junior roles is the demand of the emerging millennial workforce for higher-skilled roles as fresh graduates, armed with increasingly higher qualifications, enter the workforce. This synergises with the emergence of technological enablers as sophisticated technologies, including AI, blockchain and advanced analytics/big data processes, require a different skill set from employees – in addition to the standard accounting competencies expected of them. Employers, too, will need to rethink their strategies regarding recruitment and talent development.

Technology adoption often comes with a high price tag, to the detriment of small and medium-sized enterprises (SMEs). SMEs may face challenges such as a lack of clarity regarding the relevant return-on-investment and/or a lack of data for model-building, which weaken their motivation to make the requisite investments. To help SMEs better cope with the issue of funding in relation to technology investment, monetary assistance schemes for SMEs are available and can be more actively promoted to potential candidates. SMEs themselves can also be more efficient and effective in their transformation efforts, such as by specifying exactly the tasks that their workers are already equipped to perform, and the new tasks and corresponding skills they must be trained in.

In line with the impending shifts in job extents, businesses may want to look towards right-shoring certain finance tasks or roles. This involves outsourcing simple and manual-intensive work processes while retaining higher-value roles locally. This could be an alternative for SMEs who may find it difficult to justify the return-on-investment in technology. Right-shoring is based on establishing competitive advantage and enhancing value to the business by bringing operations closer or back to home base.

Job transition pathways have been mapped out for the two most junior roles in the FA and MA tracks most likely to be displaced by technology. First, these roles can be upskilled to assume next-level roles – FA Accountant/Senior Accounts Executive and MA Management Accountant/Financial Planning and Analysis Analyst/ Business Analyst roles, respectively. Second, the two most junior-level roles may converge as well, as new technologies take over more tasks in both FA and MA tracks. The scope of these roles would vary across organisations of different sizes, as well as of different levels of maturity in technology adoption. However, this is less likely to happen as both of these roles will likely be displaced eventually. Third, both roles could look at moving to the Internal Audit track to take up the Senior Internal Auditor/Internal Auditor role. The above references pathways laid out in the Skills Framework for Accountancy, jointly developed by SkillsFuture Singapore, Workforce Singapore, Singapore Accountancy Commission, and Institute of Singapore Chartered Accountants, together with industry associations, training providers, organisations and unions.<sup>1</sup>

For mid-level roles, these will require redesign rather than transitioning into a new role. As such, they should focus on upskilling themselves. For example, the Finance Manager's role in supporting the organisation as a business partner will be enhanced through leveraging advanced analytics/big data and AI. Their role will shift towards focusing on problem solving and determining opportunities to creatively utilise digital tools to better respond to business issues. This will require Finance Managers to upskill in utilising digital solutions. On the same note, as the finance function becomes digitalised, senior-level roles will be expected to address a growing need to provide insights on-demand rather than periodically, respond increasingly with greater agility to fast-changing business environment, as well as to collaborate more closely with other business units such as the information technology department to maximise the potential of technology. It will become vital for them to know about these digital tools and their usage possibilities relevant to the business.

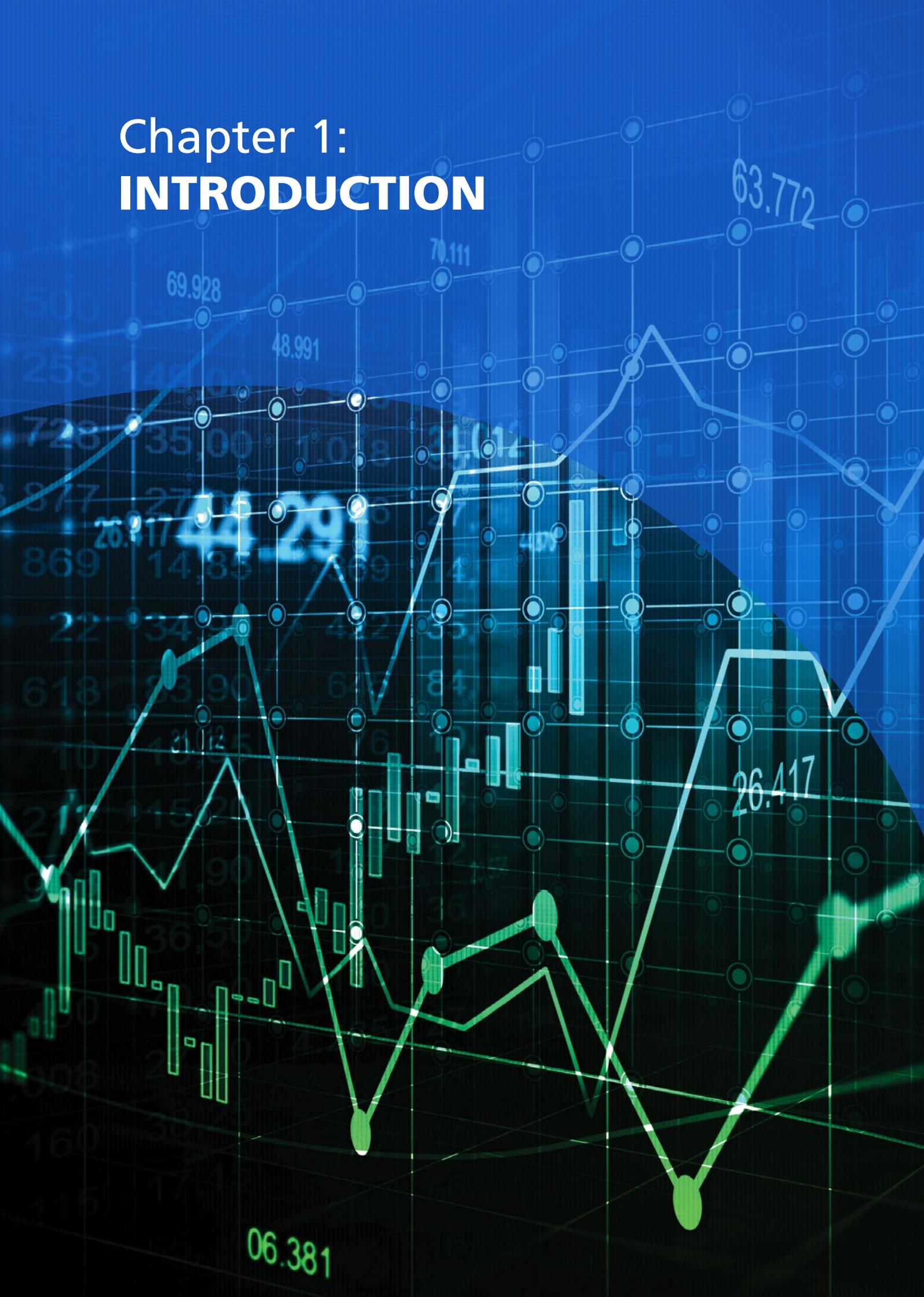
The research also explores lateral transition pathways outside the accountancy profession. The FA Accounts Executive/Accounts Assistant can explore transitions to Clinical Data Manager, Business Intelligence Analyst or Customer Service Representative. The Customer Service Representative role is already present in other sectors while Clinical Data Manager and Business Intelligence Analyst are relatively emerging roles. The MA Accounting Executive similarly has three options – Quality Control System Manager, Logistics Manager or Compliance Manager; the latter two being transitions that may be growing in demand. These recommendations are not meant to be exhaustive but are presented as possible creative options. These options are generated based on maximising the overlap in tasks and minimising the number of dissimilar tasks which would require training, considering both the nature of tasks and degree to which they are core or supplementary to the job role such that similar core tasks are given greater weightage. The algorithm also prioritises roles which are more resilient to automation as well as those belonging to high-growth sectors which are in greater demand. To account for complexities in job roles across companies and industries, inputs on possible transition pathways, from focus groups comprising finance leaders and CFOs, were incorporated. This is further addressed through the use of a combination of both skills and task frameworks.

It is important to consider the potential challenges in job transitions, apart from filling the skills gaps. Notably, job transitions require a mindset shift. Workers must not view technology as a threat or be sceptical of it. Instead, they should view technology as a means to enhance overall outputs, and as the impetus to refocus on work scopes. Finance leaders need to exercise care and sensitivity when managing perceptions related to job transitions so that they are not misinterpreted as a demotion or loss of status. They should continually empower and support workers in exploring various options for possible transitions.

Many employees, across diverse age demographics, have expressed an enthusiasm to acquire the relevant skills to stay competitive in the modern workplace. Greater clarity on training courses, especially in defining learning outcomes and takeaways, would help them evaluate the costs and benefits of the time and money involved. Training courses could be tailored to meet the specific needs of employees, if companies and employers are able to identify the exact tasks their staff need training for. Workers should be given the time to go for training and also receive financial support.

One overarching conclusion should be clear – successful job redesign is multi-faceted. It requires a broad upskilling along the full spectrum from soft skills to hard skills, and is best achieved with detailed knowledge of the task profiles of job roles both within and outside of the accountancy profession. For example, during the focus group sessions with CFOs, the growing value of communication skills was highlighted, alongside the need for employees to learn new technologies. There is also growing support to expose employees to a variety of roles when they are in a more junior position, such as through job rotations across departments. This will help equip employees with a better understanding of how the whole organisation works, thus strengthening their ability to communicate across a variety of disciplines; they will also acquire a broader base of skills.

# Chapter 1: **INTRODUCTION**



## CHAPTER 1: INTRODUCTION

The potential of technology to transform work processes is immense. In the next five years, the World Economic Forum expects more than half of all workplace tasks to be performed by machines.<sup>2</sup> According to a 2018 research by McKinsey, finance functions can expect about 60% of its activities to be fully or mostly automated with current technologies.<sup>3</sup> All these were before the effects of Covid-19, which have already altered the workplace with remote communications.

With the Covid-19 crisis, many businesses have been forced to accelerate the adoption of technology to digitalise work processes, enhance business operations and, for some, to enable business continuity. Similarly, the technological impact on accountancy and finance professionals in finance functions is expected to gather speed.

This research aims to support employees in steering through the impending changes to their job roles and changing demands in skill sets. It also responds to the growing urgency to support finance leaders such as Chief Financial Officers (CFOs) in understanding how their finance teams can be optimised with technology to raise its value-add to the overall business and drive increased productivity and cost-efficiency, as well as how to facilitate the transition to redesigned roles. It is also targeted at enhancing business leaders' understanding of the benefits of technology adoption with job redesign and to motivate enterprises to adopt new technologies. This is especially pertinent in light of the new normal arising from the Covid-19 crisis, where digitalisation is necessary to move businesses into the future.

The Institute of Singapore Chartered Accountants (ISCA), Lee Kuan Yew Centre for Innovative Cities (LKYCIC) at the Singapore University of Technology and Design, and Ernst & Young Advisory Pte. Ltd. (EY) embarked on this study together, contributing established knowledge and capabilities in understanding the impact of technology on accountancy and finance professionals, and providing support to prepare them for the changes ahead.

The objectives of this research study are to identify and illustrate how job roles in finance functions in Singapore can be redesigned to respond to technological changes in the next three to five years, and to optimise collaboration between humans and machines. The study also seeks to provide a view on job mobility, and to recommend pathways for possible job transitions within the accountancy profession, where required. More importantly, it identifies the emerging skill sets that employees should have in order to meet changing job requirements, and highlights the skills gaps that need to be bridged in job transitions.

As technology adoption impacts job tasks and work functions rather than job roles, this study dives in to examine the impact of technological trends at the detailed task/work function level. This includes identifying which tasks will be replaced by machines and augmented by machines, and which ones will remain in human hands. Insights generated at the work task/function level can be applied to varied roles within the finance function across industries and organisation sizes, as well as to companies at varying levels of maturity in technology adoption.

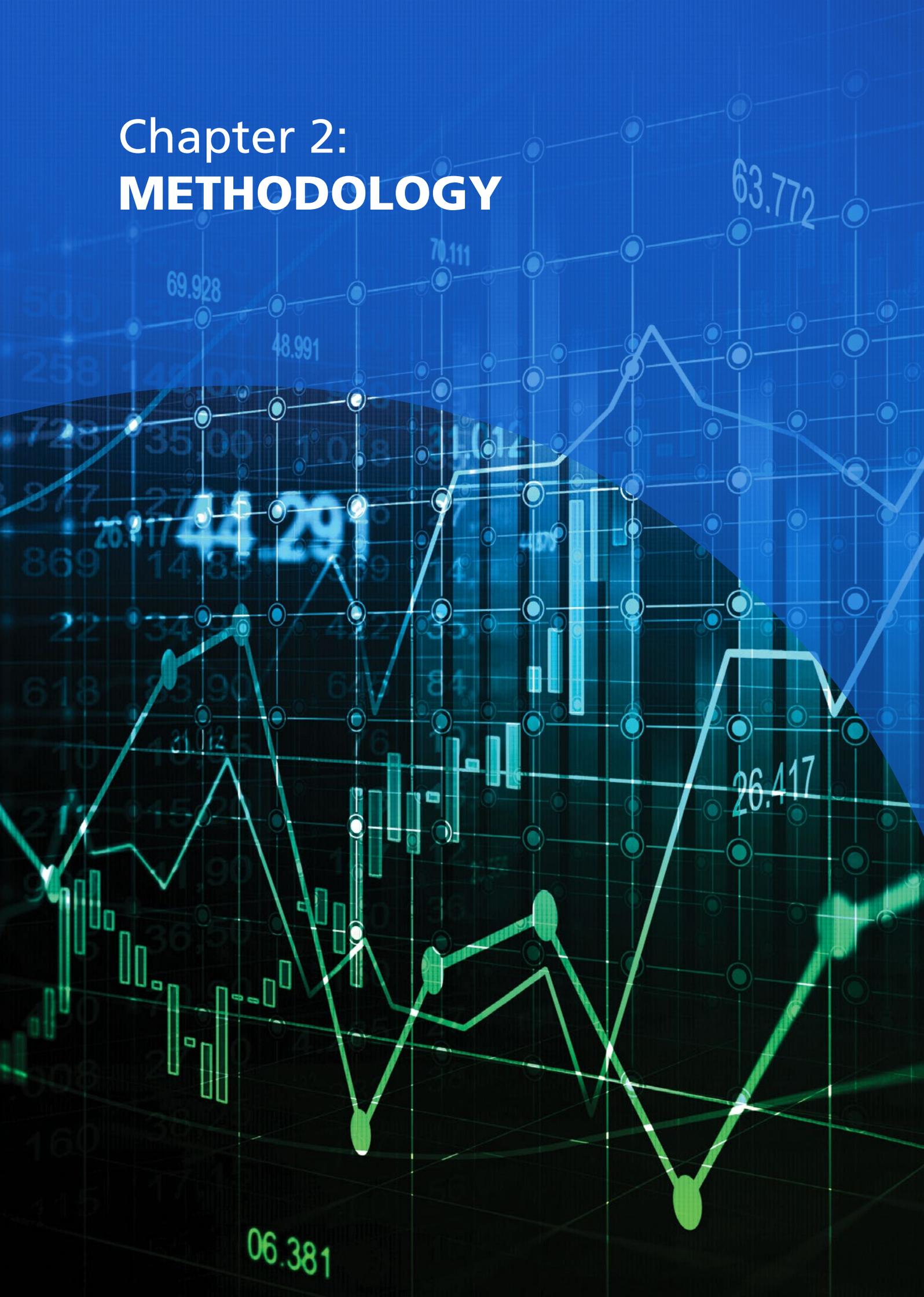
The study is targeted at raising awareness of technological changes to companies which have not started on their digital transformation journey but need to get on the bandwagon quickly, especially in the wake of the Covid-19 crisis. For companies which are ready to embark on their technology transformation journey but are unsure of how to do so, this study can serve as a guide. In Singapore, companies that are lagging behind in technology adoption tend to be the small and medium-sized enterprises (SMEs).

For companies which have started on digitalisation – typically the larger companies – the findings can provide a useful reference point to validate existing job redesign initiatives, uncover blind spots and fuel considerations for improvements. These could be in areas such as guiding employees on transitioning to new roles where there are full or partial displacements, and supporting them in upskilling. Companies can also begin to recruit talent with the relevant skill sets to build a future-ready finance team.

The study considers human-centricity and social responsibility. This is done by examining what tasks are valued by employees and employers, considering sound organisational psychology principles, and how to empower both employees and employers to co-create the future of finance roles and functions.

Additionally, this report provides insights into the potential challenges to job redesign. It also discusses possible approaches that can be undertaken by various stakeholders, including policymakers and professional bodies, in supporting businesses to maximise the benefits of technology adoption.

# Chapter 2: **METHODOLOGY**



## CHAPTER 2: METHODOLOGY

The scope of research covers common job roles in the Financial Accounting (FA) and Management Accounting (MA) tracks of the finance function that are found in most companies in Singapore. The study referenced the Skills Framework for Accountancy<sup>4</sup>, in which a total of 11 common job roles were mapped out for the finance function. There are six roles within the FA track, four roles within the MA track and the CFO role that oversees FA and MA tracks.<sup>5</sup>

The research focused on companies in Singapore from the top five industries based on percentage share of Singapore's Gross Domestic Product contributions in 2019. They are Manufacturing (22.0%), Retail & Wholesale Trade (17.6%), Business Services (14.9%), Finance & Insurance (13.0%), and Transportation & Storage (6.7%).<sup>6</sup> The study referred to definitions of these industries developed by Department of Statistics, Ministry of Trade and Industry, for Singapore.

The research scope includes SMEs and large companies, defined according to number of employees. With reference to Enterprise Singapore (ESG)'s definition of SMEs as firms with fewer than or equal to 200 employees, a classification of company sizes was developed. Small companies are defined as those with 200 employees or fewer, medium-sized companies are defined as those with 201 to 500 employees, and large companies are those with 501 employees or more. For companies with regional or global presence, the number of employees encompasses their presence outside of Singapore. This is based on the consideration that local, regional and global companies would differ in the structure and headcounts of their finance functions, and correspondingly, the scope of responsibilities for their roles.

The study was conducted in three phases, namely:

- **Phase 1:** Data collection of job descriptions (JDs) from five industries across company sizes, and condensed into representative JDs;
- **Phase 2:** Validation of JDs, identification of tasks that will be automated or augmented by technology, validation of impact of technology on job roles, two focus group sessions with CFOs, and generation of transition pathways within the accountancy profession, and
- **Phase 3:** Analysis and generation of lateral pathways.

### Phase 1: Data collection

In the first stage, we sought to determine the key tasks constitutive of each finance function role.

To explore this question, we required an accurate portrait of the JDs for the 11 finance function roles under investigation. We drew this information from two sources:

- 1) Skills Framework for Accountancy, and
- 2) JDs collected from a variety of job postings.

In the data collection phase, close to 100 JDs were collected for the 11 job roles from the public domain. They were collected from public domains such as professional networking websites, online job classified advertisements, recruitment firm websites, and company websites. For each role, one JD would be sampled from an SME and another from a large company, for each of the five industries. To sample common JDs representative of the typical job role in finance functions, reference was made to the Skills Maps under the Skills Framework for Accountancy.<sup>7</sup>

The goal of this process was to catalogue the tasks constitutive of each job role by condensing the collected JDs into a single set of tasks. Since two JDs might phrase the same task in different ways, a key challenge was to collate the tasks while avoiding repetition. To meet this challenge, we implemented the following JD condensation procedure: we used the Skills Framework for Accountancy as the main frame, and ran a matching algorithm from each JD task to the tasks within the Skills Framework for Accountancy. The algorithm utilised natural language processing corroborated by manual verification, allowing us to map each JD to the relevant part of the Skills Framework for Accountancy while adding any tasks that were not already present. This resulted in a set of condensed JDs for each of the 11 finance function roles, with each one featuring a catalogue of the key tasks performed by each job role.<sup>8</sup>

## **Phase 2: Analysis of technological impact on job tasks and job mobility (intra-sector)**

In this phase, we identified the tasks and work functions for each job role identified in Phase 1 – where they were likely to be redesigned by technology, which tasks would still be valued, and what new tasks would be taken on. We started by identifying four prominent technology enablers in the modern workforce, followed by evaluating the impact of these enablers on the tasks and consequently, on their corresponding job roles and jobholders. This leveraged knowledge acquired from previous research studies conducted by EY on job redesign, as well as related insights gleaned from EY database of thought leadership papers. The analysed outcomes were further corroborated with SUTD and ISCA. Three categories of impact were defined: 'high', 'medium' and 'low' (refer to Figure 1 for definitions).

Job roles that fall into the 'high' impact category will likely undergo some degree of displacement. Jobholders may have to reskill and upskill in order to retain employability within the sector. To facilitate this process, it is useful for jobholders to have a sense of the job roles within the accountancy profession with the highest potential for them to transition to. Hence, for the two most 'highly' impacted roles (FA Accounts Executive/Accounts Assistant, and MA Accounting Executive), job mobility dashboards were created to provide a view of and to detail the mobility potential within the accountancy profession. The accountancy profession is defined as roles featured within the Career Map under the Skills Framework for Accountancy (refer to Figure 7).

These findings were then corroborated with industry leaders through two focus group discussions (FGDs). FGD participants comprised heads of finance functions and CFOs from the top five industries identified within the research scope. They also represented a mix of SMEs and large companies. They were invited to contribute their perspectives on the following topics:

- Technology impact assessments and job mobility dashboards generated;
- Effects of technological enablers they have witnessed in their workplaces, including new possibilities, roles and responsibilities for their employees;
- Emerging skills required in the face of technology adoption, and skills gaps to be filled to facilitate job mobility;
- Broad economic trends which interact meaningfully with technological change;
- Opportunities and challenges companies had faced in adapting to technological change, and
- Perspectives on what makes a good job transition and effective job redesign.

The feedback received was used to augment the mobility dashboards and create new transition pathways, as well as to produce the challenges and recommendations detailed in subsequent chapters.

## **Phase 3: Generation of lateral transitions (inter-sector)**

Job transitions within the same sector may not always be feasible nor desirable, and jobholders may wish to keep their options open by considering transitions to job roles in entirely different sectors. This expansion of possibilities empowers employees to navigate the uncertain economic terrain while giving employers more flexibility in supporting their employees. In a vast landscape of job roles, it is useful to give jobholders a sense of the job roles for which the transition from the FA/MA tracks is most feasible, by providing them with possibilities that are creative and exciting. Refer to Chapter 4 for more details on the generation of lateral transitions.

Finally, there was a synthesis of collective findings gathered from the research phases, technological impact assessment, FGDs, job transition research, as well as secondary research insights and international case studies.

# Chapter 3: **IMPACT OF TECHNOLOGY ON JOB TASKS IN THE FINANCE FUNCTION**

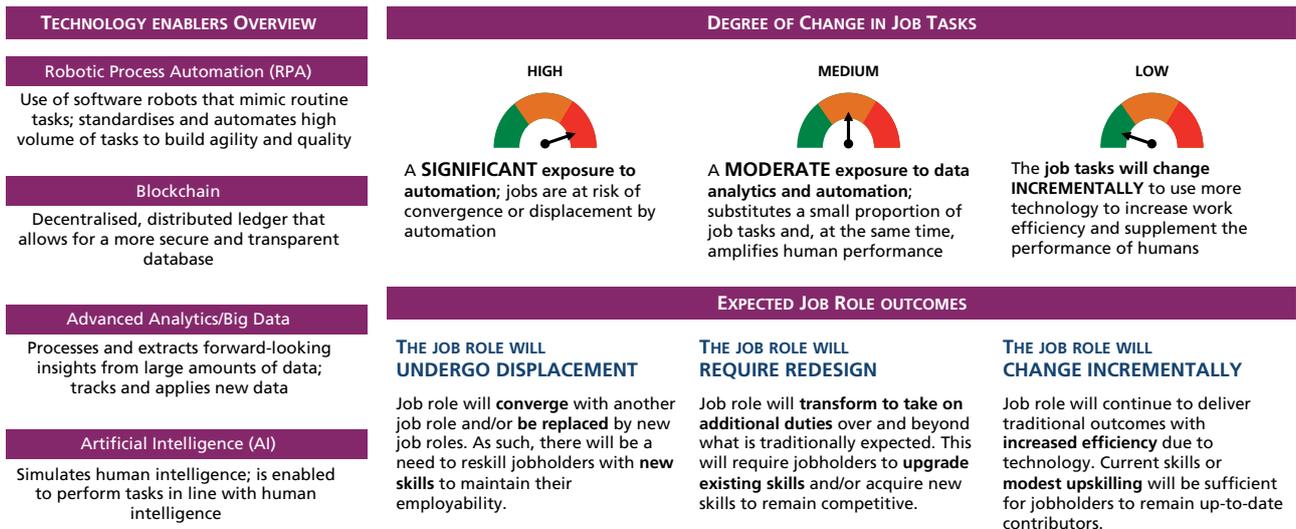


## CHAPTER 3: IMPACT OF TECHNOLOGY ON JOB TASKS IN THE FINANCE FUNCTION

### KEY TECHNOLOGIES, EXTENT OF IMPACT, AND EXPECTED OUTCOMES ON JOB ROLES

The research focused on analysing key technologies that are most relevant and are increasingly being adopted in the finance function. The impact on existing job roles in the finance function were then categorised into ‘high’, ‘medium’ and ‘low’, which accordingly translates into the job role having to ‘undergo displacement’, ‘require redesign’ or ‘change incrementally’ (refer to Figure 1 for definitions).

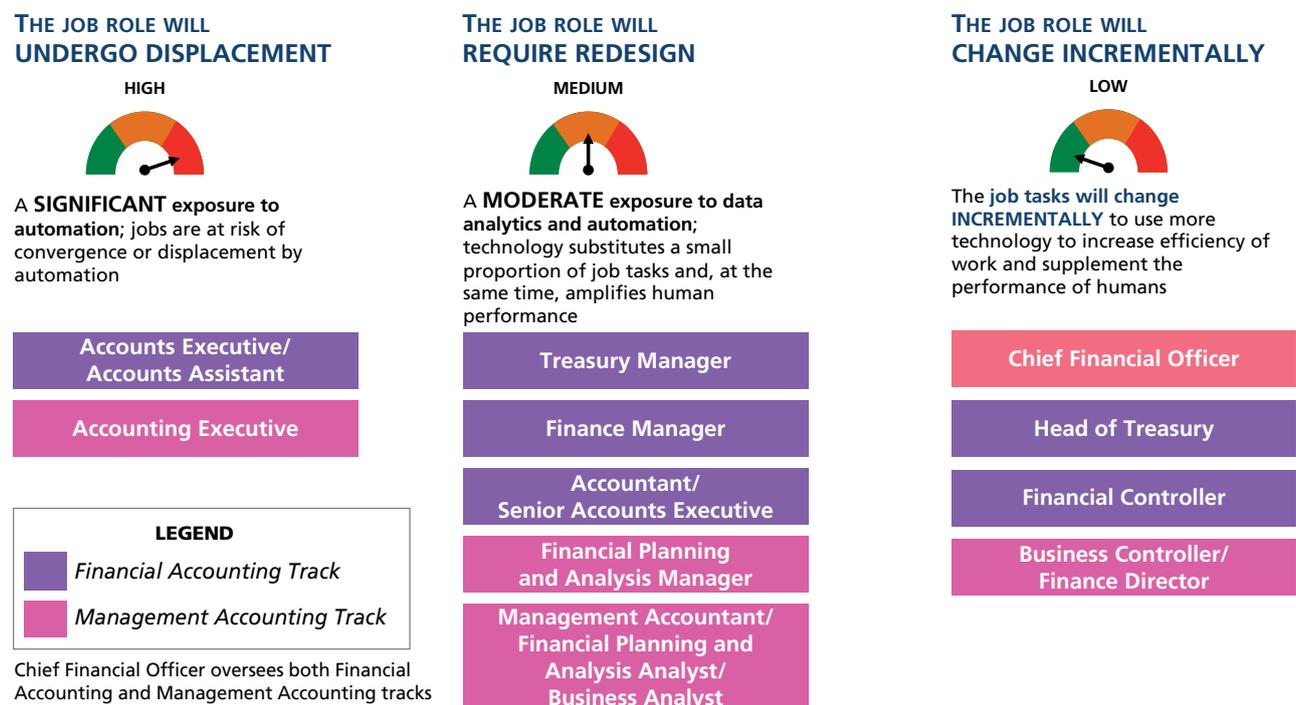
**Figure 1: Definition of Technology Enablers, Impact on Job Tasks, and Expected Job Role Outcomes**



### OVERVIEW OF JOB ROLES AND LEVEL OF IMPACT

As validated by the focus group findings, out of the 11 job roles in the finance function, the two entry-level roles – FA Accounts Executive/Accounts Assistant, and MA Accounting Executive – will be the most impacted and are highly likely to undergo displacement (refer to Figure 2). The degree of change to all core work tasks and functions are ‘high’, indicating significant exposure to automation. Further elaboration of this impact will be addressed in the next chapter.

**Figure 2: Overview of Job Roles and Level of Impact**



The next most affected roles are those one level higher than the entry-level roles – FA Accountant/Senior Accounts Executive, and MA Management Accountant/Financial Planning Analyst/Business Analyst (refer to Appendix I). These roles will not be fully displaced but will require redesign. Some of their work tasks will be ‘highly’ affected by technology while others will face ‘medium’ level impact. ‘Medium’ impact indicates a moderate exposure to data analytics and automation where a small proportion of job tasks is substituted; human intervention is still required and technology will enhance performance.

For example, the MA Management Accountant/Financial Planning Analyst/Business Analyst will spend more time on utilising data insights churned by technological solutions rather than performing time-consuming and labour-intensive calculations and financial modelling. Instead, a new task will be to perform advanced analytics/big data-related activities including defining rules for the systems to sharpen the accuracy and relevance of outputs. Some tasks still require human judgement, such as setting up appropriate internal controls to mitigate risks to businesses. Particularly in certain industries like Manufacturing, the role entails conducting hands-on investigation at the plants, which is something technology is currently unable to take over.

The remaining three of the five ‘medium’ impact roles (refer to Appendix I) – FA Treasury Manager, FA Finance Manager, and MA Financial Planning and Analysis Manager – do not include work tasks that will be ‘highly’ impacted. While some of the tasks are ‘medium’ impact, the remaining are of ‘low’ impact.

For example, the Finance Manager role will see ‘medium’ impact on tasks such as those associated with business partnering, strategic planning, and supporting internal and external audit activities. While digital solutions provide useful outputs, human intervention is still required, such as in identifying relevant and useful insights for different business units, conveying key insights to stakeholders, problem-solving, as well as troubleshooting digital systems and processes.

The Treasury Manager’s responsibilities will move away from preparing reports on the organisation’s cash positioning, which will be automated by robotic process automation (RPA). Artificial intelligence (AI) can be leveraged to analyse models to manage credit risks and identify potential issues for further investigation, thus protecting assets better. The role will continue to ensure compliance with overall organisation policies. Therefore, the role will take on the maintenance of credit risk management models, reviewing areas of potential risks, and flagging potential risks to stakeholders.

The Financial Planning and Analysis Manager will utilise data, analytics and simulations to drive cost and performance management. There will be more expectations of the jobholder to adopt a more holistic view of the business, including advising on potential risks that are on the horizon. For example, as advanced analytics/big data analytics assists in the tracking and analysis of key performance indicators in real time, identifying optimal product costs and critical cost areas of business units, the Financial Planning and Analysis Manager will focus on proposing cost improvements, and developing actionable cost control measures.

Of the 11 roles listed, the remaining four roles (refer to Appendix I) are the most senior roles in the finance function and the least likely to be impacted by technology adoption. They are: FA Head of Treasury, FA Financial Controller, MA Business Controller/ Finance Director and FA/MA CFO. The CFO is the least impacted of all, with all tasks registering ‘low’ on level of impact. Still, there remains incremental changes to tasks defined as ‘low’ impact, as the increased use of technology to raise efficiency of work is also expected to enhance the performance of humans. The role of the CFO will be elevated from being the custodian of historical financial reporting to an enabler of future growth opportunities. As the finance function of the future moves away from labour-intensive tasks to become more analytical and insightful in nature, the CFO can focus more on utilising business acumen and experience in assessing commercial opportunities, communication and stakeholder management, as well as to push for innovation of the business and in managing and attracting talent.

### Case example

#### Technology enhances performance of humans and supports CFOs – Instant validation model<sup>9</sup>

A Dutch-based startup automated its property appraisal processes to receive instant appraisal results, leveraging AI algorithms in an automated valuation model (AVM); traditional models would have taken weeks to perform the same processes. The AVMs allow CFOs to estimate asset values at fair/market prices to determine financial performance of their own company and the companies they perform due diligence on.

## FUTURE VIEW AND EVOLUTION OF JOB ROLES IN FINANCE FUNCTION: FOUR KEY THEMES

FIGURE 3: KEY THEMES FROM FOCUS GROUP DISCUSSIONS: IMPACT OF TECHNOLOGY ON JOBS

1	2	3	4
<p><b>Junior FA and MA roles have high likelihood of displacement due to technology</b></p> <p>Tasks will shift towards:</p> <ul style="list-style-type: none"><li>a) Providing insights from data analytics</li><li>b) Providing input to train machines</li></ul> <p>Degree of technology impact varies across industry and organisation size.</p>	<p><b>Advancement of the workforce and demand for higher-skilled roles</b></p> <p>Role of Accounts Executive/Accounts Assistant and Accounting Executive has diminished and there is an increasing demand for higher-skilled roles that shift away from data inputs and routine checking. Education syllabi and courses prepare graduates to take on roles beyond entry-level.</p>	<p><b>SMEs find it more difficult to implement technologies due to lack of funding</b></p> <p>When considering implementing new technologies, SMEs need to assess ROI prior to implementation. Oftentimes, these technologies have a high price tag. SMEs may explore available assistance programmes/initiatives to kickstart their technology transformation journey.</p>	<p><b>Possibility of right-shoring certain finance tasks, while retaining higher-value work locally</b></p> <p>Companies should strive to adopt technologies to perform simple and manual-intensive tasks. However, some companies face the dilemma of technology investment versus right-shoring, where certain tasks are outsourced while retaining business-critical functions in the local base. Assessment of ROI is required.</p>

### Theme 1: Junior FA and MA roles have a high likelihood of displacement due to technology

#### Overall trend

The rise in digitalisation has resulted in machines quickly taking over the tasks traditionally performed by humans, making room for humans to focus on higher-order tasks or new ones which require new skill sets. Accountancy and finance professionals will increasingly require knowledge beyond their main domain of accountancy and finance as well as their industries.

Research points to the rapid uptake of technologies. Gartner predicted that 85% of large and very large organisations will have deployed some form of RPA by 2022.<sup>10</sup> The World Economic Forum (WEF) similarly reported that 85% of organisations are “likely or very likely to have expanded their adoption of user and entity big data analytics”. Additionally, 75% are likely to make considerable investments in the Internet of Things and app- and web-enabled markets, 73% in machine learning and 58% in augmented virtual reality. WEF also reported that 62% of an organisation’s information and data processing and information search and transmission tasks will be performed by machines, compared to 46% today.<sup>11</sup>

The next generation of accountancy and finance professionals should understand not just accounting and their industries but also AI, blockchain and advanced analytics/big data, as well as how these technologies work together. For example, combining AI with other technologies such as RPA allows accountancy and finance professionals to move away from mundane tasks and instead, focus on performing high-value, high-impact tasks.<sup>12</sup>

The finance function in the next three to five years will see a rise of at least 80% in share of typical tasks carried out by machines. These tasks may be automated, consolidated or procured as a service through a managed-services provider. As such, financial data will be available on demand through self-service portals and as an output from AI. Traditional tasks such as audit, statutory and regulatory reporting and global business services will be automated and/or procured. This will raise the value-add of job tasks – secured by blockchain and monitored by RPA.<sup>13</sup>

The implications for jobholders are twofold. First, we expect technological displacement of junior FA/MA roles as routine tasks become increasingly automated. Second, tasks will shift towards higher-value work involving the provision of insights from data analytics, as well as user input for machine training.

Also, the future finance function can cope with greater demand while retaining a similar team size. As cost-efficiency and productivity is increasingly addressed through varying combinations of automation of processes, consolidation and outsourcing, the finance function could work towards a leaner, highly skilled team that is focused on higher-value activities and is better equipped to partner other business functions to drive innovation and value creation for the organisation.<sup>14</sup>

**Key findings from FGDs**

- Junior-level finance tasks are likely to shift towards providing insights from data analytics, and providing input to train machines

Entry-level roles – FA Accounts Executive/Accounts Assistant (Figure 4) and MA Accounting Executive (Figure 5) – will be most exposed to automation. These roles are at significant risk of being completely displaced by automation and could likely converge with other roles such as higher-level roles in the finance function, or across other functions within the accountancy profession.

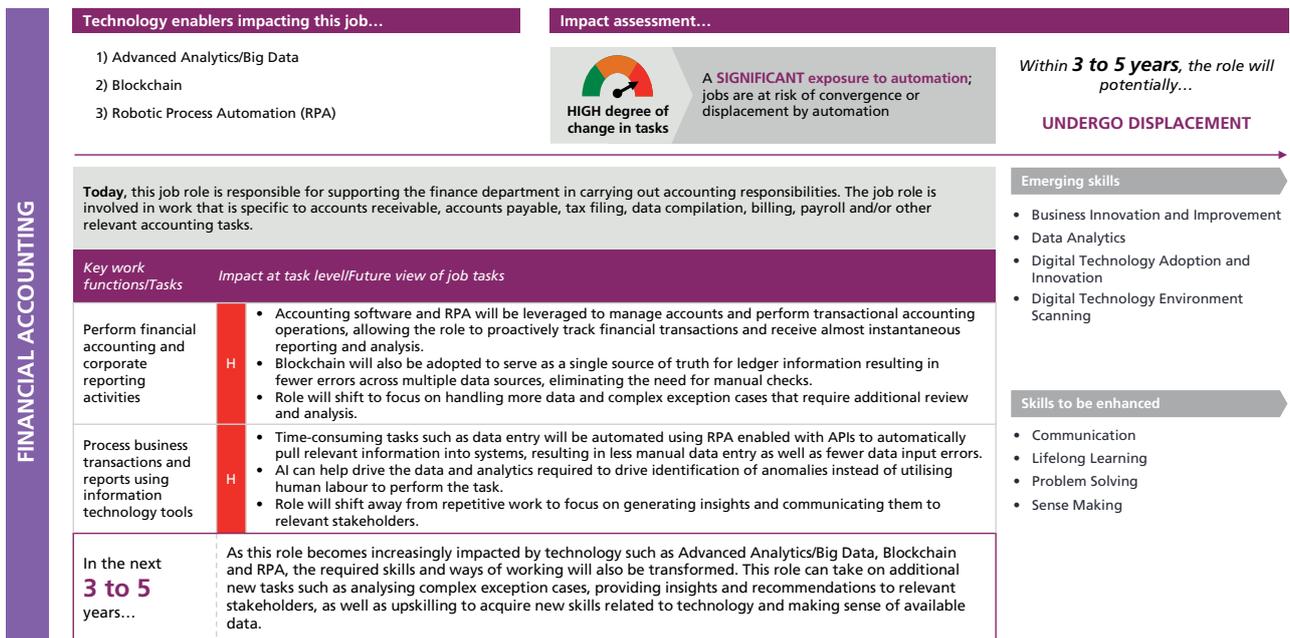
**FA Accounts Executive/Accounts Assistant undergoes displacement**

Under the FA track, the Accounts Executive/Accounts Assistant role will likely shift to focus on handling data resulting from the adoption of accounting software and RPA, and on reviewing and analysing complex exception cases. The role will deviate from the current manual job tasks and checks, as well as manual report preparation.

As such, the role will increasingly take on higher-order tasks such as interpreting data, generating insights and communicating them to relevant stakeholders, and moving away from repetitive tasks such as data entry, and time-consuming, labour-intensive checks for anomalies in the data.

This will require upskilling in hard and soft skills. FA Accounts Executive/Accounts Assistant will need to learn to utilise data analytics tools, as well as learn to interpret and analyse data, to generate useful insights for the business. Increasingly important are also communication skills as the role works more closely with other stakeholders.

**FIGURE 4: ACCOUNTS EXECUTIVE/ACCOUNTS ASSISTANT (FINANCIAL ACCOUNTING)**



**Case example 1**

**RPA enables finance team to focus on data analysis and reduce costs<sup>15</sup>**

A multi-billion-dollar apparel retailer introduced RPA within its finance function to digitalise the management of receivables and payables, and to generate data and insights on financial performance. This resulted in a reduction of 15% of costs for the finance function, which accounted for over 3% of overall costs. Employees were not retrenched but were instead reskilled to conduct analysis of the mined data, thus reducing time costs and raising productivity.

### **Case example 2**

#### **RPA and machine learning for invoice processing<sup>16</sup>**

A finance team in an Ontario Ministry in Canada receives large volumes of invoices. The invoices require manual checks for every line item. The Ministry leveraged RPA and machine learning to reform its labour-intensive invoice-checking process, which resulted in an automated, streamlined and centralised system for processing PO and non-PO invoices. This reduced the turnaround time for invoice processing from 59 days to nine days. The human-trained machine was able to pick out errors, increasing efficacy scores from 42% to 95% in two months. This greatly reduced manual effort which was only required for the remaining 5% of complex cases. Employees were redeployed to other finance functions and redirected to activities with greater value-add.

### **Case example 3**

#### **Leveraging intelligent process automation<sup>17</sup>**

The most agile of finance functions are mature in leveraging RPA to achieve new levels of efficiency and utilise rules-based robotics technologies for automating high-volume transactional finance processes. These advanced digital adopters are now venturing into new fields of automation – intelligent process automation – which combines RPA with AI such as machine learning. These technologies are able to learn over time as they are exposed to more data. For example, pilot tests have shown that the latest AI tools can review 70% to 80% of the content of simple lease contracts in the context of lease accounting changes. As the tools are improved, they can expand even into reading, managing and analysing complex contracts and data.

### **Case example 4**

#### **Ranking alerts**

A European bank employed AI and predictive modelling to rank the money-laundering alerts it received, increasing the precision with which it can respond to potential money-laundering and decreasing the likelihood of responding to a false positive.

### **Case example 5**

#### **Smart contracts**

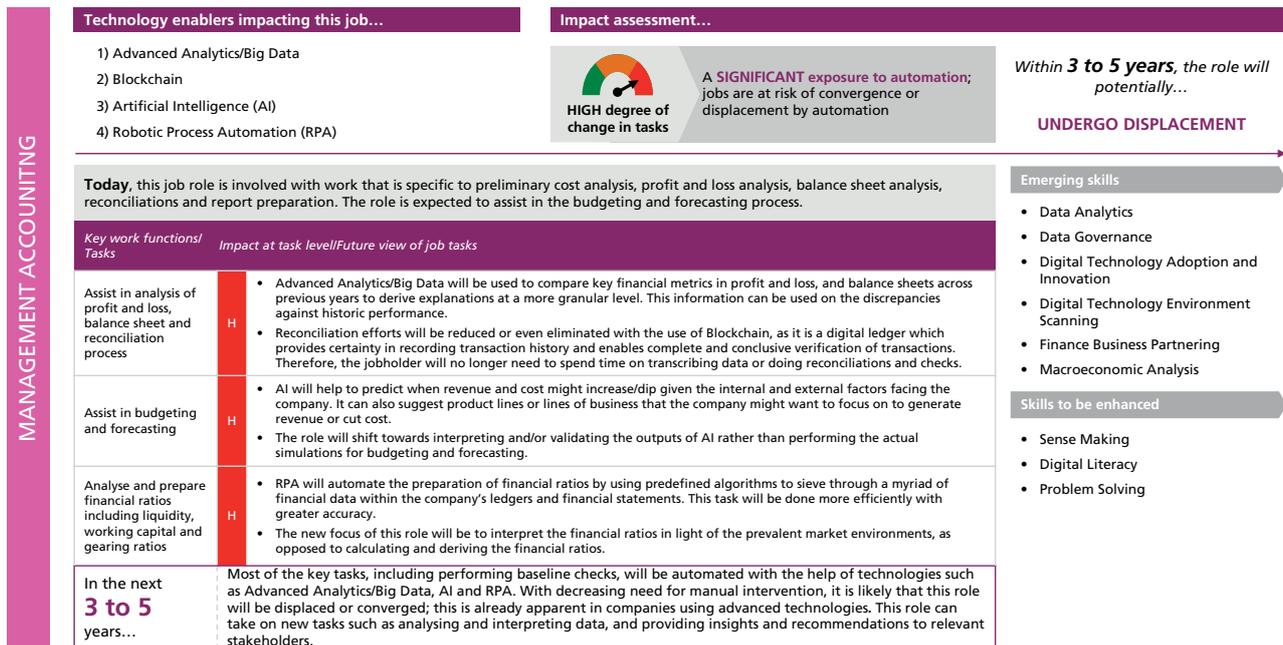
Blockchain technology enables smart contracts, which feature consensus-based validation and standardisation/storage on all nodes of the blockchain network. This process lowers the costs of contracting, enforcement and compliance while maximising transparency, limiting complexity and improving accuracy.

### **MA Accounting Executive undergoes displacement**

Under the MA track, tasks usually performed manually by the Accounting Executive role will be displaced with the increasing adoption of advanced analytics/big data analytics and AI.

With advanced analytics/big data analytics, the MA Accounting Executive will no longer need to expend time on transcribing data or doing reconciliations and checks. Similar to the FA Accounts Executive/Accounts Assistant role, the MA Accounting Executive role will shift towards interpreting and/or validating the outputs of AI, such as revenue projections and recommendations for cost-cutting or revenue-generation, rather than performing simulations for budgeting and forecasting.

The role will no longer be required to prepare financial ratios. Instead, this will be done with the implementation of RPA. The new focus of this role will be to interpret the financial ratios, taking into consideration prevalent market environments, as opposed to calculating and deriving the financial ratios.

**FIGURE 5: ACCOUNTING EXECUTIVE (MANAGEMENT ACCOUNTING)**

- Degree of technology impact varies across industry and organisation size

While entry-level and even roles at the next level of both FA and MA tracks may already be undergoing displacement and redesign respectively, the impact of technology varies across industries and organisation size. In the Manufacturing sector, for example, junior roles are still required to conduct investigations through visiting manufacturing plants and speaking with engineers and members in operations. Technologies such as AI will facilitate the role in generating exception cases, redirecting more time for junior roles in the finance team to conduct further investigations.

Also, the scope of job roles at SMEs covers a greater variety of tasks, as opposed to large organisations where roles may be devoted to more specific task areas. Accountancy and finance professionals at SMEs could possibly be at lesser risk of being displaced fully by virtue of their bigger scope of responsibilities, compared to roles in large organisations with more focused scopes. On the other hand, the impact of technology on finance functions will be delayed for SMEs as they face greater difficulty in technology adoption, such as lack of funding and a greater need to ascertain return-on-investment (ROI).

## Theme 2: Advancement of the workforce and demand for higher-skilled roles

It is becoming more challenging to source, manage, motivate and retain talent while controlling costs. One key contributing factor is the changing attitudes and requirements of the younger workforce. Based on EY research, millennials are most likely than other age groups to leave a job due to substandard technology.<sup>18</sup> They look to their employers to provide meaningful work, flexible environments and ample opportunities for development.<sup>19</sup> The majority of millennials (82%) also stated that workplace technology would influence their decision to accept a new job.<sup>20</sup> With the millennials making up 75% of the global workforce by 2025<sup>21</sup>, finance leaders and human resource professionals will need to better understand changing behaviours and motivations of the workforce, and renew talent management practices accordingly.

Aligned to this, as posited earlier, demands on the workforce are also changing. The latest findings from an EY global survey in April 2020 indicated that organisations want their finance teams to reduce the time spent on routine compliance activities. Instead, focus should shift towards developing data, processes and technology skills, which will become increasingly important over the next three years.<sup>22</sup>

Associated with changes in work tasks due to technology augmentation and a rise in non-standard tasks, there will be a rising demand for workers who possess high-level cognitive and socio-emotional skills. Additionally, there is a need to understand new technologies and how they can work together. In particular, AI is a priority, and relevant expertise will be critical to drive innovation in finance and reporting over the next two years. This transition will be challenging especially for lower-skilled workers who, apart from a mindset change, will require significant retraining.

Finance leaders will need to be more innovative in their approaches to hiring, talent development and resourcing. In an EY global survey, 76% of finance leaders acknowledged the need to widen their recruitment net to find people from non-traditional backgrounds.<sup>23</sup>

FGD findings also found that in line with the diminishing of junior-level roles within the finance function, there is an emerging demand among younger professionals for higher-skilled roles. This reflects a conscious shift away from routine data inputs and labour-intensive checking to a greater demand for higher-level cognitive and higher-value-added work. The preference could be due in part to the educational curricula and vocational training courses which have better prepared graduates to take on higher-skilled roles even at the entry level.

The finance function will also need fewer specialists. Instead, accountancy and finance professionals will need to be equipped with a broader set of capabilities. For example, as the roles focus more on unlocking the value of data, data scientists and algorithm developers will be needed. For generating strategic insights and to partner other business units, strategic finance business advisors will be required while working towards objectives of safeguarding assets, complying with fiduciary responsibilities and overall business growth.

### Case example

#### Strategic Business Advisory is Essential for Finance Professionals of the Future<sup>24</sup>

As future finance functions evolve to a leaner pool of highly skilled talent focused on higher-value activities, they will be better positioned to team up with other business functions in driving the organisation's strategy. This means that it will become increasingly important for future finance professionals to be equipped with competencies in strategic business advisory. These competencies include being super-connectors who build and drive partnerships across business units, strategic managers who shape the organisational agenda, automation engineers who stay abreast of technological change, and data specialists who provide high-value insights. Future finance professionals must also embrace, detect, navigate and facilitate technological transformation of their organisations.<sup>25</sup>

**FIGURE 6: KEY COMPETENCIES IN STRATEGIC BUSINESS ADVISORY FOR FUTURE FINANCE PROFESSIONALS**  
**STRATEGIC BUSINESS ADVISORY**

SUPER-CONNECTOR	STRATEGIC MANAGEMENT	AUTOMATION ENGINEER	DATA SPECIALIST
<ul style="list-style-type: none"> <li>• Acts as the trusted business advisor and integrator of the total business view;</li> <li>• Establishes relationships across and outside the organisation;</li> <li>• Builds cross-functional, agile teams to deliver strategic/transformation projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Shapes the business and financial agenda;</li> <li>• Provides strategic insights and robust challenge; manages strategic risk;</li> <li>• Thinks strategically about and takes ownership of business value drivers;</li> <li>• Drives transformational change/value-added innovations in anticipation of disruption;</li> <li>• Leads business model/digital innovation.</li> </ul>	<ul style="list-style-type: none"> <li>• Acts as the business process specialist; identifies opportunities to automate and streamline processes;</li> <li>• Maintains knowledge of new and industry-leading digital technologies and the best ways to harness their capabilities to drive business value.</li> </ul>	<ul style="list-style-type: none"> <li>• Develops data-driven insights to assist the business with strategic direction;</li> <li>• Knows how to best harness current and anticipated data that needs to be mined for potential business application;</li> <li>• Implements different ways to measure financial and non-financial value;</li> <li>• Ensures leading-class compliance and data security/integrity.</li> </ul>

### **THEME 3: SMES FIND IT MORE DIFFICULT TO IMPLEMENT TECHNOLOGIES DUE TO SIGNIFICANT RISKS AND LACK OF FUNDING**

Implementing new technologies such as AI comes with significant risks when businesses dive into it without understanding the associated challenges. Currently, there remains little clarity on how conclusions are derived by AI and machine learning technologies in problem-solving, which exposes technology users to business risks.<sup>26</sup>

The FGD participants agreed that issues are compounded for SMEs, which may not have sufficient data to build models surrounding specific areas for analysis. To make available such data, the prerequisite is to have established and integrated systems and processes to ensure that “external data harnessed will complement existing data”. This requires significant financial and time investments.<sup>27</sup> With fewer access to resources, SMEs may find it more challenging to adopt technologies and consequently, may be deterred from doing so.

Although AI has clear benefits, the implementation of such technologies in finance functions can be challenging. Due to the significant investment of resources, companies are likely to leverage AI applications in areas of their accounting systems that will make the greatest financial and business impact. As more sophisticated AI technologies are still in the early stages of development, the initial technology implementation is unlikely to reap immediate benefits, and this can be especially difficult for smaller companies.

For SMEs considering new technologies for adoption, the assessment of ROI may not be attractive due to the longer gestation period and significant resources required. On top of the challenges discussed earlier, SMEs may be resistant to change and may choose to adopt a wait-and-see attitude. Companies that lag behind in technology adoption will face the risk of disruption or worse, become obsolete. Therefore, it remains imperative to press ahead with technology adoption – new technologies such as AI will greatly advance the value of finance functions, and a sound digital strategy will be pivotal to successful implementation.<sup>28</sup>

To lower the hurdles to adoption, SMEs could explore the available assistance schemes and initiatives. The Infocomm Media Development Authority has set out Industry Digital Plans which provide step-by-step support, and pre-approved solutions and grants for SMEs to further their digitalisation efforts.<sup>29</sup> There are also various grants provided by ESG that provide companies with financial support for technology adoption to help them advance on their transformation journey. More information can be found at <https://www.enterprisesg.gov.sg/financial-assistance/grants>. These schemes could be more actively promoted among potential candidates.

Specific job redesign initiatives to spur workforce transformation have also been formulated by Workforce Singapore and SkillsFuture Singapore. More information is available at <https://www.ssg-wsg.gov.sg/employers/job-redesign.html>.

SMEs could also be better supported in their technology adoption efforts by employing a task-based strategy, as used in this research (refer to Chapter 4, Framework 2: Inter-sector transition pathways). By specifying exactly the tasks that their workers are already equipped to perform, and the new tasks and corresponding skills they must be trained in, SMEs can be more efficient and effective in their transformation efforts.

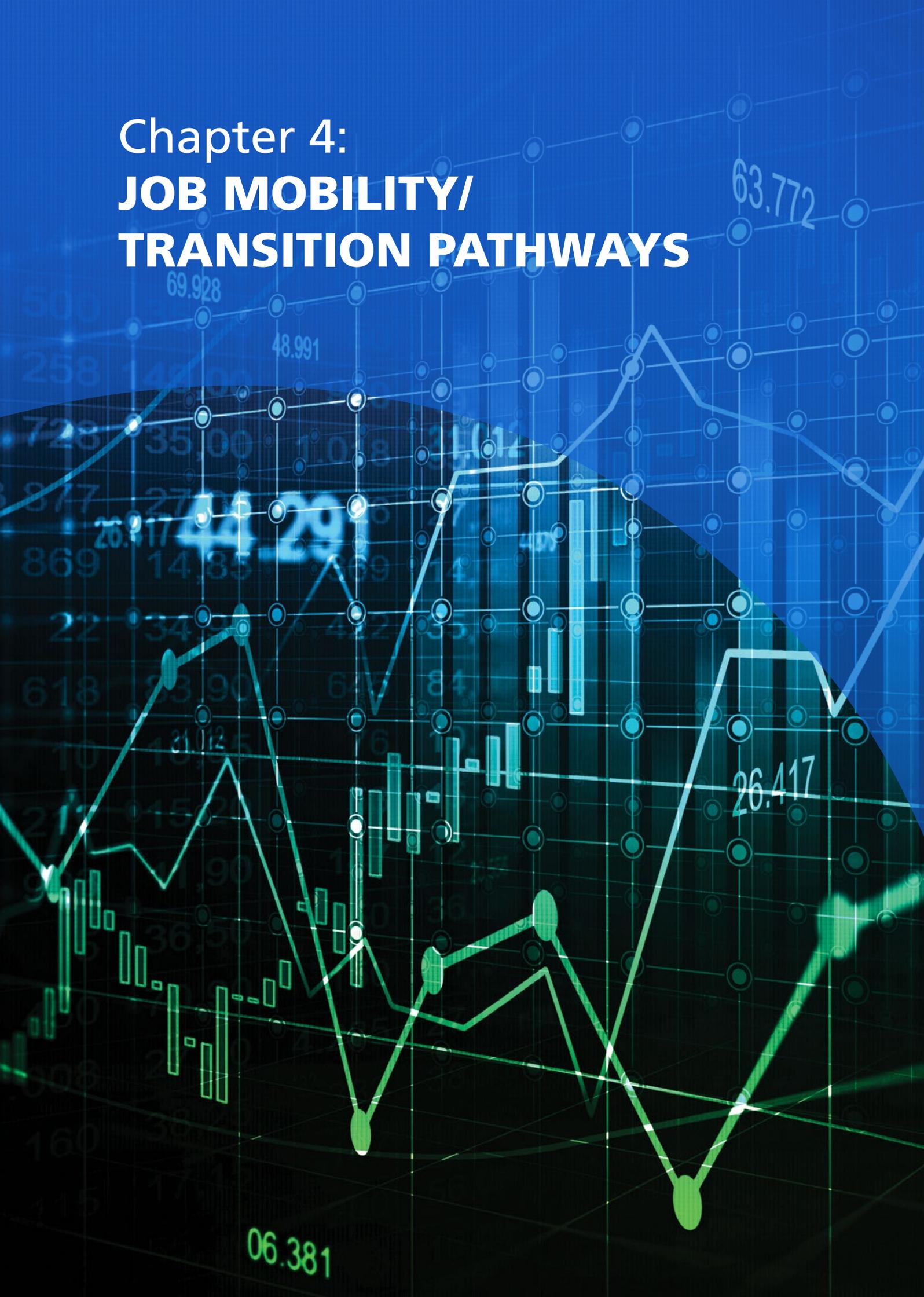
### **THEME 4: POSSIBILITY OF RIGHT-SHORING CERTAIN FINANCE TASKS WHILE RETAINING HIGHER-VALUE WORK LOCALLY**

With lower-value-added tasks such as highly routine, simple, manual and time-intensive tasks becoming less attractive to the younger workforce, automation can be used to fill the gaps. Based on the FGD findings, companies unable to fully automate such tasks could explore the option of outsourcing these jobs while retaining business-critical work at the local level, in what is known as right-shoring.

In contrast to right-shoring, off-shoring is the conventional cost-driven practice of locating the production of services and products in another country which may offer cost incentives such as lower wages, lower operational costs and tax benefits, or in a lucrative market which offers high potential demand.<sup>30</sup> However, many of the advantages of offshoring are fast being diminished in the context of Covid-19 due to border closures and other factors such as rising wages.

The right-shoring approach is based on establishing competitive advantage and enhancing value to the business, by bringing operations back to or near to home base. The right-shoring strategy provides benefits such as better service to customers through increased proximity and reduced lead times. This drives greater efficiency and productivity as the business focuses its capacity on business-critical processes.<sup>31</sup> With the increased centralisation of business-critical processes, automation can be more focused on creating value rather than on cutting costs. Technological solutions can be leveraged to provide opportunities for organisations to devote more time and energy towards core value drivers and continuous innovation, to drive value.

# Chapter 4: **JOB MOBILITY/ TRANSITION PATHWAYS**



## CHAPTER 4: JOB MOBILITY/TRANSITION PATHWAYS

### SKILLS AND TASKS: TWO FRAMEWORKS

Charting transition pathways for employees facing disruption is a challenging but important process. Key to this process is locating a framework for comparing job roles with one another, as understanding the similarities and differences between job roles helps illuminate the obstacles to transition. Often, job roles with strong similarities will present lower barriers to entry as they require minimal retraining and reskilling.

There are useful frameworks for such comparisons. The first compares job roles by their skills profile, and the second compares job roles by their task profile. Each framework has its merits, and significantly, they can be applied in a complementary manner.

The Skills Framework for Accountancy<sup>32</sup> provides a framework to chart transition pathways for accountancy and finance professionals. This framework was used to analyse intra-sector transitions. However, given the growing consensus on the usefulness of the task framework to increase the value of investments in skills, the task framework was used to analyse inter-sector transitions. Through the use of both frameworks, we aim to equip organisations with a larger set of devices in their toolbox with which to evaluate job redesign and transitions.

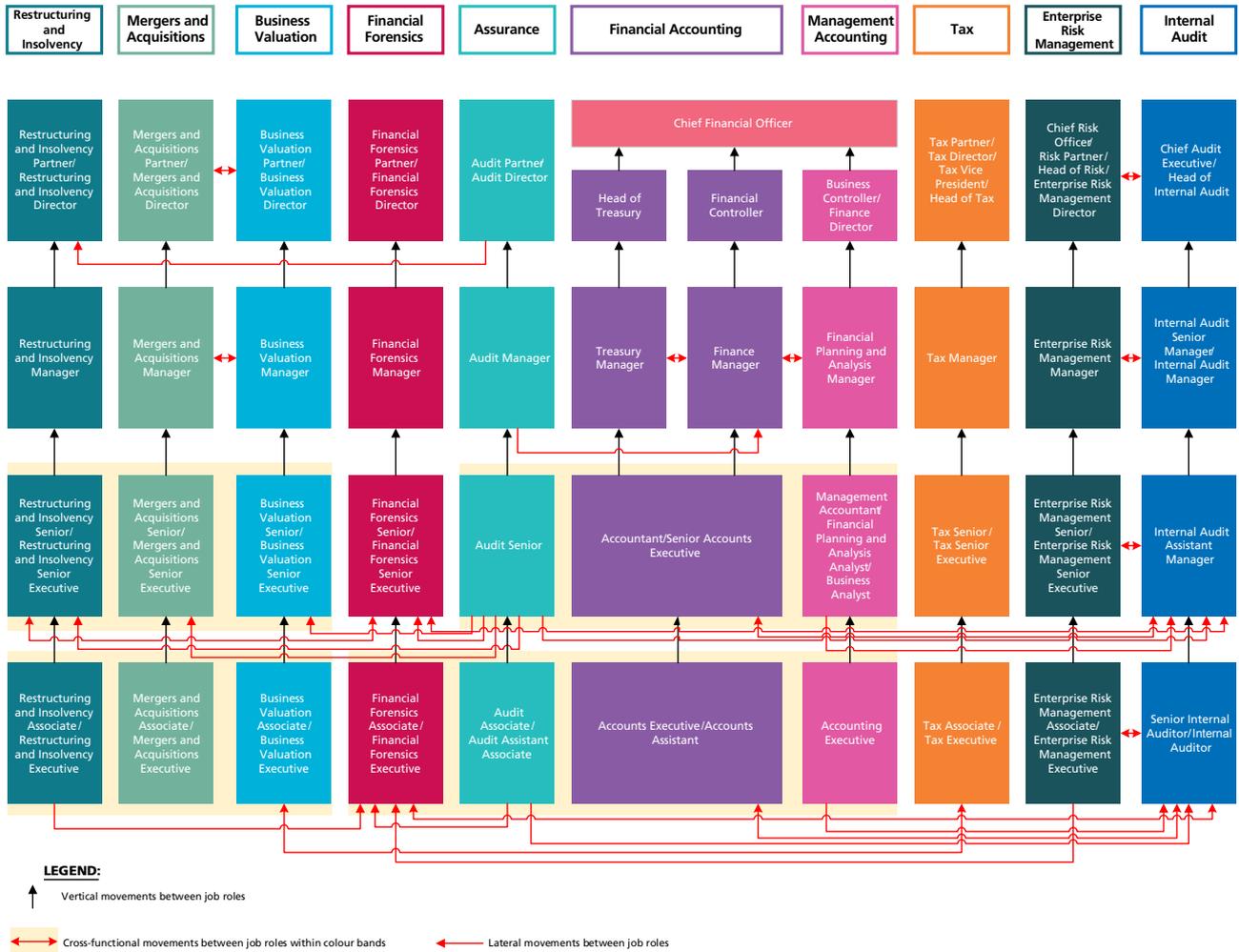
### Intra-sector transition pathways

Constructing feasible job transition pathways is crucial for job roles at risk of displacement by technology, such as the entry-level FA Accounts Executive/Accounts Assistant, and MA Accounting Executive positions identified earlier. Looking for transitions within the same sector is usually the easiest, since these are the most proximate roles available. The application of a skills framework is useful in understanding the feasibility of such transitions due to two reasons: first, it highlights the transferable skills workers already possess, and second, it highlights the skills gaps which need filling, allowing for targeted reskilling/upskilling to take place.

We used the Skills Framework to construct the skills-based transition pathways. Embedded in the framework is a career map which charts horizontal and vertical pathways for the sector (refer to Figure 7). These pathways were validated by industry participants during its creation.

FIGURE 7

### SKILLS FRAMEWORK FOR ACCOUNTANCY Career Map



The second layer of analysis involved reviewing the technical skills and competencies (TSCs) for each job role. The TSCs are a key component of the Skills Framework as they show the core skills and competencies required of jobholders. By comparing the TSCs of high-impact roles with potential transition roles, transferable skills and skills gaps can be identified.

Using this process, job transition dashboards were generated for the two high-impact job roles – FA Accounts Executive/Accounts Assistant, and MA Accounting Executive (refer to Figures 8 and 9). The job transition dashboards identify transferable skills for each transition, as well as skills gaps to be filled. For example, for the FA Accounts Executive/Accounts Assistant to move up to an FA Accountant/Senior Accounts Executive role, transferrable skills would comprise knowledge of accounting standards and financial reporting know-how. There are also skills gaps in business planning and finance business partnering which will require training for. The identified skills gaps were validated during the FGDs. For example, in the transition from FA Accounts Executive/Accounts Assistant to Senior Internal Auditor/Internal Auditor (refer to Figure 8), the importance of general skills including “business acumen”, and emerging skills like “cybersecurity”, was emphasised by the finance leaders.

**FIGURE 8: INTRA-SECTOR TRANSITION PATHWAYS**  
**FA - ACCOUNTS EXECUTIVE/ACCOUNTS ASSISTANT**

Within 3 to 5 years, the role will potentially...  
**UNDERGO DISPLACEMENT**

FINANCIAL ACCOUNTING		High potential to transition to..	Within FA and MA		Within Accountancy		
			FINANCIAL ACCOUNTING	MANAGEMENT ACCOUNTING	INTERNAL AUDIT		
ACCOUNTS EXECUTIVE/ACCOUNTS ASSISTANT			ACCOUNTANT/SENIOR ACCOUNTS EXECUTIVE	ACCOUNTING EXECUTIVE	SENIOR INTERNAL AUDITOR/INTERNAL AUDITOR		
<b>TOP 3 ROLES FOR MOBILITY</b>							
<b>ACCOUNTANT/SENIOR ACCOUNTS EXECUTIVE</b>			<b>ACCOUNTING EXECUTIVE</b>		<b>SENIOR INTERNAL AUDITOR/INTERNAL AUDITOR</b>		
<b>TRANSFERABLE SKILLS</b>	Accounting Standards	Level 4	Accounting and Tax Systems	Level 2	<b>TRANSFERABLE SKILLS</b>	Business Innovation and Improvement	Level 3
	Accounting and Tax Systems	Level 3	Audit Compliance	Level 3		Data Analytics	Level 4
	Audit Compliance	Level 4	Data Analytics	Level 3		Internal Controls	Level 3
	Business Innovation and Improvement	Level 3	Digital Technology Adoption and Innovation	Level 3		Professional and Business Ethics	Level 3
	Data Analytics	Level 3	Digital Technology Environment Scanning	Level 3		Professional Standards	Level 3
	Digital Technology Adoption and Innovation	Level 3	Internal Controls	Level 3			
	Digital Technology Environment Scanning	Level 3	Professional and Business Ethics	Level 3		Auditor Independence	Level 3
	Financial Closing	Level 4	Tax Implications	Level 3		Business Acumen	Level 3
	Financial Management	Level 3	Taxation Laws	Level 3		Business Process Analysis	Level 3
	Financial Reporting	Level 4				Cyber Security	Level 3
	Financial Reporting Quality	Level 4				Due Professional Care	Level 3
	Group Accounting and Consolidation	Level 4				Enterprise Risk Management	Level 3
	Internal Controls	Level 3				Financial Statements Analysis	Level 3
	Professional and Business Ethics	Level 4				Fraud Risk Management	Level 4
	Professional Scepticism and Judgement	Level 3				Governance	Level 3
	Professional Standards	Level 4				Infocomm Security and Data Privacy	Level 3
	Project Management	Level 3				Information Gathering and Analysis	Level 4
Tax Computation	Level 4			Internal Audit Engagement Execution	Level 4		
Tax Implications	Level 3			Internal Audit Engagement Planning	Level 4		
Taxation Laws	Level 4			Project Execution and Control	Level 3		
Transactional Accounting	Level 4			Risk Management	Level 3		
Transfer Pricing	Level 3						
<b>SKILLS GAPS</b>	Audit Frameworks	Level 4	Benchmarking	Level 3	<b>SKILLS GAPS</b>		
	Business Planning	Level 4	Conflict Management	Level 5			
	Capital Expenditure and Investment Evaluation	Level 4	Corporate and Business Law	Level 2			
	Conflict Management	Level 3	Cost Management	Level 3			
	Finance Business Partnering	Level 3	Data Governance	Level 3			
	Financial Statements Analysis	Level 4	Finance Business Partnering	Level 3			
	Regulatory Compliance	Level 3	Financial Analysis	Level 3			
	Stakeholder Management	Level 3	Macroeconomic Analysis	Level 3			
			Management Decision Making	Level 3			
			Performance Management	Level 2			
		Risk Management	Level 3				

Note: Please refer to Technical Skills & Competencies in Skills Framework for Accountancy for more details on skills and proficiency levels.

**FIGURE 9: INTRA-SECTOR TRANSITION PATHWAYS**  
**MA - ACCOUNTING EXECUTIVE**

Within 3 to 5 years, the role will potentially...  
**UNDERGO DISPLACEMENT**

MANAGEMENT ACCOUNTING		High potential to transition to..	Within FA and MA		Within Accountancy		
			FINANCIAL ACCOUNTING	FINANCIAL ACCOUNTING	INTERNAL AUDIT		
ACCOUNTING EXECUTIVE			MANAGEMENT ACCOUNTANT/ FINANCIAL PLANNING AND ANALYSIS ANALYST/BUSINESS ANALYST	ACCOUNTS EXECUTIVE/ ACCOUNTS ASSISTANT	SENIOR INTERNAL AUDITOR/INTERNAL AUDITOR		
<b>TOP 3 ROLES FOR MOBILITY</b>							
<b>MANAGEMENT ACCOUNTANT/FINANCIAL PLANNING AND ANALYSIS ANALYST/BUSINESS ANALYST</b>			<b>ACCOUNTS EXECUTIVE/ACCOUNTS ASSISTANT</b>		<b>SENIOR INTERNAL AUDITOR/INTERNAL AUDITOR</b>		
<b>TRANSFERABLE SKILLS</b>	Accounting and Tax Systems	Level 3	Accounting and Tax Systems	Level 2	<b>TRANSFERABLE SKILLS</b>	Data Analytics	Level 4
	Audit Compliance	Level 4	Audit Compliance	Level 3		Internal Controls	Level 3
	Benchmarking	Level 4	Data Analytics	Level 3		Professional and Business Ethics	Level 3
	Conflict Management	Level 5	Digital Technology Adoption and Innovation	Level 3		Risk Management	Level 3
	Corporate and Business Law	Level 3	Digital Technology Environment Scanning	Level 3			
	Cost Management	Level 4	Internal controls	Level 2		Auditor Independence	Level 3
	Data Analytics	Level 3	Professional and Business Ethics	Level 3		Business Acumen	Level 3
	Data Governance	Level 3	Tax Implications	Level 3		Business Innovation and Improvement	Level 3
	Digital Technology Adoption and Innovation	Level 4	Taxation Laws	Level 3		Business Process Analysis	Level 3
	Digital Technology Environment Scanning	Level 4				Cyber Security	Level 3
	Finance Business Partnering	Level 4				Due Professional Care	Level 3
	Financial Analysis	Level 4				Enterprise Risk Management	Level 3
	Macroeconomic Analysis	Level 4				Financial Statements Analysis	Level 3
	Management Decision Making	Level 4				Fraud Risk Management	Level 4
	Performance Management	Level 3				Governance	Level 3
	Professional and Business Ethics	Level 4				Infocomm Security and Data Privacy	Level 3
	Risk Management	Level 4				Information Gathering and Analysis	Level 4
Tax Implications	Level 4			Internal Audit Engagement Execution	Level 4		
Taxation Laws	Level 4			Internal Audit Engagement Planning	Level 4		
				Project Execution and Control	Level 3		
<b>SKILLS GAPS</b>	Business Planning	Level 4	Accounting Standards	Level 4	<b>SKILLS GAPS</b>		
	Financial Planning	Level 3	Business Innovation and Improvement	Level 3			
	Financial Reporting	Level 3	Financial Closing	Level 3			
	Stakeholder Management	Level 3	Financial Management	Level 2			
			Financial Reporting Quality	Level 2			
			Financial Transactions	Level 3			
			Group Accounting and Consolidation	Level 4			
		Professional Scepticism and Judgement	Level 3				
		Professional Standards	Level 3				
		Project Management	Level 3				
		Tax Computation	Level 3				
		Transactional Accounting	Level 3				
		Transfer Pricing	Level 3				

Note: Please refer to Technical Skills & Competencies in Skills Framework for Accountancy for more details on skills and proficiency levels.

An important nuance of this process is recognising that technology adoption is not occurring at a uniform rate in all organisations. Consequently, recommended transition pathways may include transitioning from a finance role at high risk of displacement to another (FA Accounts Executive/Accounts Assistant to MA Accounting Executive, and vice versa). The feasibility of this transition will depend on the level of technology adoption within the FA and MA tracks of the organisation, industry-specific work scope and organisation size. Overall, these transition pathways may be less likely to be adopted. Thus, the application of these transitions requires nuance and sensitivity at the organisational level.

### INTER-SECTOR TRANSITION PATHWAYS

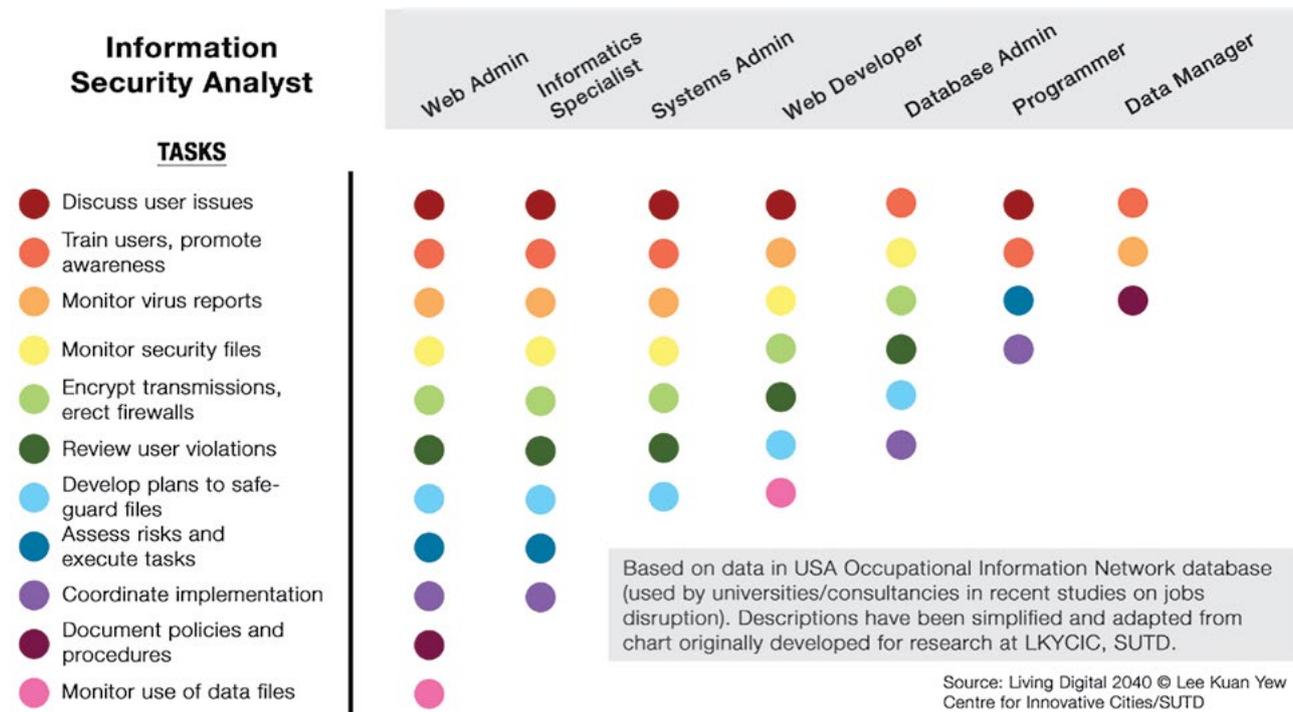
Tasks increase the value of using skills. This is because jobs do not stay static and they also change task-by-task. New technologies and regulations create new tasks in a role, or the majority of tasks in some jobs might be automated. At the same time, there are opportunities to combine tasks as part of a job redesign or employee development effort. Hence, job transitions need not always be within the same roles, departments and/or professions. These are referred to as inter-sector transitions from this point on.

The LKYCIC has developed a task-based strategy for evaluating job transition pathways.<sup>33</sup> This takes advantage of the growing and converging consensus that tasks provide added granularity to study the future of work.<sup>34</sup> Traditionally, skills and tasks have been viewed as similar in kind, if not equivalent. However, the advent of digitalised disruptions to the workforce has widened the seam between skills and tasks. Because digital technology is general-purpose, it has the potential to disrupt many different kinds of work across a wide variety of sectors. This disruption occurs not job-by-job but task-by-task, as automation encroaches on work processes at varying levels of complexity. Thus, work processes are broken down into a spectrum of tasks which cuts across skill levels, decoupling tasks and skills.

Since disruption occurs task-by-task, we evaluated the job transitions from a task perspective. First, focusing on tasks allows us to keep track of ongoing task disruption. For example, in the job transition pathways detailed below, one key factor was the degree of automation of tasks in the job roles, as provided in Chapter 3, "Impact of Technology on Job Tasks in the Finance Function".

Second, since tasks are rarely unique to their job roles, focusing on tasks allows for the comparison of job roles on the basis of their similar and dissimilar tasks. The use of large online databases which catalogue job tasks, such as the Occupational Information Network (O\*NET), has proven invaluable in this regard. The O\*NET database is one of the largest sources of occupational information utilised in the United States of America, and it contains detailed profiles of around 1,000 jobs.<sup>35</sup> The feasibility of a transition between two job roles depends on the overlap in their task profiles; generally, a transition will be more feasible between job roles with a greater number of similar core tasks and a smaller number of dissimilar core tasks, since additional training is required for tasks which are novel to the jobholder. Figure 10 illustrates this approach for the example of an Information Security Analyst. The job role's task profile is displayed on the left, alongside the task profiles for a variety of potential transition job roles, enabling a direct comparison of the overlap.

**FIGURE 10: OCCUPATIONAL INFORMATION NETWORK APPROACH: INFORMATION SECURITY ANALYST**



## **Inter-sector transitions for finance roles at high risk of disruption**

FA Accounts Executive/Accounts Assistant, and MA Accounting Executive – the two finance roles identified as high risk – were examined using an algorithmic-matching process in conjunction with human insights, to identify strong candidates for transition.

The algorithmic process took three factors into account. The first factor was the aforementioned degree of overlap between the task profiles of the two job roles involved. This overlap can be further broken down into three components: the number of similar tasks, the number of dissimilar tasks in the target role, and the core/supplementary status of the tasks involved. The objective was to maximise the overlap in tasks while minimising the number of dissimilar tasks, with greater weightage given to core tasks.

The second factor was the likelihood of the new role itself being exposed to automation. Jobholders in transition are likely to be interested in securing a job role that is not vulnerable to displacement, particularly if they are in transition due to a similar technological disruption. Hence, our analysis also evaluated the degree of automation of the constituent tasks of the target roles.

The third factor pertained to the economic prospects of the target roles generated algorithmically. This may be of particular importance to displaced jobholders concerned with the prospect of economic hardship. Thus, the method focused on roles belonging to high-growth sectors.

Even after job transition pathways are generated algorithmically, sound organisational psychology principles and human curation must be used to optimise the transition pathways. The final element is the use of human insight to make a holistic judgement, and to highlight specific transition pathways that represent novel and interesting directions for a jobholder to consider.

The end result of this process is a set of transition pathways which map the two high risk finance roles to three roles outside of the accountancy profession. These roles fall into one of two categories: adjacent roles, and emerging roles. Adjacent roles are roles already present in other sectors; emerging roles are roles which are growing in demand.

A key point to note: the recommendations produced here are not intended to be exhaustive. The job transition algorithm generates many candidates for inter-sector transition; the ones on display have been selected through a human-curation process. The aim is to provide jobholders with realistic but creative options they may not otherwise have considered, rather than providing a definitive “best” option. For example, the recommendation for Accounts Executive to transition to Clinical Data Manager in the healthcare sector serves as an illustration as similarly scoped roles are likely available in other sectors as well.

The transitions are shown in Figures 11 and 12. The full lists of the task profiles involved, including similar tasks and tasks to be trained for, are provided in the Appendix II. The six role descriptions are drawn from the O\*NET database.<sup>36</sup>

While jobs outside of the accountancy profession provide more options for job mobility, transitioning outside of the accountancy profession naturally involves a steeper learning curve which requires more upskilling and training. Despite the learning curve, we expect these transitions to become more important in the future, in order to build multi-skilled workers and to guard against crises and downturns.

**FIGURE 11: INTER-SECTOR TRANSITION FOR FA – ACCOUNTS EXECUTIVE/ACCOUNTS ASSISTANT**

Job Role	FA - Accounts Executive/Accounts Assistant					
Suggested inter-sector transition	Clinical Data Manager		Business Intelligence Analyst		Customer Service Representative	
Task transition diagram	Similar tasks 	Tasks to train 	Similar tasks 	Tasks to train 	Similar tasks 	Tasks to train 
Type	Emerging role		Emerging role		Adjacent role	
Role Description	The role of the Clinical Data Manager is to apply knowledge of healthcare and database management to analyse clinical data, and to identify and report trends.		The role of the Business Intelligence Analyst is to produce financial and market intelligence by querying data repositories and generating periodic reports. He/she also devises methods for identifying data patterns and trends in available information sources.		The role of the Customer Service Representative is to interact with customers to provide information in response to inquiries about products and services, and also handle and resolve complaints.	

**FIGURE 12: INTER-SECTOR TRANSITION FOR MA – ACCOUNTING EXECUTIVE**

Job Role	MA - Accounting Executive					
Suggested inter-sector transition	Quality Control Systems Manager		Logistics Manager		Compliance Manager	
Task transition diagram	Similar tasks 	Tasks to train 	Similar tasks 	Tasks to train 	Similar tasks 	Tasks to train 
Type	Adjacent role		Emerging role		Emerging role	
Role Description	The role of the Quality Control Systems Manager is to plan, direct and/or coordinate quality assurance programmes.  He/She has to formulate quality control policies and also control the quality of laboratory and production efforts.		The role of the Logistic Manager is to plan, direct and/or coordinate purchasing, warehousing, distribution, forecasting, customer service, and/or planning services.  He/She has to manage logistics personnel and logistics systems, and direct daily operations.		The role of the Compliance Manager is to plan, direct and/or coordinate activities of an organisation to ensure compliance with ethical and/or regulatory standards.	

## New roles

As a final application of the task framework, we considered how to transition from an existing role to targeted new roles within organisations. Some organisations may identify such new roles due to changes in the business environment (for example, new regulations on data governance). Consequently, they may want to know if any current employee can be redeployed in the new role, and how feasible that transition is likely to be.

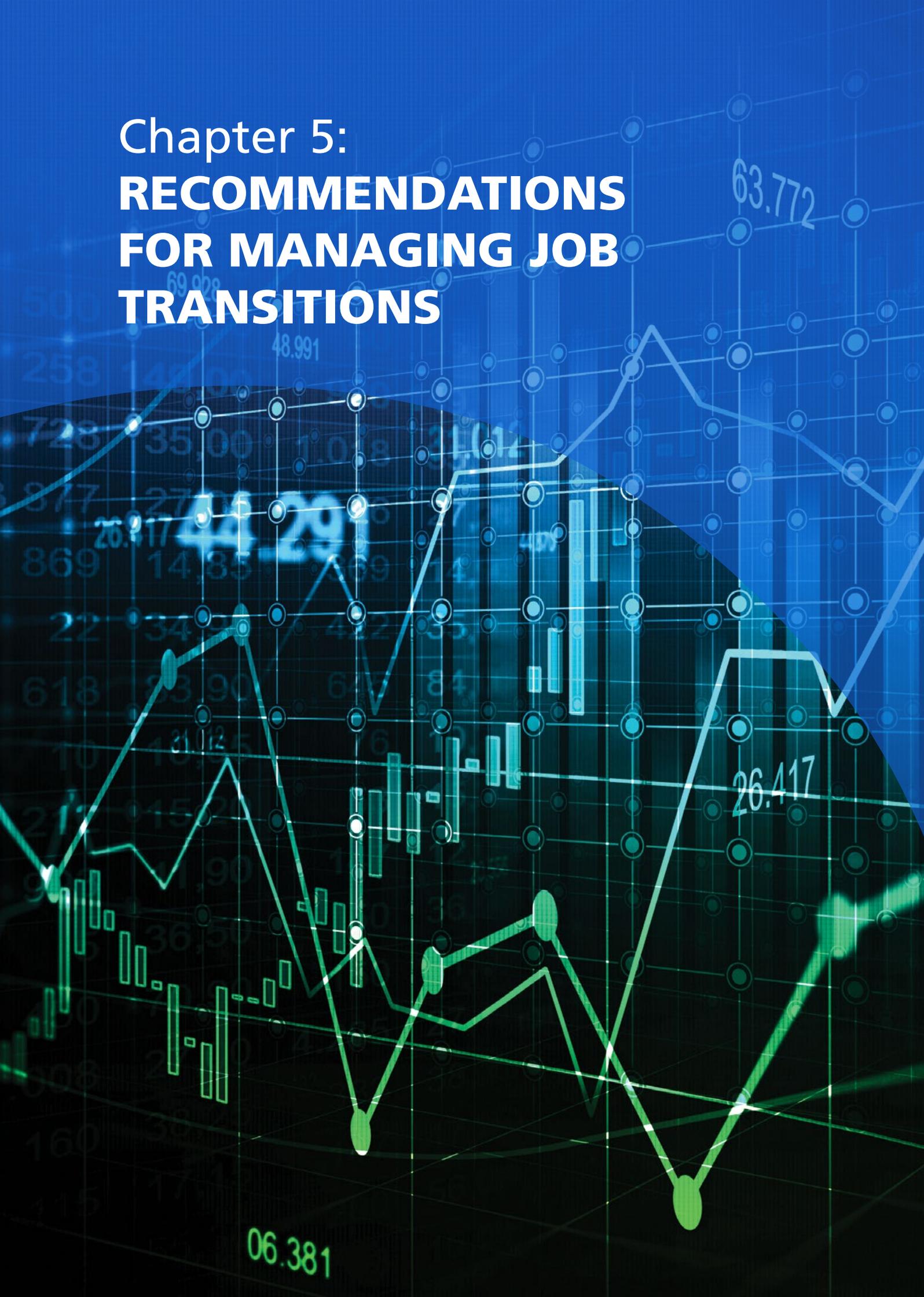
A similar process to the inter-sector job transition pathways was used to evaluate the feasibility of transitions to new roles. The main difference was that the inter-sector transitions started from an existing job role and proceeded to generate transitions to previously unknown target roles. By contrast, the current process began with a clearly defined target job role, and we then worked out which of the existing roles could provide the best fit for it.

The new role of Data Protection Officer was chosen as a test case. Of the 11 common job roles mapped out for the finance function in the Skills Framework, the MA Management Accountant/Financial Planning and Analysis Analyst/ Business Analyst and FA Accountant/ Senior Accounts Executive were found to be the most feasible existing roles to transition to Data Protection Officer (Figure 13). The full list of similar tasks and tasks to be trained for can be found in the Appendix II.

**FIGURE 13: TRANSITIONING FROM AN EXISTING ROLE TO A TARGET NEW ROLE**

New role	Data Protection Officer			
Suggested current role	MA - Management Accountant/Financial Planning and Analysis Analyst/Business Analyst		FA - Accountant/Senior Accounts Executive	
Task transition diagram	Similar Tasks 	Tasks to Train 	Similar Tasks 	Tasks to Train 

# Chapter 5: **RECOMMENDATIONS FOR MANAGING JOB TRANSITIONS**



06.381

26.417

63.772

44.29

## CHAPTER 5: RECOMMENDATIONS FOR MANAGING JOB TRANSITIONS

There are several ways to overcome challenges faced by businesses in their technological transformation. Below are three recommendations.

### 1) Job redesign, job rotation and upskilling require mindset shifts

Job redesign requires finance functions to re-evaluate their role in the organisation. Junior FA/MA jobholders acclimatised to viewing themselves as data-entry workers will increasingly see those routine tasks taken care of by technological processes, and will find themselves in the position of managing sophisticated systems. This requires a reimagining of their role from strict bookkeepers to data administrators.<sup>37</sup> The relevant attitude should not be to view technology as eliminating the need for human intervention but rather, as shifting the location of that intervention, for example, to exception-handling in the use of RPA.

Two recommendations flow from this. First, a key aspect of this mindset shift is avoiding the feeling that the shift in work – be it through job redesign or job displacement – entails a demotion or loss of status. This requires employers to manage changes among their workforce with the right amount of tact and sensitivity.

Second, giving workers a sense of personal empowerment and confidence in tackling the disruptions to their livelihoods is important for producing the right mindset shift. The mobility dashboards and lateral transition pathways give workers clarity in the options available to them while reinforcing the belief that there is an expanded range of alternatives for them to choose from.

As a case study in the role of mindset shifts, LKYCIC's use of the task-based approach in its research collaborations has charted some surprising possibilities for inter-sector transitions, such as how a mix of algorithmic matching and human insight outlines a possible transition from a bus driver to an urban drone pilot.<sup>38</sup> This unexpected transition, while seemingly implausible initially, becomes instantly intuitive when one considers that both jobs require the worker to be adept at safely negotiating through an urban environment daily. It also exposes how much of what we believe about what workers can do is more a function of mindset than actual expertise. A task-based approach expands the parameters for transition charting, thus maximising the job role options for workers.

Moreover, breaking down the job role into its constituent tasks gives workers a better sense of the realities of the work, assuaging their apprehension about making the foray into new sectors. Having the appropriate mindset – the willingness to think creatively and confidently about the available possibilities – opens up many more paths for workers in transition.

### 2) Greater clarity on training courses in defining outcomes and takeaways is a necessity

From the responses provided by finance leaders in the FGDs, the problem with upskilling does not appear to lie with the motivation of employees in general. Many employees have expressed willingness and enthusiasm to acquire the relevant skills to stay competitive in the modern workplace; this positive attitude is reflected across age demographics.

The barriers likely lie elsewhere. A technology adoption survey conducted by LKYCIC in another project saw respondents rank the barriers to learning new technologies in the workplace.<sup>39</sup> The top results included the lack of time, lack of appropriate training materials, inability to afford the training without assistance, and available training courses being uninteresting.

These barriers can be tackled to provide clarity on training courses. Chiefly, greater clarity on training courses would help workers evaluate the costs and benefits of the time and money involved. A task-based approach would help. For example, if companies and employees have a clear idea of the specific tasks for which they require training, training courses can then be tailored to meet their exact needs. This will also likely save time and money. Moreover, empowering employees to make informed decisions builds confidence, lowering the barriers to their learning of new technologies.

To tackle the constraints of time, ensuring that time can be set aside for upskilling without affecting business operations will be crucial. In addressing cost concerns, existing government initiatives for skills training and digital transformation can help to defray the financial costs involved.

### **3) Successful job redesign is multi-faceted and requires planning**

One overarching conclusion should be clear: successful job design is multi-faceted. It requires broad upskilling along the full spectrum from soft skills to hard skills, and is best achieved with detailed knowledge of the task profiles of roles both within and outside of the accountancy profession.

There are two ways to develop this range of skills in employees. The first is to ensure that both hard and soft skills are emphasised in any job redesign and/or transformation effort. For example, during the FGDs with finance leaders, several CFOs highlighted the growing value of communication skills, even as their employees are learning new technologies. The combination of mobility dashboards and lateral transitions in this report provides a possible approach that integrates both the hard and soft skills necessary to a successful job redesign.

A second way is to expose employees, especially when they are in more junior positions, to a variety of different roles, responsibilities and departments. This can be through structured job rotations, dual-job responsibilities, and/or working on cross-functional teams. This gives employees a broader base of skills, strengthens their ability to communicate across a variety of disciplines, and also gives them flexibility in the event of any technological disruption to any one function in the future.

In both of these ways, the key takeaway for companies is the value of planning ahead. This is where the systematic approach used in this report, involving multiple stakeholders, can also be used as a reference for companies that wish to put in place their own processes.

Rounding off, in Chapter 4, we noted the distinction between a skills framework and a task framework and how to use them to produce better outcomes. The final takeaways from the research and in-depth focus group sessions with finance leaders demonstrate the immense value of using these frameworks in conjunction – as a combined lens through which companies can think about technological disruption. Tasks provide clarity and granularity as well as inspire confidence and creative thinking, while skills must be built along multiple dimensions from specialised technological retraining to generalist modes of interaction. More can be done to empower employers and employees in this transition. Carefully managing workers' perceptions of job transitions with the right amount of tact and sensitivity, and empowering workers by offering job mobility options, can help workers navigate job changes with greater confidence. Greater clarity of training courses can lower barriers to upskilling. Employers should work with employees to set aside time for training, while ensuring that it does not interfere with business operations. Overall, a multi-faceted, well-planned job redesign empowers workers to navigate the ever-changing terrain of the future of work, supporting them as they contribute to their respective organisations and the economy.

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<sup>39</sup> Ibid.

# Appendix I: **IMPACT OF TECHNOLOGY ON JOB TASKS IN THE FINANCE FUNCTION**



## Accountant/Senior Accounts Executive

FINANCIAL ACCOUNTING		Technology enablers impacting this job...	Impact assessment...	Timeline
		1) Advanced Analytics/Big Data 2) Artificial Intelligence (AI) 3) Robotic Process Automation (RPA)	 A <b>MODERATE</b> exposure to data analytics and automation; substitutes a small proportion of job tasks, and at the same time amplify human performance	Within <b>3 to 5 years</b> , the role will potentially...  <b>REQUIRE REDESIGN</b>
		<p><b>Today</b>, this job role is responsible for nearly all aspects of accounting and oversees the day-to-day activities of the accounting team. The job role ensures that the organisation's finance function is well organised as well as produces timely and accurate financial statements and management accounts, thus achieving compliance with corporate policies and statutory requirements.</p>		
Key work functions/Tasks		Impact at task level/Future view of job tasks		
Supervise the finance team in financial accounting and corporate reporting	H	<ul style="list-style-type: none"> <li>RPA will be used to automate processes such as capturing and compiling accurate journal entries and account information reducing potential manual errors.</li> <li>Advanced Analytics/Big Data will provide more comprehensive information to be used to generate more innovative insights.</li> <li>Role will shift to reviewing the outputs of RPA processes and handling complex exception cases which require additional technical and domain specific knowledge.</li> </ul>		
Support strategic planning initiatives through budgeting and forecasting	H	<ul style="list-style-type: none"> <li>AI will be able to analyse large data sets to identify patterns which will facilitate forecasting activities.</li> <li>Role will shift to understanding data sets and how they are incorporated into AI tools as well as working to standardise data for a more organised data environment. This could also include collaborating across functions with other departments such as IT.</li> </ul>		
Support working capital management	M	<ul style="list-style-type: none"> <li>RPA will reduce the manual effort needed for basic processes such as accounts payable and receivable.</li> <li>Role will shift from data input and doing calculations to a strategic and collaborative task providing insights into working capital needs and funding strategies.</li> </ul>		
Support internal and external audit activities	M	<ul style="list-style-type: none"> <li>AI will be able to automatically screen for anomalies and flag those requiring further review by the role. AI can also propose recommendations to be taken into consideration.</li> <li>Role will shift to resolving more complex issues and advising on policies and procedures that can help to proactively minimise risks.</li> </ul>		
<b>In the next 3 to 5 years...</b>		This job role will be augmented by technology such as Advanced Analytics/Big Data, AI and RPA. The jobholder will need to utilise the outputs of RPA and AI systems to focus on generating insights and as a result, play a more strategic role in the organisation. The role will also shift to focus on proactively identifying opportunities to reduce risks and providing advice to relevant stakeholders. The impact of this role could accelerate due to the overall organisation's adoption of technology, resulting in a redesigned role that is converged with other roles, tasks and skills.		
		<b>Emerging skills</b> <ul style="list-style-type: none"> <li>Business Innovation and Improvement</li> <li>Data Analytics</li> <li>Digital Technology Adoption and Innovation</li> <li>Digital Technology Environment Scanning</li> <li>Finance Business Partnering</li> <li>Stakeholder Management</li> </ul>		
		<b>Skills to be enhanced</b> <ul style="list-style-type: none"> <li>Communication</li> <li>Problem Solving</li> <li>Sense Making</li> </ul>		

## Management Accountant/Financial Planning and Analysis Analyst/Business Analyst

MANAGEMENT ACCOUNTING		Technology enablers impacting this job...	Impact assessment...	Timeline
		1) Advanced Analytics/Big Data 2) Artificial Intelligence (AI) 3) Robotic Process Automation (RPA)	 A <b>MODERATE</b> exposure to data analytics and automation; substitutes a small proportion of job tasks and, at the same time, amplifies human performance	Within <b>3 to 5 years</b> , the role will potentially...  <b>REQUIRE REDESIGN</b>
		<p><b>Today</b>, this job role identifies trends and opportunities for improvement, analyses and manages risk, arranges the funding and financing of operations and monitors and enforces compliance. It also covers analysing financial statements and making forecasts, budgets, performance measurements and plans, and presenting them to senior management to assist in operational decision-making.</p>		
Key work functions/Tasks		Impact at task level/Future view of job tasks		
Perform financial modelling process to support strategic planning	H	<ul style="list-style-type: none"> <li>AI will be able to generate multiple variations of financial simulations within minutes to analyse proposals on financial and non-financial returns.</li> <li>Focus will shift towards interpreting and/or validating the outputs of analytics rather than performing the actual financial modelling.</li> </ul>		
Review the completeness of the financial accounts and cost accounting	H	<ul style="list-style-type: none"> <li>RPA will be used to identify gaps in financial and cost accounting by extracting insights from financial statements based on a series of predefined rules, while AI will facilitate more accurate forecasting and budgeting based on macro and internal trends affecting the business.</li> <li>The role will shift to defining rules for RPA systems and perform continuous machine learning by provides inputs such as new factors for consideration in order to enhance accuracy and relevance of machine-generated outputs.</li> </ul>		
Analyse trends, risks and possible improvements for operational efficiency	M	<ul style="list-style-type: none"> <li>Advanced Analytics/Big Data will be leveraged to track past and predict future trends, to identify potential business risks.</li> <li>Human interpretation of data and patterns will still be needed to generate insights and actionable improvement steps that can lead to achieving optimal operational efficiency for the business.</li> </ul>		
Develop the internal control system	M	<ul style="list-style-type: none"> <li>While analytics will help to provide insights into high risk areas where internal control is lacking, human judgement is key in deriving the appropriate internal control systems to ensure risks to the businesses are effectively mitigated. Some physical sighting/hands-on investigation is required, which technology is unable to replace.</li> </ul>		
<b>In the next 3 to 5 years...</b>		This role will transform from a labour-intensive role to utilising data insights as part of day-to-day operations. A portion of current tasks can be augmented by RPA, freeing up capacity to focus on utilising human judgement to interpret results and recommend ways to improve operations and performance measurement, and collaborating with cross-functional stakeholders.		
		<b>Emerging skills</b> <ul style="list-style-type: none"> <li>Data Analytics</li> <li>Data Governance</li> <li>Digital Technology Adoption and Innovation</li> <li>Digital Technology Environment Scanning</li> <li>Finance Business Partnering</li> <li>Macroeconomic Analysis</li> </ul>		
		<b>Skills to be enhanced</b> <ul style="list-style-type: none"> <li>Sense Making</li> <li>Problem Solving</li> </ul>		

## Treasury Manager

FINANCIAL ACCOUNTING	Technology enablers impacting this job...		Impact assessment...		
	1) Advanced Analytics/Big Data 2) Artificial Intelligence (AI) 3) Robotic Process Automation (RPA)		 A MODERATE exposure to data analytics and automation; substitutes a small proportion of job tasks and, at the same time, amplifies human performance		Within <b>3 to 5 years</b> , the role will potentially...  <b>REQUIRE REDESIGN</b>
	Today, this job role is responsible for managing the organisation's daily positions, cash flows and financial returns on investments. The job role reviews and monitors the organisation's cash positions and investment portfolio, and addresses gaps in cash flow positions and liquidity management.				
	Key work functions/ Tasks		Impact at task level/Future view of job tasks		
Manage treasury strategy to mitigate financial risks and maintain compliance with organisation policies	M	<ul style="list-style-type: none"> <li>RPA will be able to automate daily cash positioning to reduce manual and time-consuming tasks; this may result in near-real-time processing of information and enhanced visibility of cash positions to support decision-making.</li> <li>AI will help to analyse models to help manage credit risk. The models will be able to help proactively identify potential issues for further investigation, thereby protecting assets better.</li> <li>Role will continue to ensure compliance with overall organisation policies. Role will take on the maintenance of models as well as flagging and reviewing the areas that are potential risks, for further analysis.</li> </ul>			
Manage organisation's financial holdings including cash flows and potential exposures	M	<ul style="list-style-type: none"> <li>Advanced Analytics/Big Data and AI will be used to facilitate cash forecasting projections, resulting in enhanced visibility over the organisation's funds, including its multi-currency accounts.</li> <li>RPA will be used to help monitor for anomalies, flagging those exception cases for additional review.</li> <li>Role will need to focus on interpreting and drawing insights from data to more proactively manage financial holdings.</li> </ul>			
Engage and communicate with relevant stakeholders on treasury-related matters	L	<ul style="list-style-type: none"> <li>Access to Advanced Analytics/Big Data will help to provide enhanced support to relevant stakeholders on their financing and treasury operations needs, resulting in building better relationships across stakeholder groups.</li> <li>Role will need to be able to drive collaboration with internal functions on treasury-related matters; this will be possible through enhancing communication and stakeholder management skills.</li> </ul>			
In the next <b>3 to 5</b> years...	The Treasury Manager's job role will be augmented by access to Advanced Analytics/Big Data, AI and RPA. These technologies will help to increase the job role's productivity and improve the role's ability to provide oversight of the organisation's financial holdings. In addition, the role will have the ability to spend more time on analysing the data that is available. This role will need to collaborate and identify opportunities to work cross-functionally to deliver the best support possible to all stakeholders.				
		Emerging skills			<ul style="list-style-type: none"> <li>Business Innovation and Improvement</li> <li>Digital Technology Environment Scanning</li> <li>Disruption Management</li> <li>Management Decision Making</li> <li>Stakeholder Management</li> </ul>
		Skills to be enhanced			<ul style="list-style-type: none"> <li>Communication</li> <li>Decision Making</li> <li>Problem Solving</li> <li>Sense Making</li> </ul>

## Finance Manager

FINANCIAL ACCOUNTING	Technology enablers impacting this job...		Impact assessment...		
	1) Advanced Analytics/Big Data 2) Artificial Intelligence (AI) 3) Robotic Process Automation (RPA)		 A MODERATE exposure to data analytics and automation; substitutes a small proportion of job tasks and, at the same time, amplifies human performance		Within <b>3 to 5 years</b> , the role will potentially...  <b>REQUIRE REDESIGN</b>
	Today, this job role is responsible for being the lead finance business partner for the organisation and has responsibilities covering all aspects of financial management, performance management, financial accounting, budgeting and corporate reporting.				
	Key work functions/ Tasks		Impact at task level/Future view of job tasks		
Manage the organisation's financial accounting and corporate reporting functions	L	<ul style="list-style-type: none"> <li>Role will continue to provide advisory services to management and external stakeholders based on insights from consolidated financial statements and forecasts. This will require the ability to analyse data and make sense of the information within the context of the organisation.</li> <li>Role will also continue to require technical and domain expertise to ensure financial statements are accurate and acceptable, as well as adhere to accounting policies and reporting requirements.</li> </ul>			
Support the organisation as a business partner	M	<ul style="list-style-type: none"> <li>Advanced Analytics/Big Data, along with AI, will be leveraged to generate deeper insights, resulting in the ability to have richer engagement with the business units. Role will continue to require effective communication and stakeholder management skills to be an effective business partner.</li> <li>Role will shift to focus on problem-solving and being able to determine opportunities to creatively utilise Advanced Analytics/Big Data to achieve the desired outcomes.</li> </ul>			
Manage strategic planning initiatives	M	<ul style="list-style-type: none"> <li>RPA and AI will be able to provide real-time dynamic outputs of information such as profit and cost variances.</li> <li>Role will shift to validate outputs from RPA and AI and identify strategically relevant and actionable insights.</li> </ul>			
Manage the organisation's reporting framework	L	<ul style="list-style-type: none"> <li>Task is strategic in nature, including the promotion and adoption of corporate social responsibility (CSR) reporting and use of emerging frameworks to move towards integrated reporting models.</li> <li>Role will continue to require focus on continuous process improvement and innovation to implement integrated reporting.</li> </ul>			
Support internal and external audit activities	M	<ul style="list-style-type: none"> <li>RPA will be able to better provide digital audit trails that can have predefined rules in place to facilitate testing and risk compliance procedures. This will reduce the manual effort necessary to undertake reviews, and minimise potential errors.</li> <li>Role will shift to focus on troubleshooting when required and providing guidance of the overall process.</li> </ul>			
In the next <b>3 to 5</b> years...	The Finance Manager job role will be augmented by the incorporation of Advanced Analytics/Big Data and AI. Due to the incorporation of technology, this job role will be a better business partner to the organisation and play a sound advisory				
		Emerging skills			<ul style="list-style-type: none"> <li>Business Innovation and Improvement</li> <li>Data Analytics</li> <li>Digital Technology Adoption and Innovation</li> <li>Digital Technology Environment Scanning</li> <li>Finance Business Partnering</li> <li>Stakeholder Management</li> </ul>
		Skills to be enhanced			<ul style="list-style-type: none"> <li>Communication</li> <li>Leadership</li> </ul>

# Financial Planning and Analysis Manager

MANAGEMENT ACCOUNTING	Technology enablers impacting this job...		Impact assessment...		<p>1) Advanced Analytics/Big Data</p> <p>2) Artificial Intelligence (AI)</p>	 <p><b>MEDIUM</b> degree of change in tasks</p>	<p>A <b>MODERATE</b> exposure to data analytics and automation; substitutes a small proportion of job tasks and, at the same time, amplifies human performance</p>	<p>Within <b>3 to 5 years</b>, the role will potentially...</p> <p><b>REQUIRE REDESIGN</b></p>		
	<p><b>Today</b>, this job role is responsible for timely and accurate management accounts, and complying with corporate policies and statutory requirements. The role also analyses data and understands the financial performance and position of the organisation in order to perform variance analysis and identify key causes of business variances for performance measurement.</p>								<p><b>Emerging skills</b></p> <ul style="list-style-type: none"> <li>Business Innovation and Improvement</li> <li>Business Planning</li> <li>Data Analytics</li> <li>Data Governance</li> <li>Digital Technology Adoption and Innovation</li> <li>Digital Technology Environment Scanning</li> <li>Finance Business Partnering</li> </ul>	
	Key work functions/ Tasks		Impact at task level /Future view of job tasks							
	Support the organisation as a business partner		M	<ul style="list-style-type: none"> <li>Advanced Analytics/Big Data will be used to integrate internal and external data to improve forecasting and reporting insights to enable quality decision-making.</li> <li>Business knowledge and commercial acumen are required to interpret the results of data analytics in order to provide meaningful insights and recommendations on business units' performance.</li> </ul>						
	Manage strategic planning initiatives		L	<ul style="list-style-type: none"> <li>AI will aid in variance analysis by simulating revenue performance and growth with variable allocation of overhead costs; however, human intervention is still required to prepare management reports based on simulation outcomes.</li> <li>Understanding the company's strategy and direction is key to managing key business initiatives.</li> </ul>						
Manage efficiency and effectiveness of resource allocation		M	<ul style="list-style-type: none"> <li>Advanced Analytics/Big Data will assist in tracking and analysing key performance indicators in real time, identifying optimal product costs and critical cost areas of various business units.</li> <li>Upon interpreting the outcomes of analytics, the jobholder will need to propose cost improvements to business units and develop implementable cost control measures.</li> </ul>							
Maintain the internal control system		M	<ul style="list-style-type: none"> <li>Digital platforms will provide real-time monitoring and tracking of internal controls, and predictive analytics can be used to predict potential gaps or non-adherence to the controls.</li> <li>Human intervention is required to proactively communicate the findings to business units in a simple and actionable way for improvement of internal controls.</li> </ul>							
In the next 3 to 5 years...		<p>There will be opportunities to relieve some of the manual tasks that are part of this role. This role will utilise data, analytics and simulations to drive cost and performance management. There will be more expectations of the jobholder for adopting a more holistic view of the business, including advising on potential risks that are on the horizon.</p>								
					<p><b>Skills to be enhanced</b></p> <ul style="list-style-type: none"> <li>Digital Literacy</li> <li>Resource Management</li> </ul>					

# Head of Treasury

FINANCIAL ACCOUNTING	Technology enablers impacting this job...		Impact assessment...		<p>1) Advanced Analytics/Big Data</p> <p>2) Artificial Intelligence (AI)</p> <p>3) Robotic Process Automation (RPA)</p>	 <p><b>LOW</b> degree of change in tasks</p>	<p>The <b>job tasks will change INCREMENTALLY</b> to use more technology to increase efficiency of work and supplement the performance of humans</p>	<p>Within <b>3 to 5 years</b>, the role will potentially...</p> <p><b>CHANGE INCREMENTALLY</b></p>		
	<p><b>Today</b>, this job role is responsible for establishing cash management strategies and overseeing the financial position of the organisation to ensure steady growth and sufficient capital.</p>								<p><b>Emerging skills</b></p> <ul style="list-style-type: none"> <li>Business Innovation and Improvement</li> <li>Digital Technology Environment Scanning</li> <li>Management Decision Making</li> <li>Stakeholder Management</li> </ul>	
	Key work functions/ Tasks		Impact at task level /Future view of job tasks							
	Establish organisation's treasury strategy		L	<ul style="list-style-type: none"> <li>Access to insights generated from Advanced Analytics/Big Data will help to drive enhanced decision-making, business advisory and overall solutioning.</li> <li>Role will continue to require leadership and judgement to be able to collaborate across departments and achieve overall treasury strategies.</li> </ul>						
	Manage organisation's financial holdings		M	<ul style="list-style-type: none"> <li>AI models will be able to draw on more complex sets of Advanced Analytics/Big Data to make preliminary forecasts.</li> <li>Real-time outputs from RPA and AI systems will help to provide this task with continuous oversight of the organisation's financial position, resulting in the ability to better support the overall growth objectives.</li> <li>Role will continue to provide inputs and recommendations on the organisation's financial position and financial model.</li> </ul>						
Establish relationships with stakeholders and drive collaboration to achieve continuous process improvement		L	<ul style="list-style-type: none"> <li>Role requires advanced collaboration capabilities to be able to facilitate teaming with other departments such as IT, to unlock the full potential of Advanced Analytics/Big Data.</li> <li>Role will need to continually drive process improvement to achieve efficiency and overall effectiveness of technology adoption; this will require domain and technical expertise to determine how best to apply technology.</li> <li>Role will continue to require analysis and interpretation of regulations to ensure that the organisation is in compliance and that the adoption of new tools and technologies adheres to those policies.</li> </ul>							
In the next 3 to 5 years...		<p>The Head of Treasury job role will change incrementally, benefitting from technology solutions. The job role will need to be agile to drive innovation and incorporation of new tools and technologies into the treasury function. The jobholder will need to embrace change and spearhead change management initiatives to maximise the benefits within the function, and spearhead collaboration initiatives across the organisation.</p>								
					<p><b>Skills to be enhanced</b></p> <ul style="list-style-type: none"> <li>Communication</li> <li>Decision Making</li> <li>Problem Solving</li> <li>Sense Making</li> </ul>					

## Financial Controller

<b>FINANCIAL ACCOUNTING</b>	<b>Technology enablers impacting this job...</b>		<b>Impact assessment...</b>		<i>Within 3 to 5 years, the role will potentially...</i> <b>CHANGE INCREMENTALLY</b>	
	1) Advanced Analytics/Big Data 2) Artificial Intelligence (AI)		 The job tasks will change <b>INCREMENTALLY</b> to use more technology to increase efficiency of work and supplement the performance of humans			
	<p><b>Today</b>, this job role is responsible for being the chief accountant for a specific division of an organisation or a group of its entities. The role ensures the smooth day-to-day running of the accounting and finance operations.</p>					<p><b>Emerging skills</b></p> <ul style="list-style-type: none"> <li>• Business Innovation and Improvement</li> <li>• Change Management</li> <li>• Data Analytics</li> <li>• Digital Technology Adoption and Innovation</li> <li>• Digital Technology Environment Scanning</li> <li>• Disruption Management</li> <li>• Finance Business Partnering</li> <li>• Stakeholder Management</li> </ul> <p><b>Skills to be enhanced</b></p> <ul style="list-style-type: none"> <li>• Communication</li> <li>• Decision Making</li> <li>• Developing People</li> <li>• Leadership</li> </ul>
	<p><b>Key work functions/ Tasks</b>      <i>Impact at task level/Future view of job tasks</i></p>					
	Lead financial accounting and corporate reporting function		M	<ul style="list-style-type: none"> <li>• AI will help to generate trends and identify potential risks, thus allowing this role to focus on being agile and responsive to evolving business needs; these data-driven insights will help to promote collaboration across functions.</li> <li>• Role will focus on analysing outputs from AI systems and identifying opportunities to enhance business partnering.</li> </ul>		
Manage strategic planning initiatives		M	<ul style="list-style-type: none"> <li>• AI will be able to help with initial scenario-planning to enhance forecasting and budgeting projections. Multiple models can be developed simultaneously to test scenarios, resulting in more effective strategic planning inputs.</li> <li>• Role will continue to require oversight of the outputs from the models, along with domain and technical knowledge to contextualise the information.</li> </ul>			
Manage process improvements and resource allocation in the organisation		L	<ul style="list-style-type: none"> <li>• As processes within the function become more productive and efficient due to the incorporation of technologies, the task will be able to take on more proactive identification of opportunities to better support the organisation through enhanced cash flow management and supporting capital-raising initiatives.</li> </ul>			
Manage governance infrastructure and risk management		L	<ul style="list-style-type: none"> <li>• Advanced Analytics/Big Data will be leveraged to gain access to near-real-time information, resulting in the ability to flag and address potential risks in a more preventative manner.</li> <li>• Role will remain strategic in nature, requiring technical and domain knowledge for ongoing evaluation of circumstances, to be able to focus on business protection through strategic risk management.</li> </ul>			
<p><b>In the next 3 to 5 years...</b></p>		This job role will be augmented by access to Advanced Analytics/Big Data and AI. There will be an increased demand on this job role to provide insights and information on a continuous basis rather than just periodically. In addition, this job role will need to consider risks that emerge from the increased usage of technology, which will be possible through enhanced collaboration across business functions.				

## Business Controller/Financial Director

<b>MANAGEMENT ACCOUNTING</b>	<b>Technology enablers impacting this job...</b>		<b>Impact assessment...</b>		<i>Within 3 to 5 years, the role will potentially...</i> <b>CHANGE INCREMENTALLY</b>	
	1) Advanced Analytics/Big Data 2) Artificial Intelligence (AI)		 The job tasks will change <b>INCREMENTALLY</b> to use more technology to increase efficiency of work and supplement the performance of humans			
	<p><b>Today</b>, this job role is the business partner to all the business units in an organisation, providing technical accounting advice to maximise the organisation's value and minimise risks in accordance with external and internal accounting guidance. The role also provides operational risk management support to the business and ensures proper business performance management through profitability and operational analysis.</p>					<p><b>Emerging skills</b></p> <ul style="list-style-type: none"> <li>• Business Innovation and Improvement</li> <li>• Business Planning</li> <li>• Change Management</li> <li>• Data Analytics</li> <li>• Data Governance</li> <li>• Digital Technology Environment Scanning</li> </ul> <p><b>Skills to be enhanced</b></p> <ul style="list-style-type: none"> <li>• Communication</li> <li>• Digital Literacy</li> </ul>
	<p><b>Key work functions/ Tasks</b>      <i>Impact at task level/Future view of job tasks</i></p>					
	Drive business profitability and performance		L	<ul style="list-style-type: none"> <li>• While AI will supplement this task by modelling various scenarios and financial impacts of macroeconomic factors, human intervention is critical to consult and support business units with insights to make informed decisions towards achieving the company's objectives.</li> </ul>		
Manage the budgeting and management accounting function		M	<ul style="list-style-type: none"> <li>• Advanced Analytics/Big Data will augment the task by providing information on product pricing strategies, along with potential financial impacts.</li> <li>• The role will shift its focus towards interpreting data to provide advice and technical assistance regarding cost analysis, fiscal allocation, and budget preparation. Technical expertise and human judgement is still required in overseeing business control, planning and management reporting.</li> </ul>			
Strategise with business units on resource allocation and management		L	<ul style="list-style-type: none"> <li>• Advanced Analytics/Big Data will provide deep insights regarding optimal working capital, cost-efficiency and effectiveness of strategies that have been implemented.</li> <li>• Nonetheless, human judgement and experience remain critical in making sound and well-reasoned strategic decisions based on the needs of the business. This will further enforce the role of being an effective partner to the business leadership.</li> </ul>			
<p><b>In the next 3 to 5 years...</b></p>		Technology will have a limited impact on this role as the jobholder will continue to play a large role in business relationship-building, stakeholder management, and supporting strategic decision-making processes. Human judgement and expertise remain critical in fostering the close collaboration with different stakeholders to be effective business partners and strategic advisors.				

# Chief Financial Officer

FINANCIAL ACCOUNTING  
MANAGEMENT ACCOUNTING

**Technology enablers impacting this job...**

- 1) Advanced Analytics/Big Data
- 2) Artificial Intelligence (AI)

**Impact assessment...**



The job tasks will change **INCREMENTALLY** to use more technology to increase efficiency of work and supplement the performance of humans

*Within 3 to 5 years, the role will potentially...*

**CHANGE INCREMENTALLY**

**Today**, this job role is responsible for leading the finance and accounting functions while protecting the organisation's critical assets and financial health. The role ensures compliance with financial regulations, signs off on financial statements, and communicates value, financial information and risk issues to Boards and the investor community.

*Key work functions/ Tasks*      *Impact at task level/Future view of job tasks*

Support the organisation as a strategic business advisor	L	<ul style="list-style-type: none"> <li>• Advanced Analytics/Big Data will aid in modelling of highly complex scenarios and impact analyses in commercial deals structuring. However, business understanding and experience are still required to assess the suitability of commercial opportunities in line with the company's vision and long-term financial strategy.</li> </ul>
Drive strategic planning and talent development for the organisation	L	<ul style="list-style-type: none"> <li>• AI will be leveraged to find new ways to sustain the company's performance, but strategic thinking and commercial acumen are imperative to formulate clear strategic plans and actions for achieving the company's long-term goals.</li> <li>• Effective communication and experience are key to push for business improvement initiatives such as efficient cost reduction, procurement and pricing, as well as promote innovations that create value for the company.</li> </ul>
Drive change in the finance function	L	<ul style="list-style-type: none"> <li>• The future of the finance function will shift to become more analytical and insightful by leveraging emerging technologies. New finance skill sets will be anchored on data science, predictive and prescriptive analytics, and business partnering.</li> <li>• CFOs must develop innovative ways to attract new talents; they must also engage, inspire and transform the skills of existing talents to create a competitive advantage.</li> </ul>
Head the investor relations for organisation	L	<ul style="list-style-type: none"> <li>• Although Advanced Analytics/Big Data might be leveraged for insights, effective communication and relationships will not be replaced by technology. Stakeholder management skills and personal influence remain critical to successfully build strategic investor relationships and manage working relationships with various stakeholders.</li> </ul>

**In the next 3 to 5 years...** The role will shift from being the custodian of historical financial reporting to becoming an enabler of future growth opportunities. By harnessing the benefits of real-time data analytics, CFOs will focus on communicating more effectively across the various facets of their role, and partner the CEO to think of ways to optimise resources to grow the company further. Leveraging personal relationships, with leadership skills and influence remains critical for succeeding in this role.

**Emerging skills**

- Business Acumen
- Business Innovation and Improvement
- Business Planning
- Change Management
- Conflict Management
- Digital Technology Adoption and Innovation
- Digital Technology Environment Scanning
- Disruption Management

**Skills to be enhanced**

- Interpersonal Skills
- Decision Making
- Communication
- Problem Solving

# Appendix II: **INTER-SECTOR TRANSITION PATHWAYS**



# 1. Inter-Sector Transition Pathways

## How to use the transition tables

There are two high-risk job roles (*MA Accounting Executive* and *FA Accounts Executive/Accounts Assistant*); these are labelled *Current Roles*. For both *Current Roles*, three inter-sector transitions are shown. The job role to which the transition occurs is labelled the *Transition Role*.

All job roles comprise a set of tasks. For the *Transition Roles*, these tasks fall into two categories: they are either tasks which are similar to tasks in the *Current Role* (*Similar Tasks*) – which employees are already familiar with – or they are not similar, in which case they are *Tasks to Train*.

Tables 1.1 and 1.2 summarise all the *Similar Tasks* and *Tasks to Train* for each transition.

Tables 1.3 and 1.4 show the same *Similar Tasks* for each transition in the right-most column. In this table, we also show how these tasks are connected to tasks in the *Current Role*.

Tables 1.5 and 1.6 show the same *Tasks to Train* for each transition in the right-most column. In this table, we show how these tasks are clustered according to their *Work Activities* (as derived from the *Occupational Information Network, O\*NET*<sup>1</sup>). One application of this clustering is to facilitate targeted re-training programs by showing the common themes associated with clusters of tasks.

*Work Activities* are also shown in Tables 1.3 and 1.4.

<sup>1</sup> *Occupational Information Network (O\*NET)*, <https://www.onetonline.org/>

## Information Sources

All task descriptions from the *Current Role* are drawn directly from Skills Framework for Accountancy<sup>2</sup>. All task descriptions from the *Transition Roles* are drawn directly from the O\*NET database<sup>3</sup>. All *Work Activity* descriptions are drawn directly from the O\*NET database<sup>4</sup>.

**Table 1.1 – MA Accounting Executive Inter-Sector Transition Pathways: Similar Tasks and Tasks to Train**

MA - Accounting Executive		
Inter-Sector Transition Roles	Similar Tasks (Transition Role)	Tasks to Train (Transition Role)
Quality Control Systems Managers	<ol style="list-style-type: none"> <li>1. Direct product testing activities throughout production cycles.</li> <li>2. Coordinate the selection and implementation of quality control equipment, such as inspection gauges.</li> <li>3. Create and implement inspection and testing criteria or procedures.</li> <li>4. Identify critical points in the manufacturing process and specify sampling procedures to be used at these points.</li> <li>5. Analyze quality control test results and provide feedback and interpretation to production management or staff.</li> <li>6. Confer with marketing and sales departments to define client requirements and expectations.</li> <li>7. Generate and maintain quality control operating budgets.</li> <li>8. Monitor development of new products to help identify possible problems for mass production.</li> <li>9. Monitor performance of quality control systems to ensure effectiveness and efficiency.</li> <li>10. Identify quality problems or areas for improvement and recommend solutions.</li> <li>11. Document testing procedures, methodologies, or criteria.</li> <li>12. Review and update standard operating procedures or quality assurance manuals.</li> </ol>	<ol style="list-style-type: none"> <li>1. Collect and analyze production samples to evaluate quality.</li> <li>2. Verify that raw materials, purchased parts or components, in-process samples, and finished products meet established testing and inspection standards.</li> <li>3. Audit and inspect subcontractor facilities including external laboratories.</li> <li>4. Review quality documentation necessary for regulatory submissions and inspections.</li> <li>5. Direct the tracking of defects, test results, or other regularly reported quality control data.</li> <li>6. Review statistical studies, technological advances, or regulatory standards and trends to stay abreast of issues in the field of quality control.</li> <li>7. Produce reports regarding nonconformance of products or processes, daily production quality, root cause analyses, or quality trends.</li> <li>8. Communicate quality control information to all relevant organizational departments, outside vendors, or contractors.</li> <li>9. Participate in the development of product specifications.</li> <li>10. Instruct vendors or contractors on quality guidelines, testing procedures, or ways to eliminate deficiencies.</li> <li>11. Oversee workers including supervisors, inspectors, or laboratory workers engaged in testing activities.</li> <li>12. Instruct staff in quality control and analytical procedures.</li> </ol>
Logistics Managers	<ol style="list-style-type: none"> <li>1. Prepare or file environmental certification applications.</li> <li>2. Plan or implement improvements to internal or external logistics systems or processes.</li> <li>3. Implement specific customer requirements, such as internal reporting or customized transportation metrics.</li> <li>4. Plan or implement material flow management systems to meet production requirements.</li> <li>5. Analyze all aspects of corporate logistics to determine the most cost-effective or efficient means of transporting products or supplies.</li> <li>6. Recommend optimal transportation modes, routing, equipment, or frequency.</li> <li>7. Maintain metrics, reports, process documentation, customer service logs, or training or safety records.</li> <li>8. Create policies or procedures for logistics activities.</li> <li>9. Collaborate with other departments to integrate logistics with business systems or processes, such as customer sales, order management, accounting, or shipping.</li> <li>10. Design models for use in evaluating logistics programs or services.</li> <li>11. Monitor product import or export processes to ensure compliance with regulatory or legal requirements.</li> <li>12. Ensure carrier compliance with company policies or procedures for product transit or delivery.</li> <li>13. Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.</li> <li>14. Establish or monitor specific supply chain-based performance measurement systems.</li> <li>15. Implement or monitor carbon or environmental management, accounting, or audit systems.</li> </ol>	<ol style="list-style-type: none"> <li>1. Direct distribution center operation to ensure achievement of cost, productivity, accuracy, or timeliness objectives.</li> <li>2. Direct or coordinate comprehensive logistical or reverse logistical functions for product life cycles, including acquisition, distribution, internal allocation, delivery, recycling, reuse, or final disposal of resources.</li> <li>3. Direct inbound or outbound logistics operations, such as transportation or warehouse activities, safety performance, or logistics quality management.</li> <li>4. Participate in carrier management processes, such as selection, qualification, or performance evaluation.</li> <li>5. Supervise the work of logistics specialists, planners, or schedulers.</li> <li>6. Resolve problems concerning transportation, logistics systems, imports or exports, or customer issues.</li> <li>7. Recommend purchase of new or improved technology, such as automated systems.</li> <li>8. Conduct or review environmental audits for logistics activities, such as storage, distribution, or transportation.</li> <li>9. Develop risk management programs to ensure continuity of supply in emergency scenarios.</li> <li>10. Develop plans or set goals to reduce carbon emissions associated with storage or transport activities.</li> <li>11. Review global, national, or regional transportation or logistics reports for ways to improve efficiency or minimize the environmental impact of logistics activities.</li> <li>12. Communicate freight transportation information to customers or suppliers, using transportation management, electronic logistics marketplace, or electronic freight information systems, to improve efficiency, speed, or quality of transportation services.</li> <li>13. Negotiate transportation rates or services.</li> <li>14. Negotiate with suppliers or customers to improve supply chain efficiency or sustainability.</li> <li>15. Train shipping department personnel in roles or responsibilities regarding global logistics strategies.</li> </ol>

Inter-Sector Transition Roles	Similar Tasks (Transition Role)	Tasks to Train (Transition Role)
<p><b>Compliance Managers</b></p>	<ol style="list-style-type: none"> <li>1. Monitor compliance systems to ensure their effectiveness.</li> <li>2. Conduct or direct the internal investigation of compliance issues.</li> <li>3. Direct the development or implementation of policies and procedures related to compliance throughout an organization.</li> <li>4. Review or modify policies or operating guidelines to comply with changes to environmental standards or regulations.</li> <li>5. Design or implement improvements in communication, monitoring, or enforcement of compliance standards.</li> <li>6. Consult with corporate attorneys as necessary to address difficult legal compliance issues.</li> <li>7. Collaborate with human resources departments to ensure the implementation of consistent disciplinary action strategies in cases of compliance standard violations.</li> <li>8. Serve as a confidential point of contact for employees to communicate with management, seek clarification on issues or dilemmas, or report irregularities.</li> <li>9. Verify that all regulatory policies and procedures have been documented, implemented, and communicated.</li> <li>10. Develop or implement environmental compliance plans for programs, such as air quality, storm water, wastewater treatment, hazardous waste management, pollution prevention, or solid waste management.</li> <li>11. Oversee internal reporting systems, such as corporate compliance hotlines.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop risk management strategies based on assessment of product, compliance, or operational risks.</li> <li>2. Discuss emerging compliance issues to ensure that management and employees are informed about compliance reporting systems, policies, and practices.</li> <li>3. Advise technical professionals on the development or use of environmental compliance or reporting tools.</li> <li>4. Advise internal management or business partners on the implementation or operation of compliance programs.</li> <li>5. Disseminate written policies and procedures related to compliance activities.</li> <li>6. Provide employee training on compliance related topics, policies, or procedures.</li> <li>7. Review communications such as securities sales advertising to ensure there are no violations of standards or regulations.</li> <li>8. Keep informed regarding pending industry changes, trends, or best practices.</li> <li>9. Verify that software technology is in place to adequately provide oversight and monitoring in all required areas.</li> <li>10. Prepare management reports regarding compliance operations and progress.</li> <li>11. File appropriate compliance reports with regulatory agencies.</li> <li>12. Maintain documentation of compliance activities, such as complaints received or investigation outcomes.</li> <li>13. Direct environmental programs, such as air or water compliance, aboveground or underground storage tanks, spill prevention or control, hazardous waste or materials management, solid waste recycling, medical waste management, indoor air quality, integrated pest management, employee training, or disaster preparedness.</li> <li>14. Evaluate testing procedures to meet the specifications of environmental monitoring programs.</li> <li>15. Conduct environmental audits to ensure adherence to environmental standards.</li> <li>16. Conduct periodic internal reviews or audits to ensure that compliance procedures are followed.</li> <li>17. Report violations of compliance or regulatory standards to duly authorized enforcement agencies as appropriate or required.</li> </ol>

<sup>2</sup> SkillsFuture. (2020). Skills Framework for Accountancy. Available at <https://www.skillsfuture.sg/skills-framework/accountancy>

<sup>3</sup> Occupational Information Network (O\*NET), <https://www.onetonline.org/>

<sup>4</sup> Ibid

**Table 1.2 – FA Accounts Executive/ Accounts Assistant Inter-Sector Transition Pathways:  
Similar Tasks and Tasks to be Trained**

<b>FA - Accounts Executive/ Accounts Assistant</b>		
<b>Inter-Sector Transition Roles</b>	<b>Similar Tasks (Transition Role)</b>	<b>Tasks to Train (Transition Role)</b>
<b>Clinical Data Managers</b>	<ol style="list-style-type: none"> <li>1. Process clinical data, including receipt, entry, verification, or filing of information.</li> <li>2. Prepare appropriate formatting to data sets as requested.</li> <li>3. Prepare data analysis listings and activity, performance, or progress reports.</li> <li>4. Write work instruction manuals, data capture guidelines, or standard operating procedures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop or select specific software programs for various research scenarios.</li> <li>2. Evaluate processes and technologies, and suggest revisions to increase productivity and efficiency.</li> <li>3. Develop project-specific data management plans that address areas such as coding, reporting, or transfer of data, database locks, and work flow processes.</li> <li>4. Develop technical specifications for data management programming and communicate needs to information technology staff.</li> <li>5. Design forms for receiving, processing, or tracking data.</li> <li>6. Confer with end users to define or implement clinical system requirements such as data release formats, delivery schedules, and testing protocols.</li> <li>7. Provide support and information to functional areas such as marketing, clinical monitoring, and medical affairs.</li> <li>8. Design and validate clinical databases, including designing or testing logic checks.</li> <li>9. Perform quality control audits to ensure accuracy, completeness, or proper usage of clinical systems and data.</li> <li>10. Train staff on technical procedures or software program usage.</li> <li>11. Contribute to the compilation, organization, and production of protocols, clinical study reports, regulatory submissions, or other controlled documentation.</li> <li>12. Analyze clinical data using appropriate statistical tools.</li> <li>13. Read technical literature and participate in continuing education or professional associations to maintain awareness of current database technology and best practices.</li> <li>14. Supervise the work of data management project staff.</li> <li>15. Monitor work productivity or quality to ensure compliance with standard operating procedures.</li> <li>16. Generate data queries, based on validation checks or errors and omissions identified during data entry, to resolve identified problems.</li> </ol>
<b>Business Intelligence Analysts</b>	<ol style="list-style-type: none"> <li>1. Generate standard or custom reports summarizing business, financial, or economic data for review by executives, managers, clients, and other stakeholders.</li> <li>2. Maintain or update business intelligence tools, databases, dashboards, systems, or methods.</li> <li>3. Document specifications for business intelligence or information technology reports, dashboards, or other outputs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Create business intelligence tools or systems, including design of related databases, spreadsheets, or outputs.</li> <li>2. Analyze competitive market strategies through analysis of related product, market, or share trends.</li> <li>3. Synthesize current business intelligence or trend data to support recommendations for action.</li> <li>4. Collect business intelligence data from available industry reports, public information, field reports, or purchased sources.</li> <li>5. Identify and analyze industry or geographic trends with business strategy implications.</li> <li>6. Analyze technology trends to identify markets for future product development or to improve sales of existing products.</li> <li>7. Identify or monitor current and potential customers, using business intelligence tools.</li> <li>8. Conduct or coordinate tests to ensure that intelligence is consistent with defined needs.</li> <li>9. Manage timely flow of business intelligence information to users.</li> <li>10. Create or review technical design documentation to ensure the accurate development of reporting solutions.</li> <li>11. Provide technical support for existing reports, dashboards, or other tools.</li> <li>12. Communicate with customers, competitors, suppliers, professional organizations, or others to stay abreast of industry or business trends.</li> </ol>

Inter-Sector Transition Roles	Similar Tasks (Transition Role)	Tasks to Train (Transition Role)
<b>Customer Service Representatives</b>	<ol style="list-style-type: none"> <li>1. Resolve customers' service or billing complaints by performing activities such as exchanging merchandise, refunding money, or adjusting bills.</li> <li>2. Review claims adjustments with dealers, examining parts claimed to be defective, and approving or disapproving dealers' claims.</li> <li>3. Determine charges for services requested, collect deposits or payments, or arrange for billing.</li> <li>4. Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Recommend improvements in products, packaging, shipping, service, or billing methods and procedures to prevent future problems.</li> <li>2. Check to ensure that appropriate changes were made to resolve customers' problems.</li> <li>3. Obtain and examine all relevant information to assess validity of complaints and to determine possible causes, such as extreme weather conditions that could increase utility bills.</li> <li>4. Review insurance policy terms to determine whether a particular loss is covered by insurance.</li> <li>5. Confer with customers by telephone or in person to provide information about products or services, take or enter orders, cancel accounts, or obtain details of complaints.</li> <li>6. Solicit sales of new or additional services or products.</li> <li>7. Order tests that could determine the causes of product malfunctions.</li> <li>8. Refer unresolved customer grievances to designated departments for further investigation.</li> <li>9. Complete contract forms, prepare change of address records, or issue service discontinuance orders, using computers.</li> <li>10. Contact customers to respond to inquiries or to notify them of claim investigation results or any planned adjustments.</li> </ol>

Table 1.3 – MA Accounting Executive Inter-Sector Transitions: Breakdown of Similar Tasks

MA - Accounting Executive				
Inter-Sector Transition Roles	Work Activity Category	Tasks (Current Role)	Similar Tasks (Transition Role)	
Compliance Managers	Communicate with others about operational plans or activities.	Monthly submission HFM to HQ	Consult with corporate attorneys as necessary to address difficult legal compliance issues.	
		Monthly submission HFM to HQ	Collaborate with human resources departments to ensure the implementation of consistent disciplinary action strategies in cases of compliance standard violations.	
		Monthly submission HFM to HQ	Serve as a confidential point of contact for employees to communicate with management, seek clarification on issues or dilemmas, or report irregularities.	
		Serve as liaisons between organizations, shareholders, and outside organizations.	Consult with corporate attorneys as necessary to address difficult legal compliance issues.	
		Serve as liaisons between organizations, shareholders, and outside organizations.	Collaborate with human resources departments to ensure the implementation of consistent disciplinary action strategies in cases of compliance standard violations.	
		Serve as liaisons between organizations, shareholders, and outside organizations.	Serve as a confidential point of contact for employees to communicate with management, seek clarification on issues or dilemmas, or report irregularities.	
	Develop organizational policies, systems, or processes.	Develop internal control system	Direct the development or implementation of policies and procedures related to compliance throughout an organization.	
		Develop internal control system	Review or modify policies or operating guidelines to comply with changes to environmental standards or regulations.	
		Develop internal control system	Design or implement improvements in communication, monitoring, or enforcement of compliance standards.	
		Identify process of internal control systems to ensure compliance	Direct the development or implementation of policies and procedures related to compliance throughout an organization.	
		Identify process of internal control systems to ensure compliance	Review or modify policies or operating guidelines to comply with changes to environmental standards or regulations.	
	Evaluate the quality or accuracy of data.	Analyse and prepare financial ratio, liquidity ratio, working capital ratio and gearing ratio	Verify that all regulatory policies and procedures have been documented, implemented, and communicated.	
		Check figures, postings, and documents for correct entry, mathematical accuracy, and proper codes.	Verify that all regulatory policies and procedures have been documented, implemented, and communicated.	
		Extract data and provide analysis for management using relevant accounting information systems or software	Verify that all regulatory policies and procedures have been documented, implemented, and communicated.	
		Prepare accurate and timely financial statements and disclosure notes	Verify that all regulatory policies and procedures have been documented, implemented, and communicated.	
		Prepare, analyze, and verify annual reports, financial statements, and other records, using accepted accounting and statistical procedures to assess financial condition and facilitate financial planning.	Verify that all regulatory policies and procedures have been documented, implemented, and communicated.	
	Implement procedures or processes.	Identify process of internal control systems to ensure compliance	Verify that all regulatory policies and procedures have been documented, implemented, and communicated.	
		Identify process of internal control systems to ensure compliance	Design or implement improvements in communication, monitoring, or enforcement of compliance standards.	
		Identify process of internal control systems to ensure compliance	Develop or implement environmental compliance plans for programs, such as air quality, storm water, wastewater treatment, hazardous waste management, pollution prevention, or solid waste management.	
	Manage control systems or activities.	Develop internal control system	Direct the development or implementation of policies and procedures related to compliance throughout an organization.	
		Plan and coordinate the annual financial audit process	Direct the development or implementation of policies and procedures related to compliance throughout an organization.	
	Monitor operations to ensure adequate performance.	Identify process of internal control systems to ensure compliance	Oversee internal reporting systems, such as corporate compliance hotlines.	
	Monitor operations to ensure compliance with regulations or standards.	Ensure compliance with JSOX Act	Monitor compliance systems to ensure their effectiveness.	
		Ensure compliance with JSOX Act	Conduct or direct the internal investigation of compliance issues.	
		Review the completeness of the financial accounts and cost accounting	Monitor compliance systems to ensure their effectiveness.	
		Review the completeness of the financial accounts and cost accounting	Conduct or direct the internal investigation of compliance issues.	
	Logistics Managers	Analyze business or financial data.	Analyse trends, possible improvements, areas of risks, financing and any key issues relating to the business	Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.
			Approve all Journal Entries to General Ledgers	Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.
			Assist in profit and loss analysis	Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.
			Calculate the cost of different types of capital financial instruments and the overall costs of capital for the organisation	Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.
Compute the valuation of business and financial assets using different models			Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.	
Extract insights from financial statements			Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.	
Manage accounts payable and receivables to help the organisation determine working capital needs and funding strategies			Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.	
Participate in budgeting and forecasting activities			Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.	
Analyze data to improve operations.		Perform financial modelling process to analyse proposals on financial and non-financial return	Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.	
		Prepare accurate and timely financial statements and disclosure notes	Analyze the financial impact of proposed logistics changes, such as routing, shipping modes, product volumes or mixes, or carriers.	
		Analyse trends, possible improvements, areas of risks, financing and any key issues relating to the business	Analyze all aspects of corporate logistics to determine the most cost-effective or efficient means of transporting products or supplies.	
		Analyse trends, possible improvements, areas of risks, financing and any key issues relating to the business	Design models for use in evaluating logistics programs or services.	
		Calculate the cost of different types of capital financial instruments and the overall costs of capital for the organisation	Analyze all aspects of corporate logistics to determine the most cost-effective or efficient means of transporting products or supplies.	
		Calculate the cost of different types of capital financial instruments and the overall costs of capital for the organisation	Design models for use in evaluating logistics programs or services.	
Respond to internal and external auditors on audit data, variances and audit findings	Analyze all aspects of corporate logistics to determine the most cost-effective or efficient means of transporting products or supplies.			
Respond to internal and external auditors on audit data, variances and audit findings	Design models for use in evaluating logistics programs or services.			
Support proposed improvement by providing analysis of operational efficiency	Analyze all aspects of corporate logistics to determine the most cost-effective or efficient means of transporting products or supplies.			
Support proposed improvement by providing analysis of operational efficiency	Design models for use in evaluating logistics programs or services.			

Inter-Sector Transition Roles	Work Activity Category	Tasks (Current Role)	Similar Tasks (Transition Role)	
Logistics Managers (continued)	Communicate with others about operational plans or activities.	Monthly submission HFM to HQ	Collaborate with other departments to integrate logistics with business systems or processes, such as customer sales, order management, accounting, or shipping.	
		Serve as liaisons between organizations, shareholders, and outside organizations.	Collaborate with other departments to integrate logistics with business systems or processes, such as customer sales, order management, accounting, or shipping.	
	Develop organizational policies, systems, or processes.	Develop internal control system	Create policies or procedures for logistics activities.	
		Develop internal control system	Plan or implement improvements to internal or external logistics systems or processes.	
		Develop internal control system	Plan or implement material flow management systems to meet production requirements.	
		Identify process of internal control systems to ensure compliance	Create policies or procedures for logistics activities.	
		Identify process of internal control systems to ensure compliance	Plan or implement improvements to internal or external logistics systems or processes.	
		Identify process of internal control systems to ensure compliance	Plan or implement material flow management systems to meet production requirements.	
	Implement procedures or processes.	Identify process of internal control systems to ensure compliance	Plan or implement improvements to internal or external logistics systems or processes.	
		Identify process of internal control systems to ensure compliance	Implement specific customer requirements, such as internal reporting or customized transportation metrics.	
		Identify process of internal control systems to ensure compliance	Plan or implement material flow management systems to meet production requirements.	
		Identify process of internal control systems to ensure compliance	Analyze all aspects of corporate logistics to determine the most cost-effective or efficient means of transporting products or supplies.	
		Identify process of internal control systems to ensure compliance	Recommend optimal transportation modes, routing, equipment, or frequency.	
	Maintain operational records.	Assist in the preparation of management report with written narratives to support analysis and findings	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Keep track of leave time, such as vacation, personal, and sick leave, for employees.	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Maintain accurate journal entries and allocations	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Prepare and maintain a directory of suppliers, contractors and subcontractors.	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Process, verify, and maintain personnel related documentation, including staffing, recruitment, training, grievances, performance evaluations, classifications, and employee leaves of absence.	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Record transactions and events relating to sales, purchases, receivables, payables and cash	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Respond to internal and external auditors on audit data, variances and audit findings	Maintain metrics, reports, process documentation, customer service logs, or training or safety records.	
		Identify process of internal control systems to ensure compliance	Establish or monitor specific supply chain-based performance measurement systems.	
	Monitor operations to ensure adequate performance.	Identify process of internal control systems to ensure compliance	Implement or monitor carbon or environmental management, accounting, or audit systems.	
		Identify process of internal control systems to ensure compliance	Implement or monitor carbon or environmental management, accounting, or audit systems.	
	Monitor operations to ensure compliance with regulations or standards.	Ensure compliance with JSOX Act	Monitor product import or export processes to ensure compliance with regulatory or legal requirements.	
		Ensure compliance with JSOX Act	Ensure carrier compliance with company policies or procedures for product transit or delivery.	
		Review the completeness of the financial accounts and cost accounting	Monitor product import or export processes to ensure compliance with regulatory or legal requirements.	
		Review the completeness of the financial accounts and cost accounting	Ensure carrier compliance with company policies or procedures for product transit or delivery.	
	Prepare documentation for contracts, applications, or permits.	Complete and submit tax forms and returns, workers' compensation forms, pension contribution forms, and other government documents.	Prepare or file environmental certification applications.	
		Process and prepare documents, such as business or government forms and expense reports.	Prepare or file environmental certification applications.	
	Quality Control Systems Managers	Analyze data to improve operations.	Analyse trends, possible improvements, areas of risks, financing and any key issues relating to the business	Identify quality problems or areas for improvement and recommend solutions.
			Analyse trends, possible improvements, areas of risks, financing and any key issues relating to the business	Analyze quality control test results and provide feedback and interpretation to production management or staff.
			Calculate the cost of different types of capital financial instruments and the overall costs of capital for the organisation	Identify quality problems or areas for improvement and recommend solutions.
Calculate the cost of different types of capital financial instruments and the overall costs of capital for the organisation			Analyze quality control test results and provide feedback and interpretation to production management or staff.	
Respond to internal and external auditors on audit data, variances and audit findings			Identify quality problems or areas for improvement and recommend solutions.	
Respond to internal and external auditors on audit data, variances and audit findings			Analyze quality control test results and provide feedback and interpretation to production management or staff.	
Support proposed improvement by providing analysis of operational efficiency			Identify quality problems or areas for improvement and recommend solutions.	
Support proposed improvement by providing analysis of operational efficiency			Analyze quality control test results and provide feedback and interpretation to production management or staff.	
Communicate with others about operational plans or activities.		Monthly submission HFM to HQ	Analyze quality control test results and provide feedback and interpretation to production management or staff.	
		Monthly submission HFM to HQ	Confer with marketing and sales departments to define client requirements and expectations.	
		Serve as liaisons between organizations, shareholders, and outside organizations.	Analyze quality control test results and provide feedback and interpretation to production management or staff.	
		Serve as liaisons between organizations, shareholders, and outside organizations.	Confer with marketing and sales departments to define client requirements and expectations.	
Develop organizational policies, systems, or processes.		Develop internal control system	Create and implement inspection and testing criteria or procedures.	
		Develop internal control system	Identify critical points in the manufacturing process and specify sampling procedures to be used at these points.	
		Identify process of internal control systems to ensure compliance	Create and implement inspection and testing criteria or procedures.	
		Identify process of internal control systems to ensure compliance	Identify critical points in the manufacturing process and specify sampling procedures to be used at these points.	

Inter-Sector Transition Roles	Work Activity Category	Tasks (Current Role)	Similar Tasks (Transition Role)
<b>Quality Control Systems Managers (continued)</b>	Implement procedures or processes.	Identify process of internal control systems to ensure compliance	Create and implement inspection and testing criteria or procedures.
	Maintain operational records.	Assist in the preparation of management report with written narratives to support analysis and findings	Document testing procedures, methodologies, or criteria.
		Assist in the preparation of management report with written narratives to support analysis and findings	Review and update standard operating procedures or quality assurance manuals.
		Keep track of leave time, such as vacation, personal, and sick leave, for employees.	Document testing procedures, methodologies, or criteria.
		Keep track of leave time, such as vacation, personal, and sick leave, for employees.	Review and update standard operating procedures or quality assurance manuals.
		Maintain accurate journal entries and allocations	Document testing procedures, methodologies, or criteria.
		Maintain accurate journal entries and allocations	Review and update standard operating procedures or quality assurance manuals.
		Prepare and maintain a directory of suppliers, contractors and subcontractors.	Document testing procedures, methodologies, or criteria.
		Prepare and maintain a directory of suppliers, contractors and subcontractors.	Review and update standard operating procedures or quality assurance manuals.
		Process, verify, and maintain personnel related documentation, including staffing, recruitment, training, grievances, performance evaluations, classifications, and employee leaves of absence.	Document testing procedures, methodologies, or criteria.
		Process, verify, and maintain personnel related documentation, including staffing, recruitment, training, grievances, performance evaluations, classifications, and employee leaves of absence.	Review and update standard operating procedures or quality assurance manuals.
		Record transactions and events relating to sales, purchases, receivables, payables and cash	Document testing procedures, methodologies, or criteria.
		Record transactions and events relating to sales, purchases, receivables, payables and cash	Review and update standard operating procedures or quality assurance manuals.
		Respond to internal and external auditors on audit data, variances and audit findings	Document testing procedures, methodologies, or criteria.
		Respond to internal and external auditors on audit data, variances and audit findings	Review and update standard operating procedures or quality assurance manuals.
	Manage budgets or finances.	Assist in the budgeting and forecasting process	Generate and maintain quality control operating budgets.
		Participate in budgeting and forecasting activities	Generate and maintain quality control operating budgets.
		Perform administrative duties, such as overseeing building management, ordering supplies, contracting for services or repairs, or supervising the work of staff members or volunteers.	Generate and maintain quality control operating budgets.
		Prepare accurate and timely financial statements and disclosure notes	Generate and maintain quality control operating budgets.
		Prepare consolidated financial statements, business activity reports and forecasts for management and external stakeholders	Generate and maintain quality control operating budgets.
	Manage control systems or activities.	Develop internal control system	Direct product testing activities throughout production cycles.
		Develop internal control system	Coordinate the selection and implementation of quality control equipment, such as inspection gauges.
		Plan and coordinate the annual financial audit process	Direct product testing activities throughout production cycles.
		Plan and coordinate the annual financial audit process	Coordinate the selection and implementation of quality control equipment, such as inspection gauges.
	Monitor operations to ensure adequate performance.	Identify process of internal control systems to ensure compliance	Monitor development of new products to help identify possible problems for mass production.
		Identify process of internal control systems to ensure compliance	Monitor performance of quality control systems to ensure effectiveness and efficiency.

**Table 1.4 – FA Accounts Executive Inter-Sector Transitions: Breakdown of Similar Tasks**

FA - Accounts Executive				
Inter-Sector Transition Roles	Work Activity Category	Tasks (Current Role)	Similar Tasks (Transition Role)	
Business Intelligence Analysts	Maintain operational records.	Assist in the preparation of management report with written narratives to support analysis and findings	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
		Keep track of leave time, such as vacation, personal, and sick leave, for employees.	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
		Maintain accurate journal entries and allocations	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
		Prepare and maintain a directory of suppliers, contractors and subcontractors.	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
		Process, verify, and maintain personnel related documentation, including staffing, recruitment, training, grievances, performance evaluations, classifications, and employee leaves of absence.	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
		Record transactions and events relating to sales, purchases, receivables, payables and cash	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
		Respond to internal and external auditors on audit data, variances and audit findings	Document specifications for business intelligence or information technology reports, dashboards, or other outputs.	
	Present research or technical information.	Assist in the preparation of management report with written narratives to support analysis and findings	Generate standard or custom reports summarizing business, financial, or economic data for review by executives, managers, clients, and other stakeholders.	
		Assist to prepare consolidated financial statements, business activity reports and forecasts for management and external stakeholders	Generate standard or custom reports summarizing business, financial, or economic data for review by executives, managers, clients, and other stakeholders.	
		Prepare consolidated financial statements, business activity reports and forecasts for management and external stakeholders	Generate standard or custom reports summarizing business, financial, or economic data for review by executives, managers, clients, and other stakeholders.	
		Provide data in relation to assets, capital rationing and cost of capital	Generate standard or custom reports summarizing business, financial, or economic data for review by executives, managers, clients, and other stakeholders.	
	Process digital or online data.	Assign account codes to all transactions in the accounting system	Maintain or update business intelligence tools, databases, dashboards, systems, or methods.	
		Create, analyze, report, convert, or transfer data, using specialized applications program software.	Maintain or update business intelligence tools, databases, dashboards, systems, or methods.	
		Enter accurate data into the accounting system	Maintain or update business intelligence tools, databases, dashboards, systems, or methods.	
		Use relevant Infocomm technology systems and tools effectively for data analysis	Maintain or update business intelligence tools, databases, dashboards, systems, or methods.	
	Clinical Data Managers	Maintain operational records.	Assist in the preparation of management report with written narratives to support analysis and findings	Write work instruction manuals, data capture guidelines, or standard operating procedures.
			Keep track of leave time, such as vacation, personal, and sick leave, for employees.	Write work instruction manuals, data capture guidelines, or standard operating procedures.
Maintain accurate journal entries and allocations			Write work instruction manuals, data capture guidelines, or standard operating procedures.	
Prepare and maintain a directory of suppliers, contractors and subcontractors.			Write work instruction manuals, data capture guidelines, or standard operating procedures.	
Process, verify, and maintain personnel related documentation, including staffing, recruitment, training, grievances, performance evaluations, classifications, and employee leaves of absence.			Write work instruction manuals, data capture guidelines, or standard operating procedures.	
Record transactions and events relating to sales, purchases, receivables, payables and cash			Write work instruction manuals, data capture guidelines, or standard operating procedures.	
Respond to internal and external auditors on audit data, variances and audit findings			Write work instruction manuals, data capture guidelines, or standard operating procedures.	
Present research or technical information.		Assist in the preparation of management report with written narratives to support analysis and findings	Prepare data analysis listings and activity, performance, or progress reports.	
		Assist to prepare consolidated financial statements, business activity reports and forecasts for management and external stakeholders	Prepare data analysis listings and activity, performance, or progress reports.	
		Prepare consolidated financial statements, business activity reports and forecasts for management and external stakeholders	Prepare data analysis listings and activity, performance, or progress reports.	
		Provide data in relation to assets, capital rationing and cost of capital	Prepare data analysis listings and activity, performance, or progress reports.	
Process digital or online data.		Assign account codes to all transactions in the accounting system	Process clinical data, including receipt, entry, verification, or filing of information.	
		Assign account codes to all transactions in the accounting system	Prepare appropriate formatting to data sets as requested.	
		Create, analyze, report, convert, or transfer data, using specialized applications program software.	Process clinical data, including receipt, entry, verification, or filing of information.	
		Create, analyze, report, convert, or transfer data, using specialized applications program software.	Prepare appropriate formatting to data sets as requested.	
		Enter accurate data into the accounting system	Process clinical data, including receipt, entry, verification, or filing of information.	
		Enter accurate data into the accounting system	Prepare appropriate formatting to data sets as requested.	
		Use relevant Infocomm technology systems and tools effectively for data analysis	Process clinical data, including receipt, entry, verification, or filing of information.	
Use relevant Infocomm technology systems and tools effectively for data analysis	Prepare appropriate formatting to data sets as requested.			
Customer Service Representatives	Determine values or prices of goods or services.	Calculate customer and/or supplier account balances and reconcile with totals	Determine charges for services requested, collect deposits or payments, or arrange for billing.	
	Execute financial transactions.	Process payroll transactions into the organisation's accounting system	Resolve customers' service or billing complaints by performing activities such as exchanging merchandise, refunding money, or adjusting bills.	
	Inspect completed work or finished products.	Inspect completed work to ensure conformance to specifications, standards, and contract requirements.	Perform month-end closing activities	Review claims adjustments with dealers, examining parts claimed to be defective, and approving or disapproving dealers' claims.
				Review claims adjustments with dealers, examining parts claimed to be defective, and approving or disapproving dealers' claims.
	Maintain sales or financial records.	Maintain accurate financial records and statements	Maintain accurate journal entries and allocations	Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.
		Operate accounting information systems efficiently and effectively		Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.
		Record and process all business transactions in the accounting system using double-entry accounting		Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.
		Record transactions and events relating to inventory, accruals, prepayments, capital structure and finance costs		Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.
Record transactions and events relating to sales, purchases, receivables, payables and cash			Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.	

Table 1.5 – MA Accounting Executive Inter-Sector Transitions: Breakdown of Tasks to Train

MA - Accounting Executive		
Inter-Sector Transition Roles	Work Activity Category	Tasks to Train (Transition Role)
Compliance Managers	Advise others on business or operational matters.	Advise internal management or business partners on the implementation or operation of compliance programs.
	Advise others on legal or regulatory matters.	Advise technical professionals on the development or use of environmental compliance or reporting tools.
		Discuss emerging compliance issues to ensure that management and employees are informed about compliance reporting systems, policies, and practices.
	Analyze business or financial risks.	Develop risk management strategies based on assessment of product, compliance, or operational risks.
	Assess compliance with environmental standards or regulations.	Conduct environmental audits to ensure adherence to environmental standards.
		Evaluate testing procedures to meet the specifications of environmental monitoring programs.
		Review or modify policies or operating guidelines to comply with changes to environmental standards or regulations.
	Coordinate activities with clients, agencies, or organizations.	Report violations of compliance or regulatory standards to duly authorized enforcement agencies as appropriate or required.
	Design computer or information systems or applications.	Verify that software technology is in place to adequately provide oversight and monitoring in all required areas.
	Develop contingency or emergency response plans.	Develop risk management strategies based on assessment of product, compliance, or operational risks.
	Develop sustainable organizational or business policies or practices.	Develop or implement environmental compliance plans for programs, such as air quality, storm water, wastewater treatment, hazardous waste management, pollution prevention, or solid waste management.
	Direct organizational operations, activities, or procedures.	Direct environmental programs, such as air or water compliance, aboveground or underground storage tanks, spill prevention or control, hazardous waste or materials management, solid waste recycling, medical waste management, indoor air quality, integrated pest management, employee training, or disaster preparedness.
		Oversee internal reporting systems, such as corporate compliance hotlines.
	Examine financial activities, operations, or systems.	Conduct periodic internal reviews or audits to ensure that compliance procedures are followed.
	Examine materials or documentation for accuracy or compliance.	Review communications such as securities sales advertising to ensure there are no violations of standards or regulations.
	Explain regulations, policies, or procedures.	Discuss emerging compliance issues to ensure that management and employees are informed about compliance reporting systems, policies, and practices.
		Disseminate written policies and procedures related to compliance activities.
		Verify that all regulatory policies and procedures have been documented, implemented, and communicated.
	Maintain current knowledge in area of expertise.	Keep informed regarding pending industry changes, trends, or best practices.
	Prepare legal or regulatory documents.	File appropriate compliance reports with regulatory agencies.
Maintain documentation of compliance activities, such as complaints received or investigation outcomes.		
Prepare management reports regarding compliance operations and progress.		
Train others on operational or work procedures.	Provide employee training on compliance related topics, policies, or procedures.	
Logistics Managers	Assess compliance with environmental standards or regulations.	Conduct or review environmental audits for logistics activities, such as storage, distribution, or transportation.
	Determine resource needs of projects or operations.	Recommend purchase of new or improved technology, such as automated systems.
	Develop contingency or emergency response plans.	Develop risk management programs to ensure continuity of supply in emergency scenarios.
	Develop plans for managing or preserving natural resources.	Develop plans or set goals to reduce carbon emissions associated with storage or transport activities.
	Direct organizational operations, activities, or procedures.	Direct distribution center operation to ensure achievement of cost, productivity, accuracy, or timeliness objectives.
		Direct inbound or outbound logistics operations, such as transportation or warehouse activities, safety performance, or logistics quality management.
		Direct or coordinate comprehensive logistical or reverse logistical functions for product life cycles, including acquisition, distribution, internal allocation, delivery, recycling, reuse, or final disposal of resources.
		Participate in carrier management processes, such as selection, qualification, or performance evaluation.
		Plan or implement material flow management systems to meet production requirements.
	Explain regulations, policies, or procedures.	Communicate freight transportation information to customers or suppliers, using transportation management, electronic logistics marketplace, or electronic freight information systems, to improve efficiency, speed, or quality of transportation services.
	Maintain current knowledge in area of expertise.	Review global, national, or regional transportation or logistics reports for ways to improve efficiency or minimize the environmental impact of logistics activities.
	Negotiate contracts or agreements.	Negotiate transportation rates or services.
		Negotiate with suppliers or customers to improve supply chain efficiency or sustainability.
	Respond to customer problems or inquiries.	Resolve problems concerning transportation, logistics systems, imports or exports, or customer issues.
Supervise personnel activities.	Supervise the work of logistics specialists, planners, or schedulers.	
Train others on operational or work procedures.	Train shipping department personnel in roles or responsibilities regarding global logistics strategies.	

Inter-Sector Transition Roles	Work Activity Category	Tasks to Train (Transition Role)
Quality Control Systems Managers	Advise others on business or operational matters.	Identify quality problems or areas for improvement and recommend solutions.
	Advise others on products or services.	Instruct vendors or contractors on quality guidelines, testing procedures, or ways to eliminate deficiencies.
	Develop technical specifications for products or operations.	Participate in the development of product specifications.
	Direct organizational operations, activities, or procedures.	Direct the tracking of defects, test results, or other regularly reported quality control data.
	Evaluate production inputs or outputs.	Collect and analyze production samples to evaluate quality.
		Verify that raw materials, purchased parts or components, in-process samples, and finished products meet established testing and inspection standards.
	Examine materials or documentation for accuracy or compliance.	Review quality documentation necessary for regulatory submissions and inspections.
	Explain regulations, policies, or procedures.	Communicate quality control information to all relevant organizational departments, outside vendors, or contractors.
	Inspect facilities or equipment.	Audit and inspect subcontractor facilities including external laboratories.
	Maintain current knowledge in area of expertise.	Review statistical studies, technological advances, or regulatory standards and trends to stay abreast of issues in the field of quality control.
	Prepare reports of operational or procedural activities.	Produce reports regarding nonconformance of products or processes, daily production quality, root cause analyses, or quality trends.
	Supervise personnel activities.	Oversee workers including supervisors, inspectors, or laboratory workers engaged in testing activities.
	Train others on operational or work procedures.	Instruct staff in quality control and analytical procedures.

**Table 1.6 – FA Accounts Executive Inter-Sector Transitions: Breakdown of Tasks to Train**

FA - Accounts Executive/Accounts Assistant		
Inter-Sector Transition Roles	Work Activity Category	Tasks to Train (Transition Role)
Business Intelligence Analysts	Advise others on the design or use of technologies.	Provide technical support for existing reports, dashboards, or other tools.
	Analyze market or industry conditions.	Analyze competitive market strategies through analysis of related product, market, or share trends.
		Analyze technology trends to identify markets for future product development or to improve sales of existing products.
		Collect business intelligence data from available industry reports, public information, field reports, or purchased sources.
		Identify and analyze industry or geographic trends with business strategy implications.
		Identify or monitor current and potential customers, using business intelligence tools.
	Synthesize current business intelligence or trend data to support recommendations for action.	
	Collect data about consumer needs or opinions.	Conduct or coordinate tests to ensure that intelligence is consistent with defined needs.
	Design databases.	Create business intelligence tools or systems, including design of related databases, spreadsheets, or outputs.
	Develop operational or technical procedures or standards.	Manage timely flow of business intelligence information to users.
Document technical designs, procedures, or activities.	Create or review technical design documentation to ensure the accurate development of reporting solutions.	
Maintain current knowledge in area of expertise.	Communicate with customers, competitors, suppliers, professional organizations, or others to stay abreast of industry or business trends.	
Clinical Data Managers	Advise others on the design or use of technologies.	Evaluate processes and technologies, and suggest revisions to increase productivity and efficiency.
	Analyze data to improve operations.	Generate data queries, based on validation checks or errors and omissions identified during data entry, to resolve identified problems.
	Analyze health or medical data.	Analyze clinical data using appropriate statistical tools.
	Communicate with others about specifications or project details.	Confer with end users to define or implement clinical system requirements such as data release formats, delivery schedules, and testing protocols.
		Develop technical specifications for data management programming and communicate needs to information technology staff.
	Provide support and information to functional areas such as marketing, clinical monitoring, and medical affairs.	
	Coordinate regulatory compliance activities.	Contribute to the compilation, organization, and production of protocols, clinical study reports, regulatory submissions, or other controlled documentation.
	Design computer or information systems or applications.	Develop or select specific software programs for various research scenarios.
	Design databases.	Design and validate clinical databases, including designing or testing logic checks.
	Develop operational or technical procedures or standards.	Design forms for receiving, processing, or tracking data.
		Develop project-specific data management plans that address areas such as coding, reporting, or transfer of data, database locks, and work flow processes.
	Develop technical specifications for data management programming and communicate needs to information technology staff.	
	Evaluate the characteristics, usefulness, or performance of products or technologies.	Evaluate processes and technologies, and suggest revisions to increase productivity and efficiency.
	Evaluate the quality or accuracy of data.	Design and validate clinical databases, including designing or testing logic checks.
		Perform quality control audits to ensure accuracy, completeness, or proper usage of clinical systems and data.
	Maintain current knowledge in area of expertise.	Read technical literature and participate in continuing education or professional associations to maintain awareness of current database technology and best practices.
Monitor operations to ensure compliance with regulations or standards.	Monitor work productivity or quality to ensure compliance with standard operating procedures.	
Supervise personnel activities.	Supervise the work of data management project staff.	
Train others to use equipment or products.	Train staff on technical procedures or software program usage.	
Customer Service Representatives	Advise others on business or operational matters.	Recommend improvements in products, packaging, shipping, service, or billing methods and procedures to prevent future problems.
	Assist others to access additional services or resources.	Refer unresolved customer grievances to designated departments for further investigation.
	Direct organizational operations, activities, or procedures.	Order tests that could determine the causes of product malfunctions.
	Examine financial activities, operations, or systems.	Review insurance policy terms to determine whether a particular loss is covered by insurance.
	Explain technical details of products or services.	Confer with customers by telephone or in person to provide information about products or services, take or enter orders, cancel accounts, or obtain details of complaints.
	Prepare documentation for contracts, applications, or permits.	Complete contract forms, prepare change of address records, or issue service discontinuance orders, using computers.
	Promote products, services, or programs.	Solicit sales of new or additional services or products.
	Provide information to guests, clients, or customers.	Contact customers to respond to inquiries or to notify them of claim investigation results or any planned adjustments.
	Respond to customer problems or inquiries.	Check to ensure that appropriate changes were made to resolve customers' problems.
Obtain and examine all relevant information to assess validity of complaints and to determine possible causes, such as extreme weather conditions that could increase utility bills.		

## 2. Transition Pathways to New Roles

The following tables contain similar information to the tables in section 1. Here the information pertains not to inter-sector transitions, but to transitions to potential new roles within the same occupation. We have displayed a sample transition to the new role of Data Protection Officer.

There are two *Current Roles* (*Accountant and Management Accountant*), selected for the feasibility of transition to the *New Role* (*Data Protection Officer*). Table 2.1 summarises the *Similar Tasks* and *Tasks to Train* for both transitions. Table 2.2 shows the same *Similar Tasks* in the right-most column, showing their connections to tasks in the *Current Role*. Table 2.3 shows the same *Tasks to Train* in the right-most column, clustered by their *Work Activities* (see section 1).

**Table 2.1 Transition Pathways to New Roles: Similar Tasks and Tasks to Train (Data Protection Officer)**

Data Protection Officer		
Existing Roles	Similar Tasks (New Role)	Tasks to Train (New Role)
<b>Accountant</b>	<ol style="list-style-type: none"> <li>Liaise with the PDPC on data protection matters, if necessary.</li> <li>Alert management to any risks that might arise with regard to personal data</li> </ol>	<ol style="list-style-type: none"> <li>Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data</li> <li>Foster a data protection culture among employees and communicate personal data protection policies to stakeholders</li> <li>Manage personal data protection related queries and complaints</li> </ol>
<b>Management Accountant</b>	<ol style="list-style-type: none"> <li>Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data</li> </ol>	<ol style="list-style-type: none"> <li>Alert management to any risks that might arise with regard to personal data</li> <li>Liaise with the PDPC on data protection matters, if necessary.</li> <li>Foster a data protection culture among employees and communicate personal data protection policies to stakeholders</li> <li>Manage personal data protection related queries and complaints</li> </ol>

**Table 2.2 Transition Pathways to New Roles: Breakdown of Similar Tasks (Data Protection Officer)**

Data Protection Officer			
Existing Roles	Work Activity Category	Tasks (Current Role)	Similar Tasks (New Role)
<b>Accountant</b>	Coordinate activities with clients, agencies, or organizations.	Respond to internal and external auditors on audit data, variances and audit findings	Liaise with the PDPC on data protection matters, if necessary.
		Respond to internal and external auditors on audit data, variances and audit findings	Alert management to any risks that might arise with regard to personal data
<b>Management Accountant</b>	Develop organizational policies, systems, or processes.	Identify process of internal control systems to ensure compliance	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data
		Develop internal control system	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data
	Implement procedures or processes.	Identify process of internal control systems to ensure compliance	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data

Table 2.3 Transition Pathways to New Roles: Breakdown of Tasks to Train (Data Protection Officer)

Data Protection Officer		
Existing Roles	Work Activity Category	Tasks to Train (New Role)
Accountant	Advise others on legal or regulatory matters.	Foster a data protection culture among employees and communicate personal data protection policies to stakeholders
	Assess characteristics or impacts of regulations or policies.	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data
	Develop organizational policies, systems, or processes.	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data
	Explain regulations, policies, or procedures.	Foster a data protection culture among employees and communicate personal data protection policies to stakeholders
		Manage personal data protection related queries and complaints
	Implement procedures or processes.	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data
	Maintain current knowledge in area of expertise.	Ensure compliance of PDPA when developing and implementing policies and processes for handling personal data
Respond to customer problems or inquiries.	Manage personal data protection related queries and complaints	
Management Accountant	Advise others on legal or regulatory matters.	Foster a data protection culture among employees and communicate personal data protection policies to stakeholders
	Analyze business or financial risks.	Alert management to any risks that might arise with regard to personal data
	Coordinate activities with clients, agencies, or organizations.	Alert management to any risks that might arise with regard to personal data
		Liaise with the PDPC on data protection matters, if necessary.
	Direct security or safety activities or operations.	Liaise with the PDPC on data protection matters, if necessary.
	Explain regulations, policies, or procedures.	Foster a data protection culture among employees and communicate personal data protection policies to stakeholders
		Manage personal data protection related queries and complaints
Respond to customer problems or inquiries.	Manage personal data protection related queries and complaints	

# CONTACTS

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