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Chartered Accountant SINGAPORE

Singapore CA Qualification Examination

INTEGRATIVE BUSINESS SOLUTIONS

ADVANCE INFORMATION

2 December 2024

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WARNING

Candidates **must not under any circumstances** contact any similar company or its agents to obtain research data, and they must use **ONLY PUBLICLY AVAILABLE INFORMATION.** Under no circumstances should they seek to use unpublished or private information.

Dear Candidate,

This information package contains the **Advance Information** for the Integrative Business Solutions (IB) module final examination to be held on **2 December 2024.** A checklist of the documents (Exhibits) contained in this information package is provided on page 3. It is your responsibility to ensure that you have received every document listed.

Your task now is to familiarise yourself with this information including analysing the data provided. In addition, you are encouraged to undertake further research to form a holistic picture of the industry and markets in which the case study company is operating, and the general economic and business environment. Diligent preparation is essential for success in the IB Examination. **Guidance on preparing for the IB Examination is covered in your IB Toolkit.**

The IB examination will be conducted using Cirrus. Please download this Advance Information to the hard drive on your laptop and print this Advance Information prior to the examination day. Although you will have full access to the hard drive on your laptop during the examination, you are strongly advised to have your notes and other preparatory workings in **hard copy format and** a standalone calculator that complies with the ISCA's regulations for your examination.

You will also receive additional information **(Examination Day Documents)** on the case study company on the day of the IB Examination. The Examination Requirements will be included within Cirrus. Follow the instructions in Cirrus to download the Examination Day Documents. You are not allowed to print the Examination Day Documents on the day of examination. The Examination Day Documents complete the case study scenario and set out the requirements for the report that you are required to write. The IB Examination will be an open-book examination of **4 hours 30 minutes**. Your formal report will cover four specified areas, one of which will be to write an Executive Summary. Please note that **only your report commentary (including the assumptions made), appendices, and workings entered in Cirrus on the day of the examination will be marked**.

Edge Semiconductors Pte Ltd

Advance Information (AI) – List of Exhibits

Note: Unless otherwise stated, all dollar amounts ($) are in Singapore dollars.

EXHIBIT 1

About semiconductor manufacturing

The worldwide semiconductor manufacturing industry is a critical foundation of the modern digital age, underpinning the functionality of a vast spectrum of electronic devices. This industry is known for its intricate production processes, substantial capital expenditure requirements, the rapid pace of technological innovation, and the fierce competition that defines its global landscape. To provide a comprehensive understanding, let us delve deeper into this industry, including an introduction to the purpose of semiconductors, key geographical locations, the competitive environment, manufacturing methods, essential resources, and the outlook for the future.

Semiconductors, materials that have electrical conductivity between conductors (typically metals) and non-conductors or insulators (such as most ceramics), serve as the foundation of modern electronics. They are used to fabricate semiconductor devices, which are the building blocks of all electronic circuits. These devices, including transistors, diodes, and integrated circuits are critical for a wide range of applications, from computing and communication to sensing and power management. Semiconductors enable the functionality of digital systems, control the flow of electricity, and are vital for the development of technologies such as smartphones, computers, and renewable energy systems, highlighting their indispensable role in today's technological landscape.

The semiconductor manufacturing industry has significant concentrations in East Asia, notably Taiwan, South Korea, and Japan. Taiwan is at the forefront, hosting the Taiwan Semiconductor Manufacturing Company (TSMC), the world's premier semiconductor foundry. South Korea is renowned for its expertise in memory chip production, with industry leaders like Samsung Electronics and SK Hynix. Japan has longstanding strengths in semiconductor materials and equipment, although it faces growing competition. The United States is also a key player, with companies like Intel and GlobalFoundries pushing the boundaries of design and manufacturing. Meanwhile, China's rapid industry expansion aims to bolster its tech self-reliance.

Semiconductor manufacturing and competition

Intense competition in the semiconductor industry is driven by technological innovation, cost efficiency, and intellectual property development. The race to shrink chip features to improve performance and efficiency is a major competitive battleground, with companies vying to lead in adopting lower nanometre technologies.

Key resources include silicon, which is essential for most semiconductor devices, rare earth metals, and specialised chemicals. The industry also relies on a highly skilled workforce and sophisticated equipment, like photolithography machines, from a handful of global suppliers.

Semiconductor manufacturing involves complex processes such as photolithography, etching, and chemical vapour deposition, executed in ultra-clean environments to avoid contamination. The manufacturing process is divided into the front end, where the semiconductor devices are fabricated on wafers, and the back end, which involves assembly, packaging, and testing.

Semiconductors are critical for powering the digital devices that form the backbone of our technological society. The semiconductor manufacturing industry, characterised by its complex processes and global competition, is essential for the advancement of electronics and digital technologies. With ongoing innovation and strategic initiatives to address its challenges, the industry is set to continue its vital role in shaping the technological landscape of the future. The emphasis on emerging technologies, such as Artificial intelligence (AI) and the Internet of Things (IoT), is expected to drive further growth.

At the heart of the industry's competitive landscape is the fierce rivalry among existing manufacturers of semiconductors. This intensity is magnified by the pace of innovation and the substantial investments required not only in research and development (R&D) but also in sophisticated manufacturing facilities.

Manufacturers are in a continuous battle to push the boundaries of technology, driving down costs while enhancing the performance and efficiency of their products. This

environment fosters a market where only the most innovative, efficient, and strategically adept companies can sustain their growth and profitability over time.

Also, semiconductor manufacturing processes depend on specialised inputs, including high-purity silicon, rare chemicals, and advanced lithography equipment. Given the specialised nature of these inputs and the limited number of suppliers capable of meeting the industry's stringent requirements, suppliers wield considerable influence. Therefore, decisions made by suppliers to the semiconductor industry can directly affect semiconductor companies' production costs, expand their production capacity, improve operational efficiency, and enhance innovation capacity.

With semiconductors serving as critical components across a broad spectrum of applications, from consumer electronics and computing to automotive and industrial systems, large buyers of semiconductors can leverage and negotiate more favourable terms of supply. This dynamic can squeeze the profit margins of semiconductor manufacturers. This factor is moderated by the technical specificity and differentiation inherent in semiconductor products, particularly for those chips that are custom-designed or serve niche markets.

The financial, technological, and operational hurdles associated with entering the semiconductor industry are formidable. However, the potential for disruption exists, particularly from those possessing breakthrough technologies, in fields such as next-generation computing and sustainable energy solutions.

While traditional silicon-based semiconductors currently dominate, ongoing research into alternative materials (e.g., graphene) and innovation such as quantum computing could eventually introduce substitutes to semiconductors, which will challenge the current status quo. However, it will be some time before these technologies are commercially scalable.

Categories of semiconductor manufacturing

The semiconductor manufacturing sector is characterised by a variety of entities, each specialising in distinct aspects of the chip production journey. These entities play vital

roles in distinct phases of semiconductor creation and distribution, contributing to a complex yet efficient supply chain.

A brief overview of the different types of semiconductor manufacturers can be found below:

Full-service semiconductor companies (Integrated Device Manufacturers – IDMs)

IDMs manage the entire lifecycle of semiconductor production, encompassing design, manufacturing, and in some cases, even the assembly and testing of the chips. These organisations operate their own semiconductor fabrication facilities, allowing for stringent quality control, innovation, and supply chain oversight.

Foundries

Foundries focus solely on the manufacturing phase, creating semiconductor chips based on designs provided by their clients. This model enables design-centric companies to access ultramodern manufacturing capabilities without the hefty investment in fabrication infrastructure. Foundries often deliver mass production of more established semiconductor manufacturing processes for the electronic product industry.

Outsourced Semiconductor Assembly and Testing Specialists (OSATS)

OSATS manufacturers are focused on the backend processes of semiconductor production, which include the assembly, packaging, and testing of third-party manufactured semiconductors. These steps are crucial for ensuring the chips are functional and ready for integration into electronic products.

Outlook

Overall, the semiconductor manufacturing industry is poised for continued expansion, spurred by the demand for electronic devices and the advent of technologies such as AI, IoT, and autonomous vehicles. Challenges such as the rising costs of advanced manufacturing, geopolitical supply chain disruptions, and sustainability issues loom large. Innovations in materials like silicon carbide and gallium nitride offer potential breakthroughs for next-generation devices. Efforts to diversify supply chains and reduce geographic concentration will be pivotal in shaping the industry's future trajectory.

END OF EXHIBIT 1

EXHIBIT 2

Economic outlook in Singapore and Southeast Asia in 2025 and beyond

Singapore's highly developed and technologically advanced economy is expected to continue serving as a linchpin for growth, innovation, and connectivity within Southeast Asia in 2025 and the years that follow. Understanding the relevant economic drivers provides insight into the challenges and opportunities that are likely to define the economic trajectory in this region.

Technological innovation and digital transformation are at the forefront, acting as primary catalysts for economic growth and transformation across Singapore and Southeast Asia. The adoption of innovative technologies, including AI, blockchain, and IoT, is expected to accelerate, driving productivity gains, enabling new business models, and transforming industries.

Demographic trends and urbanisation are also critical drivers, with Southeast Asia's youthful population and growing middle class fuelling domestic consumption and urban development.

Global trade dynamics will continue to influence economic outcomes in the region and sustainability and climate change considerations are increasingly shaping economic policies and investment decisions. As the region faces environmental challenges, including rising sea levels, extreme weather events, and biodiversity loss, there is a growing emphasis on transitioning to a green economy and investment in renewable energy will be critical to this.

In conclusion, the economic outlook for Singapore and Southeast Asia in 2025 and beyond will be shaped by a complex interplay of technological innovation, demographic shifts, global trade dynamics, environmental sustainability, and governance. Organisational success will depend on their ability to adapt to these drivers, leveraging their strengths while addressing underlying vulnerabilities.

END OF EXHIBIT 2

EXHIBIT 3

Semiconductor Manufacturing in Singapore

The semiconductor industry's competitive environment is shaped by a complex interplay of innovation-driven rivalry, significant barriers to entry, and the strategic influence of suppliers and buyers. Companies navigating this landscape must not only excel in technological innovation and operational efficiency but also adeptly manage their supplier and customer relationships while staying vigilant to emerging threats and opportunities. Singapore has positioned itself as a key player in the global semiconductor manufacturing industry.

Singapore's semiconductor manufacturing industry plays a pivotal role in its economy, which is marked by a significant contribution to the GDP, job creation, and technological innovation. As the industry evolves in response to global trends and technological advancements, Singapore's location, technology-based industrial infrastructure and skilled labour market position it well to maintain its status as a main global player.

Singapore's semiconductor industry significantly influences its economic landscape, contributing approximately 7% of its GDP. Despite facing challenges such as a 4.1% year-on-year decline in semiconductor manufacturing output in July 2022, the sector has since rebounded with growth. Medium to long-term growth is driven by emerging global trends such as automation, the industrial IoT, fifth-generation cellular technology (5G), and AI.

To maintain its competitive edge, especially considering intensified global competition for semiconductor investments exemplified by initiatives like the US's CHIPS and Science Act, Singapore relies on its political stability, a strong intellectual property protection regime, and a skilled workforce. The Singapore government's strategy includes partnering with key companies across the semiconductor value chain to invest in advanced manufacturing capacities and workforce training. Notable investments by companies such as Globalfoundries, UMC, Siltronic, and Pall Corporation in Singapore underscore the strength of these partnerships.

END OF EXHIBIT 3

EXHIBIT 4

About Edge Semiconductors Pte Ltd (including product, operations, organisational structure, governance and Board of Directors)

Edge Semiconductors Pte Ltd ("Edge") distinguishes itself as an innovative, customer-centric semiconductor manufacturer in Singapore, with its journey commencing in the year 2001. Starting with the original, modest-sized facility based in the Woodlands Industrial Estate, Edge has expanded its operations significantly since 2001, adding two larger manufacturing facilities in 2009 and 2015, respectively, each significantly increasing its manufacturing capacity from its beginning at Woodlands. Since 2001, Edge has solidified its position as a significant force in Singapore's semiconductor industry and is recognised for its innovation, reliability and operational excellence.

All three Edge manufacturing sites are based in Singapore and are 100% owned by Edge. The original, smaller factory is situated in the Woodlands Industrial Estate. The two larger, later-introduced semiconductor manufacturing plants each provide much greater capacity and are situated in the Tuas industrial area and Changi Business Park. Each Edge manufacturing site offers a different specialisation due to its investment in advanced semiconductor manufacturing technology, which is unique to each site. This allows Edge to offer a wider range of semiconductor manufacturing options to its customers.

Edge specialises as a foundry manufacturer, which means Edge concentrates exclusively on the manufacturing stage of semiconductor production. This focus enables Edge to invest in the latest semiconductor manufacturing technologies and equipment, ensuring it remains at the forefront of meeting the evolving design and innovation needs of its clients.

Edge caters to a diverse range of customers, both locally and internationally. Its customer base can primarily be divided into two segments: (1) Distributor Customers and (2) Direct Customers.

Distributor Customers are global and local partners who purchase Edge's semiconductor designs in bulk and distribute them to various markets. These distributors enable Edge to extend its reach beyond Singapore, especially in regions where it does not have a direct presence, ensuring a wider Southeast Asia market penetration.

Direct Customers, on the other hand, are businesses that collaborate directly with Edge for customised semiconductor solutions. These customers, which may include multinational corporations based in Singapore and Southeast Asia use Edge for bespoke products tailored to their specific technological needs.

This dual-customer model allows Edge to serve both standardised product markets through distributors and high-value customised segments via direct customer relationships, enhancing its adaptability in the dynamic semiconductor industry.

Guidance and strategic oversight at Edge are provided by its Board of Directors, which is crucial for driving the company toward continued growth and success. The Board benefits from a diverse mix of executive and non-executive members, each with expertise and experiences directly relevant to Edge's operational focus. This diversity ensures robust governance and strategic vision, which is critical for navigating the complexities of semiconductor manufacturing.

The Board comprises the following directors:

- **Stephen De Souza, Chief Executive Officer (CEO):** Stephen has been at the helm of Edge as CEO for the past 12 years, guiding the company through significant growth and technological innovation. Before joining Edge, Stephen served as the Chief Operating Officer at a renowned global electronics firm, where he honed his skills in operations management and strategic expansion.
- **Sharon Taylor, Independent, Non-Executive Chair:** Sharon joined the Edge Board 8 years ago, bringing her experience in corporate governance acquired over her 15-year tenure as a Senior Executive at various multinational

corporations. Sharon has been instrumental in steering Edge's governance practices.

- **Benjamin Ravi, Chief Financial Officer (CFO):** Benjamin has been with Edge for 6 years, previously serving as a Senior Financial Analyst in another leading manufacturing company. His adeptness at strategic financial planning and his insights into the manufacturing sector's economic landscape have contributed to Edge's financial resilience.
- **Adrian Koh, Chief Operating Officer (COO):** Adrian has spent the last 7 years with Edge, enhancing the company's manufacturing processes and supply chain efficiency. Prior to Edge, he was a Process Improvement Manager at a major electronics manufacturer, where he developed his expertise in optimising production workflows and reducing operational costs.
- **Rachel Hassan, Sales, Marketing and Customer Relations Director:** Rachel has been a vital part of Edge's team for 5 years. Before joining Edge, she led the sales department of a fast-growing tech startup, where she excelled in building strong customer relationships and developing effective sales and marketing strategies.
- **Josephine Tan, Legal and Compliance Director:** Josephine brought over 10 years of experience in corporate law to Edge when she joined the company 9 years ago. Previously, she was a Senior Legal Counsel for an international trade corporation, specialising in navigating legal and compliance issues across global markets.
- **Ethan Ng, IT Director:** Ethan has been with Edge for 4 years. Before joining Edge, he was a Digital Transformation Consultant for various technology firms. His 12 years of experience in IT and digital innovation have been pivotal in driving the company's technological advancements.
- **Angela Lee, HR Director:** Angela joined Edge 5 years ago, bringing her experience in talent management from her previous role as a Talent Development Manager at a leading tech company.
- **Derek Sim, Melissa Koh and Jason Tan, Independent Non-Executive Directors:** Derek provides strategic insights into market trends and technology developments, enriching Edge's strategic planning. Melissa and Jason each provide specialised knowledge in intellectual property and technology law, as

well as financial analysis, respectively, enhancing Edge's governance and financial strategies.

This governance framework, supported by strategic committees including the Audit, Nomination, Remuneration, and Risk Committees, ensures Edge, as a large private company, maintains its commitment to best practices in corporate governance. Additionally, Edge maintains a small internal audit function. This function reports directly to the Audit Committee, enabling a comprehensive assessment of the company's risk profile and the efficacy of its control environment.

Strategy at Edge

Edge’s commitment to innovation is supported by investment in semiconductor manufacturing technology which allows Edge to position itself as a leader in Singapore's competitive semiconductor industry. Edge aims to continue growth and success by gaining further market share in Singapore and attracting additional Southeast Asia-based customers and beyond.

END OF EXHIBIT 4

EXHIBIT 5

Edge Semiconductors Pte Ltd Financial Performance Report for the year to 30 November 2023 versus 30 November 2022

To: The Board of Directors of Edge
From: Benjamin Ravi, Edge Chief Financial Officer (CFO)
Date: 2 February 2024
Subject: Management accounts for the year ended 30 November 2023

Dear fellow Board members,

Below are extracts from our summary management accounts for the year to 30 November 2023 and 30 November 2022 together with relevant segmental information and operating data. A detailed commentary on our performance will be provided by Adrian Koh, our Chief Operating Officer (COO).

Statement of Profit or Loss for the year ended 30 November	**2023**	**2022**
	S$'m	**S$'m**
Revenue	**2,772.0**	**2,589.8**
Cost of sales	(1,786.1)	(1,637.9)
Gross profit	**985.9**	**951.9**
Distribution costs	(95.1)	(83.6)
Depreciation, amortisation and impairment	(336.2)	(321.7)
Research and development costs	(128.2)	(125.5)
Selling and marketing costs	(41.2)	(35.4)
General and administrative costs	(109.1)	(90.7)
Total operating costs	**(709.8)**	**(656.9)**
Operating profit	**276.1**	**295.0**
Finance costs	(66.3)	(70.7)
Profit before tax	**209.8**	**224.3**
Taxation	(35.7)	(38.1)
Profit after tax	**174.1**	**186.2**

Dividends	(34.8)	(37.2)
Retained profit	**139.3**	**149.0**
Statement of Financial Position as at 30 November	**2023**	**2022**
ASSETS	**S$'m**	**S$'m**
Non-current assets		
Property, plant and equipment (including right-of-use assets)	4,453.0	4,514.0
Intangible assets	174.7	183.7
	4,627.7	**4,697.7**
Current assets		
Inventories	143.6	141.9
Trade and other receivables	567.6	506.5
Cash and cash equivalents	450.8	444.7
	1,162.0	**1,093.1**
Total assets	**5,789.7**	**5,790.8**
LIABILITIES		
Non-current liabilities		
Amounts due under leases: Greater than one year	268.9	265.9
Loans and borrowings	1,050.0	1,200.0
	1,318.9	**1,465.9**
Current liabilities		
Trade and other payables	234.7	230.9
Amounts due under leases: Less than one year	69.4	66.6
Loans and borrowings	150.0	150.0
	454.1	**447.5**
Total liabilities	**1,773.0**	**1,913.4**
EQUITY		
Share capital	1,000.0	1,000.0

Revenue reserve	3,016.7	2,877.4
Total equity	**4,016.7**	**3,877.4**
Total liabilities and equity	**5,789.7**	**5,790.8**

Notes to the management accounts

Note 1: Revenue recognition

Revenue is recognised when semiconductor deliveries are shipped and received by the customer under the terms agreed in the contract of supply. Payments due from customers are based on the agreed payment terms of not more than 60 days.

Note 2: Segmental analysis

	2023 Distributor Customers	2023 Direct Customers	2022 Distributor Customers	2022 Direct Customers
	S$'m	S$'m	S$'m	S$'m
Revenue	1,562.5	1,209.5	1,483.4	1,106.4
Cost of sales	(1,095.7)	(690.4)	(1,052.0)	(585.9)
Gross profit	**466.8**	**519.1**	**431.4**	**520.5**

Note 3: Operating data

	2023	2022
Production units (millions)	992.8	916.9
Quality control passed production/sales (units millions)	969.5	897.2
Average number of manufacturing employees	1,616	1,584
Employee costs contained in cost of sales (S$'m)	296.3	261.7
Employee turnover (manufacturing)	1.1%	1.3%

Quality control passed production units are materially the same as units sold, as semiconductors are dispatched immediately following quality control and packing.

Segmented production data	2023	2023	2022	2022
	Distributor Customers	Direct Customers	Distributor Customers	Direct Customers
Quality control passed production (units millions)	645.1	324.4	603.4	293.8

Note 4: Loans and borrowings

On 1 December 2017, Edge commenced a fourteen-year 3.8% fixed rate loan of S$2,100 million from the Bank of Singapore. The loan is repaid in annual instalments of S$150 million plus interest paid at 30 November. The loan is secured on available non-current assets up to the value of the outstanding loan. The management accounts reflect the most recent loan payment at 30 November 2023.

Benjamin Ravi,
Edge CFO

END OF EXHIBIT 5

EXHIBIT 6

Chief Operating Officer (COO) 2023 Financial Performance Statement

Introduction

2023 has been a successful year for Edge as the company has continued to improve its production output and sales for both its market segments following the recent downturn caused largely by COVID-19-related operating restrictions.

Sales: Distributor Customer orders and Direct Customer orders

Demand for electronic components and semiconductors in Southeast Asia has increased, with a significant rise in production volumes achieved as we restarted our recruitment drive for skilled production employees in early 2023.

Edge has performed in line with expectations for the year in both Direct Customer sales and Distributor Customer sales.

Increasing production costs

Global inflationary forces are pushing up our production material costs and production employee costs, and unfortunately, this trend shows no sign of changing in the short term.

Margins

Direct Customer orders typically yield higher margins compared to Distributor Customer semiconductor orders, as we provide a bespoke service to deliver precisely what the customer requires.

The gross margin for our Direct Customer orders has fallen in the year, which is due to greater competition in the market and rising costs of production.

We have managed to slightly increase our Distributor Customer margins, which is a success as Distributor Customers are effective in using their purchasing power to keep down their prices. We hope to continue this trend to improve our overall profitability in the year to 30 November 2024.

Other costs

We have continued to invest in the replacement of semiconductor production machinery to improve production efficiency and adapt to technological advancements and our customer requirements. Our commitment to research and development (R&D) continues as it is essential for keeping pace with our competitors. Where possible, we have controlled expenditure on non-essential costs to support our overall operating margin.

The year ahead

I am optimistic that Edge will surpass its 2023 sales volumes in 2024, and Edge will be able to maintain or improve its gross margin in both its Direct Customer and Distributor Customers' semiconductor segments.

END OF EXHIBIT 6

EXHIBIT 7

Briefing note to the Board of Edge regarding proposed supply chain strategies

To: The Board of Directors of Edge
From: Michelle Tan, Edge Head of Procurement Operations
Date: 3 September 2024
Subject: Briefing note regarding proposed supply chain strategies

Increasingly, Edge is encountering supply chain challenges in securing the necessary quantities of critical components and has encountered delays as suppliers also grapple with their own supply issues. This situation has been exacerbated by an increase in global demand for semiconductors, which has outpaced supply capabilities. Such supply shortages can derail Edge's planned production schedules, potentially compromising our ability to fulfil customer orders in a timely manner.

Quality control has emerged as another significant challenge. With the pressure to maintain uninterrupted supply chains, there is an elevated risk of integrating inferior-quality materials or components into Edge products. Compromises on quality not only threaten the reliability and performance of the final semiconductor products but also risk damaging the company's reputation for excellence.

Inflationary pressures add another layer of complexity to the already challenging supply chain landscape. The escalating costs of raw materials and components, driven by global economic trends and supply constraints, have exerted additional pressure on Edge's operational costs and profit margins. The company is navigating a delicate balance between absorbing these increased costs and passing them to customers, a difficult decision fraught with implications for competitiveness and market position.

Complicating these challenges is Edge's reliance on a relatively small group of large suppliers. This reliance not only limited Edge's flexibility in responding to supply chain volatilities but also heightened its exposure to any operational setbacks faced by these suppliers, whether due to manufacturing issues, natural disasters, geopolitical tensions, or labour disputes.

Enhanced Supply Chain Strategies

Given these difficulties, Edge is acutely aware of the need to bolster its supply chain strategies against future disruptions. Therefore, the Board should consider implementing the following three strategies to improve supply chain management at Edge:

1. **Strengthen and Diversify Its Approved Suppliers**

   The first strategy aims to develop long-term partnerships with key suppliers, involve them in planning processes, and collaborate to identify and mitigate supply chain risks. Edge should also diversify its supplier base by identifying and partnering with multiple suppliers across different geographical regions for critical raw materials and components.

2. **Strategic Stockpiling of Critical Components**

   The second strategy focuses on maintaining higher inventory levels of critical raw materials and components that are at a higher risk of supply chain disruptions. This strategic stockpiling should be supported by advanced inventory management practices to optimise stock levels without incurring excessive holding costs.

3. **Supplier Vertical Integration Strategy**

   The third strategy concentrates on a vertical integration strategy to secure additional, reliable suppliers for critical raw materials and components used in semiconductor manufacturing. This will be achieved by acquiring critical supplier companies to ensure a long-term supply for Edge's semiconductor business.

I request the board to consider each strategy for approval.

Michelle Tan,
Head of Edge Procurement Operations

END OF EXHIBIT 7

EXHIBIT 8

Potential expansion in semiconductor manufacturing in Malaysia

To: The Board of Directors of Edge
From: Stephen De Souza, Chief Executive Officer (CEO)
Date: 23 August 2024
Subject: Manufacturing in Malaysia's Kulim Hi-Tech Park (KHTP)

Dear fellow Board members,

I am writing to present a compelling opportunity for strategic expansion that aligns with Edge's long-term growth objectives and our commitment to maintaining a competitive edge in the global semiconductor industry. After thorough research and consideration, we have identified the Kulim Hi-Tech Park (KHTP) in Kedah, Malaysia, as an ideal location for expanding our manufacturing capabilities.

KHTP stands as Malaysia's first and fully integrated high-technology park, specifically designed to cater to the needs of high-tech industries. It boasts state-of-the-art infrastructure and facilities conducive to the research and development, manufacturing, and logistics activities essential to the semiconductor industry. Importantly, KHTP is home to several multinational semiconductor companies, making it a vibrant ecosystem for technological innovation and collaboration.

The strategic advantages of KHTP extend beyond its technological infrastructure. Its location offers exceptional logistical benefits, being near major shipping ports and airports, which is critical for the efficient movement of goods in our global supply chain. Additionally, the Malaysian government's support for technology companies through tax benefits, customs duty exemptions, and grants for technology development presents a favourable environment for business growth and operational efficiency.

Another key factor in our consideration is the availability of a skilled workforce within the region. KHTP and its surrounding areas are known for their pool of talent specialised in high-tech manufacturing and engineering.

The proposal to establish a new semiconductor manufacturing site in KHTP is not just about expanding our production capacity. It is about positioning Edge strategically on the global stage, leveraging cost efficiencies, and tapping into a network of technological expertise that will fuel our next phase of growth. This move will also diversify our manufacturing footprint, mitigating risks associated with geopolitical tensions and supply chain disruptions.

Also, there is an opportunity to improve our sustainability performance by setting up a new state-of-the-art manufacturing site by lowering our existing semiconductor manufacturing energy consumption rate and potentially replacing our Woodlands plant, which is our oldest, smallest and least technologically up-to-date manufacturing site.

I believe that expanding into KHTP aligns perfectly with our vision to be at the forefront of semiconductor manufacturing, offering us an unparalleled opportunity to enhance our operational capabilities and foster innovation.

Therefore, I recommend we proceed with a detailed feasibility study to explore this opportunity further, including the availability of tax incentives available in Malaysia to support foreign investment in technology companies.

As Malaysia has a higher tax rate on corporate profits of 24% compared to 17% in Singapore, we need to consider the tax impact of setting up KHTP as a subsidiary of Edge or an operating division of Edge. Do note that 100% foreign ownership is allowed in KHTP, Malaysia.

I look forward to discussing this exciting opportunity further.

Stephen De Souza,
Edge CEO

END OF EXHIBIT 8

EXHIBIT 9

Extract from Edge Semiconductors Pte Ltd Internal Auditor Report (July 2024)

Subject: Governance, Compliance, and Internal Control Deficiencies

During our comprehensive review of Edge Semiconductors Pte Ltd's ("Edge") operational, financial, and compliance frameworks, significant deficiencies have been identified in the governance structures and internal controls, specifically concerning anti-bribery, anti-money laundering, and the clarity of roles and responsibilities across the governance framework.

This report highlights critical areas of concern that require immediate attention and rectification by the Board of Edge[1].

Lack of defined responsibilities within Edge's governance framework

A glaring gap in our governance structure is the absence of clearly defined responsibilities, especially in overseeing compliance with regulations against fraud, bribery, and money laundering. Neither the main board, the audit committee, nor the risk committee has explicit mandates or allocated responsibilities in managing compliance in these crucial areas. This lack of clarity undermines the effectiveness of our governance and exposes the company to significant legal and reputational risks.

Out-of-date policies relating to compliance with anti-bribery, fraud prevention and anti-money laundering legislation

The company's policies relating to compliance with anti-bribery, fraud prevention, and anti-money laundering legislation are significantly out-of-date. These policies have not been reviewed or updated in several years, failing to reflect the latest legal standards and regulatory requirements.

Inadequate internal controls over compliance issues

Existing policies and procedures for anti-bribery and anti-money laundering are not sufficient. There is no mention of anti-bribery and anti-money laundering on Edge's intranet for employees, and these areas are not included as part of new employee inductions or director-level training updates. The effectiveness of these controls is

preventing and detecting potential fraud, bribery, and legal compliance issues at Edge. The Internal Audit team feel it is important to remind the Board of its fiduciary duty to safeguard company assets and highlight the severity of financial and criminal penalties for fraud, bribery, and money laundering.

Identified risks in Goods and Services Tax (GST) and supplier transactions

Specific concerns have been raised in relation to Edge's processes for supplier transactions and GST compliance. A lack of oversight of procurement transactions raises the risk that supplier incentives are accepted or provided to our team and go unreported. Additionally, there are insufficient checks to confirm the identity of new and existing suppliers and to ensure that all suppliers comply with anti-bribery, anti-fraud, and anti-money laundering legislation.

Notably, the audit has identified risks associated with a small Singapore-based supplier previously penalised by Singaporean tax authorities for underreporting GST. This supplier continues to engage with Edge, indicating potential weaknesses in our supplier due diligence and ongoing evaluation processes.

Internal audit summary remarks

These findings signal a critical need for a thorough assessment of Edge’s internal controls, focusing on their effectiveness in identifying and mitigating risks of fraud, bribery, and money laundering. This assessment must also address the unclear delineation of responsibilities among the main Board of Directors, Audit Committee, and Risk Committee, particularly concerning oversight of compliance issues.

END OF EXHIBIT 9

Footnote to Exhibit 9:

1 Specific knowledge of anti-bribery and anti-money laundering laws or regulations in Singapore is not required to suggest how Edge can improve its general governance in these areas.

Suggestions for further research

The following resources may be useful when beginning your research into the case study company. As always, the caveat is to read everything with a healthy dose of scepticism and apply professional judgment. Just because an article is on this list does not give it legitimacy or relevance. All links were active at 11 November 2024.

EXHIBIT 1: About semiconductor manufacturing

Introduction to Semiconductor Technology by the Semiconductor Industry Association (SIA)

Offers a comprehensive overview of how semiconductors are made and their importance in today's technology-driven world.

https://www.semiconductors.org/

Semiconductor Engineering

A portal filled with articles, tutorials, and news on all aspects of semiconductor manufacturing, from design to end product.

https://semiengineering.com/

EXHIBIT 2: Economic outlook in Singapore and Southeast Asia in 2025 and beyond

ASEAN Economic Integration Brief

This provides insights into economic integration efforts in Southeast Asia and its impact on industries, including semiconductor manufacturing.

https://asean.org/asean-economic-community/asean-economic-integration-brief/

Singapore GDP and other trade and industry government statistics

https://www.singstat.gov.sg/find-data/search-by-theme/economy/national-accounts/latest-data

Singapore Ministry of Trade and Industry Economic Survey of Singapore – First Quarter 2023

https://www.mti.gov.sg/Resources/Economic-Survey-of-Singapore/2023/Economic-Survey-of-Singapore-First-Quarter-2023

EXHIBIT 3: Semiconductor Manufacturing in Singapore

Singapore semi-conductors market analysis

https://fortune.com/asia/2023/11/01/singapore-keeps-pace-chipmaking-race-semiconductor-globalfoundries-investment/

Tech.gov.sg

Focuses on Singapore's digital transformation efforts and includes information on how technology, including semiconductors, is being leveraged for national development.

https://www.tech.gov.sg/

Singapore Semiconductor Industry Association (SSIA)

Contains resources and insights on the semiconductor industry's developments and challenges in Singapore.

https://ssia.org.sg/

US Chips and Science Act

https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/

EXHIBIT 7: Briefing note to the Board of Edge regarding proposed supply chain strategies

Supply Change Management at Edge

Supply Chain Dive – Semiconductor Section: Offers news and analysis on supply chain issues, specifically within the semiconductor industry, which could provide practical insights into challenges and strategies.

https://www.supplychaindive.com/spons/labor-shortages-challenge-supply-chains-to-automate-while-retaining-employe/628359/

EXHIBIT 8: Potential expansion in semiconductor manufacturing in Malaysia

Malaysia Investment Development Authority (MIDA) – Electronics & Electrical

Showcases Malaysia's plans and facilities for electronics and semiconductor manufacturing, indicating potential areas of expansion.

https://www.mida.gov.my/industries/manufacturing/electrical-electronics/

END OF EXHIBIT 10

END OF ADVANCE INFORMATION