

**SCENARIO PLANNING:
POSSIBLE FUTURES FOR
PENANG'S ECONOMY
IN 2030**



Acknowledgements

This report has been produced by Think City in collaboration with Penang Institute and the Penang Green Council as an outcome of a scenario planning exercise on Penang's economic future, post-pandemic. The content is based on the results of the scenario planning exercise that have been further developed and refined by the authors.

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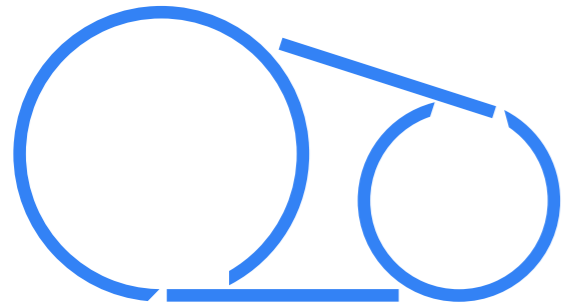
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Introduction



The design language and visuals used in this document reflect Penang's identity. The name Pulau Pinang is represented by the double "P" initials. These letters are stylised as circles and lines that depict movement, flow and connection, representing a dynamic future for

Penang. On the front cover of this document, the double "P" letters are arranged to symbolise Penang's island and mainland. Throughout this document, the design of the two "Ps" are also reminiscent of telescopes and binoculars that look towards, as well as spotlights that focus on, Penang's future. Finally, the colour palette is inspired by the state flag's hues of blue, yellow, white and green.

In August 2018, Penang State Chief Minister Chow Kon Yeow launched the Penang2030 vision of a “family-focused, green and smart state that inspires the nation”. Roughly 18 months later, in early 2020 the COVID-19 pandemic shook the world. Penang was not spared and the economy nearly ground to a halt as borders were closed and the movement of people was restricted. For many, working from home and online classes was no longer a choice but the only option available. For others, especially daily wage earners, this was not a possibility.

Could the world have been better prepared? Surely, no one could have predicted the pandemic? Well, in 2019 the US government's Department of Health and Human Services actually conducted a scenario simulation code-named “Crimson Contagion” that imagined an influenza pandemic in the US that started from tourists returning from China and spreading a respiratory virus. In January 2017, US officials ran an extensive exercise on how to respond to a pandemic while a Rockefeller Foundation report from 2010 titled “Scenarios for the Future of Technology and International Development” identified a scenario where the world deals with a global pandemic.

There are two key lessons from this. First, scenario planning is a useful tool to explore possible scenarios for the future and understand their implications. Second, peering into the crystal ball is not enough; being able to develop appropriate responses is what makes the difference and will separate winners from losers.

This scenario planning report provides an insight into how Penang could respond to achieve Theme B of the Penang2030 vision, i.e. upgrading the economy to raise household incomes.

While the actual events that will unfold over the next ten years is uncertain, there are some clear signposts. One obvious clue is right in front of our faces—scientific consensus agrees that the impacts of the COVID-19 pandemic would look tiny compared with the impacts of climate change.

What are the scenarios for Penang's future and how can Penangites thrive in 2030? It is hoped that this report will spark constructive discussion towards answering this question.

Executive Summary

1 The future is uncertain, but scenario planning can help make sense of possible futures

2
3
4 **The objectives of scenario planning:**

- 5
- Identify important strategic uncertainties
 - Explore how they might play out
 - Anticipate possible futures
 - Develop resilient policies across a range of possible futures
 - Raise awareness that future alternatives can be shaped
 - Enable holistic analysis and encourage systems thinking

What are scenarios?






- Scenarios are not predictions of forecasts—they are possibilities
- Scenarios are not meant to be “right” or “wrong”, “good” or “bad”
- They should be “pictures of the future” that are interesting and challenging, and even controversial
- Scenarios should be set at a reasonable distance in the future—at least 10 years
- While scenarios must be plausible and logical, subjective intuition and judgement are part of the process

2 We conducted a scenario planning exercise on Penang’s future in 2030

3
4
5 **Scenario planning focal question:**

“How should Penang respond to achieve Theme B of the Penang2030 vision—Upgrading the economy to raise household incomes?”

Scenario planning methodology:

- | | |
|---|---|
| 1. Define the focal issue or question | 4. Develop plausible scenarios |
|  |  |
| 2. Identify driving forces | 5. Discuss implications and paths |
|  |  |
| 3. Identify critical uncertainties | |
|  | |

3 Two key scenario drivers that have high uncertainty and high potential impact were identified

4
5 **Two drivers will define Penang’s economic future**

The first is whether the world will become more **globalised** or **more localised/regionalised**.

The second is whether there are opportunities for Penang to **move up the value chain** or if there is significant **downward pressure on Penang’s value chain**.

Scenario driver 1:

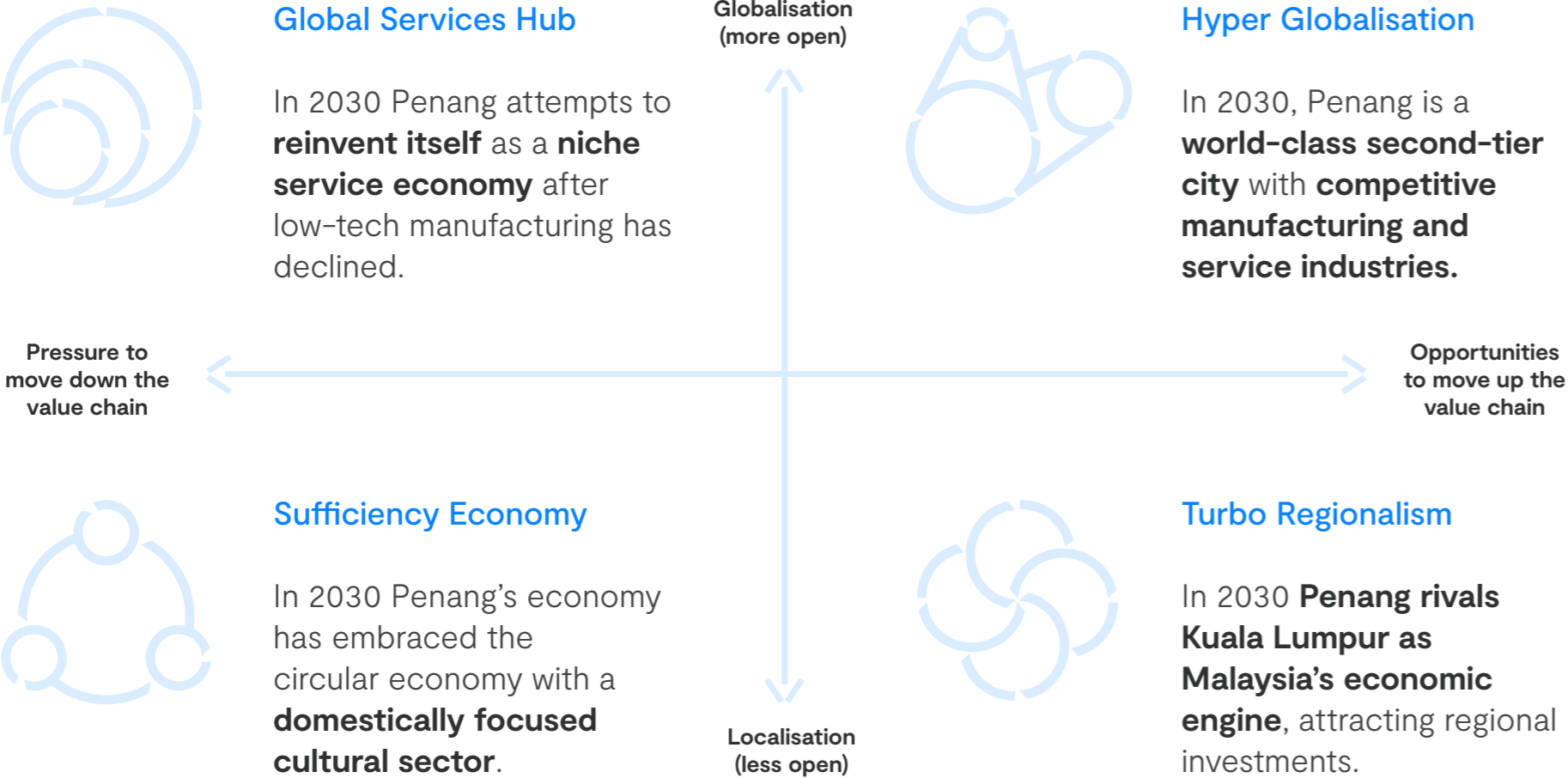


Scenario driver 2:



Executive Summary

- 4 Using the two key scenario drivers,
- 5 four potential scenarios for Penang’s economic future were identified



Signposts can help identify the direction of the scenarios as the future unfolds. The future is very likely a combination of each of the four scenarios to varying degrees.

- 5 We propose 8 recommendations to help Penang shape its own path moving forward


3 big bets:

1. Invest in achieving a **Green New Deal for Penang**
2. Double down on **reinforcing existing strengths**
3. Increase Penang’s chances of winning by **enabling an innovation hub**

5 general principles to hedge the big bets:

1. Play the trump card by **increasing Penang’s attractiveness as a highly liveable state**
2. Stay in the game by promoting **digitalisation of government, business and society**
3. Maintain competitiveness through **supporting industry-academia collaboration and talent development**
4. Strengthen Penang’s hand by **reinforcing vulnerable communities and addressing inequalities**
5. Up the ante by **elevating Penang’s global positioning**

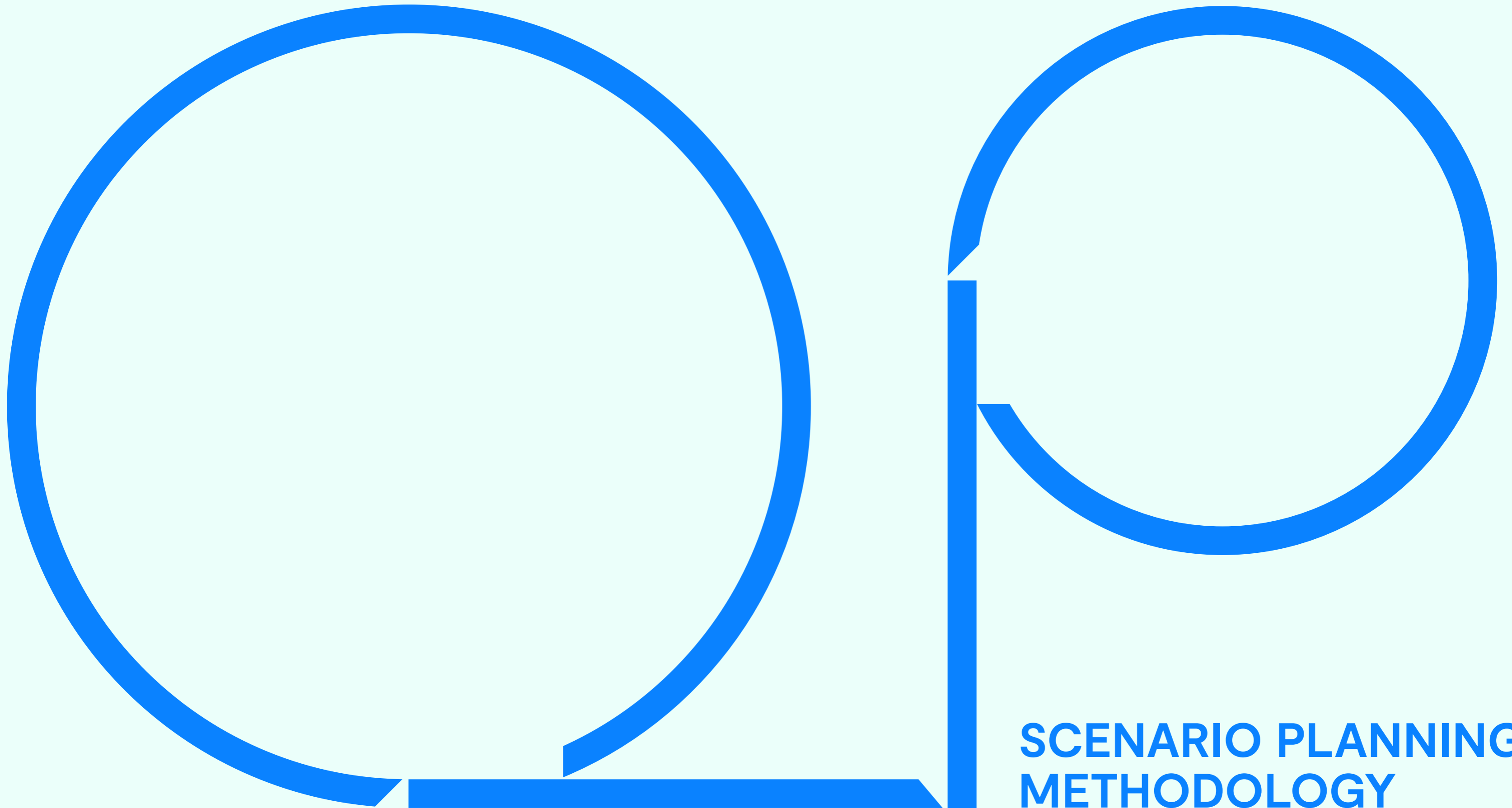
These recommendations are not meant to be prescriptive but are **suggestions to future-proof Penang’s economy** in line with the **Penang2030 vision**.



“In 1970, Penang was faced with an unemployment crisis when our unemployment rate was between 15 and 16 percent [...]

During the period 1970–1985, against the background of the economic doldrums prevailing in the state, particularly following Confrontation and the withdrawal of the Free Port status, the state government launched a programme of Free Trade Zones and the emphasis upon developing the manufacturing and industrial sector in the state. This has successfully made Penang a leading economic growth centre in Malaysia today.”

Tun Dr Lim Chong Eu — Second Chief Minister of Penang
Extract from a speech given in 1985



**SCENARIO PLANNING
METHODOLOGY**

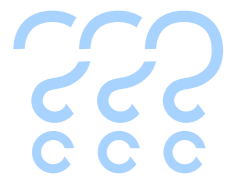
Scenario Planning Methodology

Planning for Penang’s 2030 future is difficult without being certain of what the future will look like. As Penang’s economy rebounds from COVID-19 and develops over the next 10 years, it will be subject to the uncertainties of megatrends. How then can we plan for the future?

Scenario planning utilises non-linear thinking to examine how uncertainty associated with global trends shape future “realities” or scenarios. Different combinations of megatrend outcomes produce different scenarios of what may happen in the future. Scenarios show possibilities that may arise, but do not inherently attribute probabilities to each scenario.

An action plan based on scenario planning is unique in that, while there is emphasis on preparing for and shaping Penang’s preferred scenario, bets must be hedged that set a foundation to respond to any scenario.

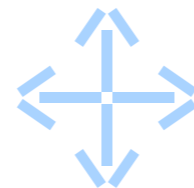
In the scenario planning exercise conducted, the topic in focus was “How should Penang respond to achieve Theme B of the Penang2030 vision—Upgrading the economy to raise household incomes”. A specific time horizon of ten years was also set.



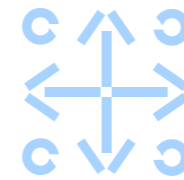
1. Define the focal issue or question that needs to be discussed and the relevant timeframe.



2. Identify driving forces by listing trends and mapping them by level of importance and uncertainty.



3. Identify critical uncertainties by selecting the two most important and uncertain drivers and defining their two alternatives.



4. Develop plausible scenarios by naming and fleshing out each of the four quadrants to develop comparable narratives.



5. Discuss implications and paths for each of the scenarios including what it means and possible actions and strategies.

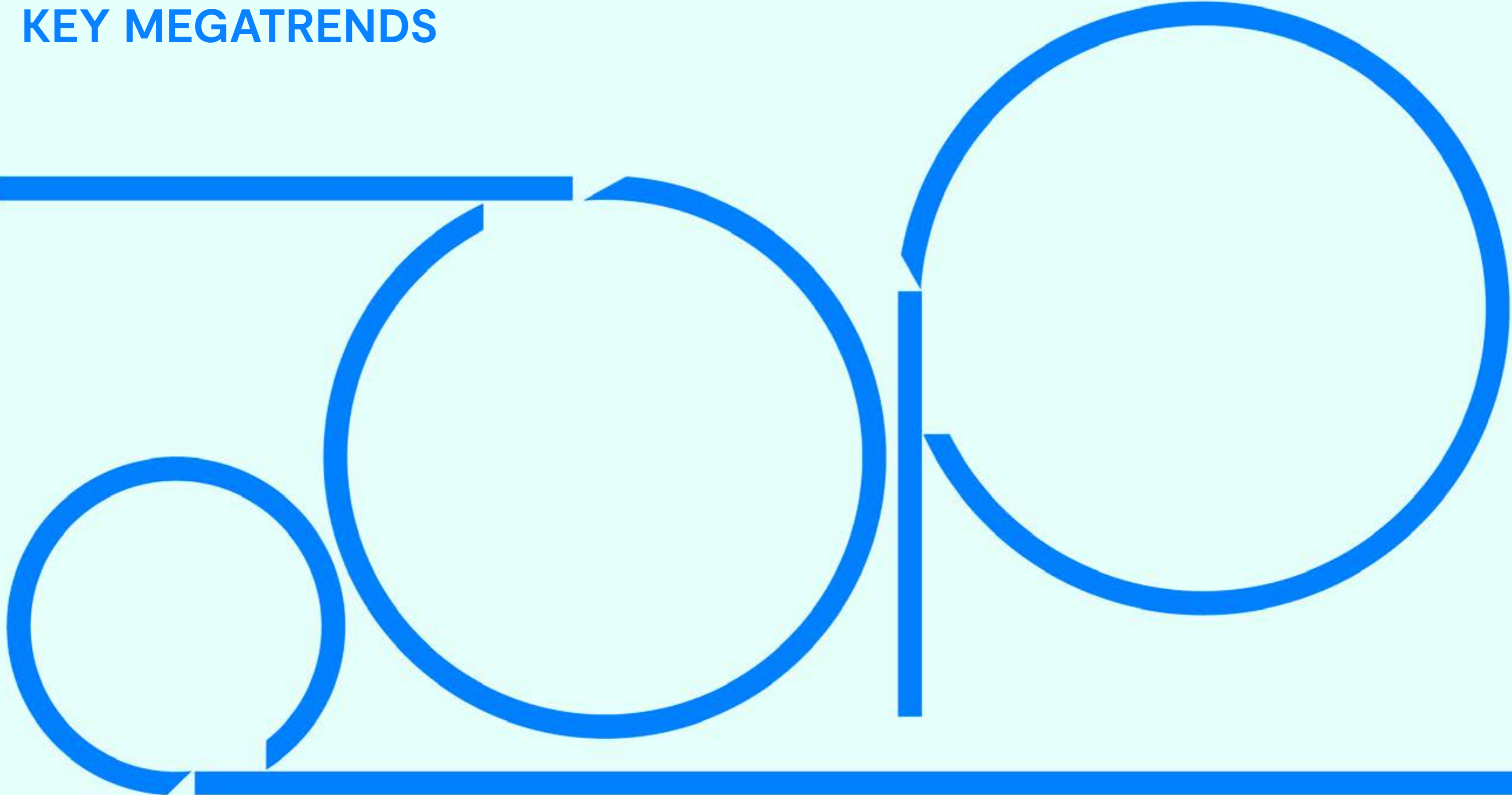


“We have been persistent in our cultural safeguarding efforts because our culture is unique; it shapes our identity. It tells us where we come from, who we are, and comforts us when we face challenges in life. We are proud to be from Penang, as we are able to live in a harmonious balance and mutual respect with one another despite our diversity and differences.”

YAB Chow Kon Yeow — Chief Minister of Penang

Opening remarks for the George Town UNESCO World Heritage Site 10th Anniversary Celebration and George Town Heritage Celebrations 2018

KEY MEGATRENDS

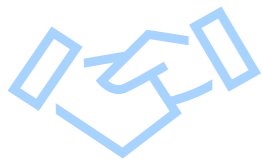


Key Megatrends

Megatrends are structural long-term shifts that change the macroenvironment and shape the world today and in the future. The following global and regional megatrends are likely to have a significant impact on Malaysia and Penang. While some of these megatrends are not new, their impact and adoption have been accelerated by the COVID-19 pandemic.

As Penang has a highly open economy that is dependent on global trade and tourism, the impact of these megatrends may be dramatic. Preparation for these megatrends is critical.

Shift in Global Trade Patterns



The US and China appear to be shifting from increasing collaboration to increasing competition, with far-reaching geopolitical ramifications. As some countries move away from globalisation towards regionalism, local and regional identities may become more prominent.

Restructuring of Supply Chains



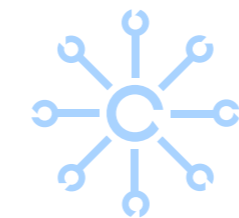
COVID-19 demonstrated the vulnerability of global supply chains. Restructuring will occur in the form of diversification and near shoring to increase supply chain resiliency. ASEAN stands to benefit as governments and companies reconsider their reliance on single countries.

Economic Shifts in ASEAN



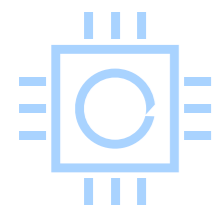
Inclusive growth across ASEAN drives development across less developed members. An increasingly skilled workforce and new manufacturing capabilities in neighbouring countries may pose a threat to Penang's manufacturing sector.

Devolution of Political Power and Localism



There is a growing call for devolved governance as authority shifts from nation-states to cities and regions. The argument is that issues and solutions are best handled at the right level and that local problems require local solutions.

Digital Disruption



Disruptive technology such as artificial intelligence, automation, the internet of things (IoT), and blockchain enable businesses to increase efficiency and foster collaboration. The adoption of tech innovations and new innovative business models such as the gig economy may have many unforeseen impacts, widening access for some but further deepening inequality for others.

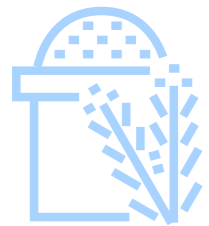
Climate Crisis



The United Nations states that rising temperatures are fuelling environmental degradation, natural disasters, weather extremes, food and water insecurity, economic disruption, conflict and terrorism. Climate change is a risk multiplier that worsens existing challenges. Mitigation is no longer sufficient, adaptation is required.

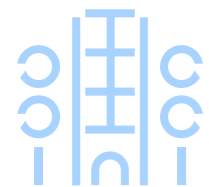
Key Megatrends

Food Security



The four pillars of food security are availability, access, utilisation and stability. COVID-19 has highlighted food security vulnerabilities. An overdependence on food imports puts countries at risk. Hence, increasing domestic food production and embracing food-tech is vital.

Urbanisation and Population Growth



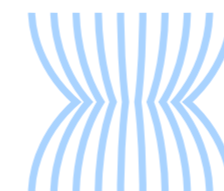
By 2050, an estimated 68% of the global population will live in cities. Nearly 90% of growth in the urban population will happen in Asia and Africa. While cities are engines of growth and prosperity, they can only achieve this if they are sustainably managed.

Resource Conflicts



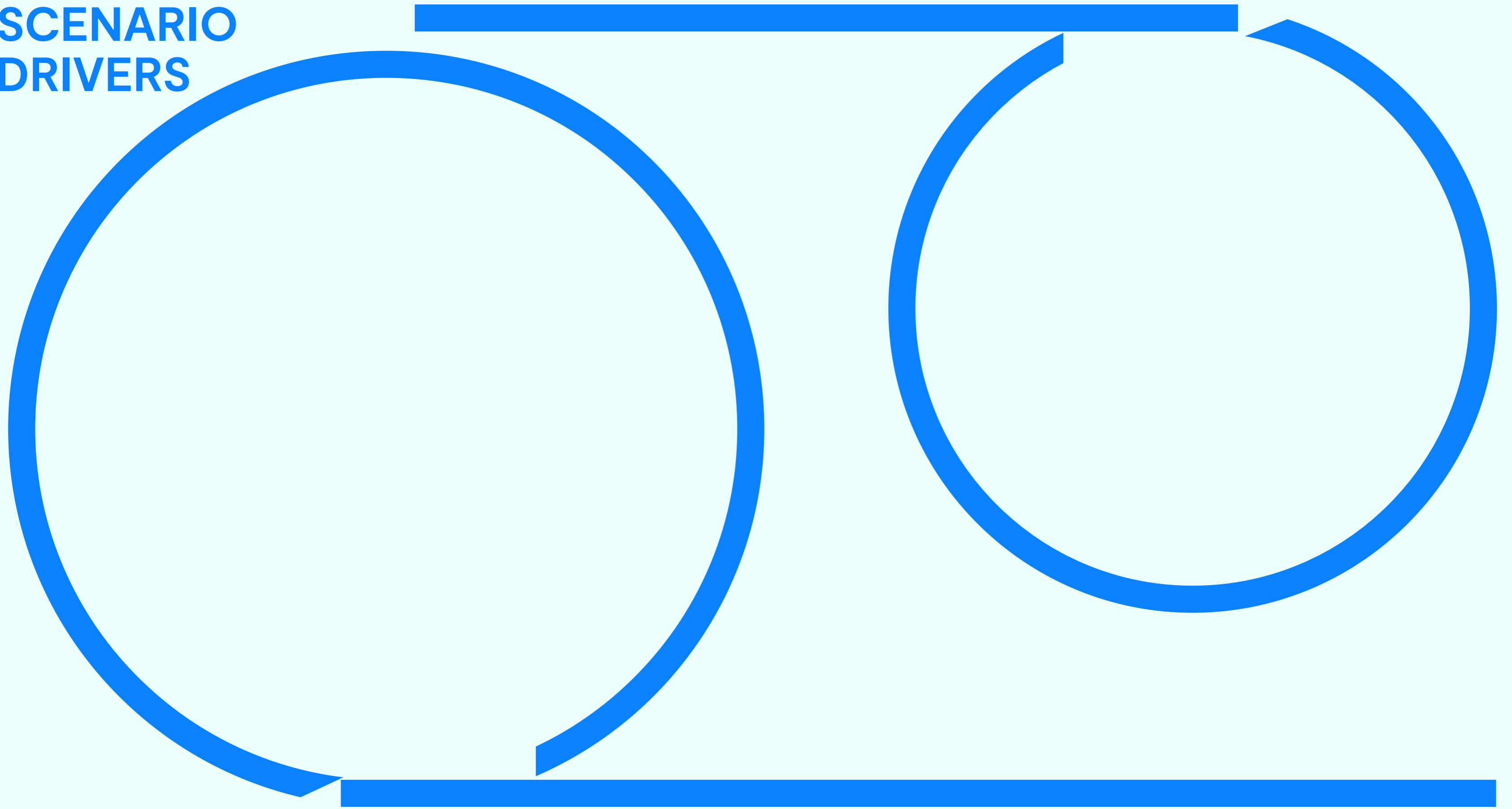
While there is a scramble for land and minerals today, the future will witness additional conflicts for water and climate refugees. A scarcity of resources will lead to inter- and intra-regional migration, putting additional pressure on stressed areas and potentially fuelling further conflicts.

Increased Importance of ASEAN as a Bloc



Given the uncertain global geopolitical situation, ASEAN can leverage its increasing economic strength and population size to be a formidable bloc to promote regional security. By acting as a unified bloc and upholding its principles of neutrality and non-interference, ASEAN may provide a counterbalance to the US and China.

SCENARIO DRIVERS



Scenario Driver One

Two drivers will define Penang's future. The first is whether the world will become more globalised or more localised/regionalised. The second is whether there are opportunities for Penang to move up the value chain or if there is significant downward pressure on Penang's value chain.



Geopolitical shifts and economic pressures may alter the flow of capital. Penang's strategic relationships will be affected by these shifts.

On one extreme, once the COVID-19 pandemic is controlled, globalisation may rebound with expansions in global trade and tourism. As global trade increases, companies de-risk supply chains by diversifying the locations of manufacturing and logistics centres. Diversification away from China brings opportunities for more countries to industrialise. As FDI in China stagnates, global capital flows enter ASEAN, South Asia and Latin America, bringing technology transfer with them. Technology leap-frogging continues in the developing world, as 5G and the Fourth Industrial Revolution (IR4.0) expertise is imported and implemented. Globalisation also provides opportunities for international collaboration (e.g. on climate change) and the use of global bodies to pressure countries to act in-line with standards of conduct (e.g. on territory disputes).

On the other extreme, localisation and regionalisation may accelerate as a result of the consequences brought about by the pandemic. Companies are incentivised by national governments to not only diversify but near-shore supply chains. Trade barriers and demand for supply chain resiliency lead to a reshaping of trade, investment, and talent flows. The de-risking of supply chains may concentrate investment into regional hubs with ASEAN largely looking to East Asia for trading and technology partners. Localisation drives a celebration of "local" over "foreign" cultures and identities rather than having a more homogenous global mindset. Attitudes towards localisation may be reflected in different ways. It can manifest itself positively through an increased appreciation for local diversity. However, it can also be embodied in less benign behaviour towards a perceived opponent, for example the recent antagonistic behaviour of the US towards the Chinese tech companies Huawei and TikTok.

Scenario Driver Two



A rise in manufacturing capabilities, lower costs, reliable governance, and stronger institutions may provide a relatively more attractive environment in ASEAN countries. These external factors are not within Penang's control and may impact its competitiveness along the value chain. The rise of manufacturing in industrialising countries that are "catching up" such as Vietnam may trigger the relocation of Penang's manufacturing firms. The manufacturing future of Penang will depend on its ability to move up the value chain into higher value activities, such as Singapore's—be it as a collaborator, complementor or competitor.

Pressures on Penang to move down the value chain stem from ASEAN manufacturing clusters that grow into "new factories to the world". Logistics from new clusters alter global trade—goods produced in new logistics centres in Thailand and Vietnam do not need to pass through the Straits of Malacca to reach China and East Asia.

Shifts in economic power within ASEAN may still allow Penang to be a dominant player if the industrial sector utilises proprietary technology that is difficult to emulate, or if Penang finds its niche to produce high-value, low-volume products. High technology investment/transfer (e.g. additive manufacturing, AI, IoT and automation) and a strong STEM talent pool are necessary for the state to remain competitive. This unlocks a new wave of economic growth—the state government must ensure prosperity for all.

The United States "Rust Belt"—a region that was an industrial heartland but has since experienced economic decline—is a cautionary tale of how shifting global manufacturing competitiveness and misguided policies can cause companies to exit swiftly, despite having a world-class STEM workforce.

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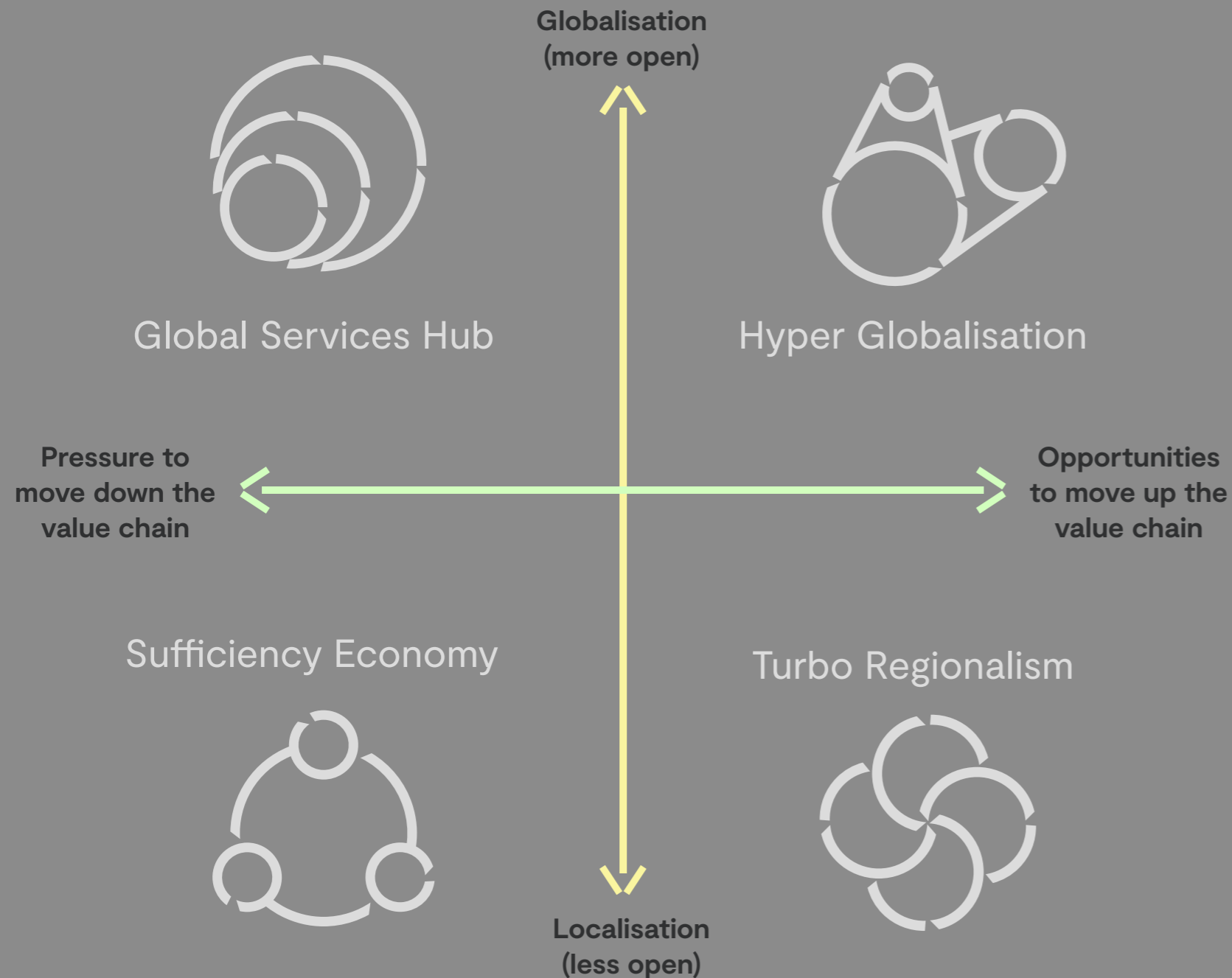


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THE FOUR SCENARIOS

What is Penang's Economic Future?

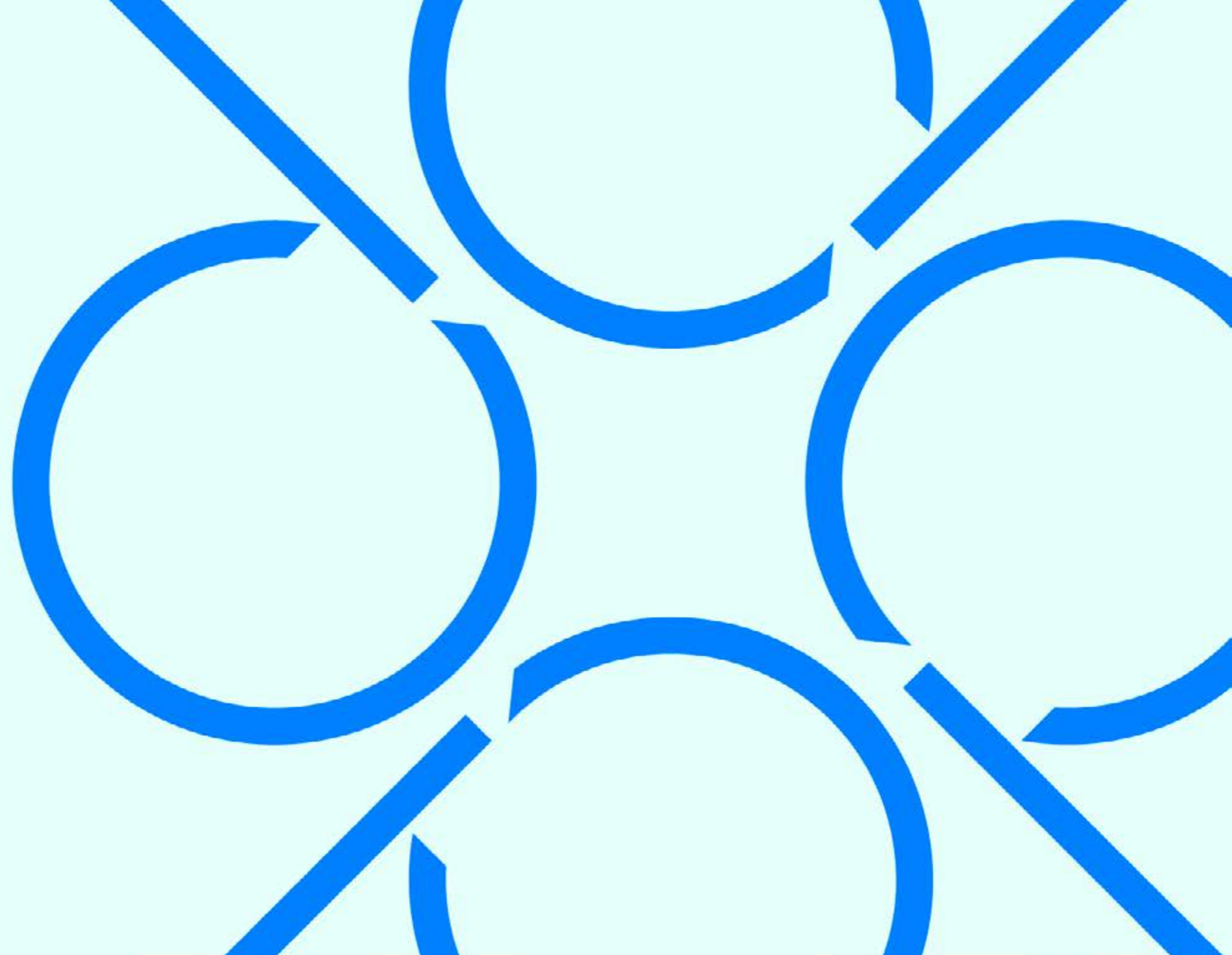
The two drivers are overlaid to form 4 potential scenarios



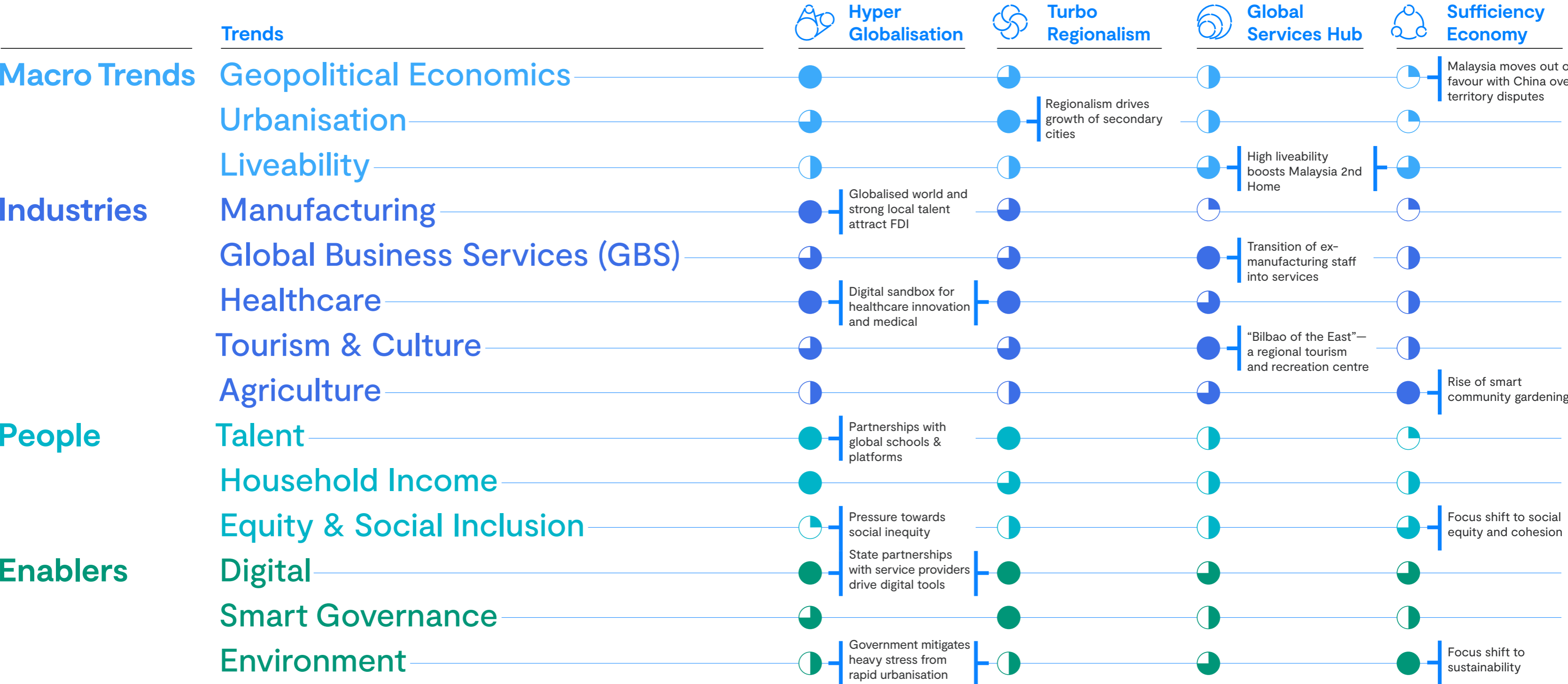
Any of these scenarios could unfold and combinations of each may prevail. The scenarios are designed to provoke thought and question assumptions regarding how various global and local forces may shape the future. By being prepared, individuals and institutions can make the most of opportunities as they present themselves.

- Hyper Globalisation** In 2030, Penang is a **world-class second-tier city with competitive manufacturing and service industries.** Post-pandemic, globalisation continues to expand with long supply chains utilising countries' comparative advantages without much geo-physical and political interference. Penang leverages manufacturing expertise and makes early moves to boost IR 4.0 implementation and develop talent to attract global FDI.
- Turbo Regionalism** In 2030 **Penang rivals Kuala Lumpur as Malaysia's economic engine,** attracting regional investments. Amid the US-China trade war, companies diversify away from China into ASEAN or near-shore areas. Penang takes a share of companies exiting China while also focusing on the neighbouring region to jumpstart its race up the value chain and attract FDI.
- Global Services Hub** In 2030 Penang attempts to **reinvent itself as a niche service economy** after low-tech manufacturing has declined. Unable to compete on low cost and high-quality STEM talent, Penang attempts to reinvent itself as a global business services centre. While economic growth has stagnated, there are new growth shoots and Penang is seen as an emerging niche tech and culture hub.
- Sufficiency Economy** In 2030 Penang's economy has embraced the circular economy with a **domestically focused cultural sector.** As manufacturing declines, Penang transitions into a regional focused value-added service economy. Post-pandemic, Penang promotes the self-sufficiency and sustainability of local industries such as agriculture and eco-tourism, improves quality of life and ensures social equity.

SCENARIO SUMMARIES



Overview of the Scenarios—Opportunities and Risks



Macro Trends—Opportunities and Risks



Geopolitical Economics

Hyper Globalisation

- ↑ US reorients towards increased globalisation
- ↑ Increased number of international bilateral and multilateral FTAs
- ↓ Limited further economic and cultural integration in ASEAN
- ↑ Malaysia has very strong diplomatic ties with US, China and EU

Turbo Regionalism

- US doubles-down on China trade war
- World moves into trading blocs (NA, EU, Asia)
- ↑ Increased participation within ASEAN
- ↑ Malaysia maintains strong ties with China

Global Services Hub

- ↑ US reorients towards increased globalisation
- ↑ Increased number of international bilateral and multilateral FTAs
- ↓ Limited further economic and cultural integration in ASEAN
- ↓ Malaysia loses global importance, diplomatic ties decline

Sufficiency Economy

- US doubles-down on China trade war
- World moves into trading blocs (NA, EU, Asia)
- ↑ Increased participation within ASEAN
- ↓ Malaysia has strained ties with China

Urbanisation

- ↑ High urbanisation in Penang, but less than Kuala Lumpur

- ↑ High urbanisation in Penang and other secondary cities vs. Kuala Lumpur

- Penang experiences moderate urbanisation from rise of services but exit of mfg.

- ↓ Penang experiences slowdown in urbanisation

Liveability

- ↑ Strong local resources to address liveability
- ↓ Rapid urbanisation grows pressure of congestion and air pollution
- ↓ High global speculation in housing causes high prices and overhang
- ↑ High vibrancy and placemaking
- Car-dependence reduced

- ↑ Strong local resources to address liveability
- ↓ Rapid urbanisation grows pressure of congestion and air pollution
- ↓ High speculation in housing causes high prices and overhang (fuelled by East Asian investment, e.g. HK)
- High vibrancy and placemaking, but catered towards new immigrants
- Car-dependence reduced

- Some local and federal resources to address liveability
- Moderate urbanisation includes some pressure of congestion and air pollution
- Moderate speculation lowers overhang, with prices continuing to grow modestly
- Exit of mfg. open opportunities for adaptive reuse
- ↑ Car-dependence eliminated

- ↓ Limited local and some federal resources to address liveability
- ↑ Low urbanisation produces limited additional congestion and air pollution
- ↑ Low speculation limits overhang and stabilise prices
- Exit of mfg. open opportunities for adaptive reuse
- ↑ Car-dependence eliminated

Industries—Opportunities and Risks (1/2)



Manufacturing

Hyper Globalisation

- ↑ International funds available for investment in logistics
- ↑ Shift to China Plus One policy with no preferred substitute
- ↑ High-tech mfg. enters, low-tech exits
- ↑ Strong STEM talent with R&D and IR4.0 capabilities
- ↑ Diverse industries e.g. green, medical, E&E
- ↑ Strong local ecosystem promotes tech transfer

Turbo Regionalism

- ↑ BRI / Japan funds upgrade logistics; BRI may risk assets
- US & EU near-shore. Asia diversifies from China
- ↑ High-tech Asian mfg. enters, low-tech exits
- ↑ Strong STEM talent with R&D and IR4.0 capabilities
- ↑ Diverse industries e.g. green, medical, E&E
- ↑ Strong local ecosystem promotes tech transfer

Global Services Hub

- ↓ Limited international funds for investment in logistics
- ↑ Shift to China Plus One policy with no preferred substitute
- ↓ Mid and low-tech mfg. exit, due to high costs
- ↓ Weak STEM talent pool
- ↓ Limited ecosystem due to exiting mfg. firms

Sufficiency Economy

- ↓ Weak relationship with China limits FDI from BRI
- US & EU near-shore supply chains. Asia diversifies from China
- ↓ Mid and low-tech mfg. exit, due to high costs
- ↓ Weak STEM talent pool
- ↓ Limited ecosystem due to exiting mfg. firms

Global Business Services (GBS)

- Large shift towards value add, integrating IR4.0
- ↑ Widespread use of automated/hybrid workforce
- ↑ Services locate to serve mfg.; secondary GBS locate from KL, SG, HK

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- ↑ Forefront of value add services
- ↑ Widespread use of automated/hybrid workforce
- ↑ Global GBS centre
- ↑ Strong ecosystem combines IR4.0 with GBS
- Penang vulnerable to GBS market changes

- ↓ Some shift towards value add
- ↑ Widespread use of automated/hybrid workforce
- ↑ Services locate to serve mfg.; secondary GBS locate from KL, SG, HK
- ↓ MNCs have bargaining power to lower wages

Healthcare

- ↑ High growth of global medical tourists; opportunity to extend stay of long-haul tourists
- ↑ High innovation adoption, e.g. telehealth, patient analytics, on-demand healthcare
- ↑ Strong ecosystem of medical device mfg., hospitals, schools, and digital innovators
- ↑ Hospitals are testbeds for new medical devices & tech
- ↓ Higher private sector costs with rising in time-to-serve

- ↑ Accelerated regional destination for medical tourism
- ↑ High innovation adoption
- ↑ Strong ecosystem of medical device mfg., hospitals, schools, and digital innovators
- ↑ Hospitals are testbeds for new medical devices & tech
- ↓ Higher private sector costs with rising in time-to-serve

- Moderate growth of global medical tourists; opportunity to extend stay of long-haul tourists
- Moderate innovation adoption
- ↑ Strong ecosystem of digital innovators, hospitals, schools
- ↑ Hospitals are testbeds for new tech
- ↑ Shifted focus towards better, cheaper and faster healthcare for locals

- ↓ Plateaued growth in medical tourism
- Moderate innovation adoption
- ↑ Strong ecosystem of digital innovators, hospitals, schools
- ↑ Hospitals are testbeds for new tech
- ↑ Shifted focus towards better, cheaper and faster healthcare for locals

Industries—Opportunities and Risks (2/2)



Tourism & Culture

Hyper Globalisation

- ↑ Rebound of tourists from EU, US & AUS
- ↓ Pressure towards over-tourism
- ↑ Penang promotes experiential tourism in George Town World Heritage Site
- ↑ Digital tourist experience & integration of all local businesses
- ↑ Increased MICE tourism with opportunity to extend stay

Turbo Regionalism

- ↑ Rebound of tourists from China, AUS, Japan, Korea
- ↓ Pressure towards over-tourism
- Penang promotes experiential tourism in George Town World Heritage Site
- ↑ Digital tourist experience & integration of all local businesses, oriented towards Asian tourists
- ↑ Increased MICE tourism with opportunity to extend stay

Global Services Hub

- ↑ Rebound of tourists from EU, US & AUS
- ↑ Sustainable growth in tourism
- ↑ Establishment as cultural centre showcasing NCER and MY—new infra. complements George Town World Heritage Site and promotes culture
- Digital tourist experience & integration of large businesses
- Growth in service-related MICE tourism

Sufficiency Economy

- Some rebound of regional and full rebound of domestic tourists
- ↑ Sustainable growth in tourism, incl. eco-tourism and homestays
- ↑ Establishment as NCER cultural centre
- ↓ Limited aggregation of digital tourism experience
- ↓ Limited opportunity for MICE tourism

Agriculture

- ↑ Increased self-sufficiency for key foods
- ↓ NCER agri. struggles to keep up with population boom, high import of luxury goods
- ↓ High imports keep high food-miles
- ↑ Regional “control tower” in Penang that coordinates end-to-end supply chain
- ↑ Penang is the focal point for FDI in smart agri. for NCER; smart agri. practices implemented

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- ↑ Supply of key foods originate from NCER
- Food-miles largely shortened to within NCER
- ↑ Regional “control tower” in Penang that coordinates end-to-end supply chain
- Some spaces available for community gardening
- ↑ Penang is the focal point for FDI in smart agri. for NCER; smart agri. practices implemented

- ↑ Supply of key foods mainly originate from Penang
- ↑ Food-miles minimised to within Penang and NCER
- ↑ Regional “control tower” in Penang that coordinates end-to-end supply chain
- ↑ Widespread smart urban farming
- ↑ Penang is the focal point for FDI in smart agri. for NCER; smart agri. practices implemented
- ↑ E-marketplace for agriculture implemented

People—Opportunities and Risks



Talent

Hyper Globalisation

- ↑ Successful STEM R&D partnerships with global institutions (e.g. MIT) enhance CREST
- ↑ Partnerships with global Education 4.0 firms enhance K-12, e.g. MOOC, self-learning
- ↑ Industry-education programmes upskill workforce in IR4.0, promote entrepreneurship
- ↑ High income jobs retain necessary talent
- ↑ Strong attraction of foreign talent

Turbo Regionalism

- ↑ Successful STEM R&D partnerships with regional institutions (e.g. Tokyo U) enhance CREST
- ↑ Partnerships with regional Education 4.0 firms enhance K-12
- ↑ Industry-education programmes upskill workforce in IR4.0, promote entrepreneurship
- ↑ Regionalisation provides fewer options for talent to leave
- ↑ Strong attraction of foreign talent

Global Services Hub

- Difficult to establish STEM partnerships; R&D on only digital (e.g. AI in healthcare) established
- ↑ Partnerships with global Education 4.0 firms enhance K-12
- Industry-academia programmes promote entrepreneurship
- ↓ Majority of talent continue to leave, some retention for GBS
- Some attraction of foreign talent

Sufficiency Economy

- Difficult to establish STEM partnerships; R&D on only digital (e.g. AI in healthcare) established
- Some partnerships with global Ed. 4.0 firms enhance K-12, but education remains dependent on federal funds
- Industry-academia programmes promote entrepreneurship
- ↓ Majority of talent continue to leave
- ↓ Limited attraction of foreign talent

Household Income

- ↑ High value activities drive high incomes
- ↑ Companies in Penang pay globally competitive salaries for value add services

- ↑ High value activities drive high incomes
- Asian companies exiting China and entering Penang, are more cost-conscious than Western firms

- Decline of manufacturing income is replaced by GBS; healthcare continues to grow
- Increased tourism drives moderate income

- Decline of manufacturing income is replaced by GBS; healthcare continues to grow
- Increased tourism and agriculture drive moderate income

Equity & Social Inclusion

- ↓ Employment in low-tech mfg. are lost
- ↓ Access to new high-income jobs requires education
- Trickle down from high-income to low-income jobs
- ↓ Immigration creates upper-class with few ties to local culture
- ↑ Govt. redistributes wealth and provides educational opportunities for poor

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- ↓ Access to new high-income jobs requires education
- Trickle down from high-income to low-income jobs
- ↑ Moderate immigration further builds Penang's upper class
- ↑ Govt. redistributes wealth and provides educational opportunities for poor

- ↓ Employment in low-tech mfg. are lost
- ↑ Focus on self-sufficiency drives inclusivity
- ↑ Domestic immigration maintains social cohesion
- ↑ Limited growth in digital divide
- ↑ Govt. redistributes wealth and provides educational opportunities for poor

Enablers—Opportunities and Risks



Digital

Hyper Globalisation

- ↑ Strong 5G and fibre infra.
- ↑ Ecosystem drives global tech transfer in all sectors
- ↑ Partnership with Expedia, Grab, etc. provide API plugins for local businesses
- ↑ National drive to implement IR4.0
- ↑ High availability of digital talent

Turbo Regionalism

- ↑ Strong 5G and fibre infra.
- ↑ Ecosystem drives global tech transfer in all sectors
- ↑ Partnership with regional firms aggregate businesses on digital platform
- ↑ National drive to implement IR4.0
- ↑ High availability of digital talent

Global Services Hub

- 5G and fibre implemented, but with intermittent service
- ↑ Ecosystem drives global tech transfer in GBS and healthcare
- ↑ National drive to implement IR4.0, esp. in analytics and insights
- Some availability of digital talent

Sufficiency Economy

- 5G and fibre implemented, but with intermittent service
- ↑ Ecosystem drives global tech transfer in GBS and healthcare
- ↑ National drive to implement IR4.0, esp. in analytics and insights
- Some availability of digital talent

Smart Governance

- ↑ Interoperability of data between all govt. bodies
- ↑ Non-sensitive data shared in consolidated portal
- ↑ Data-driven policy making, execution and emergency response
- ↑ Digitalisation drives efficiency & flexibility in all services
- ↓ Globalised city results in low civic engagement
- ↑ Strong cyber security to mitigate risk of hacking

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- ↑ Non-sensitive data shared in consolidated portal
- Data-driven policy making and execution
- Integration of digital in prioritized services
- ↓ Globalised city results in low civic engagement
- ↑ Strong cyber security to mitigate risk of hacking

- ↑ Interoperability of data between selected govt. bodies
- Non-sensitive data shared in fragmented portal
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Environment

- ↓ Rapid urbanisation increases stress from pollution
- ↓ High pressure for firms/individuals to deforest
- ↓ Further land reclamation impacts marine life
- Mitigated impact of urban heat island (UHI) effect with greenery
- ↑ Growing renewable energy (RE) industry
- ↑ Govt. resolves flooding

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- Lower rates of urbanisation ease pollution management
- Moderate pressure for firms/individuals to deforest
- ↑ Protection of marine life
- Moderate potential impact of UHI effect
- ↑ Growing RE industry
- ↑ Govt. resolves flooding

- ↑ Sufficiency economy focuses on environmental protection and resilience
- Moderate pressure for firms/individuals to deforest
- ↑ Protection of marine life
- ↑ Increased greenery limit impacts of UHI
- ↑ Growing RE industry
- ↑ Govt. resolves flooding

SCENARIO 1: HYPER GLOBALISATION



Scenario 1: Hyper Globalisation

Penang's international reputation continues to grow. As a mid-sized city, it offers an attractive alternative to Greater Kuala Lumpur with excellent liveability and a unique cultural identity. Penang's advanced manufacturing sector cements its reputation as the "Silicon Valley of the East" and it has further diversified its economy into new services with few rivals in ASEAN. The continuous need to maintain its competitive edge and attract investment puts it at risk of diluting its cultural identity and eroding its natural advantages. While Penang has benefitted from the spillovers of innovation, increased pressures on place identity and the natural environment challenge the unique appeal of Penang.



Return to Globalism Ideals

The early arrival of a COVID-19 vaccine and renewed global US statesmanship may result in a return to accelerated globalisation. A legacy of the pandemic is supply chain resilience, with the phrase "China Plus One" becoming the mantra for many companies. The China Plus One strategy has seen MNCs shift investment to other APAC countries, particularly in ASEAN, to avoid being overly dependent on China. In response, China has been actively courting government and businesses worldwide, mainly through promoting its Belt and Road Initiative (BRI). China's new "Digital Silk Road" has seen an influx of foreign direct investment (FDI) into strategic locations with resources, talent, and geographical advantages.

Scenario 1: Hyper Globalisation

Penang Experiences High Economic Growth

Strategically located with deep ties to the West and East, Penang captures the attention of both East Asian and Western companies looking for reliable suppliers. The electrical & electronic, integrated circuits, healthcare, biotech and green-tech industries accelerate in growth and encourage related global business services—attracted by manufacturing experience and growing value-added capabilities (e.g. data analytics). New investments drive transformative economic growth and prosperity, catapulting Penang towards a critical manufacturing hub. New investments trigger a wave of innovations, and by 2030 Penang is beginning to be seen as a credible node in the global supply network to Taiwan, Singapore, South Korea and Japan for high-tech components such as IoT sensors, additive manufacturing and robotics.

Penang Invests in a Dynamic Ecosystem of High-Value Industries

InvestPenang successfully secures new investment into Penang’s logistics and digital ecosystems, leveraging China’s need for stable returns on infrastructure investments. Expansion of port and airport projects lead to an increase in logistics capacities for northern Malaysia while Penang’s first smart warehouse is completed.

With support from the Penang state government, MNCs collaborate to establish a school of digital knowhow, technology and entrepreneurialism. The combined infrastructure and talent improvements drive global companies to enter or expand operations in Penang for high-value activities. As a result, local and foreign investments snowball into the new Butterworth Innovation Hub, a vertical innovation district concentrated around Penang Sentral, which extends into a revitalised Perai Industrial Estate.

At the same time, the COVID-19 pandemic has accelerated the shift in traditional office space demand towards more collaborative and flexible spaces with smaller footprints and more flexible uses and lease periods. As demand for high-tech manufacturing grows, property developers market new “green manufacturing” clusters in the Penang Bay area, which utilise digital technology and renewable energy to reduce the carbon footprint of operations.



Scenario 1: Hyper Globalisation

Balancing High Growth and Social Equity

Penang's population growth rate rises due to talent retention and foreign & domestic migration. Talented individuals are attracted by both high-value job opportunities and a safe and liveable environment for their families.

However, the high influx of highly paid skilled workers leads to concerns about inequality. Low-income citizens find increasing difficulty in seeking employment. Although the demand for skilled jobs increases, unskilled and semi-skilled jobs are replaced by automation. Local institutions struggle to pivot to the new reality. In the competition for economic growth, less focus was placed on preserving Penang's heritage outside tourism areas and the George Town World Heritage Site. Extra efforts are needed for Penang to maintain its cultural identity.

Growing Demand for Quality Residential Supply

Demand for slightly larger mid- and high-end housing to accommodate home offices has grown. The immigration of local and foreign knowledge workers and an ageing population result in further changes and pressures to housing demand.

Zoning policies are updated to meet changes in demand such as more mixed-use developments to ensure a vibrant property market that also protects lower-income groups. As affordable housing is a key component of liveable, productive and innovative cities, the state government has ensured that there is a supply of quality residential units that target middle- and low-income citizens. Attention has been placed on placemaking efforts and providing convenient access to amenities, shared spaces and public realm facilities for these new residential developments.



Scenario 1: Hyper Globalisation



Rise in New Forms of Education and Upskilling

Global trends show two shifts in education—first, a shift towards online methods of teaching and learning and second, education being embedded within industry.

There is growing adoption of online educational platforms, i.e. MOOCs (massive open online courses such as Coursera and edX) and continued increase in traits such as independent problem solving, creativity and curiosity as keys to success. By 2030, Penang colleges and universities have developed key partnerships with online learning platforms to package relevant online curricula and provide affordable education access and recognised micro-degrees which can be credited towards university courses.

Renowned universities set up foreign branch campuses in Penang to tap into the increase of regional students. Penang also invests in transforming how students learn with new approaches that force students to problem solve and collaborate. After a successful pilot in Penang, the programme expands and a similar approach is provided to national public and private schools as an elective.

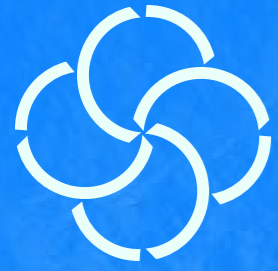
Increased partnerships between industry and academia result in collaborative innovation not just through research but in the way training and upskilling is conducted. For instance, apprenticeship and vocational programmes with leading local and multinational corporations gain traction. These nationally and globally recognised programmes become increasingly popular and lead to attractive, well-paid jobs.

“According to SEMI, an international organisation in the semiconductor field, Penang itself contributes approximately 8% of the global back-end semiconductor output, making it among the world's leading locations for microelectronics assembly, packaging and testing.”

InvestPenang website
(<https://investpenang.gov.my/electrical-electronics>)



SCENARIO 2: TURBO REGIONALISM



Scenario 2: Turbo Regionalism

Penang is a rising star in the Asia-Pacific region, having established itself as a key node in Asia's manufacturing and services value chain. Improved ease of doing business to attract Asian investors and a focus on liveability catapult Penang's economic growth towards breaking out of the "middle-income trap". The increased arrival of talent from ASEAN, South Asia, Australia, New Zealand, Pacific nations and East Asia has increased Penang's cosmopolitanism and dynamism.



Continued Drive Towards Regionalism

The US doubles down on its trade war with China and the world moves into three largely self-sufficient trading blocs, North America, Europe, and Asia-Pacific, while Africa is beginning to reap the demographic dividend from its young population. Eyes are fixed on ASEAN, Asia's third largest economy which continues to grow as it becomes more integrated via reduced labour, trade, and capital restrictions. ASEAN leaders make a concerted effort to promote regional cultures and stand united against the challenges of an increasingly assertive US and China.

Reshoring of Global Supply Chains

Penang becomes a key node of China's Belt and Road Initiative (BRI). It is a regional logistics hub along the BRI's "21st Century Maritime Silk Road" that meets the needs of northern Peninsular Malaysia, southern Thailand and Sumatra. In the aftermath of the COVID-19 pandemic, developed countries incentivised their companies to re-shore their supply chains to better serve regional demand and avoid tariffs on China. A focus on supply chain resilience results in a shift of production into multiple ASEAN countries.

China's BRI focuses heavily on ASEAN because of its need for increasing returns while faced with a stagnant and ageing population. BRI not only pours investment into ASEAN, but Chinese companies flood into ASEAN with secondary manufacturing and Global Business Services (GBS) sites, adopting a China Plus One agenda.

Scenario 2: Turbo Regionalism



Penang Develops Robust Regional Supply Chains

Penang not only secures investment in manufacturing, services and logistics, but actively works to remain competitive via developing a robust regional supply chain, as the centre of growth for Malaysia's North Corridor Economic Region. The prospects of improved infrastructure including high-speed rail will allow it to be further integrated with Greater KL and Singapore to the south and mainland Southeast Asia to the north. The Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT) gains momentum and sets a benchmark for the rest of ASEAN and the world.

Penang state actively courts investment and collaboration with its neighbours, focusing on strengthening ties with regional secondary cities such as Medan, Bandung, Cebu, Phuket, as well as with the wider Bay of Bengal region and with Australasia. Penang's network city planning approach attracts companies who need to diversify their manufacturing portfolio. High-tech manufacturing and R&D are attracted to the revitalised waterfronts of the Penang straits and catalyse the state's growth as an industrial and innovation cluster.

Penang Rises Over Competitors

Penang quickly identifies that the source of new investments and trade partners would fundamentally shift from the West to East. Hence, "Asian focused investment" becomes an embedded strategy across the state. Penang drives continued vibrancy in the manufacturing sector by attracting Singaporean, Australian, Japanese, and Korean companies looking for suppliers in countries that have lower risk. Penang specialises in small to medium-sized facilities that are capital and skill intensive while Vietnam attracts large-scale facilities that are more labour intensive.

Penang's electrical and electronic, integrated circuits, healthcare and green-tech industries grow, with a focus on IR 4.0 technology (e.g. IoT sensors, additive manufacturing and robotics). Penang is a leading state in Malaysia in terms of investment and economic performance. By 2030, Penang is increasingly a major player in the ASEAN regional ecosystem that competes with and complements its neighbours.

Scenario 2: Turbo Regionalism



Food Security and Urban Agriculture

Penang re-shores the supply chain of its essential agricultural products closer to home to strengthen its food security. Besides increasing resiliency, there are benefits from increasing the sustainability of its food supplies. These include decreasing food-miles and avoiding negative impacts from intensive industrial farming such as pesticide contamination. The state government also establishes a food stockpile that provides a buffer of supplies that act as aid relief during emergencies and disasters while providing support to the disadvantaged during other times.

The farm-to-table concept also kicks off, where restaurants and food stalls obtain supplies of ingredients from local farmers. This leads to a healthy and increasingly productive urban agriculture movement. While Penang already has a strong reputation as a food paradise, it is also becoming increasingly known worldwide for its quality artisanal food products such as curry pastes that are exported worldwide.

The Digitalisation of Agriculture

Penang embraces digital agriculture and becomes a food distribution hub for the North Corridor Economic Region (NCER). Penang has promoted technology investment in food-tech—from production to delivery, acting as the main focal point for diffusing technology in the NCER. Digital agriculture improves crop yield by identifying the time for planting and taking into account weather forecasts by harnessing IoT through sensors that monitor crop health. Digital platforms help standardise reporting and enable micro-financing and insurance for smallholder farmers. These platforms also coordinate harvesting to not overload processing facilities.

Mainland Penang takes advantage of its central location in NCER and establishes itself as the regional food distribution centre. The regional supply chain is enabled by digitalisation of food supply chains, that allows Penang companies to have full visibility of inventory throughout the NCER. This is used to manage the state food stockpile, optimise distribution and adapt to crises.

Scenario 2: Turbo Regionalism

Increase in Cosmopolitanism and Diversity

Penang's population grows due to talent retention and regional migration. New businesses such as restaurants and cultural spaces emerge to attract and add to Penang's diversity. Penang becomes a key focus of China's soft diplomacy with growing investment in joint creative and cultural activities.

Although Penang has become more cosmopolitan, some lower-income residents are priced out by wealthier domestic and international migrants. Inequity, the loss of traditional trades, and a dilution of local culture continue to be a point of debate.

Enhancement of Research and Development (R&D)

Universiti Sains Malaysia leads Penang universities in partnering with regional education institutions for R&D in back-end semiconductor manufacturing, medical instruments/smart hospitals and smart farming techniques in the ASEAN context (e.g. palm oil and rubber). There are numerous examples of successful partnerships between industry and academia that leverage Penang's STEM ecosystem and government funding.

The upgrade in talent and research capabilities further attracts and reinforces global and regional MNCs to locate or expand their presence in Penang for high-value activities. The involvement of specialised foreign resources boosts the Collaborative Research in Engineering, Science and Technology's (CREST's) industry-led R&D efforts which further drives the local ecosystem.



“The Regional Comprehensive Economic Partnership (RCEP) Agreement is an agreement to broaden and deepen ASEAN’s engagement with Australia, China, Japan, Korea and New Zealand. Together, these RCEP participating countries account for about 30% of the global GDP and 30% of the world population. The objective of the RCEP Agreement is to establish a modern, comprehensive, high-quality, and mutually beneficial economic partnership that will facilitate the expansion of regional trade and investment and contribute to global economic growth and development.”

*Extract from Summary of the Regional Comprehensive Economic Partnership Agreement
15 November 2020*



SCENARIO 3: GLOBAL SERVICES HUB



Scenario 3: Global Services Hub

Penang is a globally renowned city of culture and services. Although manufacturing has hollowed out, Penang quickly pivoted into global business services (GBS) and accelerated its transition to high-value tourism. Penang remains a charming mid-sized city, filled with its unique culture and becoming known as a niche tech and culture hub. Although Penang's economic growth rate has not completely recovered to peak levels but has somewhat stagnated, it has reinvested in its natural advantages: liveability and culture.



Return to Globalism Ideals

Asia Pacific countries were the first to recover from the COVID-19 pandemic. In the early part of the 2020s, Asia cemented its global position as a key manufacturing and GBS centre for Western companies leading to increased competition between Asian cities. A legacy of the pandemic is risk mitigation via diversification of sites. China Plus One is a popular mantra for some companies.

China counters by scaling up the Belt and Road Initiative (BRI). To maintain its favourable global status, China has revised the terms of countries unable to pay back loans. This earns China significant goodwill globally and provides it with long-term logistics capabilities to support the “Digital Silk Road”.

Scenario 3: Global Services Hub

Penang Loses Manufacturing and Pivots to GBS

Rising costs coupled with brain drain resulted in a hollowing out of the once sparkling manufacturing sector as many companies move to the Mekong region. Retaining anchor manufacturing companies from the 1970s is difficult. Despite the strong financial incentives provided, infrastructure bottlenecks and the rise of low-cost manufacturing clusters across the region make exiting Penang attractive. There is an outflow of investment by Penangites and Malaysians to some of these cheaper regional locations.

At the same time, Penang's early bet to diversify the economy has paid off. Penang has successfully attracted GBS that form part of a larger network of services hubs that includes Kuala Lumpur and Singapore. Along the shores of the Penang Straits, sections of the George Town and Butterworth waterfronts are converted into leading GBS facilities.



With support from the Penang state government, MNCs collaborate to establish a school of digital technology, communications and media. Combined with financial incentives for IR 4.0 tech embedded GBS centres, Penang attracts GBS in selected key industries such as financial services, healthcare, automotive and retail. GDP growth saw a sharp dip in the early years but rebounded and has continued to maintain a respectable growth rate.

Penang Develops a Vibrant Services Ecosystem

As the state transitions from manufacturing to services, a large proportion of the workforce needs to be reskilled to thrive in GBS and technology industries that are highly automated. Employees with end-to-end knowledge of processes (e.g. finance, supply chain) have transferable expertise requiring only minimal reskilling. To encourage retraining, the state government sets up an endowment fund in collaboration with industry and academia to promote learning through innovative methods such as digital skills-based learning and project-based hackathon formats.

Penang develops a two-pronged approach to drive its digital agenda: first, incentivising businesses to engage local start-ups to develop and implement digital tech and second, developing an automated and hybrid workforce. Growth of international client prospects in Penang encourage entrepreneurs to operate start-ups out of Penang. Collaborations between GBS and start-ups jumpstart digitalisation and present opportunities for new business models, e.g. gig economy, intrapreneurs, joint ventures.

Scenario 3: Global Services Hub

Shift Towards an Automated/Hybrid Workforce

The global push for increased cost efficiency in GBS drives Robotic Process Automation (RPA). To remain competitive, GBS in Penang begin to implement a hybrid workforce, where RPA tackles repetitive and high-volume processes and humans tackle exceptions. During the transition, Penang GBS employees will be maintained to handle exceptional cases and shift towards value-added services. GBS jobs expected to grow in Penang include RPA specialists who will automate, adapt and maintain processes and value-added services like analytics. Penang state has incentivised companies to upskill their employees to avoid the negative consequences of accelerated digitalisation.

GBS employees in the future will no longer spend time on transactional processes and will be free to provide new services. Furthermore, skills and technology will also trickle to local enterprises as they digitalise and automate. New opportunities arise from the existing skills of Penang's workforce, e.g. medical technologists who work remotely to support global frontline healthcare workers and digital health customers.

Penang Becomes a Regional Creative, Cultural, and Recreation Centre

A Creative, Arts, Education and Technology scene emerges in George Town, bringing new life to heritage assets. It becomes known as a vibrant and edgy hub for innovative start-ups complemented by museums and galleries, edutech, artisan and design studios.

New cultural facilities are large enough to showcase the Northern Corridor Economic Region (NCER) and attract regional artists to exhibit their masterpieces. At the same time, heritage godowns and shophouses appeal to young artists who find inspiration in the landscape and from one another. As the centre of tourist activity in the state, they also benefit from ready access to audiences and patrons.

The hollowing out of some of Penang's manufacturing also provides opportunities for the reimagining of factories. Bayan Lepas Free Trade Zone (FTZ) incorporates a new waterfront park, reducing urban stress for residents. It connects to Queensbay forming a linear park to Jerejak Island which is a venue for outdoor recreational activities and high-value tourism and eco-tourism.



Scenario 3: Global Services Hub



Urban Sprawl Consolidates Around The New City Core

A shift to work-from-home models increases demand for smaller or shared offices. Fewer new developments are needed in the next decade, as ex-factories are refurbished as offices and large existing offices are divided into smaller units.

Decreased speculation in the housing market result in fewer luxury developments. The state government directs the market towards landed and high-quality middle-income developments and placemaking projects to raise the living standard of residents.

As such, developments along the Penang Straits transform the waterfronts of George Town and Butterworth into green and blue coastal parks, without alienating existing residents. Penang promotes its own version of the 20-minute city ensuring that home, work and play are within 20-minutes by foot or public transit. This builds local and vibrant communities.

Penang Becomes More Eco-Friendly and Reduces Car Dependency

Steady growth and emerging technologies allow the government to invest in smart city infrastructure and environmental resilience planning. A high number of buildings in Penang achieve Platinum Green Building Index (GBI) rating and set the standards for the rest of the nation.

The state government has successfully mandated the use of energy efficient technologies for new buildings. To reduce reliance on coal powerplants at the national level, the state government incentivises building owners to retrofit existing buildings with rooftop solar and battery storage systems. Technology and production improvements in battery storage systems make retrofitting a financially viable transition. While pollutants and emissions have decreased on a per capita basis, in absolute terms they have either kept constant or increased as the population size and living standards increase.

Penang state uses a combination of high- and low-tech methods to curb CO2 emissions, traffic congestion, and pollution. Smart technologies that can monitor air pollution from cars and powerplants and water pollution along beaches and waterways trigger new innovative interventions. Low-tech methods using nature-based solutions help cool urban areas and reduce energy consumption while planting of mangroves protect coastlines and provide carbon sequestration services.

Penang is globally recognised for its climate adaptation programme to reduce urban heat and flooding and storm surge impact. The abundance of greenery and lower temperatures attract new residents and visitors into urban centres. Penang also invests heavily into transit systems to reduce car-dependency, e.g. dedicated bus lanes, shared ride-hailing, buses, and shared electric vehicles. A fast ferry service connects the new city core, linking George Town and Butterworth. Reduced congestion noticeably improves air pollution.

Scenario 3: Global Services Hub



Growth of Value-Oriented and Experiential Tourism

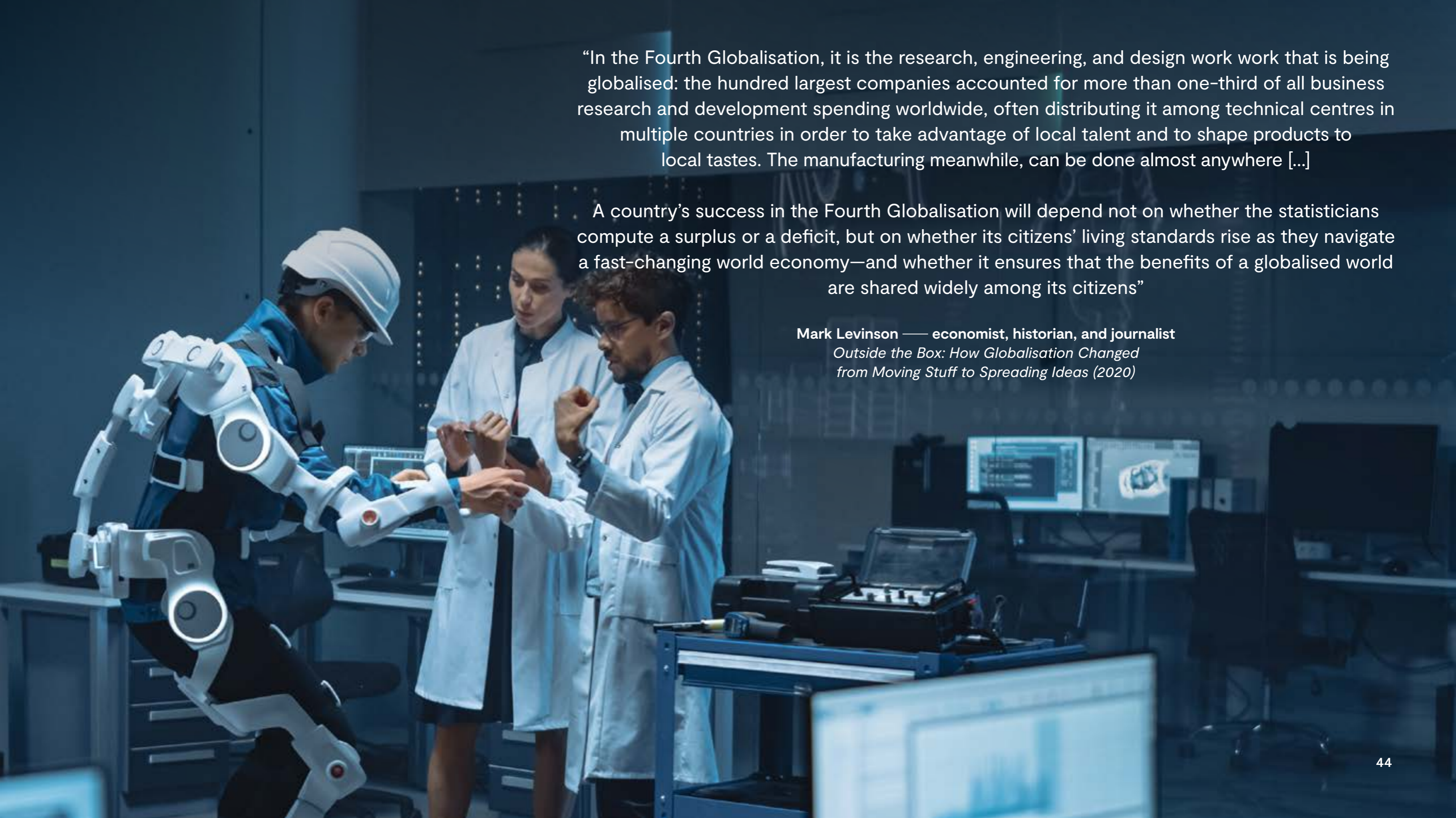
Penang shifts from volume-oriented towards value-oriented tourism by developing a diverse range of appealing offerings in a network of interconnected spaces anchored by the Museum and Gallery Network (MaGNET). This attracts digitally savvy, independent travellers who seek authentic experiences. Traditional large tour groups decline; Penang prepares for this by building the independent traveller ecosystem which harnesses virtual and augmented reality.

There is also an increasing trend of digital nomads who are based in Penang for several months to a year or two while traveling around the region. While immersing themselves in local experiences, these tourists seek “destinations within destinations”—areas off-the-beaten path that provide comfort, privacy and views. Eco-tourists are also attracted to Penang, and spend hours hiking to catch a breath-taking view from Penang Hill or discovering the wonders of mangroves and sighting rare birds in Teluk Ayer Tawar.

“In the Fourth Globalisation, it is the research, engineering, and design work work that is being globalised: the hundred largest companies accounted for more than one-third of all business research and development spending worldwide, often distributing it among technical centres in multiple countries in order to take advantage of local talent and to shape products to local tastes. The manufacturing meanwhile, can be done almost anywhere [...]

A country’s success in the Fourth Globalisation will depend not on whether the statisticians compute a surplus or a deficit, but on whether its citizens’ living standards rise as they navigate a fast-changing world economy—and whether it ensures that the benefits of a globalised world are shared widely among its citizens”

Mark Levinson — economist, historian, and journalist
Outside the Box: How Globalisation Changed from Moving Stuff to Spreading Ideas (2020)



SCENARIO 4: SUFFICIENCY ECONOMY



Scenario 4: Sufficiency Economy

Penang is the model of a resilient economy: self-sufficient agriculture, innovative healthcare services, and a diverse GBS industry supporting a range of multinational corporations. The resilient economy is augmented by medical tourism and high volume domestic visitors. After the exit of key manufacturing players, the government's focus is on food security, sustainability, social cohesion and the circular economy.



Drive Towards Regionalism

The world moves into three self-sufficient trading blocs—Asia-Pacific, Europe and North America. The rise of regionalism heightens global tensions. Shorter supply chains, a general inward shift globally, and rising geopolitical tensions in the region make Malaysia and hence Penang, a less favourable investment destination for some countries. Investment in logistics and expansion shifts to the Philippines, Indonesia, and Cambodia.

Regardless of the differing relations with its neighbours, ASEAN's neutral policy of non-interference sees it continuing to be a strong trading bloc as it further integrates via increased labour movements, capital flows and promotion of regional cultures.

Shift Towards GBS and Urban Farming

The rise of competitiveness in ASEAN countries coupled with shifting geopolitical alignments have impacted the manufacturing sector. New Chinese-centric manufacturing clusters in the Mekong region provide cheaper alternatives to Malaysian manufacturing, despite strong federal and state incentives and infrastructure investment. The exit of some manufacturing firms frees real estate to be adaptively reused for GBS and urban farming. Limited new office space in the city centres are required as Bayan Lepas FTZ factories' large floor plans are leveraged for GBS office spaces.

To increase resiliency against future pandemics and shocks, Penang grows sectors that do not require extensive movement of goods: GBS and digital technology. Financial incentives are placed to attract GBS that implement IR 4.0 technology and upskill local talent.

Scenario 4: Sufficiency Economy



Rise of Urban Farms Builds Food Resilience

Food security becomes a priority and the state successfully attracts private sector investment to integrate digital technology into farming to maintain its edge in livestock and growing key crops that are food staples. Batu Kawan is reimagined as the centre for smart urban agriculture as well as a local logistics and a halal hub. Factories are redesigned as aeroponic vertical farms. Penang opens a biogas plant onsite and utilises wastewater as both a fuel and as fertiliser. Producing food closer to consumption also reduces food-miles, increasing sustainability in Penang's economy.

While Batu Kawan is the brains of smart agriculture, the technology is distributed throughout the state. IoT sensors enabled with AI track crop health and conditions to optimise yield while community composting boosts productivity. Furthermore, online marketplaces built on digital platforms provide new channels for local producers, consumers and food distributors. Penang takes a global leadership role in urban farming. The pockets of green reduce urban stress, while farming strengthens local communities by fostering human interactions. Local farmers' markets become new economic hotspots while there is a rise of traditional and artisanal trades and home-based businesses.

Besides a shift of some of the ex-manufacturing workforce towards the services sector, a number also thrive in the agriculture sector and its digital applications. The Penang government promotes the growth of urban agriculture by marketing it as a path towards economic resilience, providing financial incentives for the unemployed to transition and learn digital and artisanal skills. Research for digital applications is driven by local universities and their partners.

Scenario 4: Sufficiency Economy

Mitigating Urban Stress From Rapid Urbanisation

Reducing pollution and providing equal opportunities are among the state's priorities to ensure a bright future for the next generation. IoT sensors are used to monitor air and water pollutants and Penang leads environmental sustainability by setting a carbon neutral goal. Mangroves are planted and vertical forests are integrated into the city by developers, supported by Penang's carbon neutral incentives. Pollutants and emissions in Penang continue to reduce and regional MNCs locate in Penang to gain carbon neutral status.

Penang acted early and ensured its economic development plan had an ambitious emphasis on upgrading its liveability. Penang took inspiration from Paris and Melbourne and implemented its own version of the 20-minute city. This concept is focused on "living locally" and providing Penangites with the ability to meet most of their daily needs within 20 minutes from their home. There are successes and failures as some developers continue to prefer large car-centric projects instead of compact, transit-oriented, mixed-use developments.

In line with its green agenda and to prevent further traffic congestion, Penang invested heavily in public transit and increasing accessibility between Butterworth and Penang Island. A combination of transit stations with excellent last-mile connectivity including a fast ferry service, ride sharing and micro-mobility vehicles are sufficient to promote walkability and allow convenient and affordable access to all parts of the island. Public transport ridership was initially low; however, as congestion increased and public transit services improved, sentiment changed. Hence, car-dependence is on a decline as citizens live close to work and choose to use public transit and mobility innovations.

Reduced congestion coupled with retrofitted intimate streetscapes give families the sense of safety of a small town. Social policies further develop families by supporting access to food, housing and top educational opportunities. Some families may struggle in the transitioning economy, but are uplifted by Penang's active policies to support them.



Scenario 4: Sufficiency Economy

Inclusive Development and Cultural Integration Grow Penang's Spirit

The exit of some manufacturing businesses caused great distress as it represented significant direct and indirect employment for the state. The state government aimed for inclusive development, attacking multiple fronts such as boosting the economy with incentives for green industries, supporting laid-off workers and youth with financial stimulus to reskill for knowledge jobs, promoting fintech to drive financial inclusivity and innovation, and the development of affordable housing to ensure low- and middle-income groups have quality homes.

While the economic transition is painful, Penangites see the positive effort the state government has placed in “leaving no one behind.” Overall, citizens rebound in the new economy and have a positive outlook—lower housing costs cushion the impact of economic transition. Many find knowledge jobs and continuously learn; some move to other Malaysian cities where lower costs have attracted some manufacturing jobs. Families having trouble with the transition are supported by the state government with a safety net and enablers to increase their resiliency for the future.

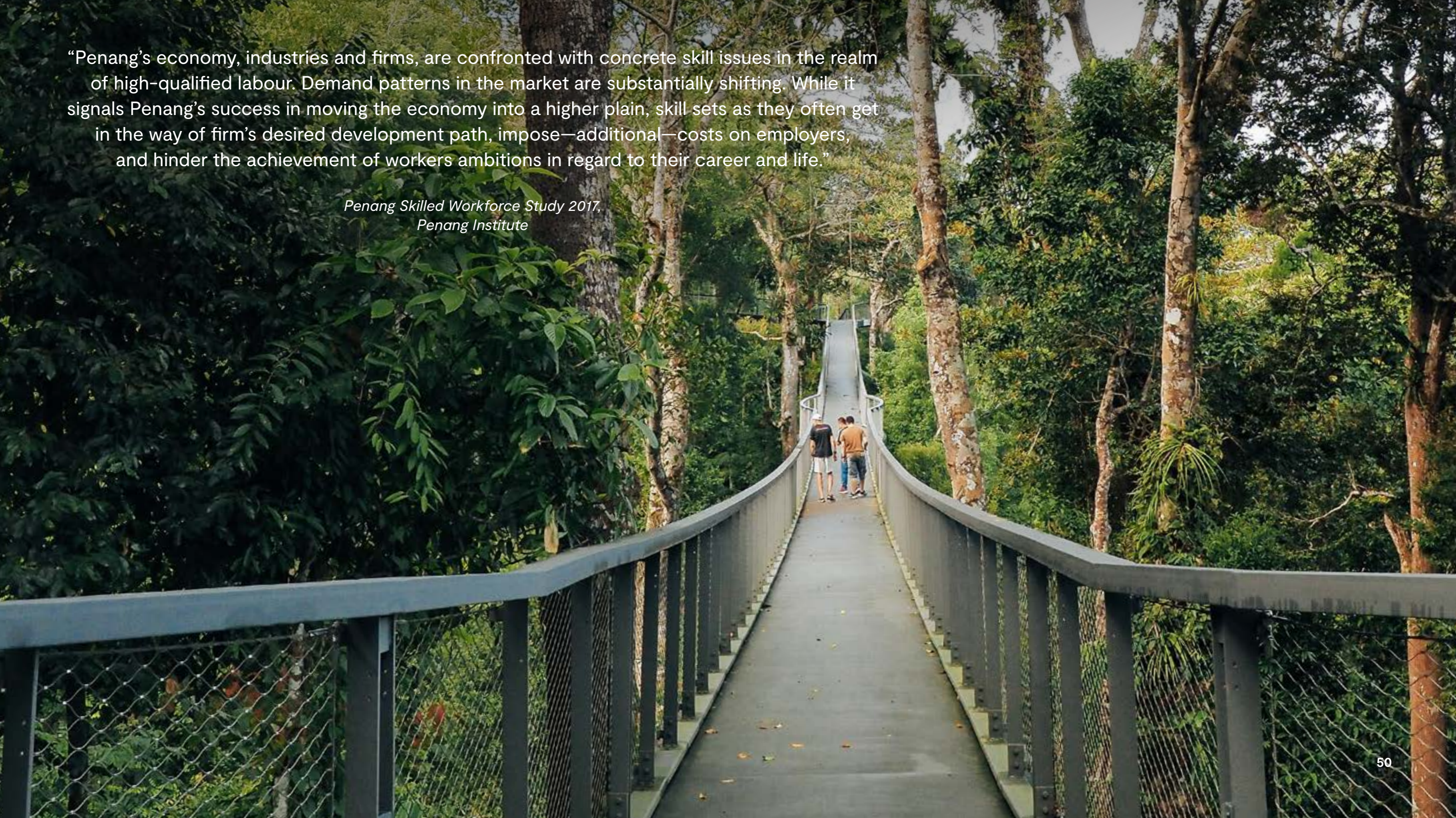


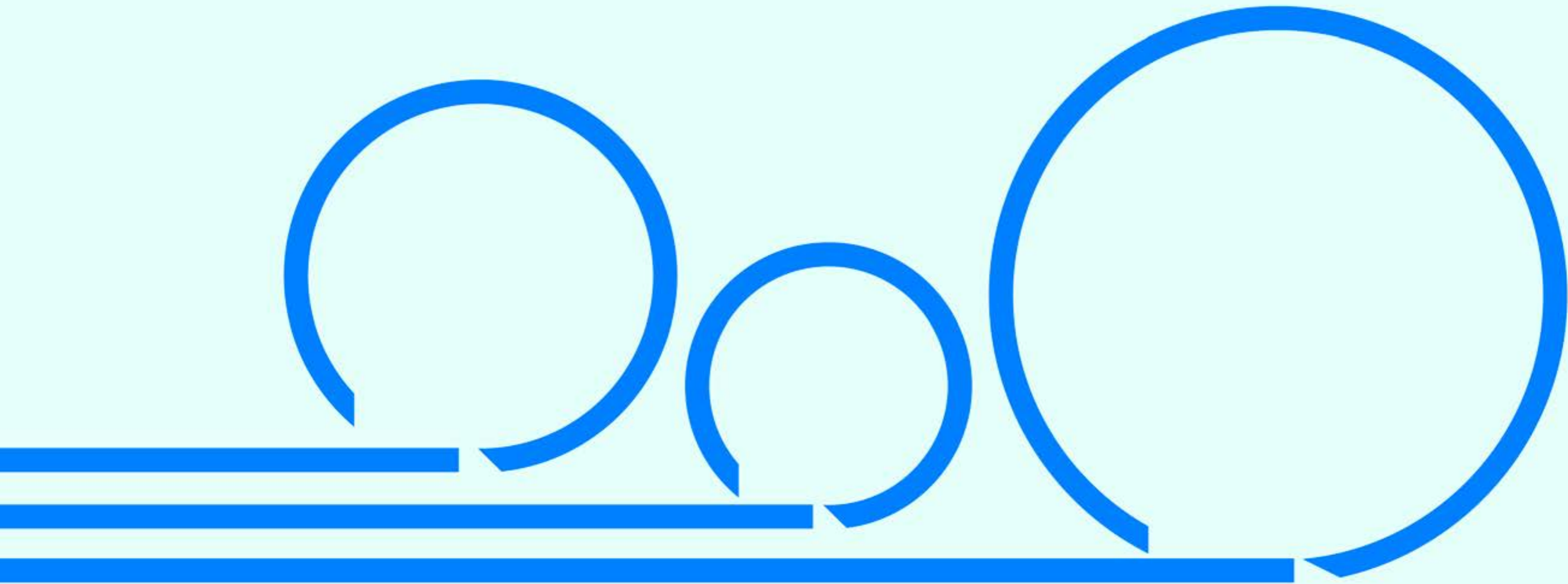
Penang Remains a Centre For Domestic Tourism

There is a strong sense of cultural identity among ASEAN countries, as collaborations in cultural exchange increase. Penang becomes the heart of culture in northern Malaysia, showcasing food, architecture, arts, heritage and crafts. Penang built arts and regional cultural exhibition facilities along the George Town and Butterworth Waterfronts. It is the ambition of aspiring artists in Malaysia and ASEAN to showcase their work in Penang.

“Penang’s economy, industries and firms, are confronted with concrete skill issues in the realm of high-qualified labour. Demand patterns in the market are substantially shifting. While it signals Penang’s success in moving the economy into a higher plain, skill sets as they often get in the way of firm’s desired development path, impose—additional—costs on employers, and hinder the achievement of workers ambitions in regard to their career and life.”

*Penang Skilled Workforce Study 2017,
Penang Institute*

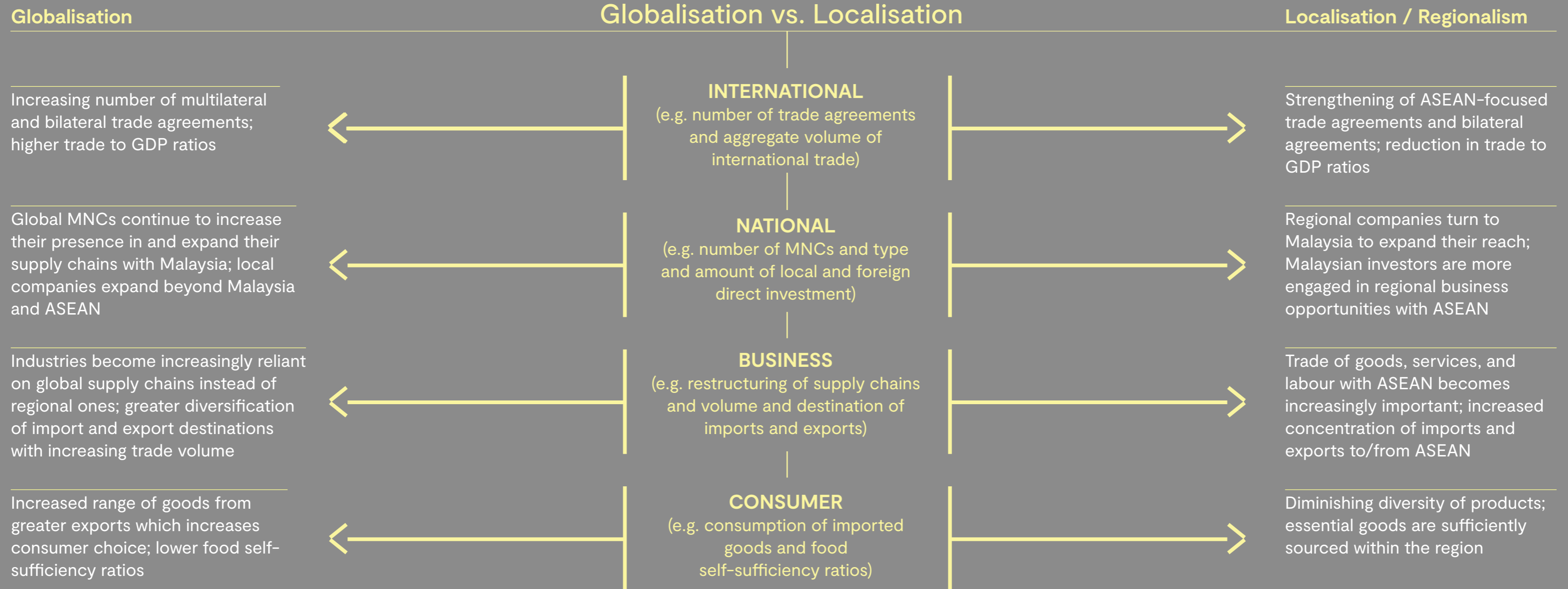




**SIGNPOSTS TOWARDS
THE FUTURE**

Although characteristics from more than one scenario may occur, it is imperative to identify the direction of scenarios as the future unfolds. Below are several leading indicators that can help determine which scenario is more likely to be realised. This is accomplished by assessing which direction each axis is heading.

Sign Posts: Globalisation vs. Localisation/Regionalism



Sign Posts: Pressure to Move Down vs. Opportunities to Move Up The Manufacturing Value Chain

Downward pressure on value chain

Shifting Economic Capabilities Within ASEAN

Drive to move up the value chain

Falling ECI ranking as Malaysia lags behind competitors who are actively innovating and moving up the value chain



ECONOMIC COMPLEXITY
(e.g. Economic Complexity Index (ECI) as a measure of diversity and sophistication of a country's productive capabilities)



Improving ECI ranking as Malaysia's economic complexity increases due to increased skills, technology, and know-how

Number of Malaysian authors listed in scientific publications remains stagnant or declines; patents per capita are lower than peers; innovation rankings decline; lower R&D investment



INNOVATION AND R&D
(e.g. Global Innovation Index (GII); R&D investment and number of patents)



Number of Malaysian authors listed in scientific publications grows; patents per capita is higher than peers; innovation rankings improve; higher R&D investment

Low ranking of universities in Malaysia versus competitors; reduced inflow of foreign skilled talent, loss of local skilled talent, and brain drain; performance in human capital indices declines



TALENT
(e.g. Global Talent Competitiveness Index (GTCI) looking at growth, attraction, and retention indicators of talent)



Ranking of universities in Malaysia improves versus competitors; increased inflow of foreign skilled talent, retention of local skilled talent, and brain gain; performance in human capital indices improve

Declining performance as measured by ease of doing business and governance; only able to attract low-value and low-skilled businesses and investment

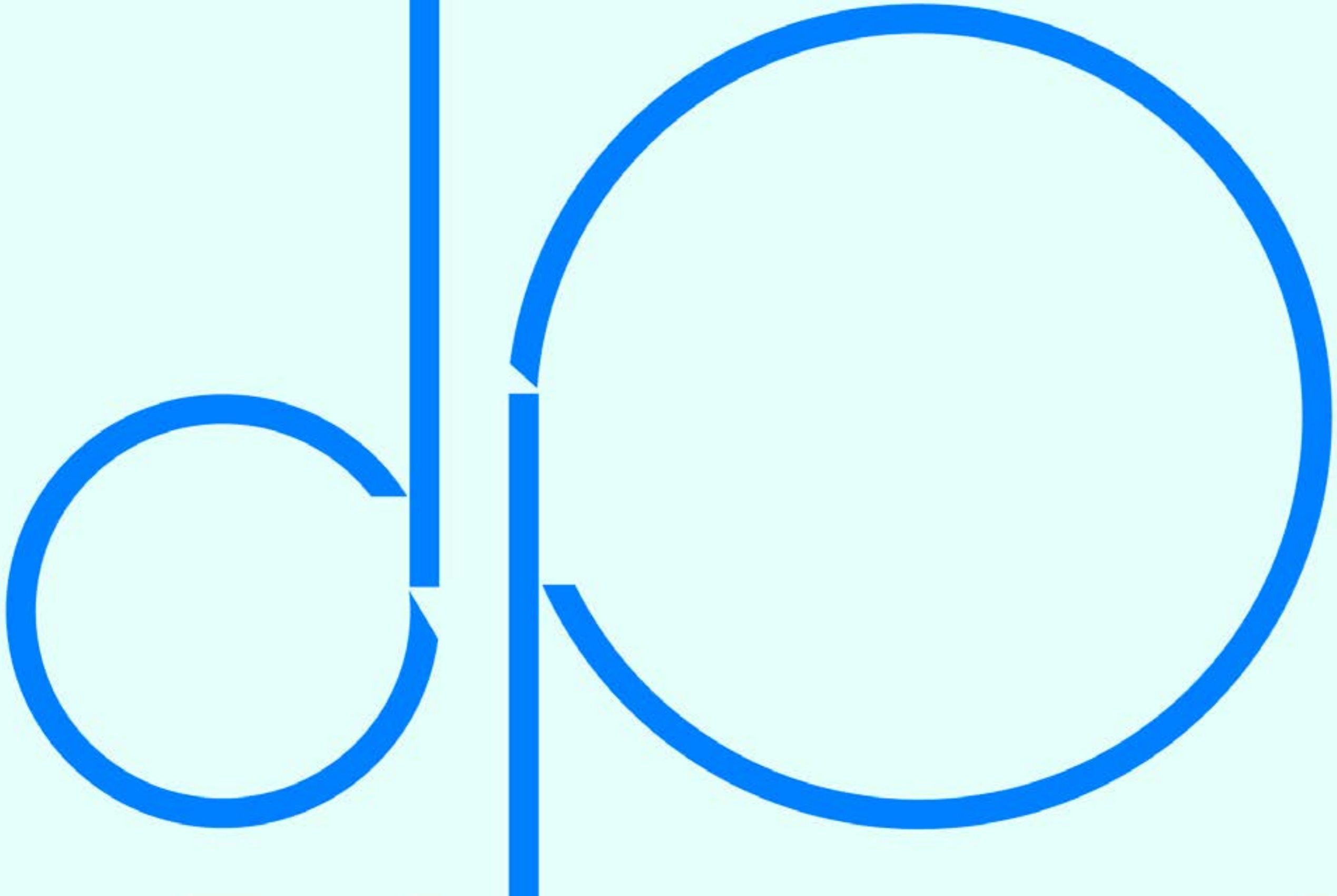


INFRASTRUCTURE AND ENABLERS
(e.g. Ease of doing Business Index and other indicators of strength and quality of institutions and governance)



Improving performance as measured by ease of doing business and governance; success in attracting new high-value and high-skilled businesses and investment

**CONCLUDING REMARKS
& RECOMMENDATIONS**



While the adage that the only certainty is uncertainty rings true, the identified scenarios chart four possible directions for the future of Penang's economy. To help Penang shape its own path moving forward, we propose eight recommendations consisting of three big bets and five general principles to hedge the bets. These recommendations are not meant to be prescriptive but are suggestions to future-proof Penang's economy in line with the Penang2030 vision.



Big Bets

1. Invest in achieving a Green New Deal for Penang

Stimulate economic development by addressing climate change through a Green New Deal. There is an opportunity to build back better by investing in the green economy and “sunrise” industries of the future. In the private sector, focus has shifted away from a belief that the only responsibility of business is to increase shareholder profits, towards ensuring longer-term stakeholder value. This is reflected in businesses going beyond corporate social responsibility efforts and addressing corporate ESG (environment, social and governance) priorities. The Green New Deal should outline a plan to ensure that Penang can seize opportunities in new industries that seek to address climate change and its impacts.

2. Double down on reinforcing existing strengths

Penang’s twin economic engines are manufacturing and tourism. In the next ten years, these two sectors would very likely remain important contributors to the economy. For manufacturing, the global restructuring of supply chains present a golden opportunity that is favourable to Penang. While tourism has been significantly impacted by the pandemic, it has highlighted the need for Penang to shift from low value to higher value and more sustainable tourism. Existing strengths should be reinforced, while supporting enablers such be upgraded. For example, logistic bottlenecks should be addressed, bureaucratic procedures should be streamlined, and the availability of highly skilled multilingual talent should be increased. The resiliency of existing tourism assets such as Penang Hill, the George Town World Heritage Site and the creative and cultural ecosystem is also important. If existing strengths can be reinforced, Penang should be well positioned to move up the value chain.



3. Increase Penang’s chances of winning by enabling an innovation hub

Research on successful innovation and tech hubs has identified several factors that are required. The presence of an anchor organisation (e.g. a university or major company); the existence of an environment and ecosystem that can benefit from inter- and intra-industry knowledge spillovers that allow rapid diffusion across the ecosystem; deep and high-velocity labour markets that allow skilled workers to quickly start, join, or leave firms; sufficient supply of industry-specific resources such as relevant hard and soft infrastructure, an excellent social environment; and some good luck. While the last factor cannot be ensured, the Penang Bay and the George Town Creative & Tech Precinct projects could address the other factors and would form an ideal foundation for the nurturing of a successful innovation hub.

General Principles to Hedge The Bets

1. Play the trump card by increasing Penang's attractiveness as a highly liveable state

Increasing the quality of life in Penang would attract new local and foreign talent while retaining existing Penangites. While Penang today is a relatively family-friendly and liveable state, there are many opportunities for improvement. These include increasing the quality and availability of the public realm and amenities, upgrading public transport especially last-mile connectivity, increasing the supply of well-located quality low and medium cost housing, and adapting and mitigating the effects of climate change through nature-based solutions. Additionally, the concept of the 20-minute neighbourhood where people are able to meet most of their daily needs within a 20-minute journey is also key.

2. Stay in the game by promoting digitalisation of government, business and society

The pandemic has highlighted the importance of digitalisation. Those who have failed to embrace digital technology have been at a great disadvantage. An important first step is upgrading the digital infrastructure of Penang state and adopting and adapting new technologies in partnership with leading players. A decent internet connection should be seen as a basic utility. Greater investment in e-government and upgrading citizens' digital skills is also required. Improving the collection, analytics, and use of data would enable better decisions to be made by government, businesses, communities, and individuals.

3. Maintain competitiveness through supporting industry-academia collaboration and talent development

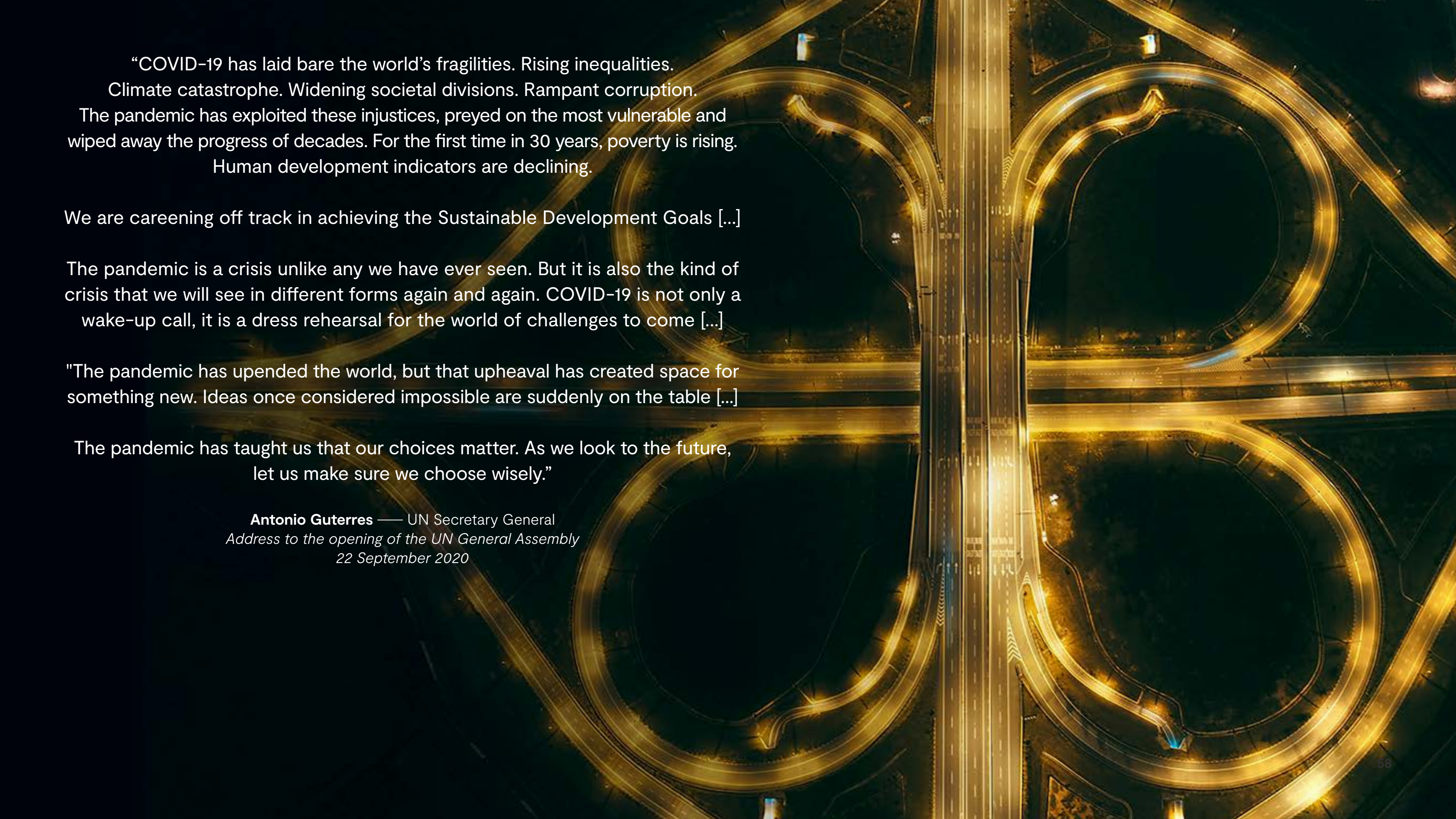
Penang's lead today as a state with innovative enterprises and a highly skilled population cannot be maintained without continuous effort. While organisations such as PSDC and CREST should be lauded, there are untapped opportunities for greater industry and academia collaboration in research and development. Successful commercialisation of R&D is also needed to reap tangible benefits. The development of talent in growing skills of the future and encouraging new modes of learning and sharing knowledge is vital. The state government should play an even greater role in catalysing and encouraging industry-academia collaboration by introducing specific policies and incentives. The additional benefit is that this would send a signal to leading local and global universities and businesses, making Penang a serious contender for collaboration.

4. Strengthen Penang's hand by reinforcing vulnerable communities and addressing inequalities

A chain is only as strong as its weakest link. To ensure that Penang is truly resilient, vulnerable communities should be amply supported when they are down and provided opportunities to improve their situation. For example, greater social protection is required for workers in sunset industries and the unemployed to enable them to retrain and upskill, where possible. The needs and concerns of low-income communities, women, children, the elderly, the differently abled and other disenfranchised groups should be heard. Community development programmes such as urban farming can promote greater resilience. Finally, the implications of Penang becoming an ageing society should be understood to identify suitable initiatives.

5. Up the ante by elevating Penang's global positioning

New strategies should be considered to elevate and promote Penang's brand positioning globally. Soft diplomacy can go a long way—witness the Korean Wave where South Korean culture and entertainment has dominated not only its Asian neighbours but has also made a significant impact in the US and Europe. Penang is already a popular investment and tourism destination for many countries but new untapped markets are constantly emerging. Besides increasing promotion efforts to new and existing markets, the Penang state government can expand city-to-city interactions, increase engagement with other subnational governments, and tap into the networks of the Penang diaspora.



“COVID-19 has laid bare the world’s fragilities. Rising inequalities.
Climate catastrophe. Widening societal divisions. Rampant corruption.
The pandemic has exploited these injustices, preyed on the most vulnerable and
wiped away the progress of decades. For the first time in 30 years, poverty is rising.
Human development indicators are declining.

We are careening off track in achieving the Sustainable Development Goals [...]

The pandemic is a crisis unlike any we have ever seen. But it is also the kind of
crisis that we will see in different forms again and again. COVID-19 is not only a
wake-up call, it is a dress rehearsal for the world of challenges to come [...]

"The pandemic has upended the world, but that upheaval has created space for
something new. Ideas once considered impossible are suddenly on the table [...]

The pandemic has taught us that our choices matter. As we look to the future,
let us make sure we choose wisely.”

Antonio Guterres — UN Secretary General
*Address to the opening of the UN General Assembly
22 September 2020*

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