



The International Maritime Transport and Logistics Conference
Towards Global Competitiveness in Maritime Industry



“INVESTING IN PORTS”
The Trends, The Future



HUMAN CAPITAL – TOWARD ENSURING PORT SUSTAINABILITY

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Content:

- A Snapshot of ASEAN
- ASEAN Economy & Trade
- SEA Region & Maritime Importance
- Malaysia & Maritime Transport
- Challenges – Port & Human Capital
- Future Landscape
- Rethinking Education Systems



A Snapshot of ASEAN

The Association of Southeast Asian Nations (ASEAN) was established on 08 August 1967 in Bangkok, Thailand, with the signing of the ASEAN Declaration.

In 2017, ASEAN celebrated its 50th anniversary of establishment (1967-2017). From five founding Member States in 1967 to ten now, ASEAN's economy has expanded over 100-fold since its establishment.



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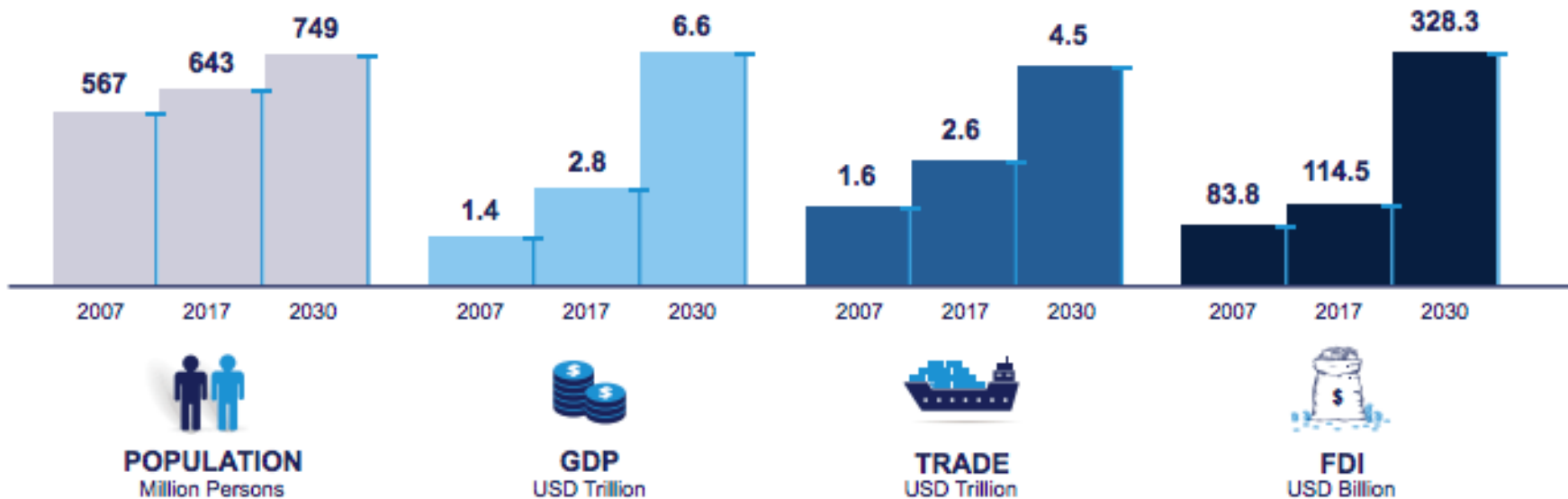


ASEAN Economy



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ASEAN ECONOMIC PERFORMANCE



ASEAN Trade

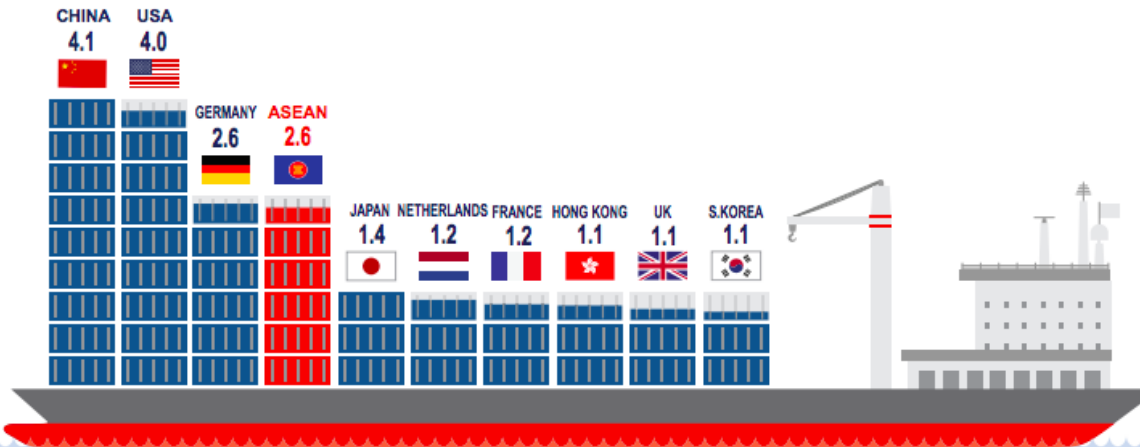


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2017 TOTAL TRADE: TOP 10 RANKING IN THE WORLD USD Trillion



The ASEAN community is strategically located within one of the world's fastest growing trade and economic territories.

Growth in ASEAN will be driven by manufacturing, infrastructure development, natural resources & commodities growth and high levels of direct investment (both foreign & domestic).



INTRA-ASEAN TRADE

Intra-ASEAN trade increased by 47% to USD 543 billion in 2017 from USD 369 billion in 2007.



ASEAN TRADE WITH UNITED STATES

Share of US in ASEAN's total trade fell to 9.9% in 2017 from 11.7% in 2007.



ASEAN TRADE WITH THE WORLD

ASEAN's total trade with the world soared 61% to USD 2.6 trillion in 2017 from USD 1.6 trillion in 2007.



ASEAN TRADE WITH CHINA

Share of China in ASEAN's total trade jumped to 18.7% in 2017 from 12.5% in 2007.

**THIS WILL DRIVE
INCOME GROWTH AND
HENCE CONSUMPTION
GROWTH.**

SEA Region & Maritime Importance



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- The seas play a pivotal role in shaping the history and charting the destiny of countries and the people in ASEAN.
- Why the seas of Southeast Asia are important?
 - Trade routes
 - Ecosystem and habitats
 - Sources of fisheries
 - Marine biodiversity
 - Hydrocarbon

SEA Region & Maritime Importance



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ASEAN Shipping Lanes and the Main Sea Ports

The major shipping routes through and within the region and the high ranking of the region's ports exemplifies the ASEAN nations prominent position within the global trade network.

Port	Country	Container Handling (Million TEUs)	World Ranking
Singapore	Singapore	30.90	2
Port Klang	Malaysia	13.17	11
Port of Tanjung Pelepas	Malaysia	8.28	19
Laem Chabang	Thailand	7.22	20
Saigon	Vietnam	5.98	24
Tanjung Priok	Indonesia	5.98	27
Manila	Philippines	4.52	32
Tanjung Perak	Indonesia	3.35	43

SEA Region & Maritime Importance



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- SEA region's maritime scene is incredibly dynamic as structural adjustments in the liner shipping sector and shifts in the economic make-up of the region continue to evolve.

- Consolidation and the formation of **larger and more powerful alliances**.
- Continuing **influx of mega-vessels** and consequent requirement for upgrades to infrastructure and equipment.
- **Expansion of export** manufacturing sectors in the region, particularly Vietnam and Myanmar.
- **Growing China's geopolitical, security and economic influence** in the South China Sea and ongoing but slow development of facilities there and on the strategic Malacca Strait.

Factors Driving Changes in SEA's Maritime Scene

Shipping Alliance – A New Trend

Dominance at Sea

Three shipping alliances move about 95% of all cargo on the world's oceans. Market share, by alliance, of shipping capacity in benchmark routes

Asia to North America route



Asia to Europe route



Alliance members

Maersk Line
MSC

CMA CGM
Cosco
Evergreen
OOCL

Hapag-Lloyd/UASC
K Line
MOL
NYK Line
Yang Ming Line

- The major shipping lines and their respective strategic alliances have come to realize that the dynamic ASEAN must be given special attention considering its huge economic potential and therefore its shipping demand.
- It is no wonder that shipping lines servicing this sector has gone into the **next phase of strategic alliances**.
- These alliances will better serve the ASEAN sectors as it seems that there is now **less competition and more synergistic effort** among the individual shipping lines, which certainly reduces cutthroat competition.

Investment in SEA's Ports

Port developments in South-east Asia



STRAITS TIMES GRAPHICS

RISING PORT AMBITIONS IN SOUTH-EAST ASIA

- Potential offered is large and expanded market is encouraging major terminals in SEA to compete intensively.
- Expected new container-handling capacity of over **100 million TEUs** along the Straits of Malacca by 2040.
- Countries in the region take on or plan for a range of large-scale port infrastructure projects that will cater for domestic as well as transshipment business in the region.
 - **Singapore** - expansion of the Pasir Panjang terminal to cater for **50 million TEUs** and ultimate relocation to Tuas mega port in 2040 with a capacity of 65 million TEUs.
 - **Malaysia** - development of **Carey Island port-industrial city** project beside Port Klang worth ~ USD50 billion, adding another **30 million TEUs** to Port Klang's existing capacity.
 - **Indonesia** - investments of ~ USD55 billion to develop **24 major seaports** and up to 1000 smaller freight-handling centres.

China's One Belt One Road

Reviving the Silk Road

Announced by Chinese President Xi Jinping in 2013, the Silk Road initiative, also known as China's Belt and Road initiative, aims to invest in infrastructure projects including railways and power grids in central, west and southern Asia, as well as Africa and Europe.



Source: Mercator Institute for China Studies.

- SEA region is seen as the pivot of China's multi-billion dollar Belt and Road Initiative.
- Future expansion and improvement in port infrastructure, hinterland and connectivity will have to be in synchronization with the concept of 'One-Belt-One Road' to increase efficient movement of cargo in the global supply chain network.

Malaysia & Maritime Transport



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Maritime is a
Significant
Contributor to the
Malaysian
Economy

2018

RM1.89
trillion (total trade)

98.4%
carried by sea

West Malaysia's Maritime Corridor



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- Malaysia's maritime corridors are central to its multimodal transport grid and **integrated linkages** have been developed with other transport modes i.e. road, rail and air.
- Two of our ports, the **Port Klang (11th)** and **Port of Tanjung Pelepas (19th)** are now among the top 20 busiest container ports in terms of throughput handled, while our **MISC** is a shipping company which ply the ocean of the world.
- Port Klang is the **national load centre** while Port of Tanjung Pelepas is the **southern transshipment hub**. Penang Port serves the **northern industrial hinterland**.

Malaysia Shipping Masterplan

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- The Malaysian government is committed to strengthen Malaysia's position in the maritime domain with its shipping and integrated logistics sector playing a critical role in the overall development of the nation.
- It is interesting to note that the **Malaysia Shipping Master Plan (2017-2022)** is the result of extensive industry consultation.
- Designed to restore conditions that will enable the Malaysian shipping industry to achieve full self-sustainability.

Malaysia Shipping Masterplan



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MSMP Strategies & Objectives

Introduce sustainable measures to remove competitive disparities and improve capabilities of Malaysians

- It is expected that the Malaysia Shipping Master Plan (MSMP) would help provide the Malaysian shipping industry a level playing field to compete successfully in domestic and regional markets.
- Positive outcomes include:
 - **Reduction of balance of payment deficit** attributed to shipping;
 - Enhanced creation of **employment opportunities** and revenue for Malaysia;
 - **Improved transport security** for Malaysian trade, and **maritime connectivity**.



Promote employment of Malaysian ships



Promote employment of Malaysian seafarers



Facilitate access to capital & financing



Promote innovation & sustainable growth of maritime ancillary services



Enhance Malaysia's attractiveness to shipping business

National Shipping & Port Council



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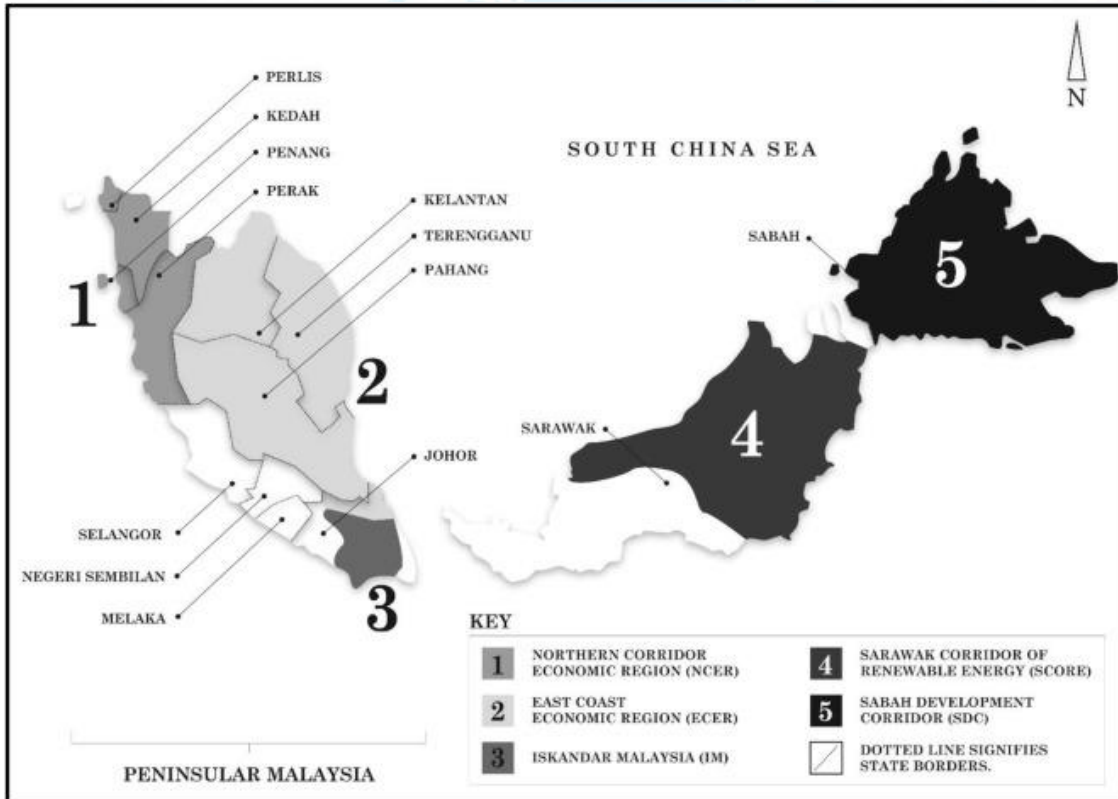
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- **A National Shipping and Port Council (NSPC)** was also established as a key component towards realising the Malaysia Shipping Master Plan with its members tasked to develop and implement action plans for each of the Malaysia Shipping Master Plan's focus areas.
- Although long overdue, the NSPC is envisioned to spearhead a systematic effort in providing inputs for policy decision-making to improve not just the Malaysian shipping sector but also enhancing the **competitiveness and productivity of Malaysian ports.**

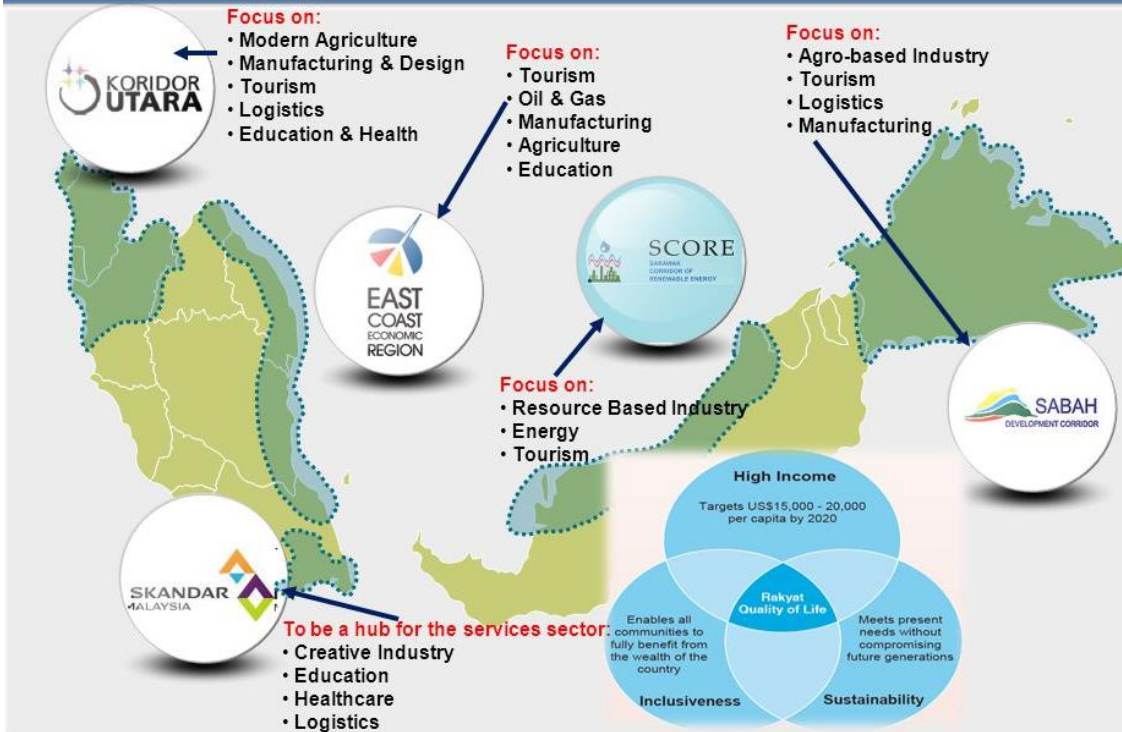
Malaysian Ports & Hinterland



- In port industry, the importance of hinterland must be given proper attention.
- Our experience shows that port sustainability rest greatly on the strong development and relationship with the hinterland.
- In this respect, Malaysia's economic plans also include the development of various industrial/economic corridors to create supportive hinterlands for our ports.

Malaysian Economic Corridors

ECONOMIC CORRIDORS



- The idea of corridor development as a vehicle for achieving balanced growth was first mooted in the Ninth Malaysia Plan (2006–2010) and launched in 2006.
- The five economic corridors envelop **almost 70% of the country's landmass**.
- In the southern part of Peninsular Malaysia, the Government is actively developing a **land mass of 2,217 sq km** which is earmarked for industrial and commercial areas and will be fully ready by 2045 (known as Iskandar Malaysia).

Iskandar Malaysia



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- The largest single development project ever to be undertaken in the region.
 - **3 times the size of Singapore**
 - **1.4 million population**
- Iskandar Malaysia is flanked by 3 major ports; Johor Port, Port of Tanjung Pelepas and Tanjung Langsat Port.
- Revitalizing the industrial and commercial activities will certainly boost the internal trade.



Investment Update 2018

2006 to Sept'18



PRIME MINISTER'S DEPARTMENT
All in RM' Billion

272.9b

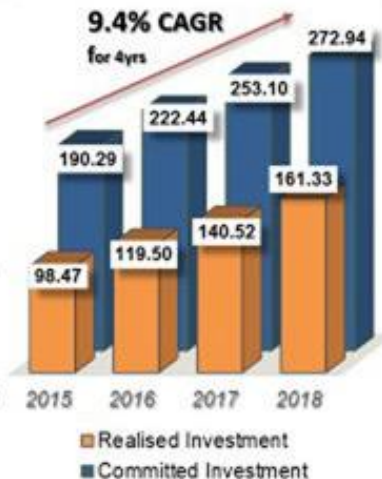
Cumulative Investment
as at Sept'18

59%

Cumulative RI/CI

Committed investment in 2018,
RM19.8b

Realized investment in 2018,
RM20.8b



60% : 40%
Domestic : Foreign

Promoted Sector	RM' Bil	Other Sector	RM' Bil
Manufacturing	62.74	Mixed Development	86.56
Logistics	7.36	Residential Properties	50.41
Tourism	7.43	Industrial Properties	20.92
Healthcare	4.41	Utilities	12.97
Education	3.29	Government	10.67
Finance	2.09	Emerging Technologies	2.94
Creative	1.13		
	(32%) 88.45	(68%) 184.47	

Iskandar Malaysia



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- **ISKANDAR MALAYSIA** in Johor is anticipated to generate **1.3 BILLION** tonnes of cargo or about **60 MILLION** TEUs by 2045.
- The growth in cargo will require **45 KM** of berth length by 2045.
- “Southern Logistic Corridor” of West Malaysia.



Challenges – Port & Human Capital



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- Despite its economic growth, Malaysia, like other ASEAN countries, is hardly ready to elevate its business strategy for future growth with an acute scarcity of quality workers plaguing the region.
 - Rapid changes in technology – mismatch between what industry requires and what education provides.
 - Young and less experience population – median age of working population is less than 30.
 - “Brain drain”
- Increasing necessity to develop multiskilled workforce with the ability to take on higher value-added jobs and more complex roles.
 - Future global transportation and supply chains will be disrupted by digitalisation.
 - Processes are automated and systems are made more intelligent.



Port of the Future



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- A survey by UK Major Ports Group found the followings to be the trends that could shape the port of the future:
 - **Physical** – port as hub for wider economic activity (logistics, manufacturing), continued evolution of physical assets, hinterland and connectivity
 - **Augmentation and automation** – remotely operated equipment, autonomous operations, operators as supervisors & technology users
 - **Digital** – port as data platform, providing tracking data, blockchain and “smart contract”, cybersecurity
 - **Sustainable** – electrification of processes and plant & equipment, reducing emission and improving air quality



Human Dimension - Future

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- Ports should be seen as “socio-technical” systems.
- In practice, operations in port terminals are carried out by a partnership between human beings and technology.
- Technological advances/disruptive changes will bring about not only challenges but also opportunities:
 - **Safer jobs** – less man/machine interface, height, confined space
 - **Different jobs** – data services
 - **Better jobs** – more skilled, new skills
 - **Balance** – increased gender diversity
 - **Continuity** – port will remain significant sources and catalysts of employment

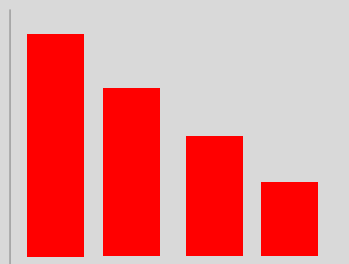


Challenges – Port & Human Capital



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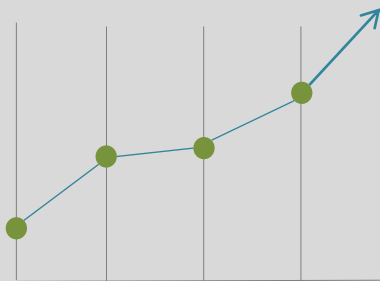
By 2020, around the world there will be a:



SHORTAGE

of highly skilled workers

-40 MILLION



SURPLUS

of low-skilled workers

+95 MILLION

- There will be **shortage of skilled workers** all around the world by 2020.
- According to the International Labour Organisation, skilled workers are defined as those with at least **diploma qualification**.
- The rate of change—both technological and economic—is exponential, **widening the gap** between the labour market and education.

Challenges – Port & Human Capital



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GLOBAL WORKFORCE CRISIS

		Labor shortage/surplus in 2020	Labor shortage/surplus in 2030
EUROPE	FRANCE	6%	-1%
	GERMANY	-4%	-23%
	ITALY	8%	-4%
	SPAIN	17%	-3%
	UK	6%	-1%
	RUSSIA	-5%	-24%
AMERICAS	BRAZIL	-7%	-33%
	CANADA	3%	-11%
	MEXICO	6%	-8%
	USA	10%	4%
ASIA-PACIFIC	CHINA	7%	-3%
	INDIA	6%	1%
	INDONESIA	5%	0%
	JAPAN	3%	-2%
	SOUTH KOREA	-6%	-26%

- Overall, by 2020, many countries will still be experiencing a surplus.
- By 2030, however, this surplus will have turned into a **massive shortfall**.

Challenges – Port & Human Capital



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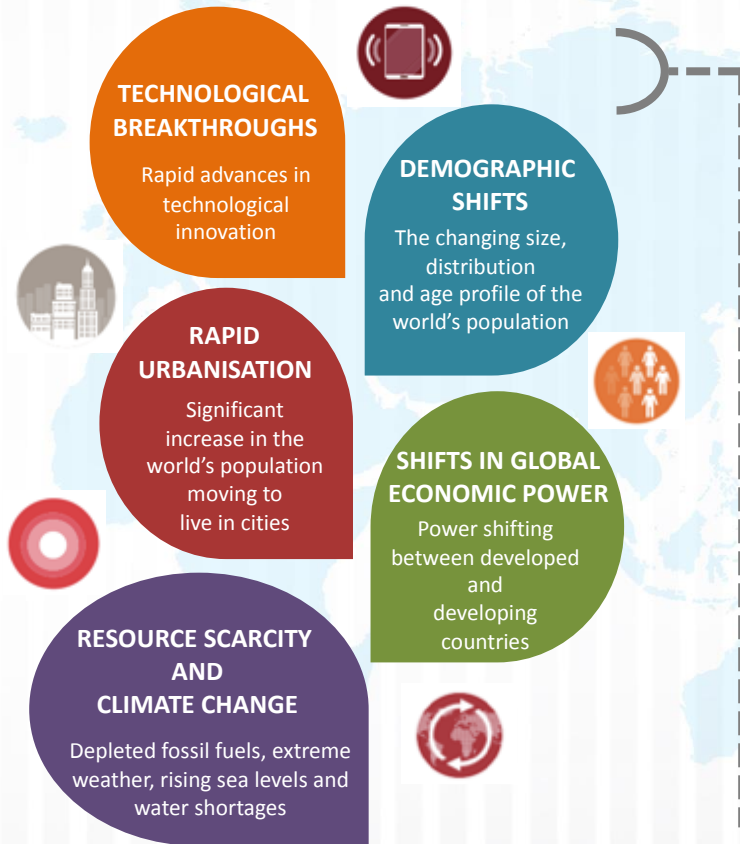


- Trends across 25 major economies shows that between 2020 and 2030, there will be significant worldwide labor-force imbalances—shortfalls, in particular.
- 10 trillion dollars of potential aggregate GDP is at risk of loss.
- The shortage of labor hampers economic growth. it creates wage inflation, leaves vacancies open, and impedes business formation and development.

Future Landscape



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- Talent professionals today work in a **dynamic and ever changing environment** - one of Volatility, Uncertainty, Complexity and Ambiguity.
- The **accelerating pace of technological, demographic and socio-economic disruption** is transforming industries and business models, changing the skills that employers need.

**THE FORCES SHAPING
THE FUTURE**

Future Landscape



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Trends set to impact business growth positively/negatively up to 2022, top ten

Trends set to positively impact business growth up to 2022

- Increasing adoption of new technology
- Increasing availability of big data
- Advances in mobile internet
- Advances in artificial intelligence
- Advances in cloud technology
- Shifts in national economic growth
- Expansion of affluence in developing economies
- Expansion of education
- Advances in new energy supplies and technologies
- Expansion of the middle classes

Trends set to negatively impact business growth up to 2022

- Increasing protectionism
- Increase of cyber threats
- Shifts in government policy
- Effects of climate change
- Increasingly ageing societies
- Shifts in legislation on talent migration
- Shifts in national economic growth
- Shifts of mindset among the new generation
- Shifts in global macroeconomic growth
- Advances in artificial intelligence

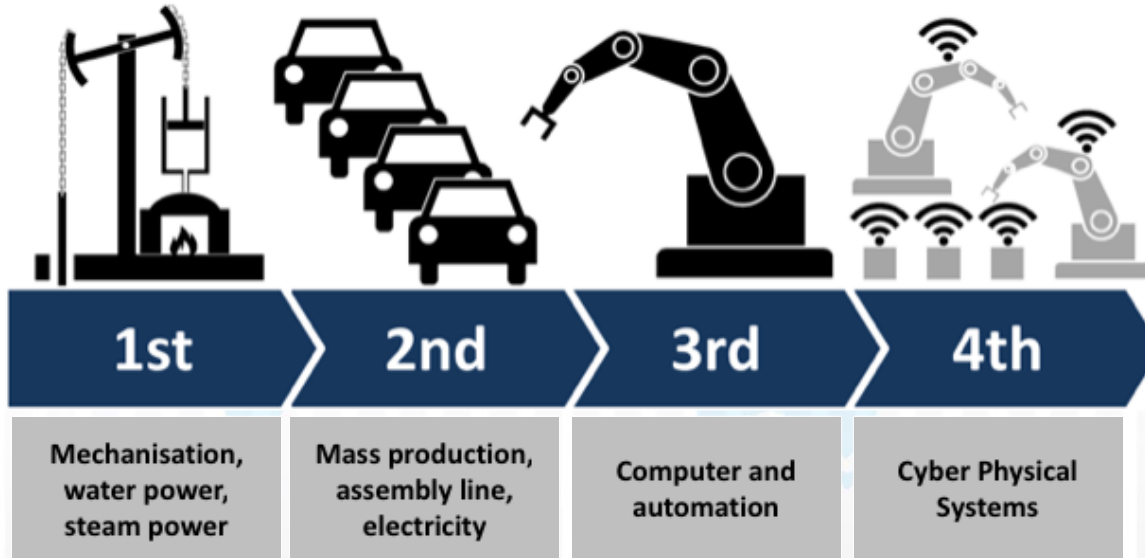
Source: Future of Jobs Survey 2018, World Economic Forum.

The Future – IR4.0



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Technological Breakthroughs – Industrial Revolution 4.0 **ARE WE READY?**



- By 2020, the Fourth Industrial Revolution will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics.
- These developments will transform the way we live, and the way we work.
- Some jobs will disappear, others will grow and jobs that don't even exist today will become commonplace.

Talent Strategy – Long-term Focus



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RETHINKING
EDUCATION
SYSTEMS

ENCULTURING
LIFELONG
LEARNING

- By one popular estimate 65% of children entering primary schools today will ultimately work in **new job types and functions** that currently don't yet exist.
- Five years from now, over one-third of skills (35%) that are considered important in today's workforce will have changed.
- Technological trends such as the Fourth Industrial Revolution will create many **new cross-functional roles** for which employees will need not just technical but also social and analytical skills.

Important Skills for the Future



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Comparing skills demand, 2018 vs. 2022, top ten

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Analytical thinking and innovation	Manual dexterity, endurance and precision
Complex problem-solving	Active learning and learning strategies	Memory, verbal, auditory and spatial abilities
Critical thinking and analysis	Creativity, originality and initiative	Management of financial, material resources
Active learning and learning strategies	Technology design and programming	Technology installation and maintenance
Creativity, originality and initiative	Critical thinking and analysis	Reading, writing, math and active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership and social influence	Quality control and safety awareness
Reasoning, problem-solving and ideation	Emotional intelligence	Coordination and time management
Leadership and social influence	Reasoning, problem-solving and ideation	Visual, auditory and speech abilities
Coordination and time management	Systems analysis and evaluation	Technology use, monitoring and control

Source: Future of Jobs Survey 2018, World Economic Forum.

- Continued fall in demand for **manual skills and physical abilities**.
- Skills continuing to grow in prominence by 2022 include **analytical thinking and innovation** as well as **active learning and learning strategies**.



DESIRED ATTRIBUTES



Analytical – Enjoys analysing things from all angles and thinking of ways to solve problems



Decisive – Takes appropriate action after studying potential outcomes in unique scenarios



Meticulous – Pays attention to fine details and accuracy



Resilience – Highly adaptive to handle transformative changes



Team player – Understands that each person is part of a larger team working together to bring about success

SKILLS IN DEMAND



Automation Skills – Acquire Systems Engineering skills to play a part in new port technologies and automation efforts



Data Analytics and Cyber Security Skills – Generate business insights and upkeep cyber security of the fleet and automated systems



Green Shipping Skills – Keep abreast of new developments in green shipping



Transdisciplinary Skills – Make connections across disciplines to solve complex problems



Leadership and Management Skills – Acquire leadership and management skills to grow Singapore as an International Maritime Centre



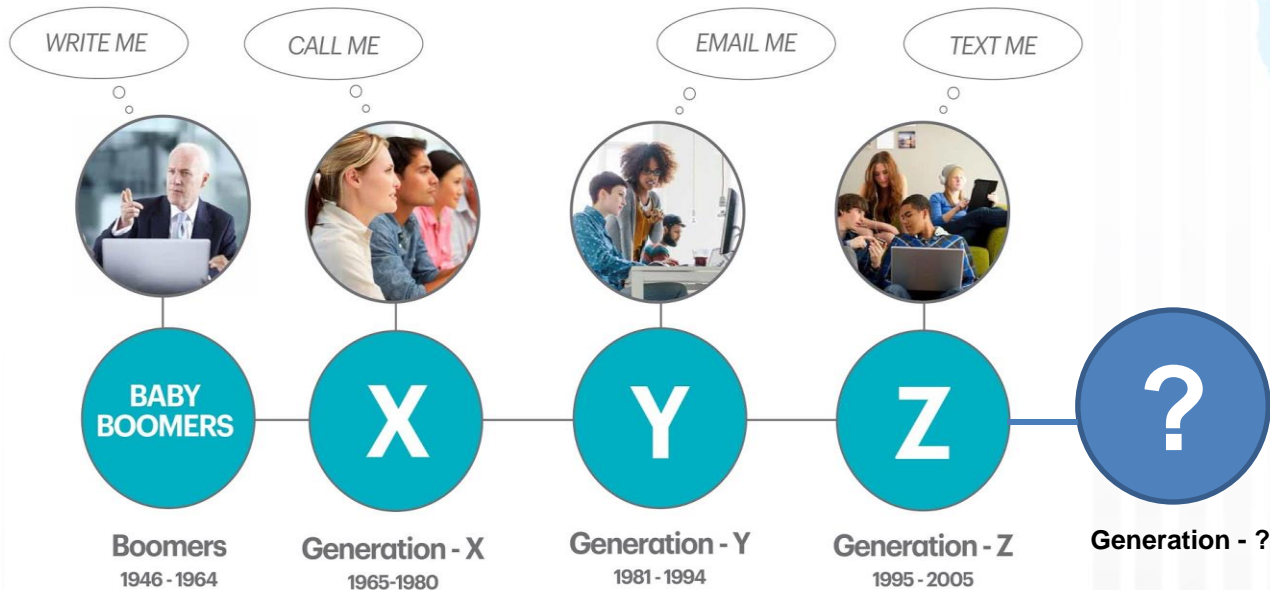
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DESIRED ATTRIBUTES AND SKILLS IN DEMAND

- The advent of digital technologies, such as **cloud computing, Internet-of-Things, Big Data and robotics**, will continue to shape the future of the industry.
- As the industry continues to transform, there are some examples of skills in demand now and in the future.

People of the Future

FIVE GENERATIONS WORKING SIDE BY SIDE IN 2020



- Unique challenges, especially Gen Z:
 - They grow up always connected with high speed, mobile internet access
 - Set to account for 20% of working adults by the year 2020
 - 90% prefer a dynamic and fast working environment
 - They are visually orientated generation

Talent Strategy – Solution?



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CREATING A SUSTAINABLE TALENT PIPELINE FOR THE INDUSTRY

- Are our education institutions preparing students to succeed in an environment that is increasingly evolving?
- Is our learning system **fostering curiosity** in our young people, **adopting future-focused learning** approaches and establishing a **strong education partnership**?

Rethinking Education Systems



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Everyone is a genius.

But if you judge a fish
on its ability to climb a tree,
it will live its whole life believing it is stupid.

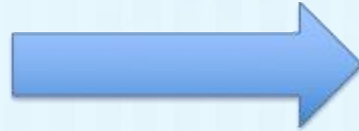
~ Albert Einstein



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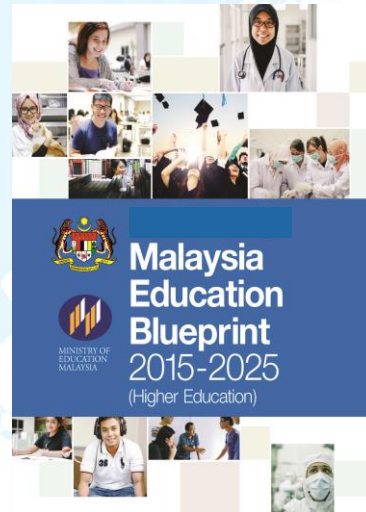
Most existing education systems at all levels provide highly siloed training and continue a number of 20th century practices that are hindering progress on today's talent and labour market issues.

Rethinking Education Systems – Our Experience



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- Malaysian government has come out with a plan for a new education system that is **less focused on traditional, academic pathways** and that places an **equal value on much-needed technical and vocational training**.
- Focus on **outcomes over inputs** and to **actively pursue technologies and innovations** that address students' needs and **enable greater personalisation of the learning experience**.



A NEW SYSTEM

Address students' needs and enable greater personalisation of the learning experience



Rethinking Education Systems – Our Experience



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Education programmes and services are delivered in a **more flexible manner**, utilising the best pedagogical mix of location, study pattern, teaching method, study material and delivery medium.



Rethinking Education Systems – Our Experience

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iCGPA:

Integrated Cumulative Grade Point Average

A NEW APPROACH

- iCGPA is an **integrated mechanism** for assessing and reporting of **students' development and performance** as well as **learning gains of their ethics, knowledge and abilities**.
- The aim of iCGPA is to produce graduates who not only excel in their fields of study (academically), but are also equipped with the necessary soft skills → **holistic graduates for IR4.0**.

Rethinking Education Systems – Our Experience



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- Our experience at Netherlands Maritime Institute of Technology (NMIT) reveals a “Think New” approach that promotes **inquisitive learning via project/problem-based learning**.
- Students are encouraged to **think independently, critically, creatively**, which in turn builds their confidence and results in higher levels of innovations.
- Senior managers and logistic professionals from the industry are engaged to share their experience with the students.
- A mentor-mentee relationship between senior professors and new lecturers to realize more school of thoughts in their respective fields is encouraged.
- NMIT students have their practical trainings for a period of about six months with the industry players. Apart from industry visits in Malaysia, NMIT students are exposed to world class industry visits, seminars, and exhibitions abroad e.g. Singapore.

Forging Partnership – Industry & Education Institutions



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The Trends, The Future

- Both knowledge institutions and port industry can derive mutual benefits for each other by forging partnerships.
- For universities, these partnerships provide financial support for the educational, research, and service missions besides broadening the experience of students and faculty.
- Partnership would help to identify relevant problems and increase employment opportunities for students.
- As for industry, partnerships can provide access to expertise they did not have previously. This collaborative partnership would aid in the renewal and expansion of technology improve.



Our Aspirations



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- Today, technology is sweeping the international trade logistics in a manner never expected and thought of before.
- We believe presently the education and training with regards to the maritime industry are done in isolation or fragmented.
- This has to be relooked objectively as it is necessary to bridge the gap between the human resource development and up-to-date technological requirements to ensure efficiency, effectiveness, and timeliness in maritime operation.
- It is pertinent therefore for both the maritime industry and the knowledge institutions to work even closer together and synergise all efforts.
- Both the industries and knowledge institutions must learn to understand each other's purposes and responsibilities to ensure effective and meaningful solutions are offered to the maritime community and industry as a whole.



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THANK YOU