

CHANGI'S FUTURE SCENARIOS

SCENARIO 1: Tech-Driven Boom

Global Competition: Wins

Technological Dependency: High

Development Potential:

- Land Use: More spaces and services are required for autonomous operations in the Airport and Logistics companies as machines are more used. Necessity of providing spaces to test and experiment with new technologies and to integrate virtual and flexible spaces to meet various future business needs.
- Transport: Infrastructure required to operate autonomous transport systems through air-land-sea. Increased connectivity for both passengers and Cargo. Satellite dependent traffic control.

Technological Advancement and Adoption: Rapid

Economic Stability and Growth: Stable and High

Air Hub Relevance: High

Demand for Labor: High for Knowledge-based Skills

Description: Changi Planning Area sees high economic growth as it wins global competition and acquires a stable air hub position internationally. This, combined with the construction of a completely autonomous Changi Airport Terminal 5, increases air traffic and dependency on technological advancement increases efficiency and reduces environmental impact as green energy solutions are adopted in advanced technology. This attracts more businesses in the field of technology and R&D as well as logistics companies. As more cargo lands in Changi Airport autonomous (unmanned) corridors are created to transport goods into the different streams with less travel time, eventually causing less traffic congestion. The airport is also used as an air hub for Autonomous Urban Air Mobility that connects to other air hubs in Singapore raising efficiency in transporting goods and passengers to multiple parts of the city-state while AV and EV continue to dominate the roads. Ferry terminals are integrated for cargo and passenger movement establishing an interconnected transport system through air-land-sea. This complex sea, ground, underground and air traffic requires a complex traffic control system where satellites and remote sensing technology are used for a more efficient, safe, and real-time control of traffic.

SCENARIO 2: Innovation Amidst Turbulence

Global Competition: Loses

Technological Dependency: High

Development Potential:

- Land Use: More spaces and services are required for high tech companies as Changi becomes a Tech. Hub. Necessity of providing spaces to test and experiment with new technologies and to integrate virtual and flexible spaces to meet various future business needs. Investment in manufacturing to acquire self-dependency.
- Transport: Infrastructure required to operate autonomous transport systems.

Technological Advancement and Adoption: Rapid

Economic Stability and Growth: Volatile

Air Hub Relevance: Low

Demand for Labor: Moderate for Knowledge-based Skills

Description: Changi Planning Area sees technological advancement and increased adoption of innovative solutions, attracting high tech companies to reside in Changi as more spaces become available in place of logistic companies in response to Changi losing its place as an international air hub, thus, reducing passenger and cargo travel. As air freight decreases, supply of materials and goods decreases due to decreasing import/export resulting in the increase of prices. As Changi becomes a technological hub, focusing on manufacturing and R&D as its strengths to ensure sustainable development and technological independence, it is faced with many struggles as prices of imported materials and necessary equipment increases. Eventually increasing financial burdens on high tech companies and manufacturers.

SCENARIO 3: Stagnant Future

Global Competition: Loses

Technological Dependency: Low

Development Potential:

- Land Use: Repurposing of old Airport Terminals to be used for other attractive amenities for tourists and residents. Repurposing of areas of Changi Business Park to meet other educational, residential, health care, and shopping needs.
- Transport: Infrastructure adapts to meet the needs of the increased residential presence in Changi and promote active and sustainable mobility.

Technological Advancement and Adoption: Slow

Economic Stability and Growth: Stable and High

Air Hub Relevance: High

Demand for Labor: Low for all skills

Description: Changi Planning Area sees an economic recession as it loses its position as an Air Hub due to global competition. Construction of Changi Airport Terminal 5 is completed requiring more manpower to be operated as dependency on technological advancements falls behind. This leads to decreased operational efficiency, increased operational costs for Changi Airport, and decreased air traffic for cargo and passengers, therefore Businesses and Logistics companies relocate out of Changi. Traffic congestion decreases however, Changi becomes more disconnected as the planning area becomes less occupied and investment in technologies and businesses decrease.

SCENARIO 4: Stable Growth with Slow Tech

Global Competition: Wins

Technological Dependency: Low

Development Potential:

- Land Use: Land allocated for logistics companies and operations increases. Repurposing of areas of Changi Business Park to meet other logistics and aerospace development needs.
- Transport: Infrastructure adapts to meet the needs of the increased cargo and passenger movement.

Technological Advancement and Adoption: Slow

Economic Stability and Growth: Stable and High

Air Hub Relevance: High

Demand for Labor: High

Description: Changi Planning Area sees a stable economic growth as it remains a leading air hub globally. Air traffic in Changi Airport increases with the construction of Terminal 5, leading to more cargo and passenger movement in Changi, subsequently increasing demand for labor. Slow advancement in technology decreases efficiency of operations in Changi Airport resulting in the increase of operational costs. Logistic companies' presence in Changi is dominant compared to technology companies and businesses, increase in cargo movement in land transport adds to the traffic congestion issue.

URBAN INTERVENTIONS FOR SCENARIO 3: "STAGNANT FUTURE"

Stagnant Future

- Slow Technological Adoption (AI, AV, EV)
- Increase Demand for Spaces
- Low Demand for Labor
- Low Air Hub Relevance
- Low Economic Growth (volatile prices)
- Logistic Companies Relocate out of Changi

IMMEDIATE	NEAR TERM	LONG TERM
<p>Establishing Synergies and relations with stakeholders to generate positive outcomes with the target to transition conditions towards "Scenario 1"</p> <p>YEAR 1</p> <p>YEAR 2</p> <p>Identification of Stakeholders and impacted parties/entities</p> <p>Stakeholder engagement to coordinate efforts and align Strategies and Synergies</p> <p>Economic Stabilization measures:</p> <ul style="list-style-type: none"> - Provide immediate financial aid to struggling businesses with high stakes in aviation to prevent closures and layoffs - Implement temporary tax breaks or reductions to alleviate the financial burden on businesses - Offer subsidies and grants for critical sectors to maintain operations and employment levels <p>Technology and Infrastructure Investment:</p> <ul style="list-style-type: none"> - Prioritize maintenance and repairs of existing infrastructure to ensure safe and reliable operations <p>Workforce Support and Development:</p> <ul style="list-style-type: none"> - Provide support for employees at risk of job loss through job placement services and unemployment 	<p>Establishing the required infrastructure to meet existing and new demands for services and amenities. Taking Actions attempted at bettering current situation to transition to "Scenario 1". Planning for the utilization of potential in the current "Scenario 3"</p> <p>YEAR 3</p> <p>YEAR 4</p> <p>YEAR 5</p> <p>Market Stimulation:</p> <ul style="list-style-type: none"> - Implement marketing campaigns to attract airlines and passengers, emphasizing safety, efficiency, and service quality - Global Collaboration and Initiating Partnerships with Air Hubs for mutual benefits <p>Economic Diversification:</p> <ul style="list-style-type: none"> - Diversify into economic activities to include financial services, technology, and tourism - Investing in SMEs to elevate economic situation - Incentives for companies interested in quick freight integrated system utilizing air-land-sea transport in Changi <p>Introductions of New Projects:</p> <ul style="list-style-type: none"> - As Changi Residents' power and interest increases, the need for housing, amenities and family attractions increases - Establishing amenities to support Changi Being a Health-wellness hub (Changi hospital + Rustic Changi) - Establishing new residential projects to meet the needs of the new demographics <p>Infrastructure adapts to meet the needs of the increased residential presence in Changi and promote active and sustainable mobility</p>	<p>Safe operation of the required infrastructure and mega projects to support and maintain conditions and utilizing potential in "Scenario 3" in collaboration with stakeholders. Continuous monitoring is essential. Chance of transitioning at this stage is limited.</p> <p>YEAR 6</p> <p>YEAR 10</p> <p>Operation of Terminal 5</p> <p>Adoption of green energy and sustainable solutions</p> <p>Introductions of New Mega Projects:</p> <ul style="list-style-type: none"> - Establishing Changi as a Regional Centre for Research and Development requiring collaboration of different stakeholders <p>Repurposing of old Airport Terminals:</p> <ul style="list-style-type: none"> - To be used for other attractive amenities for tourists and residents. <p>Planning for the Long Island Development:</p> <ul style="list-style-type: none"> - To establish attractive amenities for tourists and residents and host new mega projects <p>Master Plan Amendments:</p> <ul style="list-style-type: none"> - Focusing on the introduction of mixed-use buildings as well as flexible spaces to safely adapt to changes and future scenarios

