

KLIA3 – The New Vision for Malaysian Aviation

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1. A New Vision for Malaysian Aviation - The KLIA3

Aviation sector is one of the core pillars of national GDP for any country in the world. Learning from Dubai and the new Al Maktoum International Airport Project (DWC), a new crown jewel for Dubai economy capable of handling 200 million passengers annually, the new airport will be a primary aviation and logistic hub in the region for Dubai and UAE.

An airport such as Al Maktoum International Airport is more than just an infrastructure for transportation and logistics, it is actually the generator of the country's economic and tourism growth. This is the fundamental of the success of Dubai's economy.

Kuala Lumpur International Airport (KLIA), comprising Terminal 1 and Terminal 2 (formerly klia2), is a critical economic engine for Malaysia. Based on the latest projections from the Malaysian Aviation Commission (MAVCOM) and other industry analysts, Malaysia's air passenger traffic is expected to reach and surpass pre-pandemic levels, with forecasts of a new record high of over 110 million passengers in the near future. While KLIA's current terminals have a combined capacity of approximately 75 million passengers per annum, future growth, particularly from long-haul flights and a booming low-cost carrier market, will inevitably strain the existing infrastructure.

Plans for KLIA3 include its repositioning as a base for regional aviation innovation, featuring “a new era of smart airport systems and passenger-centric facilities, taking travellers to worldwide destinations in the most awe-inspiring and comfortable way possible”.

KLIA3 will also be able to process 3Mt of cargo annually via a multi-modal cargo hub enabling air, land, and sea connection with dedicated freight storage space on the airside, landside and by the seaport. These facilities will support the growth of the nearby Logistics District, planned as an international base for global cargo and shipping companies. This include the development of KLIA Aeropolis that was launched in 2020 by MAHB.

The project is driven by compelling data on the projected surge in air travel demand, a strategic imperative to maintain Malaysia's competitiveness as a regional aviation hub, and a need to future-proof the nation's air transport infrastructure. KLIA3, with a capacity of 50 million passengers per annum (mppa), is positioned as the next logical step in the airport's expansion, ensuring seamless passenger flow and enhanced operational efficiency.

2. Aviation As The Core Pillar Of The Economy

Airports are significant ‘economic enablers’ acting as vital support for hospitality, tourism, and all forms of commerce. As the airport continues to grow, it is driving demand for residential, commercial, and hospitality properties in the surrounding areas. In 2023, aviation sector contributed to 27% of Dubai Gross Domestic Product, projected to rise to 32% (USD37 Billion) by 2030, while contributing to generation of 630,000 new jobs for the country. Dubai and the airport projects is a success story of a robust economic expansion utilizing the airport as the catalyst for economy, tourism, regional hub and property growth in the Middle East.

3. Malaysian Airports – Ageing Asset and Operational Constraints - BHS upgrading, Aerotrain disruptions and continuous maintenance of Current Terminals

Mavcom: KLIA faces tough climb back to world's top 10 airports

[By Kang Siew Li / The Edge Malaysia](#)

20 May 2025, 05:00 pm

According to Mavcom, KLIA faces significant challenges, chief among them being growing competition from newer and more efficient international airports. As a 27 year-old terminal, KLIA1 faces a tough challenge in competing with newer airports that are more efficient and are offering a different, enhanced passenger experience. The airport has experienced a steady decline in the rankings since being placed in top 10 Skytrax airport ranking from 1999 until 2012. Transport Minister wish to restore KLIA to a top-10 position is a key performance indicator for both his ministry and airport operator Malaysia Airports Holdings Bhd (MAHB).

In 2019, a major technical glitch in 2019 had affected key functions at KLIA's Terminal 1 (T1) and the breakdown of the aerotrain system. Since then continues issues of Aerotrain and Baggage Handling Systems has been disrupting the smooth operation of KLIA1

3.1 Infrastructure and maintenance

- **Aging facilities:** The airport, particularly KLIA, is aging and facing structural fatigue, requiring significant ongoing maintenance. Completed in 1998, it is a
- **Climate impact:** Unpredictable weather patterns have led to problems like water leakage, with a specific incident caused by a contractor failing to remove a safety cover from a drainage system.
- **Maintenance gaps:** There are identified issues with insufficient maintenance and poor work quality in building facilities, leading to inefficiencies and a reduced passenger experience.

Operational and capacity challenges

- **Terminal capacity imbalance:** Terminal 1 is near full capacity while Terminal 2 is underutilized, creating an imbalance that hinders overall operational efficiency.
- **Inter-terminal integration:** The lack of seamless connectivity between the terminals creates operational inefficiencies and limits KLIA's ability to function as a truly integrated hub.
- **Passenger experience:** Passengers report issues such as long queues, a decline in the quality of facilities like restrooms, and staff struggling with communication, impacting the first impression for tourists.
- **Service and efficiency:** The airport is struggling to compete with newer airports that offer a better passenger experience and are more efficient.

External and competitive pressures

- **Competition:** KLIA faces tough competition from newer and more efficient international airports.
- **Declining rankings:** The airport's Skytrax ranking has been dropping, highlighting its need for a major revamp to regain its position among the top airport

The KLIA3 Project - A New Gateway to Malaysia

KLIA3 is not merely an expansion; it is a strategic investment to:

- **Accommodate Future Growth:** A 50 mppa capacity terminal provides the necessary headroom for sustained growth beyond the current KLIA Masterplan's projected expansion of Terminals 1 and 2.

- **Maintain Hub Competitiveness:** The addition of a new terminal and runway will allow KLIA to compete more effectively with regional rivals like Singapore Changi, Bangkok, and Jakarta, which are also undergoing significant expansion projects.
- **Improve Operational Efficiency:** A new, purpose-built terminal can incorporate the latest in airport technology, including automated baggage handling, seamless immigration processes, and optimized aircraft turnaround times.
- **Enhance Passenger Experience:** A modern terminal design, with a focus on seamless connectivity, reduced walking distances, and world-class amenities, will elevate KLIA's reputation and attract higher-spending passengers and airlines.

Core Economic Infrastructure And Global Positioning Assets

KLIA3 shall be a new core economic infrastructure for the country and a strategic global positioning asset for Malaysian economy. Estimated to cost about RM15 Billion, the new KLIA3 shall create 50,000 new jobs for the country from construction stages to operation and spillover effect to the overall country's financial impact.

Economic diversifications from the new terminal shall fuel exciting economic activities such as trade, tourism, financial hubs and logistic hub. Complementing the KLIA Aeropolis, KLIA3 shall accelerate the expansion and activities of KLIA Aeropolis that was launched in 2020 by MAHB.

KLIA Aeropolis a key strategic pillar to MAHB

The KLIA Aeropolis is one of the four pillars of MAHB's Runway to Success 2020 (RtS2020) business plan. It is touted to bring in MYR7b worth of potential investments.

There are three clusters to the Aeropolis:

- 1) air cargo and logistics;
- 2) business and aviation parks, specifically targeting cargo and OEM manufacturers; and
- 3) MICE, leisure and other complimentary businesses.



KLIA Aeropolis

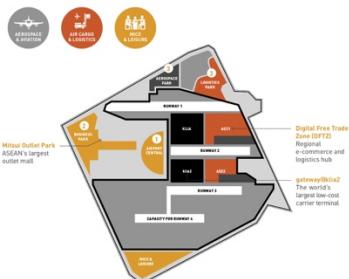
Imagine an airport city where some of the world's most valuable companies convene, with plenty of opportunities for work and leisure. Served by an excellent network of highways and direct access to the seaport, all within a 1-hour drive.

The main gateway with integrated air, sea, and land networks leveraging on its central location. An all-encompassing development, connecting Malaysia to the ASEAN region. KLIA Aeropolis. The Imagine an airport city where some of the world's most valuable companies convene, with plenty of opportunities for work and leisure. Served by an excellent network of highways and direct access to the seaport, all within a 1-hour drive.

The main gateway with integrated air, sea, and land networks leveraging on its central location. An all-encompassing development, connecting Malaysia to the ASEAN region. KLIA Aeropolis. The city of the future is here. city of the future is here.

THE KLIA AEROPOLIS CONCEPT MASTER PLAN

KLIA Aeropolis is designed to be a holistic airport city development spanning across approximately 1,600 acres, with the potential of growing up to 8,500 acres. With infrastructure providing seamless end-to-end logistics, each zone runs in synergy, no matter the industry.



① AIRPORT CENTRAL ② BUSINESS PARK ③ HIGH-TECH
INDUSTRIAL PARKS

> QUICK FACTS

Gross floor area:
14.6 million sq ft

- Business and leisure destination
- 4-km stretch of Central Boulevard that links KLIA and KLIA2
- Capital demand of ~55 million people's movement yearly
- Mixed development
- Secondary commercial area
- Centralised mixed clusters of industrial, commercial, institutional, and staff quarters
- Multi-modal transport hub
- High surrounding population growth and more than 20 townsships within 20km radius

> **QUICK FACTS**

Gross floor area:
48.5 million sq ft

- Secondary commercial area
- Centralised mixed clusters of industrial, commercial, institutional, and staff quarters
- Multi-modal transport hub
- High surrounding population growth and more than 20 townships within 20km radius

100,000+ acres

③ HIGH-TECH INDUSTRIAL PARK

QUICK FACTS

Total land size:
>1,000 acres

- Aerospace Park & Logistics Park
 - High-tech and smart industries
 - Championing Industry 4.0
 - End-to-end logistics solutions
 - Integrated air cargo network and transportation hub
 - High-spec build-to-suit facilities
 - Scalable and flexible lot sizes

The Ageing Asset

Construction of a modern and high capacity terminal, with 70 million passengers per annum up to 100 million MPPA, would have a profound and stimulating effect to Malaysian aviation industry to address the current infrastructure crisis facing by KLIA1. KLIA1 is nearly 30 years old and plagued with continues maintenance and leakages problem associated with aging infrastructure such as the following:

Problem with KLIA1/Aerotrain

Ageing Structure & Maintenance: KLIA1 is nearly 30 years old, leading to frequent failures (e.g., roof leaks).

Aerotrain/APM Failures: The current and newly replaced Aerotrain system has faced embarrassing disruptions, forcing passengers onto buses.

Operational Constraints: Limited gate space and baggage system capacity.

Solution with New KLIA3

Fresh Start: A new terminal incorporates modern, future-proof building technology, reducing the frequency and cost of maintenance for decades.

Modern APM/Design: A new terminal would feature a modern, redundant Automated People Mover (APM) system or, more likely, a **midfield terminal design** that relies less on APM, using moving walkways, or designing the facility as a single continuous pier for easier passenger movement.

Scalability and Efficiency: Designed from the start for 100 mppa, KLIA3 would feature state-of-the-art baggage systems, more efficient runway-to-gate taxiing, and expanded immigration/customs halls, all crucial for reliability and passenger experience.

Continuing to upgrade an ageing asset is a cost-deferral strategy; building a new one is a wealth-creation strategy.

Major global airports, such as Newark Liberty and Pittsburgh International, have opted to replace their ageing terminals entirely because the cost of maintaining, patching, and operating legacy systems eventually outweighs the cost of a new, modern replacement.

Given KLIA's ambition to remain a top regional hub, a new, technologically advanced terminal provides the necessary leap in capacity and efficiency that continuous incremental upgrades simply cannot achieve.

B. The Case for Building a New, Modern Terminal (KLIA3/T3)

Advantage

Optimised Long-Term OpEx: Modern, purpose-built systems (BHS, HVAC, IT networks) are more reliable and energy-efficient. This **drastically lowers the operational cost** over the 30-50 year lifespan of the new terminal.

Superior Design & Passenger Flow: Can be designed from scratch with the latest **common-use technology**, biometrics, and security layouts, significantly improving passenger experience and throughput efficiency. (e.g., reducing baggage delivery time by 50% - as seen in US airport redevelopments).

Catalyst for KLIA Aeropolis: A new terminal is the ultimate anchor for the airport city development, unlocking huge non-aeronautical revenue potential and creating high-value jobs.

Benefit to the Aviation Industry

Reliability & Reputation: Eliminates the legacy issues (like the Aerotrain and ageing BHS) overnight, restoring KLIA's reputation as a reliable, world-class hub, which is crucial for attracting premium airlines and transit passengers.

Increased Capacity & Competitiveness: Provides the massive, unconstrained capacity (e.g., 100 mppa) needed to compete with regional rivals like Changi and Suvarnabhumi, securing KLIA's long-term hub status.

Future-Proofing: Allows for flexible design (modular expansion, new gate types) to accommodate future aircraft like the A380 or new security/processing requirements without major internal demolition.

Features of the New KLIA3

Airport Counters and Check-in

- **Manned and Self-Service Counters:** The airport is designed with a hybrid approach to check-in.¹ It features both traditional manned counters and a high number of self-service kiosks and self-service baggage drop-off points.²
- **Dedicated Areas:** There are specific areas for domestic and international flights, as well as premium check-in areas for first/business class and frequent flyer members.³ For example, China Southern Airlines has dedicated counters on Level 4 for international flights and Level 4 and Level B1 for domestic flights.⁴

- **Advanced Technology:** The airport utilizes smart technology for passenger flow, including a facial recognition system for security and boarding, and an AI-based system to assist with passenger processing.⁵

Baggage Handling System (BHS)

- **High-Speed and Automated:** The BHS is highly advanced and automated.⁶ The system is designed to be efficient and fast, minimizing the time it takes for bags to travel from check-in to the aircraft.
- **RFID Technology:** China Southern Airlines, a key operator at PKX, has implemented a full-process baggage tracking service using RFID baggage tags.⁷ This allows passengers to track their checked luggage in real-time through the airline's app, official website, or WeChat account.⁸

People Movers

- **Extensive Network:** To facilitate movement within the massive terminal, the airport has a comprehensive system of escalators and moving walks.⁹
- **Moving Walks:** There are numerous moving walks, including one of the longest ever installed in China, stretching over 93 meters.¹⁰
- **Elevators and Escalators:** The airport features a significant number of elevators and escalators.¹¹ One source indicates a total of 293 smart mobility solutions, including 206 elevators, 35 escalators, and 52 moving walks.¹²

Aircraft Stands

- **Total Stands:** The airport has a total of 191 aircraft stands in its first phase of construction.
- **Contact Stands:** Out of the total, there are 76 contact stands. This is a high number, which is a result of the radial design that allows a greater number of aircraft to park directly at the terminal building, reducing the need for buses to transport passengers to remote stands.
- **Remote Stands:** The airport also has 115 remote stands.
- **A380 Compatibility:** The airport is designed to handle large aircraft like the Airbus A380, with specific boarding bridges for double-decker aircraft.

IT and Technology Costs

While a specific breakdown of the IT cost is not widely available, the total project cost includes all infrastructure and technology. The sheer scale and reliance on advanced systems for passenger flow, baggage handling, and security suggest a substantial investment in information technology.

Materials Used and Construction Time

- **Materials:** The terminal's structure is a complex hyperboloid steel grid.¹³ (for the frame) and concrete (100,000 cubic meters).¹⁵ Traditional Malaysian materials like wood and stone were also incorporated into the interior design.

The Baggage Handling System (BHS) at Kuala Lumpur International Airport (KLIA) Terminal 1 (T1) is currently undergoing a **major, critical upgrade and replacement** project.

The overall status is that the project is **behind its original schedule** and is still in the process of replacing the ageing system.

Here is a breakdown of the status and the primary reasons for the reported delays:

Status of KLIA Terminal 1 BHS Upgrade

- **Project Goal:** The aim is to completely replace the original BHS in KLIA T1, which has been in operation since the airport opened in 1998, with a modern, fully automated system to improve reliability, speed, and capacity.
- **Progress:** The project is being executed in phases. **Phase 1** of the upgrading work in KLIA T1 was completed, but progress on the subsequent **Phases 2 and 3** has reportedly slowed.
- **New Deadline (Delayed):** The remaining works were originally expected to be completed by late **December 2025**. However, reports indicate this is now likely to be delayed by another **one to one-and-a-half years** from that original target (meaning potentially well into **2026 or 2027**).
- **Inter-Terminal BHS:** Separately, the Transport Minister announced plans for an **Inter-Terminal Transfer (ITT) system** for passengers and luggage between T1 and T2, aiming for full deliberation and implementation by mid-**2026**. This involves developing a new system for luggage transfer between the two terminals.

Reasons for the Delays

The primary reason for the slowdown and delay in completing the BHS upgrade can be attributed to the complexity of carrying out extensive construction and replacement work within a constantly operating environment:

1. Working in a Live Airport Environment

- **Operational Constraints:** This is the most significant factor. The contractor must perform hacking, demolition, and installation of complex machinery **without shutting down the terminal**.
- **Time Windows:** Work can only be conducted during specific, limited, non-peak hours (often late at night), which severely restricts the overall pace of the project compared to working on a new or closed facility.
- **Safety and Security:** Maintaining strict airport security and safety protocols around construction sites significantly slows down work processes.

2. Design Changes and Complexity

- **Initial Design vs. Requirement:** Historical issues show that initial plans for airport systems sometimes need significant revision after consulting with airlines and future

operational requirements. The continuous need for redesign or scope adjustments during the execution phase adds considerable time and complexity.

3. System Disruptions

- **Cybersecurity Threats:** While not a cause of the *upgrade* delay, the reliance on digital systems means that events like the reported cybersecurity attacks (e.g., in March 2025) can disrupt the BHS and other airport systems, forcing manual operations and temporarily diverting focus and resources away from upgrade efforts.
- **Aged Infrastructure:** The very age of the existing system means that unexpected breakdowns or maintenance needs often require the contractor to pause upgrade work to perform immediate repairs, further impacting the planned timeline.

The ongoing upgrade of the BHS is a critical element in solving KLIA's long-standing infrastructure problems, alongside the replacement of the Aerotrain, to restore the airport's reputation for reliability.

given a choice of continuous upgrading and repair of a major airport like klia1, would building a new and modern terminal with latest technology and facilities better than the previous option.

This is a question at the heart of KLIA's long-term strategy, and the consensus among aviation planners and economists is that **building a new, modern terminal (KLIA3/T3) is fundamentally better and more cost-effective in the long run** than continuously patching and upgrading an ageing facility like KLIA1.

While continuous upgrading (like the BHS and Aerotrain replacements) is necessary in the short term, it is often seen as delaying the inevitable and incurring significant hidden costs.

1. Aviation as a Core Pillar of GDP

The aviation sector's contribution to Dubai's economy is enormous, making it one of the most aviation-dependent economies in the world.

- **Massive GDP Share:** In 2023, the aviation sector (including Emirates Group, Dubai Airports, and associated entities) contributed an estimated **27% of Dubai's GDP** (Gross Domestic Product). This figure is forecasted to rise to **32% by 2030**.

- **Job Engine:** The sector supported over **630,000 jobs** in 2023, with projections to support over **816,000 jobs** by 2030, equating to approximately one in four jobs in the emirate.
- **Economic Diversification:** The airport facilitates Dubai's strategic goal of moving away from oil-dependence by supporting high-value non-oil sectors like finance, logistics, MICE (Meetings, Incentives, Conventions, and Exhibitions), and trade.

Unprecedented Expansion

With the ongoing expansion, Al Maktoum Airport is set to become the crown jewel of Dubai's aviation infrastructure. The project, known as Dubai World Central (DWC), aims to transform the airport into the primary aviation hub in the region, capable of handling over [Job Creation Breakdown](#)

The employment impact is categorized into three main types: Direct, Indirect, and Induced.

1. Direct Jobs (Immediate & Long-Term)

These jobs are created immediately on-site by the project itself.

Phase	Examples of Direct Local Jobs	Estimated Impact
Construction Phase	Project Managers, Civil Engineers, Site Supervisors, Skilled Technicians (electricians, welders), Construction Workers, Security Personnel.	Thousands of jobs over a multi-year period (e.g., 5-8 years).
Operational Phase	Airline Staff (Pilots, Cabin Crew), Airport Management, Air Traffic Controllers, Immigration & Customs Officers, Ground Handling Crew, Security Screening Staff, Maintenance Engineers.	Tens of thousands of stable, long-term jobs for the operation of a 100 mppa terminal.

For reference, the **Subang Airport Regeneration Plan (SARP)**, which is smaller in scale, aims to create **8,000 direct jobs** upon completion, showing the significant employment footprint of aviation projects.

2. Indirect Jobs (Supply Chain)

These jobs are created in sectors that supply the airport project with goods and services.

- **Construction Supply:** Workers at local cement factories, steel mills, and quarry operations; transportation/logistics workers moving materials.
- **Maintenance & Services:** Manufacturing jobs for airport equipment, uniform suppliers, cleaning product manufacturers, and IT hardware and software vendors.

3. Induced Jobs (Economic Multiplier)

These jobs arise from the increased spending power of the people employed directly and indirectly by KLIA3.

- **Retail & Services:** Waiters, restaurant staff, hotel employees, shop assistants, and entertainment venue staff in the surrounding Sepang/Cyberjaya/Kuala Lumpur areas, driven by the salaries of the airport workforce.
- **KLIA Aeropolis:** The new terminal will be the catalyst for the broader **KLIA Aeropolis** development (logistics, MRO, aerospace), which was previously projected to create **56,000 jobs** over a 15-year period with an estimated **RM30 billion GDP contribution**; a new terminal would accelerate this.

Key Economic Stimulus

The RM15 billion investment for KLIA3 would be a powerful economic stimulus because:

1. **High-Value Skills:** Aviation jobs, especially in engineering and air traffic control, are high-income and encourage **upskilling** of the local workforce.
2. **Service Sector Boost:** A 100 mppa terminal would drastically increase passenger traffic, leading to an explosion in demand for jobs in the **tourism, hospitality, and retail** sectors across Malaysia.
3. **Local Preference:** Malaysian policy and MAHB's objectives prioritize the hiring of **local staff** for these opportunities, especially for high-value and professional roles.

In line with other major global airport expansions, a multi-billion dollar project like KLIA3 would be reasonably expected to generate **over 50,000 jobs** (direct, indirect, and induced) for the local economy in the long run.

Here is a comparative rationale using a **Cost-Benefit Analysis (CBA)** framework:

2. Stimulating Future Growth and Competitiveness

A. Reclaiming Hub Status

- **Capacity Breakthrough:** The combined current capacity of KLIA T1 and T2 is projected to be expanded to around 126 mppa in the long term, with T3 pushing the total towards **140 mppa**. A 100 mppa T3 is a huge, necessary leap that signals Malaysia is serious about competing with regional rivals like Singapore and Bangkok.
- **Attracting Premium Airlines:** Airlines are deterred by frequent disruptions and slow turnaround times. A reliable, modern KLIA3 would attract new carriers and encourage existing ones to increase frequencies, directly expanding Malaysia's global connectivity.

B. Economic Multiplier Effect

- **Job Creation:** The construction phase alone would create thousands of direct and indirect jobs. Once operational, the airport would be a massive employer, boosting sectors from retail and F&B to ground handling and logistics.
- **Tourism Gateway:** A superior passenger experience at a massive hub makes Malaysia a more attractive destination. This directly supports the National Tourism Policy, bringing in higher tourist receipts.
- **KLIA Aeropolis Catalyst:** A 100 mppa terminal would be the ultimate anchor tenant for the **KLIA Aeropolis** (the airport city masterplan), accelerating development in logistics, maintenance, repair, and overhaul (MRO), and aerospace manufacturing, creating a high-value economic zone.

C. Dedicated Specialisation

- A new terminal would allow for the **segregation of traffic** (e.g., full-service carriers in one terminal, low-cost in another, or a dedicated Haj/Umrah terminal), streamlining operations and improving service quality for all passenger segments.

Current Reality vs. The "KLIA3" Concept

It is important to note that the current official focus by Malaysia Airports Holdings Berhad (MAHB) is on **expanding and upgrading the existing terminals (T1 and T2)** first to meet immediate demand.

- **T1 & T2 Expansion:** T1 is planned to eventually increase capacity from 30 mppa to 59 mppa, and T2 from 45 mppa to 67 mppa.
- **The New Aerotrain:** The new Aerotrain system, despite recent teething issues, is meant to address the APM problem in T1, but the continued disruptions highlight the challenge of integrating complex, new technology into an aging system.

The KLIA3/T3 terminal is currently considered the ultimate, long-term phase, only to be built once the expanded T1 and T2 near their maximum capacity (around 126 mppa). However, the existing structural and operational failures strengthen the argument

that **decommissioning or significantly downgrading the old KLIA1** in favour of a brand-new, purpose-built KLIA3 may be a better long-term strategy for reliability and global image.

Would you like to know more about the **financial commitment** required for a project of this scale and how it would likely be funded?

The financial commitment for a conceptual **100 mppa KLIA3 (or T3) terminal** would be **massive**, likely running into the **tens of billions of Ringgit (RM)**. Given the complexity and scope, the project would necessitate a blend of funding methods, heavily relying on **Public-Private Partnerships (PPPs)** and the airport operator's own commercial capabilities.

Cost Estimation and Scale

While there is no definitive, publicly stated cost for a 100 mppa KLIA3, we can extrapolate from previous projects and current expansion plans:

- **KLIA Terminal 2 (formerly klia2):** This terminal, designed for 45 mppa, had a final cost of approximately **RM4 billion**.
- **Scale Factor:** A terminal designed to handle more than double the capacity (100 mppa) and incorporating a new generation of smart technologies, and potentially a new runway, would involve a cost significantly higher than RM10 billion, easily placing it among the most expensive infrastructure projects in the country.

Proposed Funding Models

Under the new **Operating Agreement (OA 2023)**, the government and Malaysia Airports Holdings Berhad (MAHB) have greater flexibility in funding airport development projects like KLIA3. The typical models used for major Malaysian airport infrastructure are:

1. Public-Private Partnerships (PPPs)

PPPs are the likely primary model for a project of this scale. This involves sharing the risk, funding, and expertise between the government and private entities.

- **Private Financing Initiative (PFI):** Historically, private finance has been considered. The scrapped "KLIA East @ Labu" concept, for instance, was planned under a private finance initiative.
- **Concession & Investment:** Private investors bring capital, technology, and expertise in exchange for long-term concession rights to operate commercial areas and collect fees.

2. Self-Funding by Malaysia Airports Holdings Berhad (MAHB)

MAHB, the airport operator, is increasingly expected to self-fund financially viable developments, leveraging its extended operating concession until **2069**.

- **Revenue Generation:** MAHB funds capital expenditure (CapEx) using revenue from:
 - **Aeronautical Charges:** Landing fees, parking fees, and a portion of the Passenger Service Charge (PSC).
 - **Non-Aeronautical Revenue:** Revenue from retail, food & beverage, property rentals, and the broader **KLIA Aeropolis** development.
- **Debt Instruments:** MAHB frequently uses Sukuk (Islamic bonds) and other financing facilities to raise capital for large-scale projects.

3. New Regulatory Mechanisms (OA 2023)

The new operating framework introduces explicit mechanisms for MAHB to recover investment costs, making large projects more financially viable.

- **Investment Recovery Mechanism:** The OA 2023 allows MAHB to explicitly recover CapEx spent on development through a "**suitable investment recovery mechanism.**" This might involve a **Regulated Asset Base (RAB)** model, where MAHB is guaranteed a rate of return on its infrastructure investment, potentially through an adjustment of aeronautical tariffs over time.
- **Airport Development Fund (ADF):** A dedicated trust account established under the new agreement receives contributions primarily from a portion of the PSC component paid by passengers. This fund will be used to partially finance airport development and maintenance costs, reducing the direct financial burden on the government.

Summary of Funding Flow

The funding for KLIA3 would be structured to:

1. **Reduce Taxpayer Burden:** Utilize commercial revenue and the ADF before seeking government development expenditure.
2. **Attract Private Capital:** Guarantee a mechanism for the recovery of investment costs (like the RAB model) to make the project attractive to international private investors.

The success of a 100 mppa KLIA3 relies not just on its physical construction, but on a robust financial model that ensures long-term profitability and sustainable development.

This video discusses the government's approach to financing large airport projects, including upgrades to regional airports. [Govt allocates RM2.3bil for airport development projects](#)

The investment of **RM15 billion** for a new major terminal like KLIA3 is expected to create **tens of thousands of jobs** for locals, spanning both the temporary construction phase and the long-term operational phase.

While an exact figure specific to a RM15 billion KLIA3 project has not been publicly provided, the employment impact can be reliably estimated based on similar large-scale infrastructure and aviation hub projects.

200 million passengers annually. This expansion is part of Dubai's broader vision to position itself as a global aviation and logistics hub, bolstering its status as a key player on the world stage.

Dubai airport as the main transportation infrastructure in dubai shall be the main generator of Dubai economic and tourism growth.

You have accurately captured the core philosophy of Dubai's economic strategy. The statement is not just an aspiration but a **fundamental, proven reality** of how Dubai has built its modern economy.

Dubai International Airport (DXB)—and its future replacement, **Al Maktoum International Airport (DWC)**—are not merely transportation hubs; they are treated as **core economic infrastructure and global positioning assets**.

Here is the detailed breakdown of why Dubai's airport infrastructure serves as the main generator of its economic and tourism growth:

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like finance, logistics, MICE (Meetings, Incentives, Conventions, and Exhibitions), and trade.

2. The Direct Catalyst for Tourism

DXB is the world's busiest airport for international passenger traffic, and its capacity directly fuels the tourism industry.

- **Tourism Facilitation:** Aviation-facilitated tourism spending contributed significant value to the local economy in 2023. Visitors flying into Dubai spent heavily on hotels, restaurants, attractions, and shopping.
- **Transit to Destination:** The airport acts as the main gateway, attracting two key groups:
 - **Stopover Visitors:** Converting passengers who are simply transiting into temporary tourists through attractive visa policies and stopover packages.
 - **Direct Visitors:** Attracting a high-spending, global mix of tourists due to exceptional connectivity (over 100 airlines serving 270+ destinations).

3. Strategic Capacity and Future-Proofing

Dubai's strategy is defined by continuous, massive investment, proving that they view aviation capacity as a non-negotiable prerequisite for economic growth.

- **Emirates Hub:** The success of DXB is inextricably linked to **Emirates Airline**, which operates the largest airline hub in the Middle East from the airport's massive Terminal 3. Emirates uses the airport's strategic geographic location to connect nearly half of all travelers using DXB.
- **Al Maktoum International Airport (DWC):** Recognising that DXB is nearing its landlocked capacity limit (around 90-100 mppa), Dubai has initiated the expansion of DWC. This is the ultimate, long-term move to secure future growth, with plans to make it the **world's largest airport**, accommodating up to **260 million passengers annually**. This huge investment signals a commitment to global aviation dominance for the next 50 years.

In short, Dubai's aviation infrastructure represents a **deliberate national strategy** where the airport is the **first impression, the primary logistics hub, and the engine room** powering their vision of being a global leader in business, trade, and tourism.

The project is driven by compelling data on the projected surge in air travel demand, a strategic imperative to maintain Malaysia's competitiveness as a regional aviation hub, and a need to future-proof the nation's air transport infrastructure. KLIA3, with a capacity of 50 million passengers per annum (mppa), is positioned as the next logical step in the airport's expansion, ensuring seamless passenger flow and enhanced operational efficiency.

Comparative Rationale: Upgrade vs. New Build

A. The Case for Continuous Upgrading (The Immediate Solution)

Advantage	Disadvantage (The Hidden Cost)
Lower Initial Cost: Capital expenditure (CapEx) is spread over time, easing the financial burden on MAHB and the government.	Higher Operational Cost (OpEx): Older infrastructure (piping, wiring, BHS mechanics) requires escalating maintenance and repair budgets. The <i>cost of failure</i> (e.g., Aerotrain downtime, leakage repairs) is a constant drag on efficiency.
Minimal Disruption: Allows the airport to remain fully operational during phased maintenance.	Protracted Delays & Inefficiencies: Upgrades are slow, complex, and expensive because they must be done around live operations (working at night/off-peak). This leads to project delays (like the BHS) and compromised service quality.
Uses Existing Footprint: No need for new land acquisition or major changes to the immediate airside layout.	Technological Limitations: The 1990s design of KLIA1 imposes physical limits on incorporating the latest technology (e.g., modern self-service check-in, in-line security screening) efficiently.

Export to Sheets
Export to Sheets

Conclusion: Maximising Net Social Benefit

The decision hinges on a **Net Present Value (NPV)** calculation. While the upfront investment for KLIA3 is high (RM15 billion), the **long-term economic benefits** and the avoidance of **future maintenance headaches and operational downtime** make the new build the superior option.

In essence:

Continuing to upgrade an ageing asset is a cost-deferral strategy; building a new one is a wealth-creation strategy.

Major global airports, such as Newark Liberty and Pittsburgh International, have opted to replace their ageing terminals entirely because the cost of maintaining,

patching, and operating legacy systems eventually outweighs the cost of a new, modern replacement.

Given KLIA's ambition to remain a top regional hub, a new, technologically advanced terminal provides the necessary leap in capacity and efficiency that continuous incremental upgrades simply cannot achieve.

Would you like to explore how the construction of a new terminal could be phased to **minimise disruption** to existing KLIA operations?

Dubai airport as the main transportation infrastructure in dubai shall be the main generator of Dubai economic and tourism growth.

You have accurately captured the core philosophy of Dubai's economic strategy. The statement is not just an aspiration but a **fundamental, proven reality** of how Dubai has built its modern economy.

Dubai International Airport (DXB)—and its future replacement, **Al Maktoum International Airport (DWC)**—are not merely transportation hubs; they are treated as **core economic infrastructure and global positioning assets**.

Here is the detailed breakdown of why Dubai's airport infrastructure serves as the main generator of its economic and tourism growth:

1. Aviation as a Core Pillar of GDP

The aviation sector's contribution to Dubai's economy is enormous, making it one of the most aviation-dependent economies in the world.

- **Massive GDP Share:** In 2023, the aviation sector (including Emirates Group, Dubai Airports, and associated entities) contributed an estimated **27% of Dubai's GDP** (Gross Domestic Product). This figure is forecasted to rise to **32% by 2030**.
- **Job Engine:** The sector supported over **630,000 jobs** in 2023, with projections to support over **816,000 jobs** by 2030, equating to approximately one in four jobs in the emirate.
- **Economic Diversification:** The airport facilitates Dubai's strategic goal of moving away from oil-dependence by supporting high-value non-oil sectors like finance, logistics, MICE (Meetings, Incentives, Conventions, and Exhibitions), and trade.

2. The Direct Catalyst for Tourism

DXB is the world's busiest airport for international passenger traffic, and its capacity directly fuels the tourism industry.

- **Tourism Facilitation:** Aviation-facilitated tourism spending contributed significant value to the local economy in 2023. Visitors flying into Dubai spent heavily on hotels, restaurants, attractions, and shopping.
- **Transit to Destination:** The airport acts as the main gateway, attracting two key groups:
 - **Stopover Visitors:** Converting passengers who are simply transiting into temporary tourists through attractive visa policies and stopover packages.
 - **Direct Visitors:** Attracting a high-spending, global mix of tourists due to exceptional connectivity (over 100 airlines serving 270+ destinations).

3. Strategic Capacity and Future-Proofing

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Would you like to compare the **key strategic differences** between the development approach of Dubai's aviation hub and the long-term plan for KLIA?

This comparison highlights the fundamental difference between Dubai's state-driven, "build it and they will come" strategy and Malaysia's more commercially balanced, phased expansion approach.

Here are the key strategic differences between the aviation development models of **Dubai (DXB/DWC)** and **KLIA (T1/T2/T3 Concept)**:

Strategy Pillar	Dubai (DXB / DWC) Model	KLIA (T1 / T2 / T3) Model
Ultimate Ambition & Scale	Absolute Global Dominance. Aims to be the undisputed largest and busiest hub globally.	Regional Hub Leadership. Aims to be the preferred gateway in Southeast Asia, focused on efficiency and connectivity.
Capacity Strategy	New Greenfield Mega-Project. The long-term plan is to move all operations to Al Maktoum International Airport (DWC) , designed for a massive capacity of up to 260 MPPA , completely replacing the current DXB.	Brownfield Optimization & Phased New Build. The immediate focus is to upgrade and expand existing terminals (T1 to 59 MPPA, T2 to 67 MPPA) before committing to the conceptual KLIA3 (T3) , which is only planned when existing capacity is saturated.
Funding & Investment	State-Driven, Upfront Capital. Projects are typically funded by massive, sustained investments from the government/sovereign wealth funds (like the \$35 billion DWC expansion). Risk is largely borne by the state for rapid economic return.	Hybrid & Commercially Prudent. Funding is secured through a mix of MAHB's self-funding capacity, the Airport Development Fund (ADF) (from passenger charges), and private partners. Investment is phased and subject to commercial viability.
Core Airline Model	Single Anchor (Emirates). The entire infrastructure is designed around the needs and growth trajectory of the dominant state-owned carrier, Emirates , maximizing its connectivity efficiency.	Dual Carrier Model. KLIA operates two distinct, specialized hubs: T1 for full-service/legacy carriers and T2 for Low-Cost Carriers (LCCs, primarily AirAsia), requiring complex, seamless integration.
Economic Role	Primary Economic Engine. Aviation is treated as the first pillar of GDP (contributing over 27% to Dubai's GDP), serving as the core reason for its existence as a global trade and tourism city.	Critical Economic Enabler. Aviation is seen as a vital component for trade, tourism, and the KLIA Aeropolis , but it functions within a more diversified national economy.

Strategy Pillar	Dubai (DXB / DWC) Model	KLIA (T1 / T2 / T3) Model
Infrastructure Condition	Build New to Solve Old: Dubai's strategy is to eventually shut down the older, constrained DXB to start fresh with DWC, eliminating legacy issues entirely.	Continuous Maintenance & Crisis Management: KLIA faces the inherent and costly challenges of perpetually upgrading 30-year-old assets (like the Aerotrain and BHS) while striving for operational excellence.

Summary

Dubai's approach is **Decisive and Visionary**, driven by a long-term goal of unrivaled global scale. They are willing to undertake massive, multi-billion-dollar projects (like DWC) to secure future dominance, seeing infrastructure spending as a direct investment in the nation's GDP.

KLIA's approach is **Prudent and Phased**. While ambitious with the 140 mppa master plan, the strategy is to maximize the utility and lifespan of existing assets first. The move to build KLIA3 will happen out of necessity, not purely a desire for absolute dominance, once the current expanded terminals can no longer cope with passenger demand.
