Post COVID-19 Recovery Models and Strategies for Aviation in Indonesia

Heri Fathurahman[1*], Muhammed Ali Berawi[2], Imbuh Sulistyarini[3], Andyka Kusuma[2], Yasmine Nasution[3,] Komarudin[4]

[1]Department of Business Administration, Faculty of Administrative Sciences, Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia
[2]Department of Civil Engineering, Faculty of Engineering, Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia
[3]Department of Management, Faculty of Economics and Business,, Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia
[4]Department of Industrial Engineering, Faculty of Engineering, Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia

Abstract. Global aviation has experienced many crises in the past, each of which has had a significant impact on air traffic. After each fall, the industry recovers and returns stronger, exceeding the previous volume of traffic; however, the COVID-19 pandemic presents a new level of concern, with unknown detrimental effects. The airlines, airports and all other partners involved have greatly suffered. The airport system has been hit by flight closures in many markets, including Indonesia. Airport management and operating companies, concessionaires, terminal tenants, ground handling and catering companies, and the various partners involved are under stress and financial constraints due to the pandemic. In response to this, the flight plan for the "new normal" takes into account the new flight demand and airline market structure scenarios. By using the qualitative approach, this research tries to construct recovery models and strategies for the Indonesian aviation industry post-pandemic. Results show several scenarios, classified as optimistic, moderate, and conservative for the recovery of the industry. This requires the construction of a business model through the V-shape, U-shape, Prolonged U-shape, L-shape and W-shape. In striving for the recovery of the aviation industry, three strategies are needed: survival, growth and sustainability.

Keywords: L shape model; Prolonged U shape model; U shape model; V shape model; W shape

1. Introduction

Many governments quickly responded to pandemic covid-19 by strategizing their policies to support healthcare facilities, economic sectors, and social safety nets during the pandemic (Berawi, 2020). Mitigating pandemic negative impact is necessary for synergizing policies and strategic programs to be developed and implemented, including appropriate preparedness and effective responses (Berawi, et al, 2020).

The Indonesian Ministry of Finance noted that the 2020 State Budget deficit has reached IDR 500.5 trillion or 48.2% of the benchmark worth IDR 1,039.2 trillion. The value of the budget deficit is equivalent to 3.05% of the gross domestic product (GDP). This deficit

was aggravated by the state revenue valued at only IDR 1,034.1 trillion, with a negative growth rate of 13.1% from last year's realization until August 2019. Meanwhile, state expenditure was recorded to be valued at IDR 1,534.7 trillion. The Indonesian Ministry of Finance has estimated the economic growth rate for 2020 between -1.7% to -0.6% (Anggraeni, 2020).

Moody's Investors Service estimates that the number of global airline passengers will not return to pre-COVID level until at least 2023. The low demand for global airlines will affect the recovery of the industry. In this analysis, aircraft manufacturers, such as Boeing and Airbus, will be the last parties to recover when the travel industry stabilizes. Demand has dropped by more than 90%, which significantly affects the global economy. The airline industry contributed 3% to global GDP in 2019. The key to the aviation industry's recovery lies in finding a vaccine for COVID-19; however, such is unlikely to be available before 2021, and may take longer for one that can address a potential mutation of the virus. Meanwhile, the government is expected to continue providing stimulus support for this industry to survive (Moody's, 2020).

Fifty-eight percent of traveler respondents surveyed by airlines in eleven countries expressed their avoidance of air travel. Thirty-three percent have no plans to travel in the near future to avoid getting infected. Forty-five percent indicated that they would return to tourism trips in the coming months. However, most of the respondents were still willing to travel to visit family and friends or simply go on a vacation. Meanwhile, 66% expressed that they would make fewer trips for leisure and business after the lifting of restrictions. Furthermore, 64% said they would postpone travel until economic factors improve; referring to personal and global financial conditions (IATA, 2020).

This research aims to develop a model and strategy for the aviation business to overcome the disruption due to the pandemic. In addition, this study aims to highlight various steps taken by the government and industry to revive the aviation sector. Such business models and strategies, which take into account the strengths and opportunities of the aviation industry (ICAO, 2015), will assist decision makers, governments and airlines in developing policies and interventions to restore the aviation sector during and after COVID-19.

2. Methods

The research method used postpositivist paradigm (Lincoln and Guba, 1985) and qualitative approach (Creswell, 1998). Data collection techniques in this study used observation, documentation study, Focus Group Discussion and interviews with key informant persons who come from the Stakeholders of the Aviation Industry, such as Director General of Civil Aviation, Ministry of Transportation of the Republic of Indonesia, Ministry of State-Owned Enterprises (BUMN) of the Republic of Indonesia (related to SOEs in the Aviation sector), Airport Management (PT Angkasa Pura 1 and PT Angkasa Pura 2), Airlines (Domestic Passenger & International Passenger Carried, Domestic Freight Carried & International Freight Carried), Ground Handling Companies, Consumers and other stakeholders. The data analysis technique used were data reduction, data presentation, and conclusion (Miles and Huberman, 1994). To determine the validity of the data, researchers used credibility, transferability, dependability, conformability (Creswell, 1998).

3. Results and Discussion

After performing analysis techniques by reducing data, data confirmation, data presentation and data conclusion, a decision tree scheme is obtained from this study as follows.
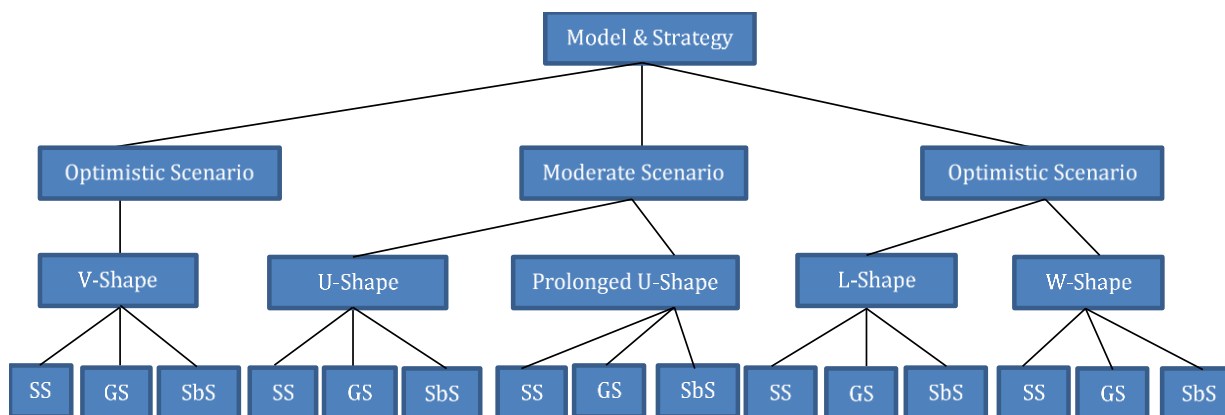

Figure 1 Decision tree of models (M) and strategies (S) for recovery of aviation industry in Indonesia impact COVID-19

Based on the results of data coding and data tabulation from in-depth interviews and focus group discussions, in this study, indicators are obtained to construct Models (M) and Strategies (S) for Recovery (Boston Consulting Group, 2020) of Aviation Industry in Indonesia Impact COVID-19 as follows.

Table 1 Indicators from data coding & data tabulation

In-depth interviews with key informants and focus group discussions conducted with:	Indicators (I) obtained to construct Models (M) and Strategies (S) for Recovery of Aviation Industry in Indonesia Impact COVID-19:
1. Director General of Civil Aviation, Ministry of Transportation of the Republic of Indonesia; 2. Ministry of State-Owned Enterprises (BUMN) of the Republic of Indonesia; 3. Airport Management (PT Angkasa Pura 1 and PT Angkasa Pura 2); 4. Airlines (Domestic Passenger & International Passenger Carried, Domestic Freight Carried & International Freight Carried); 5. Ground Handling Companies; 6. Upstream and downstream companies related to the aviation industry; 7. Consumers.	1. Strategy; 2. Estimated time; 3. Virus Handling Level; 4. Health Risks; 5. Health Protocol; 6. Recovery scenario: Health Aspect; 7. Recovery scenario: Economic Aspects; 8. Recovery scenario: Financial Aspect; 9. Recovery scenario: Technical Aspects; 10. Recovery scenario: Socio-Cultural Aspects of Society; 11. Recovery scenario: Institutional Aspects; 12. Aviation Business Risks; 13. Airline Revenue; 14. Flight operation scenarios; 15. Passenger Occupancy Rate; 16. Aviation Business Opportunity; 17. Airline Consumer Sentiment and Behavior; 18. Flight Demand Recovery Scenarios; 19. Aviation Market Scenarios; 20. Aviation business strategy; 21. Influence to the Upstream Aviation Industry; 22. Influence to the Downstream Aviation Industry; 23. Government Aviation Policy.

The scenarios for the recovery of the aviation industry in Indonesia can be grouped into optimistic, moderate and conservative scenarios. Where the optimistic scenario has the V-shape, for the moderate scenario it consists of U-shape and Prolonged U-shape, while a conservative scenario consists of L-shape and W-shape. Recovery estimates, recovery requirements and described in three recovery strategies, namely: (a) survival strategy; (b) growth strategy; and (c) sustainable strategy in which each of the five models has a different estimated recovery time.

Table 2 Models and strategies for recovery of aviation industry in Indonesia impact COVID-19

Scenario	Optimistic			Moderate						Conservative					
Model (developed from BCG Analysis, March, 2020)	V-Shape			U-Shape			Prolonged U-Shape			L-Shape			W-Shape		
Characteristics	Hurry back and recover			Moderate			Slow with gradual recovery			Slower indirect income curve returns to normal but decreases shifting to the right			Slow two times the surge and recovery		
Estimated Recovery	Until 2021			Gradually until 2022			Gradually until 2022			Gradually until 2023			Gradually until 2023		
Terms of Recovery	a) Comply with government health protocols; b) Vaccines/drugs were found			a) Comply with government health protocols; b) Vaccines/drugs were found			a) Comply with government health protocols; b) Vaccines/drugs were found			a) Comply with government health protocols; b) Vaccines/drugs were found			a) Comply with government health protocols; b) Vaccines/drugs were found		
Strategy	SS	GS	SbS	SS	GS	SbS	SS	GS	SbS	SS	GS	SbS	SS	GS	SbS
Estimated time	Jun–Dec 2020	Jan–Jun 2021	Jul–Dec 2021	Jun–Dec 2020	Jan–Dec 2021	Jan–Dec 2022	Jun 2020–Dec 2021	Jan–Dec 2022	Jan–Dec 2023	Jun 2020–Dec 2021	Jan–Dec 2022	Jan–Dec 2023	Jun 2020–Dec 2021	Jan–Dec 2022	Jan–Dec 2023

Abbreviation: SS: Survival Strategy, GS: Growth Strategy and SbS: Sustainability Strategy

For the V-shape model, the scenario of the level of virus handling is fast treatment (i.e., positive cases and new deaths have drastically decreased) for SS, GS, and SbS. For the U-shape model, it is gradual decline in new cases and deaths for SS, GS, and SbS. For the Prolonged U-shape and L-shape models, it is reduction in new cases and deaths for SS, and gradual decline for GS and SbS. Lastly, for the W-shape model, the spread of the virus decreases, but later rapidly increases (new trend) for SS, GS and SbS.

The scenario of health risks or the likelihood of getting infected in all models is high for SS, and moderate for GS and SbS. The scenario of health protocol in all models are strict for SS and GS. As to SbS, it is standard in the V-shape and U-shape models, and strict in the Prolonged U-shape, L-shape, and W-shape.

For the V-shape model, the scenario of aviation business risks is grounded 50% aircraft fleet causing opportunity loss and cabotage for SS. For the U-shape, Prolonged U-shape, L-shape, and W-shape models, it is grounded 60% aircraft fleet causing opportunity loss, collapse of many airlines, and cabotage for SS. Meanwhile, for all models, the scenario is grounded 40% aircraft fleet causing opportunity loss for GS. Lastly, for all models, it is

grounded 25% aircraft fleet, which is close to normal conditions and the effect of promotion of airline tickets, tour packages influencing demand and selection of airlines, for SbS.

For the V-shape model, the scenario of airline revenue is 50% similar to normal conditions for SS. For the U-shape, Prolonged U-shape, L-shape, and W-shape models, it is 40% similar for SS. Meanwhile, for all models, it is 60% similar for GS; and 75% similar for SbS.

For the V-shape model, the scenario of flight operation of the fleet is 50% operational for SS. For the U-shape, Prolonged U-shape, L-shape, and W-shape models, it is 40% operational for SS. Meanwhile, for all models, it is 60% operational for GS; and 75% operational for SbS.

For the V-shape model, the scenario of passenger occupancy rate is 50% similar to normal conditions for SS. For the U-shape, Prolonged U-shape, L-shape, W-shape models, it is 40% similar for SS. Meanwhile, for all models, it is 60% similar for GS, and 75% similar for SbS

3.1. *Recovery Scenario*

3.1.1. Health aspects

For the V-Shape model, it refers to relaxation policies and increased public trust for SS. For the U-shape, Prolonged U-shape, L-shape, W-shape models, it includes lockdowns or large-scale social restrictions for several months until May or June 2020 and the implementation of the "new normal" under strict supervision for SS.

For all models, it refers to vaccines/drugs, relaxation policies, increased public trust, and availability of hygiene and sanitation facilities that support health protocols for both GS and SbS.

3.1.2. Economic aspects

For all models and recovery strategies: (1) collaborative efforts between the government and the public in restoring the demand curve for the aviation industry through the discovery and availability of COVID drugs or vaccines, and identification of consumer sentiment and behavior towards aviation and flight safety; (2) collaborative efforts between the government and the public in restoring national income, which affects disposable income, to increase the marginal propensity to consume in the aviation sector; and (3) government efforts to increase government spending in the domestic and international aviation sector.

3.1.3. Financial aspects

For all models and recovery strategies: (1) the issuance of a decree by the Ministry of Transportation of the Republic of Indonesia on the adjustment of upper and lower limit tariffs for domestic and international scheduled flights; (2) risk assessment of the airline on its strategy and finances (e.g. cash flow, capital expenditure, operational expenditure, revenue enhancement); and (3) implementation of loan restructuring or liquidity management, stabilization of balance sheets, and efficiency of scheduled domestic and international scheduled flights.

3.1.4. Technical aspects

For all models and recovery strategies: (1) the issuance of a decree by the Ministry of Transportation of the Republic of Indonesia on the complete restoration of the permitted transport capacity for domestic and international scheduled flights; (2) optimization of airlines of domestic and international scheduled or unscheduled flights (captive market) for passenger or cargo transportation; (3) identification of new routes for domestic and international flights that have good prospects for passenger or cargo transport; and 4) installation of high efficiency particulate air filter which can kill 99.99% of virus, fungus

and bacteria particles, airframe sterilization, periodic cleaning of aircrafts and supporting equipment using the aircraft exterior and interior cleaning method, and health screening for flight crew.

3.1.5. Socio-cultural aspects

For all models and recovery strategies: (1) positive public sentiment and behavior towards the aviation industry; (2) confidence of people in travel by plane; (3) increased public trust in the aviation industry; and (4) community participation in campaigning for healthy, safe and comfortable traveling by plane.

3.1.6. Institutional aspects

For all models and recovery strategies: (1) cooperation among stakeholders in the aviation sector to participate in campaigning for healthy, safe and comfortable traveling by plane; (2) provision of relaxation incentives for the aviation industry; and (3) cooperation to restructure the aviation industry finances. The latter two are aimed at helping the industry survive, grow and develop in the face of a pandemic.

3.1.7 Aviation business opportunities

For all models and recovery strategies: (1) optimization of the cargo business; and (2) promotion of pioneer aviation under two price scenarios: standard and commercial.

For the V-shape model, the airline consumer sentiment and behavior are that consumer confidence is speedily recovering. In this case, there are no significant changes in behavior between SS, GS and SbS. For the U-shape model, they are that consumer confidence is gradually recovering for SS, GS and SbS. For the Prolonged U-shape model, they are that customer trust is taking a long time to recover for SS, GS, and SbS; business maintains strict policies, economic recession occurs, and travel agents are struggling or failing. For the L-shape model, they are "travel less worrying about fear" for SS, GS, and SbS; sustainability issues arise, a new way of working in the "new normal" is required, strict policies are implemented, economic depression is taking place, and the number of travel agents struggling or failing is increasing. For the W-shape model, they are that confidence is continuing to decline due to the increase in cases for SS, GS and SbS.

3.1.8. Flight demand

For all models and recovery strategies: (1) new demand characteristics applicable across market segments (business with tours, short distances by long distance); (2) increased confidence, safety and comfort of flights.

3.1.9. Aviation market

For all models and recovery strategies: (1) changes in market supply and demand, and the definition of operating and commercial functions; and (2) redefining the aviation business value chain.

3.2. Aviation Business Strategy

3.2.1. Survival strategy

Aviation business strategies for the V-shape, U-shape, Prolonged U-shape, L-shape, and W-shape models include:

- Collaborative efforts between the government and the public in restoring the demand curve of the aviation industry through discovery and availability of drugs or vaccines, and identification of consumer sentiment and behavior towards aviation, and flight security (aspects of health, security, safety) from the airport of origin, in the aircraft, and to the airport of destination;

- Collaborative efforts between the government and the public in recovering national income, which affects disposable income, to increase the marginal propensity to consume in the aviation sector;
- Government efforts to increase government spending in the domestic and international aviation sector;
- Issuance of a decree by the Ministry of Transportation of the Republic on the complete restoration of the permitted transport capacity for domestic and international scheduled flights;
- Issuance of a decree by the Ministry of Transportation of the Republic on the adjustment of the upper and lower limit tariffs for domestic and international scheduled flights;
- Government efforts to merge state-owned enterprises in the aviation and tourism sectors to form a super hub of national and international airports, including Soekarno Hatta, Ngurah Rai, Juanda, Kualanamu, Yogyakarta, Balikpapan, Hasanuddin, and Sam Ratulangi, to spur the growth and development of Indonesian airlines;
- Negotiation of payment of aircraft avtur fuel to the Ministry of Energy and Mineral Resources of the Republic of Indonesia and PT Pertamina persero through the Indonesia National Air Carriers Association (INACA);
- Negotiation of tax incentive with the Ministry of Finance of the Republic of Indonesia through INACA;
- Negotiation with national and international creditors regarding loan debts, including installments, interest, and aircraft or engine leases through INACA;
- Negotiation of incentives to reduce airport service tariffs with the Director General of Civil Aviation, PT Angkasa Pura 1, 2, Airnav Indonesia, through INACA;
- Hedging of loans in foreign currency, considering that most of the sales of airplane tickets are in Rupiah currency;
- Risk assessment of airlines on their strategy and finances, including cash flow, capital expenditure, operational expenditure, and revenue enhancement;
- Loan restructuring or liquidity management, stabilization of balance sheets, efficiency in the cost of scheduled domestic and international flights
- Airline restructuring or downsizing of organizational structure and network, and fleet rationalization;
- Optimization of domestic and international scheduled/unscheduled flights (captive market) for passenger/cargo transportation;
- Identification of new routes for domestic and international flights that have good prospects for passenger/cargo transport;
- Laying off of pilots/crew of the aircraft, ground officers, and contract employees;
- Merging or acquisition of airlines, if necessary; and
- Comprehensive strategic transformation (i.e., changes in the operating model), including sales, marketing, operations, finance, human resources and other support functions.

3.2.2. Growth strategy

Aviation business strategies for the V-shape, U-shape, Prolonged U-shape, L-shape, and W-shape models include:

- Issuance of a decree by the Ministry of Transportation of the Republic on the complete restoration of the permitted transport capacity for domestic and international scheduled flights;

- Issuance of a decree by the Ministry of Transportation of the Republic on the adjustment of the upper and lower limit tariffs for domestic and international scheduled flights;

- Anticipation of costs upon return to normal conditions (e.g. avtur fuel, taxes, airport services, capital expenditure, loan payables, installments and interest, aircraft or engine rental, operational costs/operational expenditure);

- Regainment of positive public sentiment and behavior towards aviation transport;

- Gradual increase in the demand for aviation and income curves;

- Restructuration or expansion of the organizational structure, network, and fleet;

- Laying off or recruitment of aircraft pilots or crew, ground officers, and contract employees;

- Vigorous promotions and enhancement of service innovation for healthy, safe, and comfortable domestic and international flights; and

- Horizontal integration to acquire ownership and increase control over the company's competitors.

3.2.3. Sustainability strategy

Aviation business strategies of V-shape, U-shape, Prolonged U-shape, L-shape, and W-shape models include:

- Issuance of a decree by the Ministry of Transportation of the Republic on the complete restoration of the permitted transport capacity for domestic and international scheduled flights;

- Issuance of a decree by the Ministry of Transportation of the Republic on the adjustment of the upper and lower limit tariffs for domestic and international scheduled flights;

- Recruitment of aircraft pilots or crew, ground officers, and contract employees;

- Increase in market share position for passenger carried and cargo carried in the structure of the aviation industry through product development, market development, backward integration, forward integration and diversification; and

- Implementation of an ambidexterity strategy by simultaneously adopting strategies, namely exploitation from existing markets and products and exploration of new ones.

Influence to the upstream aviation industry of V-Shape, U-Shape, Prolonged U-Shape, L-Shape, and W-Shape for SS, GS and SbS namely synergize strongly. Meanwhile influence to the downstream aviation industry of V-Shape, U-Shape, Prolonged U-Shape, L-Shape, and W-Shape for SS, GS and SbS namely synergize strongly.

3.3. Overnment Aviation Strategy

3.3.1. Survival strategy

Government aviation policies of V-shape, U-shape, Prolonged U-shape, L-shape, and W-shape models include:

- Realization of government policy in restoring the demand curve for the aviation industry through the discovery and availability of drugs/vaccines (collaboration

between PT Bio Farma/UNPAD and SINOVAC) creating a sense of flight safety from the airport of origin, in the aircraft, and to the destination airport;

- Realization of government policy in restoring national income, which affects disposable income, to increase the marginal propensity to consume in the aviation sector;
- Realization of government policy to increase government spending in the domestic and international aviation sector;
- Realization of the decree of the Minister of Transportation of the Republic of Indonesia to completely restore the permitted transport capacity for domestic and international scheduled flights (by complying with health protocols);
- Realization of the decree of the Minister of Transportation of the Republic of Indonesia to adjust upper and lower limit fares for domestic and international scheduled flights that do not burden the passengers and public;
- Realization of the government policy in merging state-owned enterprises in the aviation and tourism sectors to form a super hub of national and international airports, including Soekarno Hatta, Ngurah Rai, Juanda, Kualanamu, Yogyakarta, Balikpapan, and Hasanuddin, Sam Ratulangi, to spur the growth and development of Indonesian airlines;
- Implementation of negotiations for the payment of aircraft avtur fuel to the Ministry of Energy and Mineral Resources of the Republic of Indonesia and PT Pertamina Persero;
- Implementation of tax incentives from the Ministry of Finance of the Republic of Indonesia; and
- Implementation of incentives to reduce airport service tariffs from the Director General of Civil Aviation, PT Angkasa Pura, and Airnav Indonesia.

3.3.2. Growth and sustaniability strategies

Government aviation policy of V-shape, U-shape, Prolonged U-shape, L-shape, and W-shape models include:

- Realization of the decree of the Minister of Transportation of the Republic of Indonesia to adjust upper and lower limit fares for domestic and international scheduled flights that do not burden the passengers and public;
- Realization of the decree of the Minister of Transportation of the Republic of Indonesia to create healthy competition in the aviation industry.

4.   Conclusions

The recovery of the Indonesian aviation industry can be done using three scenarios, namely optimistic, moderate and conservative. For the optimistic scenario, the aviation industry can use the V-shape model. For the moderate scenario, the industry can apply the U-shape and Prolonged U-shape models. Lastly, for the conservative scenario, the industry can apply the L-shape and W-shape models.

With the current conditions, the V-shape model is challenging to follow. The practical and feasible model would be the U-Shape where recovery takes place gradually. Prolonged U-shape, L-shape, and W-shape models have a slower pace for recovery. Such models involve double dip recovery, such that the aviation demand curve does not immediately return to normal, but shifts to the right.

Acknowledgements

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