



The Future of Airport Workforce

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Executive Summary

Air travel is an irreplaceable industry that makes great contributions to the development of the global economy by underpinning the rapid movement of people and goods. Supporting the air travel industry are airlines, airport operators and airport service suppliers, and their employees.

Because of the COVID-19 pandemic, mass layoffs of airport workers have occurred and new ways of working have taken hold in the industry. Confronted with a rapid recovery in air travel demand, airports across the world are struggling with the challenge of a labor shortage.

It is not easy to fill vacancies by bringing back laid-off workers because airport jobs are finely categorized and vary widely in the type of expertise and skill required. As a result of the COVID-19 pandemic, the importance of airport workers for developing a sustainable air travel ecosystem has been highlighted anew.

Against this backdrop, Chapter 2 identifies the trends impacting the airport workforce from four viewpoints—(i) the impact of COVID-19, (ii) the characteristics (typical values and behaviors) of each generation of workers and the tendencies of Generation Z, who will constitute the core workforce in the future, and (iii) the advance of automation and digitalization—thereby providing perspectives for thinking about the future of the airport workforce.

Chapter 3 identifies the current situation of and challenges related to actions taken at the regional level and at the level of individual airports, particularly Narita Airport, with respect to how to secure the airport workforce. It provides assessments and analyses from the following three viewpoints: (i) the division of “high-tech” operations, including the use of technology for labor saving and manpower reduction, and “high-touch” operations, (ii) the harsh working environment and the low level of worker treatment (wages), exemplified by the prevalence of shift work, outdoor work and manual labor, and (iii) skills, and workforce diversity.

Chapter 4, in light of the trends identified in Chapter 2 and the current situation identified in Chapter 3, Chapter 4 specifically points out the importance of airport

operators taking the initiative to involve airports' stakeholders in their efforts to secure the airport workforce and exercising governance to resolve the challenges, and proposes perceivable approaches and actions, by applying Herzberg's two-factor theory.

1. Introduction

1-1 Background

The COVID-19 pandemic has had devastating impacts on business administration and corporate earnings in many industries across the world.

Regarding the airport workforce in particular, as a result of layoffs and early retirement programs due to the effects of the scaling-back of air flight operations, many workers have left the air travel industry. Workers who have become accustomed to a new way of working are starting to seek greater flexibility in their way of working, which has also changed their values and priorities.

Despite such changes, air travel has continued to be an irreplaceable industry as it has continued to make great contributions to the development of the global economy by underpinning the rapid movement of people and goods. Supporting and enabling the air travel industry to continue such essential contributions are not only airlines but also airport operators and various other service suppliers, and their workers. Such workforce is an essential and indispensable element of airport management and operation.

There is a great variety of airport jobs, and different jobs require different sets of skills. In addition, as airport management/operation evolves day by day due to the advance of automation and digitalization, the skills and experiences required for airport workers change. As a result, it has become more necessary than before to consider the division of work between human labor and machines, including AI systems.

Furthermore, in general, airport jobs are performed by workers employed by companies other than the airport operators. The emergence of the post-pandemic labor shortage has cast a challenge for airports across the world to secure their workforce. As there are limits to what individual airport service suppliers can do to secure a workforce, their expectations for airport operators to take proactive initiative and governance to seek solutions are also growing. It is for this reason that airport operators need to quickly detect and adapt themselves to the changes in their required role not only to seek solutions for the challenges and issues arising from the ongoing COVID-19 pandemic but also as a means of business continuation against future risks triggered by force majeure events, including changes in the international geopolitical situation.

Against the backdrop described above, this paper seeks to help secure a stable airport workforce so that a sustainable air travel ecosystem essential to the future of airports can be established. To do so, it identifies the current situation of and the challenges for the airport workforce, considers the future vision of the airport workforce, and proposes the role that airports should perform to realize that vision and measures to promote collaboration at the regional and national levels, and through joint efforts among individual airports.

2. Trends Impacting the Airport Workforce

This chapter identifies the factors impacting the airport workforce, followed by information on automation and mechanization initiatives that have significant implications for airports to supplement their workforce shortage and, most importantly, business continuation.

2-1 COVID-19's Impact on Airport Management/Operation

Because of the COVID-19 pandemic, the global number of air travelers, which stood at 9.2 billion people in 2019, subsequently fell short of that level for two straight years; a total loss of 10.2 billion people over the following two year period. This situation has continued to have a severe impact on airport revenues, with the total global revenue losses in 2021 estimated at more than 83.1 billion dollars [1].

The airline-airport industry being labor-intensive, is prone to event risks, including military conflicts, epidemics of disease, financial crises, and natural disasters, but with respect to the impact of the COVID-19 on the airport workforce, I would like to emphasize the following two points.

Firstly, while flexible and diverse ways of working have become common, it has become clear that airport jobs are not adaptable to telework. The consensus view is that the air travel industry, which involves many on-site operations, including ground-handling, and passenger and cargo services, cannot afford flexible ways of working; i.e. their workers must work on-site.

Secondly, job satisfaction has declined among service workers as a result of the shift to contactless operations. Based on my personal experience of working for an airport operator and communicating with airline companies, the main appeal of working in the air travel industry is finding delight and satisfaction in interacting with travelers and sharing a portion of their travel experience. However, the allure of working in the air travel industry has faded partly because airport workers have lost ways of cultivating relationships with customers as contactless procedures have been recommended in response to the COVID-19 pandemic.

2-2 Each Generation of Workers' Characteristics and Perception of Airport Jobs

How does each generation of workers view the impact of COVID-19 on airport jobs? The table below classifies working-age generations into the typical four categories and their characteristics respectively [2].

Generation	Birth year	Typical values
Baby boomers	1946-1964	Optimistic, competitive, workaholic, team-oriented
Generation X	1965-1980	Flexible, informal, skeptical, independent
Millennials	1981-2000	Competitive, civic- and open-minded, achievement-oriented
Generation Z	2001-2020	Global, entrepreneurial, progressive

Figure 1: Characteristics of each generation

Values and the degree of commitment to the employer vary among the generations, and it is therefore important for companies to employ workers based on the understanding the characteristics of each generation.

In particular, to ensure sustainable airport management/operation into the future, it is essential to focus on the incorporation of Generation Z into the airport workforce, as they will constitute the largest group in the labor force over the forthcoming years. As Generation Z workers are digital-savvy and prefer a technology-friendly working environment, they may lose interest in airport jobs unless those jobs are transformed to fit the “high-tech” category. Airports’ shift to high-tech operations will be discussed in detail in the next section. On the other hand, compared with other generations, Generation Z workers tend to seek a large amount of feedback on their performance, which can be well achieved in the airport working environment, which involves many on-site jobs performed in team units. In addition, Generation Z workers tend to be less concerned about changing / moving their place of residence [2].

2-3 Advance of Automation and Digitalization

With respect to airport jobs, which may be impacted by event risks and demographic trends as explained above, automation and digitalization initiatives will play an important role in providing solutions to the challenge of how to secure the airport workforce. I

believe there are three major reasons for the air travel industry to promote automation and digitalization.

Firstly, automation and digitalization are intended to supplement the labor shortage at airports. If operations that have until now been performed by human workers are shifted to automation and digitalization, the human resources freed up can be used for other purposes.

Secondly, as airports have promoted automation and digitalization, it has become clear what kind of work require onsite and in person care; the high-touch jobs. Despite the advance of automation, I believe that some face-to-face customer services, such as the handling of VIPs and first-class customers, will continue to exist to suit the airlines' needs to carry out their competitive strategy. Automation enables airports and airlines to have workers who prefer high-touch jobs to concentrate and play an active role on tasks that only humans can perform. That would also contribute in enhancing the customer experience value.

Thirdly, at a time when Generation Z will become the dominant portion in the airport workforce as explained in 2-2, job offerings requiring digital literacy tends to be favored by workers as a recruiting inducement. In this respect, automation and digitalization initiatives at airports place emphasis on providing a better “digitalized stress-free” experience to travelers, mainly within terminals. On the other hand, for many airport jobs performed outside terminal buildings, such as aircraft handling and cargo service, the use of human labor is still regarded as a premise. In addition, the airport working environment is not quite favorable for workers, and improving the environment is therefore another important challenge; see 3-2.

3. Examination and Analysis of the Current Situation and the Challenges for the Airport Workforce

The previous chapters have outlined the current situation of the airport workforce mainly focusing on the issues triggered by the pandemic and the perceivable solutions. This chapter takes a deeper dive to examine the current situation and describes the challenges for the airport workforce, along with assessments and analyses. The specific solutions / actions will be proposed in Chapter 4.

3-1 Division of High-Touch and High-Tech Operations

As the air travel industry has been confronted with problems related to the airport workforce due to COVID-19, the expected role of automation and digitalization has changed. Now, automation and digitalization are expected to serve as a means to make up for labor shortage with technology. In other words, what is important is how to enable workers to concentrate on “high-touch” operations that can be performed only (or better) in person while streamlining other operations through technology for labor-saving and manpower reduction (high-tech solutions).

[Narita Airport’s “Face Express” Initiative]

As part of the shift to high-tech operations, Narita Airport has introduced “Face Express,” a cutting-edge approach to boarding procedures based on facial recognition technology using biometric verification in July 2021.

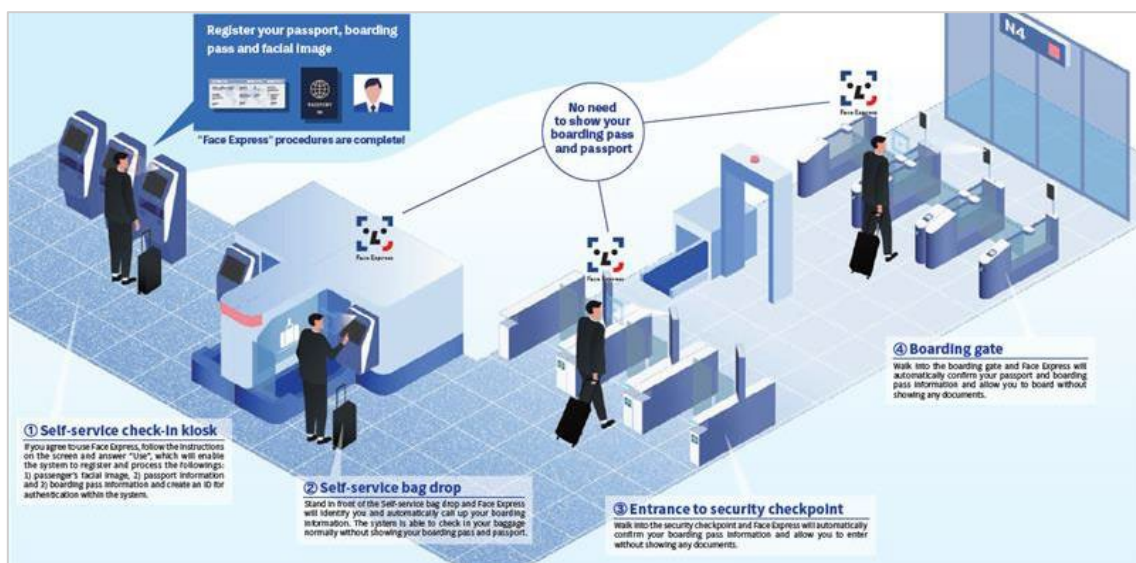


Figure 2: The flow of Face Express

However, since the introduction of Face Express, the shift to high-tech operations has made no remarkable progress. One of the reasons is the increase in the necessary travel documentation due to COVID-19, along with the chronological changes in the border control regulations by the Government. They have made it difficult to shift and streamline the process of document check using high-tech operations. In addition, passengers unaccustomed to the additional document procedures required in-person assistance.

One implication obtained from this is that in order to promote high-touch and high-tech initiatives, it is important that stakeholders, including airport operators, airlines, and system vendors, coordinate their respective roles and strive towards the same goals while listening to each others' opinions. It is particularly important for the airport operators to be ready to take the initiative in detecting and resolving the challenges.

3-2 Harsh Working Environment and Measures to Secure the Airport Workforce (Workforce Planning)

Although the shift to high-tech operations is proceeding, the working environment remains to be quite unfavorable among workers as many jobs are related to aircraft handling and cargo service. This is one of the important challenges for the airport workforce.

While those jobs are essential to ensuring aircraft safety, which could affect many human lives, workers are presumed to be exposed to strong stress due to the second-by-second time management required. Moreover, worker treatment, in general, does not quite withstand the rigors of the harsh, outdoor working environment.

Since before the COVID-19 pandemic, the turnover rate among workers engaging in aircraft handling and cargo service has tended to be high. That tendency has grown because flight cancellations and delays have become more frequent due to COVID-19 and caused the working environment to become more unfavorable, and consequently undermined the business performance of airport service suppliers, resulting in further deterioration of their working conditions.

[Measures Taken at the National Level and at Narita Airport]

In Japan, the labor shortage has also been a challenge since before the COVID-19 pandemic with respect to ground handling in particular. In January 2020, the government drew up an action plan for ground handling [3], which features “securing a workforce and enhancing education,” “improving productivity through sharing of materials and equipment,” and “industry-wide structural reform,” and actions have been taken accordingly. KPIs have been set for the number of foreign workers accepted into Japan, operational efficiency improvement, and manpower reduction, and concrete initiatives have been promoted.

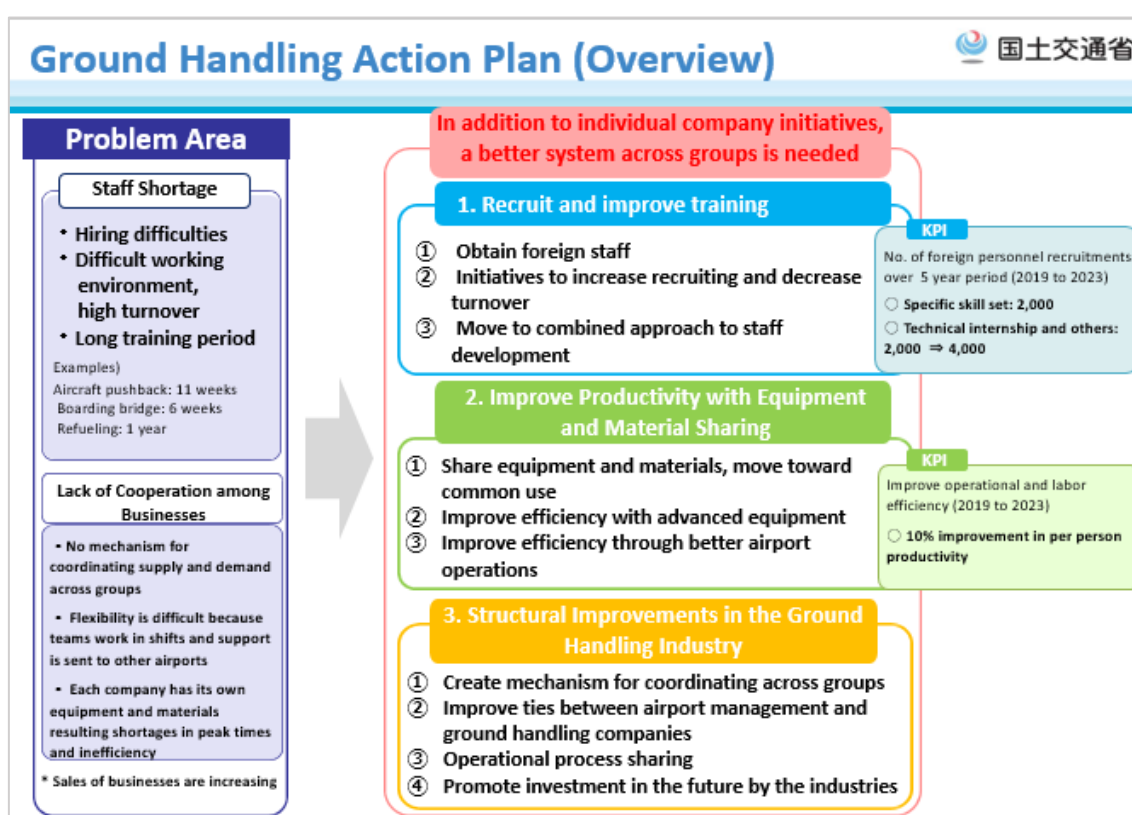


Figure 3: Government's ground handling action plan

The initiatives conducted at Narita Airport mainly by NAA are described below.

Facing the decline in the number of airport employees and the increase in their turnover rate, the Narita Job Port was opened in January 2021 to support job seekers looking for airport jobs. This was the first initiative to be launched by a Japanese airport in cooperation with an administrative agency to implement a comprehensive set of support measures for airport service suppliers and employees. The initiative not only provides employment support for airport employees in general but also extends

assistance to airport service suppliers and employees struggling with the impact of COVID-19, including an English-language consulting service regarding employment and everyday life for foreign workers and assistance for companies in lending and transferring workers to other employers.

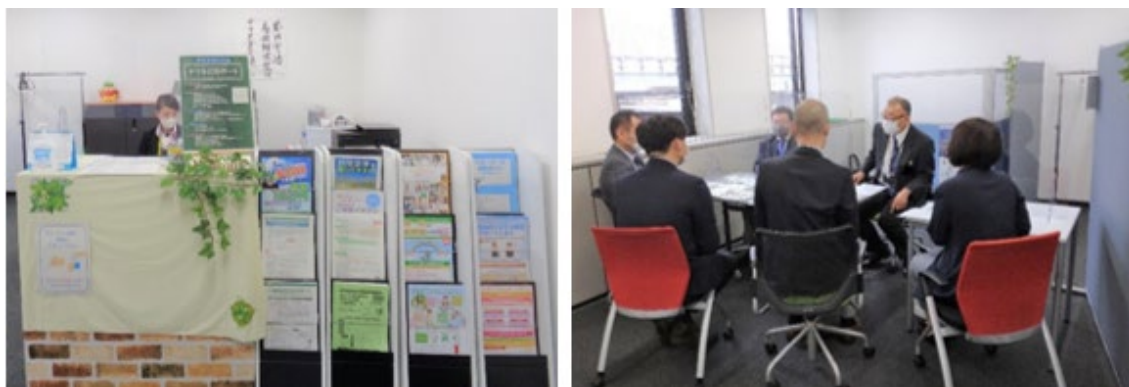


Figure 4: Narita Job Port

It is also important to improve the workforce environment. At present, Narita Airport is upholding the following three objectives in order to improve the workplace environment for airport employees under the “Restart NRT” mid-term management plan for fiscal 2022-2024 [4].

- (i) Provide a comfortable working space (e.g., ensuring the cleanliness of employee lounges and restrooms).
- (ii) Improve the operational environment (e.g., protecting workers against exposure to excessive heat on the aprons and in luggage-sorting areas, and improving the dining environment in restricted areas).
- (iii) Child-rearing support for employees (e.g., increasing the capacity of child care facilities).



Figure 5: Employee lounges and child care facilities in Narita Airport

As a part of the improvement of the dining environment, Narita Airport has just started a study on a food delivery service for airport workers.



Figure 6: Menu tasting session

3-3 Importance of Airport Workers' Upskilling and Workplace/Workforce Diversity [Importance of Upskilling and Promoting Professional Training]

Many airport jobs require the acquisition of skills and competencies in order to maintain operational quality, and making continuous improvements is essential. Usually, the process of developing the required skillsets is implemented individually by airport service suppliers, who must cover the relevant time and cost.

In addition, in order to adapt themselves to high-tech operations, airport workers may have to cultivate advanced and professional technical skills, such as operating robots and AI systems. Stated below are two new important points related to airport workers' skills; airport operators' involvement in training planning and the importance of raising the status of airport workers.

Firstly, foreseeing inevitable and constant changes for the skillsets required for airport management / operation, airport operators and airport service suppliers should collaborate with each other in identifying the characteristics of the current workforce and the skillsets that are expected to be required in the future and jointly consider training plans for developing those skills.

What is important is who should consider and implement plans. Regarding the upskilling of airport workers, in the case of Narita Airport, training programs for customer service and serving customers with disabilities have already been implemented under

NAA's leadership on behalf of the various service suppliers operating within the airport. However, professional training necessary for specific operations has mostly been implemented by the service suppliers themselves.



Figure 7: Customer service training programs by NAA

In the future, although the responsibility for professional training programs relating to specific operations continues to be carried out by individual service suppliers, it will become necessary for airport operators to proactively lead and introduce unified programs, as various facilities and equipments are most likely to be improved and shared as common property through their shift to high-tech operations.

In addition to upskilling, it is also important to provide reskilling opportunities so that the middle-age and elderly generations can continue to work at airports in a sustainable manner.

Secondly, it is important to raise the status of airport workers by promoting professional training. In some cases, there are already institutionalized training and licensing systems operated by the government and aviation authorities, which confer some degree of established status to workers such as air traffic controllers and aircraft maintenance mechanics. On the other hand, for the types of workers mentioned in 3-2, such as ground handling and inspection staff, there are no valid licensing systems to certify and establish their status, and there appears to be differences in terms of the training, working environment and treatment provided between workers who are covered by licensing and those who are not.

While it may be difficult to resolve this problem at the level of individual airports, studies on solutions should be conducted and improvements should be made at the regional level or at the national government level.

[Importance of Diversity, Equity and Inclusion in Workplace/ Workforce]

Diversity is considered to be important in any industry, including airports. More than ever before, it will become important to accept diversity and develop the working environment so that employees with diverse backgrounds can continue to work.

In order to ensure that child-rearing parents, elderly workers and foreign workers, for example, can continue to work without worries, airport operators should make active efforts to improve the working environment through the following measures: introducing high-tech equipment that complements human workers' physical abilities; installing child care facilities adapted to the shift work system; providing access to 24/7 on-site meals.

4. Proposals for the Future of the Airport Workforce

The previous chapters have covered the trends impacting the airport workforce and the ongoing challenges. When addressing any of the challenges, it is important for airport operators to act as the workforce planning leader, as necessary, in resolving the challenges.

With respect to that point, 4-1 below explains the importance of exercising governance, followed by 4-2 and 4-3 presenting proposals for concrete actions.

4-1 Importance for Airport Operators to Exercise Leadership over Airport Stakeholders' Workforce Planning

When taking leadership in airport stakeholders' workforce planning, it is important for airport operators to exercise governance to promote deliberations and improvements necessary for optimizing the frontline manpower, including hiring and retaining workers, and on the technical front, enhance automation and digitalization.

Among the airport service suppliers, there are small businesses that have difficulty implementing measures to attract workers through their own efforts, and in many cases, struggle to secure their workforce. In particular, securing workers in a phase of demand recovery from the COVID-19 crisis is an urgent challenge for airports. At Narita Airport, although limited to specific types of workers, such as inspection staff, NAA has taken leadership in exercising governance to resolve the challenges related to manpower. However, in most cases, no action has been taken to respond to the challenge, or the response made has been haphazard.

In light of the above situation, it is essential that airport operators take the initiative in involving all airport service suppliers in efforts to resolve the challenges with speed.

The following sections present proposals for concrete actions to be taken by airport operators in order to secure the airport workforce and how to exercise governance.

4-2 Raising Work Motivation among Airport Employees

The first set of proposed actions is described in the figure below based on Herzberg's two-factor theory [5].

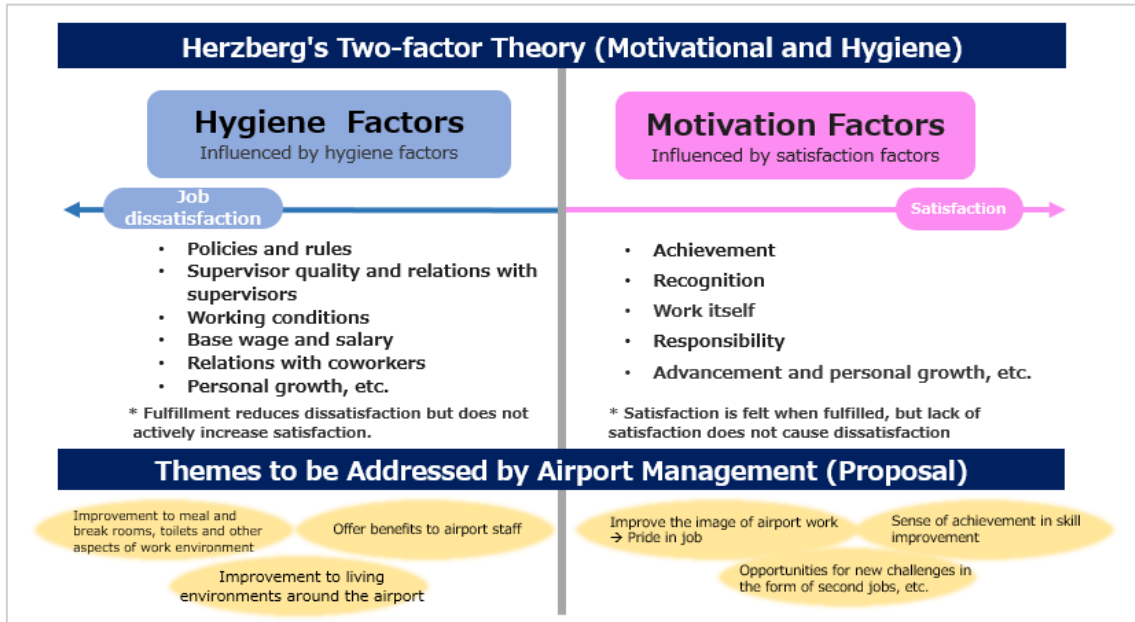


Figure 8: Herzberg's two-factor theory

According to Herzberg's two-factor theory, there are two separate sets of factors related to work motivation—one group of factors increases job satisfaction (motivational factors) and the other group reduces it (hygiene factors). It is important to understand that improving the hygiene factors alone, such as pay increase, does not enhance work motivation. Those improvements should be accompanied with improvements for the motivational factors, including job satisfaction and upskilling.

Airport operators should exercise their governance in order to make improvements regarding the themes indicated on both sides of the above figure in accordance with the characteristics and circumstances of their respective airports

[Actions to Contribute to Motivational Factors]

Airport operators must develop and implement branding and image strategies for airports as a workplace. The image of airport jobs has changed dramatically due to COVID-19, and the number of jobs seekers who desire to work in the air travel industry has trended downward.

Airport operators should respond to this situation by reconstructing the image of airport jobs and advertising the renewed image. If Generation Z workers (see 2-2) are to be attracted as airport employees, airport jobs should be proclaimed as opportunities to try cutting-edge technology using the airport as a testing ground.

In the future, on-site jobs at airports should shift to high-tech operations so that the workplace environment become more comfortable. It is also necessary to use cutting-edge technologies, such as eVTOL (electric vertical take-off and landing) and AAM (advanced air mobility), as well as emphasizing that airport jobs match the interests of the young generation, such as contribution to the realization of an environment-friendly world (e.g. the expansion of SAF).

In addition, to secure a future workforce, airport operators should make active branding efforts in collaboration with airport service suppliers to appeal the aforementioned efforts to capture / lure the interest of the Generation Z workers.

[Actions to Contribute to Hygiene Factors]

To enhance employee satisfaction (ES), various actions may be taken, depending on how the governance is exercised. Among examples are the introduction of a 24/7 food delivery service for airport workers and the improvement of facilities, such as employee lounges and restrooms, both of which were mentioned in 3-2, and the provision of generous employee benefits, such as flight ticket discounts and access to recreational facilities around airports.

Going forward, it will be important for airport operators to support airport workers in developing lifestyles that achieve their well-being, not only by providing a comfortable working environment but also by making proposals regarding a living environment, including housing, and how to spend time off work. Only if airport operators provide such support, can the competitiveness of the airport workforce be maintained in the long term. Furthermore, airport operators should collaborate with local governments of airport host communities to push ahead with the kind of community development that attracts students and airport workers as residents by promoting the agglomeration of educational institutions and aviation and other relevant industries.

[How to Exercise Governance and the Challenges Ahead]

The abovementioned actions are important, but to do that, there are also challenges to be overcome, including whether or not airport operators themselves have sufficient human and financial resources.

As an approach to those challenges, let me cite an initiative conducted by NAA under its medium-term management plan. As a way to create value for stakeholders, NAA is collaborating with outside companies, startup firms, universities, and research institutions to implement demonstration experiments and agile development activity using Narita Airport as a testing ground, and to create innovations in a diverse range of areas. I believe that this approach will provide a breakthrough for airport operators to exercise leadership over their airport stakeholders' workforce. In other words, even when their own human and financial resources are limited under the COVID-19 crisis, airport operators should involve companies in other industries willing to participate in experiments and promote their own technologies using airports as a testing ground and collaborate with them to resolve the challenges.

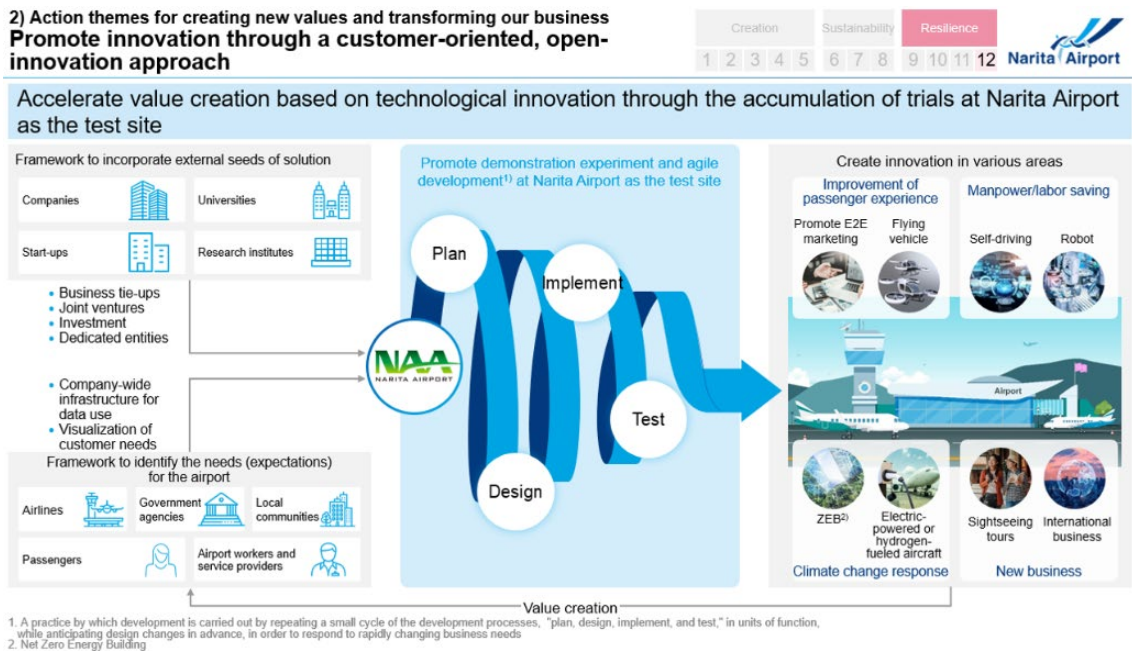


Figure 9: "Restart NRT" medium-term management plan for fiscal 2022-2024 [4]

4-3 How National and Regional-Level Airports Can Collaborate to Support the Future of the Airport Workforce

As part of the second set of proposed actions, let me elaborate on airport-to-airport collaboration to support the future of the airport workforce.

How to secure a workforce has emerged as a common challenge across all countries and regions because of COVID-19. Among the possible options for airport-to-airport collaboration to address this challenge is the flexible use of human resources across airports and companies. Airport jobs are and will continue to be standardized in many aspects, and therefore, airport workers can work at any airport once they have acquired the necessary skillset. If workers can be shared between airports and between airport service suppliers, staff shortages can be flexibly addressed to some degree.

For workers, the prospect of working abroad may also be an attractive inducement. Generation Z workers are like digital nomads who frequently move from one place of living to another to suit their way of living. If a work-life model of changing the locations of residence across the world while continuing to work as an airport employee abroad is developed through airport-to-airport collaboration, it may become possible to secure a flexible and sustainable workforce.

However, such sharing of workers may not provide a solution to long-term staff shortages, because this approach relies on the human resources that are currently available. As a fundamental solution, it is necessary to recruit airport workers and develop vocational training programs through collaboration between host communities and airports.

One possible option may be for host communities and airports to grant a designated professional worker status to employees engaging in specific operations, such as ground handling, mentioned in 3-3, and prepare training programs for cultivating and certifying common skillsets. Raising the status of such workers will be very beneficial for securing a stable workforce for jobs for which there is a chronic labor shortage and also be effective as a motivational factor that encourages people to work at an airport.

As a framework for promoting such training, I would like to propose ACI to introduce a

globally recognized licensing system that certifies the level of individual skills. Such a system will improve the skills of workers and foster employers' trust in the quality of workers.

5. Closing Statement

The first task to which I was assigned after joining NAA was supervising a range of on-site jobs, including cleaning terminals, retrieving carts, and managing indoor planting schemes. To grasp what the actual frontline situation, I visited terminals almost every day to observe users or to compare notes with airport staff.

That experience alerted the presence of a significant gap in my perception of the frontline. In my mind, airport jobs had previously been associated with glamour, but the reality was that on-site staff had been facing a severe environment, including the rigors of the shift work system, such as early morning and late night shifts, the stressful situation of being constantly exposed to people's eyes, and a wage level not sufficient to instill motivation.

In this paper, I emphasize the importance for airport operators to proactively exercise their initiative and governance, and at the bottom of this stance is my desire to find out why it is difficult to improve the harsh on-site working environment that I have continued to see and what can be done for the sake of on-site staff.

I have a strong wish to establish the airport, a place with a special presence, as a lifelong workplace where employees can continue to work with motivation. As a representative of the younger generation of employees, I am committed to strive towards achieving that goal.

Last but not least, I express my sincere appreciation to the secretariat staff of ACI Asia-Pacific for providing me the opportunity to present this paper and to my colleagues at NAA who have given me useful inputs.

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