



# Executive Summary

*We respectfully acknowledge the Wurundjeri People, and their Elders past and present, who are the Traditional Owners of the land on which Swinburne's Australian campuses are located in Melbourne's east and outer-east.*

*We are honoured to recognise our connection to Wurundjeri Country, history, culture and spirituality through these locations, and strive to ensure that we operate in a manner that respects and honours the Elders and Ancestors of these lands.*

*We also acknowledge the Traditional Owners of lands across Australia, their Elders, Ancestors, cultures and heritage.*

*We also give thanks and acknowledge all involved in our journey during the CBI A3 Program for 2019-2020.*

Drug use is a global problem, however despite Australia's small population, Australia is one of the highest users of illicit drugs in the world. Drugs can have a devastating effect on society, resulting in injury, death and a multi-billion dollar cost on society. The focus of this problem is prevention of drugs from entering society. Our solution focuses on airports as a strong entry point into Australia.

The Halo is built with CERN technology, resulting in the detection of illicit substances by Medipix3 that might be carried on by a passenger, in cargo or even a corrupt officer. ROOT gathers data from Medipix and compares it to data already stored on the system outlining illicit drugs through supervised machine learning. The whole process works without human intervention as everything from luggage removal to immigration, customs and declaration, can all be managed by the HALO and relevant robotic technological integrations. The real-time communication will provide them with real-time tracking information of their flight and luggage, helping navigate passenger movement, improving airport service and providing a better passenger experience. Research on the identification of illicit drugs, airline and government cooperation, and border protection integration are all key elements.



# Team ASE



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Aman is a Masters of Design student at Swinburne University. He is originally an Architect who wants to increase his perspective on design through his study in Melbourne. He currently works as a graphic designer in Melbourne.



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Suzi is on her half way through Master of Design. Having a great interest in how we can apply design thinking and research to our real-life. With an integrated design background, she loves communicating with visual solutions.



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Evan is a full-time Master of Design Strategy and Innovation student, currently also involved in the Design Factory Global Program. He has an Engineering and Human-Centered Design background, and is currently following the path of strategic design as a career.

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# Problem Space

## What does good health and well-being mean?

Apart from physical health which can easily be censored, good mental health is also a crucial factor that affects our well-being. According to the Mental Health Foundation (n.d.), 'mind' and 'body' should not be considered as "separate" factors of health, as "poor physical health can lead to an increased risk of developing mental health problems" While experiencing poor mental health we can have a negative effect on our physical health ("Physical health and mental health", n.d.). Addressing health and well-being with a holistic perspective allows us to better understand the overall effect on the mind and body.

## The illicit drug problem in our society

The drug problem is inseparably linked with health and wellbeing, which has an immense negative impact on both physical and mental health. Illicit drugs can cause the risk of premature death not only through the direct harm of drug overdose but also the indirect pathway such as suicide caused by mental problems, risky behaviour and communicable disease HIV (Ritchie and Roser, 2020). The research from the World Health Organization (WHO) stated that there is clear evidence that the devastating drug usage will cause a negative effect on physical and psychological damage. This includes organ damage and drug-induced psychosis. Organisation Beyond Blue (2020) states that illicit substances alter the overall function of the user's body and brain, which have a negative impact that can change "the balance of chemicals that help your brain to think, feel, create and make decisions (Beyond Blue 2020). From the Institute for Health Metrics and Evaluation (2017) research, over 1.5% of the global disease burden is caused by illicit substances addiction. In some countries, drug overdose is highly related to the top cause of death (Ritchie and Roser 2020).

## SDG 3 and Illicit Drugs

The Sustainable Development Goals, which were blueprinted by the United Nation to achieve a better and sustainable future for all, also targets illicit drugs as one of the pressing problems that are having a negative impact on our health and well-being.

In Sustainable Development Goal number three, the core value is to ensure healthy lives and promote well-being. It was understood that 'good health and well-being' outlines a holistic definition of health where physical, mental and social health and well-being were deemed the three main aspects of the goal. The drug is closely linked with several diseases includes both communicable and non-communicable, such as, AIDS has potential to be transferred through sharing drug-injecting equipment (Safe Drug Use 2020); also, the mental health problem that caused by long-term drug usage and addiction effect which will trigger the mental problem and will potentially lead to premature mortality. Moreover, In the target 3.5, the United Nation even directly pinpoints the necessity of treatment and prevention of substance abuse (SDG 3: Ensure healthy lives and promote wellbeing for all at all ages 2020).



### 3.3

By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

### 3.4

By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.

### 3.5

Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.



# Context

1.8%

Percentage of injuries  
cause by illicit drug  
use in Australia

3<sub>people/day</sub>

Number of deaths  
from a drug overdose

\$5b

Social cost of  
dealing with  
methamphetamine

\$8.2b

Total cost of illegal  
drugs on the  
community

## The drug problem in Melbourne, Australia

Upon the investigation of health and wellbeing in Australia, and more specifically Melbourne, the excessive use of illicit substances stood out as a significant issue. Stimulant drugs, 'especially Methamphetamines, Cocaine and MDMA/Ecstasy, pose the biggest threat to the health and well-being of their users.

The social cost to the community estimated to be attributable to the use of illicit drugs was over \$8.2 billion (Alcohol & Drug Foundation n.d.) where the cost of methamphetamines was in excess of \$5 billion dollars in the 2013-2014 financial year, alone (Whetton et al. 2016; AIHW 2019).

This cost included those associated with various domains, such as prevention, harm reduction and treatment, premature mortality, health care, crime, child maltreatment and protection, as well as workplace accidents and productivity (Whetton et al. 2016; AIHW 2019).

Research suggests that users who develop an addiction typically struggle to stop what they are doing without the right forms of help and support (Alcohol & Drug Foundation n.d.), as well as the fact that Australian youth/young adults (Aged 20-29) are the highest users of illicit drugs amongst all age groups (AIHW 2017).

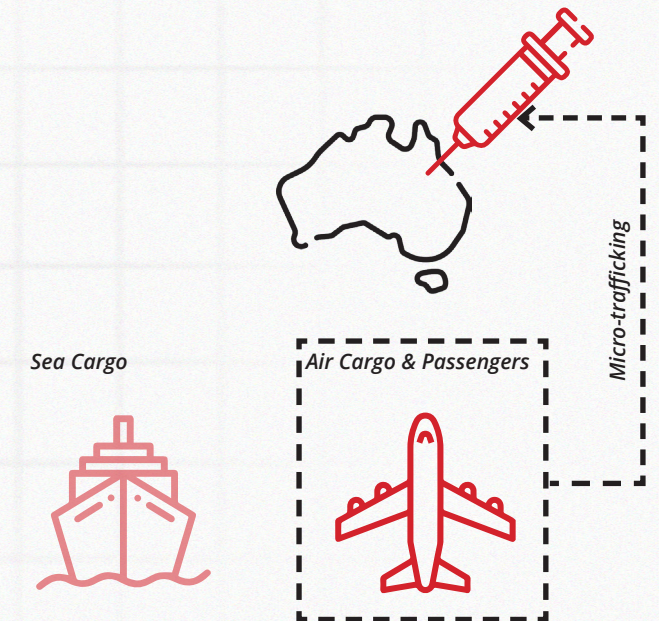
In order to promote the sustainable development of future generations, we must ensure that future generations are given the best possible chance to reach their full potential, making sure that "the needs of the present (are met) without compromising the ability for future generations to meet their own needs" (IISD n.d.). Working on this societal challenge of minimising the overall effect of illicit drugs will only help improve the health and well-being of people everywhere and not just Australia.

## How do drugs enter the Australian Society?

Australia is an island nation, with 35,821km of coastline if you include all islands and territories. The trade of goods can only occur by sea or by air. The respective borders are kept highly secure by the strong security control at airports and the navy. Even though the geography of Australia prevents illicit substances from directly coming into the country, Australia is one of the highest users of these substances. Without domestic drug produce, there is still a huge amount of drugs coming through importation methods into the country. From the World Drug Report, most of the drugs in the world originate in Central Asia, Southeast Asia, and South America. These drugs trade illegally through the dark web and smuggling. From the Illicit Drug Data Report (2017), there are a large number of drug seizures from air cargo, international mail, and sea cargo and they continue to grow every year. Even with these seizures occurring every year, there is still a strong presence and impact of these drugs in Australian society.

Furthermore, according to the Australian Border Force, there are many important factors contributing to the growing concern of airport security along with costs inflicted by the government. These include:

1. Around 15 Billion dollars are spent by the Australian government for prevention of accessibility of drugs and response to the effect of drugs in society.
2. International Mail entering the country is accumulated highly at airports, concentrating the pressure of detection of large amounts of illicit substances.
3. Recent staff shortages at airports have created delays and passenger traffic at airports as these structures have not been able to keep up with the sudden growth in air travelers. This does not let security personnel do their job efficiently as managing the passengers and complete security is compromised.



4. Control of imports is difficult as incoming packages from the dark web are untraceable and can keep coming in at alarming rates. It is up to the security system to be efficient to quickly detect these packages.

5. The existing detection system uses X-rays to provide officers with visuals to understand the contents of each package. If physical monitoring is not completely accurate the detection rates fall down and allow illicit substances to enter the country. These systems can generate human error.

## Micro Trafficking

Over recent years, as advancing technology and accessibility to the Internet has increased, the security and anonymity that the dark web provides boost the increase of micro-trafficking internationally (Martin 2020). The threshold of the trafficked drugs in Australia is quite little which is around 2-3 grams (Hughes et al. 2014). Moreover, corruption is a huge issue in the illicit drug smuggling problem (Martin, 2020). Out of all the borders, airports stand out to be very crucial due to several future prospects that outline the use of airports as a border in the 10 years ahead. Airports are also prone to several other dangers like biosecurity, terrorism attacks, etc. With changing times, security measures at airports need to be reevaluated.



# Timelines

## Melbourne up-to 2030 and Beyond

In order to develop for the future, A clear understanding of the society and the world that we will be developing into is required. Firstly, We understand that Melbourne’s population will continue to increase (AICD 2019). According to Wright & Sakkal of the Sydney Morning Herald (2019), Melbourne will have a population of 5 million by 2026, making it the largest city in Australia by population. With this population increase, more government action will be taken to improve and develop infrastructure for our growing city (Victorian Government 2019; Eggleton 2019). Along with these planned infrastructure developments comes a scheduled and approved upgrade of Melbourne Airport to be completed by 2025 (Melbourne Airport 2019b). This scheduled development includes a third runway which will be the second international runway of Melbourne airport, creating 300-400 new employment opportunities in construction and around 15,000 airport employment opportunities will be created over the next two decades (Melbourne Airport 2019b).

This airport upgrade is expected to deliver greater tourism, business and freight opportunities into Melbourne airport, reflecting a need for more aircraft in circulation (Melbourne Airport 2019b; AICD 2019). An increase in freight transport will result in more parcels and packages that need to be dispatched (AICD 2019); this increase is expected to contribute over \$16.8 billion per annum by 2043 (Melbourne Airport 2019b). Boeing, one of the world’s leading aircraft manufacturers, in their 20-year-market plan, aims to build 42,730 new aircraft in order to combat this rise in demand for freight and travel (AICD 2019); The manufacture of such aircraft will result in the global aeroplane fleet doubling in size by 2037 (AICD 2019).

Australia’s import and export legislation will continue to become more strict in the declaration of goods and prohibited substances that can pose a threat to Australia’s agriculture (Martin 2020). As ultra-long flights begin to become a regular occurrence, general trade, alongside micro-trafficking of illicit substances will continue to increase as the origins of incoming flights will increase in number, putting more pressure on Australian airports on efficient processing (Lowry 2020).

## Melbourne Airport

In the past few years, total passengers of Melbourne airport have increased by 4.3% while 9.4% increase in international passengers (APAC ANNUAL REPORT 2017/18, 2019). With the growing air traffic and expansion of the population in Australia, Melbourne airport is currently under the planning of the third runway to accommodate more travelers in the future (Melbourne Airport’s Third Runway, 2020). At the same time, in order to tackle constantly evolving challenges and adapt to the changing aviation environment, Melbourne airport is seeking security expansion within the terminal as well as the upgrade of efficiency on airport infrastructure and airport services. As micro trafficking is surged by the evolving technology, increasing the accessibility of illicit drugs entering the country, the security system within the airport has to be revised. Moreover, Melbourne airport is expecting to increase international destinations as well as building greater international relationships to amplify the business and trade opportunities in the future. Initiating a holistic development plan that secure Australian border, combat internationally illegal smuggling issues and provide seamless passenger experience is in demand for a better future Melbourne airport.

## Identifying the Gaps

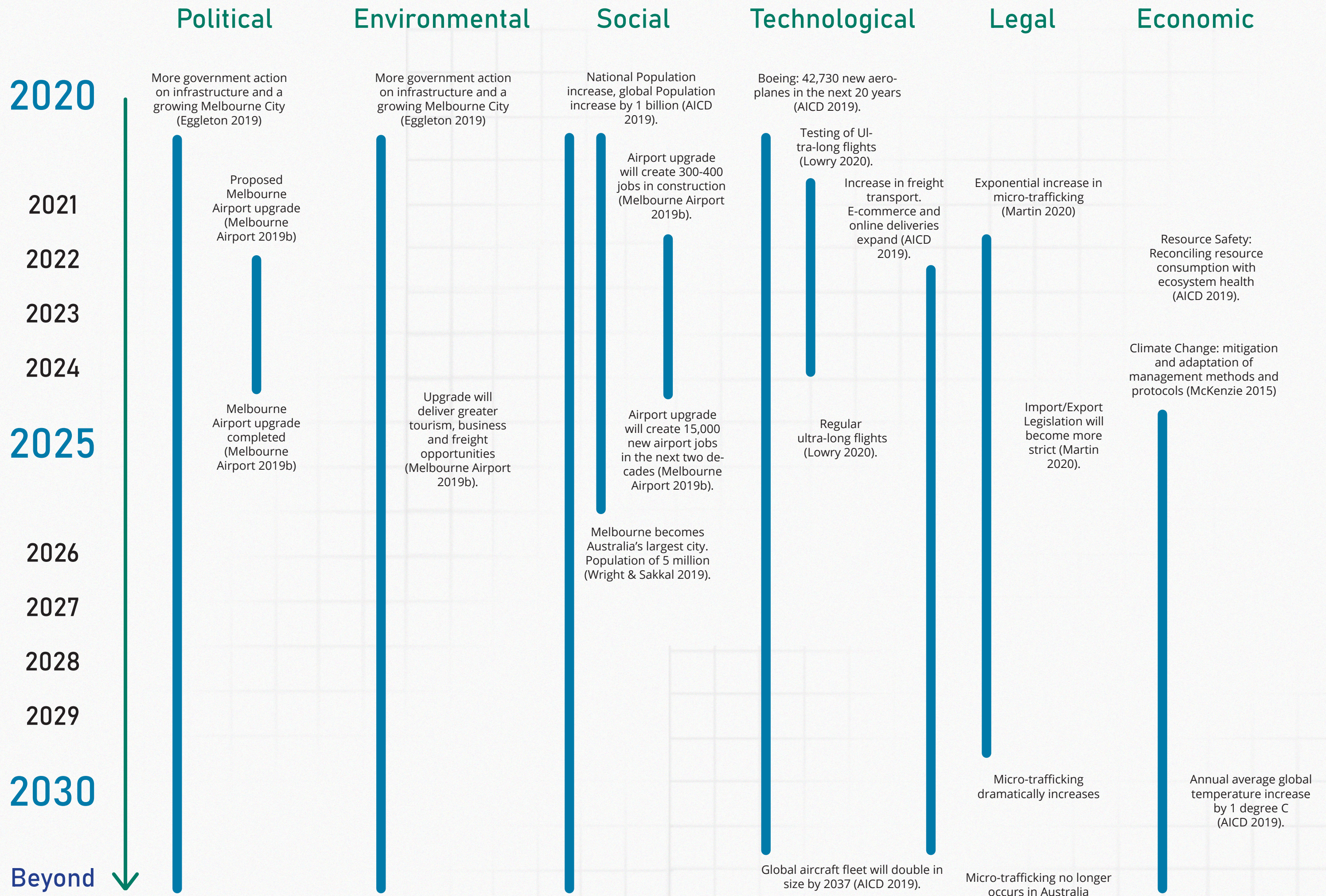
We understand that Australia’s border security system has successfully increased monitoring and seizures of bulk amounts of illicit substances entering the country. According to Lucy Cormack of the Sydney Morning Herald (2019), 1kg of illicit drugs is seized in Australia every 17 ½ minutes, with a record of 30.6 tons seized between 2017-2018 (ACIC 2019). However, despite this record seizure, the use of drugs, such as cocaine and methamphetamine, is continually on the rise (AIHW 2016). Despite Australia’s efforts, illicit substances still end up in the hands of society and continue to affect the communities of those who use them.

The identification of several issues within current Australian border security highlighted the gaps in the system that could be targeted by some form of intervention. Firstly, current cargo detection systems comprise of a “red flag system”, meaning that certain parcels and items will only be investigated if they “raise enough flags to be deemed suspicious”, resulting in a number of items passing through without examination (Martin 2020). ‘Red flag’ criteria include location (is the country of origin known for illicit drug manufacture?), the packaging method of an item (if the item is packaged professionally in a parcel with a label, or done by hand), and an X-ray scan that reveals the contents as an image, which is then visually examined. This leaves sufficient room for many prohibited items and substances to enter the country, especially if a staff member is involved and abuses their authority to handle these substances (Martin 2020).

Secondly, during visual monitoring and depending on the method of concealment, airport staff may bypass an item and fail to identify a prohibited substance or item (Martin 2020). This may occur accidentally, as current X-ray scanning technology used at airports provides an image to differentiate density, organic materials, and metals in one layer, making it difficult to sift through the contents effectively without removing all items from a parcel to perform a thorough examination as passengers also feel it is ‘intrusive’ (Bosca 2019).

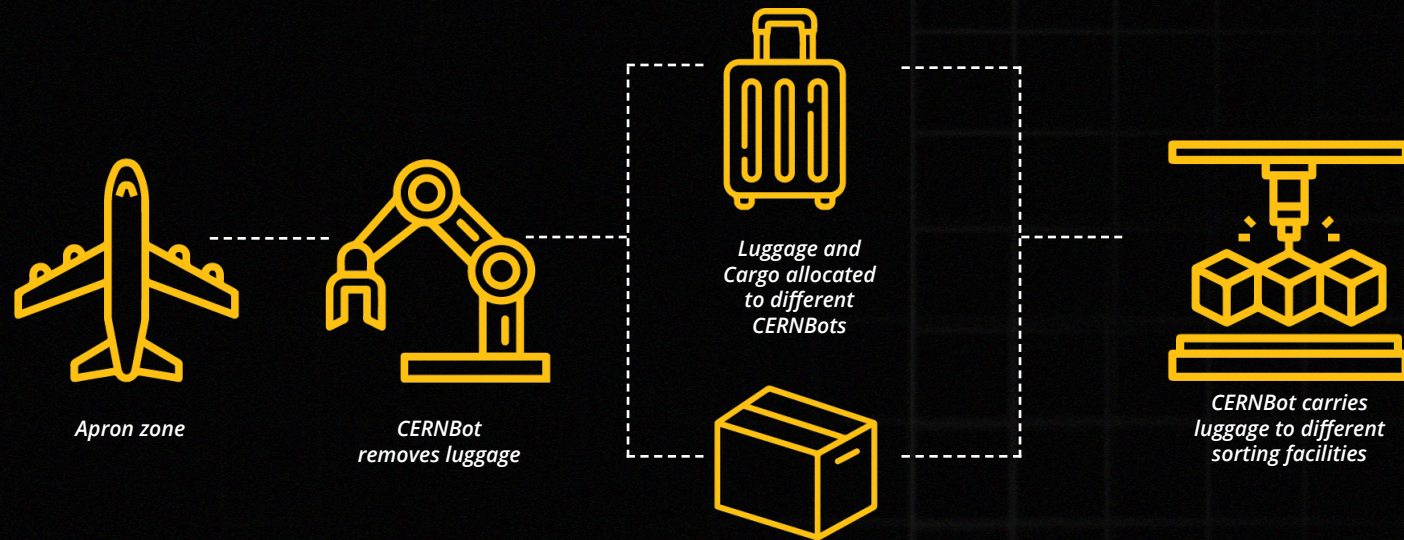








# 2025: Developments



## Autonomous Luggage Handling

As Melbourne Airport begins its expansions on the third runway by 2025 and bring changes to the infrastructure, a prerequisite to our solution finds its place in this year.

With the increasing passenger load alongside developments taking place, the management of luggage and passengers both becomes a crucial task as any of these factors should not affect global trade and travel. Moreover, as airports have been under fire recently due to its staff engaging in illegal smuggling of drugs, there is a need to omit the human factor out of this process.

This can be easily done by using robotic arms like CERNBot that would need to be redeveloped for commercial use. The main function would be removal of luggage from the planes and allocation of that luggage to either a connecting flight, the airport luggage handling station or mail sorting facilities. This will be **different** to current robotic solutions explored at airports around the world that only handle luggage after it has been checked in and does require human monitoring. For a robotic arm to be able to perform such tasks, it will need to work with the latest AI technology and be able to detect bags through RFID tags.

## RFID Tags

This technology is easily available in the market and can be used to develop tags for luggage, cargo and mail. This would help the robotic detect and identify the type of item and where it needs to be relocated.

This technology would also help the passengers or businesses track their luggage live as each scan would feed information to a server creating a more reliable system to ensuring the safety of luggage. This would also prevent misplacement of luggage at airports and ensure no human intervention has taken place in the entire process.

This will increase the passenger experience overall and help the airport authorities in better management of the airport during infrastructure redevelopment as the 2030 solution rolls into play. Higher authorities will be able to reallocate jobs that would be compromised as the redevelopment would create new job opportunities. Training of staff into new job rolls will be constant process that will be carried on till the end of 2030.



Image Source: Vanderlande



# 2030: HALO



The HALO is a checkpoint designed for the Australian Border Security as it combines immigration, customs and declaration into a holistic solution. It helps in micro-imaging and scanning of incoming passengers, luggage, cargo and mail to identify any drugs crossing Australian borders through airports. It ensures that no human intervention or negligence transpires in monitoring our borders.

Deboarding passengers head straight to the HALO assigned to their flight. They scan their boarding pass or passport to be identified. The passenger steps in while their bags come up on

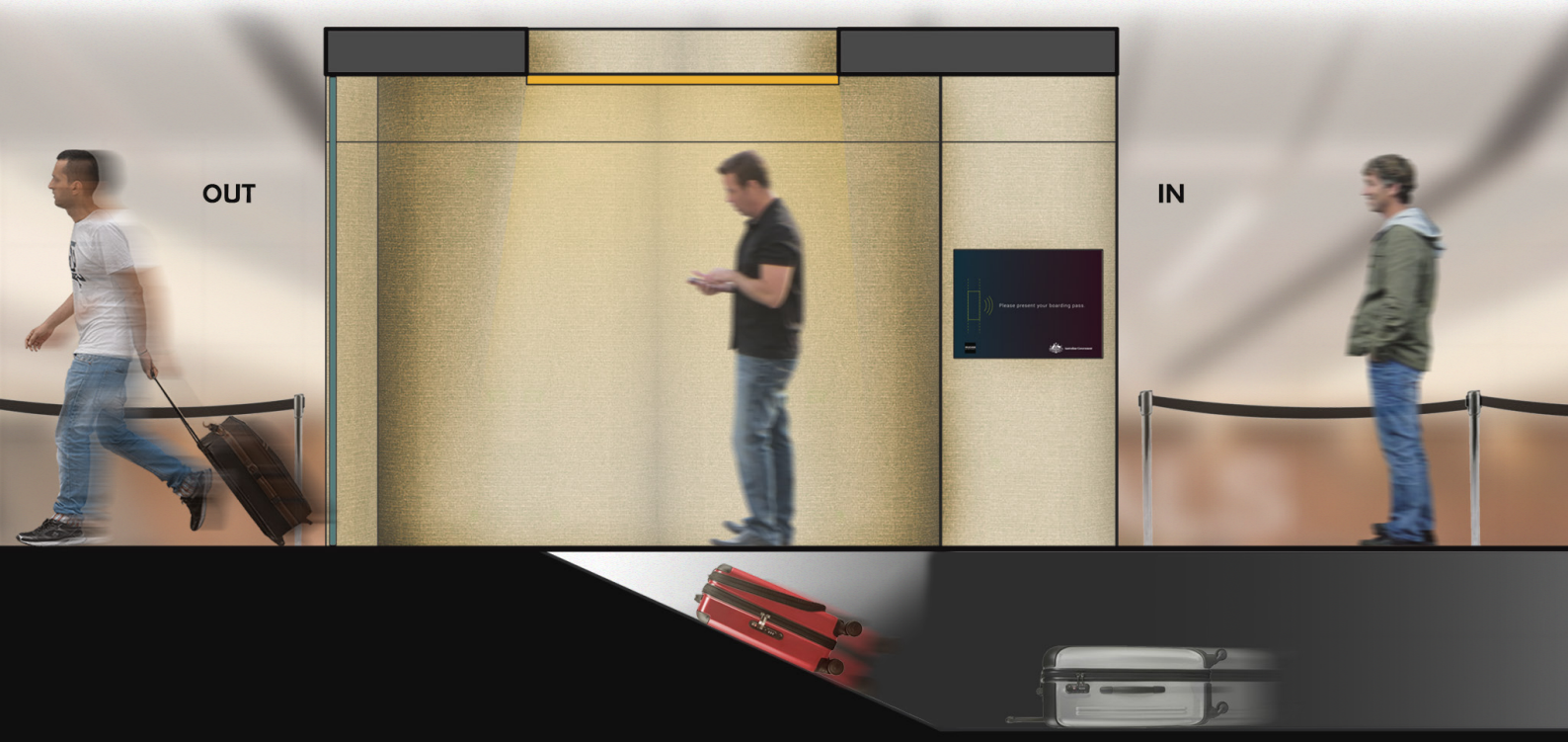
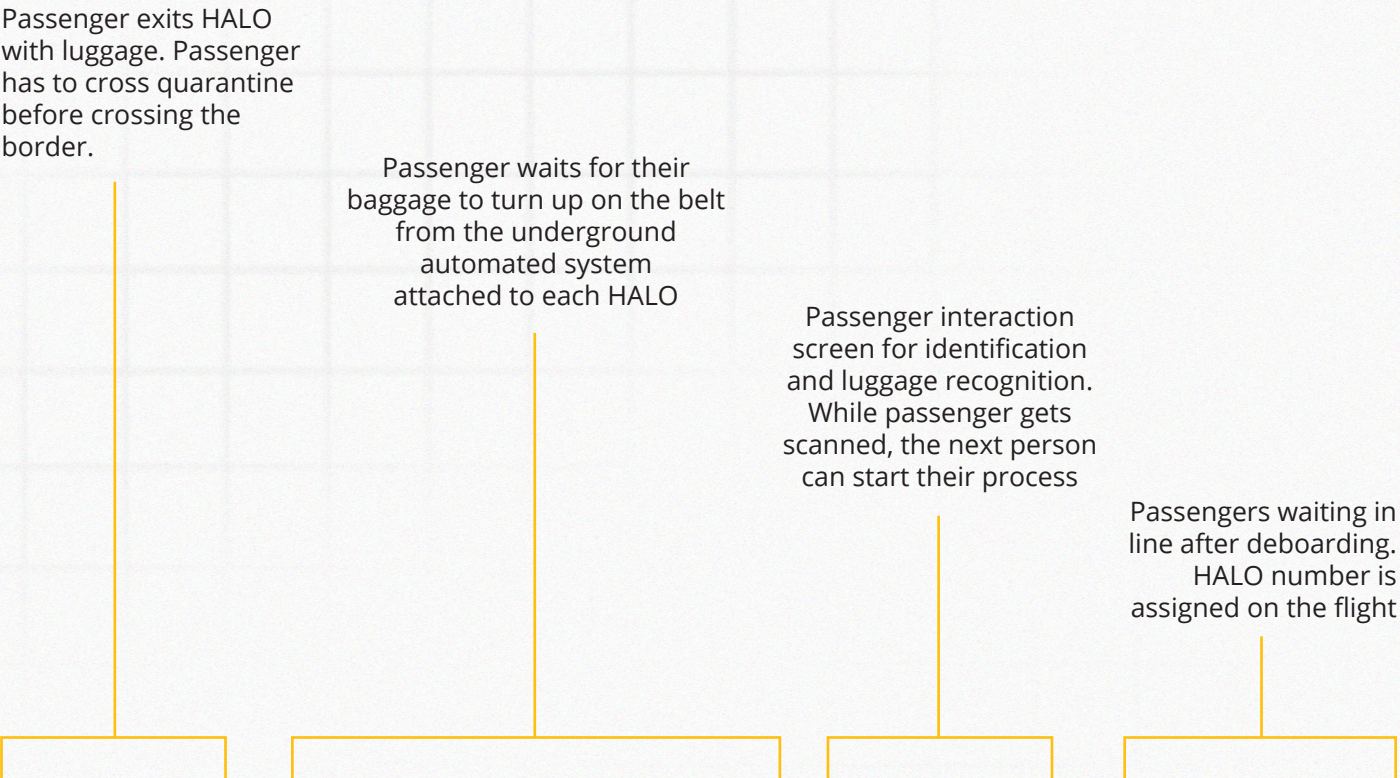
the conveyor belt beside them. As one passenger gets scanned the next can begin their identification process. This creates an efficient process in the handling of luggage. This is done using robotic tech like CERNBot that is triggered to place the correct luggage on the concerned belt when the HALO identifies the passenger. With this development in place during 2025 it will be thoroughly tested with respect to time and technicalities before combining the two solutions in 2030. Ensuring there is no human intervention in the process, the passenger and their luggage get scanned together and clear the procedure.



# Components

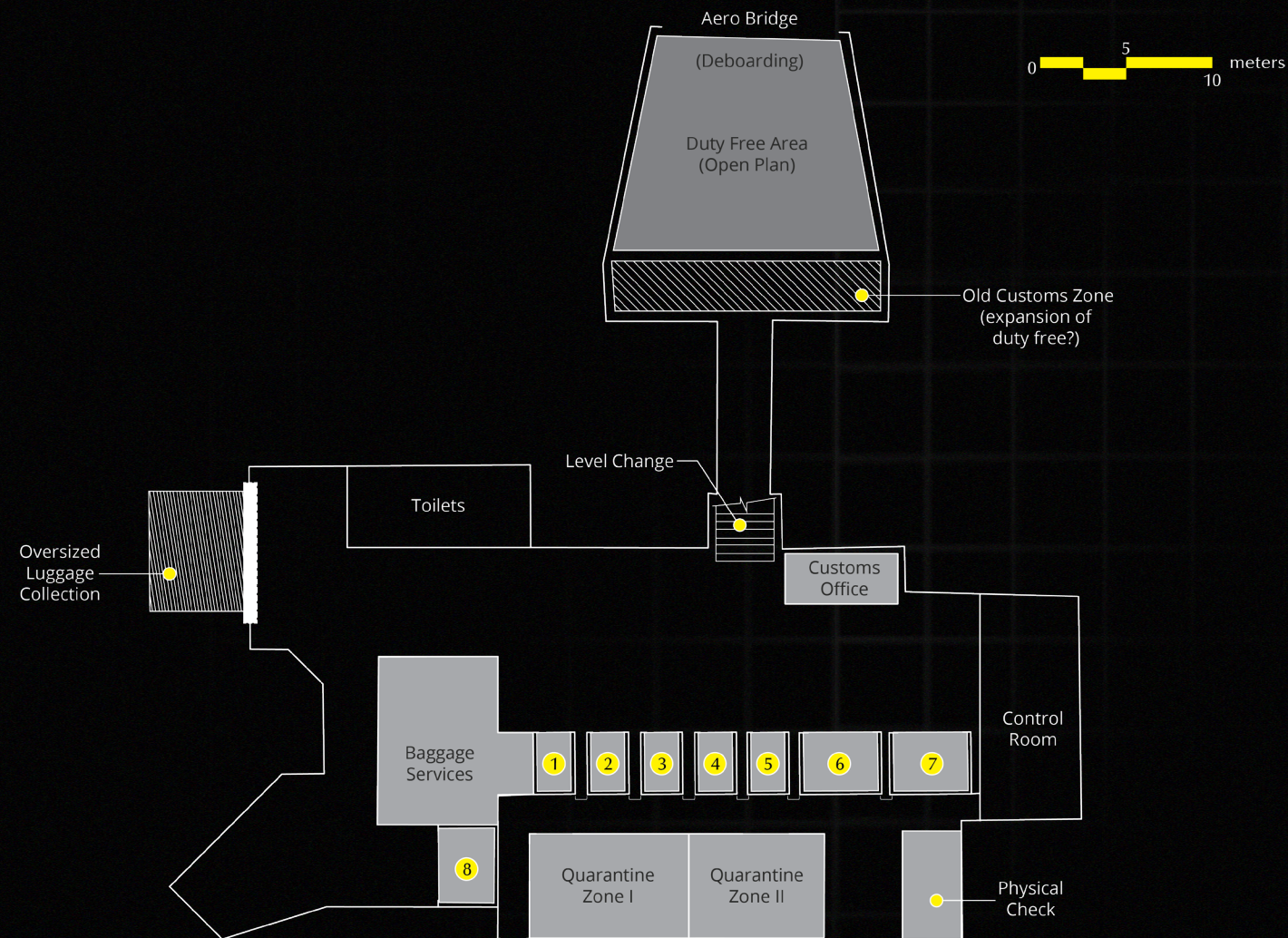


# Process





# Concept Plan



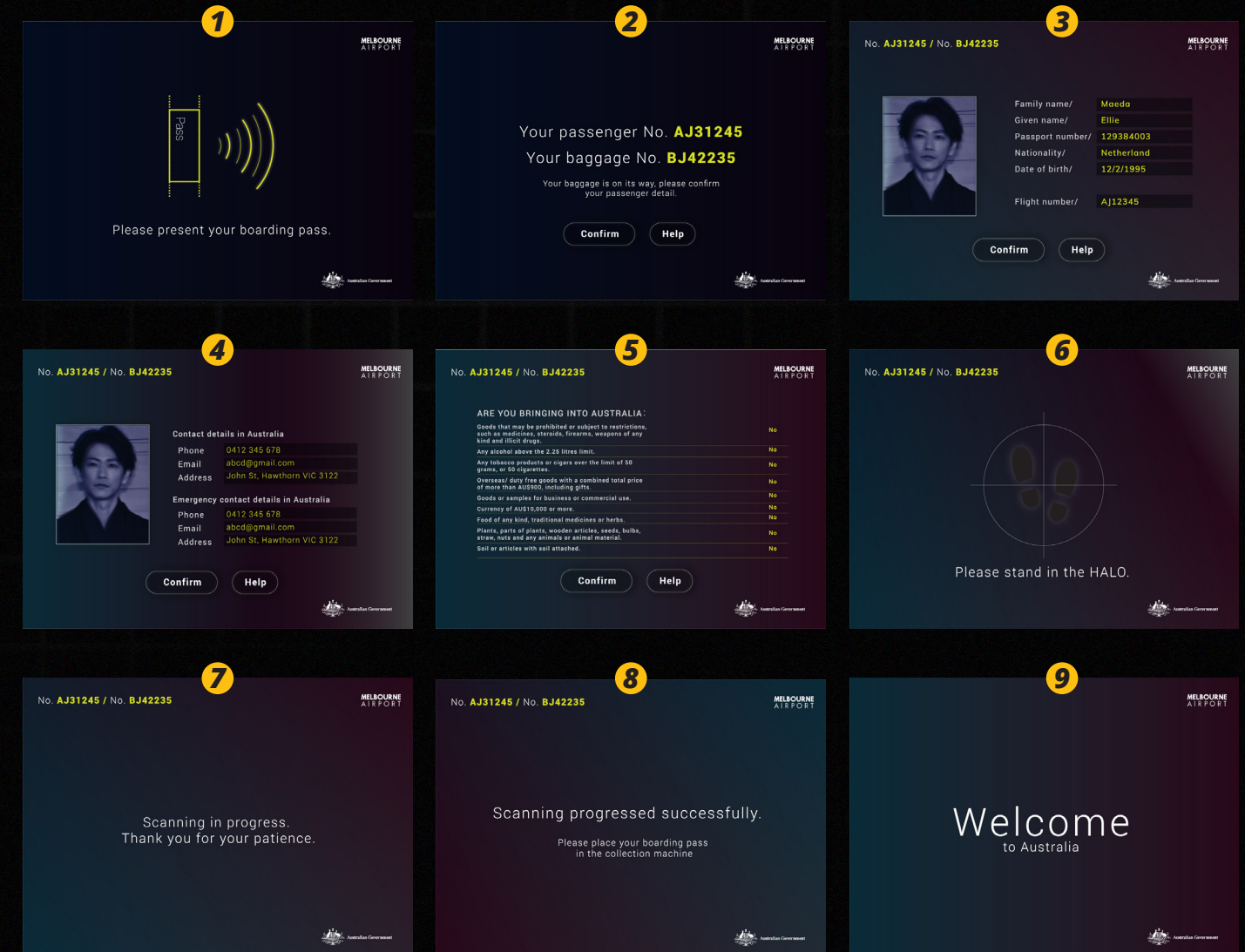
This concept plan explores the flow of passengers through the airport and the interaction point with the HALO. Even though this plan is based off the existing Melbourne Airport plan, the placement of the HALO can be oriented any way possible as different airports in Australia can work on connecting baggage belts to HALOs based on the respective floor plans.

The HALOs are designed to cater to incoming flights by informing the passenger on-board a flight which HALO to head to once they land in Melbourne. This can be done through clear communication on the flight itself similar to the declaration videos displayed on flights currently. The HALOs are designed taking

into account the type of passengers flying to Melbourne: Australian Citizens or Residents, international travelers, disabled passengers or anyone with oversized luggage. In case of a malfunction or the incorrect luggage being received, the passenger can inform the security personnel and be redirected towards baggage services where the passenger can receive their correct luggage and exit after a secondary check through the HALO.

Once the scan has been completed, the passenger can head straight to the exit but in case of any illicit substance or any prohibited goods being detected, the passenger is redirected to quarantine zones that are present right next to the exit.

# Passenger Interaction



The passenger interaction screen is designed to improve the procedure for the passenger while maintaining the highest level of security and supervision as possible. Declaration is a confusing and intimidating process to many passengers entering Australia and the Border Security and Immigration Department wants to improve this process and make it easier both for the passenger and security personnel.

The interaction screens have been developed in a way to take the passenger through a step wise guided process of declaration. The passenger can change the language from English to their native language as well. Once the HALO identifies the passenger, it will ask the passenger to confirm their identity by displaying infor-

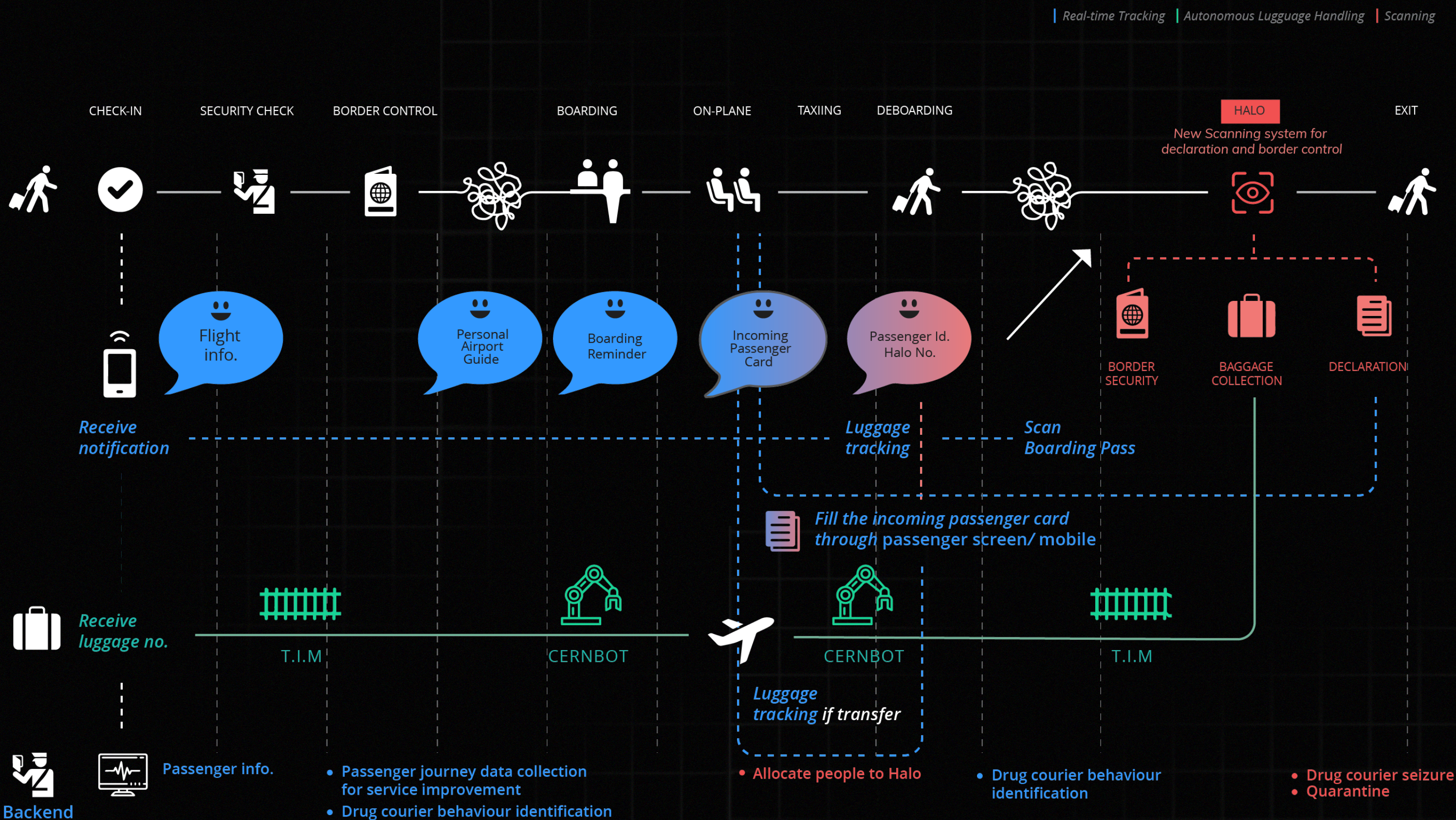
mation already received by immigration at the time of the passenger boarding the flight. This is account for all nationalities not being able to procure a biometric passport by 2030.

The HALO matches the declared items list to the contents and clears the passenger to exit the airport with their luggage.

In case of confusion or technical errors, a passenger can easily ask for help from security supervisors to help them through the process.



# Journey Map





# Technology

## Medipix

The HALO uses CERN's Medipix technology that is used for micro imaging. Medipix acts as a camera as it counts each particle of an object when its shutter is open. Medipix can create highly detailed, layered and high resolution images. Currently a New Zealand based company MARS has integrated Medipix3 with its camera to create 3D x-ray images of the human body. These x-rays are highly reliable as they can differentiate between bone, tissue and fats and segregate them into different layers to be viewed accordingly.

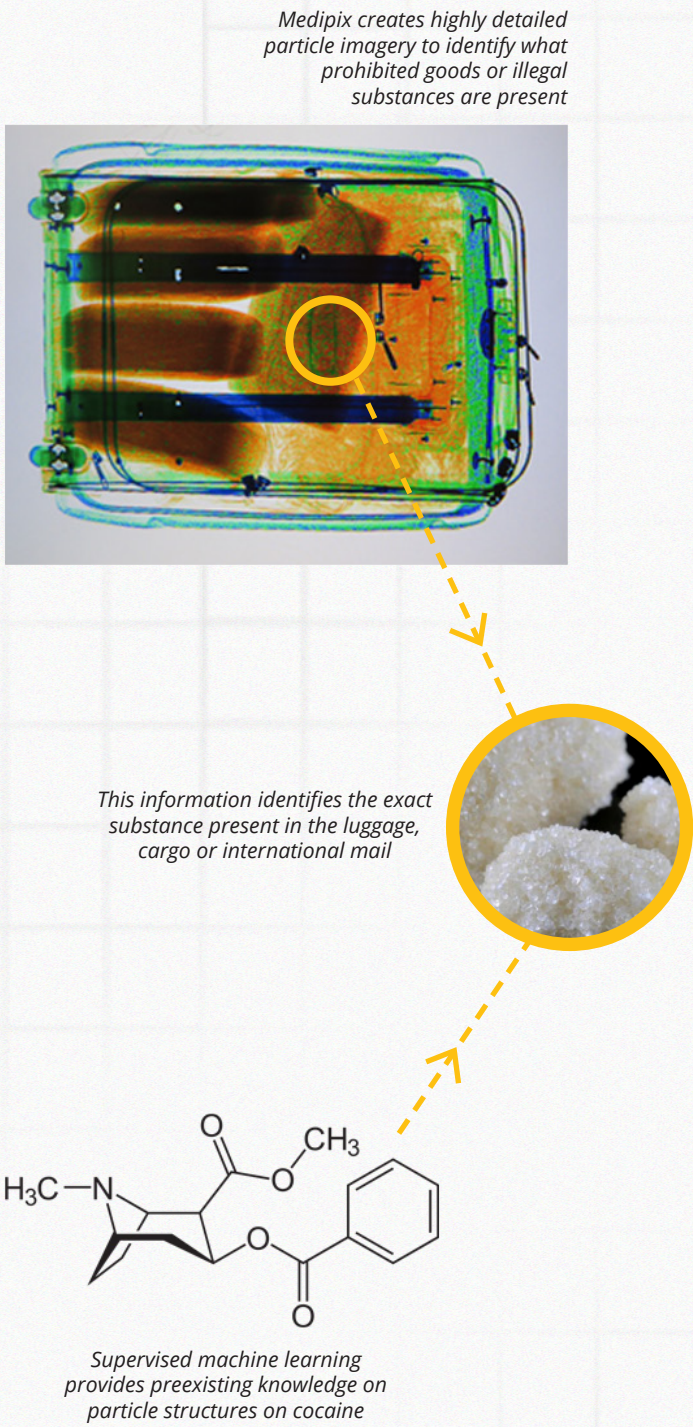
For the HALO we assume that a later version of Medipix will be developed by 2030, preferably version 5 or 6 that can help in quicker imaging and detect even smaller particles.

## ROOT Analysis

ROOT Analysis will be working with Medipix to offer data stored on the system by supervised machine learning. This means that the ROOT will provide MEDipix with data on what illicit substance or prohibited good look like down to its particle structure and compare the results by Medipix to provide a positive or negative result. This can work better if an AI chip is integrated with Medipix to allow local analysis of data rather than using two technologies.

## CERNBot and TIM

As highlighted in the 2025 developments, the CERNBot and TIM will be used for autonomous luggage handling and inspection of luggage and cargo storage and movement facilities to ensure no human intervention takes place. Both these technologies will be remodeled for commercial use to handle different loads, safety features and running times.



# Value Proposition

The implementation of the Halo, first and foremost, will result in the detection and identification of illicit substances concealed by possible passengers, staff and crew on their bodies, as well as in their luggage without requiring any visual monitoring or baggage checks. Medipix3, if used to its full potential, is capable of producing an image so detailed that it is able to layer and distinguish a person's muscle tissue, bone, nervous system, and general metals and nutrients in their bloodstream with minimal radiation and radio frequency energy (MARS bioimaging n.d.).

Current X-ray technology emits 10,000 times less radio frequency energy than an average phone call made from a mobile device (Melbourne Airport n.d.). Along with the reduced energy and radiation emissions in the Halo, the technology is programmed to search for and detect any illicit substances within its scanning space, without producing a detailed image of the passenger/staff/crew member and luggage being scanned as it is unnecessary, ultimately resulting in the prevention of drugs crossing Australian borders. The integration of CERN technology and Supervised machine learning (where technology receives an input with a specific output) will evolve as the technology evolves to become more efficient, effective and accurate in the near future. This machine learning will allow for the information and characteristics of illicit substances, such as a crystalline structure, to be inputted into the Halo and will alert staff if the detection of an inputted substance occurs, removing the need of human intervention in the technology as no change are able to be made without anyone knowing (McNulty 2015).

The introduction of the Halo will increase job efficiency of airport staff as the Halo assists in passenger handling, acting as the first and last checkpoint of passengers, staff and crew upon arrival. It prevents corruption prevailing in

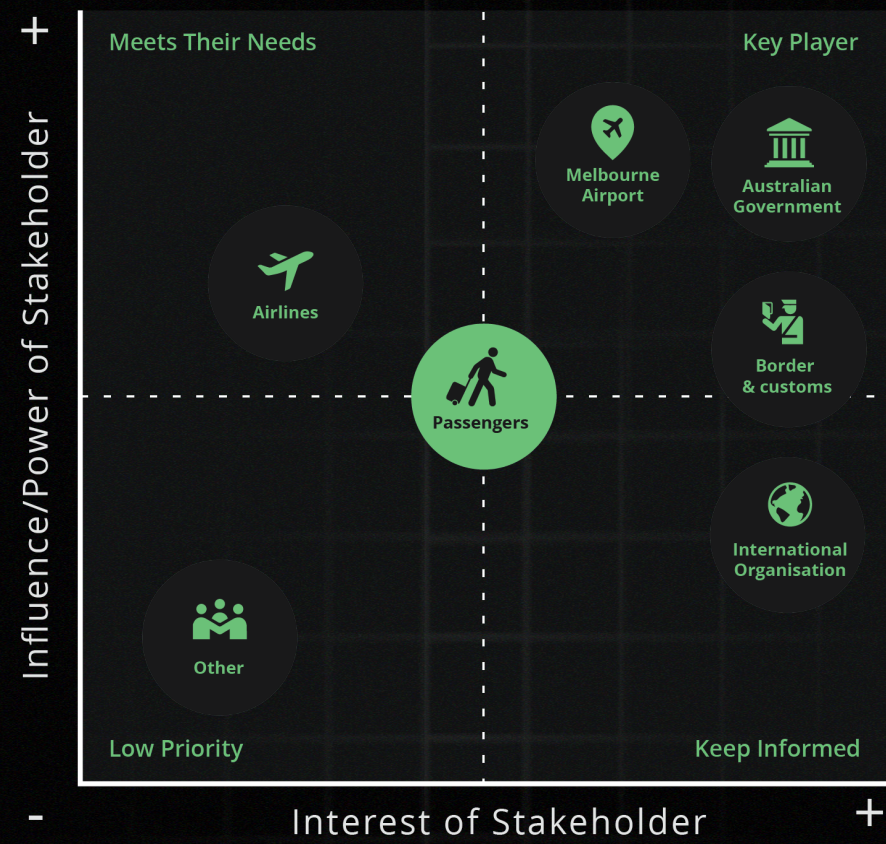
detection and internal illicit substance transfer as any corrupted stuff will no longer be able to bypass this system. The Halo integrates baggage collection, goods declaration, as well as customs and immigration systems in the one holistic solution, reducing overall wait times of airport processes with multiple stops. According to John Dow from the Guardian (2011), an average flight carries 100 passengers. Depending on the number of Halos assigned to a flight, the overall wait times will be greatly reduced for passengers. Assuming an average of 230 passengers at 30 seconds per interaction, scan and exit of a passenger from a Halo, the maximum wait time of a passenger will be 38 minutes with 3 Halos assigned to the larger flights. In comparison, the average weight time at Los Angeles International Airport, one of the world's busiest airports, is between 40-45 minutes, with an average maximum wait time ranging between 120-160 minutes when dealing with an average of 1800 passengers per hour during peak times (Airport Wait Times n.d.). The system of Halos' maximum wait time when dealing with an equivalent number of passengers during peak time is 60 minutes, cutting more than half the time required.

Overall, the Halo pushes for the gradual and exponential achievement of Sustainable Development Goal 3: 'Good Health and Well-being'. It helps strengthen the prevention of substance abuse in society, especially "narcotic drug abuse", acting as an intervention in the prevention of substance use disorders and even negative factors of recreational use (SDG Knowledge Platform n.d.). On a broader scale, the prevention of drug use can reduce the number of road deaths and injuries from drivers under the influence of illicit substances, reduce premature and maternal mortality of illicit substance abusers, all of which are preventable and are targets of this Sustainable Develop Goal of 'Good Health and Well-being' (SDG Knowledge Platform n.d.).



# Stakeholders

- Melbourne Airport Authority
- Airline & Air crew
- Government
- Border & Costoms
- Passengers
- International Organisation
- Airport Community



As tackling illicit drug smuggling in an airport involves a combination of complex factors, many of these factors are interdependent. It requires cooperation between aviation sectors and illicit drug combat authorities. To achieve the eventual stage of the Halo functionality, the government and the airport authority play crucial parts through the process. The key role of the government is to initiate the project and funding to ensure the safety of the border, while the airport authority is responsible for planning and coordinating the establishment and operation. Concurrently, the Australian Border Force and Australian Federal Police, which are under the Federal government, have to work closely with the security system under the airport authority to provide illicit drug smuggling information to ensure the HALO and the system works efficiently. Furthermore, the knowledge transfer sector at CERN can assist and advise on CERN technology integration across data collection, scanning system and autonomous handling system. Indirect partners, such as concessionaires,

airport community and airport suppliers need to support and comply with the other sectors during the transition period. The international organisations can be important partners for international coordination and experience sharing. In addition, keeping the international organisations informed will amplify the global development of aviation and illicit drug smuggling seizure and enhance the communication internationally in the future. Passengers, as the origin and destination travelers are the key influencer of the project. They are the main user of the airport as well as contribute to the regular financing of the airport (Schaar and Sherry, 2010). The alteration of airport infrastructure has to satisfy passengers while achieving the goal of fighting the illicit drugs smuggling problem.

In the first five years, we will be at planning and the data collection stage to prepare for further steps. The scanning system will be collecting data on the potential illegal substances and other border threats. At the same time, the

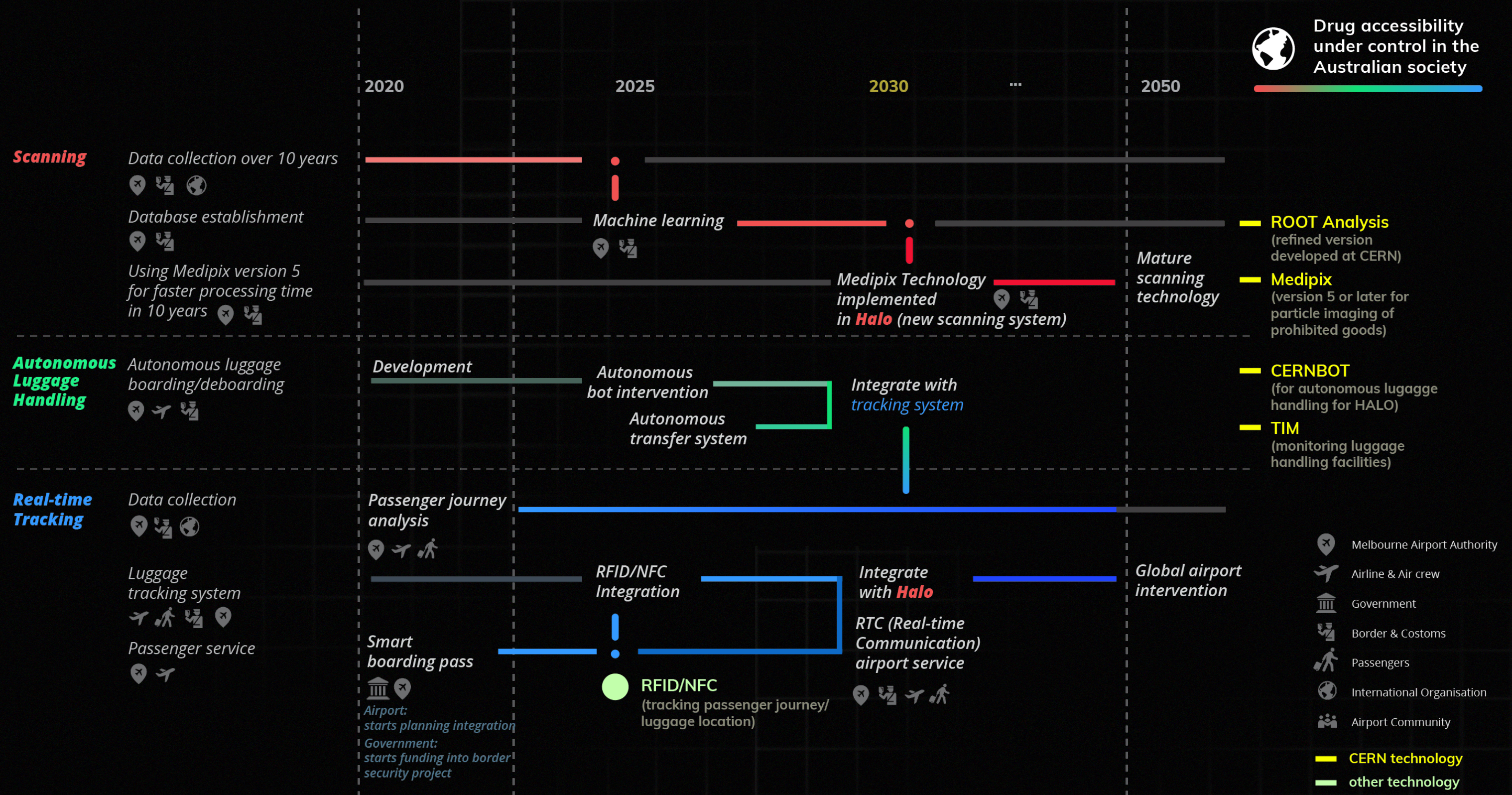


autonomous baggage handling system will require five years of planning and developing the autonomous infrastructure. The real-time tracking system will start the smart boarding pass trial as well as initiate the data collection on the passenger journey and behavior in order to provide a better service for passengers while the alteration of the infrastructure within the airport. From 2025 to 2030, we will be at the construction and connecting stage to integrate the intervention. While the establishment of the scanning system, we will require artificial intelligence and machine learning experts on the methods of data analysing to prepare for the eventual scanning system ready for 2030. Meanwhile, the construction of the autonomous baggage handling system within the airport will be initiated. This includes the autonomous bot intervention and conveyor system to achieve the autonomous system goal. Based on the smart boarding pass design, the RFID/NFC technology intervention will be intervened to improve luggage service and facilitated in the future baggage handling system.

In 2030, 10 years allow Medipix to evolve into a faster and mature technology that is implemented to our new scanning technology - Halo, an integration of declaration, baggage collection and border security/customs systems, which will utilise supervised machine learning, where data of the substances will be inputted into the halo. Simultaneously, the development of our autonomous luggage handling system will be in place that integrates with our real-time tracking system to achieve a smoother and more efficient process and experience. With the maturity of passenger data, integrated with real-time communication technology to provide passengers with an instant and customised airport and air experience. With the support and close communication with the international organisations, we look forward to seeing the framework of the Halo system will be able to expand globally to combat the illicit drugs smuggling, improve global aviation experience and industry and enhance the international connection in 2050.



# Implementation Road Map





# Additional Values & Future Steps

As the Australian Border Security works through out the years to improve the system on border protection from drugs, the next step would involve sharing this technology and system with other economies as the relationships continue to grow with different countries. To be able to meet the goal of prevention of substance abuse as highlighted by the United Nations, eradication of drugs from all societies would further strengthen the aspect of Good Health and Well-Being globally.

Australia is under continuous bio-hazard threats from alien pests and microorganisms that passengers can bring into the country. It is important to tackle these issues at the border itself and prevent them from entering our society. Since 2016, there has been a 6% increase in bio-hazard related threats at Australian airports. Moreover, the recently identified SARS-COV-2 or the Coronavirus has caused a global pandemic weakening our society and economy. We ask another important question.

*What if the HALO can be used for micro imaging for these viruses and bio-hazards at the point of entry itself?*

We do not know what the future hold but we can be prepared for it when time comes.

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Team Bee - CBI A3 2019-2020

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