

# airports of the future

callum burton



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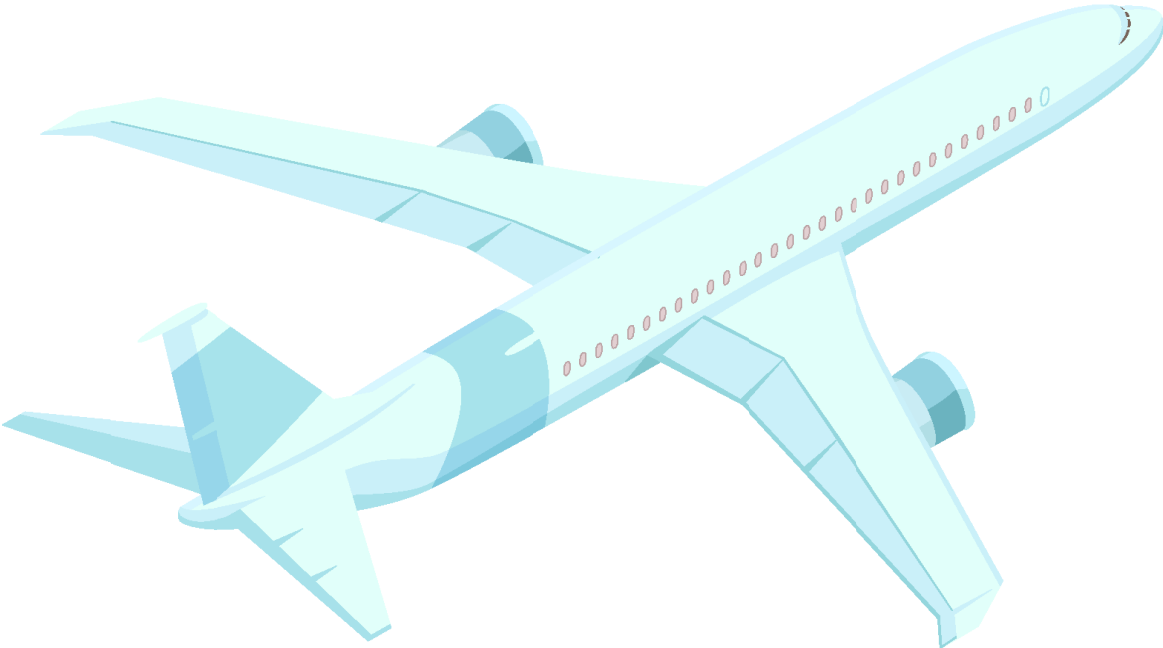
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# introduction

Positive air travel experience is important due to the visible increase in passenger numbers and the ever expanding air industry, supported by on-going research throughout this industry by the likes of Queensland University of Technology. This on-going research explores a wide variety of topics within the ecosystem of airports such as the retail experience, way finding, security experience, passenger typology and identification. People are passengers, and the air industry takes great pride in assisting passengers moving from one place to another at the passenger's expense. The air industry is expected to rise 4.0% from 2019 to 2020 to be a total of \$908 Billion industry which dwarf's previous expected numbers (IATA, 2020). The number of passengers worldwide is the driving force behind this growth, also expected to rise approximately 3.95% globally with variations across each defined sector (IATA, 2020). This growth is not just on the international scale and hits close to home as well with the Brisbane Airport Company (BAC, 2019) recording an 8.0% increase in its total revenue in 2019 to be \$840 million (BAC, 2019). With the growth of the airport industry as a whole, the number of flights daily from airports is increasing to support the passenger demand for travel. This demand for travel also fuels the demand for increased accessibility to destinations which, in turn, is reflected through the building of new airports. The total number of airports worldwide, according to the International Air Transport Association (IATA, 2020), is predicted to increase from 22,228 to 23,162 in the year 2020 (IATA, 2020). The cyclic structure of the industry fuels growth and the expansion of airports to offer bigger, better, and more experiences to modern day travelers.

The Aim of this paper is to explore the factors and influences that both directly and indirectly affect a passengers experience and emotions within the airport ecosystem surrounding discretionary activities.



# project progression

Research and literature review conducted based on existing airport airside experiences. This secondary research identified a significant research gap within existing literature that informed the rest of the primary research progression. The selection and explanation of clear methodology followed the identified research gap. Online interviews and an online questionnaire were completed to create a robust data set. The collected data set was analysed and coded to inform a discussion between the data set gathered and the existing literature surrounding discretionary activities completed within the airside airport environment. The discussion was used as a basis to inform design initiatives based solely from found data. The initiatives informed design recommendations that presented as a design proposal.

01

secondary research

02

research gap

03

methodology

04

data collection

05

analysis and desing implications



# literature review

The literature review is broken down into the following five sections:

1. breakdown of passengers
2. airports for culture vs placeless and faceless
3. airport psychology
4. liminality vs destination
5. research gap





## breakdown of passengers

Passenger Activities are commonly categorised into two categories: Discretionary and Processing activities (Popovic, 2010; Kirk, 2013). Discretionary activities being passenger chosen and optional to the overall airport experience; examples include shopping, browsing, eating, and exchanging money. Processing activities are, however, integral to the operation of the airport experience. They include: bag drops, check-in, security screening, and boarding. with equal importance to these activities, however, is to understand the governing bodies responsible for the mandates which airports must abide by and in turn affect passenger activity and experience (IATA 2020). This commonly results in a lack of passenger-centered perspectives being taken into consideration during processing activities due to their nature (Popovic, 2010).

The interplay between all of these activities is, in part, partitioned by a division present in activities of the airport system. This division of activities occurs because of the security screening process, which is highly regulated and governed by the Transport Security Administration (TSA), resulting in a split. This split results in Airside and Landside activities and another way to classify passenger activities (Livingston, 2012). The classification of Airside and Landside activities concerns itself with the division of offered activities due to the security screening processes and internal airport travel restrictions. For example, liquids being brought through security vs liquids purchasable post security. Another classification for passenger activities is to classify through passenger numbers the group vs individual activities that can be conducted (Popovic, 2010). This has the highest impact when considering passenger flow through restrictive areas in the airport experiencescape.

## breakdown of passengers

Segregation is often considered a bad thing due to the inequality it creates. Yet in Air travel it is a normal occurrence with passengers being constantly segregated and divided depending on the amount of money they have paid. A study by Picanza found that up to 86% of people will pay more for an enhanced customer experience (Picanza, 2016). This is visible through lounges, boarding times, specialised lanes, and customised offerings and is linked to the dominance of the commercial airport and the underlying reliance on air travel as a form of connectivity (Price, 2014). A supply and demand model is presented, with the supply being the offered experience and the demand being the passengers and their reliance on air travel. This can directly impact the overall perception of airports, which can be either positive or negative depending where on the spectrum the passenger is located. Airports, however, cannot cater to every user at the same time and therefore cannot meet each passenger's exact expectations and wants from this (Farchaus, 2012).



## breakdown of passengers

Expectations and preconceptions can directly impact a passenger's experience and ultimate satisfaction within an airport (Kirk, 2014). A direct implication of this is the passenger-centered indicators described by Wiredja (Wiredja, 2017) and their distinct relation to an airport's current level of service and their ability to identify and target aspects for service improvement to meet and exceed expectations and preconceptions. The six design principles for airports set out by Harrison (Harrison, 2015), building upon Kirk's research, also leads toward the same aspects as Wiredja with the principle of proficiency stating "future terminal design should optimize towards efficient processing" a direct level of service indicator (Harrison, 2015; Wiredja 2017). The impacts of the research by Harrison, the six principles, suggest that not all passengers' expectations fit with the airports' perceptions of the passengers travelling through, and that airports have collectively positioned themselves toward offering more consumptive means (Kirk, 2014). Evidenced through layout design of airports, which immediately guide passengers through duty free and offer a shopping based experience, where research points toward this, not including food offerings, consumptive experience being expected (Kirk, 2014). Linking with Harrison's design principle of retail expansion and that this should be in proportion with the number of engaged passengers (Harrison, 2015) though the same does not ring true for future terminal design where a focus towards efficient processing should take forefront rather than retail expansion (Harrison, 2015). Detailing a shift in current airport expansion and a principle for future airport design.

Airports are becoming increasingly customer focused, and the expansion of airport experience is shifting online and becoming dependent on technology (Popovic, 2010). The digital space as a form of engagement with regards to retail accessibility must be considered, as an estimate of only 70% of passengers carry smartphones (Price, 2014). The support of this shift is not being facilitated and supported with the same level as the expansion of retail spaces seen in many airports worldwide such as Dubai and Changi airports.

## airports for culture vs placeless and faceless

The fight between providing for the passenger whilst making the primary focus of facilities and operations easier is an ongoing battle which considers both primary aspects of how an airport is judged (Wiredja, 2017). Whilst airports expand into the digital space to streamline and facilitate the core business and processes of the airport, they are also needing to denote value and improve the customer experience (Price, 2014) without increasing difficulty and reliance on this digital space. The offer of “upgraded hospitality finishes, premium fixtures and soft lighting provided an upscale ambience rarely encountered in airport terminals” (Gajeska, 2018, Page 3) is positive for publicity and promotion. The new experience offerings in this area of the airport created an uptake in traffic flow as passengers flocked to the new attractions where the design of the new airport section only considered regular traffic flow and did not account for an overpopulation caused by passengers wanting to experience for themselves.

As airports frequently implement upgrades and transformations to integrate the latest technology advancements and processes they need to remain functionally efficient (Suchi, 2016). More than a mere transport facility, these spaces offer a multifunctional space for social interactions and experiences that break geographical boundaries and secular distinctions (Huang, 2018). These further functions, beyond the naked eye and immediate perceptions, need to be accommodated for and not hindered through disjointed practices and evolutions. The current layout of some airport domains do not support social activities (Kirk, 2013), and the potential sacrifice of these interactions can have many possible effects. The need to find suitable layouts to meet the changing needs for an airport terminal are important (huang, 2016) yet on the other hand it cannot be absolute as each passenger occupies a different footprint based on their engagement level (Harrison, 2015). Given this, averages and interpretation of passengers need to be made and a one-size fits all application does not exist. This is evidenced by the IATA and its defined division into regions: Africa and Middle East, Asia Pacific, Europe, North Asia, and The Americas (IATA, 2020).

## airports for culture vs placeless and faceless

Though the classification of passengers may fit frequent travellers via regions, it could never accommodate for a personalised passenger experience in terms of perfect fit due to the uncharacteristic nature of travellers and the multiplicity of choice available.

The airport experience is directly related to the success of an airport beyond the immediate passenger to airport costs. The IATA calculates the airport charges based on the amount of passengers that pass through an airport (Wiredja, 2017) supporting the want from an airport's perspective to have a more efficient, productive, and quality focused outlook on services (Wattanacharoensil, 2016). A link therefore exists between airport charges and the expansion of airport offerings seen as upgrades and new experiences available for passengers. In business terms, this link is described as a return on investment where profits are fed back into the system rather than distributed to stakeholders. The nature of the modern day market is one of competition driven by the consumerist nature of the modern day passenger and the perception of airports as individual communities all trying to outdo each other with their exclusivity and offerings (Farchaus, 2012). This creates the supply (airport offerings) and demand (passenger desires) and neatly bundles it into a repetitive business cycle with a defined structure. Instilling memories, feelings, and emotions within the passenger which can influence return passengers to increase the through traffic and airport charges to fund future expansion (Wattanacharoensil, 2016; Wiredja, 2017).



## airports psychology

Airports are more than a mere transport facility offering a multifunctional space for social interactions and experiences (Huang, 2018) which can be supported and directly affected due to the environment they occur in. There are many frameworks and theories which can affect perceptions and experiences of products, facilities, and services. These can position passengers' frames of mind to increase flow and uptake to certain activities to assist in creating positive passenger experiences throughout both processing and discretionary activities.

One of the primary bases for product design is held within the 4 pleasures framework encompassing Pysio, Socio, Psycho, and Ideo based pleasures (Jordan, 2002; van Gorp, 2012). Within all successful products these factors exist and are supported. The comparison to spatial design aspects are explained differently, and more commonly, through Maslow's hierarchy of needs. Widely interpreted within spatial design is that the bottom two levels, physiological and safety, of hierarchy are fulfilled with the emphasis being shifted to the third level within the hierarchy to social (McLeod, 2007). The duality of sociological needs within both frameworks further supports the notion presented that places and products, if to be effective, must support and offer the advantages of these interpersonal interactions. The current airport designs that present chaotic depersonalised environments that aim to succeed in their primary functional goal of being transport places contradicts the notion for support (Farchaus, 2012). This is further supported by Wattancharoensil's (Wattancharoensil, 2016) findings that a sense of place and social interaction enhancement and facilitation or disruption underpin behaviours and mindsets within airports. The large and sometimes unconsidered aspects of sociological and psychological impact perception and experience of the airport environment (Wattancharoensil, 2016). On the other hand, airports, through marketing and identification, can challenge in an attempt to change the mindsets' of passengers to depict their time spent in the airport as personal, liberating, and energizing (Huang, 2018).

## airports psychology

The spectrum of passengers is not absolute and thus the mindset which passengers carry throughout their airport journey is varied as well as influencing their wants and expectations from the airport. This is a primary experience aspect, which airports must consider as they are both the first and last touchpoints of a passengers travel journey (Wattancharoensil, 2016). The parallel between engagement and mindset is presented by Harrison (Harrison, 2015) when time sensitivity, as a personal consideration and mindset, is brought into question when considering engagement with services and facilities. In support of engagement it is already found that up to 50% of passengers engage with mobile check in (Price, 2014). However, with the expansion of the digital space as a form of engagement, the accessibility to this must also be considered as an estimate of only 70% of passengers carry smartphones (Price, 2014). The encouragement by airports for passengers to co-create their travel experiences via social media platforms facilitated by an effective internet connection (Wattancharoensil, 2016) support both Price and Harrison's findings for engagement within the digital space. Much like how Kirk, in the Taxonomy of passenger activities, found the importance of Wi-Fi to support entertainment activities with the increasing number of passengers utilising their own devices as a means to their entertainment value (Kirk, 2013).





## liminality vs destination

Liminality is the change of space and time rhythm, and in the context of airports where passengers are arriving from different time zones, places, and cultures this sense of timelessness and spacelessness exists within passengers emotions sometimes fuelling anxiety (Tagilaventi, 2020; Huang, 2018). The transition from a previous known environment to a new one (Tagilaventi, 2020) fits within the airport scope as they are one of the most global yet placeless environments (Huang, 2018) that possess a lack of identity and meaning (Wattanacharoensil, 2016); previously designated such spaces being bus depots and train stations. This notion of liminality, however, does not consider rich airport environments which promote locality and a sense of place through interaction and experience (Burova, 2019). The implementation in this aforementioned rich airport was a personalised interactive storytelling experience, which was deeply personalised and adapted to each participants level of interaction and answers (Burova, 2019). This allowed the passengers interacting with this experience to gather knowledge of the local area in which the airport was located giving the passenger a deeper sense of place beyond the visible. In this instance, the sense of destination was enhanced and the passengers were able to develop a connection and instil memories, feelings, and emotions created with the airport and its experiencescape (Wattanacharoensil, 2016).

The sense of liminality and culture is vastly opposed by the multi-billion dollar airports who's management pride themselves in their unique offerings only available at their airport and create a sense of destination (Wattanacharoensil, 2016). In a place where travellers' experiences are limited, due to being 'trapped', and the central focus is around filling a void or period of time before their next designated processing activity, it is important to address the engagement of passengers to make a more pleasurable experience (Blichfeldt, 2017). Airports such as this with more options and available experiences therefore become appealing to the modern day traveller with a focus on consumerism and the time to engage in meaningful activities (Wattanacharoensil, 2016).

## liminality vs destination

The ability to promote local culture exploration within the airport enables context awareness for passengers whilst paired with the online facility expansion happening provides platforms for airports to use to better engage with their customers (Burova, 2019; Price, 2014). Where once novel customer insights can be gathered and translated into customer centric innovation strategies and influence the airports of the future (Price, 2014). Airports are places of waiting and sometimes boredom as described by Burova (Burova, 2019) but due to the placement of airports within the travel ecosystem they are ideal places for the implementation and utilisation of new technologies (Price, 2014). The application of up to date and future technology and notification systems can also lead to a reduction in passenger anxiety (Wattanacharoensil, 2016). Thus, modern day travellers are looking for engaging experiences that can enhance the locality of the airport whilst incorporating up to date technology to further influence the airports and future proceedings.

There is sometimes a contrast between the airport function and passenger functions due to proceedings and limitations put in place. Passengers are consumers and the views on air travel is no longer simply just a means to an end and if now seen as the start of the holiday or travel experience should be treated as it. This infers the importance of understanding the passenger requirements of an airport and its facilities whilst they are in the airport (Popovic, 2010). Utilising Schuchi's (Schuchi, 2016) design parameters for flexible airport terminal design make it easy to interpret how redesigning current airport layouts can directly affect the airport properties. The most important criteria, from the airports point of view with these parameters would concern the volume of passengers area and how this can increase with as little monetary consumption as possible due to the business-like nature of airports previously stated. This links to the use and misuse of artefacts within the ecosystem of the airport creating barriers and problems that can affect the experience of the passengers (Popovic, 2010). Thus the focus returns to the airport function and the sometimes disconnect between functionality and usage by passengers which can influence positively or negatively on experience.

## research gap

A research gap exists between passenger experiences and how products, and services presented to passengers within the airport ecosystem directly and indirectly influence the perception of airports.



# research methodology

The overarching topic of this paper is to gain insights and understandings of the passenger experiences and emotions associated with discretionary activities. In order to do so qualitative primary research must be conducted to gain background information and the wider picture in relation to passenger preconceptions and expectations of level of service. Therefore, the following research proposal aims to answer the following questions:

1. How are preconceptions and expectations affecting the experiences of passengers?
2. How might services, products, and facilities impact the shared experiences of passengers?
3. How is the psychology and sociology of the airport influencing passenger interactions and experiences?

These research questions directly relate to the research aim of exploring the factors and influences that both directly and indirectly affect a passengers experience and emotion within the airport ecosystem surrounding discretionary activities.

## what was conducted

Three semi-structured interviews were completed with practising design professionals that all have extensive knowledge and in-depth insights into the Air travel industry. Along with informal Several unstructured conversations were conducted with experienced travellers and novice travellers to direct the online survey questions. Fifty online questionnaires were completed with responses from all three categories of participants (Experienced travellers, novice travellers, and industry professionals) wanted. Varying responses were recorded and categorically analysed, creating a complex data set.



## participants

The participants for the research were split into 3 main groups: airport workers and professionals, experienced travellers, and novice travellers. The need for three sub groups is important due to the perspectives and insights into experience offerings within the modern airport environment, experienced travellers and novice travellers, whilst also insights into future offerings, from workers and professionals.

The airport worker and professional group of participants bring insights and knowledge of future upgrades to airports and the offerings that will be available in the near to immediate future and how current problems may be alleviated. Thus, providing basis and already thought out solutions to the current problems that exist which positively and negatively affect the experiences of passengers.

The experienced traveller brings insights from their interpretation, use, and memories of many different airports and how positive and negative aspects from these airports directly and indirectly affected their travel experience. Bringing insights from what worked and didn't in comparison between airports will be key in developing common themes and principles of discretionary activities which impacted experiences.

The novice traveller brings the immediate feedback and interpretations of travel as unique and exciting features and offerings within the airports. Having only limited experience they are likely to have strong memories associated with flying and airport experiences, whether positive or negative, as they have no comparison of previous experiences to draw from.

The participants for the research methods will all be valuable to gain insights into shared and common experiences which have positive and negative effects on the airport experience during discretionary activities. All participant information, including names, age, contact information, gender, etc. is concealed and participants are given numerical signifiers for their response and data set to make the answers less ambiguous for interpretation.



## semi structured interviews

Semi-structured interviews will be conducted with airport industry employees and passengers. They aim to elicit the experiences and emotions of passengers and airport workers, both positive and negative, to pinpoint exact details and features which shift the airport experience toward the positive or negative end of the spectrum. This is done to gain insights into how aspects can be improved or adjusted to lead toward an increase in overall positive emotions and experiences for passengers travelling through the airport ecosystem. The interviews, given the current climate, were performed over the phone and internet due to visitation restrictions in public and private settings and were recorded for later processing and coding. Gaining insights into travel patterns, habits, and the relationships between selected activities and positive experiences is one of the key areas that was explored and probed during the interviews. The purpose of these was to investigate whether a relationship between selected activities and positive passenger experiences to classify the impacts of these activities on the mindsets of the passengers exist.

Questions during the semi-structured interviews were open-ended and based around emotional questioning to review positive and negative aspects, whilst grounded in the realm of discretionary activities and were generated to prompt personal experiences.

Before starting the interviews, participants were asked to give consent and the ethical obligation for their contribution was covered such that responses could be recorded for later coding and that their personal information would be excluded from the report.

Different question sets were developed for each group to lean further into their designated area of expertise and experiences, however, common questions existed between the sets to provide points of comparison.



## online questionnaire

The online questionnaire was deployed using Google forms, an easily accessible server based online platform for questionnaires without a question limit. It facilitates the sectioning of questions to segregate and pre-code data collection to assist with data analysis. As the survey relied on experiences and the recollection of data, visual prompts were given to assist and direct participants toward the desired information other than this no other resources were given, nor needed by participants. The purpose of the online questionnaire was to gain general understanding of experiences and emotions during discretionary activities in the airport ecosystem.

Before entering into the questionnaire the participants were asked to read through the ethical agreement and a checkbox was provided to give consent of answers to be used within this report. Participants were also provided with a brief outline of the questionnaire and what it was aimed at uncovering to help participants understand the theme of the research and their involvement.

A common survey was deployed to all participants with them self designating into the participant groups. Further coding and interpretation of the data set will be used to determine the accuracy of this designation.

At the end of the questionnaire a section was added asking the participant whether they would be open to an online interview to feed participants for interviews to gain further insights into their airport experiences.



## research limitations

There is a significant research limitation in place due to the current worldwide pandemic of Covid-19 making it ethically viable and legally unadvised to attend and enter public spaces for extended periods of time heightening risks of infection. Thus, the ability to perform cultural probes, with passengers, and observations, of passengers within terminals performing discretionary activities, was unable to be performed. This would have highlighted flaws and current passenger patterns within the existing ecosystem of airports to gain general insights without passenger travel bias playing part in the data collected.

From the perspective of travel and habit bias, this is also now influenced by the pandemic as a focus on hygiene and safety is now in the forefront and will likely influence how passengers interact with artefacts and services in the airport. For example social distancing practices, the common boarding of planes structure would be heavily influenced by this and as such data gathered at the current time would not be indicative of common practices. Likewise, responses gained from airport workers and professionals on current proceedings may not be indicative of normal practices though will provide insights to what the future of air travel may look like.



## significance of research

The significance and importance of this research is paramount and evidenced through the ongoing Queensland University of Technology's contributions to this area, the on-going research explores a range of topics within the ecosystem of airports: retail experience, wayfinding, security experience, passenger typology and identification. The significant gap of experience and emotion is throughout these areas as it is integral to all and is a direct influencer for how each of these areas perform. The pinpointing of discretionary activities leans more toward the product and service design rather than the larger picture system design which is the driving force behind many of the processing based research areas.



# analysis

The previous section completed, research methodology, laid out the experiments to be conducted along with an in-depth look at the experimentation processes. These processes were: semi-structured interviews with industry professionals, and an online survey/questionnaire. The aforementioned processes, having been completed, data was analysed and structured for straightforward interpretation and findings to be made. This section aims to analyse the data gathered and present it in clear and concise ways the analysis will compare and contrast results found in both data sets. The cross-examination of data sets will add validity and substance to findings as it will be citable from multiple different locations/sources. The cross-examination will also highlight missing information and contrasting information that will be referenced and compared against literature to provide substance and validity to findings again.

## analysis methods

In the case of professional semi-structured interviews, the data collected was analysed in a multitude of different methods; different methods of analysis allow for the highlighting of individual aspects present in the data that would otherwise go unseen. The semi-structured interviews with industry professionals went through a multi-layered coding process where overarching themes were developed and then further split down into sub-topics that fit within the developed theme. This coding approach allowed for the found themes to transcend a multitude of different areas and aspects where unique insights found.

The primary lenses used to code this data were: Content, Narrative, and Grounded theory analysis:

1. Content analysis focuses on the content being presented in the data, providing a better understanding of the overall themes that present from the data sets.
2. Narrative analysis focusing on the jobs and actions and feelings that participants have witnessed previously or have done themselves in the past.
3. Grounded theory analysis focuses more on social interactions and setting where the events took place, drawing parallels between the focus experience and similar experiences.



## analysis methods

The online survey/questionnaire was also, like the semi-structured interviews, subject to multiple analysis methods which allowed for the highlighting of individual aspects present in the data. The data, however, before analysis took place was edited to remove false or inaccurate data collected, of which there was one response. This data set was removed to allow for the correct analysis to take place without significant outliers that presented themselves due to this.

The main methods used to code the data were: Clustering, Factors, Predictive analysis, and Cohorting:

1. Clustering allowed for like answers and data formed into unique unified ideas which reduced the overall amount but increased the quality.
2. Factor analysis allows for correlations between variables to become more evident and aims to uncover hidden or unobserved variables from the data.
3. Predictive analysis is the process of predicting trends or traits from data sets and forming a predictable pattern or guide used to create and predict trends.
4. Cohorting is similar to clustering; however, instead of combining like answers, it is used to analyse user groups and target markets based on the customer and their attributes.

The variety of methods and lenses used to interpret the data has allowed for several unique findings to be made. In addition, the numerous methods deployed throughout the analysis have highlighted findings which are to be made easily interpretable in the following section, findings, where data findings have been tabulated and converted into infographics.

# findings

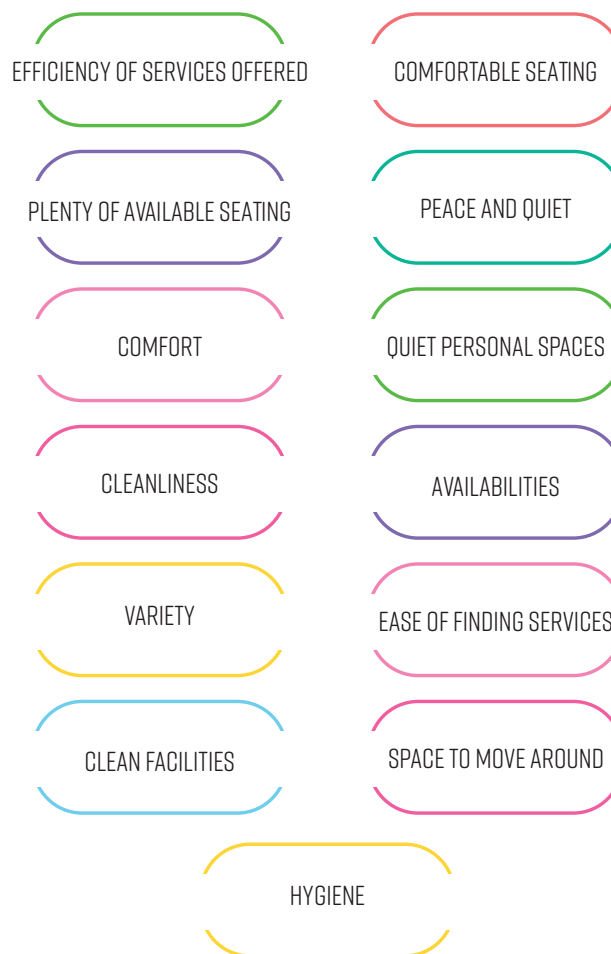
The previous section completed, analysis, laid out the variety of methods and lenses deployed to analyse and interpret the data collected. The findings created through the analysis and interpretation of data have been tabulated and formed into infographics for straightforward interpretation. This section does not cover the interpretation of data; it is merely the visualisation of data and the extraction of findings from the data. The findings are presented in both visuals and brief descriptive paragraphs underneath direct tabulated data results. The findings have been presented in such a way where the following section, discussion, uses this interpreted data in succession with literature findings to draw conclusions and stipulate areas for design intervention.

The findings is broken down into the following seven sections:

1. highlighted important factors
2. enhanced experiences
3. habits
4. improvement
5. community
6. destination airports
7. interview topics and quotations

## highlighted important factors

The re-occurring and important factors when survey participants were presented with the prompt of “What are your most important factors for you to have a positive experience?” The resonance of the answers given from this start to highlight aspects that these experienced passengers hold to evaluate an experience. These highlighted aspects are ones where airports have previously done well, and these indicate that they must be given if experiences are to be further developed.





## enhanced experiences

The question posed to survey participants was “Has there been anything you have experienced that has enhanced your travel experience in an airport terminal?” This was aimed to find areas that were found previously by airports and addressed to facilitate a higher experience for the passengers. Offerings or experiences that are not offered at all airports are uncommon, yet found within the scope of airports.



## habits

The responses that were given, listed above, are common amongst responses and therefore can be extrapolated into common passenger assumptions. "Do you have any habits that you perform every trip?" this was aimed to find personal habits that others may think are uncommon, yet through more extensive findings and classification can be found common amongst passengers.

EARLY ARRIVAL

BROWSE STORES

FIND CHARGING AREAS

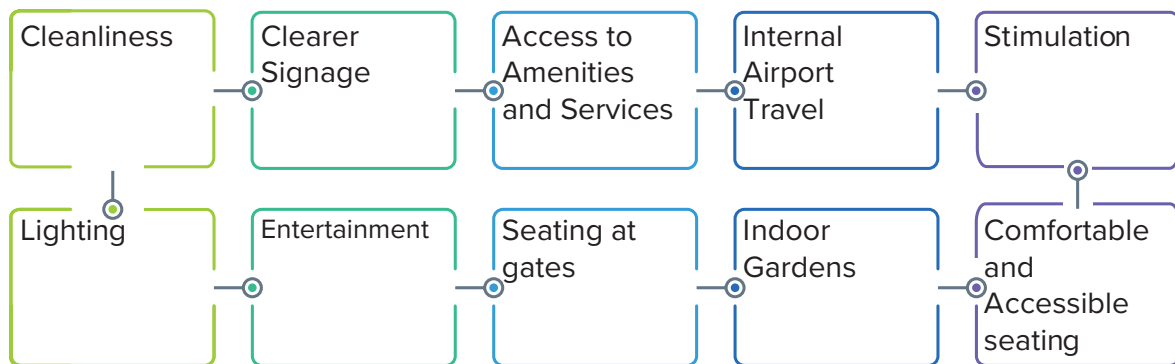
LOCATE QUIET SPACES

LOCATE EXIT GATE

EXPLORE THE AIRPORT

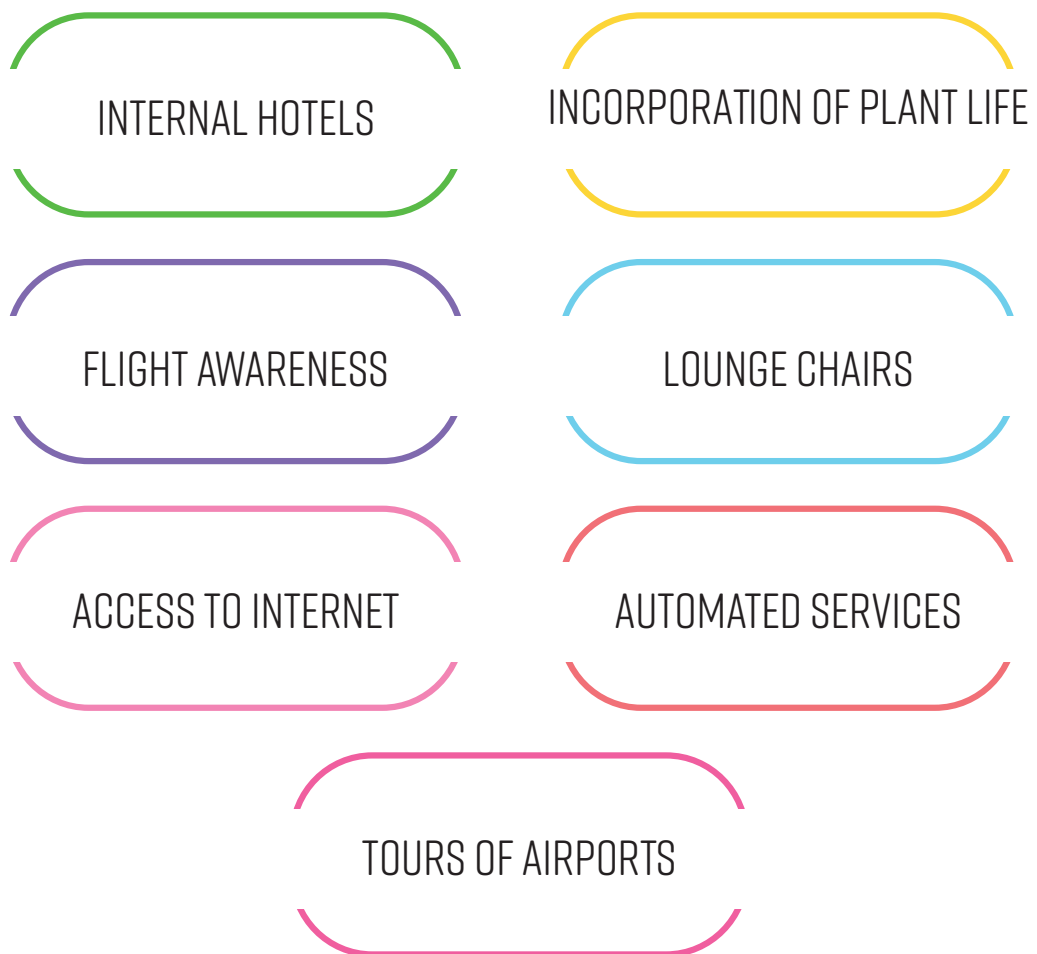
# improvements

“Do you feel like there is room for improvement within airport terminals?” aimed at finding direct areas which experienced passengers feel can be improved and cutting out the middleman between solution areas and creating solutions. The multiplicity and crossover between the found important factors in an airport experience and areas that passengers think improvement can be made, support the idea of their importance.



## improvements

There are several positive and negative experiences shown from participant responses that airports have offered which prove to impact a passengers experience directly. These positive passenger experiences have a multitude of possible follow on effects dependant on the strength of these experiences and whether they impact enough on the passenger to influence them enough to change.



# community

From the expressions given above, by the answers to the posed question, it is visible that there is not a strong sense of community amongst passengers in the airport. That said, abstracts drawn about the feelings toward other passengers within the airport terminal environment informed parallels and explain positions.



## community

There are multiple airports which are interpreted as destinations and others interpreted as facilities. However, one can be both a destination and a facility where offerings, made by the airport, make it applicable to being both. As the above quote states, one can often become synonymous with the other through the use of language and the interpretation of that language. The airport is the threshold between arrival and departure and thus can be considered one in the same creating addition to the confusion and misinterpretation.



# interview topics and quotes

<b>TYPE OF TRAVELLER</b>	PEOPLE ONLY CARE ABOUT ON THE DAY, THEY DON'T NECESSARILY LOOK AT WEEKS AHEAD SALIENCE EFFECT
<b>WIDER TRENDS</b>	SYSTEM OF GIVING UP TO DATE INFORMATION AND LOCATION AND FINDER INFORMATION PRICE IS THE MAJOR DICTATOR OF TRAVEL DECISIONS CONSIDERING LAYOVER AND EXPERIENCE OFFERINGS BEING BOUGHT INTO
<b>EXPERIENCE EXPECTATION</b>	EXPERIENCES IN GENERAL ARE INFLUENCED BY TWO THINGS, WHAT WE ANTICIPATE AND WHAT WE EXPERIENCE AND THE DIFFERENCE BETWEEN THE TWO BEING CONSIDERED SATISFACTION LOTS OF FACTORS LEAD INTO ANTICIPATED USER EXPERIENCE
<b>COMFORT</b>	PASSENGER PERCEPTIONS ARE CHANGED FROM THE NUMBER OF INTERACTIONS I THINK IF PEOPLE CONTINUE TO WANT MORE SPACE BETWEEN OTHER PEOPLE YOU MIGHT SEE THINGS LIKE WIDER ARMRESTS.
<b>RELAXATION</b>	RELAXATION COMES FROM FAMILIARITY AIRPORT OPERATIONS DONT PRIORITISE THE PSYCHE OF THE PASSENGER
<b>OPTIMISATION</b>	ITS HARD TO OPTIMISE EXPERIENCES WHERE THERE ARE MULTIPLE STAKEHOLDERS WITH CONFLICTING INTERESTS I THINK THAT THEY WOULD BE VERY RELUCTANT TO LET THE SPACE BE TOO CONFIGURABLE BY END USERS
<b>POPULATION TRENDS</b>	PEOPLE WANT THE RESULT NOT THE PROCESS LARGE VARIETY OF LITTLE THINGS THAT ADD UP TO BECOME LARGER POSITIVES
<b>AIRPORT TRENDS</b>	THERE HAS TO BE A TIPPING POINT WHERE INSTEAD OF GROWING LARGER AND LARGER AND CREATING MORE RETAIL, THEY ARE GOING TO OPTIMISE FOR TIME BY AIRSIDE, THEY HAVE ALREADY CAPTURED YOU AND THEY DON'T REALLY CARE ANYMORE
<b>SECURITY</b>	FAMILIARITY IS THE ONLY RELAXING THING ABOUT SECURITY NEED FOR SECURITY IS PRETTY LIGHT AFTER BAG CHECKS AND CUSTOMS
<b>SPACES</b>	ONE OF THE UNDERLYING THINGS THAT MAKE IT A GOOD OR BAD EXPERIENCE IS THE SPACE YOU ARE IN YOU'RE SUPPOSED TO WALK IN AND FEEL THE GRAND PUBLIC ARCHITECTURE
<b>INTERACTIONS</b>	EQUAL INVESTMENT TO INTERACTIONS WHERE THERE ARE NOW OTHER OPTIONS FAMILIARITY AND COMMON CONNECTION INCREASES THE CHANCE OF A SOCIAL INTERACTION
<b>SOCIAL</b>	TACIT RULES DIFFERENT SOCIAL ROLES EVEN IN SILIMAR SITUATIONS
<b>ENVIRONMENT</b>	YOU'RE IN THE ENVIRONMENT BECAUSE IT NECESSARILY LEADS TO A BETTER PLACE YOU WANT TO BE, A MORE DESIRED EXPERIENCE SOCILLY DISTANT INTERACTIONS WHERE YOU ARE JUST AVOIDING BANGING INTO ONE ANOTHER
<b>STRESS</b>	YOU CAN DO THINGS IN AN AIRPORT TO MINIMISE THE STRESS PEOPLE ARE INHERENTLY STRESSED BECAUSE EVERYTHING IS OUT OF THEIR CONTROL

# discussion

In the following section, the previously highlighted findings are discussed and interpreted to draw conclusions and provide insights to possible design implementation. Data gathered was further inspected through the found review of literature where the original research gap was discovered. This initial literature review has been further expanded, within this discussion, to include surrounding topics for the found insights to establish them further and solidify them. Ideas and insights found from the data analysis and findings are expanded to be viewed them through multiple lenses and from a variety of viewpoints to discuss the problems and design implementation opportunities. The design implementation opportunities are not directly discussed and extrapolated in this section but are in the following section. This section is directly focused on solidifying, explaining, and expanding the findings.

The discussion is broken down into the following four sections:

1. spaces
2. experiences
3. comfort
4. hygiene





## spaces

“One of the underlying things that make it a good or bad experience is the space you are in.”

Spaces and the environment an experience happens in directly impact the perceived level of that experience, meaning that airport experiences are directly correlated to spaces they are offered. Spatial design considerations can be deployed in places to “indicate use for spaces with ceiling heights, floor surfaces” and subtly direct users to the purpose of the space and its’ intended use. This is common in public architecture with examples being visible widespread: hard floor covering to indicate walkways, low ceiling height to indicate intimacy and more personable spaces, hostile architecture to prevent use, greenery to provide a draw of nature into spaces, the examples prevalent in modern design are endless. This can also be said in terms of products with soft-touch materials indicating holding or touching surfaces, handholds to indicate holding places, material selections, etc. The physical makeup of spaces and products directly relate to its experience and applies to airports and how the furniture is commonly used.

The data collected has a strong correlation of public bias towards individualised seating compared to the group or shared seating. This is likely due to the affiliated sociology, travel preference (group or individual), and social interaction comfort level (ability to talk and interact with others in a social setting). As such, airport preference is toward individual seating where travellers can separate easily from other passengers and have their own space. Therefore, usage of experiences can be determined by the spatial qualities of the area, the physical qualities of the product, and the social setting in which it takes place with a preference from users towards separated settings away from other passengers. This directly links to the optimisation and usage of space within an airport.

“I don’t think it optimises for the passenger at all; I think it optimises for the airport.”

## spaces

The need for airports to control the narrative in terms of experience and spatial design translates to limited passenger adjustability, which is in stark contrast to the wants of passengers for flexible spaces which fit them personally. The ability to individually tailor experiences for each passenger is impossible. However, the availability of products and services being more widely accepted is possible and as such, can enhance the experience without the need for additional services or products. Giving users the choice of these services and products, without the need of additional offerings, increases their freedom and provides them with otherwise impossible opportunities. This redirects the focus of the airport back toward the passenger without the need for large scale changes to be made and thus increasing the cost to experience ratio.

The cost to benefit ratio is a fundamental rule for how experiences are measured; it is the offerings and experiences that a user receives in exchange for the money that they pay. If a cost to benefit ratio is to be improved, a way of doing this is to take the experiences that a high price point offer and provide a large percentage of that experience at a lower cost. For example, an experience for \$100.00 that provides a 100% experience; then a \$15.00 experience that provides 30% of the previous experience creating a more significant experience to cost ratio. This can fundamentally be taken in the scheme of airports with concepts of lounges and their offerings and supplying those directly to average travellers without the increased price point thus improving the base-line experience of travel in the airport.



# experiences

"Experiences, in general, are influenced by two things, what we anticipate and what we experience and the difference between the two being considered satisfaction."

This quote, from one of the professional interviews, precisely explains how a person rates an experience by their anticipation and how the offering compares which is the direct focus of a branch of research previously completed by QUT. These papers are titled: "General characteristics of anticipated user experience (AUX) with interactive products"; and "Anticipated user experience in the early stages of product development". They explore the anticipated user experiences of both products and interactive products. This informs the success criteria of a product based on the experience levels projected by the methods developed and described within and shown below in the figure extracted from the research, the below figure (Yogasara, 2011).

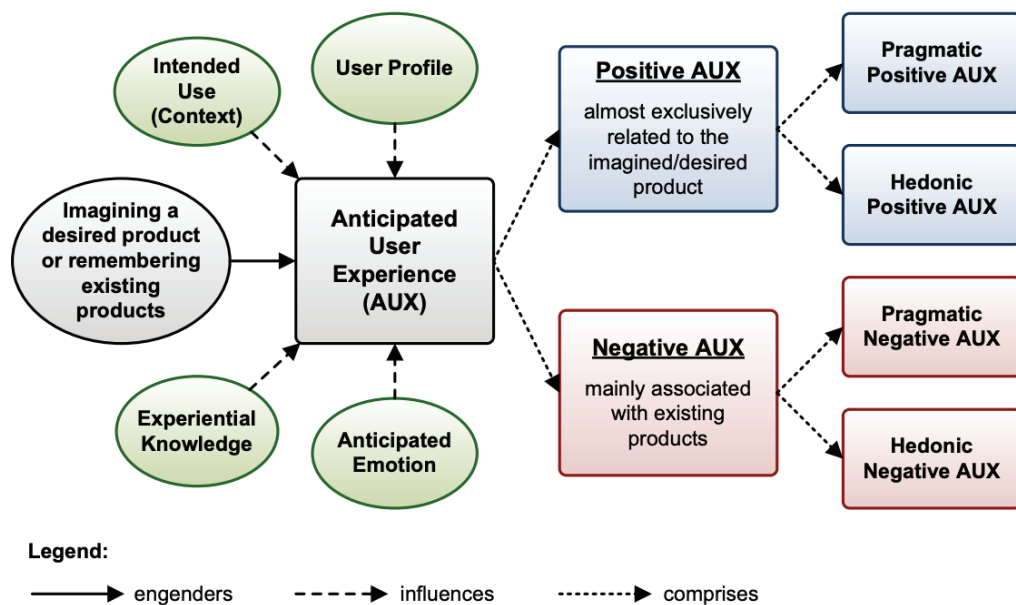
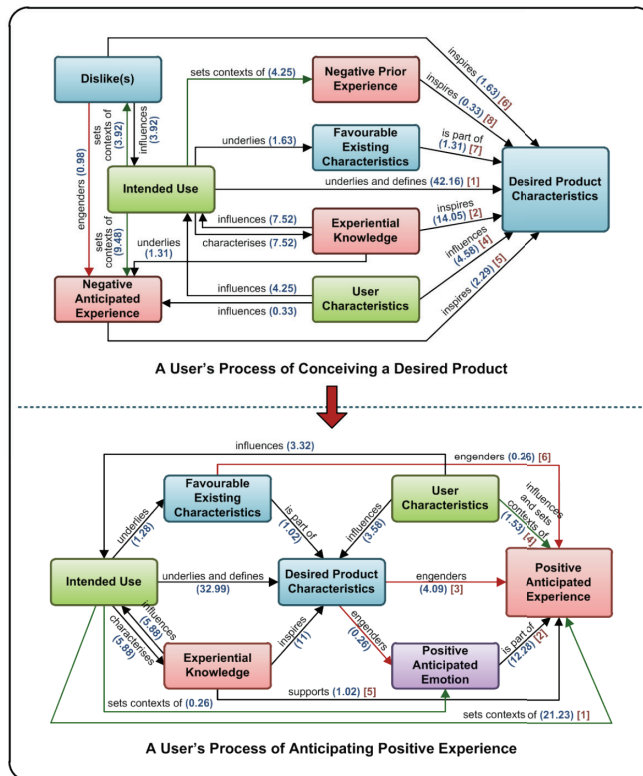


Figure 4. Summary of the findings on general characteristics of anticipated user experience (AUX)

# experiences

In using the anticipated user experience model as a basis of existing supported data, the research conducted and data collected is directly supported by this existing basis of support data. The presented work by Yogasara (Yogasara, 2011) needs to be used in correlation with Harrison’s work (Harrison, 2010) about the taxonomy of passengers to formulate a clearer picture of information around the user to determine their possible biases and their characteristics. In the case of airports being a specific setting, “there is a primed expectation about what to expect”, and in turn, this adjusts the user profile and the intended use context due to regulations and restrictions in place within the airport.



Note: the nodes' colours represent the four categories in the coding scheme, numbers in parentheses represent the weights (global closeness) of sub-category relationships, and numbers in square brackets represent the ranking of relationships between the key sub-category and co-occurring sub-categories

Figure 8.1 Anticipated User Experience (AUX) Framework

## experiences

The figure above (8.1 Anticipated User Experience (AUX) Framework) further explains the processes ongoing within a user's mind of experience and the factors that are paramount in determining a positive anticipated experience and the desired product characteristics (Yogasara, 2014). In terms of Airports and their experience as a whole, the consensus found within the online survey pointed directly in favour of high expectations for airport experience as a whole. Thus, the multitude of factors as described and illustrated by Yogasara are compounded through the complexity of the airport ecosystem and makes it harder to design and account for due to restrictions of security. This ongoing battle between experience designs' need to improve to exceed users' rising base-line expectation and the restrictions and regulations that must be complied with within the airport ecosystem.

An underlying plethora of tacit social rules exist within the airport setting, and as such, any new experiences or products deployed within the airside ecosystem must obey them or risk being a shock to the system. An unwritten tacit social rule is to leave a seat between users and others when sitting in connected seats and is a common occurrence, becoming more common to be even designed into furniture within the airport ecosystem. It is predicted that this will become a design trend more widespread as the want for social distancing in the wake of the COVID-19 pandemic. However, as described in multiple professional interviews, this may vary from country to country as culture plays a large part of comfort in terms of personal space size, yet an increase across the board is likely. While all of the tacit social rules within an airport ecosystem cannot be extrapolated easily due their inherent nature, an understanding of them is still needed to ensure comfort.

## comfort

Within the airside environment of the broader airport ecosystem, comfort is “the give and return of an experience” where the give is the commitment to experience, and the take is the amount that you are receiving back from that experience. “A fancy restaurant where the point of being in the environment is the experience” is not the same as being in an airport because the experience given is mostly collective as airports are “completely undifferentiated” spaces.

Comfort, by dictionary definition, is

“A state of physical ease and freedom from pain or constraint.”

This is a stark contrast to an airport environment where it is a highly regulated and managed place where constraints and freedoms for people are limited and restricted. This is supported through all professional interviews identifying the fact that airports can reduce stress levels through design implementations and thus improve comfort. This is counterproductive for the passenger mindset because “sociology and psychology are hugely intertwined in good examples of airports.” That being said “airports don’t plan on users being there that long” and as such direct influences from that idea, experience offerings from the majority of airports cater for short stay passengers.

The amount that passengers’ feel relaxed and comfortable is directly related to their personal history and experience level within the airport environment. The ability to bring in previous knowledge to evaluate their current experience directly determines where on the scale of good to bad the current experience rates. Therefore, the ability for comfort to be achieved is directly linked to their previous experience level making the importance to exceed current user set baselines is needed if the airport wants to be selected over others in travel routes.

## hygiene

With the current climate of Covid-19, the availability of travel is reduced because of social distancing requirements, inter-state travel is limited, and international travel significantly reduced. An approximate drop of 50% has been seen with worldwide air travel and a loss so far of \$84.3 billion USD (IATA, 2020). This is predicted to increase as travel restrictions continue into the foreseeable future. However, as travel starts to open back up to the general public, it is the “near future price point increase for all travel resulting in a reduction of traffic”. This will have lasting effects and influence the accessibility of flying.

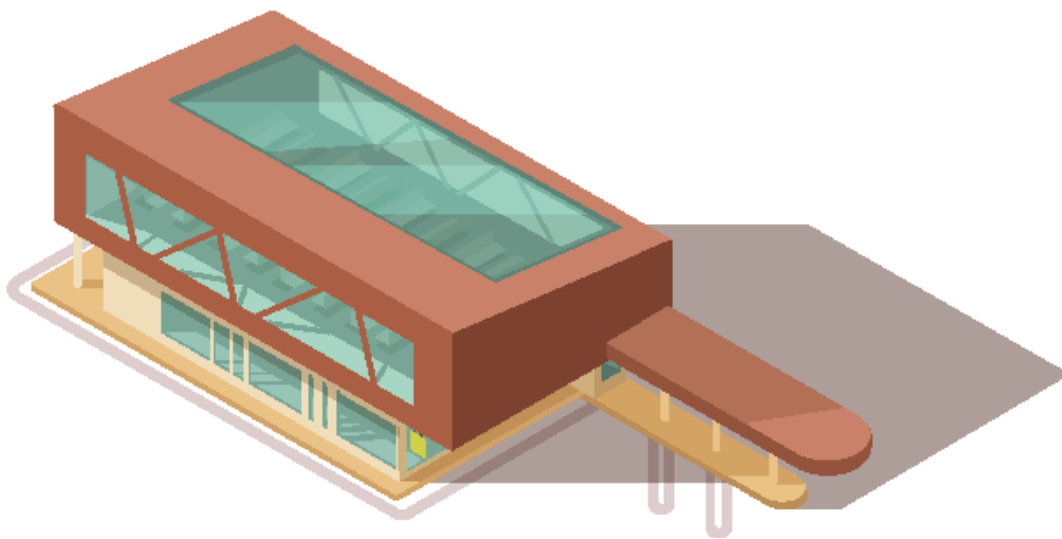
As is visible through the data collected in the online survey, the want for increased hygiene and distance between users and other passengers is likely to increase, and so too the airports are going to have to adapt. New guidelines and regulations will likely force this adaptation, compounded with further rules implemented by the IATA, warranted by the public's want for these actions to take place. The priority of passengers will likely have a greater focus on hygiene and health safety with the underlying ongoing fear of infection, even with the worldwide trend in reduced infection rates. Socially distant interactions have become commonplace recently, and as such, the flow-on effect into other areas of life beyond the home is likely to take place.





## concluding thoughts

In conclusion, this section there is a multitude of findings that have been discussed however they can be categorised into the following: hygiene shift, optimisation of spaces, spatial and product design factors, anticipated user experience, and comfort. The following section, design implications, will extrapolate the discussed findings further into possible design intervention areas. The need to increase the baseline passenger experience exceeding the predicted levels is the driving force behind improvement needed in airside airport offerings.



# design implications

The following section is the possible design implementation areas that the discussed findings, from the previous section, have led towards. The areas for design implementation have been broken up into five sections:

Personal luggage products

Furniture design

Adjustable large scale interactive furniture as exhibitions

Personal protective gear for travel

Personal space creation products

Each of these sub-sections are indicative of different product directions to be taken forward throughout the next semester of work, however, have not been fully explored. This section only touches surface-level design requirements; these areas still require extrapolation and exploration through, industry-standard, double diamond method of design thinking. The design intent is to enhance the overall airside experience of passengers



## personal luggage products

The first recommendation is a product design solution which adapts on the fly with a users' needs and preferences to provide a unique solution to multiple users wants. This would involve a flexible luggage option which has the ability to support the bodyweight of a user by converting into a seating option for them whilst maintaining the protection of the internally stored goods. Passengers would purchase this item as a replacement for their carry-on baggage and use it throughout their air travel journeys and even in other aspects of their travel life.

Critical considerations for this design

- Reduce the need for other seating

- Provide passengers with a reliable and comfortable seating option

- Robustness to hold the majority of users' bodyweight

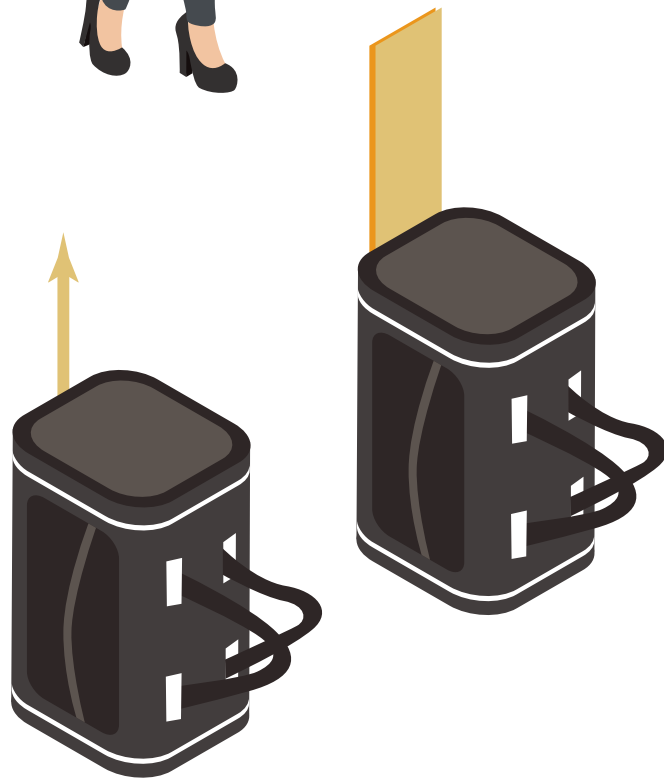
Fundamental limitations for this design

- Size to fit in overhead baggage compartments

- Weighing under the hand luggage limit

- Flexibility to adjust to different users

This product could present itself in a multitude of different forms. The most prevalent is a hard case luggage design which would incorporate the strength and robustness needed into the shell while being covered in a premium material that is soft-touch and inviting for the passenger to sit on. An example has been illustrated to the right.



## furniture design

The second recommendation is furniture design which incorporates all of the anticipated and discovered experience aspects found from the data gathered and applies them to the furniture throughout the airside airport ecosystem. This is most easily applied to seating options presented to passengers travelling through the airport. Passengers would interact with these products as airport provided offerings to the general traveller populous providing an enhanced airport comfort experience.

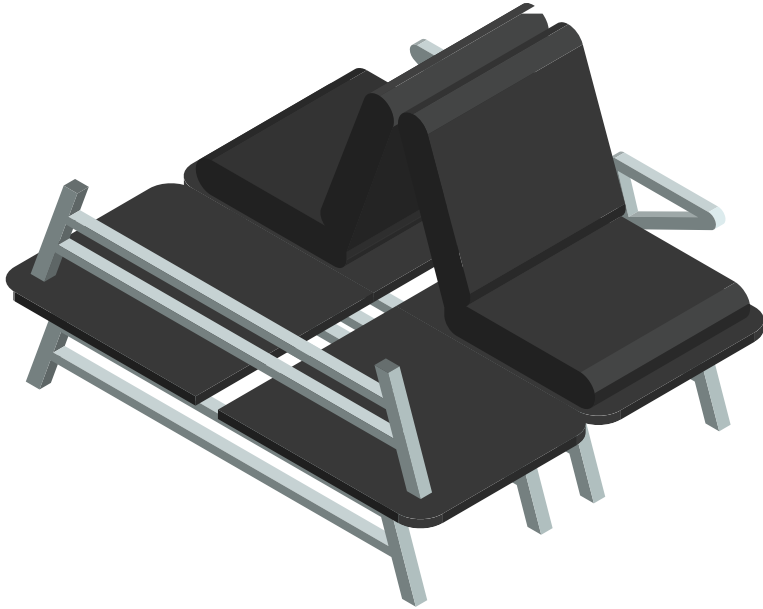
Critical considerations for this design

- Hygienic material selection
- Adjustability to different passengers
- Long-lasting materials for maintenance
- The utilisation of common parts and components
- In house manufacturing or stockpile of common components

Fundamental limitations for this design

- Longevity of materials
- Serviceability of parts and components

This product would be one that could be adjusted by the individual user to suit their current needs with a large variety of offerings such as internet, power, light sources, and storage whilst in use. An example has been illustrated to the right.



## adjustable lage scale interactive furniture as exhibitions

The third recommendation is a large scale interactive furniture as an exhibit piece, possibly in conjunction with local artists and creators. It would consist of a variety of standard components that could be adjusted and manipulated in an airport-specific limited combination set where passengers could adjust the piece on the fly through interaction. It is the thought to limit the adjustability via airports, as some may have large open spaces for more flexibility in the design whilst others may only have a limited area for the product to fit within.

### Critical considerations for this design

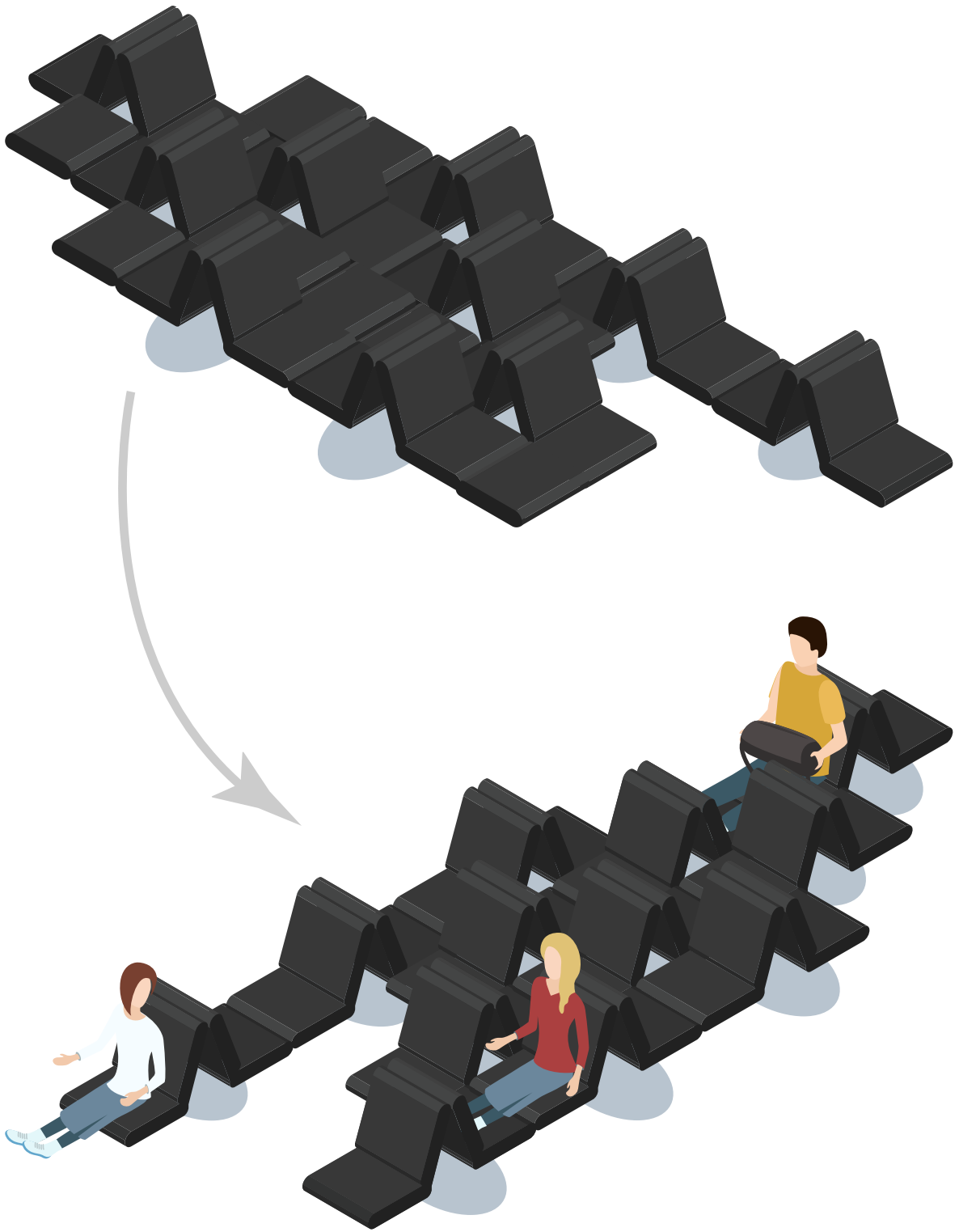
- Human scale in accordance with moving parts
- Variety of pinch points or trap points within the design
- Size and material selection of common components

### Fundamental limitations of this design

- The scale of the installation
- Size of the spaces within the airports
- Number of common components or pieces

This product would be a larger than life installation type system where the airport would regulate the use, and the passengers would have the freedom within the constraints to manipulate the design. A possible design solution has been illustrated to the right.





## personal protective gear for travel

The fourth recommendation is personal protective gear for travel which would be a product solution to coincide with the current Covid-19 pandemic that the world is facing. It would consist of the essential personal protective equipment, which is essential in preventing the spread and transmission of diseases. This would largely be breathing filtration apparatus yet not limited to the airport environment, however, could be extrapolated to include personal belonging coverings or personal disinfection devices to be used on commonly shared equipment.

Critical considerations for this design

- Sizing to fit into carry-on baggage
- Disinfection methods or protocols
- Filtration understanding

Fundamental limitations of this design

- Components being allowed through security
- The adjustability of the design to disinfect different types of common products

This product would be a handheld disinfection device that travellers would carry in their luggage or bag to disinfect or sanitise commonly shared equipment due to the increase in demand for hygiene and cleanliness. A possible design solution has been illustrated to the right.



## personal space creation products

The final recommendation is personal space creation equipment or devices that could be deployed within a public area to distance oneself from other passengers or travellers to create a temporary barrier. It would either create a physical barrier to prevent direct interaction with other travellers or create a spatial gap around the user to distance from others creating an air gap. This would primarily be to assist with social distancing and personal space protection which can directly influence the comfort and mindset of the passenger.

Critical considerations for this design

- Creation of barrier or space around the user
- Claiming of personal space

Fundamental limitations of this design

- Deployment or setup time/pack-up time
- Disinfection of barrier post-use

This product would likely be an attachable item to existing luggage options that could be deployed around the user to claim space and separate them from others when in the airport. A possible design solution has been illustrated to the right.



# design proposal

The previous section highlighted the possible design implementations that could alleviate some of the existing found problems and pain points within the airside airport ecosystem found through the research conducted. This section aims at outlining the design proposal to be undertaken over the next semester, Semester 2, 2020. This proposal can be attributed to any of the five previously stated design implementation directions.

The intent of all design work over the next semester, Semester 2, 2020, is to improve the travel experience for users within the airside of the airport ecosystem. Through the research conducted and literature reviewed, the need for design intervention has been justified thoroughly and is directly supported.

## aspects to consider

The limitation of design solutions:

- Deployment or setup time/pack-up time
- Disinfection rate/infection rate
- Components being allowed through security
- The adjustability of the design
- Scale
- Number of common components or pieces
- Longevity of materials
- Serviceability of parts and components
- Sizing
- Weighing under the hand luggage limit
- Flexibility to adjust to different users

The key considerations for design solutions:

- Creation of barrier or space around the user
- Claiming of personal space
- Sizing to fit
- Disinfection methods or protocols
- Human scale in accordance with moving parts
- Hygienic material selection
- Adjustability to different passengers
- Long lasting materials for maintenance
- Utilisation of common parts and components and selection of common components
- In house manufacturing or stockpile of common components
- Reduce other needs through availability
- Provide passengers with a reliable and comfortable option
- Robustness

## estimated timeline of work

- 01  
Further Research
- 02  
Initial Design
- 03  
Model Making
- 04  
Final Design
- 05  
Presentation





## brief summary

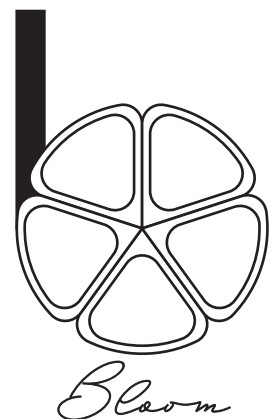
In summary, the literature that was reviewed initially revealed a research gap which the research conducted was aimed at filling through an online survey and professional interviews. The research conducted presented a unique data set, which led to interesting findings which were discussed and further investigated and described. The investigation and discussion informed potential design implementations and recommendations for how design thinking can be used to address problems presented from data gathered. The design proposal presented the process to take place over the next semester to produce a final design proposition supported by data.



# justification

The contents of this chapter aim to justify the design and design process whilst providing further research of competitors and existing designs. The contexts, surrounding systems, and use case scenarios have been detailed to produce a surrounding image of the design because seldom is a design not influenced by its surroundings. This projects' design journey has been detailed and explained concerning design processes and design validation. The business model presented extrapolates the designed system and possible external and internal factors that can influence things.

introduction to design  
further research  
people, activities and context  
example scenario  
journey/experience mapping  
design process  
design validation  
user testing  
material testing  
design matrix  
design validation  
business case  
value proposition canvas  
business model canvas  
competitive advantage  
market size and share  
response to design criteria  
final design discussion



## introduction to design

Bloom is a different approach to the traditional airport seating designs and is a multipurpose furniture piece designed for airside airport spaces. It is an individual seating solution with a unique mix of functions and features that blend seamlessly with the material construction of the design taking queues from the surrounding interior space.

Through the use of NFC, piezo-electric technology, and an app-based interface, Bloom can update and alert users in the case that their luggage is tampered with. A new to world mechanical hinge supports the design and its open-close functionality to reduce size when not in use allowing for more efficient passenger flow through airports and visual intricacy of space through embedded lighting features.

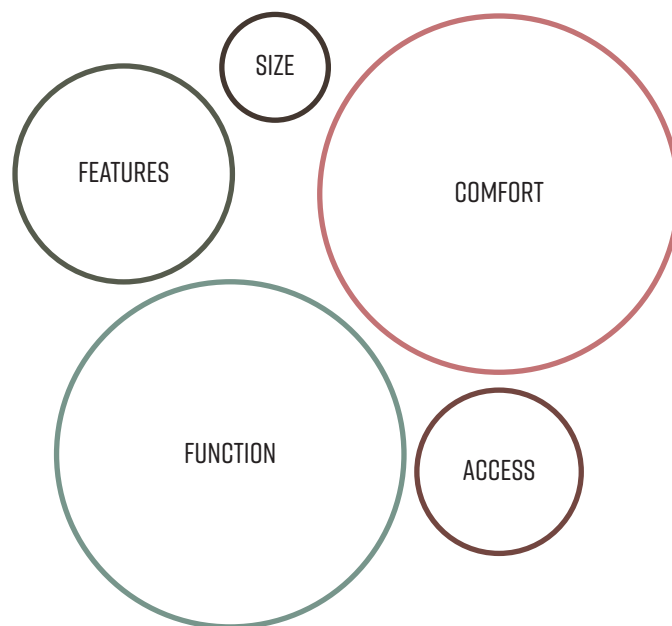
Bloom is designed to surround passengers and embody their shape to provide comfort and relaxation during the often high-stress time within the airport ecosystem. Aiming to offer creature comforts and ease concerns of flying, Bloom provides the passenger desired higher experience level going above and beyond expectations.



## further research

When designing a product for the market, the market and surrounding areas where the design is to be implemented must be researched. This is to estimate the market validity accurately before a product or design is deployed. The research conducted points toward the market being stable and open to design implementation due to it being constant in the foreseeable and calculable future. Air travel isn't going anywhere anytime soon. Calculating competitor and market values through several theories and methods provide the most accurate and insightful data to utilise. This data can highlight places where competitors have both succeeded and failed in the market to highlight areas that can improve the overall designs' success comparative to competitors. Making competitor failure your success is a proven theory to increase success within the market. The design must also stand up where others also succeed; otherwise, the same approach would apply to them.

The below figure stipulates the key areas a design must focus and succeed to be successful in the market where size indicates importance.

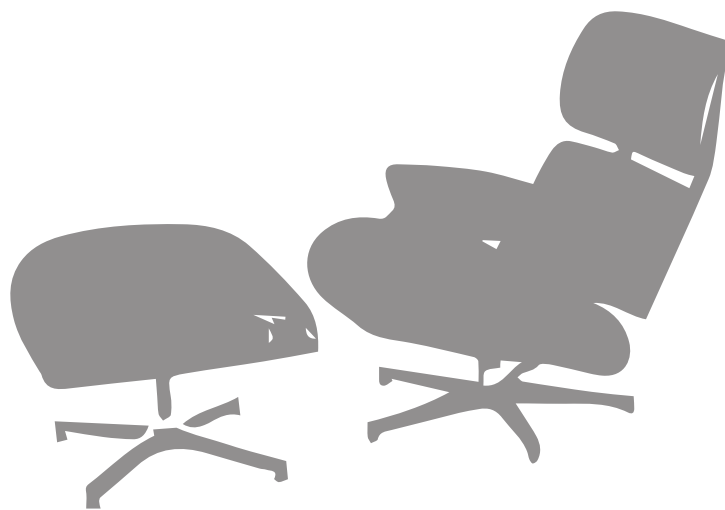


## further reseacherch

Current luxury market products heavily rely on their established aesthetic and perceived level of comfort and luxury. Whereas, well established and long-lasting market products rely on their functionality and design basics which have allowed them to be generational and age beautifully. Many competitors to the market take design cues from these generational products trying to imitate and copy rather than present new ideas which shift the market and public perception. This method is seen as risky in terms of a business model as public perceptions are often challenging to move yet in terms of breakout revolutionary design, public perceptions must move.

As illustrated below, the Eames lounge chair is one of these generational luxury products which has public perception associated with its' design and materiality. Though designed by Charles and Ray Eames, anyone could achieve this aesthetic applicability through revolutionary design and shifting public perception.

Therefore, based on these factors from existing products and primary research my design primarily focused on comfort, functionality, and features.



## people, activities and context

The people that this design is directly targeted towards are airport passengers, travellers, and they have the experience, assumptions, and preconceptions about the typical travel experience. They are knowledgeable about the typical travel experience which informs their judgements of positive and negative. The prejudices that they hold of a positive experience informed the design process to tailor toward the upper offerings of first-class. Indicative of the offerings within the first-class landscape: materiality, presentation, and perceived level of enjoyment are all critical factors witnessed by others which must be achieved to retain this perceived elevated level. With the recent impacts across the board, caused by the worldwide pandemic of COVID-19, the accessibility for travel has decreased. Such results to travel have caused an economic downturn for airports due to the decreased throughput of customers. Hence higher experience level offerings for airports are needed to attract passengers because, as my research has shown, the association between airports and their location are inescapable. The first and last touchpoint of a location are airports, and poor experiences at both can impact the perception of place. The impact on mindset has widely been participant-driven through their concerns and thoughts regarding the global pandemic. These concerns have trickled through to noticeable behavioural differences of passengers and are currently under analysis and review by researchers elsewhere.

The activities passengers do within the airport is currently being impacted and abnormally affected due to the current global pandemic. Trends and passenger wants, however, are being noticed during this time, most notably the want for space and separation from other passengers who carry the unknown. The unknown being the possibility that other passengers might be carrying the virus. New design interventions must meet these newly arisen user wants to overcome and replace existing market products as they are being taken to market post-pandemic. The range of 'average time filling activities' still are taking place and must be accommodated for within any new design intervention. These 'average time filling activities' can be seen detailed in the research conducted previously.

## people, activities and context

The context at large remains unchanged by the global pandemic with the only real changes being procedural. How people interact within the context and surroundings have changed, a separation between people and common products created. The distrust of cleanliness and hygiene was created as surfaces, and common touchpoints are avoided because of secondary infection. Where a once shared facility would have been used, individualised products are now needed. Where a once multiple-use product existed, single-use products have re-emerged. The lifelong generational designed products passed from father to son, mother to daughter, grandparent to grandchild are being disregarded, but this is not a direction I chose to take. Design for a higher experience level was chosen, one perceptible to the entire airport audience with long term sustainable impacts being a subsequent design outcome. The impact this design can have on the environment flows through many different use case scenarios that provide arrays of benefit to both primary and secondary users of the design.



## example scenario

The Bloom chair sits at attention waiting to be used, the lighting strips running up the exterior sides of the arms may or may not be in effect dependant on the lighting sequence. The function of this step is to impact the surrounding environment and also show to passengers which seat is in use or not in use. The impact on the surrounding environment can be small or large dependant on the lighting sequence and if the chair is in use.



The passengers' luggage is set on the luggage pad. This action causes a sound and light reaction from the Bloom chair, letting the passenger know it is ready for activation and tracking. The impact is to assure the passenger that they are completing the luggage tracking correctly.



The passengers' luggage is secure and being tracked with additional handheld items being placed on a side table. The chair is ready to be opened and sat in due to no further tracking steps needing to be completed. The grand opening of the chair is ready, and as such, the impact of this action is able to be fully absorbed by the passenger.





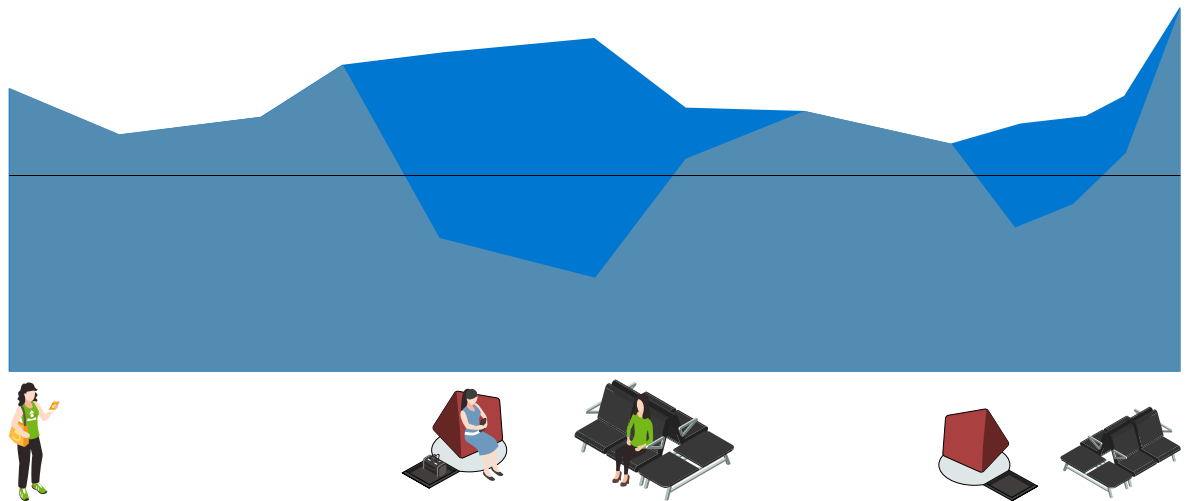
## example scenario

The passenger is sitting in the Bloom chair. Sitting in the open folds of leather and having access to information of amenities and services through the app-based system interface, passengers are provided with the space to relax in comfort. This provision allows passengers the affordance to complete other activities and begin their journeys with the peace of mind that their luggage has an extra layer of security.



## journey/experience mapping

Journey and experience mapping allows example journeys to be perceived in regard to positive and negative outcomes that indicate how the design intervention will impact a travel/use journey within the chosen context. They are directed to form critical insights and to highlight points where improvements can be implemented before the design is finalised. This process is similar to user testing without the need for the final design.

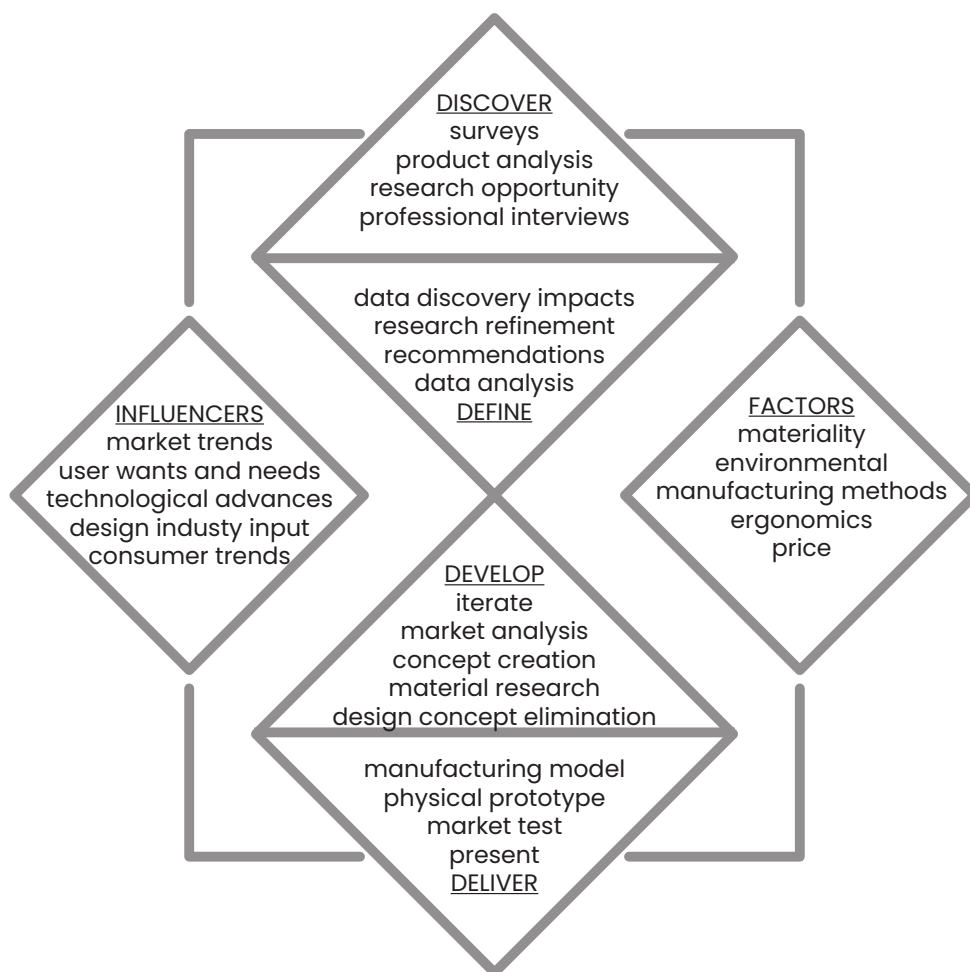


The above visualisation shows how an average user experience/journey would be improved through the implementation of my design intervention. Vast improvements from beyond security up until boarding, whilst also improving the passengers' experience/journey when disembarking the aircraft and exiting through the terminal.

The improvements coming from the direct use of the design implementation and the indirect use as a visual stimulant and artefact as it lights up and 'performs' within the terminal.

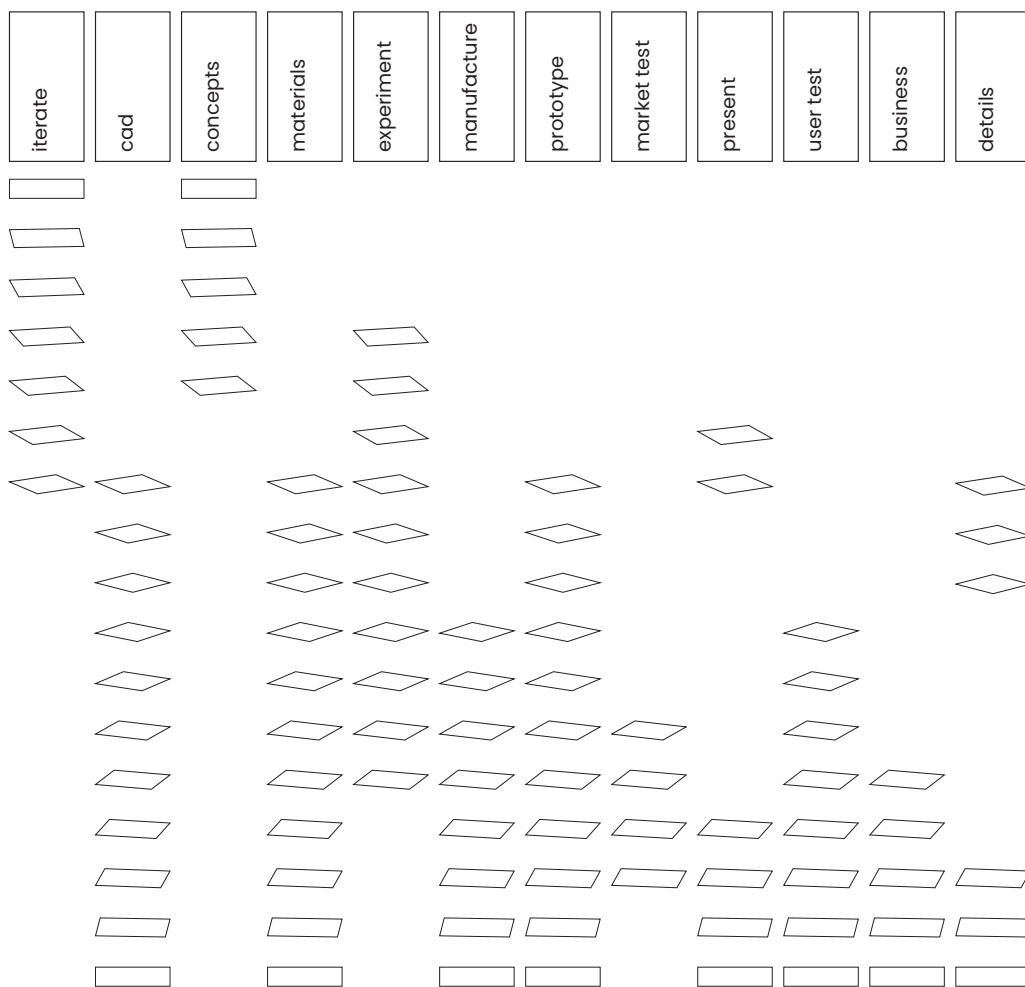
## design process

My overall design process has been visualised below with reference to the double diamond method. This visualisation gives a brief overview of how I work and the concerning factors and influencers that guide the end goals of the journey from start to finish. Though time within this visualisation process is lost; it gives the idea that only one process can be completed and must be done sequentially with no regard to multitasking or multiplicity of individual operations. Hence multiple visualisations of my design process are needed to depict the process that I use accurately.



# design process

My overall design process has been visualised below with reference to Gantt charting. This visualisation gives a brief overview of how much time went into each design process. Time is the leading consideration in this visualisation process, but it does not provide much insight into thought processes. Hence multiple visualisations of my design process were utilised to depict the process that I use accurately.



## design validation

Design matrices, user testing, user evaluations, and market testing are tools that designers utilise to predict market success and failure. The outcomes produced by this investigative process of market success and failure indicate to the designer whether this design is viable. Hence, the design validation process is integral to the success of a product.

The processes of evaluation which I used in this process mixed seamlessly throughout my design process and influenced the critical path at key decision-making points.



## user testing

The process of user testing is to determine the personal and environmental experience and impact outcomes through testing of prototypes. The factors from existing products and primary research focused on comfort, functionality, and features. My user testing was detailed and focused around these to ensure success against these primary criteria. This processes of evaluation was mixed seamlessly throughout my design process and influenced the critical path at key decision-making points.

Historically successful designs are easily identifiable through their silhouettes. Viewing angles and environmental factors impact how much a silhouette is visible, and within the airport environment, furniture silhouettes are visible most of the time. Therefore, arm number selection was a critical point in the design process as it has a high visual and aesthetic impact on the design overall. Due to this high impact, several prototypes were produced with different arm numbers at 1:1 scale for viewing and user testing. Other than visual impact, the arm number selection had a significant impact on the comfort of the design.

Ergonomics is the penultimate consideration when designing for humans. Even though you can create with this in mind, a design must be tested once created to ensure that it is comfortable and can be enjoyed by a wide variety of users. The ergonomic considerations for my design process were extensive and in-depth and again tested in several prototypes by a variety of primary users. These include but are not limited to: spacing, height, motion, strength, weight, and accessibility. All of these factors impact both physical and cognitive ergonomics of the design and directly affect how usable and successful a product will be.



## material testing

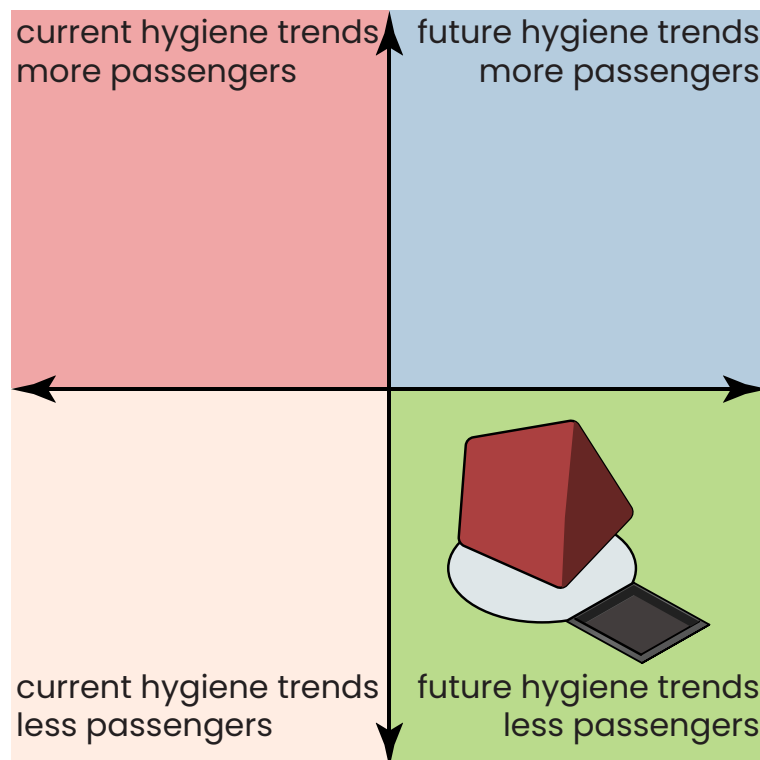
Material selection boards were also produced several times and presented to individuals within the primary market user group for selection. This selection process directly impacted on the final materiality of the design. They were also impacts on the materiality of the final design by the luxury furniture market and existing material selection. A point of contention amongst many users was Leather. Although leather substitutes exist (including cactus, pineapple, and other porous fibres) they are all petro-chemical based, making them less environmentally friendly. The meat production industry is not shutting down any time soon; therefore, the largest percentage of slaughtered animals should be used, including their hides. So to put these hides to waste and not produce Leather for use is waste and not environmentally friendly. Whilst the use of Leather is not vegan-friendly, it is a more environmentally friendly option and for animals already destined for slaughter, it increases their potential use. Users interviewed about this topic preferred environmentally friendly products and designs over vegan friendly due to the more considerable perceptible impact that this process has on the world.

Current luxury market products have well-designed ergonomics and can often age beautifully through material selection. The heavy use of materials such as hardwoods, Leather, and anodised metal (to name a few) pickup marks and patina as they age. These materials are prominent with little variation as to be able to gather a story of their life and provide embedded product personality. Leather conforms to use and wear patterns often becoming more comfortable and pliable with seats showing impressions or imprints of their primary users. This translates to generational design and the ergonomics associated via materiality and their importance in appealing to the broadest range of users. Thus, my design is made of these materials primarily: hardwoods, Leather, and anodised metal.

## design matrix

Design matrices are an easy way to visualise a design implementations placement along two axes which represent driving design evaluation topics. These topics are chosen in juxtaposing patterns to quadrant possible futures and how you can effectively design for each.

A single quadrant was chosen for design implementation with an optimised future outlook predicted based on current and emerging worldwide trends. The lowering travel rate and increased awareness of hygiene standards are the two driving forces selected for the design. This places the Bloom chair directly in advanced standings if this predicted scenario becomes the norm.





## design validation

The combination of projected and tested design validation techniques used allowed for a structured in-depth analysis of the Bloom chair design solution. The conclusion found was that for the future predicted market, using current social norms, would be grateful for the design solution and the value that it adds to the airside airport environment. As such, it is predicted from users that the design would be successful if implemented and would achieve a high user experience level over the current offerings. The findings also pointed toward a high usage level with users' wanting to test and adopt the new high experience level offering as the standard.



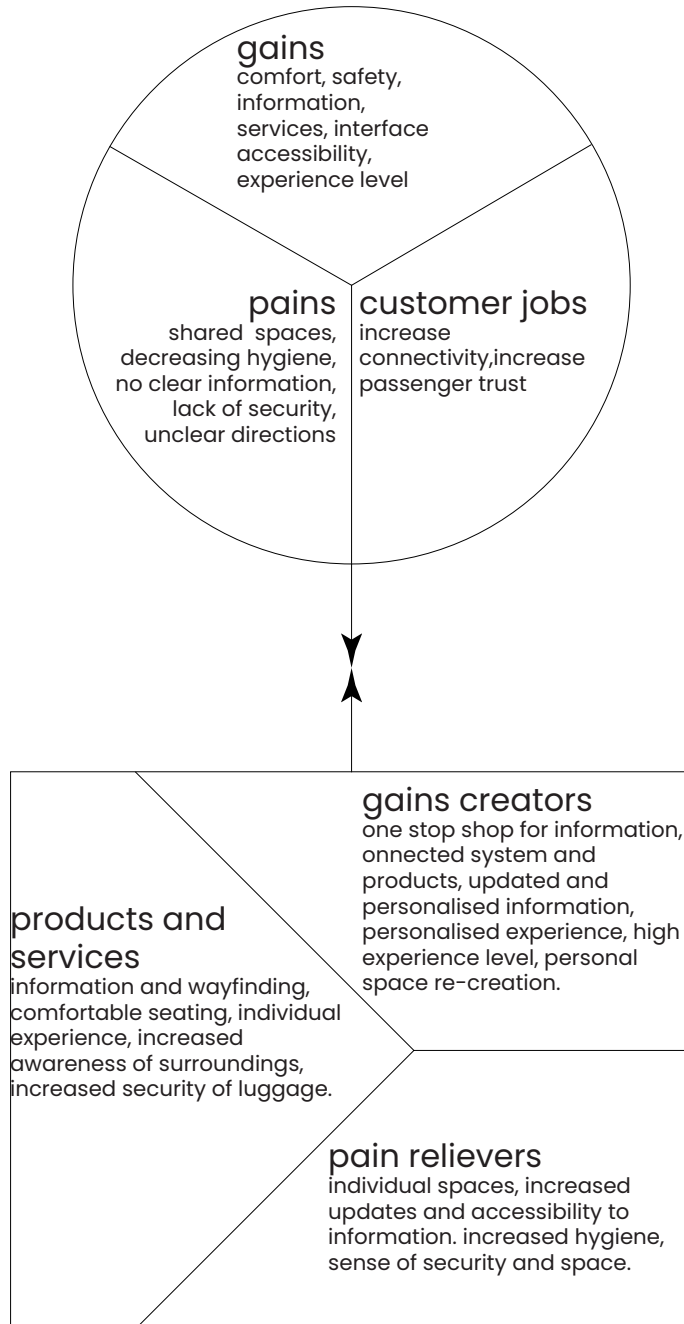
## business case

The business case of a design is one of the vital tools assessed when an investor or potential business partner thinks about your design implementation. How it could be produced, and if the business has the potential to draw in a large amount of money? Though this is not a make or break for all design implementations, a design such as the Bloom chair is not marketed to the average consumer. It is marketed toward large businesses with established or existing infrastructure which are looking to upgrade or expand.

A unique business model was developed utilising both the value proposition canvas and the business model canvas. The insights both these tools led to showed that the addition of the Bloom chair to any airport would increase the passenger comfort, security, and enjoyment. Happy customers and, in this case, happy passengers are not ones to complain. Subsequently, the overall judgement of the airport would increase, creating a higher demand for airline docking and an increase in profit yield. The business model canvas again emphasised the gains that the Bloom chair would provide to the customer and offered insights into who would be targeted for this design and how that might occur. The business model canvas also brought the idea of cross-market transition to shopping centres, malls, and upper-class retail to increase the potential purchaser market.



# value proposition canvas



# business model canvas

<p><b>key partners</b></p> <p>airports</p> <p>airlines</p> <p>large businesses with relationships with air travel businesses</p> <p>air freight businesses</p> <p>businesses with airline lounges</p> <p>manufacturers</p> <p>advertisement companies within airports</p> <p>wayfinding companies that supply airport software + hardware</p> <p>marketing teams of airports</p>	<p><b>key activities</b></p> <p>cleaning</p> <p>maintenance</p> <p>installation</p> <p>programming of lighting patterns</p> <p>interaction between airport staff</p>	<p><b>value proposition</b></p> <p>higher level experience</p> <p>cleaner</p> <p>more distanced passengers</p> <p>safety and security of baggage</p> <p>individualised seating</p> <p>increased accessibility to existing information</p>	<p><b>customer relationships</b></p> <p>direct interaction feedback</p> <p>providing security and safety</p> <p>being the upper class and higher experience offering</p> <p>focus on experience and making waiting more enjoyable</p>	<p><b>customer segments</b></p> <p>average passengers</p> <p>airline lounge passengers</p> <p>business lounge passengers</p> <p>airline staff</p> <p>airport staff</p> <p>could be branched out into high class retail and mall centres</p>
<p><b>cost structure</b></p> <p>initial payment on purchase</p> <p>update of technology, lighting patterns, adaptive materials</p> <p>investment into custom series for implicit purposes i.e. malls, airlines, airports custom series.</p>	<p><b>revenue streams</b></p> <p>airports</p> <p>airlines</p> <p>businesses</p> <p>branch out into high class malls and retail purposes</p>			
<p><b>key resources</b></p> <p>data hosting</p> <p>technology</p> <p>manufacturing</p> <p>installation</p> <p>language abilities</p> <p>interfacing data</p> <p>wayfinding and existing system integration</p> <p>power + internet</p>	<p><b>channels</b></p> <p>airports</p> <p>airlines</p> <p>large businesses with lounges</p>			

## competitive advantage

The competitive advantage of the Bloom chair is within the features, and finish.

The primary features are the open-close mechanism of the chair, the individual seating design, the luggage tracking capabilities, and the app interface system. The app interface feature embedded within the chair through an NFC chip allows for the fast access to information that passengers would otherwise have to seek out through a variety of ways. This provides a sense of ease and allows the passengers to relax with the knowledge of in-situ services and amenities. The luggage tracking of the chair gives passengers an understanding that their luggage is tracked and they will receive alerts and updates if moved. As the Bloom chair is designed for only one user, the embodied affordances fundamentally support more space between passengers. Finally, the open-close mechanism on the chair provides additional usable space back to the airport when not in use.

The upper-class and high-end finish of the Bloom chair provides the passengers directly using the product with a higher experience level than that of passengers using traditional airside terminal furniture. The material makeup of the Bloom chair provides a long-lasting impression, the smooth yet rough textures of the leather mixed with the harsh cold lines of the metal arm structure. The lighting expands the reach beyond the physical form of the chair to an impact piece that can transform a space.



## market size and share

The air industry is expected to rise 4.0% from 2019 to 2020 to be a total of \$908 Billion industry which dwarf's previous expected numbers (IATA, 2020). The number of passengers worldwide is the driving force behind this growth, also expected to rise approximately 3.95% globally with variations across each defined sector (IATA, 2020). This growth is not just on the international scale and hits close to home as well with the Brisbane Airport Company (BAC, 2019) recording an 8.0% increase in its total revenue in 2019 to be \$840 million (BAC, 2019). Utilising this information, the air industry is not deteriorating anytime soon and as such is a stable industry that is accepting of design interventions. The constant growth of the highlighted air industry market and possible sister markets of shopping centres, high-end business retail, and individualised seating approaches again provide substance as to the validity of the market. This can add a layer to airports as novel customer insights can be gathered and translated into customer-centric innovation strategies and influence the airports of the future (Price, 2014) further driving innovation through data collection within the design intervention.



## response to design criteria

The key considerations for a design solution set out originally:

- Creation of barrier or space around the user
- Claiming of personal space
- Sizing to fit
- Disinfection methods or protocols
- Human scale in accordance with moving parts
- Hygienic material selection
- Adjustability to different passengers
- Long lasting materials for maintenance
- Utilisation of common parts and components and selection of common components
- In house manufacturing or stockpile of common components
- Reduce other needs through the availability
- Provide passengers with a reliable and comfortable option

The above design criteria were all accounted for by the final Bloom design. The Bloom design accurately entails the first set out design criteria and in this regard is a successful design.



## response to design criteria

The following criteria are the only considerations not accounted for in the final design:

### **-DISINFECTION METHODS OR PROTOCOLS**

Though there are considerations for disinfection on one side of the leather, the opposing suede side of the leather does not have an inherent easy disinfection method.

### **-HYGIENIC MATERIAL SELECTION**

As stated above, there is only half consideration for hygienic material selection in terms of the leather. This is because with natural leather there is a smooth side and a suede side, hence, only one side can be easily wiped clean. In terms of other materials used throughout the final Bloom chair, all materials can be wiped or spray cleaned using regular disinfectants.

### **-IN HOUSE MANUFACTURING OR STOCKPILE OF COMMON COMPONENTS**

Though this could be achieved, a stockpile of common components used throughout the chairs, it could not account for in house manufacturing. Outsourcing of manufacturing to decentralised production units or a singular large factory setting would need to be completed as opposed to in house airport manufacturing.

### **-COMPONENTS BEING ALLOWED THROUGH SECURITY**

As the final design is no longer a passenger design solution, there is no need for components to be bought through airport security. The design is also not easily disassembled or broken into smaller pieces such not to provide parts for passengers to take.



## final design discussion

The users, in this case, passengers have a particular set of requirements which they want within the airside airport environment. However, these are overseen by airports and other governing bodies that allow or disallow these passenger requirements. The Bloom chair fills the minimum requirements whilst alleviating the current limitations of seating solutions.

The form–function relationship of Bloom is driven mostly by the form. The open–close mechanism that the chair holds provides an added function that firstly is not for the direct role of seating, yet directly impact the form. When opened the silhouette of the design is much different than closed, this gives different personalities to the design when in these two forms. The function must be there and is in the subject of comfortable seating for passengers.

The airport is a mostly controlled environment, yet the external environment is continually changing in terms of weather, season, and lighting. This can impact the wear and deterioration of materials during the lifecycle of the product.

The standardisation of components throughout the design is minimal, though there are several shelf–bought parts utilised which lowers the number of custom parts. There are, however, some custom die–cast parts used throughout the design overall. These parts are due to there being none on the market currently and the design being non–functional without these parts. These are inclusive of the arms, cable–driven components, ball joint, and central hub assembly pieces not regarding the bolts.

## final design discussion

The usability of the final design is high and straight forward, though it can be improved with the addition of grab handles and a possible rubber padded area on the luggage tracking area. The handles on the end of the arms would indicate a grab point and as such passengers would use these primary points to open the chair. The luggage tracking area could also have a high wear rubber pad added to this section to act as a signifier of use and a place to situate luggage for direct tracking.

There are several manufacturing methods utilised throughout this design though as this design is not aimed at mass production, part numbers and scale of orders are indicative of these methods. Die-casting, anodising, and welding are all methods for metal forming, combining, and surface finishing. These are not environmentally friendly; however, for longevity and strength of the product, these harsh processes were selected. Laser cutting was as the method for cutting leather as this process is cheaper than press cutting leather and faster than hand cutting it. This process also allows for custom fits of the leather sling piece, with different colours, shapes, and combinations capable of being produced.



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## graphics and vector art

Please note that the graphics and vector art within are a mixture of both personal creations and creations from Macrovector. A number are mash ups incorporating personal creations and Macrovector designed elements.

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# appendix


appendix a | interview consent form

appendix b | survey consent form

appendix c | approach email

appendix d | social media recruitment

# appendix a | interview consent form

	<b>PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT</b> – Interview –
<b>Airport Experiences</b>	
QUT Ethics Approval Number 1800000355	

## Research team

Principal Researcher: Callum Burton  
**DE42 Bachelor of Design – Honours Student**

Honours Coordinator: Dr Rafael Gomez  
**School of Design, Creative Industries Faculty**  
**Queensland University of Technology (QUT)**

## Why is the study being conducted?

This project is being undertaken as part of an Honours study for Callum Burton.

The purpose of this project is to research the gap between passenger experiences and how products, systems, and services presented to passengers within the airport ecosystem directly and indirectly influence the perceptions of airport terminals.

You are invited to participate in this project because you have been identified as someone who is an expert in their field.

## What does participation involve?

Your participation will involve an audio recorded interview through Zoom, Skype, or via a phone call or other agreed methods that will take approximately 20 – 30 minutes of your time.

Questions will include:

- What are character traits that make experiences difficult to design?
- Why are perceptions and interactions important?

Your participation in this research project is entirely voluntary. If you do agree to participate you can withdraw from the research project without comment or penalty. You can withdraw anytime during the interview. If you withdraw within 1 weeks after your interview, on request, any information already obtained that can be linked to you will be destroyed. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT.

You will be able to review a transcript of your responses after the interview.

## What are the possible benefits for me if I take part?

It is expected that this research project will not benefit you directly. The outcomes of the research, however, may benefit the airport terminal experience in future and in turn yourself, if you are a frequent flyer. You may request a copy of the research findings to be sent to you.

## What are the possible risks for me if I take part?

There are no risks beyond normal day-to-day living associated with your participation in this research project.



### **What about privacy and confidentiality?**

Any personal information that could potentially identify you will be removed or changed upon request before files are shared with other researchers of the project or results are made public. The information that may be removed include: name, affiliations, etc.

Any data collected as part of this research project will be stored securely as per QUT's Management of research data policy. Data will be stored for a minimum of 5 years, and can be disclosed if it is to protect you or others from harm, if specifically required by law, or if a regulatory or monitoring body such as the ethics committee requests it.

As the research project involves an audio recording component:

- You will not have the opportunity to verify your comments and responses prior to final inclusion.
- The recording will be destroyed 5 years after the last publication.
- The recording will not be used for any other purpose.
- Only the named researcher, Callum Burton, will have access to the recording.
- It is not possible to participate in the research project without being recorded due to the recording being used for transcript purposes and secondary listening.

### **How do I give my consent to participate?**

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate.

### **What if I have questions about the research project?**

If you have any questions or require further information please contact one of the listed researchers:

Callum Burton

[callum.burton@connect.qut.edu.au](mailto:callum.burton@connect.qut.edu.au)

Rafael Gomez

[r.gomez@qut.edu.au](mailto:r.gomez@qut.edu.au)

07 3138 4577

### **What if I have a concern or complaint regarding the conduct of the research project?**

QUT is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the QUT Research Ethics Advisory Team on 07 3138 5123 or email [humanethics@qut.edu.au](mailto:humanethics@qut.edu.au).

**Thank you for helping with this research project.**

**Please keep this sheet for your information.**



CONSENT FORM FOR QUT RESEARCH PROJECT

-Interview-

**Airport Experiences**

QUT Ethics Approval Number 1800000355

**Research team**

Callum Burton

[callum.burton@connect.qut.edu.au](mailto:callum.burton@connect.qut.edu.au)

Rafael Gomez

[r.gomez@qut.edu.au](mailto:r.gomez@qut.edu.au)

07 3138 4577

**Statement of consent**

**By signing below, you are indicating that you:**

- Have read and understood the information document regarding this research project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw without comment or penalty.
- Understand that if you have concerns about the ethical conduct of the research project you can contact the Research Ethics Advisory Team on 07 3138 5123 or email [humanethics@qut.edu.au](mailto:humanethics@qut.edu.au).
- Understand that the research project will include an audio recording.
- Agree to participate in the research project.

**Please tick one of the following options:**

- When this research is published, I am happy to be identified BY NAME.
- When this research is published, I wish to REMAIN ANONYMOUS with no use of my name or identifying details.


Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**Please return the signed consent form to the researcher.**

# appendix b | survey consent form

	<b>PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT</b> – Survey –
<b>Airport Experiences</b>	
QUT Ethics Approval Number 1800000355	

## Research team

Principal Researcher: Callum Burton  
**DE42 Bachelor of Design – Honours Student**

Honours Coordinators: Dr Rafael Gomez  
**School of Design, Creative Industries Faculty**  
**Queensland University of Technology (QUT)**

## Why is the study being conducted?

This project is being undertaken as part of an Honours study for Callum Burton.

The purpose of this project is to research the gap between passenger experiences and how products, systems, and services presented to passengers within the airport ecosystem directly and indirectly influence the perceptions of air travel and airports.

You are invited to participate in this project because you have been identified as someone who is in one of the following categories: Expert in the field, Experienced air traveller, or a Novice air traveller.

## What does participation involve?

Participation will involve completing a 3 part anonymous survey with Likert scale answers (strongly agree – strongly disagree) and some brief short response questions that will take approximately 15-20 minutes of your time.

Questions will include:

- What are your opinions of current airport offerings?
- Why are perceptions passengers important?

Your participation in this research project is entirely voluntary. If you agree to participate you do not have to complete any question(s) you are uncomfortable answering. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT or associated external organisation. If you do agree to participate you can withdraw from the research project during your participation without comment or penalty. However, the survey does not request some personal identifying information, once it has been submitted it will be possible to withdraw your responses and if you wish to do so please contact me.

You will not be able to review your responses directly before submitting nor save a copy of your responses after submitting the survey so if you wish to do so it is advised to do so before submission.

## What are the possible benefits for me if I take part?

It is expected that this research project will not benefit you directly. The outcomes of the research, however, may benefit the airport terminal experience in future and in turn yourself, if you are a frequent flyer. You may request a copy of the research findings to be sent to you.

**What are the possible risks for me if I take part?**

There are no risks beyond normal day-to-day living associated with your participation in this research project.

**What about privacy and confidentiality?**

All comments and responses are coded i.e. it may be possible to re-identify you by the researcher only. Any personal information that could potentially identify you will be removed or changed before files are shared with other researchers or results are made public. A participant code will be given to your results and a re-identifying code stored separately to your personal information (e.g. name, address), will only be accessible to the researcher, Callum Burton, and the code plus identifying information will be destroyed upon the completion of the project and/or once the QUT management of data policy is fulfilled.

Any data collected as part of this research project will be stored securely as per QUT's Management of research data policy. Data will be stored for a minimum of 5 years, and can be disclosed if it is to protect you or others from harm, if specifically required by law, or if a regulatory or monitoring body such as the ethics committee requests it.

**How do I give my consent to participate?**

The submission or return of the completed survey is accepted as an indication of your consent to participate in this research project.

**What if I have questions about the research project?**


If you have any questions or require further information please contact one of the listed researchers:

Callum Burton	<a href="mailto:callum.burton@connect.qut.edu.au">callum.burton@connect.qut.edu.au</a>	
Rafael Gomez	<a href="mailto:r.gomez@qut.edu.au">r.gomez@qut.edu.au</a>	07 3138 4577

**What if I have a concern or complaint regarding the conduct of the research project?**

QUT is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the QUT Research Ethics Advisory Team on 07 3138 5123 or email [humanethics@qut.edu.au](mailto:humanethics@qut.edu.au).

**Thank you for helping with this research project.  
Please keep this sheet for your information.**

	<b>CONSENT FORM FOR QUT RESEARCH PROJECT</b> -Survey-
	<b>Airport Experiences</b>  QUT Ethics Approval Number 1800000355

**Research team**

Callum Burton	<a href="mailto:callum.burton@connect.qut.edu.au">callum.burton@connect.qut.edu.au</a>	
Rafael Gomez	<a href="mailto:r.gomez@qut.edu.au">r.gomez@qut.edu.au</a>	07 3138 4577
Claire Brophy	<a href="mailto:cj.brophy@qut.edu.au">cj.brophy@qut.edu.au</a>	07 3138 2761

**Statement of consent**

By signing below, you are indicating that you:

- Have read and understood the information document regarding this research project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw without comment or penalty.
- Understand that if you have concerns about the ethical conduct of the research project you can contact the Research Ethics Advisory Team on 07 3138 5123 or email [humanethics@qut.edu.au](mailto:humanethics@qut.edu.au).
- Understand that the research project will include an audio recording.
- Agree to participate in the research project.

**Please tick one of the following options:**

- When this research is published, I am happy to be identified BY NAME.
- When this research is published, I wish to REMAIN ANONYMOUS with no use of my name or identifying details.

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**Please return the signed consent form to the researcher.**

# appendix c | approach email

## **Approach email**

### **Subject Title:**

Participate in a research study looking into Airport Experiences

To whom it may concern,

My name is Callum Burton from the School of Design, Creative Industries Faculty, Queensland University of Technology (QUT) and I'm doing a research project as part of my honours about Airports of the future and Airport experience during wait times.

If you'd like to help me in this study, I'm looking for Experts in this field, Experienced travellers, and Novice travellers aged 18 or older to participate in a short 20-30 minute one-on-one interview over Zoom or Skype or Phone.

Please view the attached Information Sheet and Consent Form for further details on the study and how you would help through your participation.

If you are interested in participating or have any questions, please contact me via email.

Please note that this study has been approved by the QUT Human Research Ethics Committee (approval number 1800000355).

Many thanks for your consideration of this request.

### **DE42 Bachelor of Design – Honours Student:**

Callum Burton

[Callum.burton@connect.qut.edu.au](mailto:Callum.burton@connect.qut.edu.au)

### **Honours Coordinators:**

Dr Claire Brophy

[cj.brophy@qut.edu.au](mailto:cj.brophy@qut.edu.au) 07 3138 2761

Dr Rafael Gomez

[r.gomez@qut.edu.au](mailto:r.gomez@qut.edu.au) 07 3138 4577

**School of Design, Creative Industries Faculty, Queensland University of Technology**

## appendix d | social media recruitment

### **Social Media Recruitment:**

Participate in a research study looking into Airport experiences

Posting to both Facebook and Reddit sub-reddits specific to airports and airport experiences.

Dear friends, / Dear Redditors,

I'm doing research about airport experience as part of my honours project at QUT School of Design in Brisbane Australia.

I'm looking for: Experts in this field, Experienced travellers, and Novice travellers aged 18 or older to participate in an online questionnaire/survey using Google forms.

If you are interested in participation, further details on the study can be found by clicking on the following link:

xxxxxxxxxx

This study has been approved by the QUT Human Research Ethics Committee (approval number 1800000355).

Many thanks for your consideration.