

Independent Inquiry

A Reaction to Autonomy

Automotive Design BA

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Introduction

This is a passion project. The research I have undertaken is a reaction to the current automotive landscape and the direction it is heading toward. I believe personal transport is becoming less engaging and as a result I feel driving a car will become a passive experience. The relationships we build with our cars, bikes and trucks through the interactions we have with them become a part of who we are as a part of our identity, I think this is something that should be celebrated.

I believe an element of challenge and reward is beneficial to our wellbeing. After a humbling experience on psilocybin I realised I had to pursue a goal, to offer a challenge in order to improve my sense of self-worth. My major project's aim is to create a similar experience. To create a vehicle that is engaging. A car that makes you happy. A car that is good for your health.

Scenario Research

Utopia

After my first tutorial this year I started to research the idea of utopia. Initially coined by author Thomas More, wherein his book of the same title depicted an island where its citizens enjoyed perfect societal conditions (Online Etymology Dictionary, n.d). In a reaction to problems of the present, a vision where these problems did not exist would be imagined, this [vision] would then offer insight as to how to create a better world.

The utopia is inherently contradictory in its nature. The views and beliefs held by one person contradict the views held by another. Thus, two different ideas of utopia are created, "All utopia's ask questions" (Sargent, 2010). A good example of clashing visions of utopia could be the conflict between capitalism and communism. A defining narrative throughout the 20th century fuelled by two different ways of thinking. Two superpowers who saw each other as mortal enemies, although both sought to create a better world for the people living within their borders.

We are in a new age of traffic jams, congestion charging, parking spaces, safety, and environmental concerns are all determinants of the changing landscape for private and public transport. The motorcar, the defining machine of the twentieth century and the technological achievement that facilitated private transport for the masses. Has to respond to the changing social, cultural, economic, and environmental agendas of the twenty-first century

Dale Harrow

(How To Design Cars Like A Pro: New Edition, 2010, p. 81)

I want to base my project in a utopia. How the automotive landscape shifts in the future is dependent upon the world around it. By basing my vehicle in a utopian environment, I not only ask questions of how transport will change but also the world around them.

*So this is Utopia,
Is it? Well-
I beg your pardon;
I thought it was hell*
Max Beerbohm

Encroaching Technology

Witnessing a Revolution

As a millennial and a young adult, I have only known the internet age. I have experienced first-hand the benefits and disadvantages of growing up around it. Our society's willingness to adopt technology without properly discussing its potential repercussions is of interest to me.

High-speed data at our fingertips has revolutionised our society. It is not without detrimental aspects. Internet pornography is used everywhere there is an internet connection. It is viewed as a healthy thing to consume, to relieve stress, to explore our fantasies in a controlled environment. Although, this highly visceral content; unrealistic and addictive in nature can have an adverse effect on our mental wellbeing. In evolutionary terms this technology has only just been introduced. For thousands of years we have had limited sexual partners, available in rare circumstance, and now suddenly we can see more skin than all our ancestors combined in a matter of minutes. The scale of its use becomes apparent when researchers complain that they cannot find a control group of young people who haven't been exposed to high definition internet pornography to study (Wilson, 2012). There simply aren't enough people from my generation that haven't been exposed to it. I think this is a good example as to how we can blindly adopt technology without fully understanding it and its potential consequences.

We are all cyborgs

The idea of putting a human brain inside a robot body has been around since the Cold War. The term 'cyborg' was coined by American scientists, discussing how someone could operate on the surface of the earth in the event of a nuclear winter (Cheesewright, 2016). Consider how much more intelligent you are with a smartphone in your hand. We already have incredible cyborg capabilities mere decades after the term was first coined. The way we communicate with the computers in our lives is a determinant in how effective and capable they are.

Automation

There has been a rapid advance in how we interact with the technology around us. The potential for our cyborg capabilities to improve further, to the extent that we can upload large portions of our personality to information systems, is slowly becoming a reality (Cheesewright, 2016). Reoccurring behaviours, what time you get out of bed, what we like to eat after a night out, could be recognized by advanced computer systems to the point where we are assisted in these tasks autonomously by machines.

Automation has the potential to revolutionise how we work and live our lives; the shopping, the way you like your pizza, even social interactions could be managed for us by computers. This begs the question, what impact will technology have on our wellbeing when it becomes more augmented with us?

Challenge & Reward

I think the rise of automation has the potential to have an adverse effect on society. It will drastically change the way we think and the things we do. I think a good analogy for my way of thinking can be found in our pockets. Our keys, we must remember where we have left them, keep them somewhere safe when we are travelling. We experience frustration when we can't find our keys. We have a negative reaction when we are trying to get inside out of the cold on a wet and windy evening and they seem to have disappeared. This contrasts with having your keys in the palm of your hand ready to crash through the front door on a warm summer's day. In the future our keys, money and the devices we use to communicate with one another could be stored in a small chip inside your retina. Will we miss the experience of losing our keys?

As we contemplate the inevitable radical changes in human-automation interaction, it is important to keep asking questions. What are the economic and societal forces that are driving the changes? How will new technologies shape what is possible for these interactions? And what are the economic and broad societal implications of these dramatic changes?

(Janssen, Donker, Brumby, & Kun, 2019)

I think technology in the future will be incredibly easy to use and interact with, to the extent that we might not be conscious of its presence. When the trials of everyday life are taken away, will we miss the rewarding experience of overcoming challenge? Our society as we know it has seen incredible amounts of innovation and progress in a relatively minute period. It is the responsibility of the designer, the creative thinker, to discuss the long-term effects of revolutionary and innovative technology.



Figure 1: "your scientists were so preoccupied with whether or not they could that they didn't stop to think if they should."
Dr. Ian Malcolm, Jurassic Park

Sustainability

The epoch of the leaf is in full swing. The wider population is starting to consider the impact of the things they use on the environment. This is a rare occurrence, throughout the human timeline we have been the victims of our own intelligence; once we learnt the science of agriculture our population ballooned, and we have become increasingly capable at exploiting the environment around us. This has had catastrophic effects to many civilizations throughout our history. A great example of this being the demise of the Polynesian inhabitants of Easter island. The isolated patch of land in the Pacific being the "clearest example of a society that

destroyed itself by overexploiting its own resources" (Diamond, 2011). As a species we are remarkably capable at ignoring big problems and leaving them 'to the next guy'. This is a symptom of how we have evolved as a species. Our selfish nature is what allowed us to survive when we were hunter gatherers (Phillips, 2018).

The frightening reality of our current environmental crisis is that history has plenty of evidence to support our demise. Plastic is forecast to outnumber fish in our oceans by 2050. (Wearden, 2016) The abundant material is cheap to produce, has an incredible variety of properties, and it requires little if any treatment to last for hundreds and sometimes thousands of years (Landrock, 1995). Plastic is a dangerous material, we consume so many single use products they end up polluting our natural world; destabilising complex ecosystems where organisms that have enjoyed stability for thousands of years do not have the time to adapt.

As roadways all over the world become more congested and pollution is of greater concern to many people, it is becoming obvious that the current design direction of cars and trucks will not provide a sustainable future for society's transportation needs.

(Macey & Wardle, 2014)

In my depiction of a utopian future, sustainability is at the forefront of the public consciousness. A low carbon footprint is something to aspire to. The products and transport we use are not only highly efficient but also manufactured from sustainable materials.

Conclusion of Initial Research

I believe tomorrows utopian technology will create a sense of disconnect in our population. The population will desire to leave behind their highly automated lives and seek a sense of freedom from it. It is also important to note that sustainability will be at the forefront of our collective consciousness.

After I had developed the initial premise for my project, I investigated design theory such as Maslow's hierarchy of needs and Lee's five senses theory. This informed the hypothesis for my project.

Our need for Engaging Experiences

In my vision of utopia, the technology we use will be incredibly easy to interact with. I believe the emotional engagements we have with the objects around us will become recognizable and familiar due to the continued study of human behaviour and interactions. (Norman, 2013) Through habituation (Fadell, 2015) everyday experiences will become boring; no endorphins will be released due to a lack of novel experiences.

Engaging experiences can be found in the products we use or the pastimes we take part in. Our cultures obsession with fitness is a great example of this. There is no longer a practical use for running, we can go to the shops if we want to eat food, so why do we still choose to put one foot in front of the other in such a dramatic fashion? "We run to reach a goal: the achievement motivator." (Howes, 2010) There are also physiological benefits: endorphins' are released, there is also evidence to suggest the cortisol hormone - related to stress - is decreased by exercise. (Wegner, Koutsandréou, Müller-Alcazar, Lautenbach, & Budde, 2019) As we have evolved our need for exercise has changed from a necessity for survival to a necessity for good physical and mental health. As the automobile continues to evolve and become more capable could its use also adapt to become solely a means of engagement to improve our health?

Maslow's Hierarchy of Needs

Abraham Maslow created the hierarchy of needs as a route/template for self-actualization; a term used to “describe the growth of an individual toward fulfilment of their highest needs, those most advanced concepts and ‘big questions’ humans struggle with”. (Journal Psyche, n.d) Physiological needs like shelter and food, and safety needs such as job security, are the most fundamental aspects of our lives. Once these are met Maslow believed psychological aspects such as social fulfilment through meaningful relationships were necessary.

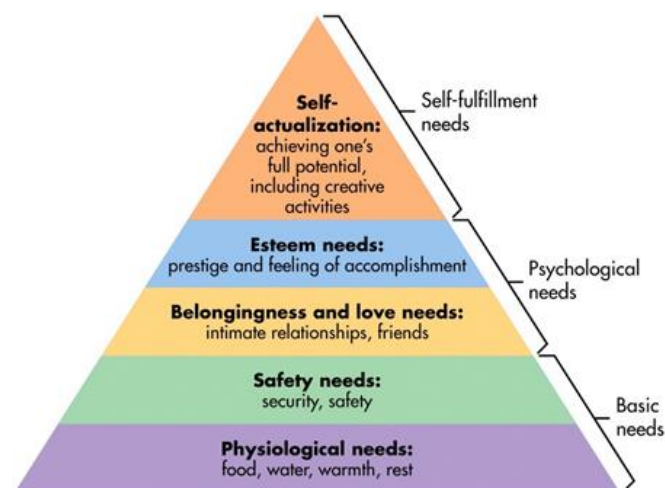


Figure 2: Abraham Maslow's Hierarchy of Needs

The Social Value of Shared Mobility

Maslow's hierarchy of needs offers a template as to how the automotive landscape could shift in the future. I think the presence of connected and autonomous vehicles (CAVs) will increase the social value of transport. When basic needs are met (in the automobiles case performance/efficiency and safety) the psychological needs of the occupant can be attended to.

Concept cars previewed over recent years have started a discussion about the impact a shared mobility system. Smart offered one of the first previews of how such a system could be implemented in our cities.

Smart proposes that those wanting to use the sharing function can make contact with other users via a saved profile and travel plans, and can be accepted or rejected by the prime customer.

(Kable, 2017)

Shared mobility could give someone a social interaction in a situation where they might not usually find one. It will also allow users to focus on other tasks when travelling, “automated tasks might require less human attention and intervention. This allows humans to focus on other activities, such as (other) work and play.” (Janssen, Donker, Brumby, & Kun, 2019) Tomorrow's commute to work could be spent completing menial tasks, or socialising with people in person or via our personal computers.

Personal Transport and our Esteem Needs

The next segment up from social needs in Maslow's pyramid is the need for 'prestige and accomplishment'. We need to feel a sense of respect from ourselves and our peers in order to be fulfilled; "the fundamentals of self-love in essence". (Journal Psyche, n.d) I think personal transport plays a roll in fulfilling our esteem needs. This can be seen in cultures throughout the world.

I believe the desire to drive our cars comes from a need for a sense of control; this need can be found in our everyday rituals. "Clean up your room!" is a common phrase of Prof. Jordan Peterson. Personally, I like going to the local shop on a Monday morning to buy my bread and milk. This is part of my routine, when I feel stressed and anxious I can take part in this ritual to provide a sense of control. "[Rituals] exist to reassure people everything is as it was and to provide a familiar framework for our daily lives." (Siegel, 2008) I believe the routine of driving personal transport is an important and beneficial ritual we take part in without realising it. The journey from point A to point B gives us a sense of control and as a result improves our mental wellbeing.

Our Five Senses, Emotional Engagements, and a Lemon Squeezer

I believe taking photos in a medium such as 35mm or medium format, as opposed to digital is more rewarding. A medium format camera is a distant relative of the cameras found on our smartphones today. The process of operating it takes more time and the number of photos you can take is vastly limited, not to mention the overall cost of producing a composition is far more substantial. Although, I believe these factors make the process of taking a photo more challenging, and therefore more engaging; you consider your composition more, thus a more rewarding/cathartic experience is created.

Multi-sensory Experiences

More senses are triggered when taking a photo using film. Designer Jinsop Lee's five senses theory hypothesises that great experiences enhance all the senses: touch, smell, hearing, taste, and sight. Sex, smoking, eating pizza, a hot sweaty club, and driving an old smelly car; these experiences engage all 5 senses on some level creating a great "multisensory experience" (Lee, 2013) Through this lens it becomes easier to understand why we like our favourite activities.

I think this way of thinking can be directly applied to driving a manual/mechanical car. More of our senses are triggered in comparison to driving a modern vehicle. The smell of petrol and oil is not a nice smell in isolation. Although, through its association with transport and motorsport it is seen – or smelt – as a nice smell. Objectively speaking an old Austin Mini is a lot worse than one of its German descendants. More effort is required to get somewhere slower, using more fuel, and being less safe in the process. But the sense of freedom created from the involvement has a positive effect on us that cannot be understated.

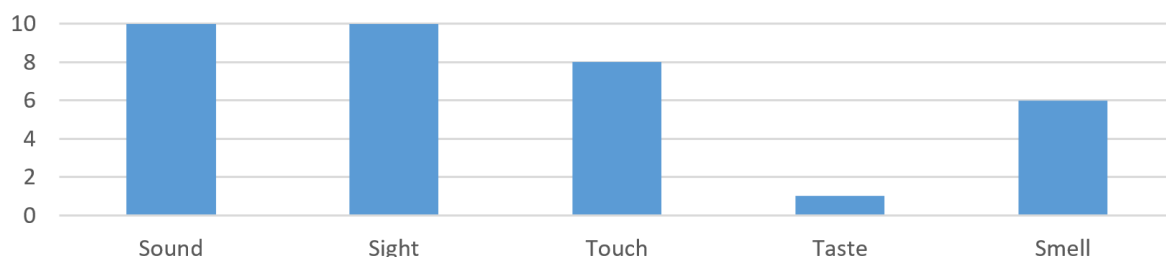


Figure 3: Jinsop Lee's 5 Senses: Riding a Motorcycle

Emotional Engagements: Visceral, Behavioural and Reflective Design

Charting Our Emotions

Carrie Cousins references Robert Plutchick's 'wheel of emotions' when discussing the emotional connections we make with objects. "The emotion someone feels when interacting with a design results in a corresponding feeling. This feeling can determine how a person views and interacts with your design or even company or brand overall." (Cousins, 2014)

Automotive manufacturers consider their overall line-up when designing a new vehicle because of the influence it will have on the brand's perception in the eyes of the buyer. (Acker, 2017) It is important to consider what emotions will be provoked when designing a new product.

Visceral, Behavioural and Reflective Design

Donald Norman's 'The Design of Everyday Things' hypothesises there are three levels of design. Visceral, behavioural, and reflective. *Visceral design is what determines the viewer's first impression of a product.* The first feeling we experience when looking at something new is instinctual. How we reflect on the emotion we feel determines if we like what we are looking at or not.

Tesla's Cybertruck is a great example of successful design because it is successful on these three levels. After its announcement people that have no interest in automobiles were messaging me saying how cool they think it is. *Even if they don't like it, they are still discussing it with me; it succeeds on a reflective level.* The 'hype' behind a vehicle is important to its success, "[Referring to the Nissan Juke] This car needs to attract people who aren't even paying attention". (Albaisa, A. How To Design Cars Like A Pro: New Edition, 2010, p. 29) The polarizing visceral design of the vehicle creates an emotional product that evokes a strong reaction within the viewer.

I think the exterior design of the Cybertruck creates a dystopian aesthetic. The lack of curvature highlights imperfections in its surfacing when in dynamic lighting conditions. The highly geometric composition of its volumes is unconventional – it reminds me of avant-garde concept cars from the 'wedge' era such as the Citroën Karin.



Figure 4: Tesla's Cybertruck causing a stir upon its reveal.

I think the Cybertruck – if it makes it to production - is going to be a successful and historic vehicle. Because *the behavioural experience from one electric vehicle to the next will be much the same*, the visceral nature of the automobile, the "aesthetic cultivation of every element – visible to [the] consumer" (Lewin & Borroff, 2010) will be what differentiates it from its competitors.

A Lemon Squeezer

A good example of an emotionally engaging product is Phillipe Starck's lemon squeezer. It uses bisociation to create a memorable experience for the user:

The products neat tapering body and elbowed spindly arms symbolise some sort of exotic insect or extra-terrestrial spacecraft. Yet the patterning on the body clearly reflects the typical pattern on a conventional lemon squeezer.

(Baxter, 1995, p. 51)

The successful contrast between its avant-garde form and mundane purpose creates a humorous experience for the user (bisociation). It engages with them where a conventional lemon squeezer does not. Starck's lemon squeezer has a higher value than its more conventional counter parts. It may be less functional - it's probably quite difficult to fit in the dishwasher – but the memorable experience created cannot be understated.



Figure 5: Phillipe Starck's unusual lemon squeezer.

I find this outlook on design inspiring because it considers the emotions of the user and how a product makes them feel. Our immediate environment has an influence on our mood so naturally the products surrounding us should be included in this discussion. I think this is important across all disciplines of design, especially the automotive sector. I find personal transport interesting because of the sheer variety of forms, surfaces, and details. They make our surroundings more stimulating even if it is just on a subconscious level.

Avant-garde Design

I find myself drawn to the avant-garde, something that I have never experienced before. This can be explained in terms of our biology. Novel experiences reward us with dopamine. (Wilson, 2012) I think design that pushes the envelope is very effective in creating a captivating visceral experience.

See: Pablo Picasso's Woman's Head (Fernande), 1909. This is a great example of how avant-garde ideas have inspired new ways of thinking. Picasso's sculpture previews ideas that would become central to cubism. (pablopicasso.org, n.d.) It is unconventional because the eyes and mouth, typically central elements in traditional portraiture, are less expressive than other parts of the face such as the forehead and nose. (Encyclopædia Britannica, 2018) I think the impact of Picasso's Fernande sculpture can be



Figure 6: Pablo Picasso's Woman's Head (Fernande), 1909.

compared to the work of Chris Bangle throughout the 2000's. "There is absolutely no doubt that his work had a fundamental influence on automotive design." (Lewin & Borroff, 2010, p. 161) His philosophy changed the automotive landscape. He is an inspiration for me because I like to think he tries to move the goal posts in order to score a goal.



Figure 7: Olafur Eliasson's Beauty, 1993.

See: Olafur Eliasson's Beauty, 1993. In this exhibit Eliasson creates a rainbow and displays it in a dark room. The installation requires the viewer to be present for the artwork to exist. Without the eyes of the viewer there is no rainbow. The message of this installation comes from the viewer's interaction with it. If no one is present with the artwork, then it is just the sum of its parts. If a tree falls in the middle of a forest did it really fall? I think this philosophy can be applied to how we interact with transport. A large part of the automotive experience comes from their aesthetic. An automobile can be interacted with and enjoyed whilst it stands dormant.

The work of Eliasson inspired me to consider how someone interacts with objects when they are not in use. A common criterion for a sports car is that it needs to 'look fast' when standing still. Could this be taken further? I think it would be interesting to experiment with accentuating the different states of the automobile, animating it similar to how an animal changes its form/appearance depending on what it is doing. When it is stationary/resting, when it is accelerating/attacking, or when it is travelling at speed in full flight.



Figure 8: Cistalia 202 GT (Pininfarina) on display at the MOMA in New York

Semantics & Symbolism in Automotive & Transport Design

The study of semantics and symbolism helps inform a designer of how their product could be perceived. I felt this was important to my project because it could inform my decision when it came to the development of my design, in particular form ideation in the 'blue sky' phase of my project.

Semantics

I think the design of CAV's will aim to create a friendly and approachable emotional engagement. This need for a familiar, comfortable experience will dictate their form. (Walter, 2013) Due to semantics autonomous vehicles will be hard to distinguish from one another, "it is important to establish a visual form which makes the product look as fit for its intended purpose as possible." (Baxter, 1995, p. 218) I foresee shared mobility vehicles with a simple

package; an electric ‘skateboard’ platform with a focus on user capacity, minimal tumblehome, tuck under and overhangs, dressed in clean ‘product like’ surfacing. As a result, a neutral unoffensive image will be created. Due to the vehicle being shared, it will have to appeal to significantly more people than personal transport on the roads today.

Symbolism

The symbolic value of a vehicle/marque plays a big role in dictating its form, it “can play a vital role in [purchase]”. (Baxter, 1995, p. 221) Retro modern design is prevalent in vehicles produced today. This ‘style’ trend can be traced back to the mid-nineties when designers – notably J Mays - inspired automotive companies to try and evoke emotion in their customer base by reimagining iconic designs. (Lewin & Borroff, 2010, p. 160)

Vehicles like the 05’ Mustang attempt to create an image of freedom by replicating the original fastback’s iconic form. The 65’ Mustang is an iconic vehicle, it was one of the pioneers of expressive personal transport, transport designed for fun instead of utility. More recently Ford has used the symbolic Mustang moniker to market their latest EV. The 21’ Mach-E incorporates an unusually long bonnet for a vehicle that uses an electric drivetrain. This is a design cue from older sports cars whose proportions were dictated by a large internal combustion engine, usually found between the occupant and the front axle. By using the Mustang name Ford is attempting to create a sporty image for their electric vehicle. EV’s have similar performance and packaging; “battery packs tend to go in the same place, low in the car, which means it’s harder to differentiate ride and handling.” (Prior, How will we tell electric cars apart?, 2019) A sporty image could be the deciding factor when someone is making the decision between a Mach-E and one of its competitors.



Figure 9: The Electric Ford Mustang Mach-E sporting a highly conventional long bonnet and iconic Mustang badging.

Chris Bangle describes the car as an avatar, “something far deeper than just a form or shape. He describes the car as a vessel for personal expression and emotion, for the person you become” (Lewin & Borroff, 2010, p. 81) I believe the symbolic value behind what you travel in will not completely dissipate.

We all have a self-image based upon the personal and social values we hold. And it is an inescapable aspect of human nature that we tend to surround ourselves with artefacts which reflect our own self-image.

(Baxter, 1995)

I think our cars become a large reflection of who we are. “The things you own end up owning you” (Palahniuk, 1996) Users want “the cars they drive to have character, suggest individuality, to communicate to the world their ideals.” (Lewin & Borroff, 2010) The cars we own reinforce our self-image and as a result boost our confidence.

Project Hypothesis

A Conceptual Approach

I like concept cars because they often feature Avant-garde design. “Concept cars are a very important way of preparing the future – they are a kind of accelerator, to speed everything up.” Although they have a short shelf life and are rarely expected to make production, concept cars are necessary to allow innovative and unrestricted thinking. (How To Design Cars Like A Pro: New Edition, 2010, pp. 38-51) They are important for testing the public’s reaction to new ideas; forward thinking that will directly influence the cars of tomorrow and the direction the industry heads toward.

Due to the nature of my scenario I want my vehicle to be conceptual, incorporating unconventional technology and design in order to ask questions of where the design of automobiles could head in the future.

A Reaction to Autonomy

My concepts aim is to celebrate the experience of personal transport and their psychological value. I would like to design a vehicle that engages with us on an emotional level, in order to create a memorable experience. An alternative experience to the autonomous car. Think a lion in a cage just out of reach from the driver; every time they try and change gear the big cat tries to tear their arm off. Although packaging a lion inside a vehicle is probably not very practical, it will surely create a memorable experience for the driver, one that they will remember for years to come as a ‘flash memory’.

Not only will the user experience of my vehicle be designed to engage the user, but the exterior design, the visceral element, will also follow the same principle. Inspired by the work of Mr Bangle’s ‘surface entertainment’ in order to provoke a reaction and add to the overall experience.

Progressive & Sustainable Vehicle

Although I want to create a vehicle that focuses on experience, I do not want to create something that is perceived as ‘gotti’. Lamborghini’s recent Sian concept foreshadows a supercar that is more sensitive to the world around it. Their latest limited production vehicle is a test bed for a hybrid powertrain. (Page, 2019) Lamborghini recognises their gas guzzling motors may not be received so positively in a world increasingly concerned with the preservation of our planet and its dwindling resources.

Sustainable Materials

Throughout the design landscape there is an increased focus on using materials created from a sustainable source. Their lifecycles have a smaller impact on the environment than traditional methods. I would like to design my concept using materials from a sustainable source.

Currently only a small portion of materials recycled from cars goes back into producing a new car; due to ‘scrap contamination’ materials such as iron and steel become less pure and lose their quality. (Cooper-Searle, 2017) Although down cycled materials can be used in sectors where performance requirements are lower, companies should invest in using materials that are from sustainable sources; significantly reducing a vehicles greenhouse gas emissions’ over its lifecycle.

Materials such as wool felt (Dickson, n.d.) and cork can be used in interiors; both materials come from renewable sources. Cork can be used to create a material that is renewable, resistant and insulating. (Crook, 2019) As well as using sustainable materials, I am also interested in reclaiming plastics littering the natural world. Ford are currently using fibres from recycled water bottles in their seats. (O'Dell, 2015) This not only reuses a material that has already completed its intended lifecycle but takes it out of an ecosystem it was destined to contaminate.

Shared Mobility

Shared mobility will reduce the financial cost of travel; lower accident rates will result in reduced insurance; in fully autonomous systems it is hypothesised that insurance will not be needed. Companies such as PSA are already discussing the idea of a vehicle that can be operated by people without a license. (Prior, 2019) A 'hive mind' communication system where all vehicles can communicate information such as traffic alerts (Transport For London, n.d.) could warn road users beforehand about adverse conditions or heavy congestion, advising them to not travel at all in some instances.



Figure 10: Citroen's shared mobility 'Ami One' concept.

The impact travel has on the environment will be decreased, although not from reduced production. High utilization of shared transport will mean it is replaced at a faster rate. (Grosse-Ophoff, Hausler, Heineke, & Möller, 2017) However, systems enabled by autonomous technology will reduce the volume of personal transport in urban centres, reducing congestion. (Litman, 2019) I think this will create a driving experience that is less stressful and add to the sense of freedom we feel when driving our cars.

I think the positive impact of shared mobility will have a ripple effect felt by all transport and road users. Therefore, it is an important element to consider. When all vehicles on the road have level 5 autonomy, could the speed limits of our highways be disabled? I also think it would be interesting to implement a guardian angel form of autonomy in my vehicle. The driver could 'push' the car without electronic safety blankets, and highly capable autonomous technology could alert the driver to oncoming hazards, inform them of the complexion of the road surface and potential precipitation. This way I think autonomy could enhance the experience of involvement instead of detracting from it.

Target User

I want to design a vehicle for people who aspire to drive themselves, unassisted by autonomy. An enthusiast who seeks a challenge to provide a feeling of accomplishment, someone who desires an emotive and engaging experience. Similar to how an artisan has a passion for the

creative process, I want to design a vehicle for someone who has a passion for the process of driving – a ‘artisan’ if you will.

As well as creating an engaging experience I want my vehicle to be an expression of freedom. To mirror the desire of wanting to leave the city behind. The opposite of ‘urban funkiness’ portrayed by the crotch SUV’s of today.

Vehicle Function

Historically the automotive industry has looked to the next curve for its inspiration. I believe the epoch of the leaf – sustainable products and systems – will be the next muse of automotive design. I think the necessity behind the advancement of sustainable vehicles could create cars with integrity and an identity. Instead of using gimmicky design cues to create an emotive connection between the vehicle and the user. Auto makers could let sustainable technology dictate the form of their vehicles. When a vehicle or product’s form follows its function – a philosophy first taught in the Bauhaus school of design – a transparent product is created. This honest approach reflects well on the user, it tells me they are confident in their identity. They do not feel the need to create a dishonest image of wealth or opulence by surrounding themselves with flashy objects.

An analogy for this honest approach to design can be found at the rear end of Bugatti’s record setting three-hundred mile per hour Chiron. Extensive use of carbon fibre and a sixteen-cylinder engine designed to reach speeds unattainable except for a few places on the planet could be perceived as quite ostentatious. However, the necessity for stability at such extreme speeds has dictated its form; the designers and engineers have extended the overall length of the vehicle. The large rear overhang found on the limited series Chiron is abnormal for a sports car. Traditionally, small overhangs are used to create a compact and agile image. Although not conventionally attractive, the context behind its form makes the limited production vehicle much cooler than the original in my books.



Figure 11: A rear quarter perspective of Bugatti's 300mph Chiron

Biomimicry and Pigeon Shit

Not only do birds have a beautiful form, but they are a symbol of freedom in cultures across the world. As I want to create a vehicle that symbolises freedom, I will use the bird species as an influence in form ideation. I want to try and replicate their organic surfaces, so the vehicle is perceived as beautiful and feminine instead of geometric and masculine. By looking at organic forms I believe I am also paying homage to the beautiful hand-crafted designs created in the era of coachbuilding; vehicles that came to symbolise freedom in modern culture.

I am also inspired by the bird's mastery of flight. The sensation of flying is an evocative and sought-after experience that I want to try and replicate in my concept. I think driving spiritedly feels similar to flying, when you have built up a rhythm it feels like you are gliding from one corner to the next. The adhesion of the tyres to the road the only thing stopping us from crashing/falling from the sky. I think this could be an interesting avenue to explore. The moment the driver is teetering on the edge of adhesion is when they feel most alive, could my vehicle amplify the intensity of this sensation, enhancing our enjoyment and sense of flying?

I think an experience that amplifies the sensation of adhesion could create an innovative and exciting concept. A form follows function approach applied to the key elements of the vehicle with a surface and volume treatment inspired by the natural worlds' bird of prey.

Looking forward to the development phase of my project

I would like to further explore creating an engaging experience with my vehicle. I now know what avenues I would like to explore, such as the sensation of flight and provocative avant-garde design. I am excited to see the outcome of my project because I think the foundation set in this independent inquiry is a reflection of what I am passionate about.

USP

My major project's function will be centred around the use of ground effect technology. By using turbines my vehicle could manipulate the pressure of the air underneath the car. "If you don't want to create an anonymous car, you have to take a certain risk." (How To Design Cars Like A Pro: New Edition, 2010) I think this technology could create a dynamic characterful experience.

Lift could be created mid corner to help the car rotate. Downforce at low speeds will enable the user to hustle the vehicle faster on tight roads without the inconvenience of understeer. I also think turbines could aid the efficiency of the vehicle. To minimise drag and reduce energy consumption whilst also decreasing NVH.

A Multi-sensory Experience

I believe multi-sensory experiences are the most memorable. When vehicles in the future are quiet, odourless and refined, car centric manufacturers will have to reassess how they achieve an engaging experience with their vehicles.

Sight

As mentioned previously, avant-garde design is a big inspiration for my exterior form. This comes from my interest in peculiar cars that cater to my curious nature. I believe an unconventional exterior form will create an emotional engagement with whoever is observing it.

To amplify the user's sensation of sight I want the driver's h-point to be low; I believe the sensation of speed is amplified when you are closer to the ground. It is also important the driver has a clear view over the road, similar to driving a single seater track car. I think this could be achieved through augmented reality technology. The interior of the vehicle could implement a high definition display or projector in order to blur the boundary between the interior and the exterior of the vehicle.

Sound

As previously mentioned, the USP for my vehicle is going to be its use of turbines in order to manipulate the pressure of air underneath the car. I think the whooshing and swooshing of a turbine accompanied with the whine of an AC electric motor could create a stimulating

orchestra of sound. I would also like to explore the possibility of using music to add to the sense of occasion. Music plays a big role in my life, I find it often plays a role in my creative process. Maybe I could use audio such as ambient music to amplify the experience?

Touch

I believe the weight of the dials and controls in the interior of a vehicle is what separates the 911's from the TT's, it shows an anal attention to detail behind everything the user comes into contact with. I would like to design an interior with a symphony of buttons, dials and switches at the user's disposal. Not only will this create a dramatic aesthetic experience upon entering the vehicle, but it also ensures the user encounters precisely weighted controls more often; stimulating their sense of touch and adding another layer to the experience.

Smell

Without hot oil and petroleum flowing through them, vehicles of the future will probably smell non-descript. However, I think it could be possible to enhance the smell of the vehicles battery. By packaging the batteries inside the cabin – they could be left exposed – the user could start to associate the smell of a hot car battery with the exciting experience of driving their vehicle.

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