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In What Way Has the Car Influenced Architectural Design And Vice Versa?

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BSc Architecture

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Abstract

This dissertation explores the dynamic and reciprocal relationship between the automobile and architectural design, examining how each has influenced the other in terms of aesthetics, functionality, and spatial organisation. The study investigates the car's dual role in architecture—as both a metaphorical inspiration and a paradigmatic model—while also analysing how architecture has shaped the cultural and functional identity of the automobile.

The research is structured around three key themes:

1. The Car as Metaphor – Analysing how automotive design has inspired architectural aesthetics, from Le Corbusier's *Voiture Minimum* to the Streamline Moderne movement, where aerodynamic forms influenced building design.
2. The Car as Paradigm – Investigating how automotive manufacturing principles, such as prefabrication and mass customisation, have been applied to architecture, with case studies including Beechwood Village, a modular housing project.
3. Spatial Expression – Examining how buildings like the McLaren Technology Centre, Fiat Lingotto Factory, and Trinity Square Car Park accommodate the car, and how architectural backdrops in car advertising reinforce brand identity.

Using a mixed-methods approach including literature reviews, interviews, and comparative analysis, the study reveals that the car has not only redefined architectural form and urban planning but has also been framed by architecture in cultural and commercial contexts. The dissertation concludes by considering future implications, including sustainable design and autonomous mobility, arguing that the dialogue between automotive and architectural innovation remains crucial in shaping the built environment.

Keywords: Automobile, Architecture, Streamline Moderne, Prefabrication, Industrial Design, Urbanism, Spatial Organisation.

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Introduction

The relationship between the automobile and architecture is one of the most profound yet (as research has come to find out) understudied dialogues in modern design history. Since the early 20th century, the car has not only shaped urban landscapes but has also fundamentally altered architectural thought, aesthetics, and spatial organisation. This dissertation aims to explore the dual, almost binary role of the automobile in architecture, as both a metaphor (a symbolic and stylistic influence) and a paradigm (as a functional model). By examining both key architectural and automotive precedents this research investigates how the car has shaped and has been shaped by architectural design, urban planning, and societal expression.

The automobile emerged as a defining symbol of modernity, encapsulating ideals of speed, efficiency, and technological progress. Architects, in turn, began to see the car not just as a means of transport but as an inspiration, its streamlined forms, modular construction, and industrial logic influencing building aesthetics and urban configurations. Le Corbusier famously declared the house a "machine for living in," drawing direct parallels between domestic architecture and automotive engineering. This came to fruition via his concept for an affordable, mass-produced car, the Voiture Minimum. The car mirrored his architectural philosophy of standardisation and functional minimalism, principles that defined modernist housing.

Conversely, architecture has also shaped automotive design. The Brutalist car parks of the 1960s, such as the parking areas in the Marina City Towers in Chicago, USA exemplify how buildings were conceived as infrastructural responses to car culture. Meanwhile, modern contemporary projects like the McLaren Technology Centre (2004) demonstrate how automotive manufacturing principles, precision engineering, aerodynamic efficiency, and modular assembly can be pasted onto architectural design.

Research Questions and Objectives

This dissertation addresses the following central question:

How has the car influenced architectural design, and how has architecture, in turn, shaped the cultural and functional role of the automobile?

To answer this, the study is structured around three key objectives:

1. Metaphorical Influence – How has the car served as a stylistic and conceptual metaphor in architecture? This includes examining the works of architects like Le Corbusier whose modernist, functionalist designs echo the philosophies of the modern car. Additionally, a subchapter on the Streamline Moderne movement, which borrowed aerodynamic forms from automobiles.
2. Paradigmatic Influence – In what ways has the car redefined architectural paradigms, particularly in urban planning and industrialised construction? The shared idea of prefabrication in both industries will be explored alongside Beechwood Village (2023), a housing project using automotive-style mass customisation.
3. Spatial Expression – How has architecture accommodated the car and vice versa. A case study of three buildings has been undertaken, each building accommodating the car in its own unique way. Additionally, a study into vehicle advertising and how specific architectural backdrops can set the tone for the presented vehicle.

Methodology and Structure

This research employs a mixed-methods approach, combining:

1. Literature Reviews

An extensive review of preexisting academic and scientific literature has been undertaken. This allowed me to develop a deeper understanding of the main topics and philosophies at play when it comes to understanding this topic. Key architecture figures, namely Le Corbusier wrote extensively on the subject in his 1923 book *Towards an Architecture*. Another figure who wrote on the subject was Roland Barthes. Whilst not an architect, his 1957 book *Mythologies* was a brilliant source of comments regarding the car in the same light of a building. When reading *Towards an Architecture* I found myself occupied with how Le Corbusier had taken a dual approach when analysing the car, looking at it both conceptually and metaphorically. Upon expanding my reading list beyond this book, I found other emerging themes, one of these themes was the idea of personalization in both architecture and car as its own separate chapter. Whilst I found the idea interesting and had read and written quite extensively on it, I found it to be irrelevant to my thematic structure the more I had written on it.

2. Interviews with industry professionals

Due to the nature of the research, finding a readily available industry professional proved to be difficult due to the hierarchical nature of the car industry, with attempts at contacting designers at BMW/Mini and Ford all falling flat. Another attempt was made at an interview with the modular home manufacturer TopHat, unfortunately this also fell flat as a few weeks after sending a request, the company went into administration. Luckily, in a chance encounter at a RSAW conference I was able to meet Mr. Kotey Nikoi who was presenting a project from his practice Pollard Thomas Edwards. This project tied into this dissertation, and I was able to secure an interview.

3. Comparative analysis

Throughout this dissertation, comparative analysis has been used to compare and contrast certain cars with certain buildings. This allowed me to figure out and understand the patterns in design between the two.

The dissertation is structured as follows:

1. Introduction -

2. The Car as Metaphor

The car under the lens of architecture

Le Corbusier's Voiture Minimum

Streamline Moderne

3. The Car as Paradigm –

Prefabrication and Industrialised construction

Beechwood Village

4. The Car's influence on architectural design and expression.

McLaren Technology Centre

Fiat Lingotto Factory

Trinity Square Car Park

1988 Rover 800 Fastback & Staatsgalerie Stuttgart advert.

5. Conclusion – A final assessment of the car's enduring impact on architectural thought.

Significance of the Study

While existing scholarship has examined the car's impact on urbanism, few studies explore its deeper architectural implications. By framing the automobile as both a metaphorical inspiration and a structural paradigm, this writing aims to offer new perspectives into how industrial design principles continue to shape the built environment of today.

In an era of autonomous vehicles and modular construction, understanding this relationship is crucial. As cities wrestle with sustainability and housing crises, lessons from automotive efficiency, standardisation, prefabrication, and user customisation may hold the key to future architectural innovation.

Ultimately, this dissertation argues that the car is not merely a functional object but a cultural and design force that has irrevocably altered architecture, both as a symbol of progress and as a blueprint for the modern world.

Chapter 1: The Car as A Metaphor in Architecture

A chapter from Roland Barthes book titled *Mythologies* (1957) provides a rich precedent for the analysis of architecture through the lens of the automobile. Barthes' choice of car being the Citroën DS, nicknamed the "Déesse" or "Goddess." By comparing a car of his time to a Gothic cathedral, Barthes places it on a pedestal to the level of a cultural and artistic artifact, which in turn can be translated to architecture as a discipline that embodies the societal values, aspirations, and technological advancements of its era. Barthes describes the car as the "supreme creation of an era," akin to Gothic cathedrals, which are not only religious structures but also symbols of 12-16th century society's technological and artistic achievements and abilities. Similarly, architecture serves as a reflection of its time, encapsulating cultural, social, and technological ideals. For instance, the aforementioned Gothic cathedrals utilized pointed arches and flying buttresses to achieve height and light, symbolizing spiritual aspiration (Scott, 2003). In the same way, the Citroën DS, with its streamlined design and advanced engineering, represents mid-20th-century modernity and progress. This metaphor suggests that architecture, like the car, is a product of its era, designed by "unknown artists" (architects, engineers) who embed their work with cultural significance and an element of pride. The Seagram Building by Mies van der Rohe (1958) is a good precedent for the application of these principles. Presented with a sleek glass façade and minimalist aesthetics, reflects the post-war era's fascination with technology, transparency, and corporate power. Like the Citroën DS, it is a "supreme creation" of its time, embodying the ideals of modernity.



Figure 1: The 1955 Citroen "Déesse" DS showcasing its timeless design. (Image: Rowe R, 2015)

Roland Barthes continues to highlight the role of the car as the "messenger of a world above that of nature," the suggestion that objects like the Citroën DS come to transcend beyond their utilitarian function to become icons of human ingenuity. This idea is also reflected in architecture's role as a mediator between nature and technology. Architects often seek to harmonize their designs with their natural surroundings while attempting to showcase a level of design merit and perhaps, human innovation. The Citroën DS, showing off its "perfection and absence of origin," echoes architecture's aspiration to create seamless, almost magical structures that appear to defy natural limitations. Frank Lloyd Wright's Fallingwater (1935) is perhaps the most obvious building that comes to mind when it comes to applying this philosophy. The building seamlessly integrates with its natural environment via cantilevered concrete slabs to create the illusion of floating above a waterfall. Like the Citroën DS, it transforms "life into matter," blending functionality with a gentle poetic expression.

Barthes continued to emphasize the importance of smoothness and the "junction of components" in the Citroën DS, noting that seamless design signifies perfection. This idea is central to architectural theory, where the visibility of joints and connections often determines the perceived quality of a structure. As Antoine Picon observes, "The process of ordering matter through proportion is constantly driven by a desire to express—a desire that is linked to the view that architecture can directly address the spectator, just as one person can call out to another" (2017). Which is the notion that there is an inherent drive in architectural design to express a message via deliberate and careful placement of space. This is not just about aesthetics but about conveying a message to the viewer. The Citroën DS's smooth, rounded form and precise assembly embody this principle, mirroring modernist architecture's emphasis on clean lines and hidden structural elements. Here technical precision becomes a silent language of aesthetic and functional clarity. Barthes also praises the Citroën DS's utilization of glass, describing it as "vast walls of air and space." This evokes a sense of lightness and transparency, which mirrors architecture's use of glass to dissolve boundaries between interior and exterior spaces, often creating a sense of openness and connection to the environment. The car's glass surfaces, likened to "soap-bubbles," reflect a desire to dematerialize the form, a concept that has been central to modernist and contemporary architecture. Perhaps the greatest adaptation of these principles is the Farnsworth House by Mies van der Rohe (1951). Its glass walls and steel frame create a sense of weightlessness and continuity, much like the Citroën DS's "dovetailing of sections." Both designs prioritize the aesthetic of smoothness, suggesting a move away from visible construction techniques toward a more refined, almost magical appearance. On the other hand, the antithesis of this philosophy would be the Pompidou Centre in Paris, France (1977). The Pompidou centre embraces its bare structure and services as its primary facade, giving it a unique industrial aesthetic which almost mimics the human nervous system (Kivlehan, 2022).



Figure 2: The Farnsworth house by Ludwig Mies Van De Rohe. (Image: Dvorak A, 2019)

Barthes' emphasis on the public's physical engagement with the Citroën DS, underscores the need for touch in demystifying the object. This parallels architecture's emphasis on sensory experience, where materials, textures, and spatial qualities are designed to be explored and felt. The car's "great tactile phase of discovery" is reminiscent of the way users interact with architectural spaces for the first time. Moving beyond visual appreciation to physical, tangible engagement. *Therme Vals* (1996) by Peter Zumthor places an emphasis on tactile and sensory experiences, using materials like stone and water to create a deeply immersive environment mimicking the form of a quarry or a cave (Archdaily, 2009). Like the Citroën DS, it invites users to engage with its surfaces and spaces on the physical level.

Roland Barthes' analysis of the Citroën DS as a "Gothic cathedral of modernity" reveals how industrial design can transcend functionality to become a cultural flagship—a mediator between nature and technology, a tactile experience, and a reflection of societal aspirations. His emphasis on the car's "smoothness," material innovation, and tactile engagement parallels architectural design styles, where buildings are not only mere shelters but embodied ideologies. This framework finds a natural extension in the work of Le Corbusier, who similarly viewed the automobile as both inspiration and analogue for architectural progress in his 1923 book *Towards an Architecture* and in the *Voiture Minimum*, his idea for a standardized, mass-produced minimalist car.

The Voiture Minimum, a minimalist automobile concept conceived in the 1930s by Le Corbusier, is a well thought out intersection of design philosophies, technology, and ideology. Conceived as a small, efficient, and affordable vehicle, the Voiture Minimum was rooted in Le Corbusier's broader modernist philosophies. While the car itself was never put into production, the car's ethos of functional simplicity, honest materiality, adaptability and standardization serves as a direct metaphor for modernist architecture. The Voiture Minimum was designed as a response to the growing accessibility of automobiles in the early 20th century, Le Corbusier envisioned a car that was economical and accessible by all, capable of accommodating two passengers comfortably while maintaining a minimal footprint. Bearing a streamlined, teardrop-shaped silhouette, the design prioritised aerodynamics, perhaps in a bid to make the vehicle more streamline allowing better fuel efficiency. These design choices reflect the modernist principle of form following function (Amado A, 2011).

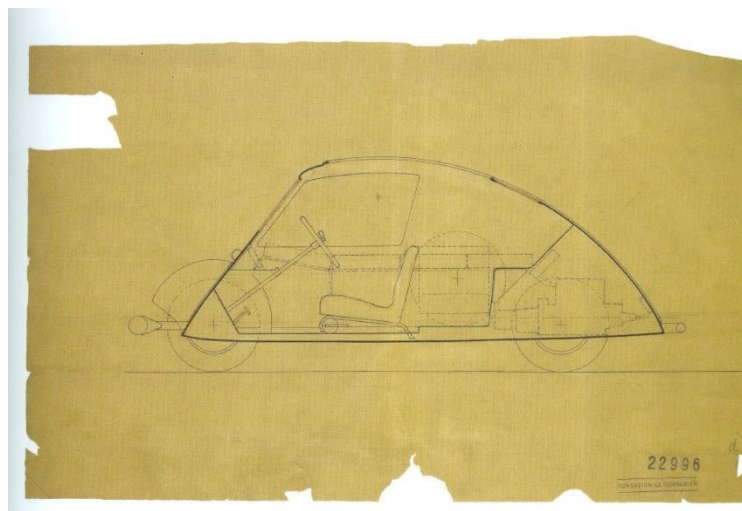
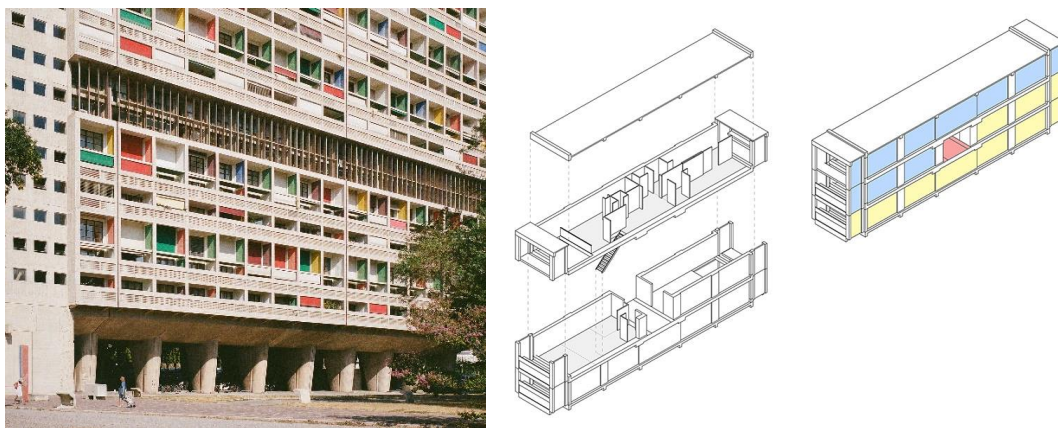


Figure 3: (Top) A scaled model of the Voiture Minimum. (Image: Smith K, 2015)

Figure 4: (Bottom) The original schematic of the Voiture Minimum. (Image: Foundation Le Corbusier)

Le Corbusier decided to design the car with a compact form (3.66 metres in length) an idea later adopted by modern Japanese Kei cars, “Kei” being short for Kei-jidōsha (literally “Light Car”) which are designed to be used to drive in narrow rice fields and to run as small fuel-efficient delivery or commuter vehicles (Hernandez B, 2020). Similarly, the structure of the Voiture Minimum was lightweight, and it used its materials sparingly, portraying Le Corbusier’s emphasis on rationality. These characteristics were not just technical solutions but were deeply ideological. Le Corbusier believed that technology, when applied thoughtfully, could democratise access to mobility and improve quality of life (Almedia T, 2013). This aligns with modernist architecture’s goal of creating functional, affordable spaces for the masses.

The Voiture Minimum’s design is also a projection of Le Corbusier’s fascination with industrial processes and standardisation. In *Towards an Architecture* (1923) he notes that if the home was studied the same way a car’s chassis where, we would “see our houses rapidly transformed and improved” and that if houses were to be factory produced, we would “soon see forms emerge that, whilst unexpected, were sound, tenable and an aesthetic would be formulated with surprising precision”. His vision for architecture, like his vision for the automobile, was informed by a “machine aesthetic,” where buildings were seen as tools for living, designed with precision and efficiency. For example, his Unité d’Habitation building in Marseille, shares conceptual similarities with the Voiture Minimum. Both employ philosophies of modularity and standardisation to achieve functionality and economy. Just as the car was conceived as a minimal framework tailored to human needs, the Unité provided a highly efficient living environment, balancing individual units with communal spaces. This shared ethos highlights how the principles behind the Voiture Minimum can transcend industrial design to translate into architectural merit.



Above: Figure 5 (Left) The exterior elevation of Unité d’Habitation, showcasing each individual dwelling. Figure 6: (Right) An axonometric illustration of a two-story “E-type” apartment. The building features eight apartment designs with 23 different layouts. (Image: Alberto Contreras González)

Beyond its physical features, the Voiture Minimum encapsulates modernism’s broader vision for reshaping urban living. Le Corbusier’s proposals for urban planning, including the Plan Voisin, placed the automobile at the centre of the schemes. The Voiture Minimum, with its compact form and efficiency cantered design, could have complemented his vision for cities where rapid, orderly movement was the priority. This car was a symbol of a future where technology and design harmonised with urban life, offering mobility without excessive environmental or spatial impact. It reflects modernism’s optimism about the transformative

power of good design, though it also raises questions about the potential overemphasis on technological solutions in addressing complex social issues. The Voiture Minimum's principles—efficiency, minimalism, and standardisation are equally relevant to contemporary architectural design. In an era of resource scarcity and environmental concerns, these principles resonate as architects seek more sustainable solutions. Le Corbusier's car reminds us that good design is not about extravagance but about solving current issues with clarity and simplicity. Le Corbusier's Voiture Minimum is more than a car, it is a manifesto for modernist design. Its focus on efficiency, functionality, and accessibility reflects the core values of modernism, while its standardised, industrial approach offers valuable lessons for architecture. Although the car itself never became a commercial reality, its conceptual legacy endures, inspiring architects and designers to prioritise simplicity, sustainability, and human needs in their work.

Streamline Moderne: The Automobile as Architectural Metaphor

Streamline Moderne, the antithesis to Art Deco that emerged in the 1930s, epitomized the machine-age aesthetic, blending aerodynamic sleekness with modernist design principles. Spawning from the economic constraints of the Great Depression and the technological optimism of the era, its emphasis on horizontal lines, curved forms, and nautical motifs where all qualities that mirrored the design language of contemporary automobiles (Torres, J. 2025). This architectural style did not merely borrow from automotive design; it became a spatial metaphor for the car itself, embodying speed, progress, and mechanized mobility. Conversely, the automobile, particularly in its increasingly streamlined iterations of that era, functioned as a mobile extension of architectural ideals, reinforcing a symbiotic relationship between the built environment and vehicular design. This subchapter aims to explore how Streamline Moderne architecture served as a metaphor for the automobile and vice versa.

Streamline Moderne emerged as a reaction against the lavishness of 1920s Art Deco, favouring functional simplicity and industrial materials (Torres, J. 2025) as opposed to the highly artistic, ornamentation-centric Art Deco movement of the previous decade. Influenced by transportation design, particularly the airplanes trains and busses of its time. It emphasized aerodynamic efficiency, despite being static structures. Architects such as Robert V. Derrah (Coca-Cola Building, Los Angeles) and William Mooser (Aquatic Park Bathhouse, San Francisco) incorporated nautical portholes, rounded corners, and horizontal banding to evoke the sense of motion (V&A, 2025). The style's affinity with transportation was further cemented at world's fairs, including the 1933 Chicago World's Fair and the 1939 New York World's Fair, where pavilions like Norman Bel Geddes' General Motors Futurama envisioned cities shaped by automotive flow (Torres, J. 2025)



Top: Figure 7: The Coca-Cola building by Robert V. Derrah, a prime example of Streamline Moderne. (Image: Romi Cartier, 2017)

Bottom: Figure 8: "Futurama" by Norman Bel Geddes in the 1939 New York World's Fair. (Image: N. B Geddes, 1940)

Key architectural features of Streamline Moderne include:

- **An Emphasis on The Horizontal:** Long, uninterrupted lines mimicked the sleek profiles of cars and trains (Parametric Architecture, 2024).
- **Nautical Motifs:** Porthole windows and ship-deck railings referenced transatlantic liners.
- **Industrial Materials:** Chrome, glass bricks, and stucco replaced ornamental detailing, aligning with the machine aesthetic (Creative Market, 2024).

These elements transformed buildings into static yet dynamic entities, mirroring the automobile's promise of speed and modernity. As established, the car was not merely a functional object, but a cultural symbol of progress. Streamline Moderne architecture literalized this metaphor and extended it beyond just the car. Buildings like the **Pan-Pacific Auditorium** (Los Angeles, 1935) resembled a grounded aircraft, with sweeping pylons and curved façades that echoed the Chrysler Airflow's aerodynamic silhouette (SoCal Stair Climbers, 2022). Similarly, the **Marine Air Terminal** (New York, 1939) adopted the fuselage-like curvature of airplanes, blurring the line between transportation infrastructure and architecture.

Automotive and industrial designers such as **Raymond Loewy** and **Norman Bel Geddes** championed streamlining in both cars and buildings, arguing that efficiency and beauty were both inseparable from each other (V&A, 2025). The **1934 Tatra T77**, with its teardrop shape, and Bel Geddes' Motor Car No 9 directly influenced and were influenced by architectural forms of that era, demonstrating how vehicular aesthetics permeated the built environment (The Bunget, 2018). Conversely, architects like **William Kesling** designed residences (e.g., The Skinner House) with winged canopies and curved walls, evoking the streamlined automobiles of the era (SoCal Stair Climbers, 2022). Just as cars inspired buildings, Streamline Moderne architecture informed automotive styling. French coachbuilders like **Figoni & Falaschi** applied architectural principles to cars such as the Delahaye 165, with enveloping fenders and teardrop profiles that echoed contemporary buildings (MyCarQuest, 2019). This reciprocity extended to consumer products: radios, toasters, and even meat slicers adopted streamlining, reinforcing the idea that this design language transcended scale and function (V&A, 2025).



Above: Figure 9: (Left) The Tatra T77A and Figure 10: (Right) Norman Bel Geddes' Motorcar No9, both showcasing their unique teardrop shape. (Images: Matthias Kierse, the Edith Lutyens and Norman Bel Geddes Foundation) respectively.

Streamline Moderne is a time capsule of early 20th century's techno-utopianism, where architecture and automobiles served as mutual metaphors for speed, efficiency, and futurity. Buildings like the Coca-Cola building (San Juan, 1942) and vehicles like the Motor Car No 9 shared a design DNA that transcended their functional differences. This interplay underscored a broader cultural narrative: the car was not just a machine but a mobile extension of architectural space, while architecture became a static embodiment of vehicular dynamism. In the context of the automobile as architectural metaphor, Streamline Moderne offers a compelling precedent. It illustrates how design movements can collapse the boundaries between object and environment, reinforcing the car's role as both a product and a shaper of modernity. Future research could explore how postwar movements like Googie and Space Age design further evolved this relationship, but Streamline Moderne remains the purest expression of architecture and the automobile as intertwined ideals.

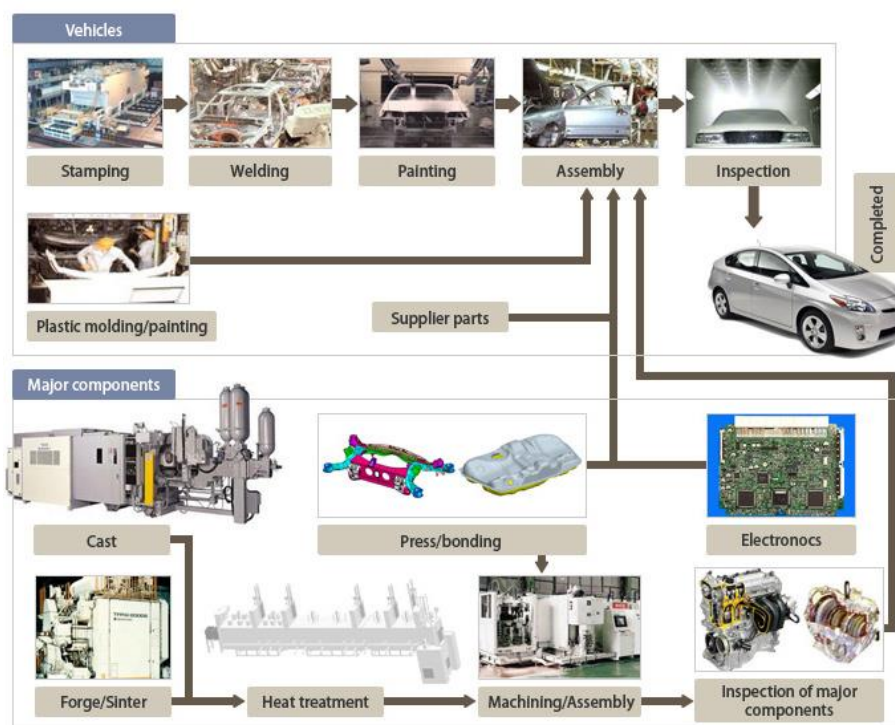
Chapter 2: The Car as An Architectural Paradigm

This chapter aims to delve less into the philosophical lessons from the car, but instead it aims to explore lessons learned and applied from the automotive industry. The manufacturing processes of automobiles and prefabricated homes represent two distinct yet interconnected paradigms for industrial production. While the process of car manufacturing has been refined over a century into a highly automated, precision-driven system, prefabricated home construction, exemplified by companies like Huf Haus, combines modular techniques with architectural customization. The idea of customization of prefabricated homes will be further developed in this chapter via an interview with Mr. Kotey Nikoi, who works for Pollard Thomas Edwards, a practice which recently completed a volume housing project by the name of Beechwood Village. Beechwood Village serves as a paradigm to the car as it adopted a configurator system so that each home is customized to the customer's desires, giving the power and freedom of design into the hands of the customer.

The automobile manufacturing process, particularly for a manufacturer like Toyota, is a meticulously orchestrated sequence spanning design, material processing, assembly, and quality assurance. The journey begins with raw material acquisition, primarily steel, aluminium, and composites, which are shaped into sheets for stamping (Khatabook, 2020). These sheets are stamped into body panels, doors, roofs, and side frames. Using robotic stamping moulds, a process requiring precision to ensure structural integrity (NRTC Automation, 2023). Prior to this a design phase is undertaken, which involves an extensive prototyping and testing phase, with 2D and 3D models evaluated for aerodynamic efficiency, safety, and overall functionality (Group1 Cars, 2021). Once approved, the stamped components are sent to be welded, where robotic arms assemble the broader chassis structure through Tungsten Inert Gas (TIG) welding, a method prized for its precision without the compromise of strength (Khatabook, 2020). The welded body, referred to as a "Body in White" (BIW), enters the paint shop, where it undergoes pre-treatment, electrocoating, and multiple layers of paint application in dust-free, sterile booths to prevent imperfections (Edrawsoft, 2020.). Parallel to this, the engine and the other mechanical components are machined and assembled in a separate dedicated shop, with each component subjected to leak and pressure tests before integration into the chassis (Khatabook, 2020). Final assembly sees the marriage of the painted body with the powertrain, followed by the installation of interiors, electronics, and trim, a stage still reliant on human labour for tasks like dashboard fitting and wiring (NRTC Automation, 2023). The completed vehicle then

undergoes rigorous quality checks, including water leakage tests and brake safety assessments, ensuring compliance with safety regulation before being rolled off the factory floor (Group1 Cars, 2021). Toyota's lean production system, emphasizing waste reduction and just-in-time logistics, underpins this entire process, enabling high efficiency and customization even at any scale (Construction physics, 2020.).

In contrast, the production of a Huf Haus prefabricated home is a blend of traditional craftsmanship with modern factory precision. The process begins with client consultations and architectural design, where the post-and-beam structure is tailored to individual preferences (Huf Haus, 2025.). Unlike car manufacturing, which prioritizes uniformity for mass production, Huf Haus homes are bespoke, with each design incorporating floor-to-ceiling glazing and open-plan layouts (Knight, 2025.). The materials, predominantly Nordic spruce timber and triple-glazed glass, are selected for sustainability and thermal efficiency, reflecting the company's emphasis on ecological responsibility (AzureAzure, 2020). In the factory, the timber frames are precision-cut using CNC machines, with joints pre-drilled for on-site assembly (Huf Haus, 2025.). The wall and roof panels are pre-insulated and fitted with electrical systems and plumbing, achieving 85% completion before leaving the facility, a stark contrast to the sequential assembly of cars (Facit Homes, 2025). The modules are then transported to the site, where a prepared foundation awaits, and the structure is dropped in on site in as little as two weeks using cranes and skilled workers (AzureAzure, 2020). The final stages involve installing finishes, such as flooring and cabinetry, and commissioning the home's energy systems, which often include heat pumps and photovoltaic panels (Huf Haus, 2025.). Quality assurance focuses on thermal performance, air tightness, and aesthetic detailing, with warranties extending up to 60 years, a testament to Huf Haus' confident in the durability of prefabricated construction (Construction physics, 2020.).



Above: Figure: 11 A diagram of the Toyota manufacturing process. (Image: Toyota-global.com, 2012)

The comparison between Toyota's car manufacturing and Huf Haus's prefabrication reveals both convergence and divergence in industrial paradigms. Both systems rely on factory-based production to enhance precision and reduce on-site labour. Toyota's assembly line and Huf Haus's modular construction share a reliance on robotics for repetitive tasks, such as welding and panel fabrication (Modular home source, 2020.). However, while car manufacturing thrives on standardization, with hundreds of identical units produced daily—Huf Haus embraces individual customization, making no two homes alike (Facit Homes, 2025). This distinction highlights a fundamental compromise in industrial design: mass production versus bespoke creation. Another key difference lies in material logistics. Toyota's just-in-time inventory system minimizes stockpiling, whereas Huf Haus's use of timber and glass requires long-term material sourcing due to the variability of architectural projects (Construction physics, 2020.). Philosophically, both industries face challenges in scaling their models. Toyota's foray into prefab homes, for instance, has struggled to dominate the Japanese market despite its manufacturing prowess, suggesting that construction's site-specific complexities resist automotive-style automation (Construction physics, 2020.). Conversely, Huf Haus's success demonstrates that prefabrication can achieve high-end architectural quality, albeit at a premium cost (Knight, 2025.). Ultimately, these case studies illustrate how industrial paradigms adapt to product constraints, whether the uniformity of cars or the individuality of homes, shaping production methodologies in profoundly diverse ways.

While Toyota and Huf Haus display the tension between standardization and customization in industrial production, other projects are bridging this divide by merging architectural individualism with manufacturing efficiency. A prime example is Beechwood Village by Pollard Thomas Edwards, which is an innovative housing project in Essex comprising of 250 user-customisable homes. The scheme utilises cross-laminated timber modular construction, allowing residents to personalise their homes via an online configurator, akin to that of a car customisation portal one would use prior to buying a car (Pollard Thomas Edwards, 2022.). The project offers flexibility in layouts, materials, and finishes while maintaining structural efficiency. By integrating digital tools, PTE ensures compatibility between design choices, streamlining production. This approach reflects automotive manufacturing principles, where technology enables mass customisation. Beechwood Village demonstrates how architectural practices can adopt industrial methods to enhance user agency and scalability in housing. I have conducted an interview with one of the people involved in the project Mr. Kotey Nikoi. I extend my gratitude to Kotey Nikoi and the team at Pollard Thomas Edwards for their valuable insights into this pioneering project.

Just as car manufacturers offer base models with optional upgrades, Beechwood Village provided residents with predefined housing "shells", five typologies positioned across the site while allowing internal modifications (Nikoi, 2025). Ground-floor layouts ranged from closed plans to open extensions, mirroring how automotive buyers select trim topologies or interior configurations. This tiered approach balances standardisation with personalisation, ensuring structural feasibility while accommodating diverse lifestyles. Automotive personalisation extends beyond aesthetics to functional upgrades; similarly, Beechwood Village's CLT framework material flexibility, including traditional brick cladding, which is not often used in lightweight modular systems (Nikoi, 2025). However, Nikoi notes that structural integration posed challenges, as excessive variables risked undermining modular efficiency. Here, the project diverges from car manufacturing, where modular platforms such as Volkswagen's MQB which is the car brand's idea for a fully modular car chassis (Volkswagen Newsroom,

2014) are designed for infinite variants. Architectural volumetric modularity, still in its infancy, requires tighter constraints to maintain economies of scale and regulatory compliance.

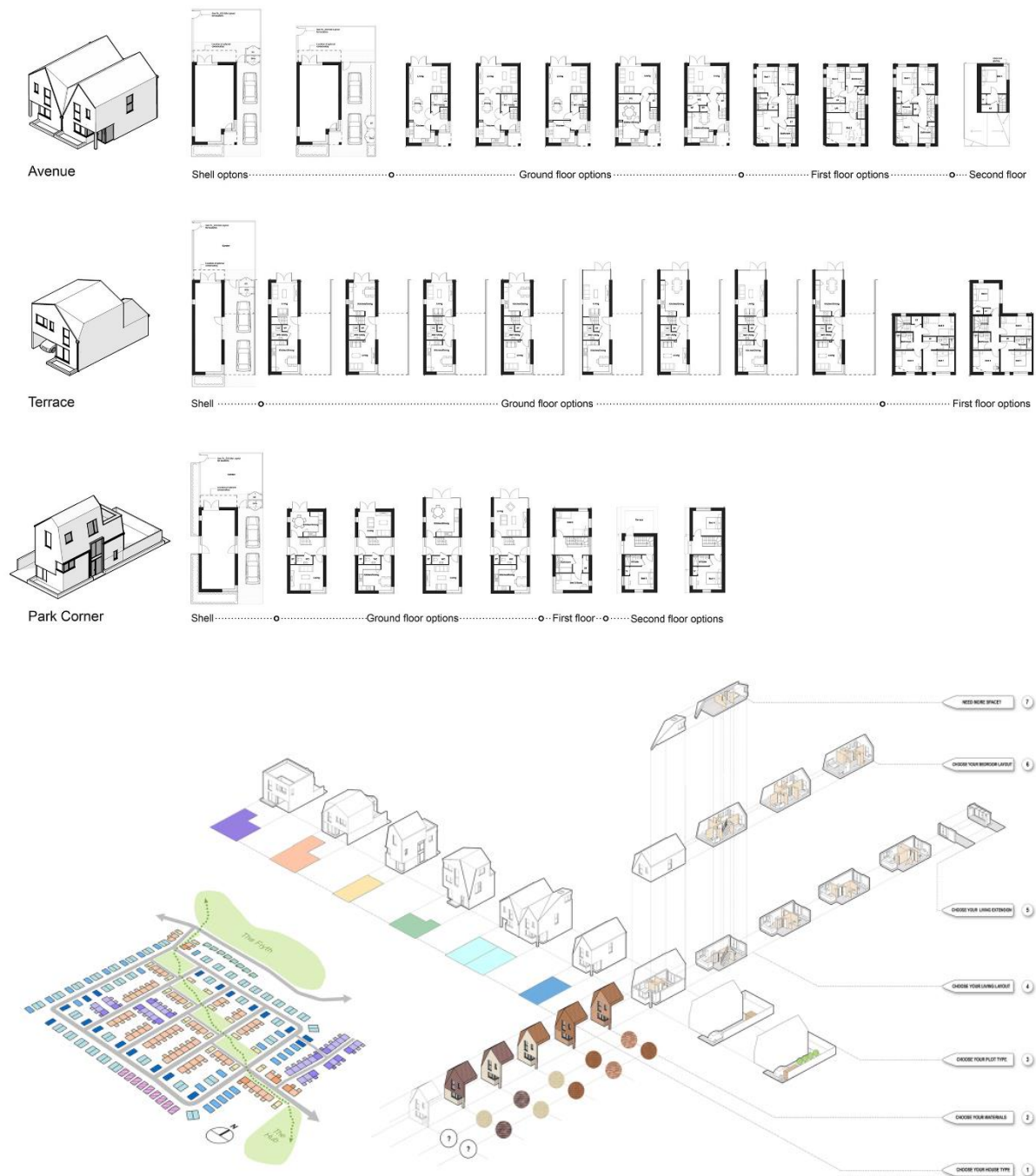


Figure 12: (top) The possible floor plan topologies depending on the chosen house type presented by Beechwood Village. (Image: Hdawards)

Figure 13: (bottom) An exploded axonometric showcasing the possible exterior finishings. (image: Hdawards)

Crucially, technology bridged this gap. Customisation was made viable through software that validated choices via compatibility matrices, preventing mismatched options (Nikoi, 2025). Such systems mitigate errors from arising during pre-production phases, a lesson borrowed from the automotive industry. Yet, scalability remains tentative; while Nikoi asserts that the scheme could be deployed elsewhere, statutory hurdles and the lack of precedents for volumetric CLT construction often hinder chances of replication. This contrasts with the automotive industry's globalised supply chains, where platforms adapt seamlessly across different domestic markets.

Beechwood Village demonstrates architecture's capacity to adopt automotive customisation strategies, albeit with constraints unique to the field. The project's configurator gives clients the power of choice, but the industry must refine modular systems to match the automotive sector's versatility. As Kotey Nikoi's insights reveal, the project is a pioneering step toward housing that merges industrial efficiency with democratic design—a vision where homes are as personalised as cars yet rooted in communal placemaking.

Chapter 3: Spatial Expression

This chapter examines the reciprocal relationship between the car and the architecture that houses it, exploring how each has shaped the other in both function and form. Through analysing three buildings that accommodate the car in their own separate way—the **McLaren Technology Centre**, **Lingotto Factory**, and **Trinity Square Car Park**—this chapter investigates how these buildings have been designed to execute their function, and how automotive design principles have influenced architectural expression. Additionally, it analyses the role of architecture in car advertising, demonstrating how built environments frame and enhance the perception of vehicles.

The McLaren Technology Centre (MTC), designed by Foster + Partners, embodies the fusion of automotive precision and architectural innovation in both its form and function. Its aerodynamic form, modular spaces, and high-performance materials mirror McLaren's engineering philosophy, transforming the building an extension of the brand itself. In contrast, Lingotto, Fiat's historic Turin factory, represents an earlier industrial approach, where architecture became a machine for car production—complete with a rooftop test track that celebrated speed and modernity. Meanwhile, Trinity Square Car Park, a Brutalist landmark, illustrates how urban infrastructure was reshaped to serve the car, while also acquiring cultural significance beyond its utilitarian purpose.

Beyond physical accommodation, this chapter also considers how architecture functions as a stage for the car in advertising. The case of the 1988 Rover 800 Fastback advert, which was photographed against James Stirling's Staatsgalerie in Stuttgart, shows how architectural backdrops reinforce brand identity, blending tradition with modernity to shape consumer perception. By analysing these examples, the chapter reveals how architecture and the automobile exist in a continuous conversation, one that redefines space, materiality, and cultural relevance in the built environment.

"Put a man in a dark room, he's hot, it smells bad, versus a guy in a cool room, well-lit, smells nice...When you throw a decision at those two individuals, who's going to be better equipped to effect good judgment and make a good decision?" - Ron Dennis, 2000.

This quote by the former McLaren CEO perfectly encapsulates the ethos of the McLaren Technology Centre (MTC). Designed by Foster + Partners for the then McLaren CEO Ron Dennis, the building was drafted in 1998 and was originally coined the "Paragon Technology Centre" (ITV, 2002). Completed in 2004 the building is a prime example of how automotive design philosophies can profoundly influence architectural form, function, and materiality. Situated in Woking, Surrey, the MTC serves as the global headquarters for McLaren Group, housing its Formula 1 team, automotive production facilities, and advanced motorsport research and development departments. More than a mere workplace, the building is a physical embodiment of McLaren's core values: precision, innovation, and performance. The MTC's architectural form is a direct translation of McLaren's automotive design philosophy into built space. The building's sleek, aerodynamic profile, often described as a "teardrop" or "aerofoil," mirrors the streamlined shapes of McLaren's high-performance vehicles. Its elongated, semi-circular plan is not merely an aesthetic choice but a functional one, designed to reduce wind resistance and enhance energy efficiency. This approach reflects the principles of automotive aerodynamics, where form is optimised to minimise drag and maximise performance (Foster + Partners, 2004; Jodidio, 2006).



Figure 14: An aerial view of the McLaren technology centre, with the semi-circular road and artificial lake shown. (Image: Foster + Partners)

The building's low-slung profile, with its gently curving roof and reflective glass façade, evokes the polished surfaces and fluid lines of a high-performance car's bodywork. The use of low-iron glass, known for its exceptional clarity and low light diffusion, creates a sense of transparency and a sense of delicacy while the anodised aluminium cladding provides durability and corrosion resistance. These materials are not only visually striking but also functionally aligned with McLaren's emphasis on precision engineering and high-performance materials whilst maintaining a delicate, almost vulnerable aesthetic. The MTC's form is also designed to harmonise with its natural surroundings due to the fact that the building is situated on a planning green belt, and was granted special permission because "McLaren is exceptional, both in the quality of its products and its achievements" (Griffiths, 1997). The building is partially submerged into the landscape, with a large artificial lake acting as a thermal buffer to regulate indoor temperatures. This integration of architecture and landscape reflects the holistic design approach seen in automotive engineering, where every component is optimised to work in harmony with the whole (McLaren Group, 2023; Sudjic, 2005).

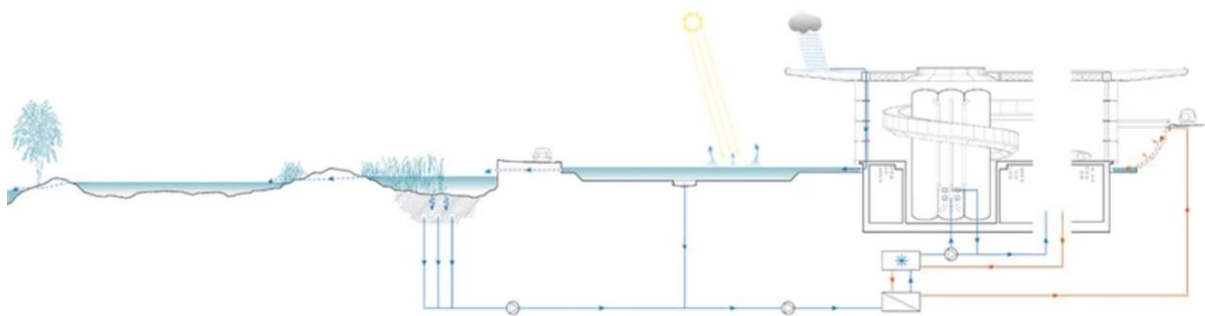


Figure 15: A diagram of the lake cooling system of the McLaren Technology centre. (Image: Foster+ Partners)

The MTC's floor plans reveal a meticulous attention to detail, driven by the need to accommodate the complex functions of a high-performance automotive facility. The building is organised around central "streets," a long, linear atrium that runs the length of the structure. This central axis serves as the building's spine, connecting various departments and facilitating the flow of people, materials, and information. The arrangement is reminiscent of a car's chassis, which provides structural support and integrates various components into a cohesive whole (Foster + Partners, 2004; Architectural Design, 2006). The spatial organisation of the MTC reflects the influence of automotive production processes, the building's layout is designed to support a seamless workflow, with spaces for design, engineering, manufacturing, and testing arranged in a logical sequence. For example, the production areas are located adjacent to the research and development labs, allowing for rapid prototyping and iterative design. This spatial organisation mirrors the assembly line in the Lingotto Fiat factory in Turin, where each stage of production is carefully coordinated to maximise efficiency and minimise delays (McLaren Group, 2023; Jodidio, 2006). The use of modular spaces within the MTC further underscores the influence of automotive design. Just as a car's components are designed to be interchangeable and adaptable, the MTC's interior spaces are flexible and reconfigurable. Movable partitions and modular furniture allow for easy reorganisation of workspaces, accommodating changing needs and fostering collaboration. This adaptability is a hallmark of both modern architecture

and automotive design, reflecting a shared emphasis on innovation and responsiveness (Sudjic, 2005).

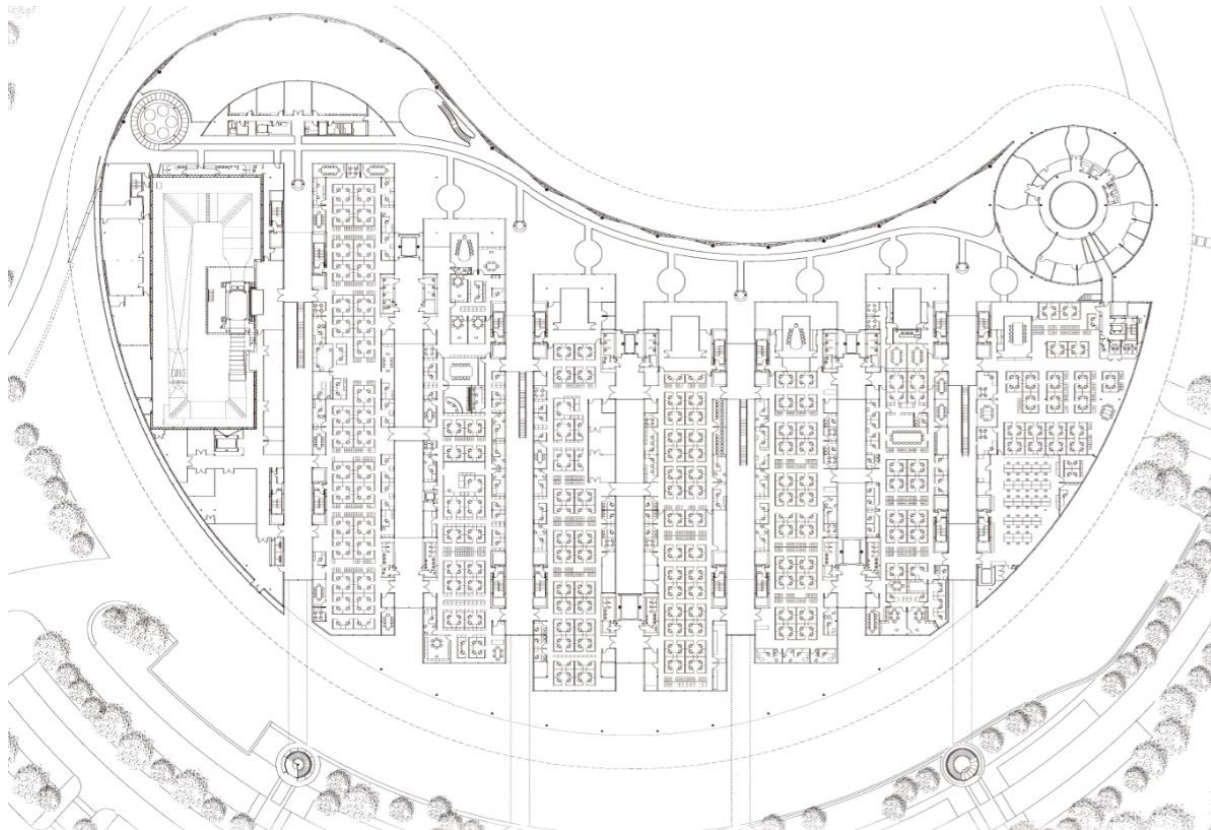


Figure 16: The ground floor plan of the McLaren Technology Centre, with all the individual streets in view. (Image: Foster + Partners)

The MTC's technical aspects are deeply rooted in the principles of automotive engineering and design. The building's structural system employs advanced materials and techniques to achieve a lightweight yet robust framework. The use of high-strength steel and low-iron glass creates a sense of lightness and static speed, while the building's curved roof is supported by a series of slender, stainless-steel columns, reminiscent of the suspension system in a car. This structural elegance not only plays into the building's aesthetic appeal but also ensures its durability over time. (Foster + Partners, 2004; Architectural Design, 2006). The MTC's environmental performance is another area where automotive influence can be evident. The building incorporates a range of sustainable technologies, including a rainwater harvesting system that reduces water consumption. These features reflect McLaren's commitment to sustainability, a value that is increasingly important in both the automotive and architectural industries. The integration of these technologies into the building's design demonstrates how architectural innovation can be driven by the same principles that guide automotive engineering (McLaren Group, 2023).

The materiality of the MTC also reflects the influence of the car. The building's exterior is clad in anodised aluminium panels, which are lightweight, durable, and resistant to environmental elements. These panels are precision-engineered to fit seamlessly together, creating a smooth, uninterrupted surface that evokes the polished finish of a car's bodywork. The interior spaces feature polished terrazzo flooring, brushed stainless steel accents, and a minimalist palette, evoking the precision and sophistication of a car's interior. This attention to detail creates a cohesive design synthesis that acts as a bridge of ideals between architecture and automotive design (Sudjic, 2005).



Figure 17: A McLaren 720s on display inside the MTC (Image: Tony Thacker)

Technology plays a leading role in both the design and operation of the MTC. The building is equipped with state-of-the-art systems for lighting, heating, ventilation, and air conditioning, all of which are designed to optimise energy efficiency and user comfort. These systems are integrated into the building's architecture, much like the electronic systems in a modern car are seamlessly incorporated into its design. The use of Building Information Modelling (BIM) during the design process further underscores the influence of automotive engineering philosophies, as it allows for precise coordination and optimisation of the building's components (Foster + Partners, 2004; Architectural Design, 2006). The MTC's design also reflects McLaren's dedication to innovation and cutting-edge technology. The building houses advanced facilities for research and development, including wind tunnels, simulation labs, and prototyping workshops. These spaces are designed to support the rapid iteration and testing of new ideas, mirroring the iterative design process in automotive engineering. The integration of these facilities into the building's architecture demonstrates how the principles of automotive design can inform the design of architectural spaces, creating environments that foster creativity and innovation (McLaren Group, 2023; Jodidio, 2006).

The McLaren Technology Centre is a precedent to a profound influence of the car on architectural design. Its form, floor plans, and technical aspects are all shaped by the principles of automotive engineering, resulting in a building that is both functional and aesthetically compelling. The MTC's design reflects McLaren's commitment to precision, innovation, and performance, demonstrating how the values and practices of automotive design can be translated into architecture. By analysing the MTC's design, we gain an understanding into the deep interplay between these two fields, revealing new possibilities for architectural innovation.

Fiat Lingotto

The Fiat Lingotto factory in Turin stands as an excellent example of how the automobile has profoundly influenced the architectural design of factories, material innovation, and planning around a function. Completed in 1923, the factory was conceived during a period of rapid industrial expansion in Italy, reflecting the growing relationship between automotive production and modernist architecture. Designed by engineer Giacomo Matté-Trucco, Lingotto was inspired by Ford's Highland Park plant in Detroit, yet it adopted its own design language by adopting a vertical production line, a radical departure from the sprawling horizontal layouts typical of early 20th-century factories (Frampton & Futagawa, 1983). This verticality was not merely a spatial solution but a direct response to the demands of car manufacturing, where the raw materials entered the factory at ground level and ascended through five floors, culminating in a rooftop test track. The factory's structure thus embodied the car's role as both the product and a driver of architectural innovation, with its helicoidal ramps and reinforced concrete framework echoing the dynamism of the vehicles it produced (Musso, 1995).

The materiality of Lingotto was advanced for its time, employing reinforced concrete to create a vast, flexible industrial space that could accommodate the complex workflows of car assembly. The building's structural frame and spiralling ramps, which allowed finished cars to descend from the rooftop track, were feats of engineering that drew praise from Le Corbusier, who hailed the factory as "one of the most impressive sights in industry" and a model for urban planning (Frampton & Futagawa, 1983). The use of concrete not only facilitated the factory's monumental scale, 16 million square feet of floor space, but also symbolised the industrial might of Fiat at the time and the modernity of its automobiles. The rooftop track itself, a 1.5-kilometre loop with steeply banked curves, was both a functional necessity for testing vehicles and a bold architectural statement, merging the utilitarian with the theatrical (Van de Velde, 2020). This duality underscored how car manufacturing could inspire architectural forms that were as expressive as they were functional.

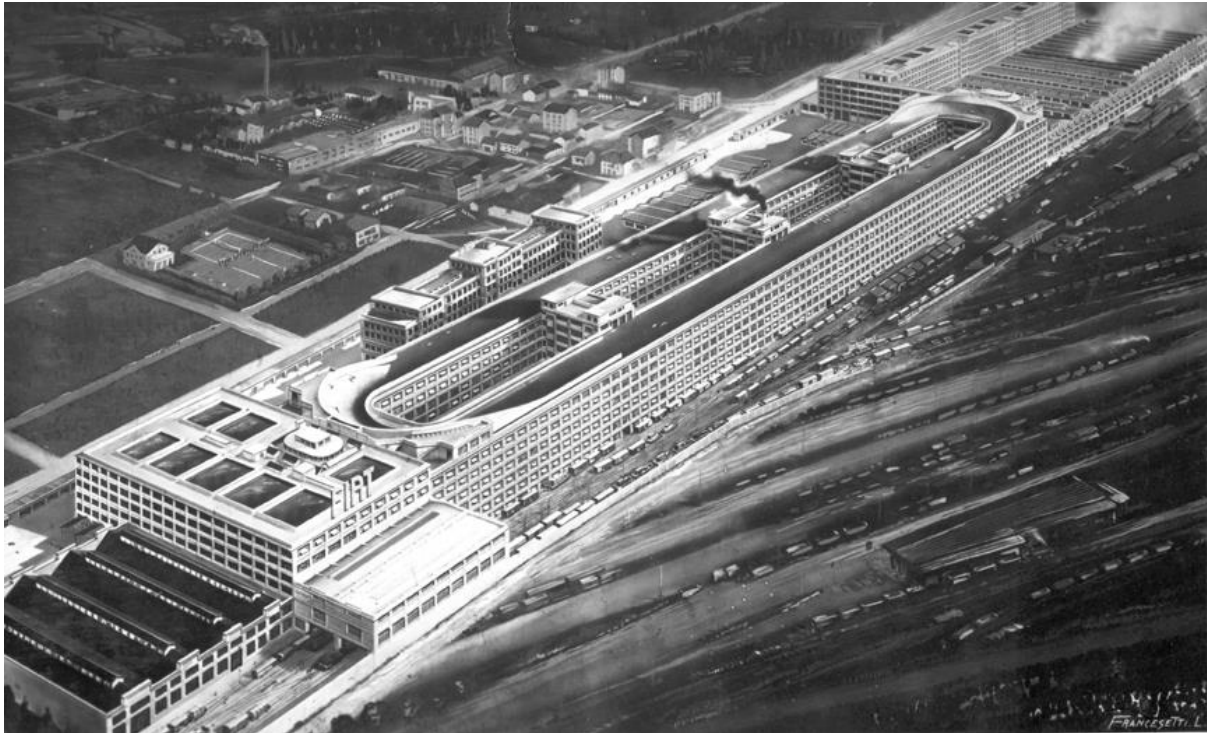


Figure 18: An aerial view of Lingotto with the test track in clear view. (Image: Francesetti. L)

Functionally, Lingotto was a microcosm of the assembly line's logic, but with a distinctly European inflection. Contrary to the American Ford's gravity-fed systems, Lingotto's production flow emphasised adaptability and change, with each floor dedicated to specific components. Engines, transmissions and bodywork all converging together on the rooftop for final testing (Musso, 1995). This layout reflected and catered to Fiat's broader strategy of supplying to diverse markets, producing 80 different models over six decades, including the iconic 1936 Fiat Topolino (Musso, 1995). The factory's design thus mirrored and witnessed the car's evolution from a luxury item to a mass-produced commodity, with the building serving as both facilitator and emblem of this shift. Yet, by the 1970s, Lingotto's vertical aspect had become obsolete, outpaced by the horizontal efficiencies of newer plants like Mirafiori. Its closure in 1982 marked the end of an era, but also the beginning of a new dialogue between industrial heritage and urban regeneration (Piano, 1997).

The post-industrial transformation of Lingotto, spearheaded by Renzo Piano in the 1980s, further illustrates the enduring relationship between cars and architecture. Piano's adaptive reuse project preserved the factory's shell while reimagining its interior as a "city within a city," complete with concert halls, a shopping centre, and the Polytechnic University's automotive engineering faculty (Piano, 1997). The rooftop track, retained as a cultural landmark, was later reanimated as the Pista 500, a hybrid of public garden, art installation, and test circuit for Fiat's electric vehicles. This reinvention not only honoured and respected Lingotto's automotive legacy but also demonstrated how industrial spaces could be repurposed for contemporary ecological and social developments. The inclusion of 40,000 plants and solar panels on the roof, for instance, reflected the car industry's growing emphasis on sustainability, while the art exhibitions curated by the Pinacoteca Agnelli transformed the factory into a canvas for cultural preservation (Piano, 1997).

Lingotto's influence extended beyond architecture into popular culture, cementing its status as an icon of industrial modernity. The factory's rooftop featured in films like *The Italian*

Job (1969), where its test track became the setting for a dramatic high-speed chase. Meanwhile, its design principles, modularity, vertical integration, and multi-functionality, anticipated later architectural trends, from Pier Luigi Nervi's ribbed concrete structures to the adaptive reuse of industrial sites worldwide (Frampton & Futagawa, 1983). In this sense, Lingotto was not just a factory but a statement, illustrating how the car could shape and be shaped by the built environment. Its legacy endures as a testament to the reciprocal relationship between automotive progress and architectural imagination, a dialogue as relevant today as it was a century ago.



Figure 19: The roof track of Lingotto as seen today, with the emphasis on the track shifting becoming a garden of sorts. (Image: Pinacoteca Agnelli)

Trinity Square Car Park

Trinity Square Car Park, designed by Rodney Gordon and completed in 1969, was a landmark of Brutalist architecture in post-war Britain. While its general purpose of accommodating the car in an urban environment is generally unremarkable, it gained wider cultural recognition through its appearance in the 1971 film 'Get Carter'. Where the building's stark, imposing form became an integral part of the film's visual identity (Elwall, 2004). The structure was conceived as a multi-storey car park with integrated retail and office spaces, embodying the Brutalist movement's emphasis on raw concrete and bold geometric forms. Its elevated design maximised parking capacity, addressing the growing demand for car storage in urban areas during the mid-20th century (Gold, 2007). The inclusion of retail and office spaces reflected the era's trend towards mixed-use developments, though the car park remained the dominant feature, both visually and functionally. Elevated walkways and ramps facilitated vehicular access, while the raw concrete exterior mirrored the industrial and mechanical qualities of the automobile itself (Gateshead Council, 2010).

The influence of the car on Trinity Square's design is evident in its functional layout and architectural language. The multi-storey structure responded to the need for high-density parking in urban centres, while its elevated pathways echoed the infrastructure of motorways, emphasising the car's increase of centrality in modern life. The use of raw concrete, a defining characteristic of Brutalism, reinforced the building's industrial aesthetic, aligning it with the mechanical nature of the automobile. At the same time, its bold geometric forms conveyed a sense of modernity and technological competence (Elwall, 2004). However, as urban planning priorities shifted towards pedestrian-friendly environments in the late 20th century, Trinity Square's car-centric design became increasingly obsolete. The car park, once a symbol of innovation, was criticised for its lack of human scale and poor integration with the surrounding urban fabric, leading to its eventual demise (Gold, 2007).



Figure 20: Trinity Square Car Park prior to its demolition. (Image: <https://www.getcarter.xyz/>)

Trinity Square's cultural significance was cemented by its role in 'Get Carter', where its Brutalist architecture profoundly shaped the film's tone. Every time it appeared on screen, the car park's raw concrete surfaces and labyrinthine structure created a stark, oppressive atmosphere, mirroring the film's themes of moral decay and urban alienation. Its imposing scale and cold, industrial aesthetic amplified the sense of foreboding, turning the building into a visual metaphor for the dehumanising effects of modernity. This connection to Get Carter underscored the car park's broader cultural impact, transforming it into an iconic symbol of the film's bleak, noir-inspired narrative (Gateshead Council, 2010).

Trinity Square Car Park was demolished in 2010 after years of neglect and public controversy. While its demolition was welcomed by many, it has since garnered a cult following among enthusiasts of Brutalist architecture. The car park is remembered as a bold attempt to reconcile the demands of the automobile with urban design, even if its execution ultimately fell short of enduring relevance. Its legacy endures not only as a symbol of mid-20th-century architectural ambition but also as a cultural icon immortalised in Get Carter (Elwall, 2004; Gold, 2007).



Figure 21: A frame from Get Carter with the entrance to the car park in view. (Image: <https://www.getcarter.xyz/>)

Throughout this chapter, the profound influence of automotive design on architectural spaces has been evident, from factories and museums to car parks. Each structure examined demonstrates how the functional and aesthetic principles of the automobile have shaped built environments in distinct yet interconnected ways. The MTC exemplifies precision and performance through its aerodynamic form and seamless integration of technology, while Lingotto's vertical production model and adaptive reuse highlight the evolving relationship between industrial efficiency and urban regeneration. Meanwhile, Trinity Square's Brutalist expression, though ultimately impermanent, underscores the cultural and infrastructural impact of car-centric design. What emerges is a broader architectural dialogue, one where the car is not merely an object to be accommodated but a catalyst for innovation, material experimentation, and spatial reconfiguration. These case studies reveal how automotive principles, efficiency, modularity, and technological integration, have transcended factory floors to inform architectural thinking, even as societal priorities shift. The legacy of such structures lies not just in their original functions but in their ability to inspire new ways of conceiving space, reflecting the enduring interplay between mobility and the built environment.

Architecture In Automobile Advertising

The symbiotic relationship of the car and architecture in advertising can serve as a intriguing exploration of how context can influence consumer perceptions and brand image. Architecture, as a form of artistic expression in the form of functional design, provides a rich backdrop that can evoke emotions, symbolize values and culture and cement brand identities in the automotive industry. In advertising, the context in which a product is presented significantly influences consumer perceptions and emotional responses. Architectural settings can evoke feelings of luxury, adventure, innovation, or heritage. The cultural meanings attached to material objects are often conveyed through the environments in which they are placed. This theoretical framework posits that architecture serves not only as a physical backdrop but also as a narrative device that communicates brand values and consumer aspirations (Schroeder, 2002).

Case Study: 1988 Rover 800 Fastback & Staatsgalerie Stuttgart

The use of the Staatsgalerie in Stuttgart as a backdrop in an advertisement for the 1988 Rover 800 Fastback carries significant architectural and cultural weight. The Staatsgalerie, designed by British Architect James Stirling, is a renowned example of postmodernist architecture, blending classical elements with a modernist architectural tone (Frampton, 2020). The buildings' suave use of colour and geometry, and the contrast between contemporary and new architectural language would have been perfect choice, intentional or not, to convey the similar attributes of the advertised Rover 800 Fastback: modern, sophisticated, yet rooted in traditional design.

From an architectural perspective, the Staatsgalerie represents a dialogue between history and modernity, which mirrors the Rover 800's design philosophy. The car itself was positioned as a product that combined British engineering with contemporary European sensibilities, offering both high performance and luxury. By placing the Rover in front of such a landmark, the advert subtly aligned the car with these same qualities of innovation, bold design, and timelessness.



Figure 22: Frames from the Rover advert, with the advertised car parking up next to the building, with the driver exclaiming “British architect” which is a subtle way of comparing the two together as the Rover too, is British. (Image: Rover, 1988)

The building’s inclusion likely also served to elevate the car’s prestige. Stuttgart, a city known for its automotive legacy with brands like Porsche and Mercedes-Benz which were even

featured in the advertisement, perhaps as a challenge to them by Rover. This would have resonated strongly with a German audience, as The Staatsgalerie, a symbol of intellectual and artistic achievement, would suggest that the Rover 800 was not just a car, but a cultural object of value, an aspiration for connoisseurs and consumers of fine design. In this context, the car is not just a mode of transport, but an extension of the values associated with fine art, cutting-edge architecture, and 20th century luxury living.

The implications of the integration of architecture in automobile as a backdrop in advertising extend beyond visual appeal. By implementing architectural landmarks, brands can tap into the cultural significance of these spaces, creating an emotional connection with consumers via allowing the consumer to relate to the advertisement. The use of recognizable structures can enhance brand recall and lend a sense of credibility to the advertised product. This can allow a building to become symbolic with a brand and thus, due to the static nature of

buildings this can serve as a constant subtle yet effective advertising board for consumers. The relationship between architecture and automobile advertising also raises questions about the role of cultural heritage and the ethics of representation. As brands like Rover leverage iconic architectural structures, they begin a dialogue about authenticity and the commodification of culture i.e., a building of cultural significance becoming relegated to just a symbol of advertisement.



Figure 23: Promotional images for the 2024 Land Rover Defender put against the French brutalist car park Noisy-le-Grand. This choice in backdrop conveys modernity and ruggedness, both traits of the Land Rover Defender. (Image: Land Rover, 2024)

In essence, the use of architecture as a backdrop in automobile advertising is a strategy that can potentially enhance consumer engagement, reinforce brand identity, and shape cultural narratives. Through the example of Rover's use of the Staatsgalerie, it can be stated that architectural settings play an understated role in conveying brand values and aspirations as well as the product itself. As the automotive industry continues to evolve, the strategic integration of architecture in advertising will remain a tool for brands seeking to connect with consumers

Chapter 4: Conclusion

This dissertation has demonstrated that the relationship between the automobile and architecture is not merely one of functional coexistence but a profound dialogue that has shaped both disciplines. From the metaphorical inspirations of Streamline Moderne to the paradigmatic shifts in industrialised construction, the car has served as both a muse and model for architectural innovation. Conversely, architecture has provided the spatial and cultural frameworks within which the automobile's significance is articulated - whether through Brutalist car parks, modular housing estates, or the curated backdrops of advertising. The interplay between these fields reveals a tandem pursuit of industrial efficiency, aesthetics and societal relevance, yet also underscores their divergent responses to challenges of standardisation, customisation and sustainability.

The car's metaphorical influence on architecture is particularly evident in 20th century design movements. Streamline Moderne's adoption of aerodynamic forms represented more than stylistic borrowing; it signalled architecture's embrace of mobility as a defining condition of modernity. Roland Barthes' seminal analysis of the Citroën DS as a "Gothic cathedral" articulates how automobiles, like architecture, became vessels for cultural aspirations and technological achievement. This parallel extends to Le Corbusier's work, where the Voiture Minimum prototype embodied the same principles of standardisation and functional minimalism that defined his architectural projects. The car's symbolic power persists today, with contemporary architects like Norman Foster drawing explicit connections between automotive and architectural design in projects like the McLaren Technology Centre.

As an industrial paradigm, the automobile has fundamentally reshaped architectural production methods. The Toyota Production System's emphasis on lean manufacturing and just-in-time logistics offers compelling lessons for construction, particularly in prefabricated housing. However, as the comparison between Toyota and Huf Haus revealed, crucial differences remain in their approaches to standardisation. While automotive manufacturing achieves economies of scale through uniformity, architecture must accommodate site-specific conditions and client customisation - a tension that projects like Beechwood Village attempted to resolve through digital configurators. The interview with Kotey Nikoi provided valuable insights into both the potential and limitations of transferring automotive production models to housing, particularly regarding material logistics and regulatory constraints.

The spatial dimension of this relationship manifests itself in diverse ways across different building typologies. The McLaren Technology Centre's aerodynamic form and precision-engineered details demonstrate how automotive performance criteria can dictate architectural expression. In contrast, Fiat's Lingotto factory, with its iconic rooftop test track, represents an earlier moment when industrial architecture literally and symbolically revolved around automobile production. The adaptive reuse of Lingotto also raises important questions about how we might repurpose today's car-centric infrastructure for future needs. Meanwhile, structures like Trinity Square Car Park reveal the darker side of this relationship, where architecture became a servant to automotive demands, often at the expense of urban liveability.

The cultural interplay between cars and architecture extends into the realm of advertising and representation. The case study of the 1988 Rover 800 Fastback advertised against the backdrop of James Stirling's Staatsgalerie Stuttgart illustrates how architectural settings are strategically employed to confer specific meanings onto automobiles. This practice continues today, with luxury car brands frequently using iconic modernist buildings as backdrops to associate their products with architectural sophistication. Conversely, architecture has

borrowed from automotive marketing strategies, with developers increasingly using configurators and virtual reality tools that originated in car showrooms.

Looking ahead, several critical challenges and opportunities emerge at this intersection. The climate crisis demands urgent reconsideration of both automotive and architectural material practices. Cross-laminated timber (CLT) construction, as seen in Beechwood Village, points toward more sustainable alternatives, though questions remain about scalability and fire safety. Digital fabrication technologies promise to bridge the gap between mass production and customisation, with 3D-printed housing and parametric design tools enabling new forms of architectural expression inspired by automotive aerodynamics. The rise of autonomous vehicles presents perhaps the most significant paradigm shift, potentially rendering much of our car-oriented infrastructure obsolete and creating opportunities for urban repurposing.

Future research could productively explore several directions. First, comparative studies of automotive and architectural education might reveal how different pedagogical approaches to design thinking could be cross-pollinated. Second, digital twins - virtual models used extensively in automotive design present potential application for architecture, particularly in simulating building performance and user experience. Finally, the policy dimensions of this relationship merit closer examination, particularly how building regulations and zoning laws might be reformed to facilitate more industrialised construction methods.

On a theoretical level, this research suggests the need for more nuanced frameworks to understand technology transfer between industries. The persistent difficulties in applying automotive production methods to architecture indicate that simple imitation is insufficient - successful adaptation requires deep understanding of contextual differences. This has implications for how we conceptualise innovation in the built environment, suggesting that progress may come not from revolutionary disruptions but from careful, context-sensitive translations of processes from other fields.

Ultimately, this dissertation argues that the automobile's impact on architecture extends far beyond functional adjacency to encompass aesthetic inspiration, production methodologies and cultural representation. As both fields face unprecedented challenges from climate change, digital transformation and changing user expectations, their historical dialogue offers valuable lessons for future innovation. The task ahead lies not in making architecture more like car manufacturing, or vice versa, but in developing a shared language that respects their distinct identities while enabling fruitful exchange. In an era of increasing specialisation, this interdisciplinary perspective reminds us that the most significant breakthroughs often occur at the boundaries between fields.

Future Research Directions

1. **Material Innovations:** Comprehensive life-cycle analysis comparing automotive and architectural materials, with particular focus on emerging bio-based composites and their potential for circular economies in both industries.
2. **Digital Integration:** Investigation into how automotive-derived technologies like digital twins and virtual reality configurators could transform architectural practice from design through to facilities management.
3. **Autonomous Urbanism:** Longitudinal studies of cities piloting autonomous vehicle networks, documenting how architectural typologies adapt to reduced need for parking and changed street patterns.

4. **Labour Practices:** Comparative study of workforce training and conditions in automotive versus modular construction factories, identifying transferable models for skills development.
5. **Policy Frameworks:** Analysis of how building regulations and planning policies in different nations facilitate or hinder industrialised construction methods, with recommendations for reform.
6. **Heritage Adaptation:** Documentation and evaluation of adaptive reuse projects for automotive heritage sites, developing best practice guidelines for preserving industrial memory while meeting contemporary needs.
7. **Consumer Behaviour:** Psychological research into how user experiences with automotive customisation platforms influence expectations for architectural personalisation.

As we stand at the crossroads of multiple global crises, the continued dialogue between automotive and architectural thinking may prove crucial in developing sustainable, human-centred solutions for mobility and habitation in the 21st century. The examples explored in this dissertation demonstrate that when these disciplines engage in meaningful exchange rather than unilateral borrowing, they can produce innovations that transcend their individual limitations. This interdisciplinary approach will be essential as we reimagine our built environment for an era of climate consciousness and digital ubiquity.

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Appendix:

Interview Questions:

Question 1:

Just as car manufacturers offer various customization options for buyers, how did Beechwood Village incorporate customization options for its residents? Were there predefined templates or layouts for the units, and how much flexibility did residents have to personalize their spaces?

Question 2:

In car manufacturing, personalization options often extend beyond colors to include features like interiors or tech upgrades. How did the modular design of Beechwood Village allow for this level of personalization in terms of layout, materials, or finishes?

Question 3:

Technological integration - In modern car manufacturing, automation and technology are key to optimizing production. What role did technology play in the modular design and construction of Beechwood Village?

Question 4:

Has a client ever felt stuck for choice?

Question 5:

Scalability - can a project like this be adapted outside of BV? i.e configure a home and drop it anywhere in the UK.