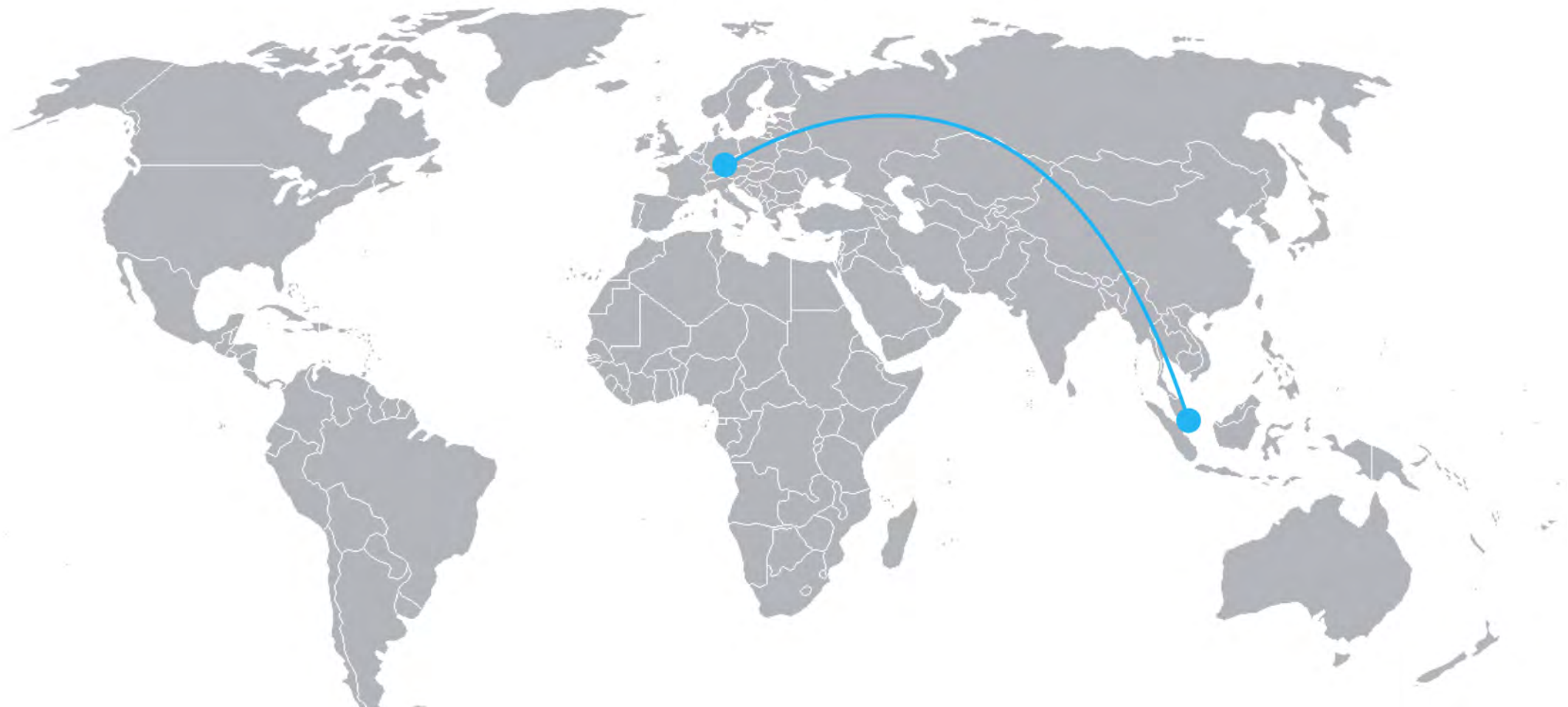
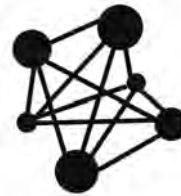


Future Mobility in the Metropolitan Area of Singapore

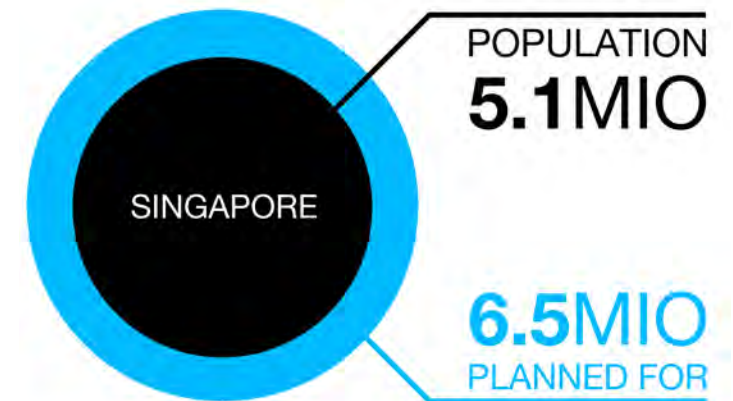
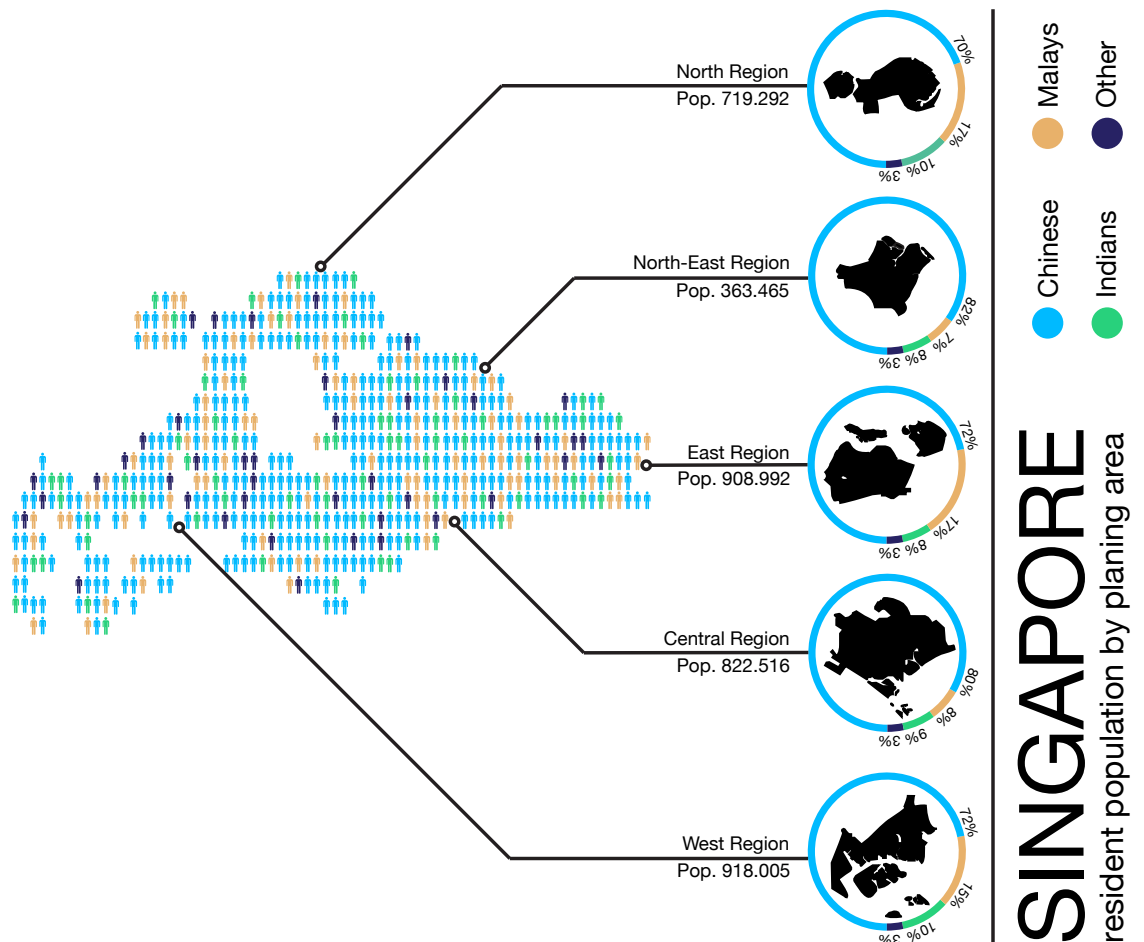




Research and Analysis

Singapore's specific singularities in Population, Density, Ethnicity and Housing.
A Research about the city's Community, Urbanism, Transportation and Lifestyle.

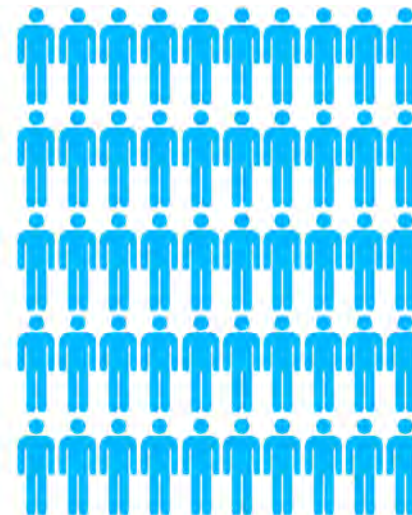
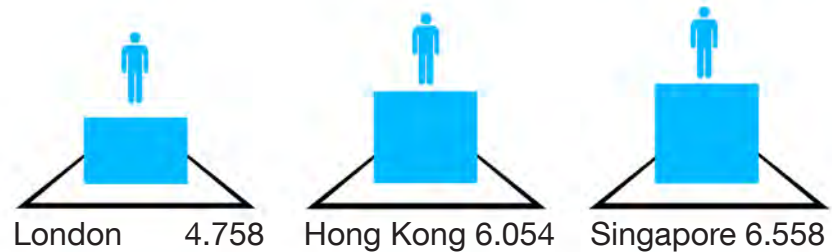
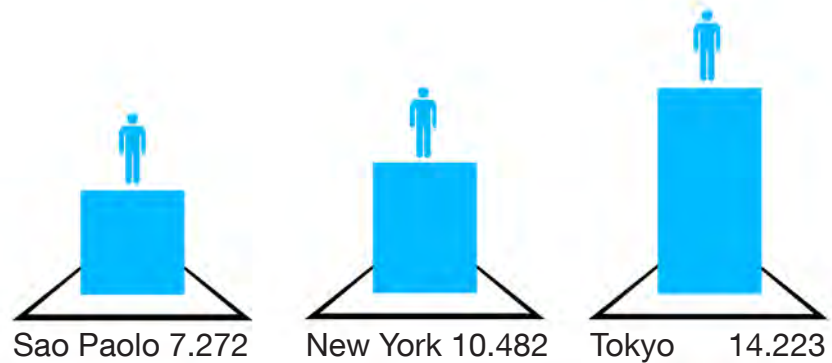
Population Distribution



Singapore is one of the world's most globalised nations. The multi-racial society is bonded by physical, economical, social and inter-personal infrastructures. Today the city is already const-rued for 1.5 milion additional citizens.

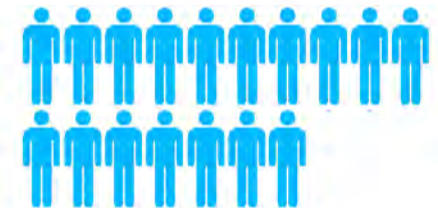
Population Density

How many people live in one square km of space



SINGAPORE

Area	710.2 Km²
Population	4.987.600



HAMBURG

Area	755.3 Km²
Population	1.786.278

Singapore Culture



可愛さ
Kawasia | Icons and Idols



身份
Emerging Subcultures



定制
Product Customization



建屋发展局
HDB | Housing



文化
Culture Clash



ゲーム
Gaming | Entertainment



نتوك
Transport Singularities



✠✡️🕉️☪️
Religious Life

User Groups



The **Kiasu**

Age 30-45 | ♀+



Harajuku **Kei**

Age 20-35 | ♀



The **AhCheck**

Age 40-60 | ♀++



The **AhBeng**

Age 20-30 | ♀♀



The **AhBang**

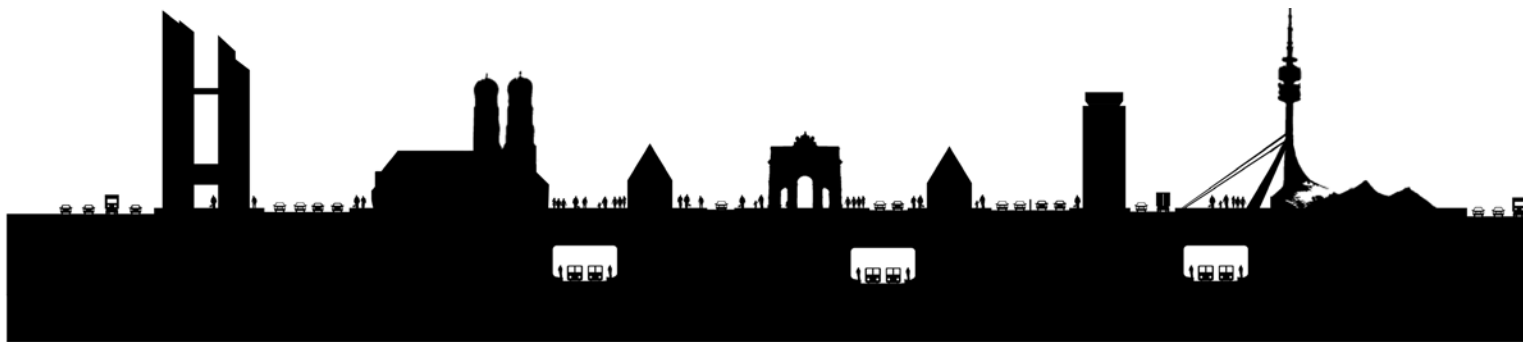
Age 20-40 | ♀♀ ++



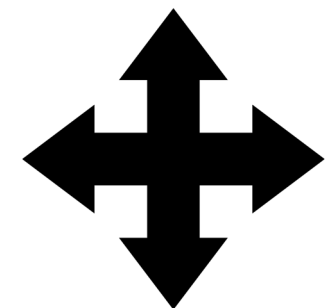
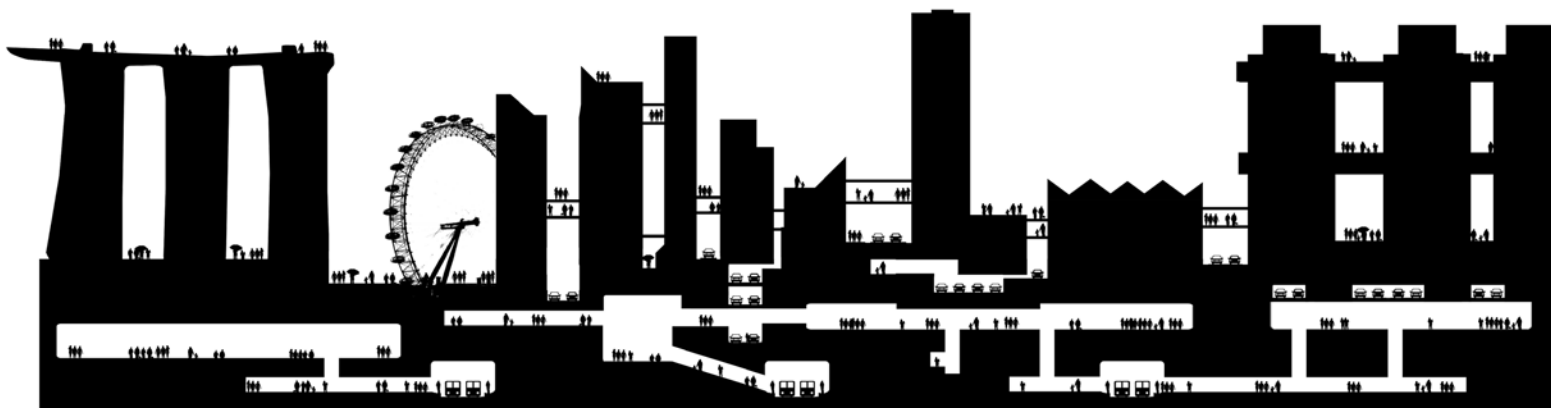
User Preferences and Signature Items

Profiling of Singaporean user archetypes and classification as target audience, according to socio-demographic (age, sex, education), behavioral (first buyer, intensive user), psychological (forward thinking, safety focused) and media oriented characteristics and evaluation of key factors.

Vertical Urbanism

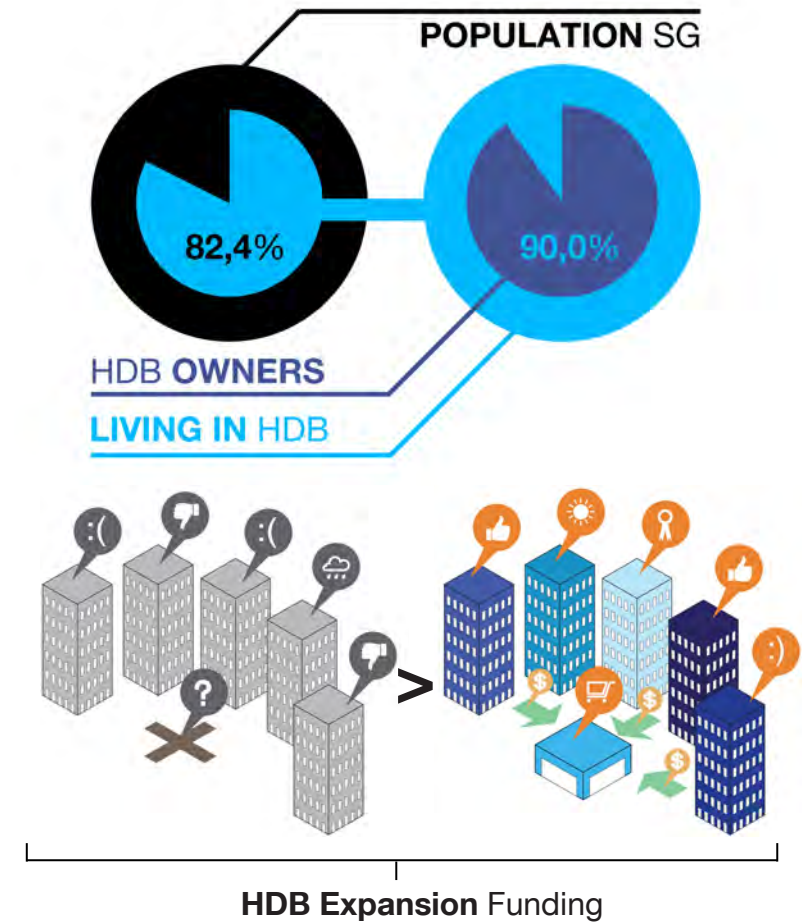


Munich Abstract Section



Singapore Abstract Section

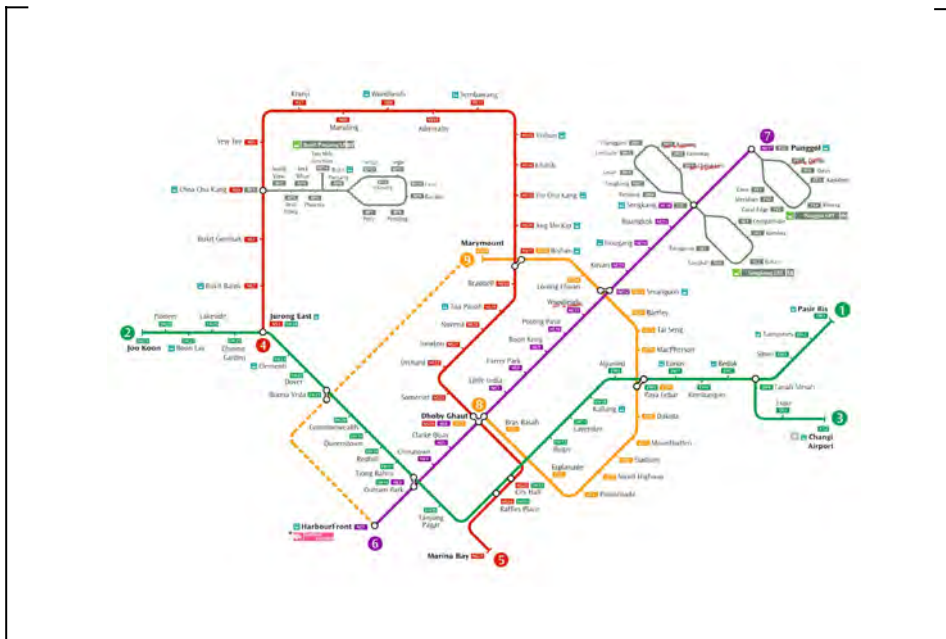
Housing and Development Board Networks



Today's Infrastructure

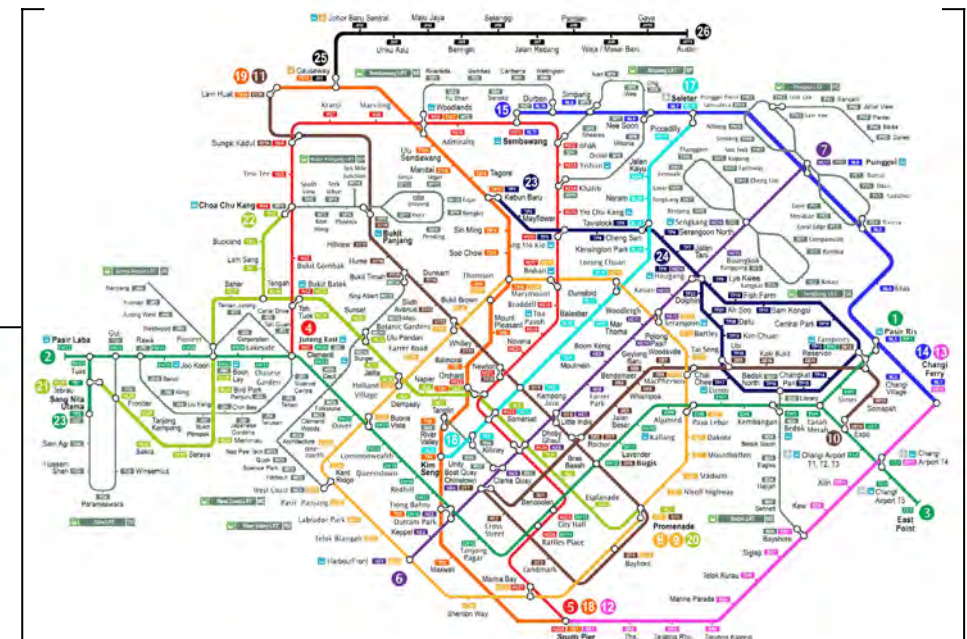


Public Transportation Prediction



MRT Infrastructure 2011

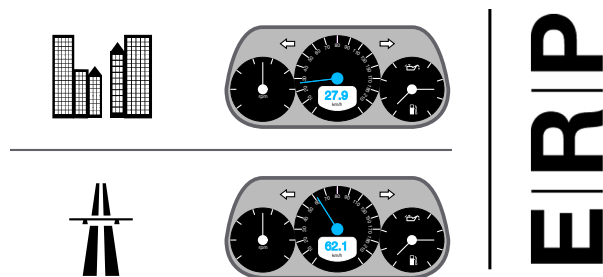
Highly transit oriented Singapore has a large network of transport through roads and mass transit systems.



Expansion Prediction 2030

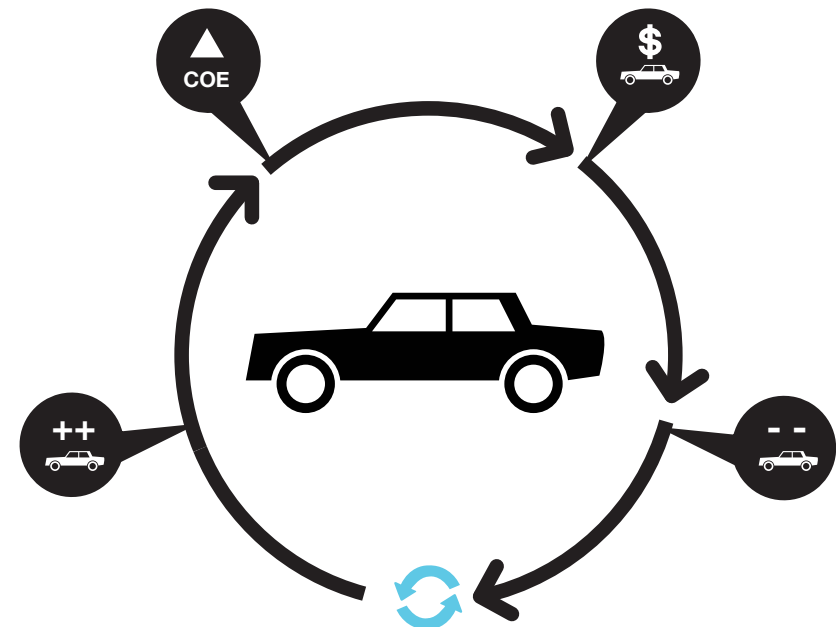
A constant development and extension leads to a massive MRT and LRT infrastructure.

Private Transportation Policy



COE and ERP

Aquisition costs of private vehicles and road pricing quotas regulate the number of cars on the streets.



Regulatory Circuit

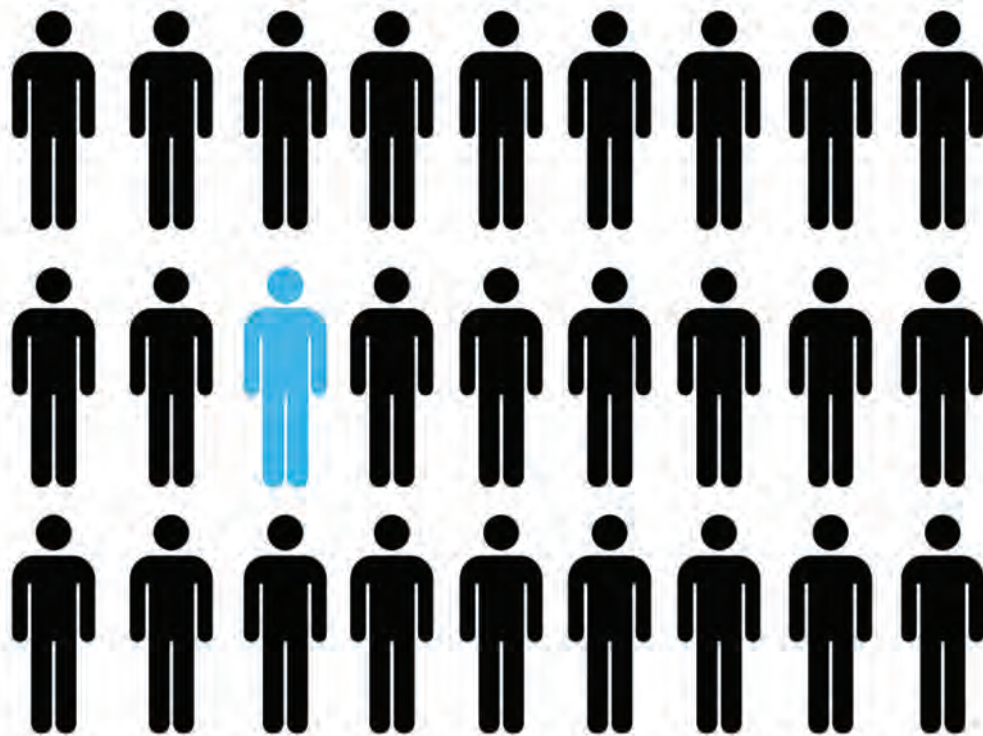
With the COE (Certificate of Entitlement) and taxes applied depending on the number of licenced cars in Singapore a regulatory circuit for the price of new vehicles originates.



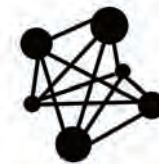
Singapore's Mobility Demands

Singapore's specific needs demand a radical approach for designing a new type of transportation. A market niche is established to guarantee the uniqueness of a future mobility product that fits to the customer's and city's needs fulfilling the typological infrastructural requirements.

Challenges and Emerging Criticism in Housing and Transportation



Majority of Singaporeans (age 21-30) wish better housing.
As population turns more sophisticated and is materially better endowed, criticism and frustration rises.



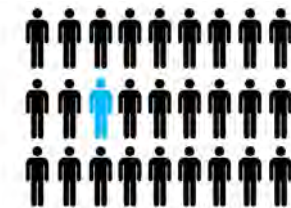
People own a fascination for speed but also demand slowness and economic modes of transportation.



Market Placement



Bridging a gap in the market of Singapore's public-focused future infrastructure plan

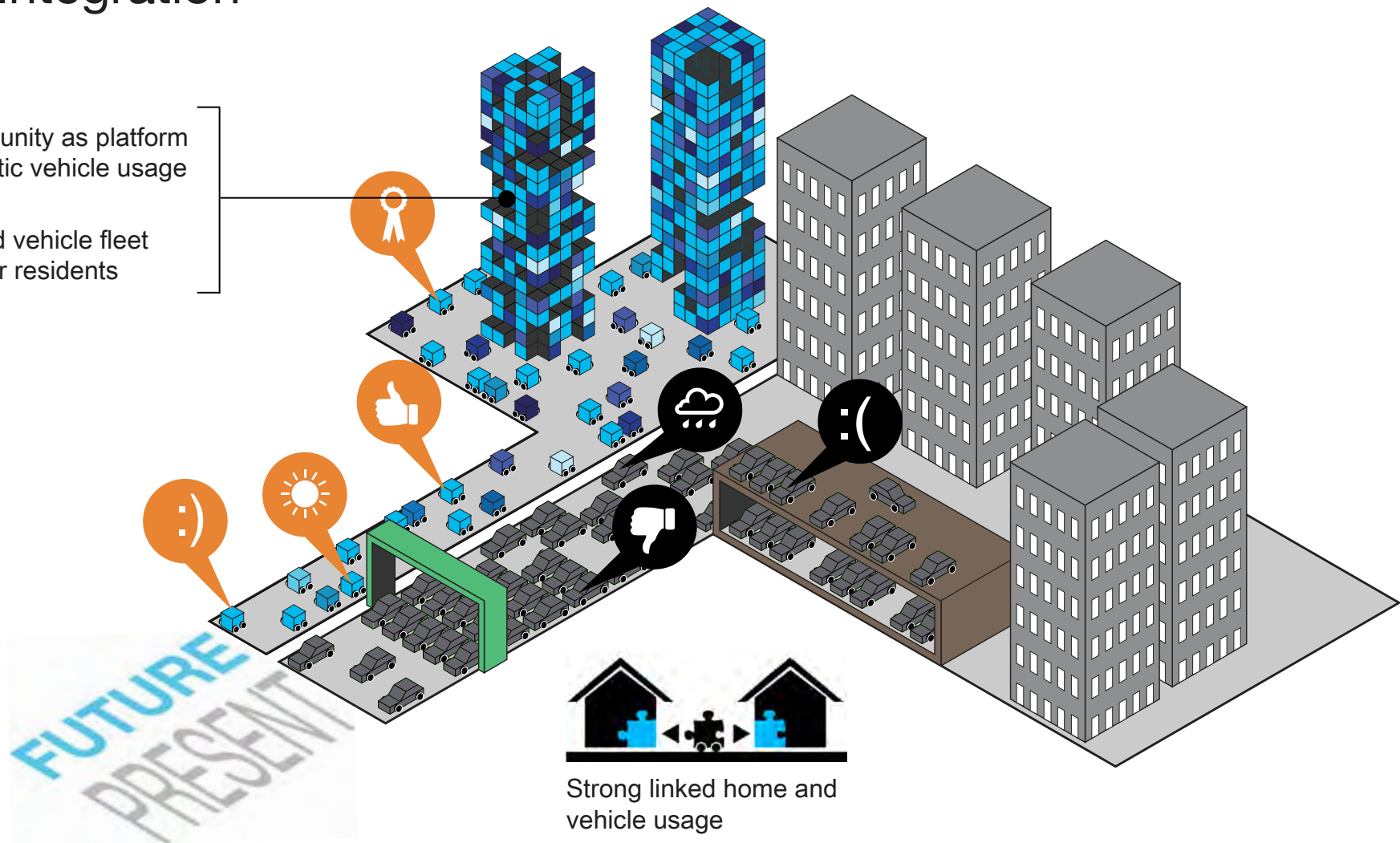


highly flexible personal transportation

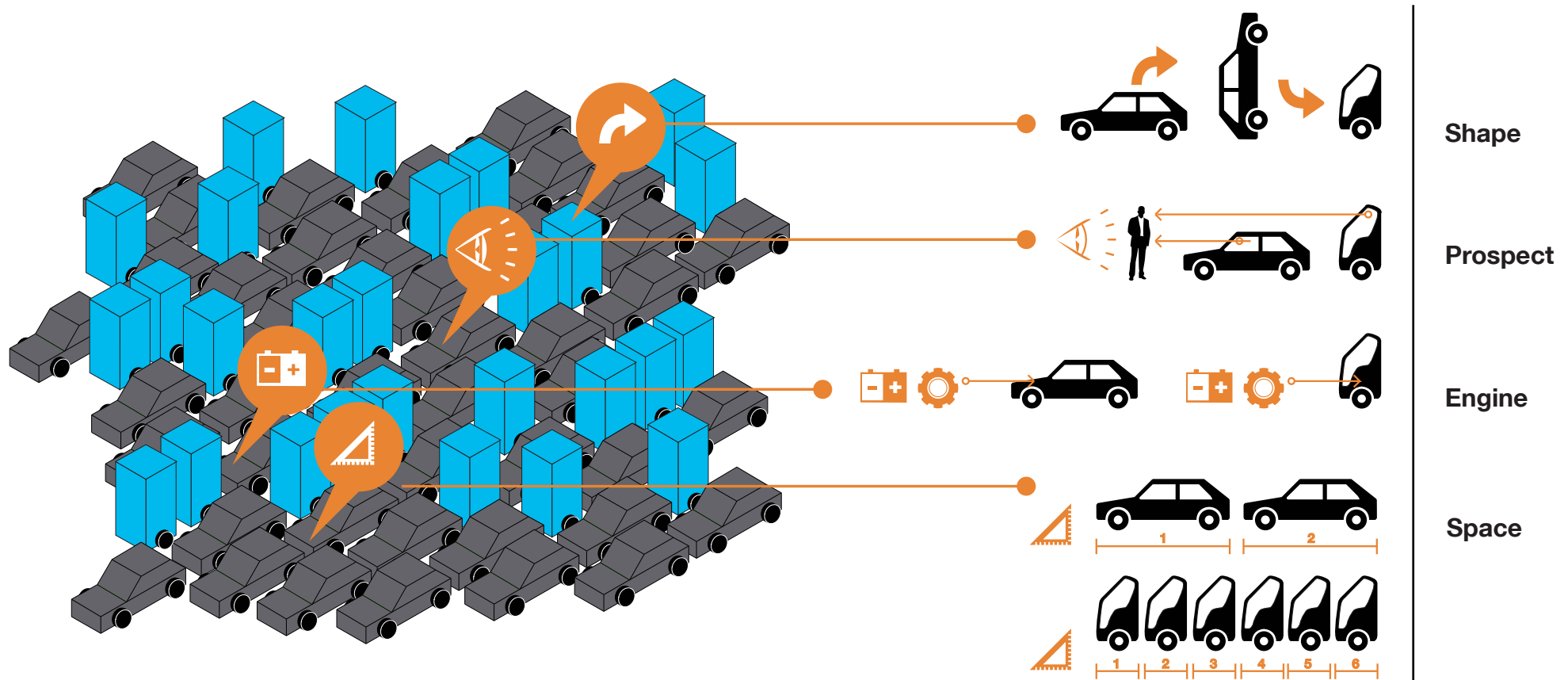
HDB Integration

HDB community as platform
for synergetic vehicle usage

HDB owned vehicle fleet
available for residents



New Transportation Typology





Conceptualising Singapore's Future Mobility

„Gemini“ introduces a whole product family, designed to fit the needs of future mobility. Developed by using the example of the compact, transport-oriented city state of Singapore, „Gemini“ is bridging the gap of its future infrastructure plan - creating a complete integration of personal mobility in both the private home as well as Singapore's expanding public transport, each sector working seamlessly with the whole system.

gemin! Product Family



Nano Trike



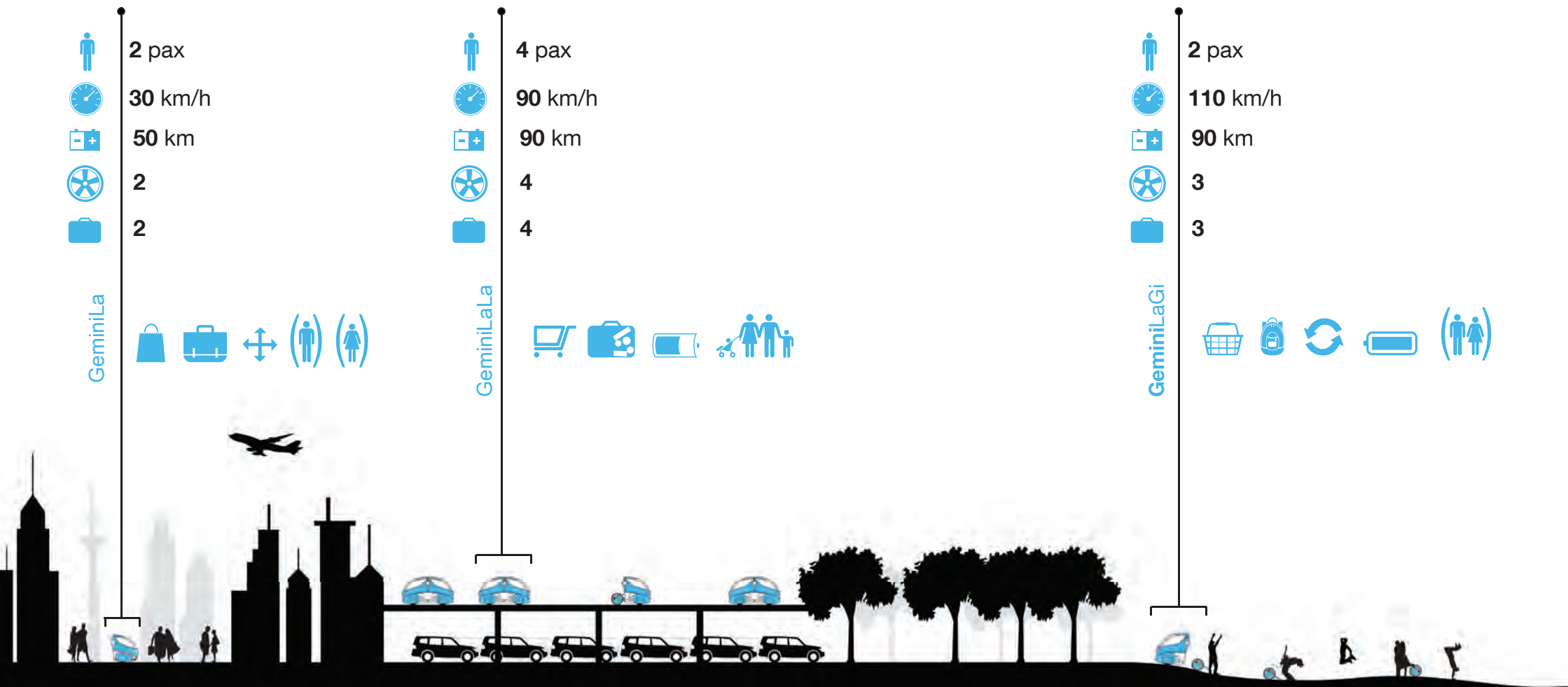
Personal Capsule



Micro Car



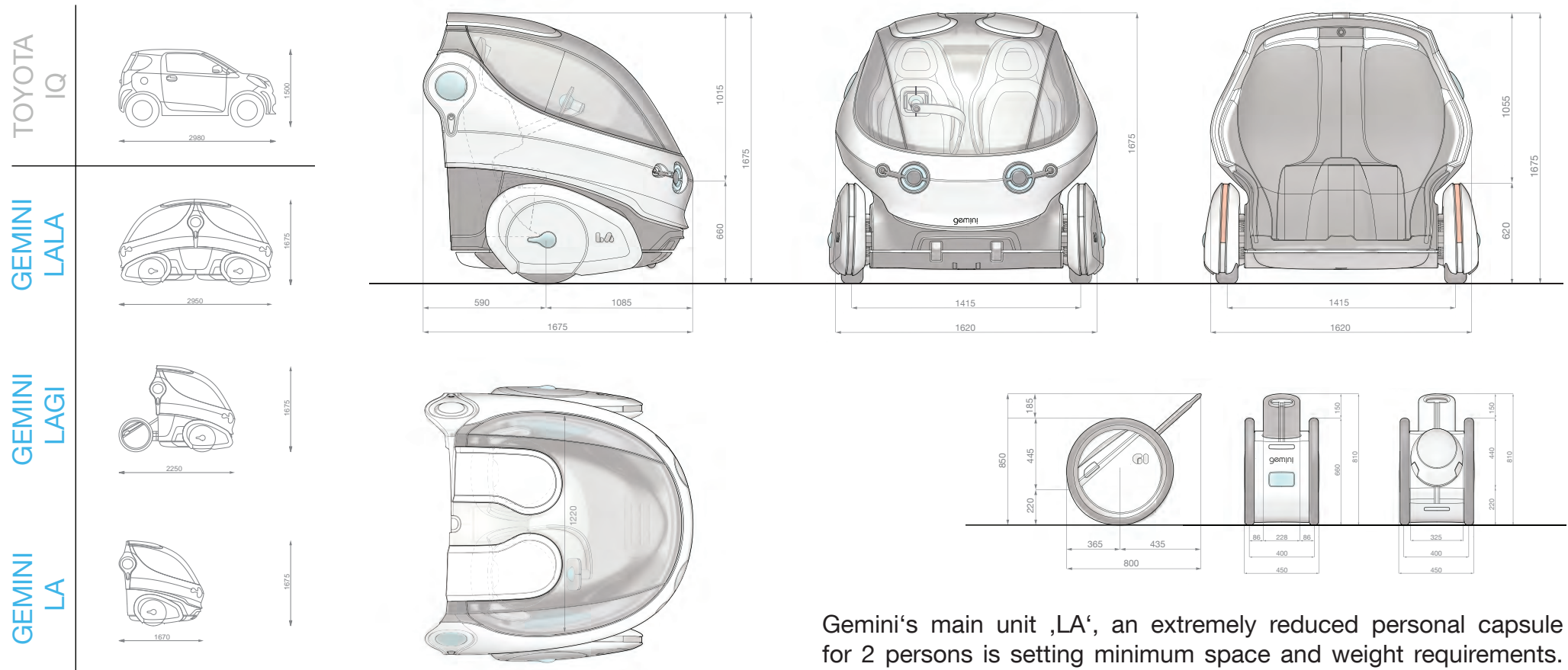
Field of Application



Infrastructure Implementation



Dimension Comparison



Opening Mechanism



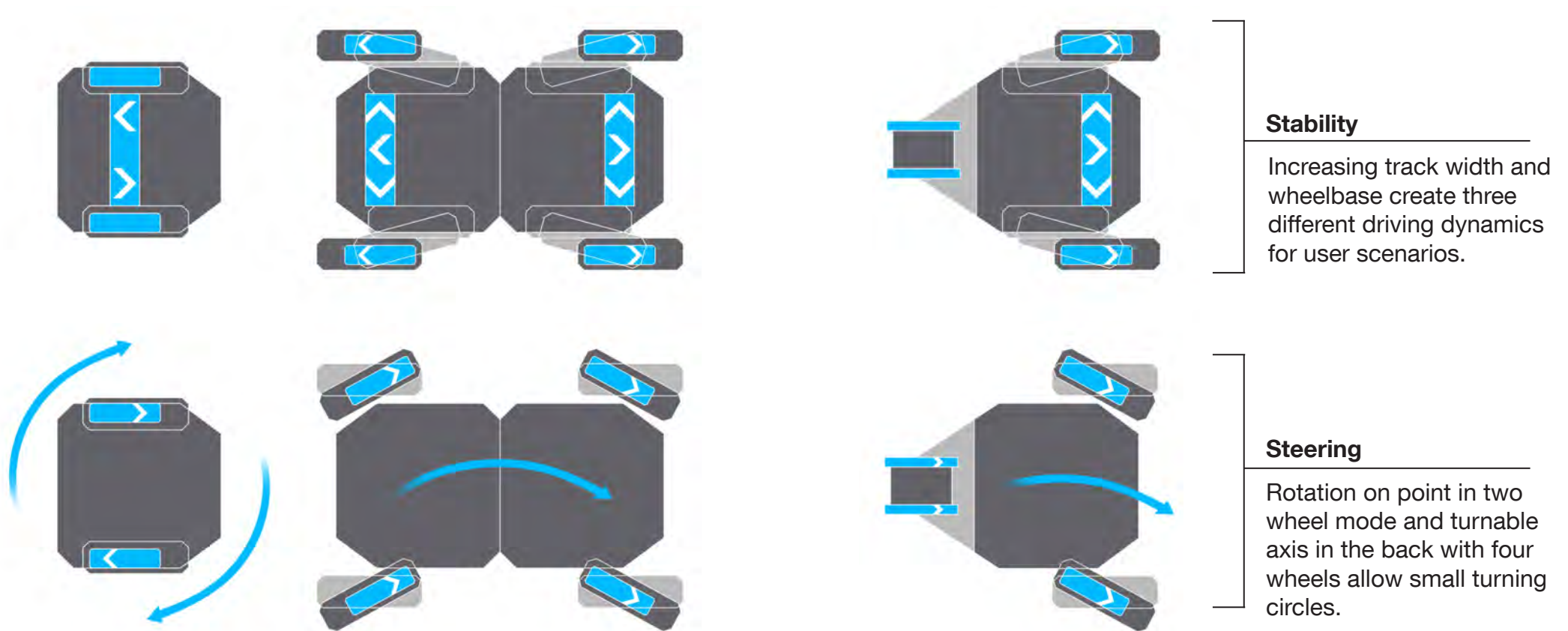
Gemini La



Gemini LaLa



Wheel Configurations



Exterior Functions



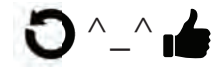
Sun Screen & Rain Shield



Exchangeable Clip-Ons



User Interface



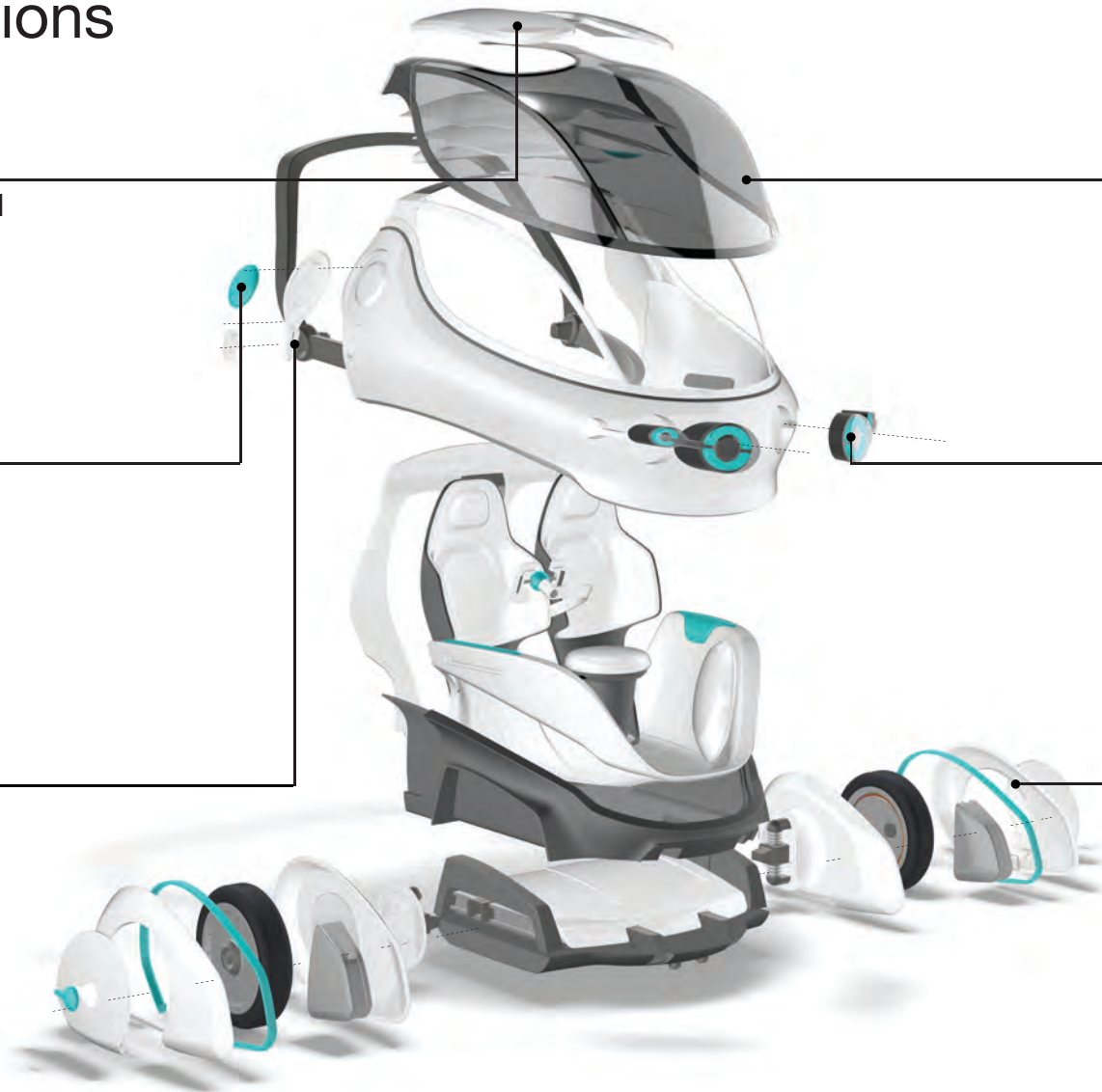
Front Lights



Quick Charge



Wheel House Integration

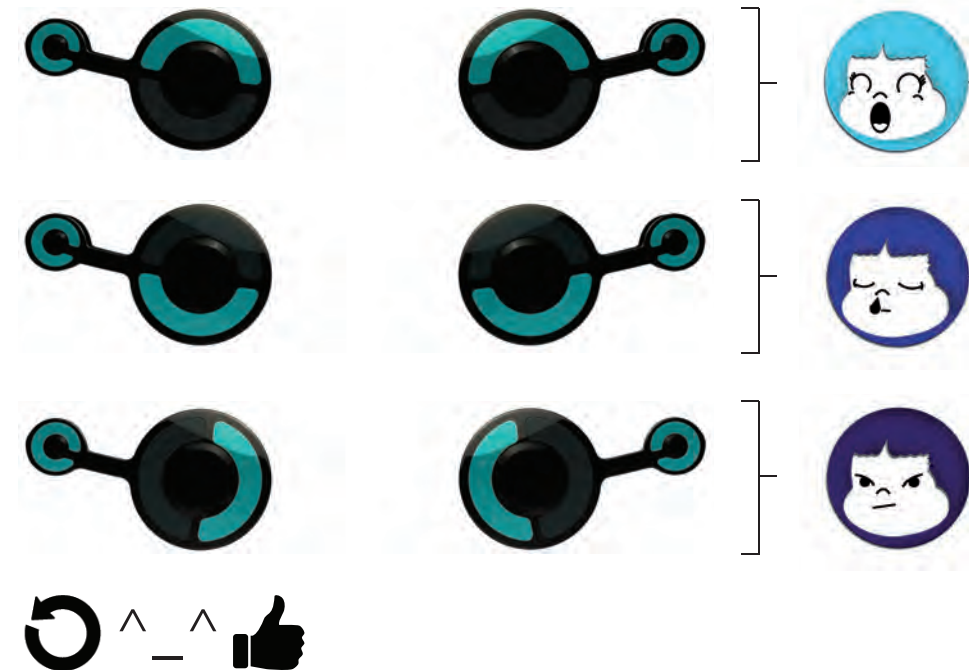


Exterior Detailing



User Interface | Quick Charge

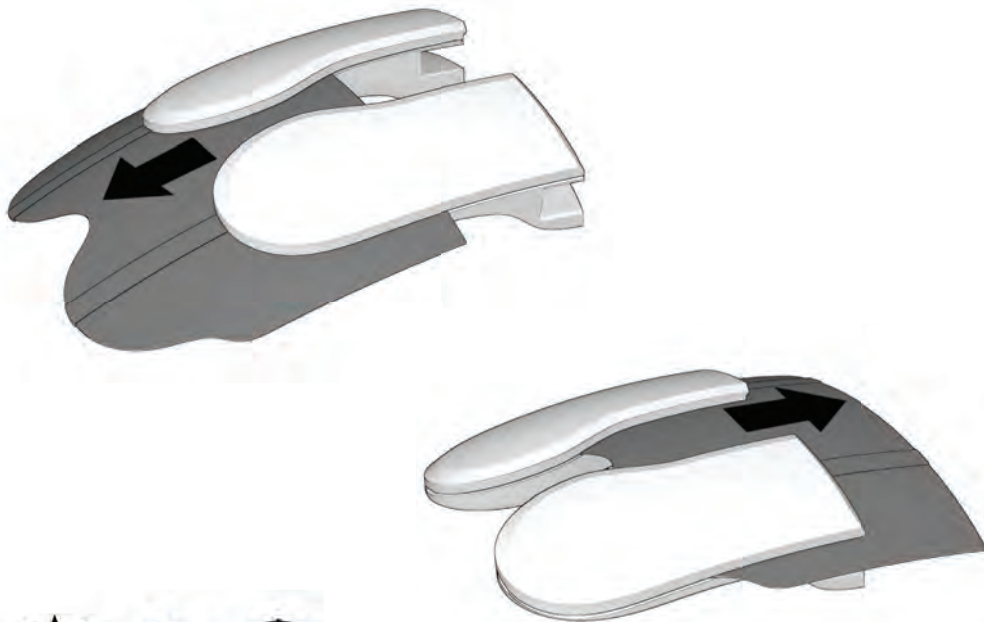
Door opening touch interface with tangible feedback through soft silky gel-body and backlight colour coded media facade. Power supply dock with lockable front, covered via push-pull admission for easy access.



Front Lights

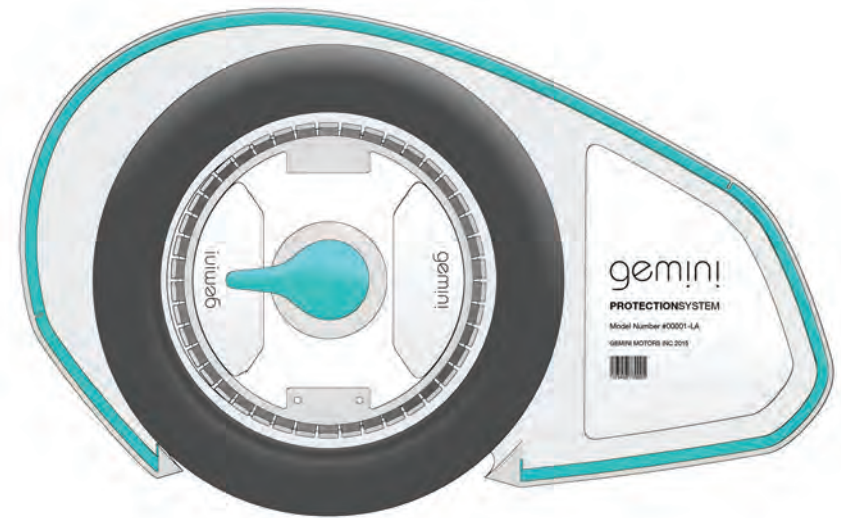
Emotional design through variable, stylised physiognomy based on the asian emoji expressions for feedback between the vehicle and both the passengers as well as its environment.

Exterior Detailing



Sun Screen | Rain Shield

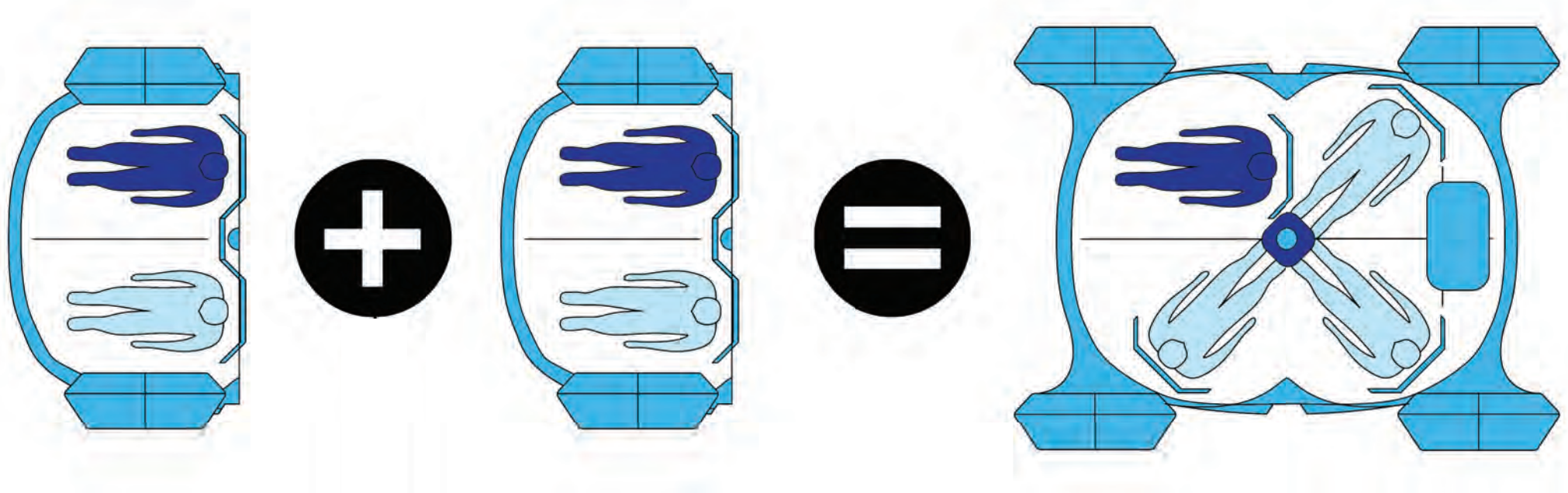
Retracting rain shield, mounted between the two A-pillars, forming a rain shield for the opening when two units are combined.



Wheel House Integration

Relocatable wheel house mounted on sled with integrated protection system for travelling with higher speeds.

Interior Functions



Connect Drive

$$1 + 1 = X$$

Gemini establishes the new seat structure position and additional loading space at the car's front and back. In this system the driver is given enough privacy to navigate the vehicle safely.

Communication Space



A lively communication space in it's 4-seater configuration is created . Two La units become one by turning of the rear panel / seat combination.

Interior Functions



Personal Console



Anti-Slip Armrest



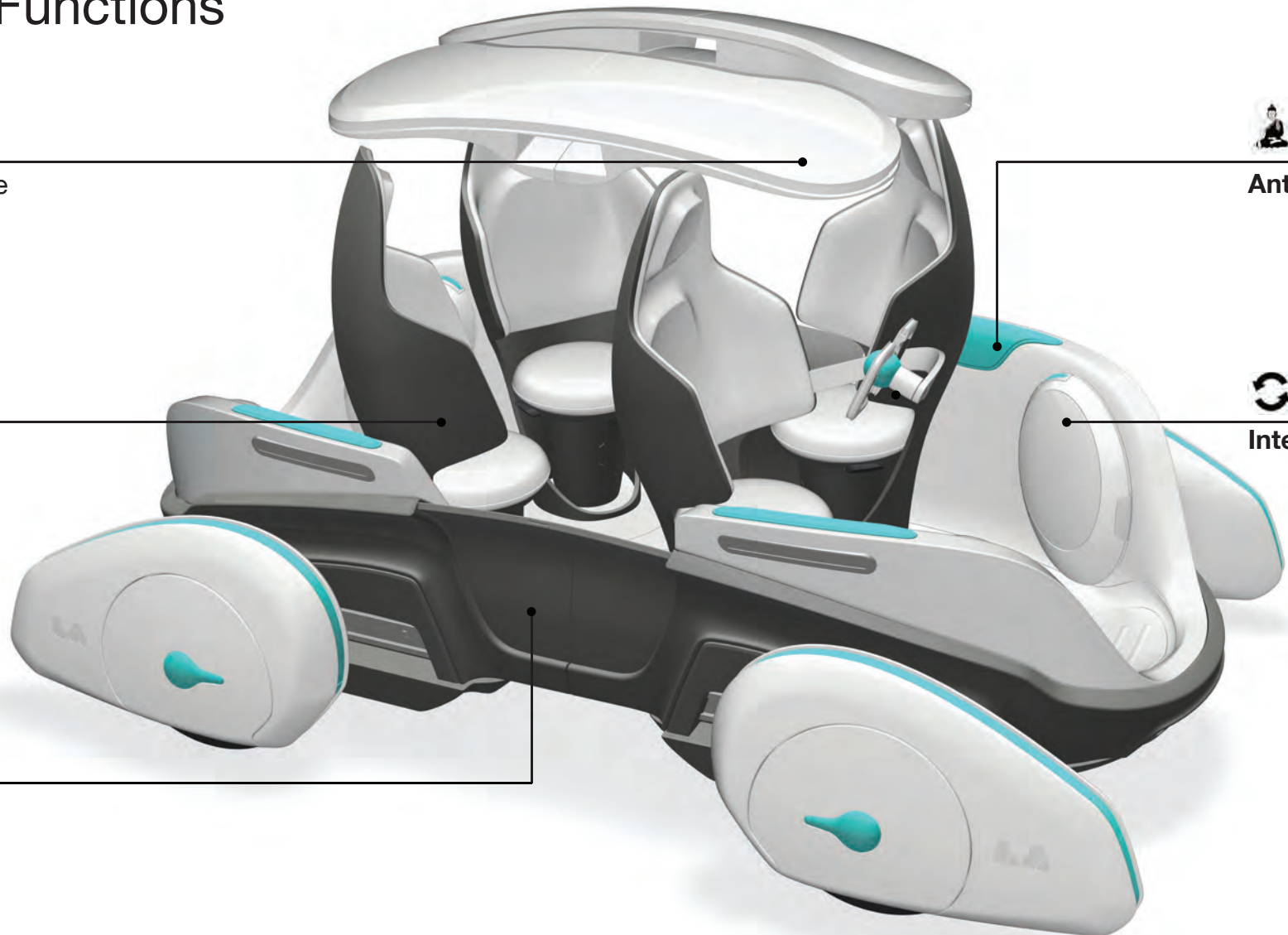
Rotatable Seats



Interior Plugin



Central Access



Interior Detailing



Personal Console

Multi-functional interface for each passenger - comparable to aircraft consoles.



Interior Plugin

Exchangeable plug-in units, enabling easy home integration and customisation.



Anti-Slip Armrest

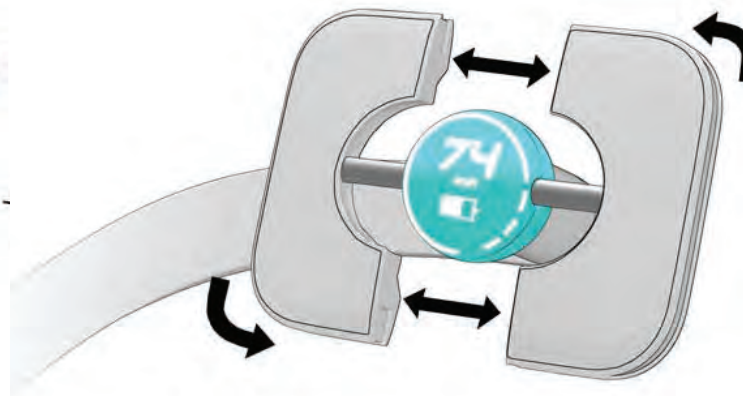
Silicone gel pad both as armrest as well as shelf space, holding objects on a slope due to occurring vacuums on microscopic levels.

Steering and Entertainment Unit



Steering Gemini La

The control unit is retracted and its both sides can be tilted to control the acceleration of each tire.



Steering Gemini LaLa

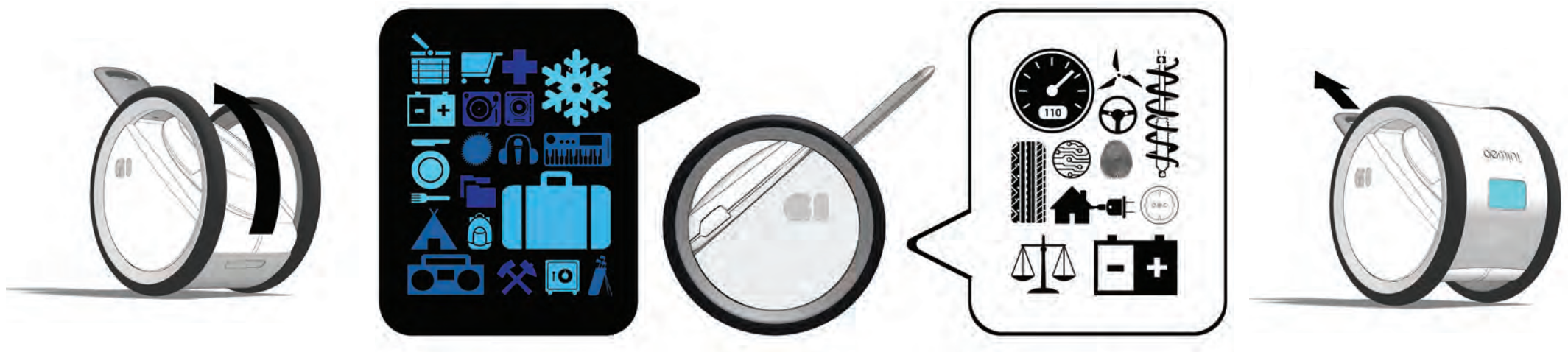
When used as a four person micro-car, the expanded steering unit of the Gemini resembles more a traditional steering wheel.



Travelling Gemini LaLa

The second control unit in the back of the LaLa can be placed in the middle of the passengers as entertainment center.

Add-On Unit Gi



Modular Storage

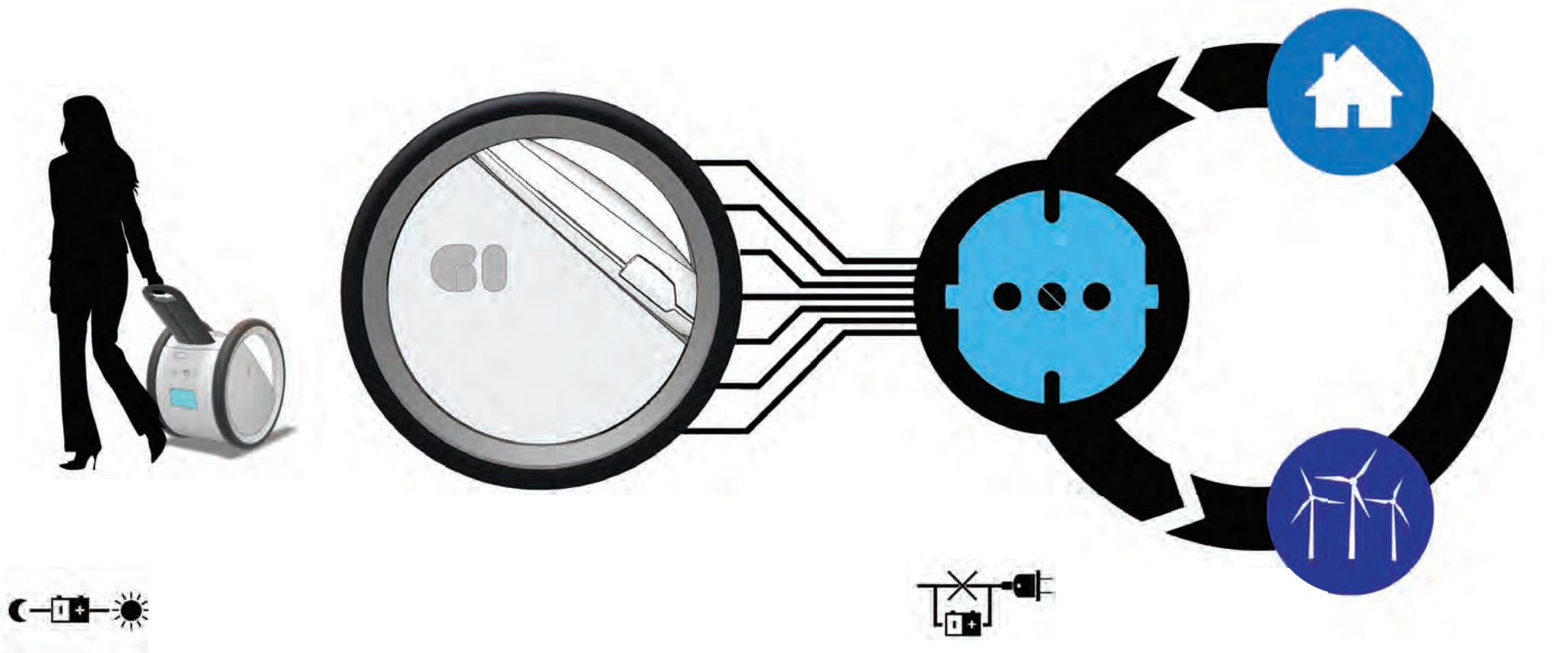
Shopping Cart. Electric Cooler. Suitcase. Safe. Toolbox. First Aid. Shrine Sound Equipment. Mobile Office. Range Extender. Camping Set.



Support Add-On

Long Distance Range Extender. Vehicle to Grid. Power Supply. Top Speed Plus. Curve Layout Improvement. Additional Engine.

Vehicle to Grid



Night Storage

Gi works as night storage to save energy during the evening or at night when base load electricity is available at lower cost, and releases it during the day.

UPS

As an uninterruptible power source (UPS), Gi functions as an electrical backup that provides emergency power when the input power source, e.g. LA, fails.

Gi Functions



Retractable Handlebar



Magnetic Connector

Range Extender

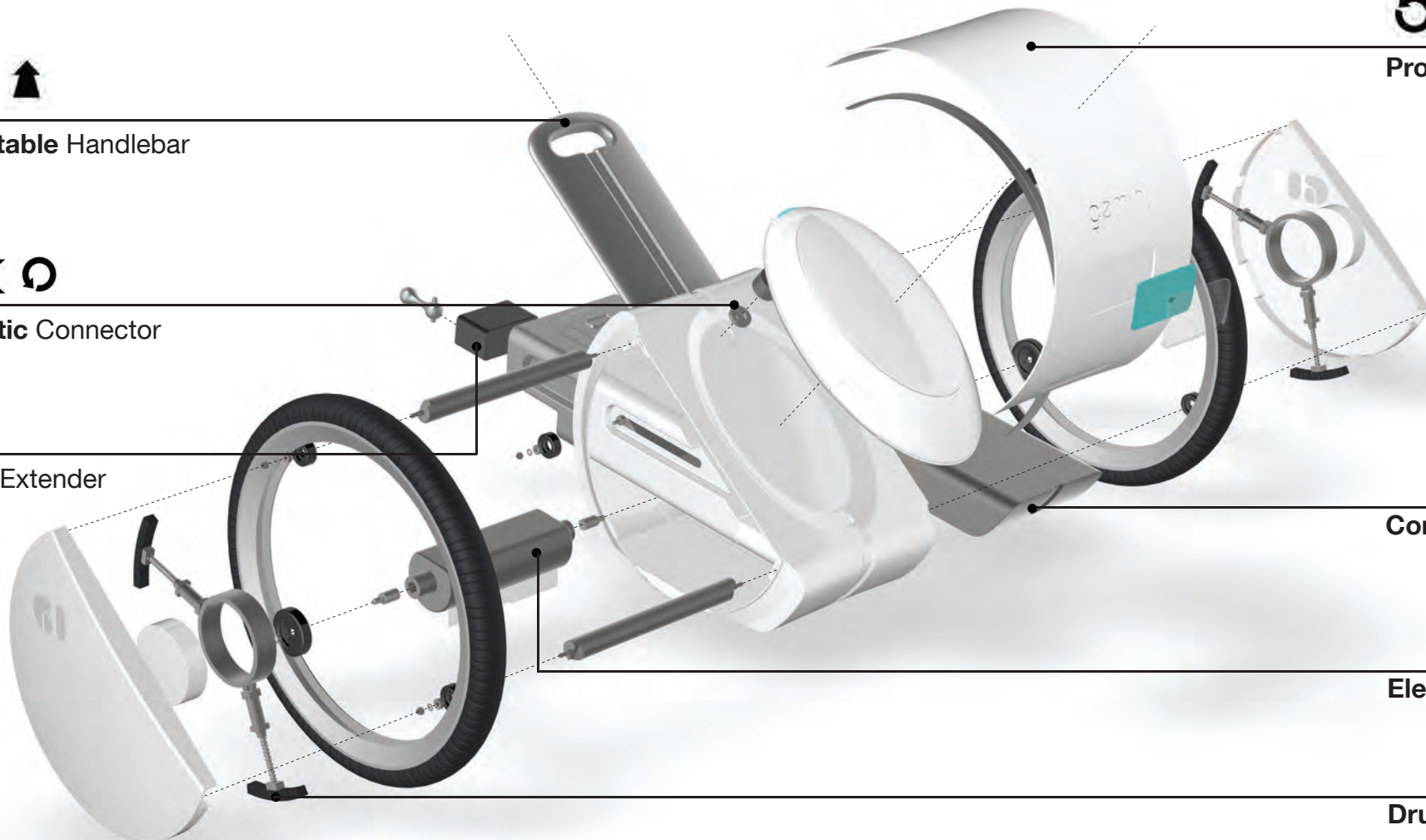


Protection Cover

Control Electronics

Electro Motor

Drum Brake



Gi Scenario



Assisted Shopping

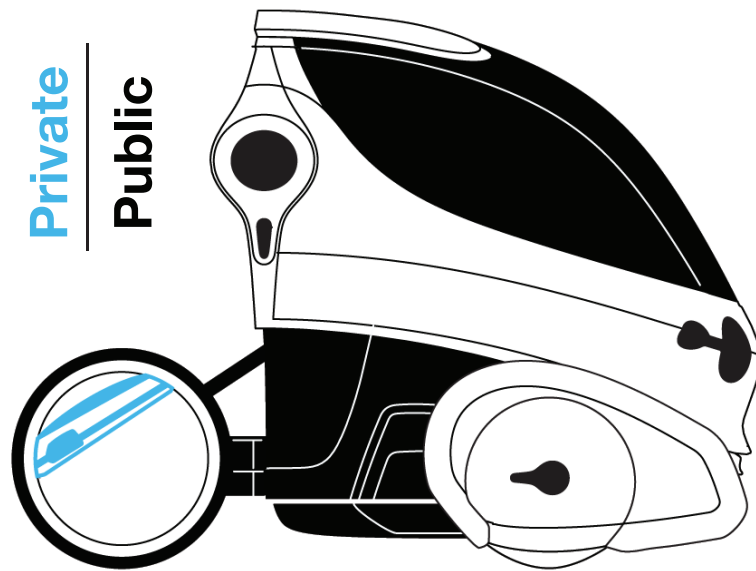
The GI uses its integrated technics in everyday occasions besides driving mode. The battery, engine and light can be used independently, serving the user in multiple scenarios like shopping.



Home Integration

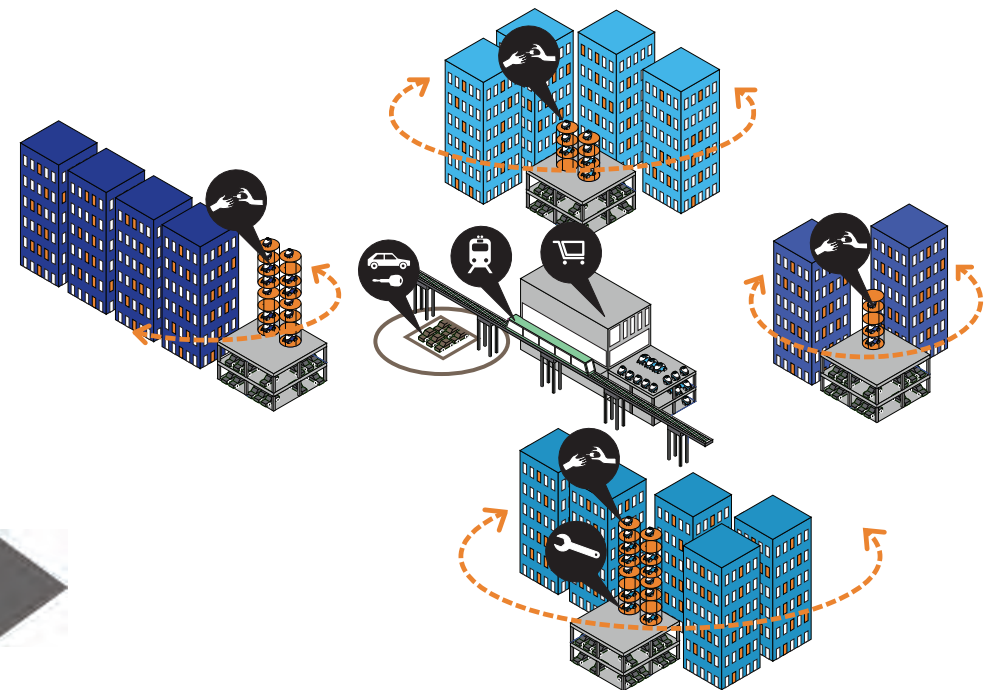
The Gi unit is seamlessly integrated into an HDB home, the main body being stored directly and the home entrance for vehicle to grid connection.

Infrastructure Implementation



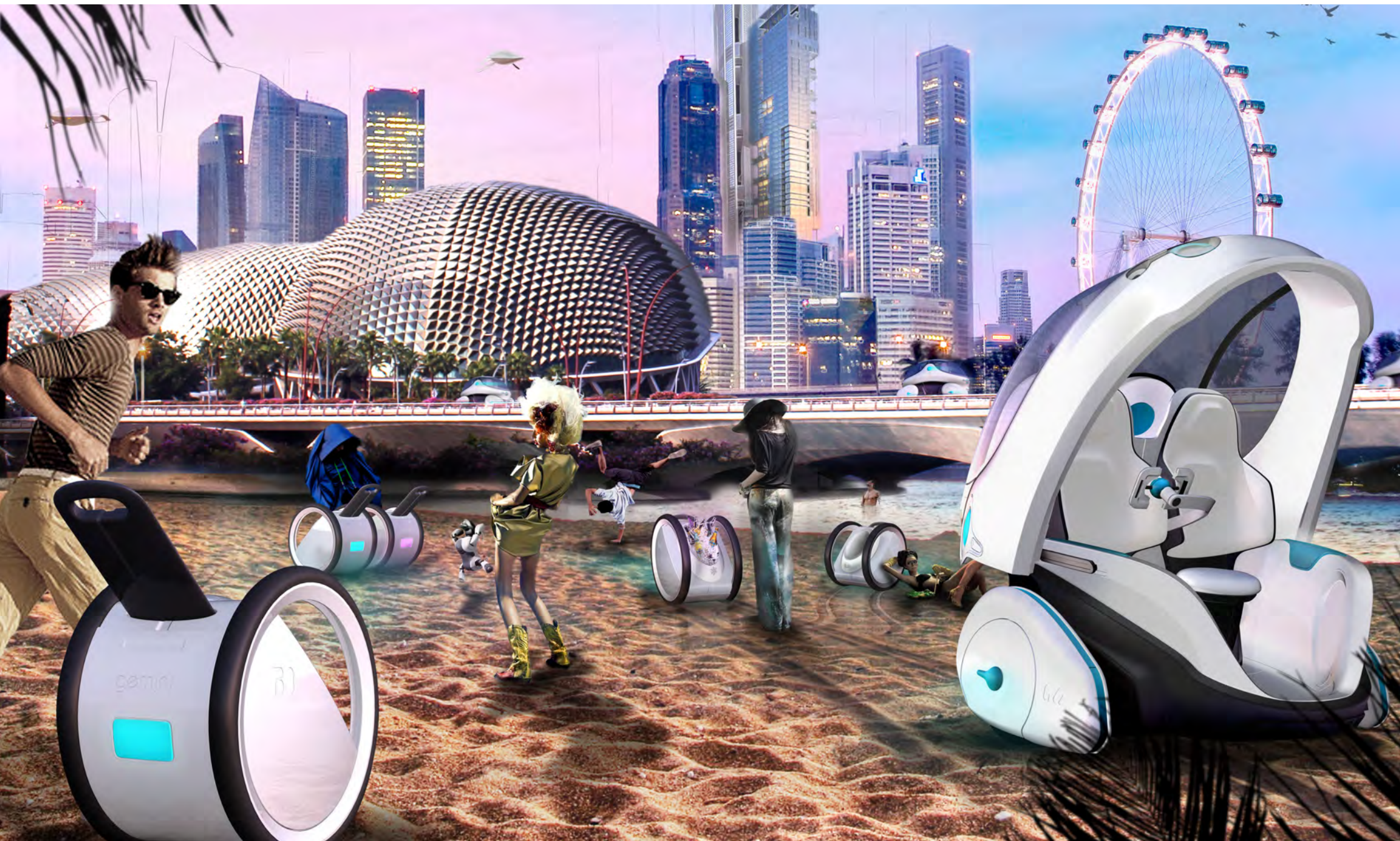
User Responsibility

The integration of personal belongings into a shared vehicle by splitting into a public and private part neglects the psychological barrier of sharing on of the most private objects.



HDB Car Sharing

The HDB, already responsible for housing and amenities in a Singaporean's live ensures the seamless integration of a shared vehicle in everyday routine.





Thank You For Your Attention.