Made for micro-transit and the urban environment

Jest Electric

Halit Özgür ALTINSOY
KARSAN
"There's no chance that iPhone is going to get any significant market share. No chance."

Steve Balmer, 2007
Former Microsoft's CEO

"I believe in the horse. The automobile is only a passing phenomenon."

Kaiser Wilhelm II, 1905
Last German Emperor

"I think there is a world market for maybe five computers."

Thomas Watson, 1943
President of IBM
Connecting rate of improvement and reach today...

$5$ million vs. $400$
Price of the fastest supercomputer in 1975\(^1\) and an iPhone 4 with equal performance

230+ million
Knowledge workers in 2012

$2.7$ billion, 13 years
Cost and duration of the Human Genome Project, completed in 2003

300,000+
Miles driven by Google’s autonomous cars with only one accident (human error)

3x
Increase in efficiency of North American gas wells between 2007 and 2011

85%
Drop in cost per watt of a solar photovoltaic cell since 2000

... with economic potential in 2025

2–3 billion
More people with access to the Internet in 2025

$5–7$ trillion
Potential economic impact by 2025 of automation of knowledge work

$100, 1$ hour
Cost and time to sequence a human genome in the next decade\(^2\)

1.5 million
Driver-caused deaths from car accidents in 2025, potentially addressable by autonomous vehicles

100–200%
Potential increase in North American oil production by 2025, driven by hydraulic fracturing and horizontal drilling

16%
Potential share of solar and wind in global electricity generation by 2025\(^3\)

Source: McKinsey Global Institute 2013
Karsan since 1966
Karsan as a Solution Provider

- Inspired by the veins of a human body
- A wide range of vehicles from 5 to 25 meters
Karsan Design Philosophy

**Competition**

- High volume, standard products

**Karsan**

- Customized solutions designed from scratch

- Fit for Purpose

**Adapted solutions**

*Based on high volume, standard products*
Urbanization

- In 1900s, Only 15% of the world population was living in cities. By 2010, this rate has came up to 50
- 12.5 % of the world urban dwellers live in Megacities

Source: United Nations


Aging world population

Population is poised to become one of the most significant social transformations of the twenty-first century, with implications for nearly all sectors of society.

Future of Automotive Industry

- Electric
- Shared
- Connected
- Autonomous
Electric

Connected

Shared

Autonomous
## Market

### Share of new car sales, 2030, Percent

<table>
<thead>
<tr>
<th></th>
<th>ICE</th>
<th>P(HEV)</th>
<th>BEV</th>
<th>Study</th>
<th>IHS Automotive</th>
<th>Global Strategy Analytics</th>
<th>Base case pull scenario</th>
<th>Break-through pull scenario</th>
<th>Base case push scenario</th>
<th>Break-through push scenario</th>
<th>Shell</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90</td>
<td>9</td>
<td>1</td>
<td>IHS Automotive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>22</td>
<td>2</td>
<td>Global Strategy Analytics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>22</td>
<td>2</td>
<td>Base case pull scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>30</td>
<td>14</td>
<td>Break-through pull scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>27</td>
<td>18</td>
<td>Base case push scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>30</td>
<td>23</td>
<td>Break-through push scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>43</td>
<td>12</td>
<td>Shell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: McKinsey&Company Analysis
Connected

- Electric
- Shared
- Autonomous
- Connected
Connected

New car sales:
Connected (US, EU, China), in millions

Source: Autofacts, PwC/ Strategy Analysis
Autonomous
Definition of Autonomy

Source: U.S. Department of Energy
# Launch Status of AV’s

<table>
<thead>
<tr>
<th>OEM</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>TESLA</td>
<td>2017</td>
<td>2020</td>
<td>2020</td>
</tr>
<tr>
<td>DAIMLER</td>
<td>2018</td>
<td>2020</td>
<td>2020s</td>
</tr>
<tr>
<td>GM</td>
<td>2018&amp;2019</td>
<td>2019</td>
<td>2019</td>
</tr>
<tr>
<td>TOYOTA</td>
<td>2017</td>
<td>2020</td>
<td>Post 2025</td>
</tr>
<tr>
<td>VW</td>
<td>2018</td>
<td>2021</td>
<td>Post 2025</td>
</tr>
<tr>
<td>BMW</td>
<td>2021</td>
<td>2021</td>
<td>Post 2020</td>
</tr>
<tr>
<td>PSA</td>
<td>2020</td>
<td>2021</td>
<td>ND</td>
</tr>
<tr>
<td>HONDA</td>
<td>2020</td>
<td>2025</td>
<td>ND</td>
</tr>
<tr>
<td>HYUNDAI-KIA</td>
<td>2018</td>
<td>2021</td>
<td>ND</td>
</tr>
<tr>
<td>FORD</td>
<td>ND</td>
<td>2021</td>
<td>ND</td>
</tr>
</tbody>
</table>

**Legend**

- **EARLY**
- **AVERAGE**
- **LATE**

Source: Bloomberg Intelligence
Shared

Using ride-hailing services, % of respondents

If you use ride-hailing services, how will your usage evolve in the next 2 years?

- Decrease or decrease a lot: 5%
- Stay the same: 32%
- Increase or increase a lot: 63%

Using car-sharing services, % of respondents

If you use car-sharing services, how will your usage evolve in the next 2 years?

- Decrease or decrease a lot: 4%
- Stay the same: 29%
- Increase or increase a lot: 67%

Source: McKinsey&Company
Share-economy in Turkey

Minibus Concept: Indispensable complement to modern urban transit
## Istanbul Public Transportation

<table>
<thead>
<tr>
<th>Transportation Mode</th>
<th># of Line</th>
<th># of Vehicle</th>
<th># of Passenger per day (mio)</th>
<th>Percentage in motor vehicle transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>763</td>
<td>5800</td>
<td>2.6</td>
<td>16</td>
</tr>
<tr>
<td>Minibus</td>
<td>461</td>
<td>7032</td>
<td>1.7</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Istanbul Annual Transportation Report 2016
get FIT in CITY
<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Power</td>
<td>125 kW</td>
</tr>
<tr>
<td>Range</td>
<td>210 (km) NEDC</td>
</tr>
<tr>
<td>Battery</td>
<td>360V - 88 kWh</td>
</tr>
<tr>
<td>AC Type 2 Charger</td>
<td>74 kWh - 8h</td>
</tr>
<tr>
<td>Combo 2 Charger</td>
<td>50 kWh - 1.2h</td>
</tr>
</tbody>
</table>

Jest Electric
Jest Electric

High Maneuverability

Superior Driving Compartment
Jest Electric

Panoramic view

Original low floor with wheelchair accessibility
Thank you!

Halit Özdür Altınsoy
ozgur.altinsoy@karsan.com.tr