Car Infotainment Tech Trends

Last three decades and the exciting next 5 years

DESAY SV
automotive

Ewe Teik Eng
Head of Advanced Development

01

Contents

- Overview
- Tech Trends
- Transformative Technology
- Reinventing The Future

Development Of Car Industry In China

1952 — The Beginning
- Military Needs
- FAW JieFang CA-30
- Russian Technology

1984 — Market Liberation
- JV with the West
- Toyota, Nissan, Daihatsu AMICA, Chrysler, VW, Citroen, Hyundai

1994 — Local Branding
- Originated from defense industry
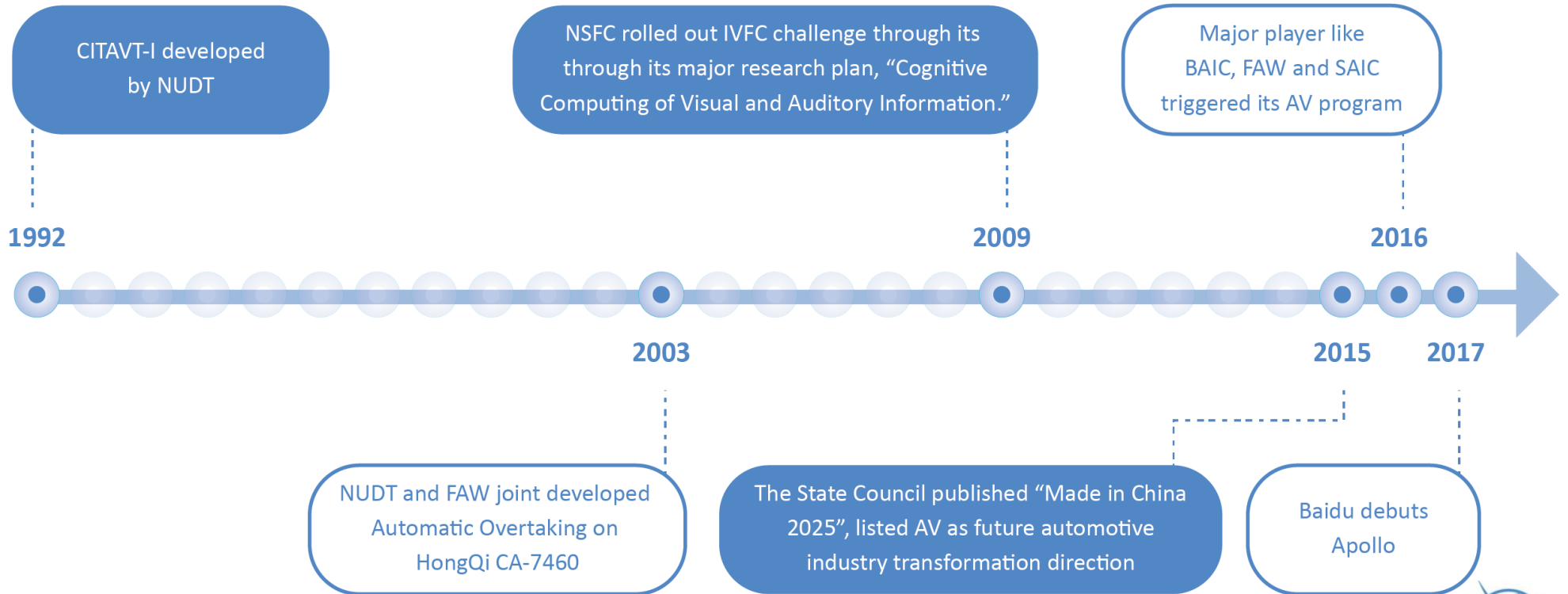- Geely, Great Wall, Changan Motors, Changhe

2011 — New Energy Vehicle
- Initiated in 10th 5 year plan
- SOP at 2011, >500k unit on 2016
- 1.7 million unit

Becoming world No.1 vehicle producer since 2009

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ICV Technology Development In China

CITAVT-I developed by NUDT

NSFC rolled out IVFC challenge through its through its major research plan, "Cognitive Computing of Visual and Auditory Information."

Major player like BAIC, FAW and SAIC triggered its AV program

1992

2009

2016

2003

2015   **2017**

NUDT and FAW joint developed Automatic Overtaking on HongQi CA-7460

The State Council published "Made in China 2025", listed AV as future automotive industry transformation direction

Baidu debuts Apollo

Policy Drive of ICV in China

Event	Date	Impact
<Made in China 2025>	May 2015	The first government policy that clearly defined ICV as future transformation direction for automotive industry
<Equipment Manufacturing Standardization and Quality Improvement Plan>	April 2016	Commencement of standardization work on ICV industry
<National Automotive Industry Medium-Long Term Development Plan>	Jun 2017	Increase support for R&D, push for broadband infrastructure development and cross industrial development of big data sharing platform for automotive, accelerate the construction of cyber security & traffic safety system development
<National Standards System of Telematics Industry (Intelligent & Connected Vehicles)> –draft	Jun 2017	Establish intelligent & connected vehicle industry based on "Car as the core, integration of intelligent capability as main aim, seconded by connectivity effort"
<Development Plan on the New Generation of Artificial Intelligence>	July 2017	Advocate open and coordinated innovative AI system, elevate AI industry into the global high-end value chain, Research coordination sensing and interaction aimed at autonomous unmanned systems

Power of Youth: China's Consumer Culture

China 90s grow up with Internet, highly interest in internet culture.

90s Consumers
17%
2014

90s Consumers
27%
2017

90s Consumers
45%
2020E
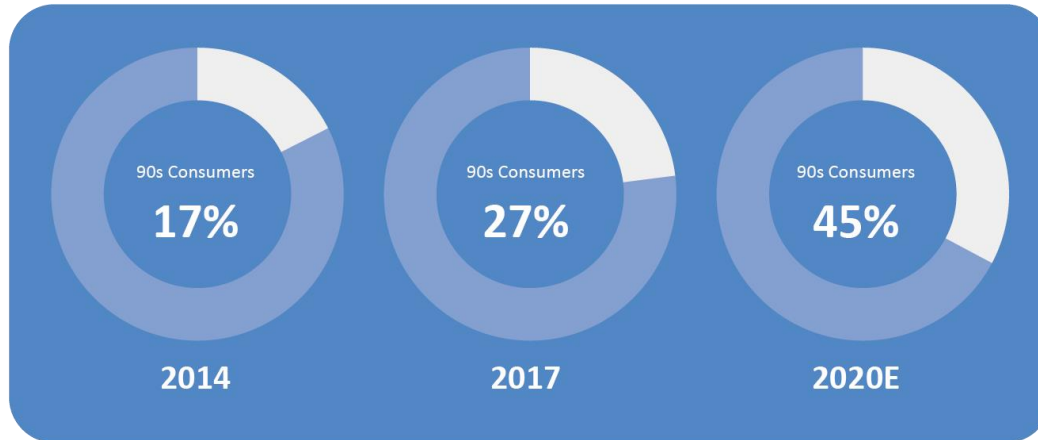
More force on Car's cosmetic, entertainment and high-tech.

· **Brand Conscious**
· **Social Media Reliance**
· **Tech Savvy**
· **Instantaneous & Sophisticated**

02 — Contents

- Overview of Automotive & Multimedia in China
- Trend Variation
- Key Technology
- Reinventing The Future
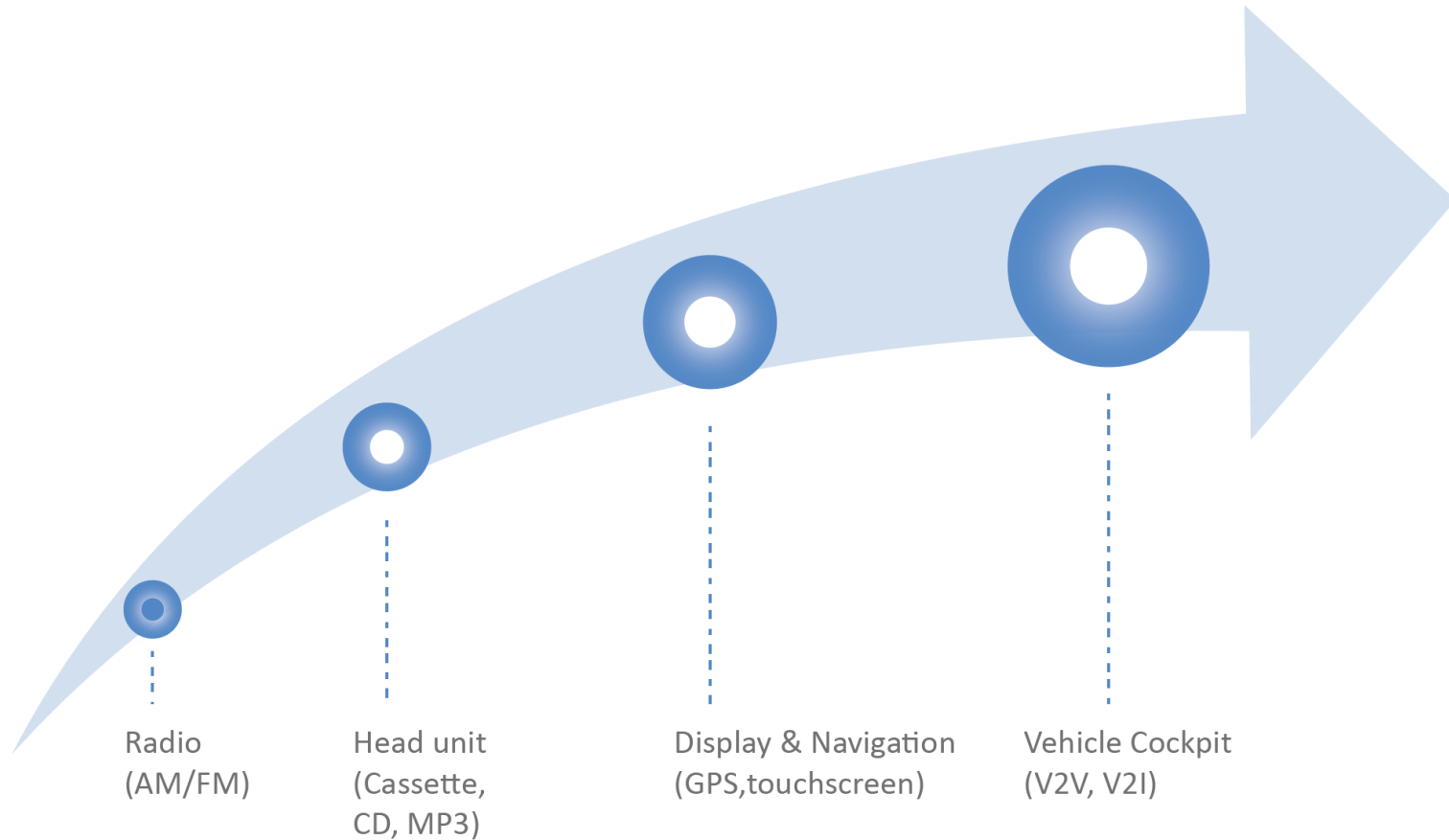
Development Of Car Industry In China

Previous

Current
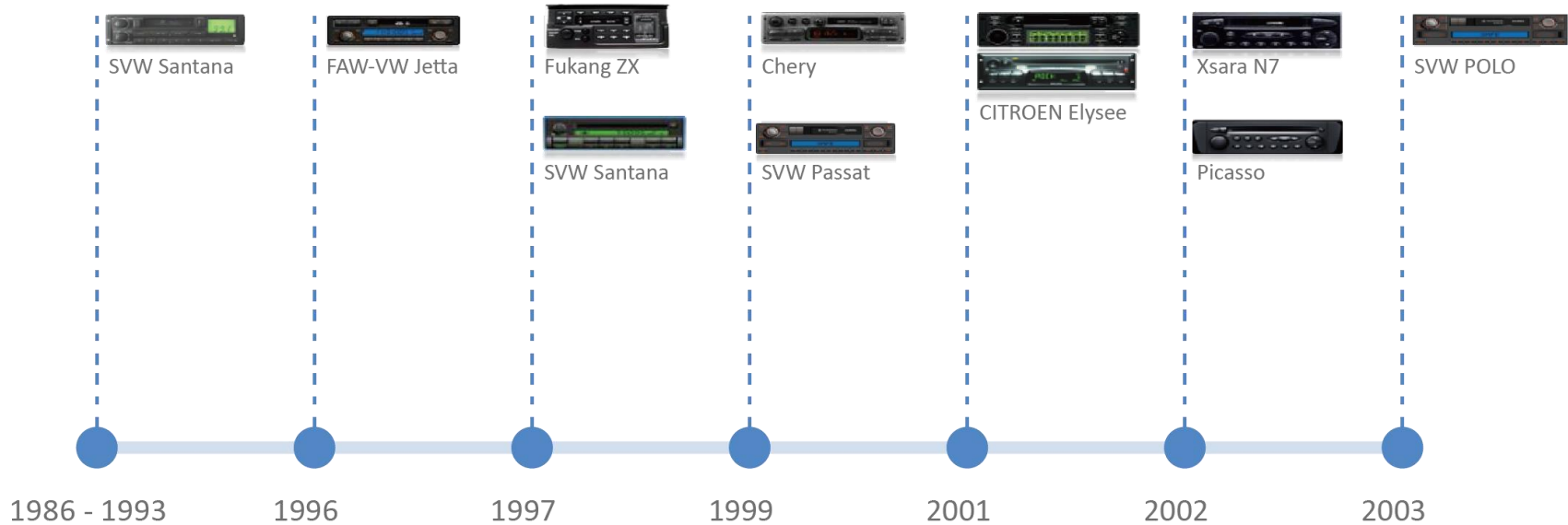
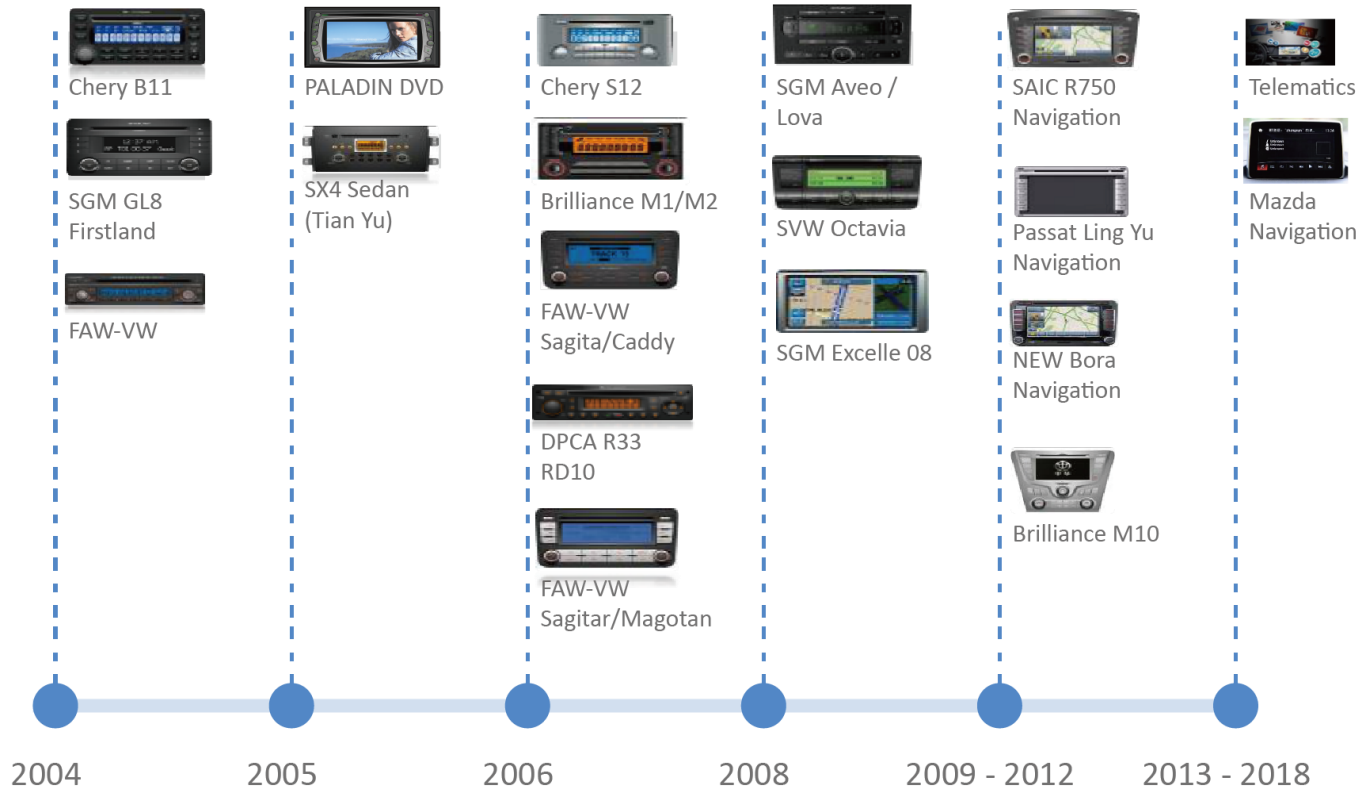# The evolution of the interior

Previous

Current

Car Infotainment Systems Trends in China

Radio
(AM/FM)

Head unit
(Cassette,
CD, MP3)

Display & Navigation
(GPS,touchscreen)

Vehicle Cockpit
(V2V, V2I)

Infotainment products in China market (Standalone unit)

SVW Santana

FAW-VW Jetta

Fukang ZX

Chery

CITROEN Elysee

Xsara N7

SVW POLO

SVW Santana

SVW Passat

Picasso

1986 - 1993   1996   1997   1999   2001   2002   2003

Infotainment products in China market (Standalone unit)

2004
- Chery B11
- SGM GL8 Firstland
- FAW-VW

2005
- PALADIN DVD
- SX4 Sedan (Tian Yu)

2006
- Chery S12
- Brilliance M1/M2
- FAW-VW Sagita/Caddy
- DPCA R33 RD10
- FAW-VW Sagitar/Magotan

2008
- SGM Aveo / Lova
- SVW Octavia
- SGM Excelle 08

2009 - 2012
- SAIC R750 Navigation
- Passat Ling Yu Navigation
- NEW Bora Navigation
- Brilliance M10

2013 - 2018
- Telematics
- Mazda Navigation

IVI Building Blocks & Features

Radio Series

AM/FM/RDS	USB/SD/Aux
Bluetooth	Media

Display Audio Series

RVC	Video
CarPlay	Car Life

Navigation Series

Touch HD	Navi	Android
Internet	Wi-Fi	
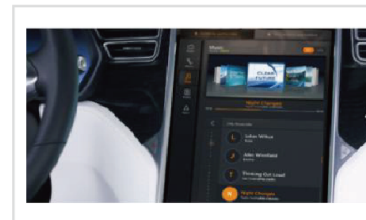
Smart Internet IVI Series

VR	HTML5
T-Box	Multi-screen

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Changes brought by ICV (Intelligent Connected Vehicle)

Driving Assistance	Partial Automation	Conditional Automation	High Automation	Full Automation
Driver Observation Direction Gears Start Brake	Driver Observation	Driver Determinant Condition	Driver	Safety behaviors Observation Direction Gears Start Brake
Direction Brake	Direction Gears Start Brake	Observation Direction Gears Start Brake	Safety behaviors Observation Direction Gears Start Brake	

Driving Assistance   **Intelligent Driving**

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Intelligent Cockpit

Intelligent driving

Intelligent connection

Intelligent Cockpit

User experience
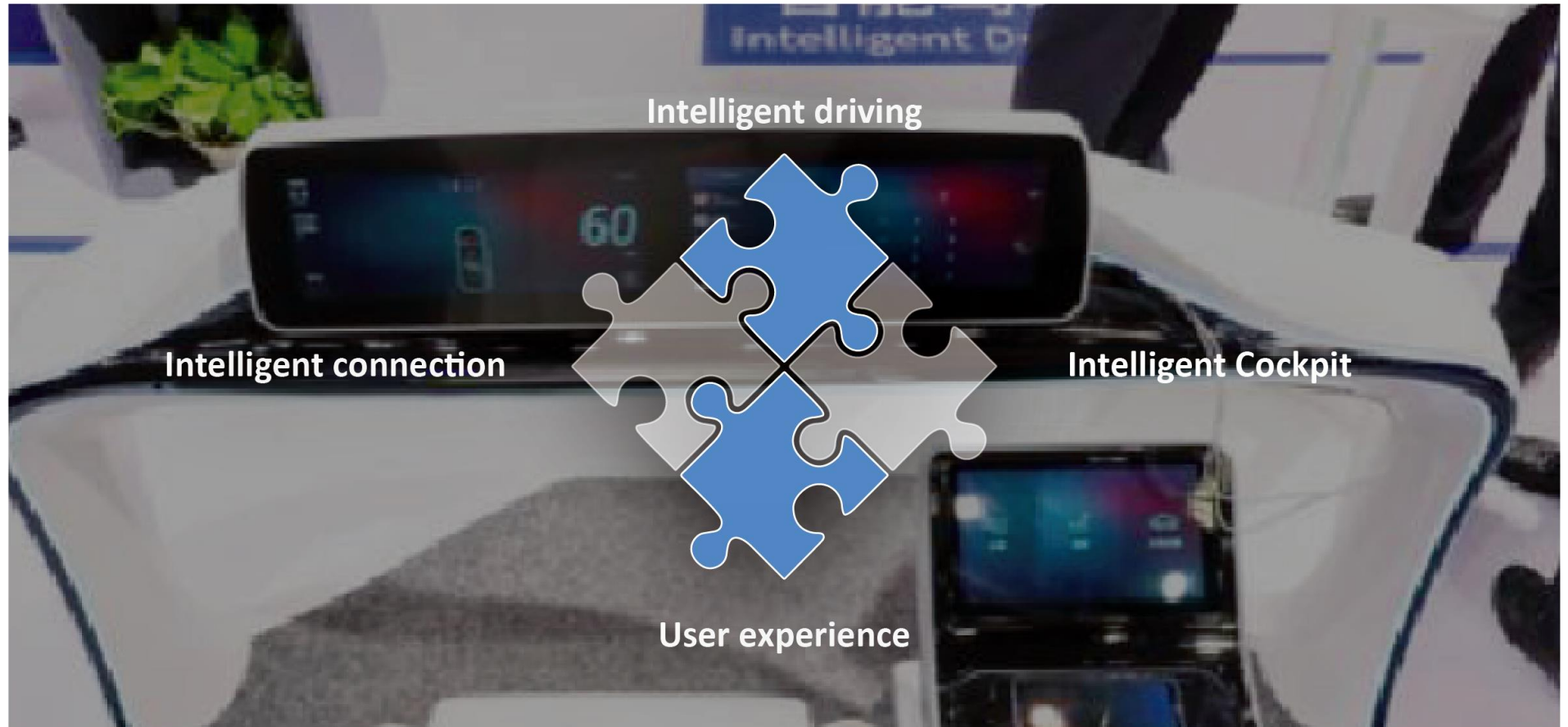
Functional division of different screens
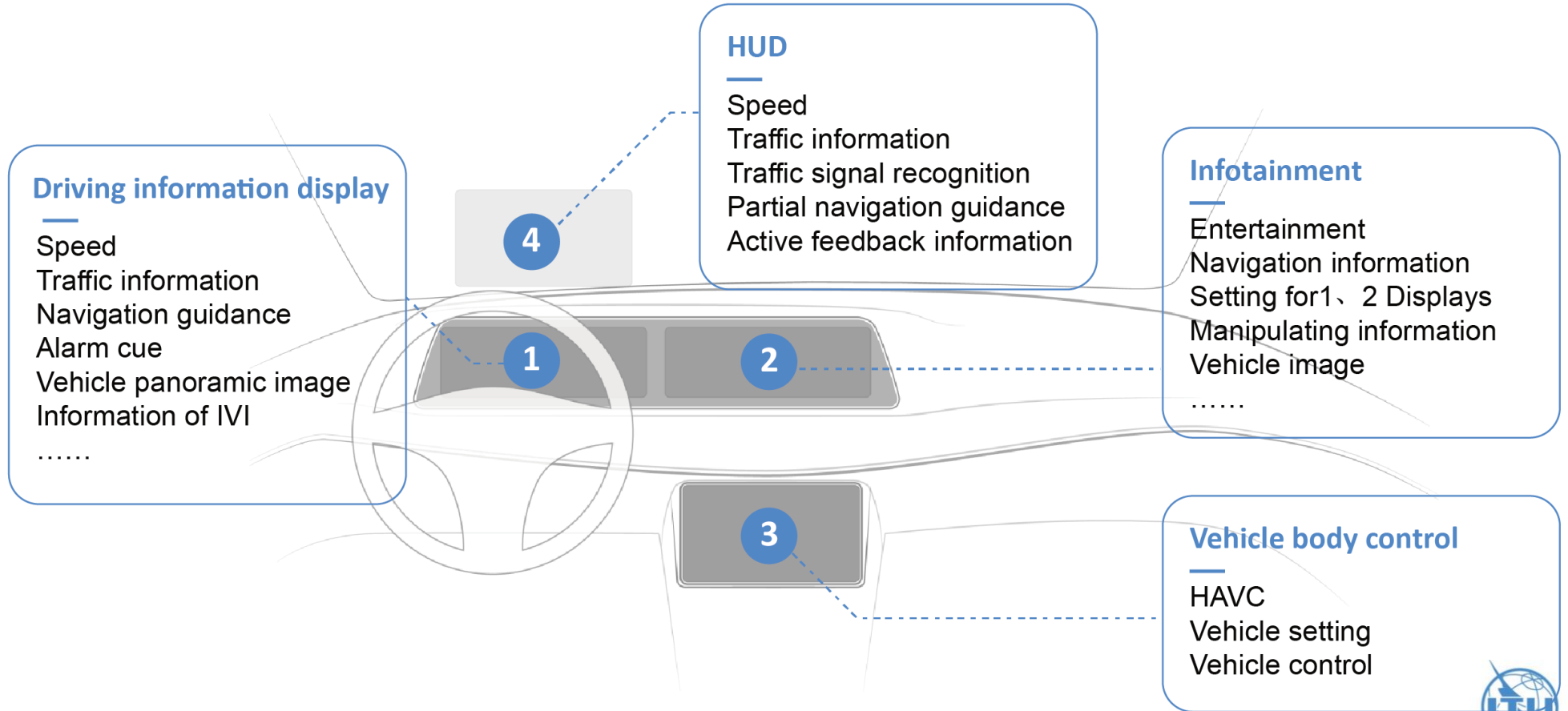
Driving information display

Speed
Traffic information
Navigation guidance
Alarm cue
Vehicle panoramic image
Information of IVI
……

HUD

Speed
Traffic information
Traffic signal recognition
Partial navigation guidance
Active feedback information

Infotainment

Entertainment
Navigation information
Setting for1、2 Displays
Manipulating information
Vehicle image
……

Vehicle body control

HAVC
Vehicle setting
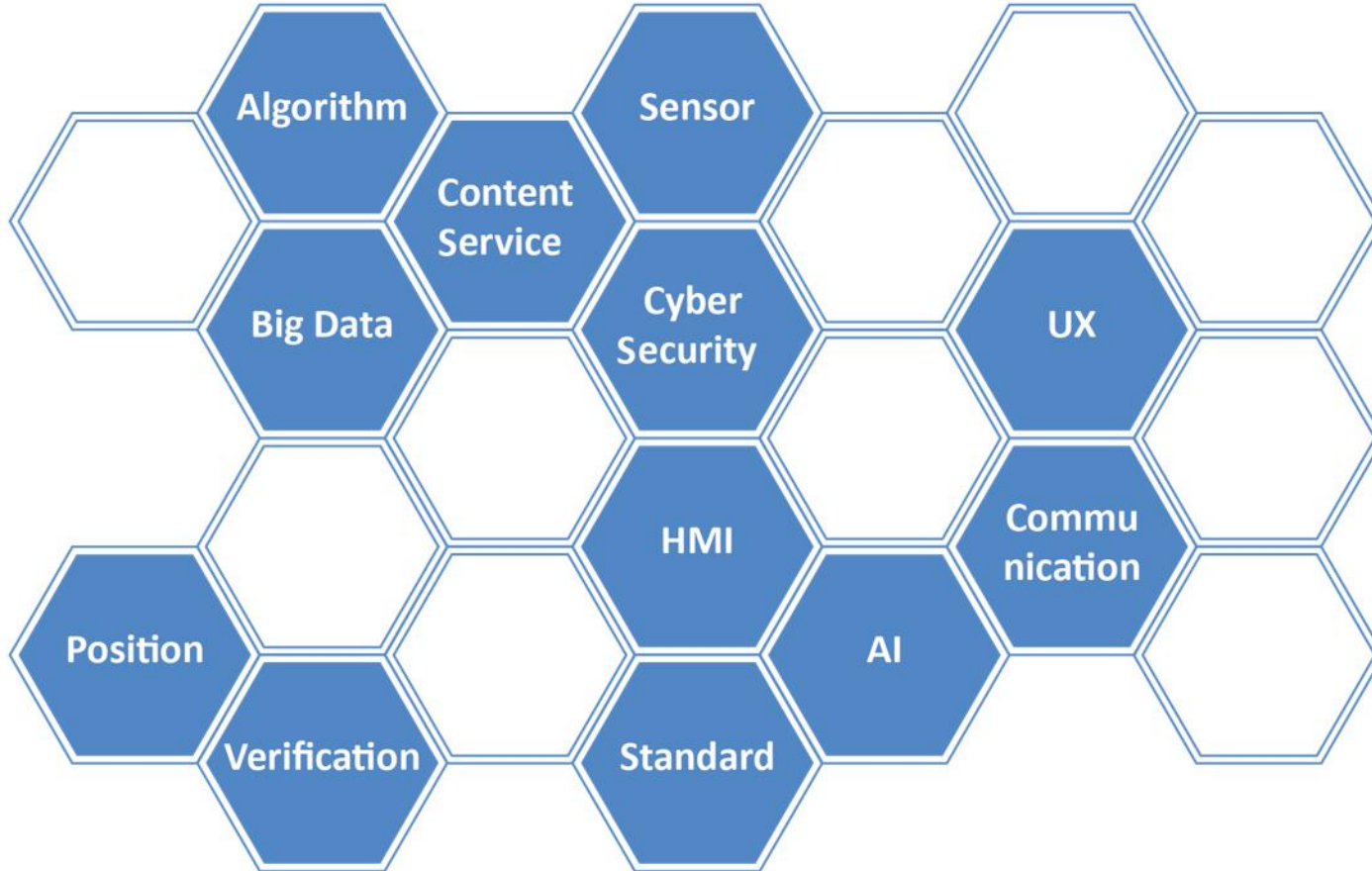Vehicle control

1
2
3
4

ITU

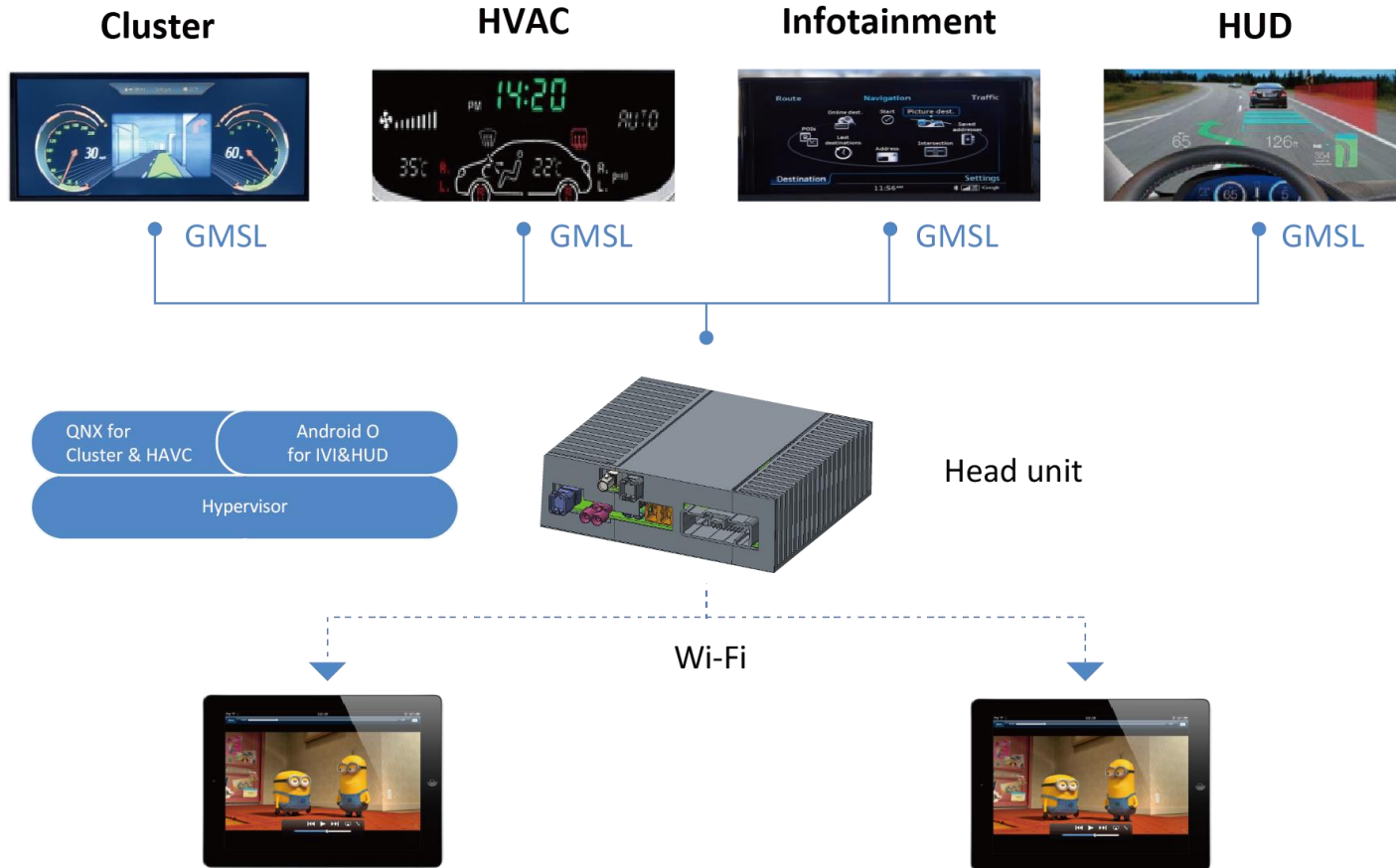# 03
Contents

Key Technology Trends

- Integrated design

- Hypervisor

- Automotive Network: high bandwidth, low latency.

- Connected

- Cyber Security

- Augmented Reality application

- Artificial Intelligence

- User Experiences
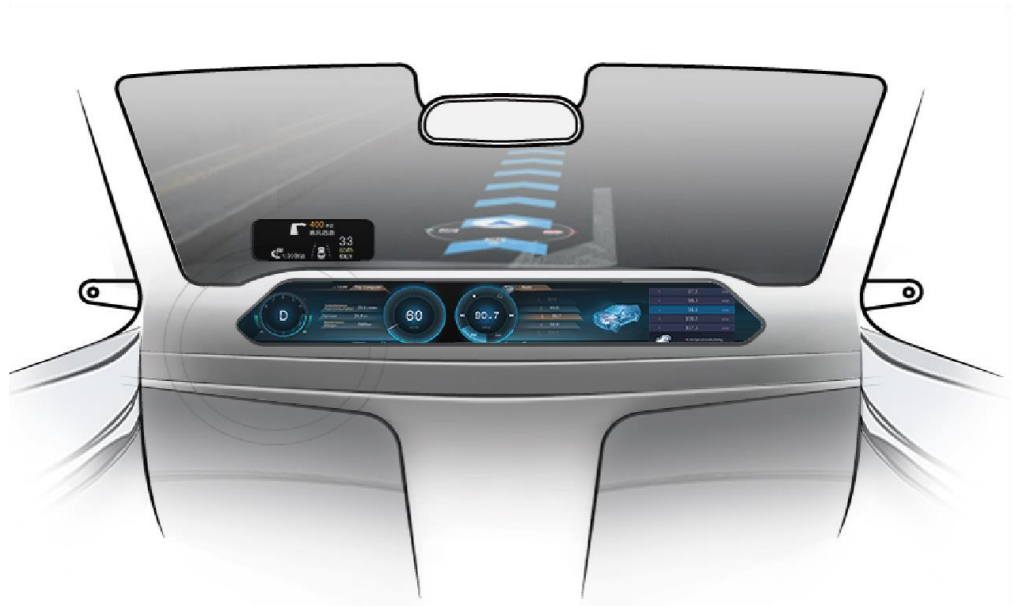
Key Technical Fields

Intelligent cockpit solution

Cluster **HVAC** **Infotainment** **HUD**

GMSL GMSL GMSL GMSL

QNX for Cluster & HAVC | Android O for IVI&HUD

Hypervisor

Head unit

Wi-Fi

04 Contents

Integration Cockpit Roadmap

Gen 3
Artificial Intelligence, New features...

V2X, AR HUD, Hypervisor, Instrument cluster,
HVAC, Entertainment, Navigation, Connectivity

TBD

Gen 2
VV2X, AR HUD

Hypervisor, Instrument cluster, HVAC,
Entertainment, Navigation, Connectivity

2019

Gen 1

Hypervisor, Instrument cluster, HVAC,
Entertainment, Navigation, Connectivity

2017

Launches 2021+

Launches 2019+
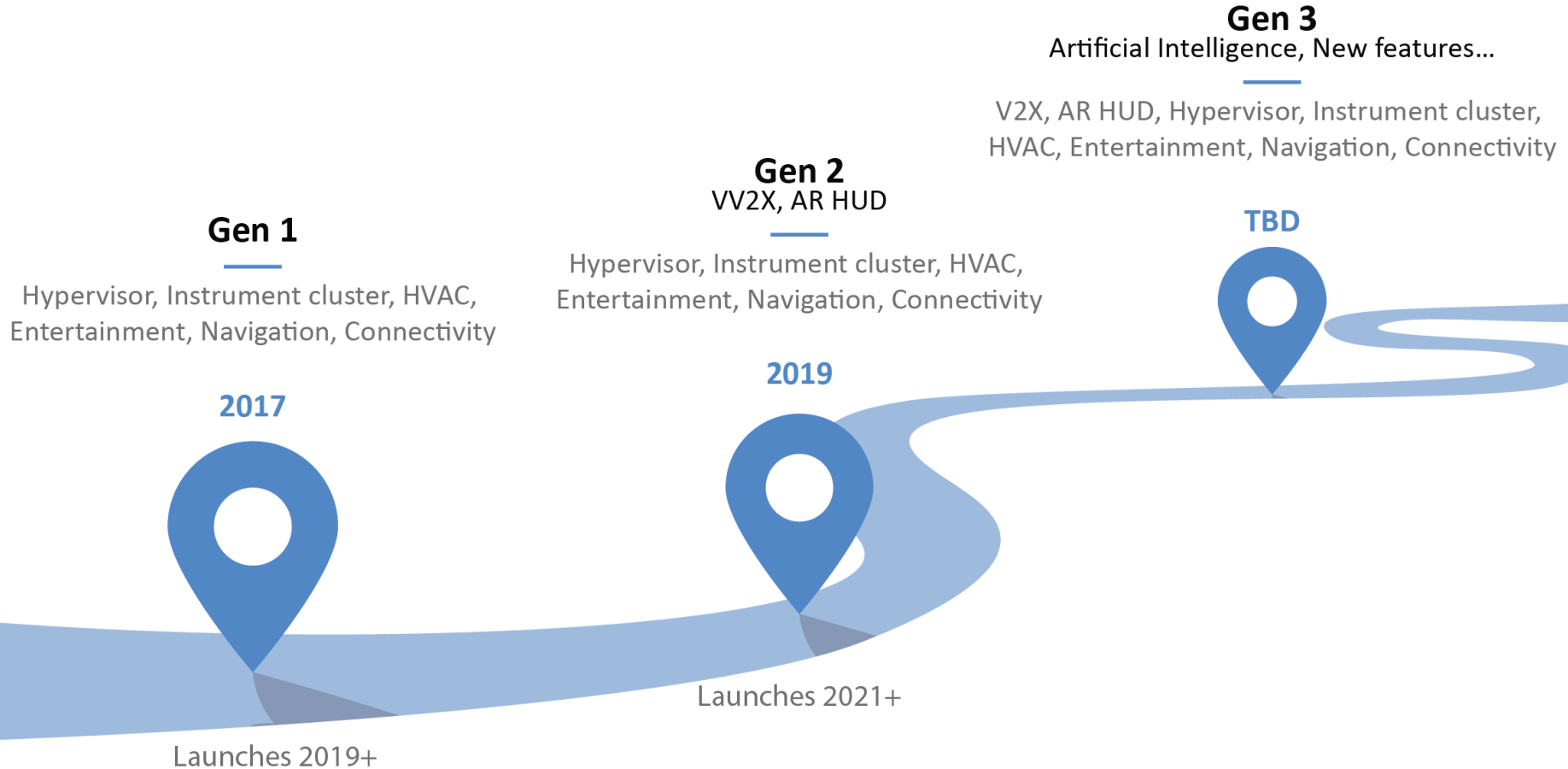
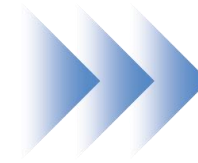# Concept of Development

Standalone

Independent function
No information interaction
Simple HMI

Interconnected

Multifunction display
Information interaction
Complicated HMI

Integration

Large screen display
Mass information integration
Comfortable HMI

Vision

To be the preferred partner of global automotive industry through innovation and supplying value professionally