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# China TSP and Ecological Construction Research Report, 2022

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# TSP research: the coverage of TSPs has spread from IVI, cockpits to vehicles.

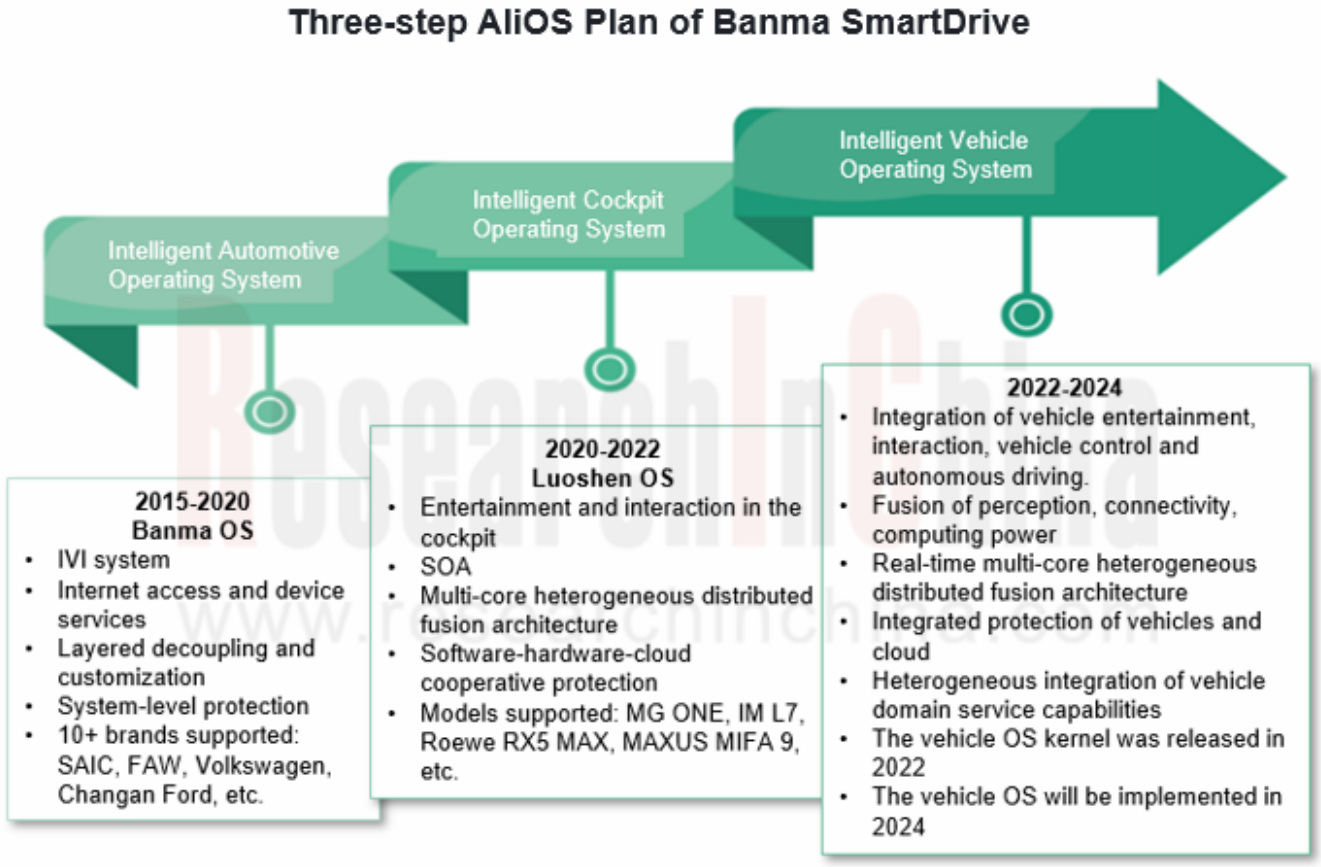
**TSP research: the coverage of TSPs has spread from IVI, cockpits to vehicles.**

With the emergence of Internet of Vehicles, telematics service providers (TSPs) take on the roles of operation platforms, service platforms, cloud platforms and data platforms, and provide services such as call centers, navigation and positioning, audio-visual entertainment, vehicle monitoring, remote upgrade and information security. Influenced by the concept of intelligent cockpits, automotive functions are being redefined. TSP have been constantly enriching their services, and expanding the coverage.

**1. From the perspective of service scope, TSPs gradually expand their coverage along the path of "IVI → cockpits → vehicles"**

Advances in technologies such as cockpit-driving integration and central computing platforms have made the demand for ecological expansion in the vehicle rigid. TSPs' business scope is spreading from automotive OS to cockpit OS and vehicle OS.

For example, Banma SmartDrive has made a definite three-step plan for its AliOS. From 2015 to 2020, it should realize customization based on layered decoupling and develop intelligent automotive OS. From 2020 to 2022, it should build intelligent cockpit OS based on the heterogeneous distributed fusion architecture. From 2022 to 2024, it should accomplish intelligent vehicle OS based on the time-sharing multi-core heterogeneous distributed fusion architecture.



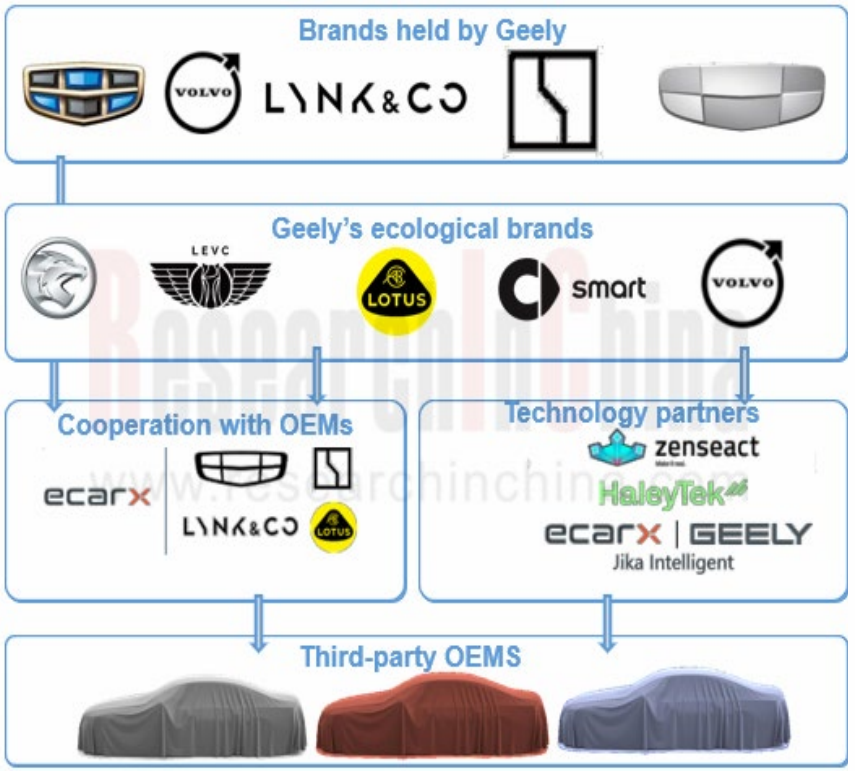

Source: Banma SmartDrive

# From the perspective of business model, TSPs led by OEMs are seeking business independence

ECARX, a TSP invested by Geely, has contributed significantly to the construction and operation of Geely's IVI system. It has not only helped Geely upgrade G-NetLink to GKUI, but also achieved interoperability with popular ecosystems such as Tencent, Baidu and Alipay by building a unified account system. It has developed Galaxy OS and Galaxy OS Air, the next-generation intelligent cockpit systems, with Visteon and Qualcomm, enabling multi-screen interaction (clusters, center consoles, co-driver screens, AR-HUD), multi-domain integration (power domain, chassis domain and body domain) as well as more natural human-computer interaction.

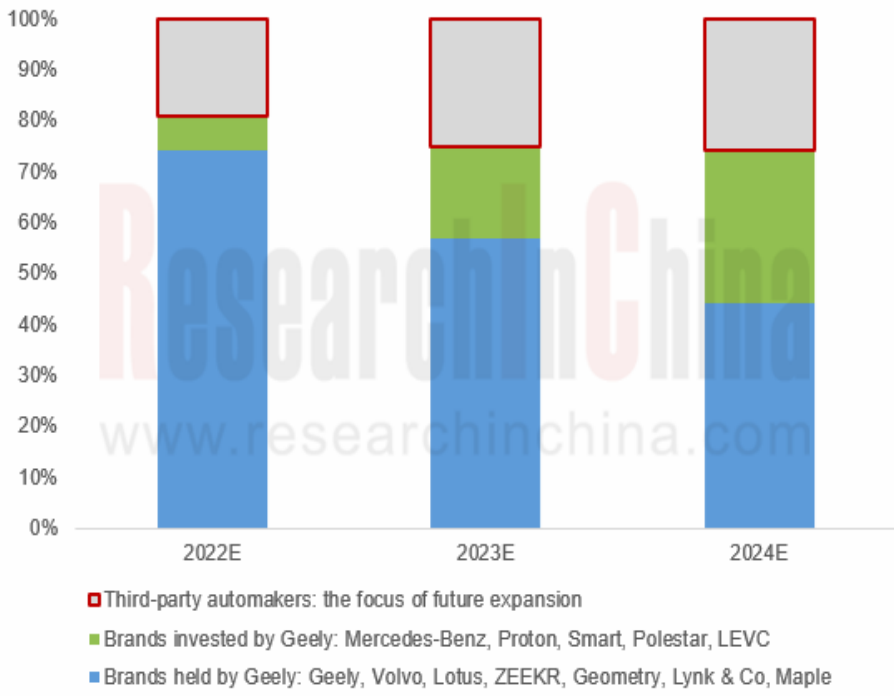
As of the first half of 2022, ECARX's TSP solution had landed in 3.2 million vehicles, mainly in Geely's 12 brands. In May 2022, ECARX hoped to upgrade the enterprise image and expand the market through the listing on NASDAQ. The focus of market expansion transfers from Geely to third-party suppliers. According to the plan, third-party automakers will contribute about 24% to the revenue of ECARX in 2024.

**ECARX's Service Brand Development**




Source: ECARX

**Forecast for ECARX's Revenue Structure**




Source: ECARX

# From the perspective of ecological content, cross-terminal information flow will infinitely broaden the service boundary

**3. From the perspective of ecological content, cross-terminal information flow will infinitely broaden the service boundary.**

ICT suppliers represented by Huawei are committed to transplanting the mobile phone ecology into vehicles in the field of TSP, with the "flow" of information as the highlight.

Huawei HarmonyOS is a future-oriented distributed intelligent operating system for all scenarios. In the form of building the underlying operating system, it organically links people, equipment and scenarios through a super virtual terminal, connects with applications via communication, and extends the advantages of mobile phones to IVI and other peripheral devices.

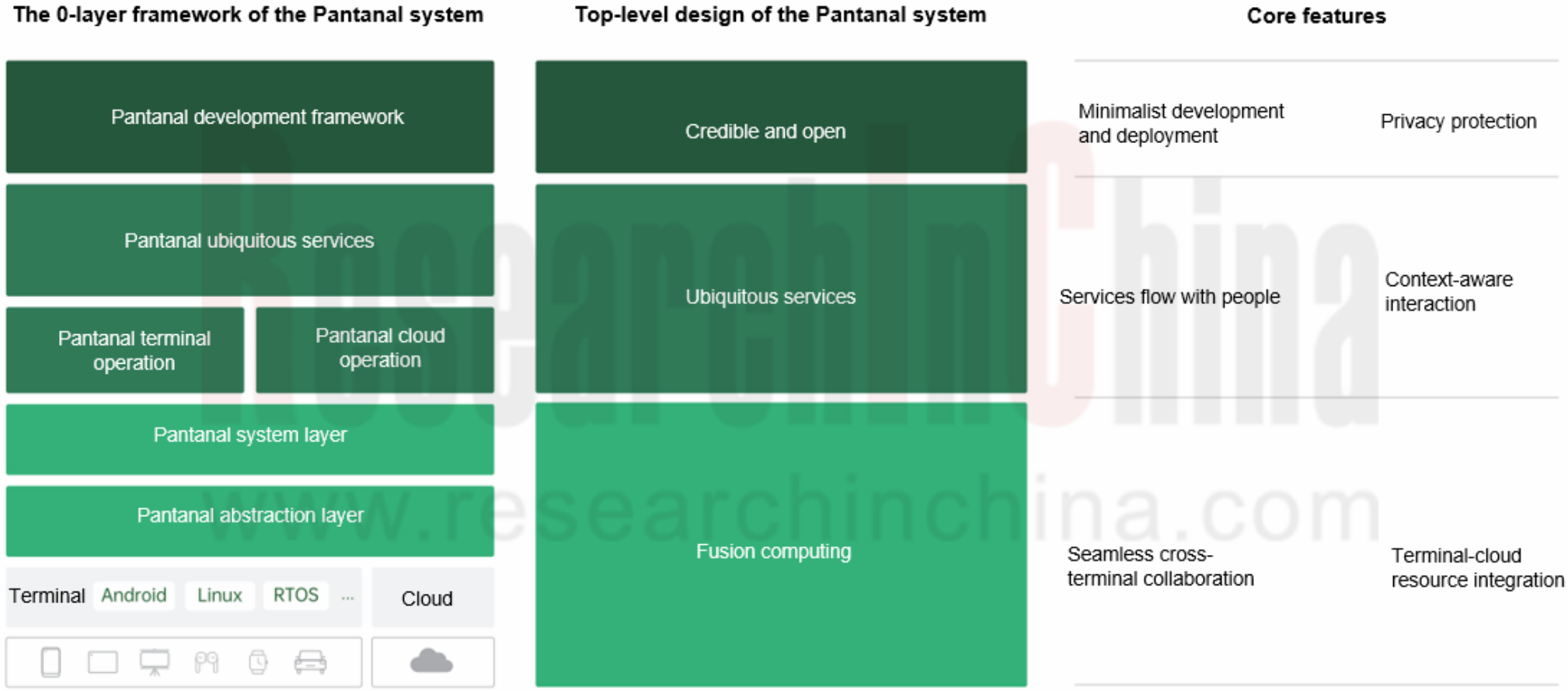
IoT Ecology of HarmonyOS




Source: Huawei Cloud

The Pantanal system released by OPPO is grafted to different operating systems in the form of middleware to enable seamless service flow across brands, systems and devices.

## Technical Framework and Core Features of OPPO Pantanal System




Source: Pantanal System White Paper 1.0

# Table of Content (1)


**1 Status Quo and Trends of Chinese TSP Market**
1.1 Introduction to TSPs
1.1.1 Core Module
1.1.2 Core Value
1.1.3 Business Models
1.1.4 Internet of Vehicles and Development History of TSPs
1.2 Competitive Landscape
1.2.1 Business Features of TSPs Dominated by OEMs
1.2.2 Business Features of TSPs Backed by Internet Companies
1.2.3 Business Features of TSPs Backed by Telecom Operators
1.2.4 Business Features of TSPs Backed by ICT Suppliers
1.2.5 Business Features of Third-party TSPs
1.3 Business Layout of Major TSPs
1.4 Development Trends of TSPs

**2 TSPs Dominated by OEMs**
2.1 ECARX
2.1.1 Profile
2.1.2 Product Layout
2.1.3 Hardware R&D
2.1.4 Software R&D
2.1.5 Cloud Platform
2.1.6 Ecological Services
2.1.7 Dynamics
2.2 Bean Tech
2.2.1 Profile
2.2.2 Development History
2.2.3 Core Competencies and Products
2.2.4 Product Layout
2.2.5 Hardware R&D
2.2.6 Software R&D
2.2.7 Partners
2.3 TINNOVE
2.3.1 Profile
2.3.2 Product Layout
2.3.3 Software R&D
2.3.4 Ecological Services
2.3.5 Partners
2.3.6 Cooperative Models
2.3.7 Dynamics
2.4 Hynex
2.4.1 Profile
2.4.2 Product Layout
2.4.3 Software R&D
2.5 OnStar
2.5.1 Profile and Software Solutions
2.5.2 Hardware R&D

**3 TSPs Backed by Internet Companies**
3.1 iFLYTEK
3.1.1 Profile
3.1.2 Product Layout
3.1.3 Hardware R&D
3.1.4 Software R&D

# Table of Content (2)


3.1.5 Cloud Platform
3.1.6 Partners
3.1.7 Dynamics
3.2 Baidu Apollo
3.2.1 Profile
3.2.2 Product Layout
3.2.3 Hardware R&D
3.2.4 Software R&D
3.2.5 System Solutions
3.2.6 Cloud Platform
3.2.7 Dynamics
3.3 Tencent Auto Intelligence (TAI)
3.3.1 Profile
3.3.2 Strategic Planning for Automotive Business
3.3.3 Product Layout
3.3.4 Software R&D
3.3.5 System Solutions
3.3.6 Cloud Platform
3.3.7 Ecological Partners
3.3.8 Dynamics
3.4 Banma Information Technology
3.4.1 Profile
3.4.2 Product Layout
3.4.3 Software R&D
3.4.4 Cloud Platform
3.4.5 O&M and Services
3.4.6 Ecological Partners
3.4.7 OEMs Supported
3.4.8 Partners
3.4.9 Dynamics
3.5 PATEO
3.5.1 Profile
3.5.2 Business
3.5.3 Product Layout
3.5.4 Hardware R&D
3.5.5 Software R&D
3.5.6 Cloud Platform
3.5.7 O&M and Services
3.5.8 Ecological Partners
3.5.9 Major Customers
3.5.10 Application Projects
3.5.11 Dynamics
3.6 ByteDance
3.6.1 IoV Business
3.6.2 Cloud Platform
3.6.3 TSP Ecology

**4 TSPs Dominated by Telecom Operators**
4.1 China Mobile
4.1.1 IoV Business Layout and Development
4.1.2 Product Layout
4.1.3 Products of China Mobile IoT
4.1.4 China Mobile (Shanghai) Industrial Research Institute
4.1.5 Dynamics

# Table of Content (3)


4.2 China Unicom Smart Connection Technology
4.2.1 Profile
4.2.2 Development History
4.2.3 Core Business
4.2.4 Product Layout
4.2.5 Software R&D
4.2.6 Cloud Platform
4.2.7 O&M and Services
4.2.8 Cooperation Cases
4.2.9 Partners
4.2.10 Dynamics
4.3 E SURFING IOT
4.3.1 Profile
4.3.2 Product Layout
4.3.3 Software R&D
4.3.4 Cloud Platform
4.3.5 O&M and Services
4.3.6 Ecological Partners

**5 TSPs Backed by ICT Suppliers**
5.1 Huawei
5.1.1 Introduction to Intelligent Automotive Solution (IAS) Business Unit (BU)
5.1.2 Automotive Business Layout
5.1.3 TSP Product Layout
5.1.4 Intelligent Cockpit Solution
5.1.5 Hardware R&D
5.1.6 Software R&D
5.1.7 Cloud Platform
5.1.8 Cloud Services
5.1.9 Ecology
5.1.10 Partners
5.1.11 Business Model
5.1.12 Dynamics
5.1.13 Intelligent Connectivity Patents
5.1.14 Huawei Launched Petal Mobility to Dabble in the Ride-hailing Field
5.2 Xiaomi Automobile
5.2.1 Profile
5.2.2 TSP Product Layout
5.2.3 Software R&D
5.2.4 Ecological Layout
5.2.5 Investment Dynamics in the Automotive Field
5.3 OPPO
5.3.1 Profile
5.3.2 Software R&D
5.3.3 Ecology
5.3.4 Dynamics in Cooperation
5.4 VIVO
5.4.1 IoV Business
5.4.2 Software R&D

**6 Third-party TSPs and Other TSPs**
6.1 NavInfo
6.1.1 Profile
6.1.2 Business Layout
6.1.3 TSP Product Layout
6.1.4 Hardware R&D
6.1.5 Software R&D
6.1.6 System Solutions

# Table of Content (4)


6.1.7 Cloud Platform
6.1.8 O&M and Services
6.1.9 Ecology
6.1.10 TSP Partners
6.1.11 Dynamics
6.2 BDStar Intelligent & Connected Vehicle Technology
6.2.1 Profile
6.2.2 Business Layout
6.2.3 TSP Product Layout
6.2.4 Hardware R&D
6.2.5 Software R&D
6.2.6 Ecology
6.2.7 Automotive Service APP Customization
6.2.8 Operation Services
6.2.9 Partners & Customers
6.2.10 Dynamics
6.3 FutureMove Technologies (Accenture)
6.3.1 Profile
6.3.2 Business Layout
6.3.3 TSP Product Layout
6.3.4 Hardware R&D
6.3.5 Software R&D
6.3.6 Cloud Platform
6.3.7 O&M and Services
6.3.8 Partners
6.3.9 Customers
6.4 Beijing Yesway Connect Service
6.4.1 Profile
6.4.2 TSP Product Layout
6.4 Beijing Yesway Connect Service
6.4.1 Profile
6.4.2 TSP Product Layout
6.4.3 Hardware R&D
6.4.4 Software R&D
6.4.5 Cloud Platform
6.4.6 O&M and Services
6.4.7 Partners & Customers
6.5 TimaNetworks
6.5.1 Profile
6.5.2 TSP Product Layout
6.5.3 Software R&D
6.5.4 Cloud Platform
6.5.5 O&M and Services
6.5.6 Partners
6.6 Ecar Telematics
6.6.1 Profile
6.6.2 Development History
6.6.3 TSP Product Layout
6.6.4 Hardware R&D
6.6.5 Software R&D
6.6.6 Operation and Services
6.6.7 Partners
6.7 Shenzhen Soling Industrial Co., Ltd.
6.7.1 Profile
6.7.2 Business Layout
6.7.3 TSP Product Layout
6.7.4 Hardware R&D
6.7.5 Cloud Platform

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