

Momenta

BETTER AI, BETTER LIFE.

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Ten Years - Save Millions of Lives

1.2 million+
Deaths from car accidents every year globally

\$600billion
Economic loss due to car accidents every year globally

Ten Years – Save 100% Driving Time

Congested Cities
61% of cities in China were stuck with slow traffic during rush hour in 2018.

Slow Speed
The average driving speed in Top1 city in China Congestion Index is 23 km/h in 2018.

Ten Years -Double the Efficiency of Logistics & Mobility

\$ 1 Trillion Saved
higher travel cost-effectiveness

50% Cost Reduction
lower logistics cost



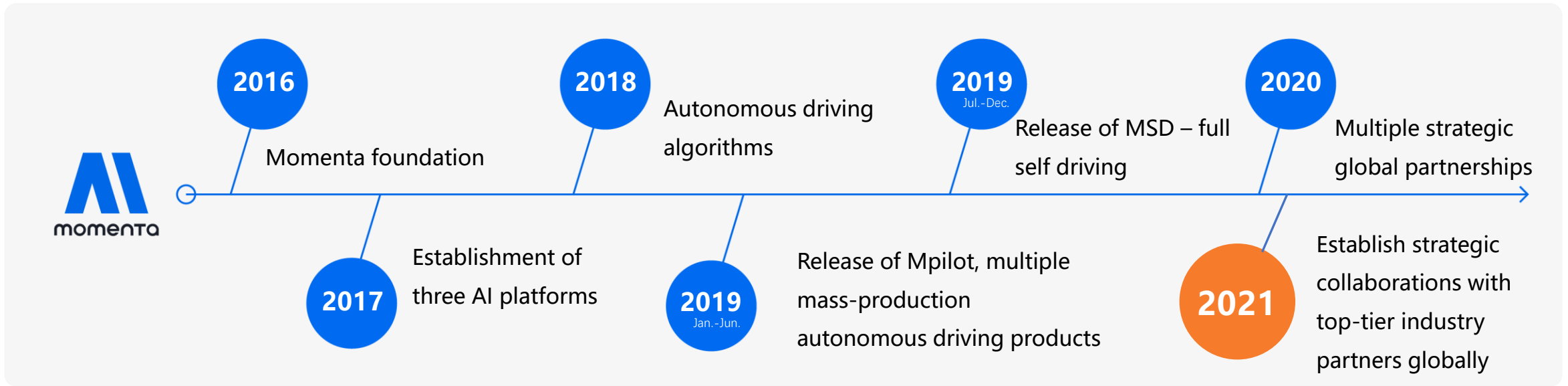
Momenta Overview



Momenta is building the “brain” for autonomous driving. Our deep-learning based software in perception, HD Map, and data-driven path planning enables the realization of full autonomy. Our products include multi-level autonomous driving solutions and big data service.

- Founded in [2016](#)
- HQ in Beijing and Suzhou, with global business in [Germany and Japan](#)

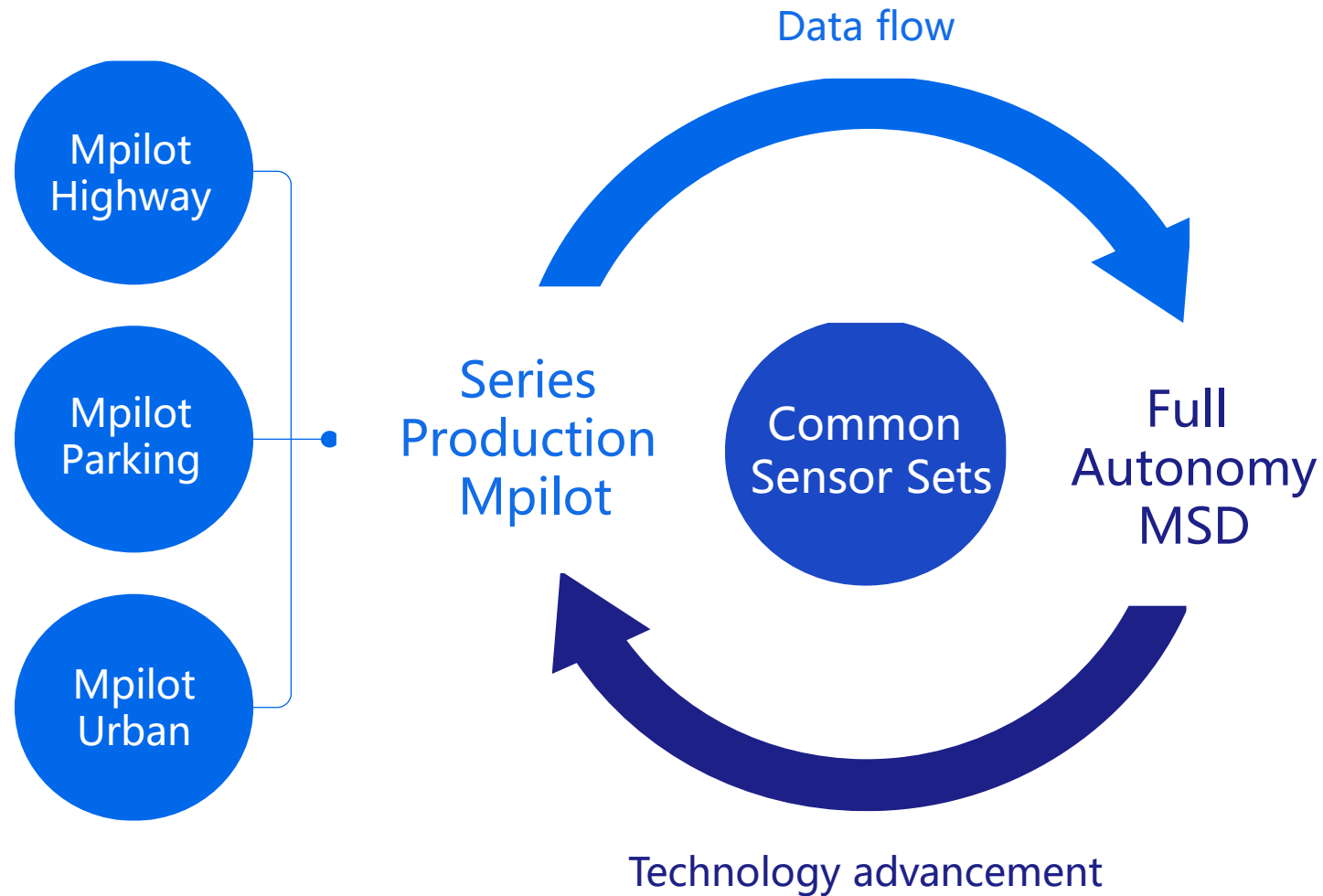
Momenta Roadmap



Capital Market Favor: Total Funding > **US \$ 700 million**



Momenta “Two-Leg” Strategy



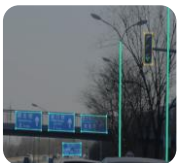
Core Fundamental Technologies

Perception



Vehicle

- **1000+** vehicle model/make recognition
- Bounding box in 3D space
- 3D positioning and motion prediction



Road

- Lanes and guide lines at intersections
- Road signs detection and recognition
- Traffic light recognition
- Free space recognition



Human

- **17** key points for human
- Human pose and action recognition
- Motion prediction



Chinese Scenarios

- More complicated VRU behaviors
- Different traffic signs & boundaries
- Unique vehicles in China



HD Map



High Accuracy & High Freshness

10 cm mapping accuracy

10 cm visual positioning accuracy

10 kilobytes data/kilometer

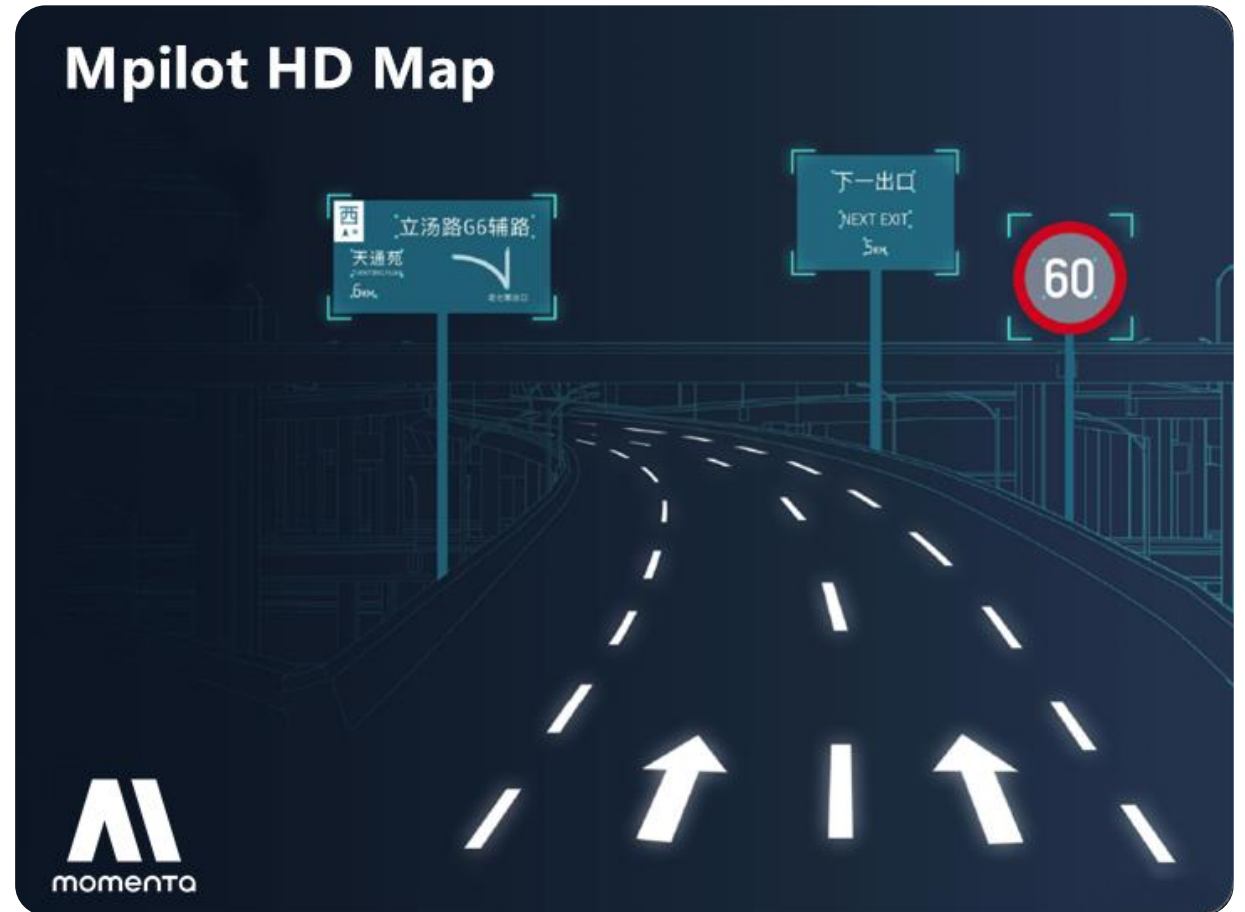
Hourly Refresh by crowdsourcing



Low-Cost Hardware Device

Device: camera, consumer-grade IMU, GNSS, Chips

Mpilot HD Map



Mpilot

Series Production Autonomous Driving

Mpilot | Data-Driven 3D

Mpilot P (Pro)

- Equipped with industry-leading functions and performances
- Better at handling China traffic scenarios

5V5R/20 Tops+

HNP (Highway Navigation Pilot)

- Ramp-to-Ramp
- Cut-in scenarios

LVP (Learned Valet Parking)

SVP (Smart Valet Parking)*

*LVP can be upgraded to SVP

Mpilot X (eXtreme)

- End-to-End
- “Flywheel” Evolution

12V5R + Lidar (Optional)/100 Tops+

HNP (Highway Navigation Pilot) / **HNP+** (hands-off/eyes-off)

UNP (Urban Navigation Pilot) / **UNP+** (hands-off/eyes-off)

SVP (Smart Valet Parking)

- Smart Summon
- Smart Park-in
- PNP (Parking Navigation Pilot)

Mpilot P - HNP (Highway Navigation Pilot)

Urban commuters in China are liberated from driving by **one hour/day**.



Ramp-to-Ramp

- Automatic On-/Off-ramps
- Global planning
- Intelligent driving behavior



Automatic Lane Changing

- Intelligent Lane-changing
- 3 Alternative Modes



Traffic Congestion

- Automatic queuing
- Smart performance for cut-in handling



Basic ADAS Features

- Control: ACC, AEB, LKA
- Warning: Lane & Collision



HMI Info. Input

- Real-time perception result
- Map & Localization info.
- Planning Path

Mpilot X (eXtreme)

Mpilot End to End

Full Scenario Coverage / Continuous Driving Experience



Mpilot Parking

LVP (Learned Valet Parking)

SVP (Smart Valet Parking L3-)

Smart Summon; Smart Park-in;

PNP (Parking Navigation Pilot)



Mpilot Urban

UNP (Urban Navigation Pilot)

UNP+ hands off/ eyes off



Mpilot Highway

HNP (Highway Navigation Pilot)

HNP+ hands off/ eyes off

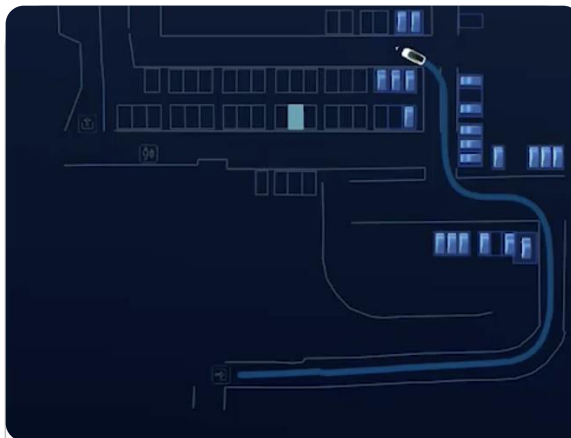
Mpilot X - SVP (Smart Valet Parking)

Drivers are freed from parking by 30 minutes/day, with **easy parking and recall**.



Multi-level Parking

- Automatic Up/Downslope
- Remote-recall Supported



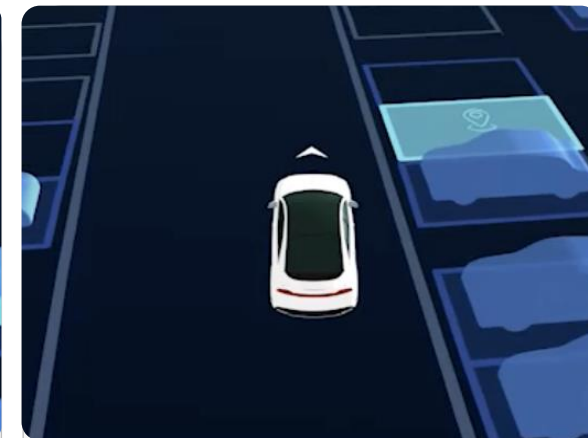
Indoor Mapping & Localization

- Online + Office Mapping
- 10-cm Accuracy



Intelligent Obstacle Bypass & Collision Avoidance

- Normal Collision Avoid.
- Intelligent Obstacle Bypass

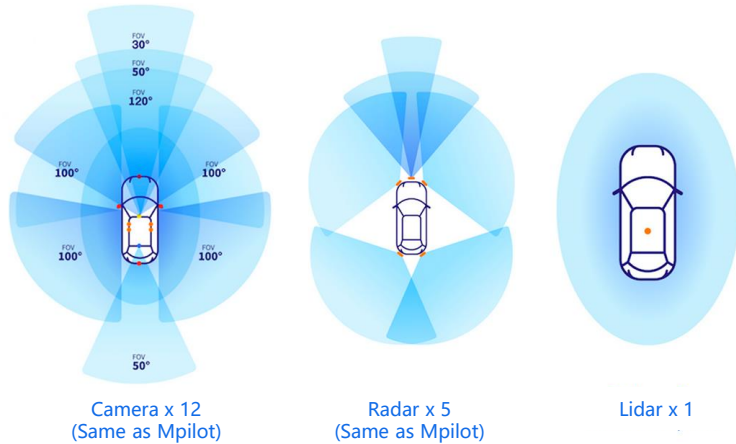


Parking Lot Scanning Mode

- Random parking lot accepted for public parking area

MSD: Self-Driving Flywheel

Unified sensor sets shared by **MSD** and **Mpilot** create a closed loop of data flow and technology flow.



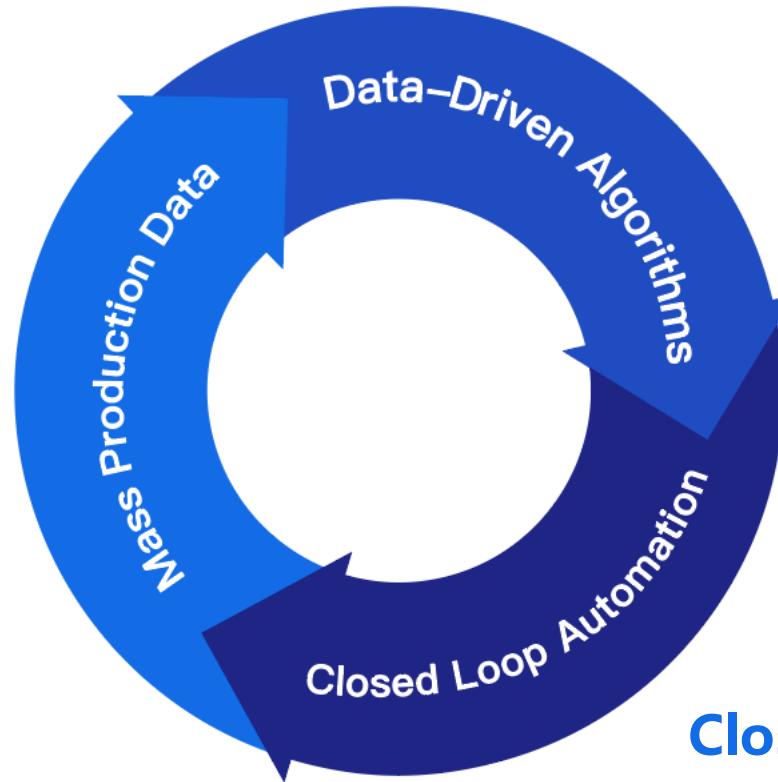
MSD: Flywheel L4 - Mass Production Data Driven L4

Data-Driven Algorithm

Data-Driven algorithm in full process with less cost and higher efficiency vs. human-driven algorithm

Mass Production Data

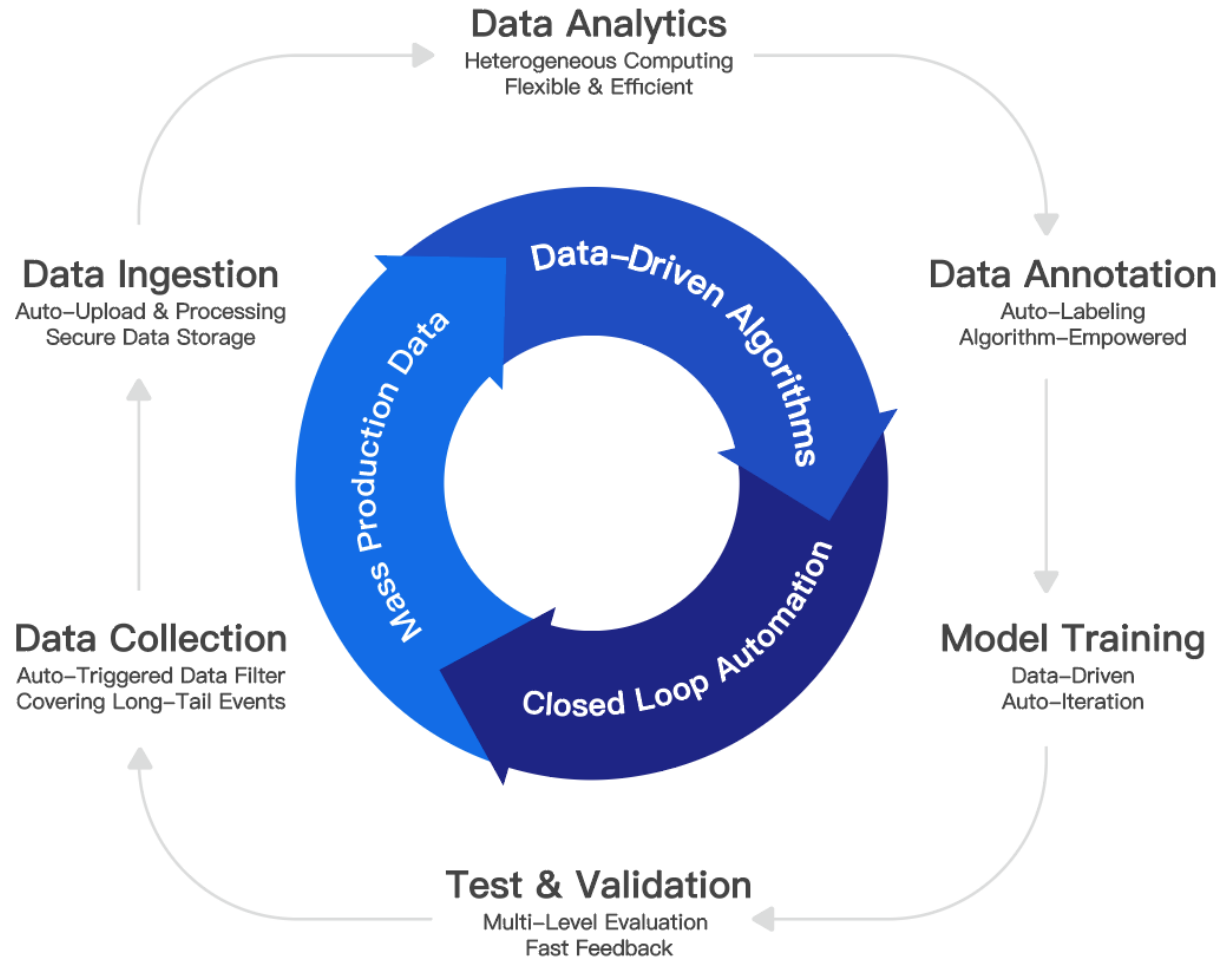
0 cost from series vehicles covering real scenarios and corner cases



Closed Loop Automation

Highly automated and efficient toolchain to process the massive data and solve the problem at low cost.

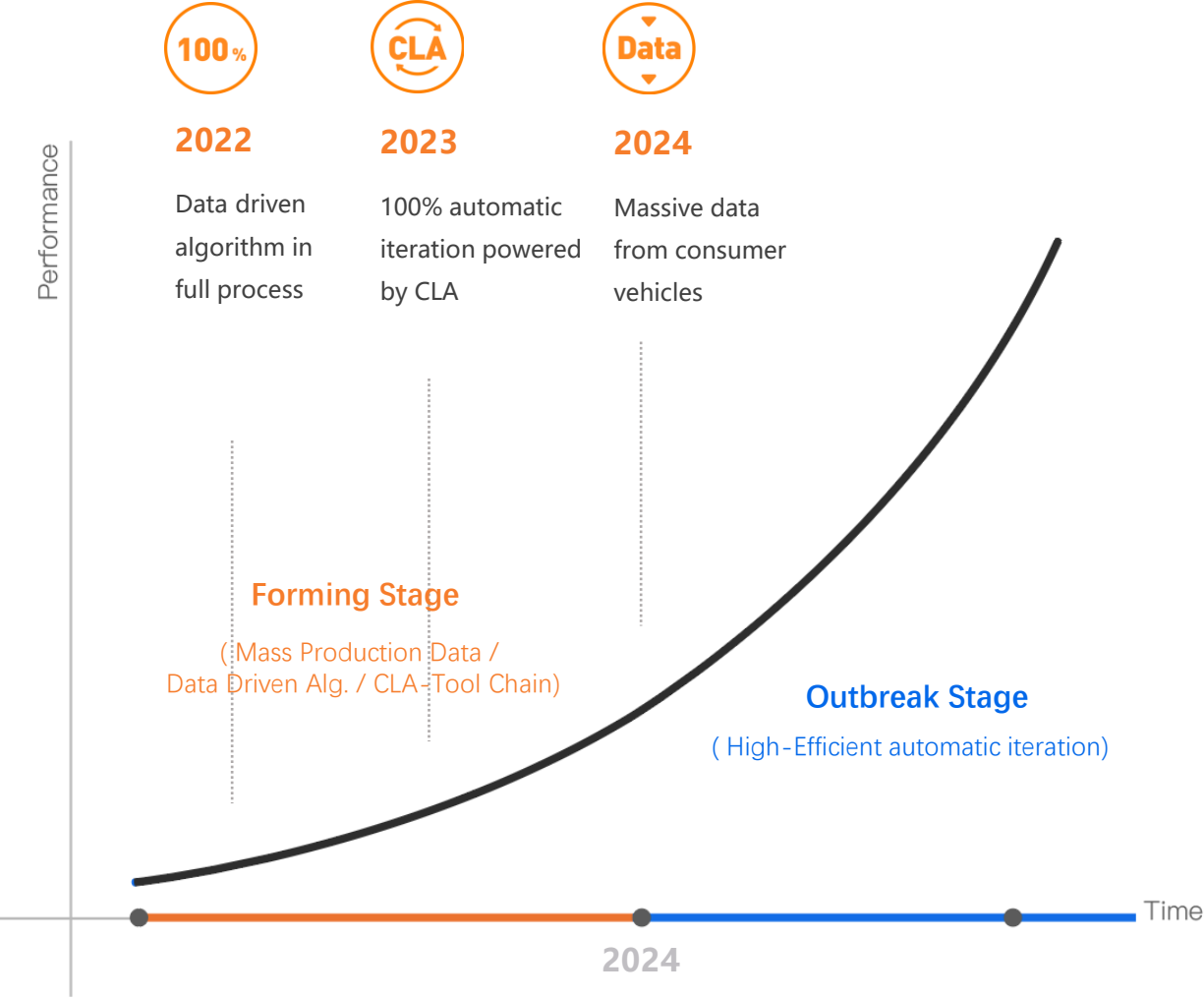
Closed Loop Automation



What is Momenta Closed Loop Automation?

A toolchain which decides how **FAST** and **COST- EFFICIENT** we can upgrade the algorithm by using the massive data from consumer vehicle automatically

Flywheel MSD Road Map



Momenta & NDS

2021, Momenta joined the NDS e.V.

**Great thanks to the association for welcoming
Momenta as a member company of NDS.**

Looking forward to collaborating with all the
excellent member companies and experts to bring
more and more great map products to the world.

Momenta joins the NDS Association

25. March 2021

The NDS Association is happy to announce that Momenta has become an NDS member company. Momenta is building “brains” for autonomous vehicles and uses deep learning algorithms to improve the safety and efficiency of driving.



Momenta L4 Flywheel

“ *NDS is the standard for map data and service worldwide. As a leading autonomous driving tech company in China developing HD map data we’ve always intended to join the NDS association. We’re now looking forward to collaborating with all the excellent member companies and experts and to contributing to NDS ourselves.* ”

Thank You

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