

SCENARIOS BASED DESIGN, VALIDATION AND HOMOLOGATION FRENCH VIEWS

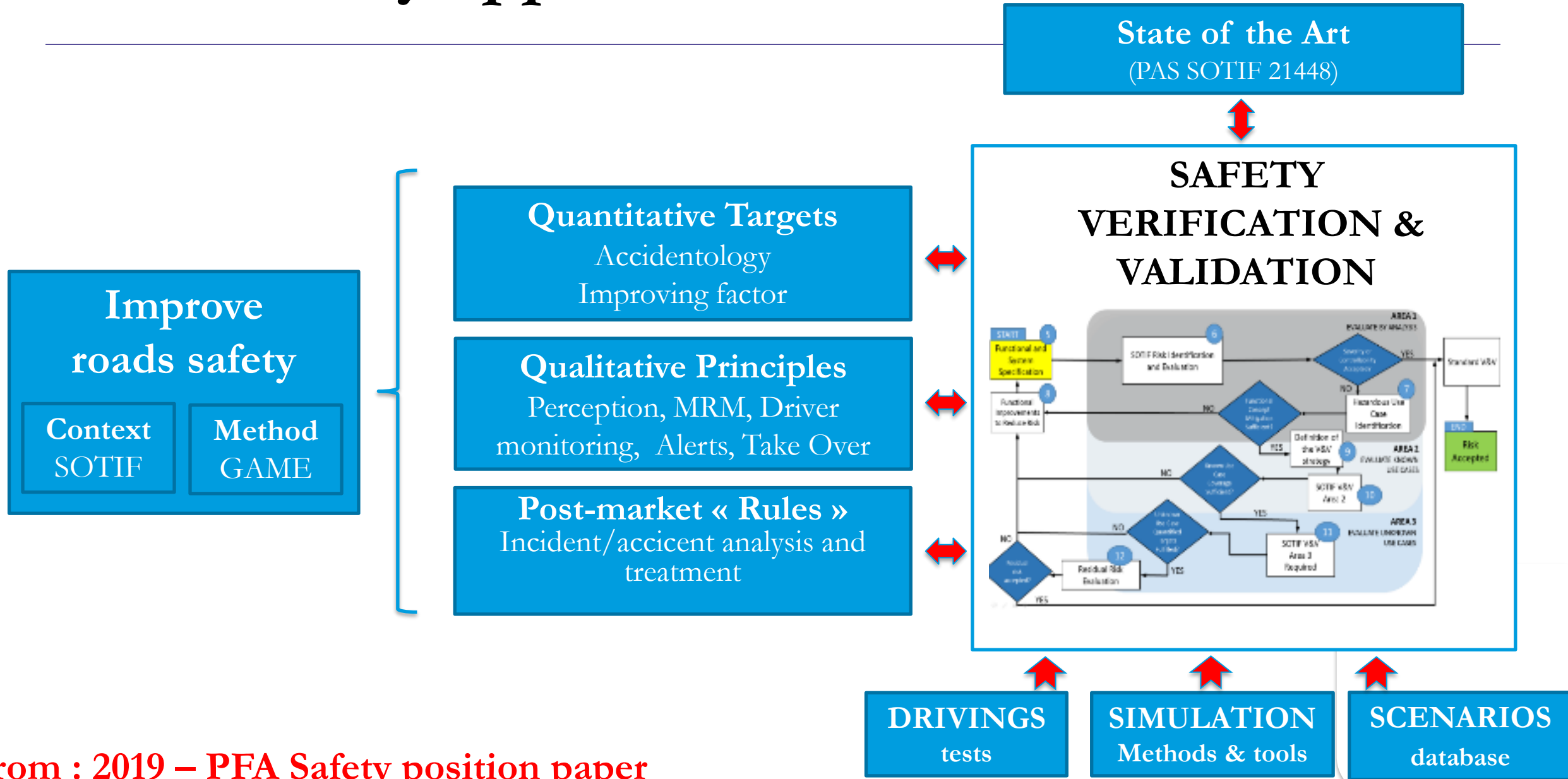
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FILIÈRE
AUTOMOBILE
& MOBILITÉS



ADS « safety approach » needs scenarios



STATE OF THE ART APPROACH

FOR DESIGN, VALIDATION (SOTIF BUT NOT ONLY), & HOMOLOGATION

- **Consensus 1 : Real World Drivings, Simulation and Scenarios capitalisation are necessary, to mitigate unintended behaviours**
 - Perception e.g. scenarii/objects driving to false Positive or False Negative events.
 - Decision e.g. a wrong decision occurs during this scenario
 - Cooperation with humans inside or outside the vehicle
- **Consensus 2 : Scenarii are region dependent (weather, driving style, law, road infrastructure ...)**
- **Scenario library initiatives are already on going ...**



Why a common scenarios library in France ?

- **The worldwide ecosystem recognizes that the validation of autonomous vehicles safety will be based on scenarios:**
 - Usable by car manufacturers during design and physical or virtual validation phases and for « safety » demonstration (dossier de validation de la sécurité)
 - Usable for the Product General Safety
 - To contribute to the definition of scenarios for the homologation
- **To define the state of the art for the industry and the authorities**
- **To be used also in the French scenario based authorization of Automated Road Transport System owing to LOM law.**



ADScene

An industrial scenarios database
for ADAS & ADS design, validation and homologation

Renault
Group

STELLANTIS

INSTITUT
VEDECOM

SystemX
INSTITUT DE RECHERCHE
TECHNOLOGIQUE

Supported by **PFA** | FILIÈRE
AUTOMOBILE
& MOBILITÉS and French Authorities

ADSCENE: a solution to take up the challenge of scenario database

- **At** state-of-the-art for designing, validating & homologating automated driving functions
- A multi-partner scenario database

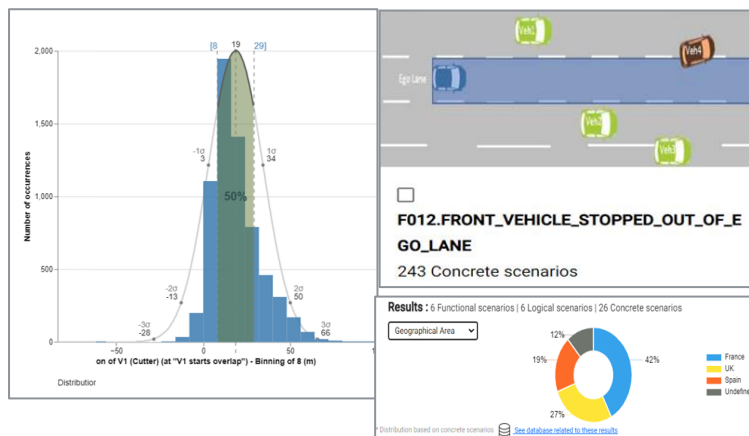
A secured, industrial SaaS platform providing analysis & management tools

Data content

Scenario types	Data input type	Data available
Real-world driving data	<ul style="list-style-type: none"> > Real-world driving data > Corner cases 	<ul style="list-style-type: none"> > 110 logical scenarios > ~ 2 millions concrete scenarios
Incidents (near crash)	<ul style="list-style-type: none"> > French & European database 	<ul style="list-style-type: none"> > ~ 70 concrete scenarios
Accidents	<ul style="list-style-type: none"> > Reports on accidents involving bodily injuries in French, Germany & USA 	<ul style="list-style-type: none"> > ~ 500 concrete scenarios
Expertise & Regulation / NCAP	<ul style="list-style-type: none"> > Regulations & NCAP > OEM expert knowledge on critical driving situations 	<ul style="list-style-type: none"> > 150 scenarios available > To be defined

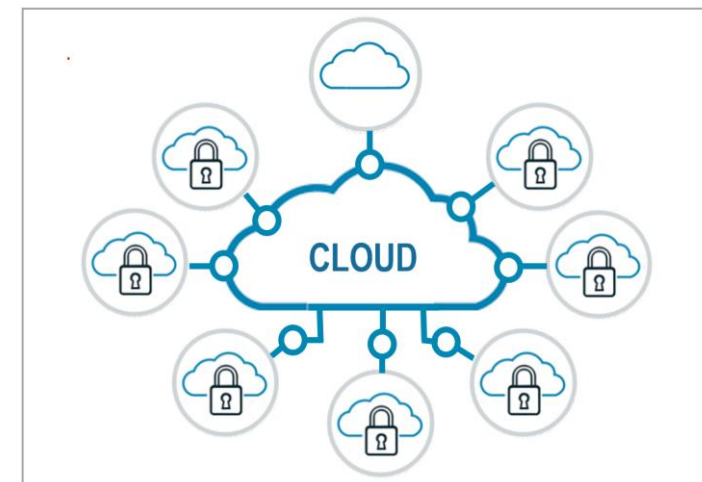
A multisource approach

Features & tools



- Creation of scenarios
- Creation of usecases & test protocols
- Scenario browser & data visualisation
- Management of statistics from scenarios
- Link to simulation software

Secured environment



- Private environment for each OEM
- Shared environment for collaborative activities
- Easy to interface

1 platform, 3 ambitions

ADSCENE FOR RESEARCH

Open framework to develop & integrate innovative features



Users: Academics, research
Usage : Innovation

ADSCENE FOR INDUSTRY

Scenario library for Systems design, validation & homologation



Users : OEMs (1)
Usage : design, validation, homologation

ADSCENE FOR REGULATION

Scenario Library extract to promote scenarios & tools for regulation homologation, & standardization



Users: Administrations, PFA members
Usage : Reference scenarios to comply with regulation, Ncap, ISO homologation

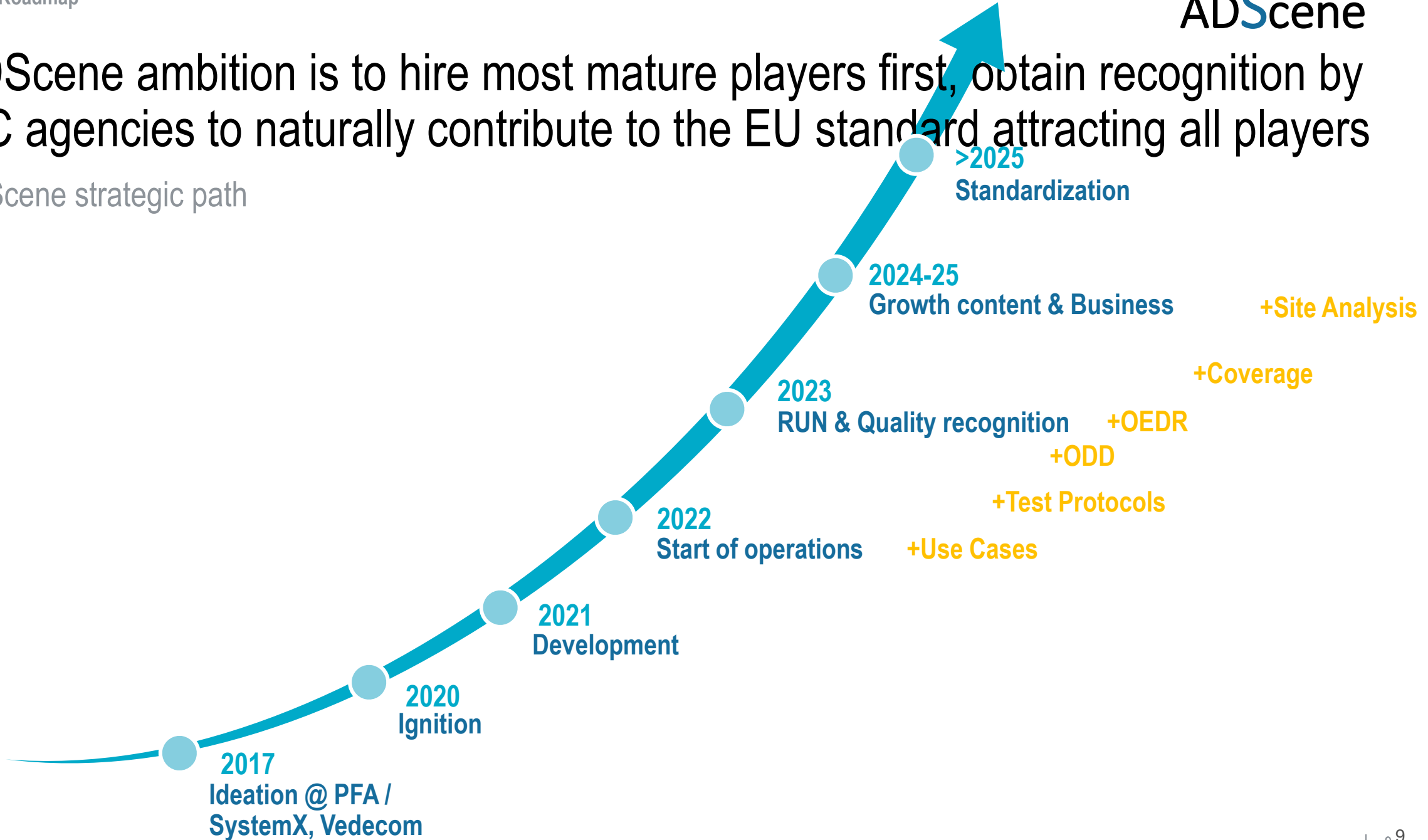
Other addressable users: Tier 1, Shuttle manufacturers, Transport Operator



ADScene strictly confidential

ADScene ambition is to hire most mature players first, obtain recognition by TIC agencies to naturally contribute to the EU standard attracting all players

ADScene strategic path



ADScene strictly confidential

MERCI

THANK YOU

