



EV City Casebook & Electric Vehicle Car Sharing in the World

10th October 2014 | EV&PHV Town Symposium | Tottori, Japan

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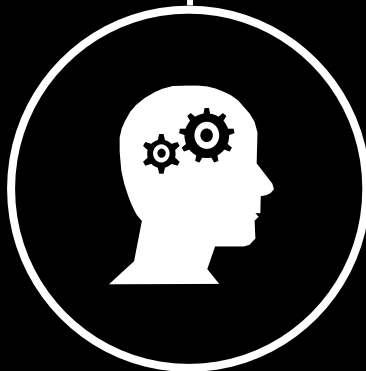
PRESENTATION SUMMARY



**EV CITY
CASEBOOK**



**EV CAR SHARING
IN THE WORLD**

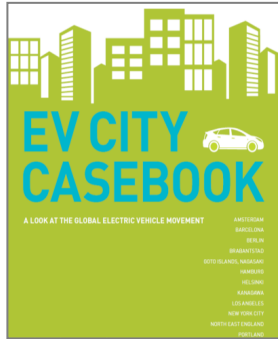


BIG IDEAS



EV CITY CASEBOOK

EV CITY CASEBOOK 2012



2012

16 PIONEERING CITIES FROM **9** COUNTRIES

LAUNCHED IN LOS ANGELES IN MAY 2012

STRONG MEDIA ATTENTION & INTERNATIONAL RECOGNITION

PARTNERS:



GLOBAL COMMITMENTS TO EVs



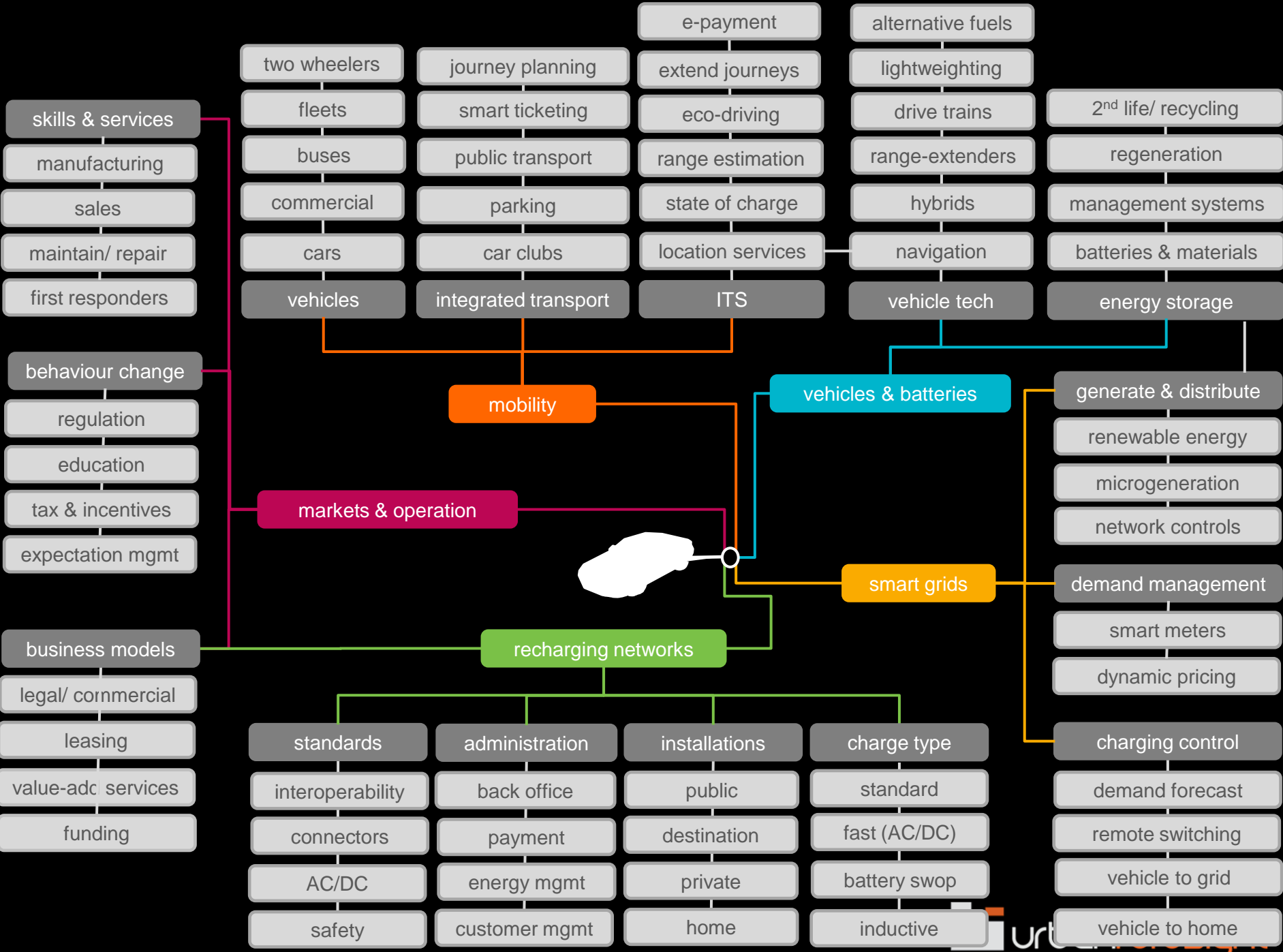
CLIMATE CHANGE

AIR QUALITY

FOSSIL FUEL INDEPENDENCE

CLEAN & RESILIENT ENERGY

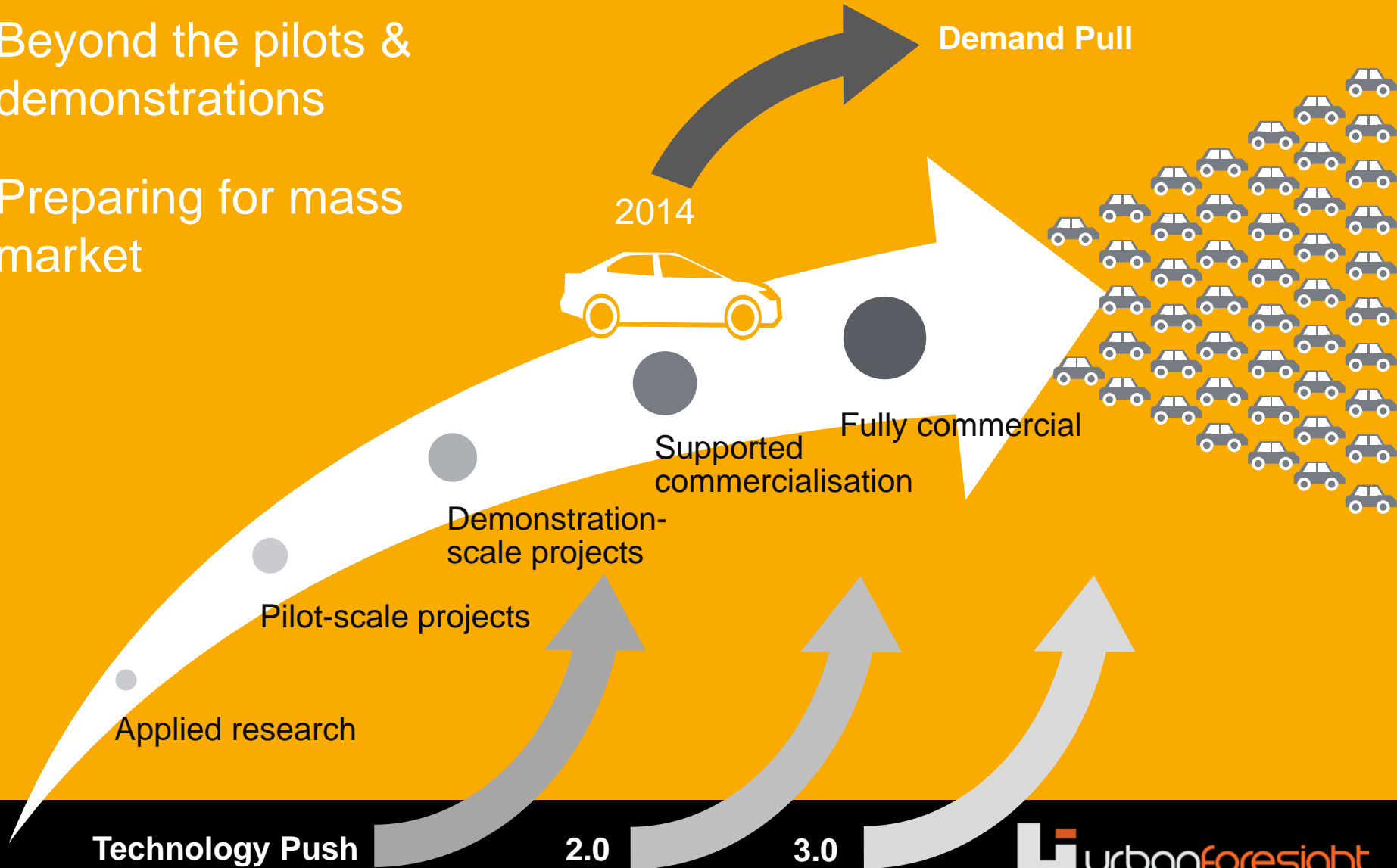
ECONOMIC OPPORTUNITIES



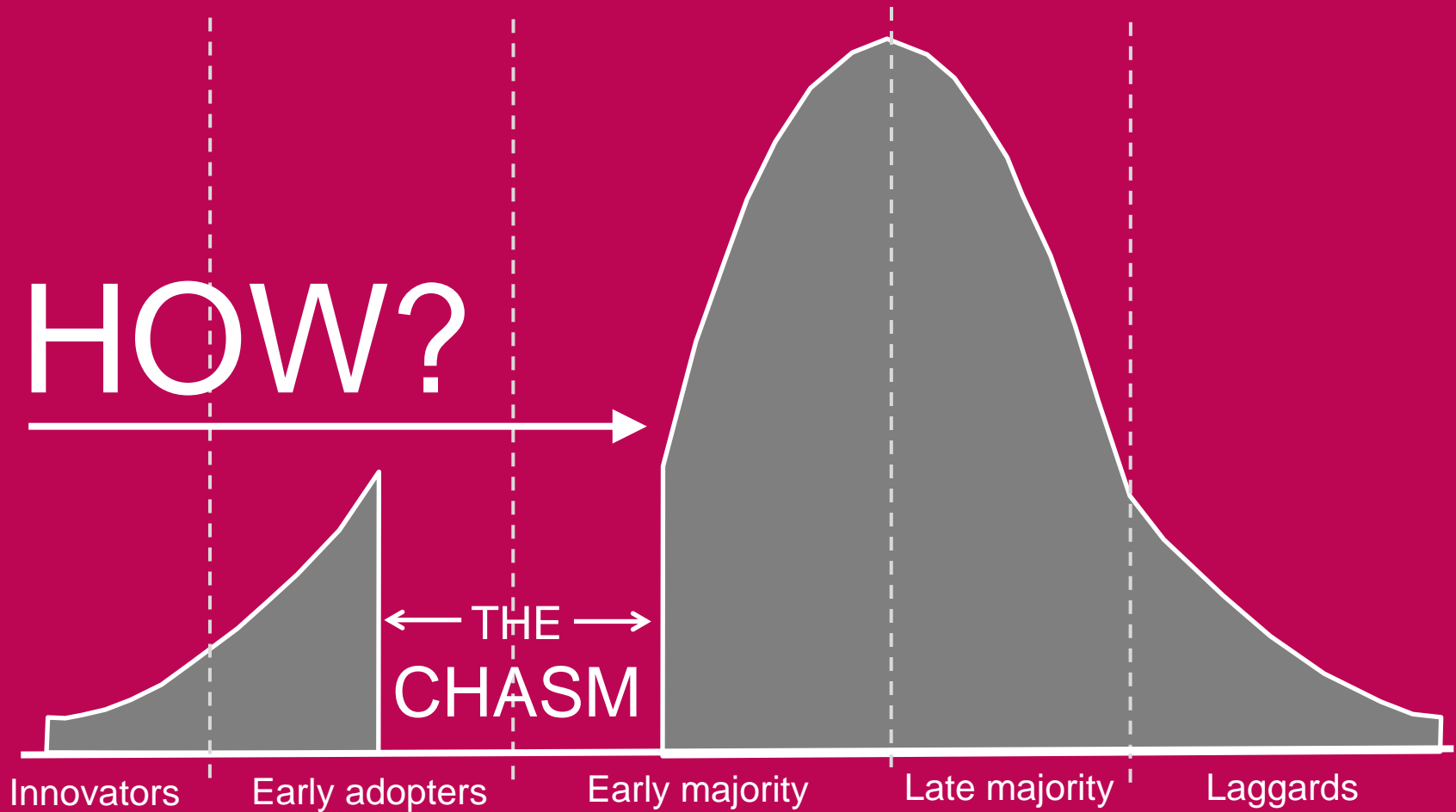
EV CITY CASEBOOK 2014

Beyond the pilots & demonstrations

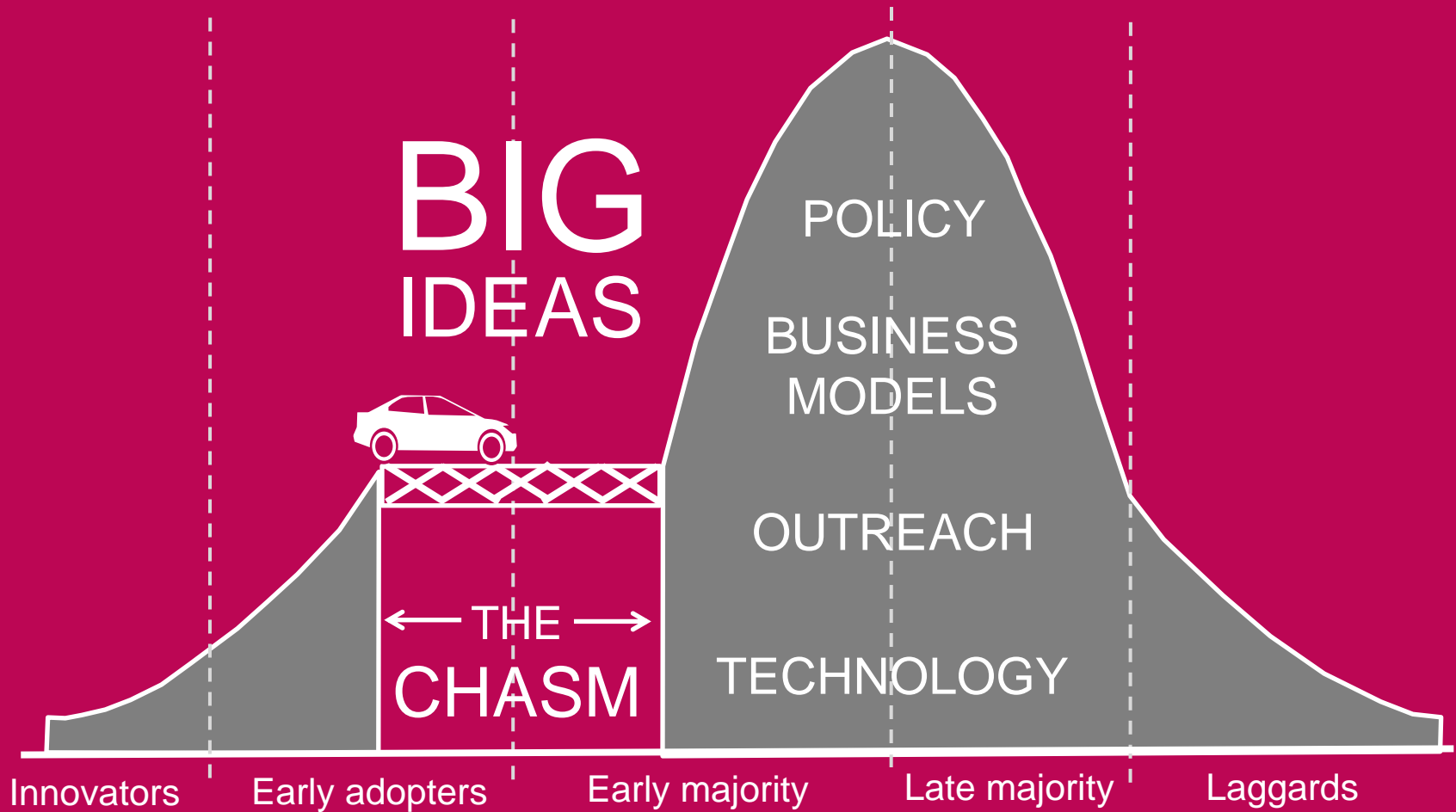
Preparing for mass market



CROSSING THE CHASM



CROSSING THE CHASM



50 BIG IDEAS



AIR QUALITY | ALL-ELECTRIC BUS ROUTES | AWARENESS & EDUCATION | BALANCING THE TAXATION EQUATION | BATTERY RIGHT SIZING | BATTERY SWAPPING | BI-DIRECTIONAL CHARGING | CHALLENGING MISCONCEPTIONS | CHANGING TRAVEL BEHAVIOURS | CHARGING AT WORK | CITY LOGISTICS | COMBINING INFRASTRUCTURE | CREATING BASELINE DEMAND FOR URBAN CHARGING INFRASTRUCTURE | CURTAILMENT | ELECTRIC HGVS | ELECTRIC TAXIS | ENERGY INDEPENDENCE | ENGAGING CHILDREN & YOUNG PEOPLE | EV READY BUILDINGS | EVS AND TOURISM | FAST CHARGING NETWORKS | EXTREME WEATHER | FLEET OPTIMIZATION | INFRASTRUCTURE ROAMING & INTEROPERABILITY | INTEGRATED URBAN INTELLIGENCE | LEAPFROGGING FOSSIL FUELS | LIGHTWEIGHTING | LOCAL INCENTIVES | MANAGED CHARGING | MICROMOBILITY | NEW MARKET ENTRANTS | PARTNERSHIPS | PLUG SHARING | PRICING SIGNALS | PROCUREMENT CONSORTIA | RECOVERY OF BATTERY MATERIALS | REGIONAL PLANNING | REINVENTING THE CAR BUYING EXPERIENCE | SECOND LIFE BATTERIES | AUTONOMOUS VEHICLES | SHARED MOBILITY | TRANSPORT POVERTY | ULTRA LOW EMISSION ZONES | WIRELESS CHARGING | RANGE EXTENDER | EV VENDING MACHINES | BUNDLED SERVICES VEHICLE TO GRID | INTELLIGENT TRANSPORT SYSTEMS | INNOVATIVE FINANCE

TIMELINE

1

BIG
IDEA

FEB 2014

OKINAWA
ANNOUNCED
GLOBAL CALL

MAY 2014

COPENHAGEN
EVALUATION

SEPT 2014

TOKYO
GLOBAL
PREVIEW

OCT 2014

VANCOUVER
GLOBAL
PUBLICATION



BIG
IDEAS

50



EV CAR SHARING IN THE WORLD

EVOLUTION OF CAR SHARING



1948

First car sharing programme
in **Zurich, Switzerland**



2012

Car sharing in **27** countries
on **5** continents

43,500 car sharing
vehicles worldwide

1.79 million car
sharing members

Source: Shaheen, S. and A. Cohen. "Innovative Mobility Carsharing Outlook: Carsharing Market Overview, Analysis, and Trends: Fall 2012." Transportation Sustainability Research Center, Institute of Transportation Studies, University of California, Berkeley, 2012.

6

BIG IDEAS
IN ELECTRIC
CAR SHARING

FIRST/ LAST MILE INTEGRATION

HA:MO — TOYOTA CITY, JAPAN



EVs IDEALLY SUITED TO SHORT URBAN JOURNEYS

INTEGRATION WITH PUBLIC TRANSPORT

INTEGRATED TICKETING & JOURNEY PLANNING

MICROMOBILITY

CITÉLIB BY HA:MO – GRENOBLE, FRANCE



3 YEAR EXPERIMENT RUNNING FROM
1ST OCTOBER 2014

35 THREE-WHEEL TOYOTA i-ROAD, 35 FOUR-
WHEEL COMS, 120 CHARGING POINTS

CITY OF GRENOBLE, FRANCE, GRENOBLE-
ALPES-METROPOLE, EDF, TOYOTA MOTOR
CORPORATION AND CITÉ LIB.

ONE-WAY

AUTOLIB' – PARIS, FRANCE



**2,200 EVs AND
4,300 CHARGING STATIONS**

**3.5 MILLION JOURNEYS AND
120,000 SUBSCRIBERS**

**OVER 18 MILLION ELECTRIC MILES SINCE
DECEMBER 2011**

AUTOLIB' USERS



USERS ARE MAINLY EXECUTIVES (64%) BUT SOME STUDENTS ARE ALSO ATTRACTED TO THE SERVICE

GREATER USE FOR COMMUTING THAN ROUND TRIP CAR SHARING

67% USERS CITE RESERVED PARKING AS THE MAIN FACTOR THAT MAKES IT MORE PRACTICAL THAN A PRIVATE CAR

ONLY 18% OF USERS SUBSCRIBED BECAUSE IT IS CHEAPER THAN A PRIVATE CAR

ECOLOGICAL VALUES ONLY PLAY A MINOR ROLE IN DECISION TO USE AUOTOLIB'

6-t

Source: French National Carsharing Survey (2013) conducted by 6-t Bureau de recherche

AUTOLIB' IMPACTS



**REPLACES 3 PRIVATE CARS
AND FREES 2 PARKING SPACES**

**11% DECREASE IN VEHICLE KM TRAVELLED
(PRIVATE VEHICLE + AUTOLIB')**

**23% DECREASE IN NUMBER OF PRIVATE VEHICLES
OWNED BY USERS AFTER SUBSCRIPTION**

**DISPLACES SOME JOURNEYS FROM PUBLIC
TRANSPORT AND MOTORISED 2-WHEELERS**

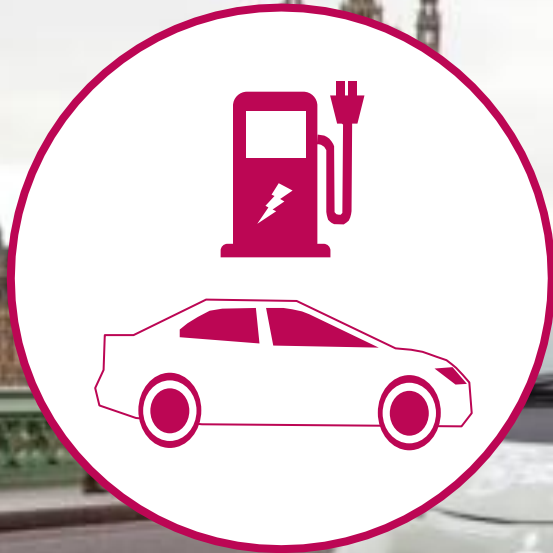
**FALL IN TAXI USE
(69% OF SUBSCRIBERS USE TAXIS LESS)**

6-t

Source: French National Carsharing Survey
(2013) conducted by 6-t Bureau de recherche

BASELINE DEMAND FOR CHARGING

SOURCE LONDON – LONDON, UK



TRANSFER OF 1,400 CHARGE POINT NETWORK TO PRIVATE OPERATOR (IER)

BUSINESS MODEL NOT EV CHARGING BUT CAR SHARING

\$166 MILLION INVESTMENT TO EXPAND NETWORK TO 6,000 CHARGEPOINTS BY 2018

AUTOMAKER → MOBILITY PROVIDER

BMW DRIVE NOW – SAN FRANCISCO, USA



PREMIUM CAR SHARING FROM SIXT AND BMW

EXCLUSIVELY EVs IN SAN FRANCISCO;
SPECIFICALLY THE BMW ACTIVE E.

AUTOMAKERS LOSE AFTERSALE REVENUES
CURRENTLY EARNED WITH ICEs
→ NEED NEW BUSINESS MODELS

INTELLIGNET SCHEDULING

CO-WHEELS – NORTH EAST ENGLAND, UK



**COLLABORATIVE PROJECT: CO-WHEELS,
ROUTE MONKEY, URBAN FORESIGHT**

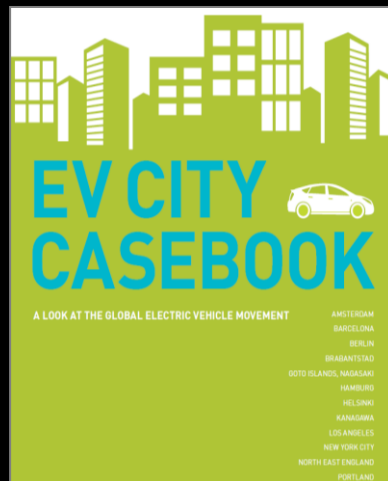
**OPTIMISE BOOKING & SCHEDULING
SYSTEMS FOR SHARED EVs**

**BUILT ON SOPHISTICATED ALGORITHMS TO
QUANTIFY THE PERFORMANCE OF EVs**

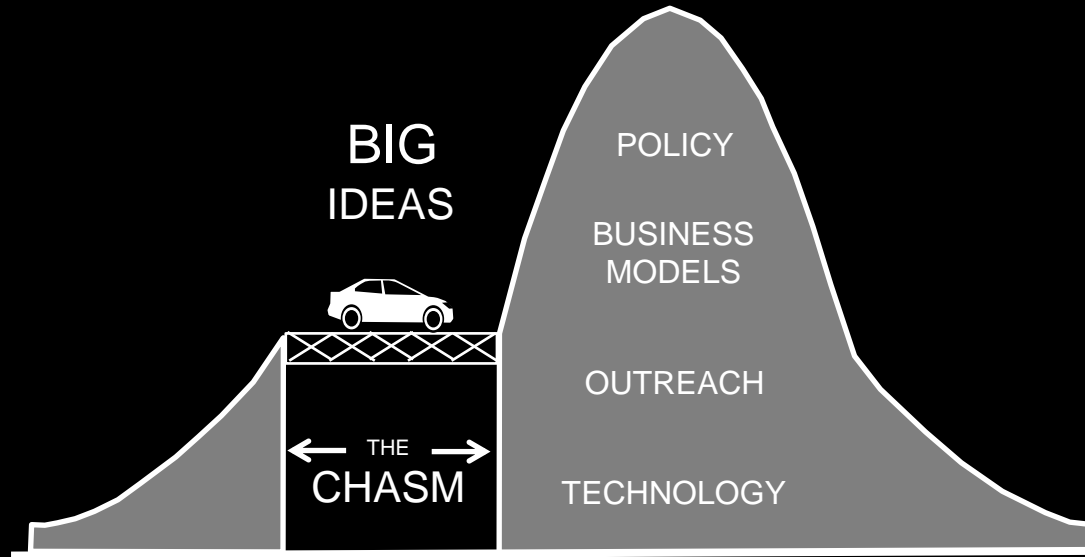
3

CLOSING
THOUGHTS

BIG IDEAS ARE SHAPING THE FUTURE OF EVs AND CAR SHARING.



CREATING OPPORTUNITIES FOR MASS MARKET ADOPTION.



SHARED EVs MAKE CITIES
SMARTER AND MORE
SUSTAINABLE.



THANK YOU

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