A TECHNOLOGY UPDATE ON AUTONOMOUS DRIVING AND CONNECTIVITY

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SAFE HARBOR STATEMENT

This document and the related presentation contain forward-looking statements. In particular, these forward-looking statements include statements regarding future financial performance and the Company’s expectations as to the achievement of certain targeted metrics, including net debt and net industrial debt, revenues, free cash flow, vehicle shipments, capital investments, research and development costs and other expenses at any future date or for any future period are forward-looking statements. These statements may include terms such as “may”, “will”, “expect”, “could”, “should”, “intend”, “estimate”, “anticipate”, “believe”, “remain”, “on track”, “design”, “target”, “objective”, “goal”, “forecast”, “projection”, “outlook”, “prospects”, “plan”, or similar terms. Forward-looking statements are not guarantees of future performance. Rather, they are based on the Group’s current state of knowledge, future expectations and projections about future events and are by their nature, subject to inherent risks and uncertainties. They relate to events and depend on circumstances that may or may not occur or exist in the future and, as such, undue reliance should not be placed on them.

Actual results may differ materially from those expressed in forward-looking statements as a result of a variety of factors, including: the Group’s ability to launch new products successfully and to maintain vehicle shipment volumes; changes in the global financial markets, general economic environment and changes in demand for automotive products, which is subject to cyclical; changes in local economic and political conditions, changes in trade policy and the imposition of global and regional tariffs or tariffs targeted to the automotive industry, the enactment of tax reforms or other changes in tax laws and regulations; the Group’s ability to expand certain of the Group’s brands globally; the Group’s ability to offer innovative, attractive products; the Group’s ability to develop, manufacture and sell vehicles with advanced features including enhanced electrification and autonomous driving characteristics, various types of claims, lawsuits, governmental investigations and other contingent obligations affecting the Group, including product liability and warranty claims and environmental claims, investigations and lawsuits; material operating expenditures in relation to compliance with environmental, health and safety regulations; the intense level of competition in the automotive industry, which may increase due to consolidation; exposure to shortfalls in the funding of the Group’s defined benefit pension plans; the Group’s ability to provide or arrange for access to adequate financing for the Group’s dealers and retail customers and associated risks related to the establishment and operations of financial services companies including capital required to be deployed to financial services; the Group’s ability to access funding to execute the Group’s business plan and improve the Group’s business, financial condition and results of operations; a significant malfunction, disruption or security breach compromising the Group’s information technology systems or the electronic control systems contained in the Group’s vehicles; the Group’s ability to realize anticipated benefits from joint venture arrangements; the Group’s ability to successfully implement and execute strategic initiatives and transactions, including the Group’s plans to separate certain businesses; disruptions arising from political, social and economic instability; risks associated with our relationships with employees, dealers and suppliers; increases in costs, disruptions of supply or shortages of raw materials; developments in labor and industrial relations and developments in applicable labor laws; exchange rate fluctuations, interest rate changes, credit risk and other market risks; political and civil unrest; earthquakes or other disasters and other risks and uncertainties.

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Transportation Service Providers, OEMs and Tier 1s are shaping their plans for the opportunities and challenges of autonomous vehicles.

These advancements are being driven primarily by:

**BUSINESS OPPORTUNITIES**

- Large ride-sharing companies spend upwards of ~70% of revenue on drivers share and incentives
- Transportation-as-a-Service (TaaS) fleets

**CONSUMERS’ DEMANDS**

- Safety, convenience and quality time
- Vehicle able to take over an increasing number of tasks currently performed by the driver
AUTONOMOUS DRIVING
Level of Automation, Cost, Timing

LEVEL 1
Most functions
Steering (or) acceleration/deceleration

LEVEL 2
Hands on the steering wheel + Responsible for lane changes
Steering (and) acceleration/deceleration

LEVEL 2+
Hands off + Eyes on
Steering (and) acceleration/deceleration + Automated lane changes

LEVEL 3
Hands off + Eyes off (but available to take over)
Steering (and) acceleration/deceleration + Automated lane changes (failure: pulls over to side of road)

LEVEL 4
Hands, Eyes off + Mind off
Fully automated driving under limited conditions (does not work in unmapped areas)

LEVEL 5
Fully automated driving under all conditions

HUMAN RESPONSIBILITY MACHINE

DRIVER

SYSTEM

COST

Automotive-Grade x 5x 30x 60x TBD

Now Now 2020 - 2021 2023 - 2025 TBD
**AD SYSTEM - ARCHITECTURE**

**PRIMARY CONTROLLER (BRAIN)**

**SENSOR FUSION**

**PRIMARY DRIVING POLICY**
- Optimizes comfort and efficiency
- Higher weight on AI for decision making

**COMPARE**
Determine optimum safe path

**SECONDARY DRIVING POLICY**
- Optimizes safety
- More traditional rule-based decision making

**BACKUP CONTROLLER (BRAIN)**
Guides vehicle to safe stop if main controller fails

**PERCEPTION**
- Radars
- Cameras
- Lidars
- Maps

**ACTUATION**
- Acceleration
- Braking
- Steering

**MOTION CONTROL**
Convert path to actuation
AUTONOMOUS DRIVING
Hardware at Level 4
Connectivity is essential and enables the driver and passengers to interact with the car and the world around them.
ECOSYSTEM

CONNECTED CARS
• Retrieve and manage in-vehicle and environmental data through the Cloud
• Predict maintenance
• Offer services and information
• Create an engaging experience of Brand-related ownership
• Keep the customer connected to their home and office
SYSTEM ARCHITECTURE

CONNECTIVITY SYSTEM LAYOUT AND ARCHITECTURE

ON-BOARD **TELEMATIC BOX MODULE (TBM)** CONNECTING THE VEHICLE WITH INTERNET AND FCA SERVICE DELIVERY PLATFORM (SDP)
The Service Delivery Platform is a cloud based open architecture:

- Scalable and flexible to support services and technology evolution
- Maximum cybersecurity
- Easy to integrate and interface with any service provider

OFF-BOARD CONNECTIVITY
CONNECTIVITY GENERATES EXTENSIVE BENEFITS TO MULTIPLE STAKEHOLDERS IN THE ECOSYSTEM

Driver/Passenger:
- Personalized Experience
- Content Notifications
- Operational Health
- Vehicle Alerts
- Contextual Offers

Fleet Operator:
- Operational Data
- Customer Data
- Fleet Optimization Data

Service Provider:
- Usage Data
- Over The Air SW Update
- Recall Notification

FCA:
- Telemetry/Usage Data
- Issue Identification

Dealership:
- Commands
- Dealer Specific Offers

Commands:
- Over The Air
- SW Update

Recall Notification

Telemetry/
Usage Data

Issue Identification
SERVICES

- OTA UPDATE
- MAINTENANCE VEHICLE HEALTH REPORT
- INFOTAINMENT STREAMING MEDIA
- SAFETY AUTOMATIC SOS CALL
- SECURITY STOLEN VEHICLE LOCATOR
- EV SPECIFIC CHARGING POINTS
- NAVIGATION TRAFFIC & WEATHER
- CONVENIENCE REMOTE SERVICE
- USAGE-BASED INSURANCE
- DRIVING STYLE ECO COACHING
- CONNECTED SERVICES
  - Futureproof
  - Expandable
  - Adaptable

HEAD UNIT

MOBILE APP & SMARTWATCH

WEBSITE

CALL CENTER

MULTIPLE TOUCHPOINTS
Autonomous Driving
CORE TECHNOLOGIES FOR AD

- **HIGH-SPEED COMPUTING**
- **COMPUTER-VISION & IMAGE-PROCESSING**
- **EXTENSIVE SOFTWARE DEVELOPMENT INCLUDING AI**
- **SENSOR & SENSING TECHNOLOGY**
OPTIONALITY AND CHOICES

DO…

✔ BE PRESENT AND CLOSE TO AD DEVELOPMENTS
✔ DIVERSIFY APPROACH IN AREAS WITH HIGHEST PROBABILITY OF SUCCESS
✔ ACCESS POOL OF TECHNOLOGIES THROUGH COLLABORATIONS
✔ BECOME BENEFICIARIES OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

DON’T…

✘ PAY HEAVILY FOR THE EXPERIMENTATION
✘ MAKE BOLD CHOICES WHICH LIMITS FREEDOM AND ENTAILS HIGH RISK
✘ PLACE DEPENDENCY FOR SUCCESS ON A SINGLE PLAN OR PATH
✘ PRESUME NOVICES CAN BE PRESCRIBERS
MARKETS
Potential opportunities and needs

TRANSPORT–AS-A-SERVICE (LEVEL 4 AND 5)

FINANCIAL TIMES

“...global revenues from self-driving technology by 2030 will be up to $2.8tn, with Alphabet’s Waymo potential global leader in the MoD area…”

UBS
Forecast 05/2018

PRIVATE RETAIL (LEVEL 2+ TO 3)

LEVEL 2+/3 NEEDED FOR COMPETIVENESS

IN MARKETS 2019-2021

TRUE AUTONOMY AS OF 2023
FCA TO PARTNER WITH THREE OF THE MAJOR TECHNOLOGY PLAYERS IN AUTONOMOUS DRIVING AND ARTIFICIAL INTELLIGENCE
PARTNERSHIP WITH WAYMO
The clear leader in Level 4 technology

Up to 62,000 Pacifica Hybrids over the next three years

FCA AND WAYMO BEGINNING DISCUSSIONS ON DEVELOPING A WAYMO-EQUIPPED FULLY SELF-DRIVING VEHICLE FOR FCA RETAIL CUSTOMERS
PARTNERSHIP WITH BMW
Level 3 system for highway application

FURTHER DEFINED PARTNERSHIP STRUCTURE

DEVELOP AUTONOMOUS TECHNOLOGY FOCUSED ON LEVEL 3

FCA Engineers embedded with BMW Teams at BMW’s AD campus near Munich

SHARE RESOURCES INCLUDING DATA FOR VALIDATION & RELIABILITY TESTING

SHARE UNDERLYING INVESTMENTS
PARTNERSHIP WITH APTIV
The most advanced Tier 1 in L2+ systems

EXPANDING COLLABORATION OF AUTONOMOUS TECHNOLOGY STUDIES AND DEVELOPMENT PROJECTS

• A P T I V •

L2+ SYSTEMS TO BE INTRODUCED IN FCA 2020CY LAUNCHES

• A P T I V •
FCA’S MULTI-PRONGED APPROACH:

- BROAD ACCESS TO A RANGE OF TECHNOLOGY
- DELIVER NEAR-TERM ADVANCEMENTS
- PARTICIPATE IN THE MoD/TaaS REVENUE STREAMS
- AMONG THE FIRST OEMS TO RETAIL MARKET