

GROUP INTERIM REPORTER



"paragon enters the new year with optimism"

"Significant increase in profitability achieved in Q1/2024"

"Forecast for the current financial year confirmed unchanged"

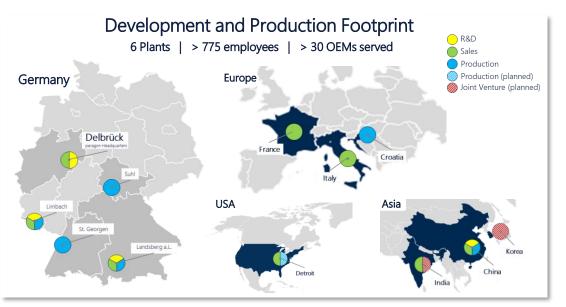


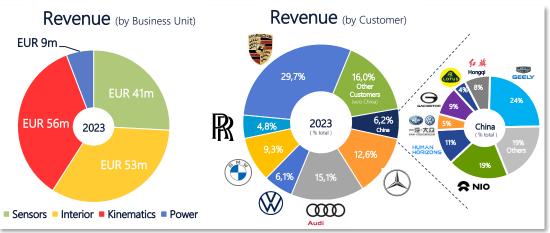
# **Executive Summary**

#### **Business Description**

- paragon is a product pioneer for the automotive industry with long lasting relationships with a high number of blue-chip customers
- ☐ The company proactively develops proprietary products along the global megatrends to address issues the premium automotive OEMs may not even have considered yet
- paragon is headquartered in Delbrück (Germany) and listed on the regulated market (Prime Standard) of the Frankfurt Stock Exchange
- paragon has strong engineering and deep value creation capabilities that enable variable innovative solutions across car lines and customers
- Deep footprint in the automotive industry with an ability to adapt on moving market trends
- □ 2023 revenues at EUR 161.6m, EBITDA of EUR 25.2m

# Broad Product Portfolio Sensors Broad Product Portfolio Kinematics Power







# paragon in a Nutshell



8 out of 12 Global Megatrends

No Dependency of combustion engines

>150m Air Quality Sensors

8.7% CAGR (2013-2023) Risk diversification

Broad Portfolio

>30 OEMs | > 220 Vehicles

> 300 Products

90% Single-Source share Market Leader
in most of
25
Product Groups

13% of 779 employees in R&D Substantial
Operational
Improvement Plan

Multi-focus
Growth Strategy
drives Cash-Flow

7th

new vehicle is equipped with paragon technology

Globally

# Megatrends are changing the world - Multi-focus Strategy addresses Growth Drivers



Megatrends

nability

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nization

ization



- ☐ Product portfolio supports 8 of current 12 megatrends
- Future usage of paragon's products in higher-volume models and by more OEMs in Europe and China

Growth Drivers		Demands		paragon's Business Units		Safety	Mobilit	New V	Health	Sustair	Conne	Custon	Urbani
<ul><li>Increased Pollution in larger Cities</li><li>More Health Awareness</li></ul>	drives	In-Cabin Air Quality	addressed by	Sensors	supports	<b>⋖</b>			<b>(</b>				<b>(</b>
<ul><li>□ Climate Change</li><li>□ CO<sub>2</sub>-Reduction</li></ul>	drives	Energy Efficiency	addressed by	Kinematics Power	supports		•			<b>∀</b>			
<ul><li>More Time in the Car</li><li>Autonomous Driving</li></ul>	drives	Convenience	addressed by	Interior Kinematics	supports	<b>(</b>	4	V			4	4	<b>(</b>



#### **Air Quality Sensor**



- Automatic control of the vehicle recirculation flap
- Reduction of dangerous emissions inside the cabin
- Advanced technology for detection of toxic gases and unpleasant smell
- High-sophisticated SW-algorithms for detection of special traffic situations
- Over 150 million pcs. produced

#### DUSTDETECT



- Measurement of particulate matter outside and in-cabin
- Exterior and interior installation
- Laser sensor with optical particle counting
- Size discrimination PM1, PM2.5 and PM10

## **Key Customer**













**GAC MOTOR** 

#### **Competitors**





#### **DUSTPROTECT**



- High-voltage plasma filter cleans air inside vehicle's cabin by filtering particles and viruses
- Much better than state of the art filtration systems
- Saving space, energy, waste and costs in comparison to HEPA
- Constant efficiency over lifetime

#### **Air Quality Improver**



- Fresh air effect by artificial ionization
- Enhancing of wellbeing of vehicle passengers
- Fine dusts, gases and smells are bound by negative ions
- Reduction of germs and bacteria in vehicle interior through physical air treatment

#### **Comments**

#### Key Driver Urbanization

- o Global urban population has grown by a factor of 6 since 1950; by 2050 68% of the global population will live in cities
- Due to globally high levels of air pollution in heavily frequented, urbanized areas politically induced strategies to reduce the health impacts of air pollution are gaining international importance

#### Key Driver "Well-being" inside the vehicle

- Growing number of OEMs reacting to changing customers requirements by integrating health and wellness enhancing features into vehicles
- Today, paragon is the widely recognized world market leader in automotive interior air quality management systems (AQS market share ca. 85%)
- All sensor products (including the gas-sensor elements) are developed and produced in house
- Going forward, paragon will further benefit from potentially higher take-rates for air quality solutions in passenger cars, particularly with the DUSTPROTECT virus filter system (e.g. Chinese OEMs as new customers for the filter system)



#### Loudspeakers



- Broad product spectrum incl. sound systems and signal processing
- Tweeters, midranges, subwoofers, headrest & ultimate speakers
- Special solutions like exciters, air motion transformers, high-temp. exhaust speakers, external speakers
- Small to high volumes, entry to award-winning high-end levels
- White label branding possible (e.g. B&O, Bespoke Audio, ETON)

Instruments

#### **Microphones**



 Multiple use cases such as voice assistance, vehicle noise control, handsfree and in-car

communication, road and wind noise cancellation, external microphones for autonomous driving

- Clever combination of acoustical mechanics & adaptive electronic filter
- Very low wind sensitivity
- Analogue and digital interfaces
- Cutting edge tech and efficient manufacturing

#### **Wireless Charging**



- Market leader with very well-known chrono-
- meters, analogue clocks, compasses and control applications
- The choice for premium & luxury cars
- Many more analogue and hybrid instruments for any use case
- Own design team to meet any customer requirement
- Inhouse stepper motor and plastic parts development and mass production

# High efficiency v



- High efficiency wireless charger based on Qistandard
- Patented active cooling system
- Self diagnostic
- Member of Wireless Power Consortium (WPC) since 2013

# **Key Customer Competitors** Premium Sound Solutions HOSIDEN MIA **HARMAN**

- Key Driver Adoption of smartphones
  - Popularity of smartphones driving the demand for integrated in car infotainment systems to perform tasks hands-free
- Key Driver Cloud technology
  - Cloud technologies enable live media streaming features and enhance end user convenience, while using infotainment systems
- Key Driver Regulation
  - From July 2019, an "Acoustic Vehicle Alerting System" (AVAS) is mandatory in the EU for hybrid electric and pure electric vehicles
- paragon is well renowned for superior acoustics, customizable design and best-in-class sound systems
- paragon's analogue instruments and displays are characterized by their exceptional design, and high-quality materials
- Easy aftermarket upgrades paired with over 30 years of loudspeaker experience
- The Interior division is an exciting business unit with wide portfolio and a lot of opportunities



#### **Spoilers**



- Electro-mechanical systems for high variety of vehicles
- Application in sportscars, hatch, station cars, SUVs, e-vehicles & trucks
- High innovation and realization competence
- Range extension for e-vehicle by reduction of air resistance

**Folding Tables** 

#### **Actuators**



- Drive systems for active spoilers and seat adjustment
- Integrated electronics and sensors for advanced vehicle architecture
- Multi-stage gear reduction with powerful DC-motors
- Fast operation of heavy loads

#### **Key Customer**

















#### **Competitors**





- Special folding system to minimize space
- Various electronic interfaces (wireless charging, USB-C, displays and keyboards
- Lightweight through use of magnesium and aluminum
- Resists head impact
- Meets various crash requirements

#### **Special Kinematics**



- Tailor-made solutions with costeffective development
- Electrical lowering mechanism of hood ornament
- Anti-theft and pedestrian crash protection
- Wind deflectors for convertible cars and motorcycles
- Easy operation with 3D-movement

- Key Driver Efficiency
  - Aerodynamic drag or wind resistance is considered a primary concern in vehicle design
- Key Driver Better mileage
  - As weight saving is more complicated in electric vehicles, aerodynamic drag plays an essential role in determining an electric vehicle's range
- Key Driver Vehicle stability
  - With faster and sophisticated vehicles, rear spoilers play a major role regarding safety concerns from vehicle aerodynamics
- paragon is the **world's leading company** in the fields of active mobile aerodynamics
- China is identified as growing market for aerodynamic solutions; paragon received various orders from Chinese OEMs and leads this market as well
- With innovative technical solutions, paragon increases the efficiency and the comfort of cars' moving parts, both interior and exterior



#### **Battery Management Systems**



- Huge background with ECU projects
- Predictive algorithms
- Intelligent balancing
- SW-based safety concept incl. topedge SOC/SOH-calculation
- New quiescent current concept (deep-sleep and transport modes for extended shelf life)

#### **Traction Batteries**



- Lightweight conceptsUse of Flow-Shape-Design technology
- Embedded battery safety
- "Lord of the cells" battery management

#### **Key Customer**





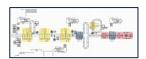


#### Flow-Shape-Design



- Expanded foam as case for battery systems and modules
- Substitution of conventional metal housing
- Less weight/space/costs
- Absorption of shocks/vibration/ shocks/temperature
- Licenses available

#### Consulting



- Technology transfer in regards of Flow-Shape-Design
- Projecting and realization of production lines
- In-house production of test equipment
- Turn-key projects

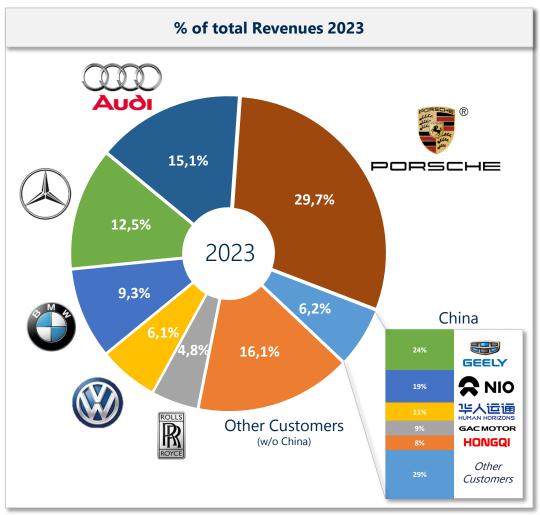
#### **Competitors**



- Key Driver Electromobility
  - Ongoing demand of customers for battery solutions which are new in this field and not the big players yet
- Key Driver Lightweight
  - OEMs searching for technologies to save weight and costs
- paragon develops, produces and supplies highsophisticated lithium-ion battery systems
- The product portfolio has strong advantages because of lithium-ion and FSD-technology, paired with BMS incl. predictive algorithms
- The portfolio contains of:
  - (1) Cutting-edge battery management systems (BMS)
  - (2) Traction batteries characterized by lightweight design and excellent system safety
- There are major potential order intakes over the coming years that would result in a beyond market growth curve and which is not yet considered within the forecasted figures



# paragon's Premium Automotive Customers 2023



Tenure i	n Years		
	> 28		
	> 25		
	> 23		
ROLLS	> 21		
Service Servic	> 20		
	> 20		
Single Sou	rce Quota		
90%			

- paragon is a trusted partner and supplier of choice for global blue-chip customers
- Top 10 customers account for approx. 83% of the company's total revenue and have an average tenure of 17 years
- For the vast majority of customers (approx. 90%) paragon is the single source, demonstrating high satisfaction and loyalty
- As a midsize automotive **Tier 1-supplier**, paragon was able to successfully position itself in interesting growth segments
- Through the blue-chip customers, paragon has a broad network at the core of the automotive industry



# FY 2023: Financial Highlights at a Glance

Top line stable at EUR 161.6m despite phase out of a sensor product Asset deal with Clarios lead to a profit in the mid single EURm range EBITDA (cont. business) at EUR 17.7m; EBITDA (group) at EUR 25.2m CHF-bond fully repaid; Start of buy-back program for EUR-bond Reduction of net debt by EUR 30m in one year



# **P&L Development paragon**

Income Statement in MEUR	2022	2023
Revenues	160,7	161,6
Other own work capitalized	5,1	3,9
Change of finished goods	0,1	-1,5
Other operating income	4,6	12,1
Total operating performance	170,4	176,1
Costs of materials	-94,6	-91,5
Personnel expenses	-41,0	-44,2
Other operating expenses	-24,6	-22,7
EBITDA	10,2	17,7
Depreciation & amortization	-14,6	-16,6
EBIT	-4,4	1,1
EBITDA paragon semvox	4,7	7,6
Group EBITDA	14,9	25,2

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Commer	TC.

- Revenues stable at EUR 161.6m
- Reduction of own work capitalized due to higher reimbursements of development costs from customers
- Other operating income includes profit impact of asset deal with Clarios
- **EBITDA**:

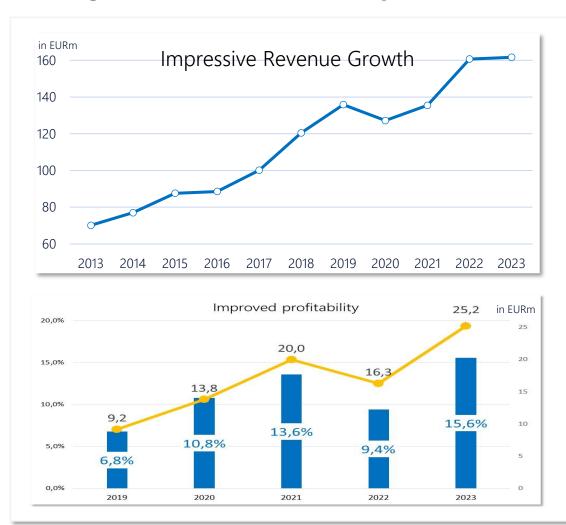
Continued operations: EUR 17.7m

paragon semvox: EUR 7.6m

Group level: EUR 25.2m



# **Strong Revenue Growth – Improved Profitability**



#### **Comments**

#### Revenue Growth

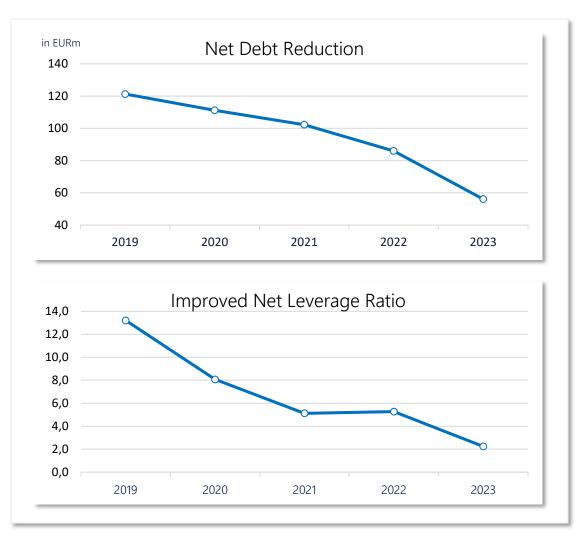
- paragon increased revenues due to its proven business model by more than 125% in the last ten years (CAGR 8.7%)
- paragon has demonstrated resilience during past global crises
- Revenues in 2023 amount to EUR 161.6m although...
  - paragon intentionally ended business with one sensor product by July 2023 (ca. EUR 1.2m/month) and
  - Business with low voltage batteries was sold to Clarios on Sept 30, 2023

# Improved Profitability

- EBITDA in 2023 amounts to EUR 25.2m
- ☐ Thereof EUR 7.6m resulting from discontinued operations (prior year EUR 4.7m)



## **Substantial Debt Reduction**



#### **Comments**

### Net Debt Reduction

- Since end of 2019 net debt was reduced by more than 50% from EUR 121.3m to EUR 57.7m
- Average monthly reduction in the last 48 months was EUR 1.3m
- paragon has achieved a solid base

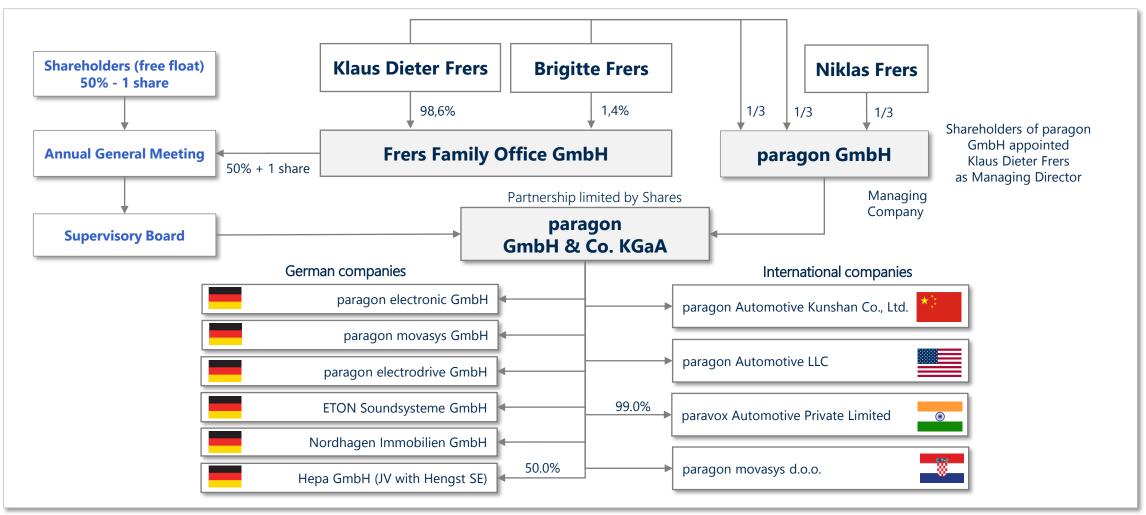
## \_ Improved Net Leverage Ratio ("NLR")

- NLR improved from 13.2 to 2.28 in the last four years due to reduced debt level and improved profitability
- Interest rate of bond depends on net leverage ratio; NLR <2.5 led to an interest rate of 7.5% from Jan 5, 2024, on

# The paragon-Story

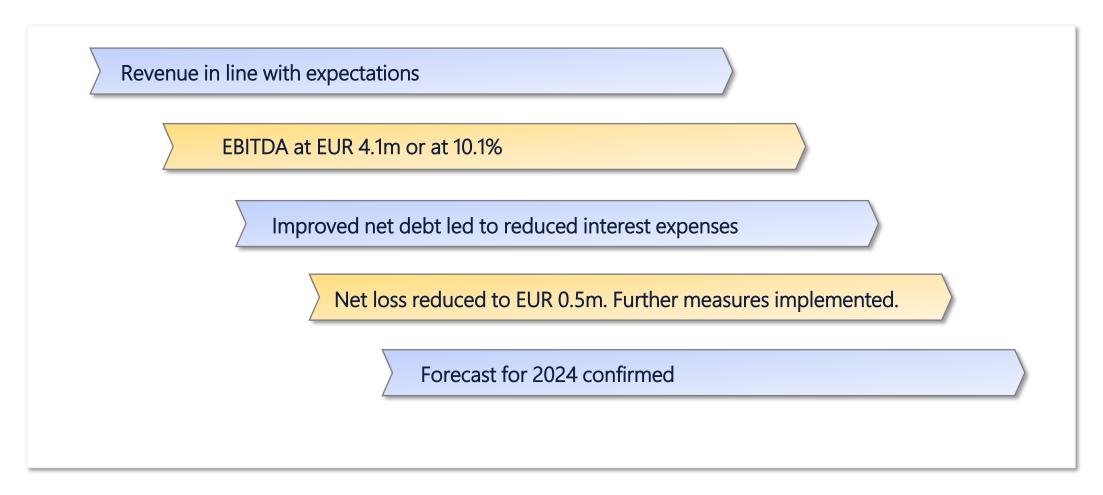


# **Corporate Organization ensures Stability**





# Q1/2024: Financial Highlights at a Glance





# **P&L Development paragon – First Quarter**

Income Statement in MEUR	Q1/2023	Q1/2024
Revenues	44,7	40,9
Other own work capitalized	0,1	0,8
Change of finished goods	-0,8	0,6
Other operating income	1,7	0,6
Total operating performance	45,7	42,9
Costs of materials	-25,4	-23,6
Personnel expenses	-11,1	-10,7
Other operating expenses	-5,4	-4,5
EBITDA	3,8	4,1
Depreciation & amortization	-3,3	-3,2
EBIT	0,5	0,9
Interests	-3,0	-1,6
Taxes	0,2	0,2
Earnings (continued operations)	-2,3	-0,5

Comments
Revenue and profitability in line with expectation for the first quarter 2024.
Decline in revenue in line with expectation and due to scheduled discontinuation of a sensor product in summer 2023.
Interest costs reduced due to lower net debt level.
Net loss reduced. Further measures being implemented.



# **EUR-Bond: Buy-back Program**

Nominal-Volume: EUR 50.0m

\_ Background: Actual terms and conditions modified in the course of prolongation in March 2022

Details: Nominal volume reduced to EUR 45.1m until end of December 2023

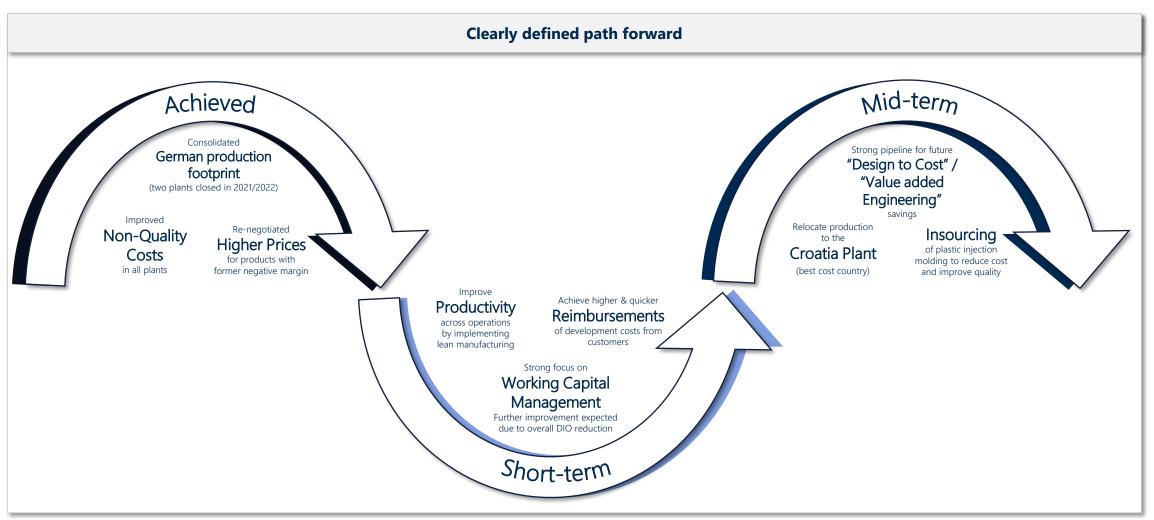
- Interest rate dependent on net leverage ratio confirmed by auditor at year end
- Down from 9.25% to 7.5% from January 5, 2024, on
- Bond is due July 5, 2027

Buy back program: Will lead to a further reduction of the nominal volume

- paragon proceeds with the communicated repurchasing program of EUR 20.1m
- program is limited in daily trading due to Market Abuse Regulation
- ☐ Until today paragon acquired EUR 0.5m



# paragon's Substantial Operational Improvement Plan





# **Forecast for 2024 (confirmed)**

**Revenues 2024e** 

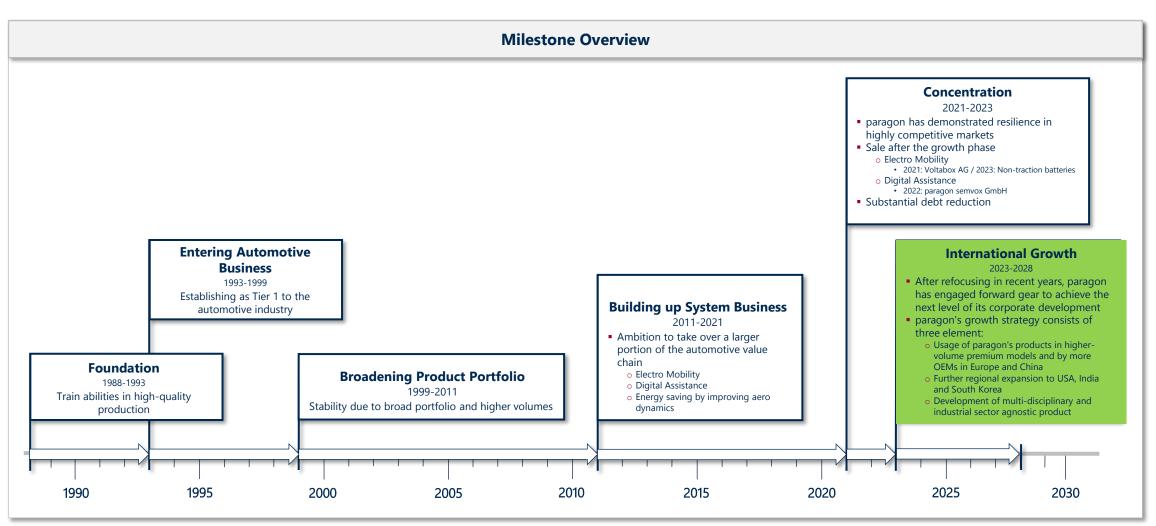
EUR 160 to 165m

**EBITDA 2024e** 

EUR 18 to 20m



# paragon's Growth Strategy has always Envolved





# paragon's Growth Strategy has always Envolved

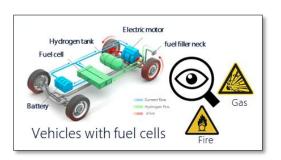


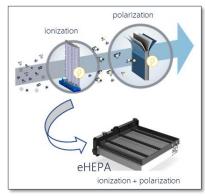


# Strategy for paragon's ongoing Growth - Intensification of using Growth Drivers

#### **Sensors**

- Full roll-out of electric filter DUSTPROTECT
- eHEPA using DUSTPROTECT-technology for HEPA-filters to reduce their space needs
- Addressing the upcoming fuel-cell market with sensors for SO<sub>2</sub> (sulfur dioxide) and filter lifetime
- Next level of enhancing in-cabin air quality (sterilization / neuralization of odors)
- Infrared CO<sub>2</sub> and propane sensor for climate systems (actual cooling medium will be banned)





#### **Kinematics**

- More spoiler systems for e-vehicles as key for longer range
- Integrated seat-technology for more comfort and autonomous driving, e.g. folding tables (lunch tray, rear passengers; integrated charging, display, keyboard)
- Charging doors for e-vehicles
- Actuators (e.g. for smart doors)





# Strategy for paragon's ongoing Growth - Intensification of using Growth Drivers

#### Interieur

- New technologies for a business with traditional imprinting due to thinking outside the box (clanging-free loudspeaker, high-quality subwoofer with mini space needs, external loudspeaker with horn function, green audio, lightweight)
- Shift away from combustion engines triggers OEMs to put more emphasis into acoustics
- Transfer of technology from home hi-fi into car hi-fi (e.g. Air-Motion-Transformer)
  - No other technology can replace loudspeakers!
  - o paragon's advantage: Outstanding know-how and reputation of loudspeakers for home hi-fi (ETON brand)
  - Loudspeakers will be one of paragon's TOP3 products in coming years (2026e-2029e: cumulative > EUR 200m)
  - Search started for location in best-cost-country for production of loudspeakers (ceasing supplies from China)

## Subwoofer system









- Hybrid instruments (digital display as face of an analogue multi-use information device "Edwin")
- More (5...8) and better microphones per car (speech control, Edwin in-car communication, noise cancellation, sound bubble)
- Wireless charging of mobile devices with higher power

#### **Green Audio**







**Wireless Charging** 

#### **Power**

- After selling the low-voltage battery business to Clarios, paragon remains Clarios' supplier for **Battery Management Systems** (BMS)
- paragon with its world-class smart technologies will play a role in the global **BMS-business** in future
- Main growth driver is the use of the game-changing **FSD-technologies** for traction batteries of vehicles







Flow Shape Design



**Traction Batteries** 



# **Continuation of Regional Expansion**







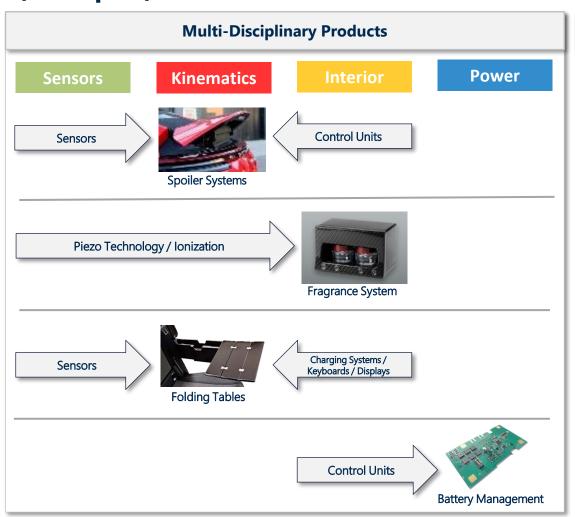


# **Key products** GEELY DUSTDETECT AQS sensors **⇔** NIO Spoilers 半人 HUMAN HORIZONS Spoilers **GAC MOTOR** AQS

- China's extreme urbanization represents a strong growth market for paragon's DUSTDETECT and DUSTPROTECT
- Compared with several independent market studies, the Asian automotive market will be the most relevant in the coming years and paragon has already set up established customer relationships with some well-known OEMs
- Besides the revenue potential, paragon is closely positioned to one of the most recent technologic development hubs in the automotive industry and can anticipate evolving trends more easily
- Revenue with Asian OEM's shall increase up to over 50% over the coming years but not yet in the budget
- Well-established spoiler business with strong Asian customer base



# paragon's Multi-Disciplinary Products and Potential for Non-Automotive Markets (examples)



#### **Standardized Components for Multi-Market Use**

- Based on existing products, development of standardized components for multimarket use
  - **Applications** for automotive as well as for non-automotive markets
  - **Development** of standardized components industry sector agnostic
    - ⇒ Lowering entry barriers for non-automotive markets
    - ⇒ Lower costs and shorter time-to-market

#### Examples:

- New ionizing element and high voltage control unit for next-generation DUSTPROTECT will work for industrial filtration and for home fireplaces
- New legislation for banning actual cooling medium will also apply for heat pumps and refrigerators → 2nd use of sensors in development
- Automotive dew-point and filter lifetime sensor can be used in heat pumps and as well in air condition/ventilation systems





# **Executive Summary**



# Since more than 35 years, paragon has built an Automotive Tier 1 with proprietary Products

# paragon at a Glance Well-established business model provides a strong foundation for further growth paragon has **demonstrated resilience** in highly competitive markets After refocusing in recent years, paragon is ready to achieve the next level of its corporate development

#### paragon's Growth Strategy

- paragon's growth strategy consists of three elements:
  - Usage of paragon's products in higher-volume premium models and by more OEMs in Europe and China
  - 2) Further **regional expansion** to USA, India and South Korea
  - 3) Development of multi-disciplinary and industrial sector agnostic products







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