# Let Smart Surface

"We want to make technology invisible and seamlessly integrated. We're here to disrupt hardware – turning conventional structures into smart, natural and interactive surfaces.

TACTOTEK

## Transforming the way smart surfaces are designed, manufactured and experienced

- Global leader and market maker in IMSE technology
- Capital efficient fabless IP Company with royalty model
- Technology based on decades long Finnish academia research
- 47 global patent families, **220+ granted patents**
- Top global automotive OEM validated technology
- 20 licensees signed, 15+ in negotiations
- HQ in Oulu, Finland; Offices in USA, Germany, Japan and South Korea with Head Count 90
- ISO9001 and ISO14001 certified
- Key Markets: Automotive, Aviation, Industrial & Appliances



# **Big Picture**













GENT

CORPORAT

### HIGHLIGHTS

- General automotive market pull continues strong new SOP projects & Tiers emerging
- Number of emblem projects growing fast 3  $\rightarrow$  15+ exploit the opportunity
- Mercedes top management & series production management workshops successes – IMSE pushed forward with all active MB.EA-L applications
- New Audi, BMW, Toyota, Nissan, Ford, Cupra, Tesla, Polestar, BYD SOP opportunities in the process
- Gentex business agreement closed €580k
  → 1st pre-paid royalties in company history
- Yanfeng license closed 1<sup>st</sup> phase €100k 3-way collaboration with Mercedes MB.EA-L started
- €15M+ potential VC & CVC money identified and in process

### OBJECTIVES

- Close long-term funding
- Finalize sustainability story and apply for Finnish Climate Fund
- Close additional licensing deals with Mercedes selected Tier1s ( Grupo Antolin, Eismann)
- Deliver successfully NRE projects
- Book + 6 meur sales for 2024
- Win 1<sup>st</sup> automotive award (Ferrari, Porsche. Polestar, BMW)
- Navigate complex OEM-Tier relationships

### CHALLENGES

- Automotive market eating up all resources → increasingly difficult to find cycles for other markets
- China market super active (Yanfeng, NHBX, Minth) – critical resourcing issue to serve the demand
- Macro Economics in Automotive pushing Tier1 budgets down and sales conversion out in Europe
- Global environment is a potential risk to financial VC funding

# TactoTek IMSE Process in Nutshell



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IMSE® DESIGN

# Disrupting Designing, Manufacturing & Experiencing UI

### **PROBLEM TODAY: RIGID, COMPLEX AND EXPENSIVE**



## **Conventional Electronics**

Heavy, deep, multy-layer assembly structures

- 64 parts + PCBA
- 20+ injection molding tools
- Costly assembly
- 45mm assembly depth
- 650 grams
- Large toxic-process PCBA as a base
- Vast production waste
- High CO<sub>2</sub> footprint

### SOLUTION: USER EXPERIENCE FOCUSED SMART SURFACES



## IMSE<sup>®</sup> Smart Molded Structures

Single-piece 3D structures integrate electronics, mechanics and cosmetics

- 1 molded part + small PCBA
- Fewer parts to design, less tooling, less inventory, minimal assembly, simplified supply chain with lower costs
- 3mm molded material thickness, 90% less
- 150 grams, 70% less
- TCO 25% less
- CO<sub>2</sub>eq 60% less

# IMSE<sup>®</sup> Technology Platforms for Innovative Applications

### IMSE LightChannels

- 3-5mm thick 3D vs 30mm+
- Multi-shot structure
- Highly integratable
- Bio and recycled plastics
- Exceeds industry lighting performance requirements
- Designed in automotive connector and heat management



### **IMSE SurfaceLight**

- 3-5mm thick 3D vs 30mm+
- Programmable LED matrix
- Full edge to edge light
- Integrated capacitive touch
- High-power light output
- Dynamic animation effects with low cost technology



### **IMSE Generic Features**

- True cost-efficient 3D designs with smart, thin and seamless structures
- Decorative surface with decorative inks, FIM or natural materials
- 1 to multifilm structures with 1-shot to multi-shot injection molding
- Multilayer printed circuitry with capacitive buttons, sliders and antennas
- In-molded components: diverse LEDs, passive and active components
- IMSE System in Package (SIP) for integrated controller and part digitalization
- Multiple standard, bio and recycled thermoplastics available: PC, ABS, PMMA, TPU, PP ...



## **IMSE SiP Enables Intelligent Surfaces**

### IMSE SiP (System-In-Package)

- Thermoplastic surface for adhesion
- Barrier filler for withstanding process & environmental stresses
- Terminals optimized for ISME SMT (adhesion)
- PCB with dense electronics

### Digitization of Plastics

- "Line-per-function" to "digital-bus"
- Software programmable
- Modular HW
- Complex functions
- Sensing near controls
- Improved noise sensitivity



## Industry Leading Environmental Impact

**BUILT IN** 

70% REDUCTION IN SIZE & WEIGHT, REDUCED MATERIAL USE

SUBSTANTIALLY LESS LOGISTICS & MANUFACTURING LOCATIONS

80% REDUCTION IN MANUFACTURING TOOLING

CONSIDERABLY SMALLER PCBS

Reduce Greenhouse Gas Emissions by 65% with IMSE **DEVELOPMENT FOCUS** 

TARGET: TO MOVE FROM PLASTICS ENERGY RECOVERY TO PLASTICS *RECYCLING* 

UP TO 100% RECOVERY OF SILVER AND OTHER METALS

100% RECYCLED SILVER AS FEEDSTOCK

RECYCLED & BIO-BASED PLASTICS IN IMSE

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# IMSE Handprint In Electronics Devices (MtCO<sub>2</sub>e)

Validated by AFRY



29% of Total Impact

9% of Total Impact

Total Visible Handprint by 2040: **243Mt** 

## TactoTek Business Model – Royalties through OEM Pull



Film Insert Molding Testing & QA

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### TARGETED AUTOMOTIVE DEVELOPMENT USE-CASES



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# TactoTek IMSE® Opportunities in Smart Home



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# TactoTek IMSE® Opportunities in Avlation

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## TactoTek IMSE LightChannels – Perfect for Emblems



Brands in automotive markets and broader are searching technologies to create illuminated branding effects for their products. IMSE LightChannels provides a perfect fit for the market requirements: ultra-thin, conformal and seamless packaging, with animated, powerful and uniform lighting performance in a more sustainable process vs. contemporary electronics. For TactoTek IMSE this is a faster time to broad market through relatively simple application with minimal technical competition.

### STRONG MARKET PULL

- Polestar (Front/Rear logo)
- Nissan (Front logo)
- Maserati (Front logo)
- Ferrari (Steering wheel logo)
- Porsche (Center console logo)
- BMW / Wiegand (C-pillar logo)
- Tesla / Zanini (Hubcap logo)

- BMW / Minth (Alpina C-pillar logo)
- Tata / Uno Minda (Front logo)
- Whirlpool / DuraTech (Washing machine logo)
- HHT (Front/Steering wheel logo)
- Mercedes (Front grill star illumination)
- Audi (Tailgate & front logo)

- Hyundai Kia (Steering wheel logo)
- Tesla (Steering wheel logo)
- Volvo Trucks (Front logo)
- Lynk&co (Front logo)
- Zeekr (Front logo)
- Plastic Omnium (Tailgate logo)
- Herrmans (Bicycle front logo)

# Highly Scalable Business Model Delivers Bottomline

### **GROWTH DRIVERS**

- Revenue based on licensing multi-patented stand-out technology platforms, further scaled via per manufactured part royalty model
- Solutions-engineering and design support services as key sales channels to an increasingly diversified portfolio of applications, lead by mobility lighting

#### Design & Innovate License

•	A comprehensive package of IP
	and expertise for the design of
	IMSE® parts

- Design rules
- Interface
- Application examples
- Hands on training
- TactoTek Online<sup>™</sup> access

#### Ecosystem Partners

- Engineering partners assist customers from design and concepting to prototype building
- Recycling ecosystem partners work with customers to build a comprehensive recycling plan
- Hand on trainings
- TactoTek Online<sup>™</sup> access

### Design/NRE Phase

- NRE fees
- D&I license subscriptions

Design partners: 75% of NRE

### Build & Deliver License

- Offers manufacturers the chance to produce IMSE® parts
   Instructions for IMSE
- manufacturing and testing
- Quality assurance guide Validated materials and electronic
- library Reference process layouts ,
- equipment Hand on trainings
- TactoTek Online™ access

### Strategic License

Tailored joint innovation and strategic licensing initiatives with a customized approach Enhanced resource allocation and specialized service levels Strategic licensees gain priority access to innovative features, reference designs, and technologies, and have the opportunity to collaborate with TactoTek in co-creation and roadmap development



#### Manufacturing Rights

- B&D fees
- Upfront royalties, 20% / 80%

OR

- Per part royalties
- Strategic licenses

## **Highly Experienced Management Team**



# Summary

- Validated paradigm shift technology and scalable IP business model 'the ARM of manufacturing'
- Horizontal technology enabling more sustainable, functional and cost-effective way to create HW UX
- Domain IP ownership through 200+ patents and related knowhow
- Product packaged as software using AI-technologies for efficient technology transfer
- Awarding processes ongoing with top automotive brtands and tiers
- 1<sup>st</sup> major award in consumer electronics developed, won and announced globally in 1Q2024
- Adjacent secondary markets identified and in early business development
- Mature team to execute and scale the business



### ТАСТОТЕК

## "

We want to remove the boundaries between technology and natural, human experiences – bringing intelligence to the surface.

We believe that improved customer experiences should not come at the expense of the environment.

