

CORPORATE PRESENTATION





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INTRODUCTION TO
THE PROBLEM



TECHNOLOGICAL
STANCE



POWER INNOTECH
AT A GLANCE



CONCLUDING
REMARKS



THE PROBLEM

POWER CONVERTERS are the vehicles for converting electrical energy. AC to DC is predominantly relevant in Electrochemical applications.

electrochemistry noun

elec·tro·chem·is·try | \ i-,lek-trō-'ke-mə-strē  \

Definition of *electrochemistry*

: a science that deals with the relation of electricity to chemical changes and with the interconversion of chemical and electrical energy

- ☐ WasteWater Treatments
- ☐ Materials Surface Finishing
- ☐ Metals Electro-synthesis

POWER ELECTRONICS APPLICATIONS

E-MOBILITY



INDUSTRY 4.0



AERONAUTICS

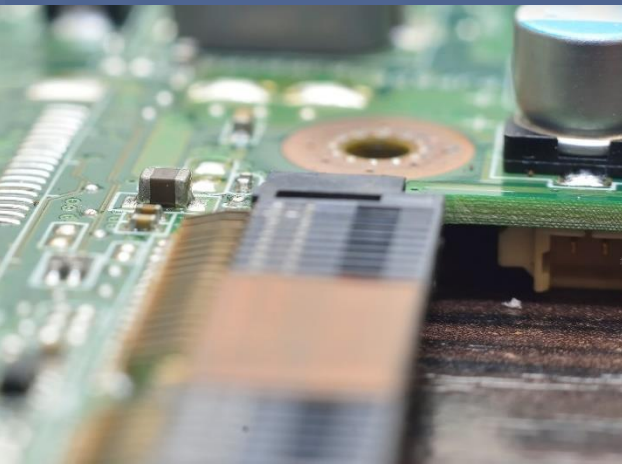


RENEWABLE ENERGY





THE PROBLEM



Step-Down Rectified Current [SDRC] power supply topology is wide-spread within the electrochemical processes. SDRCs, which convert AC to DC, have directly inherited the obsolete power electronics technologies of the 1970's, including a transformer and a rectifier. As a consequence, several drawbacks are associated:

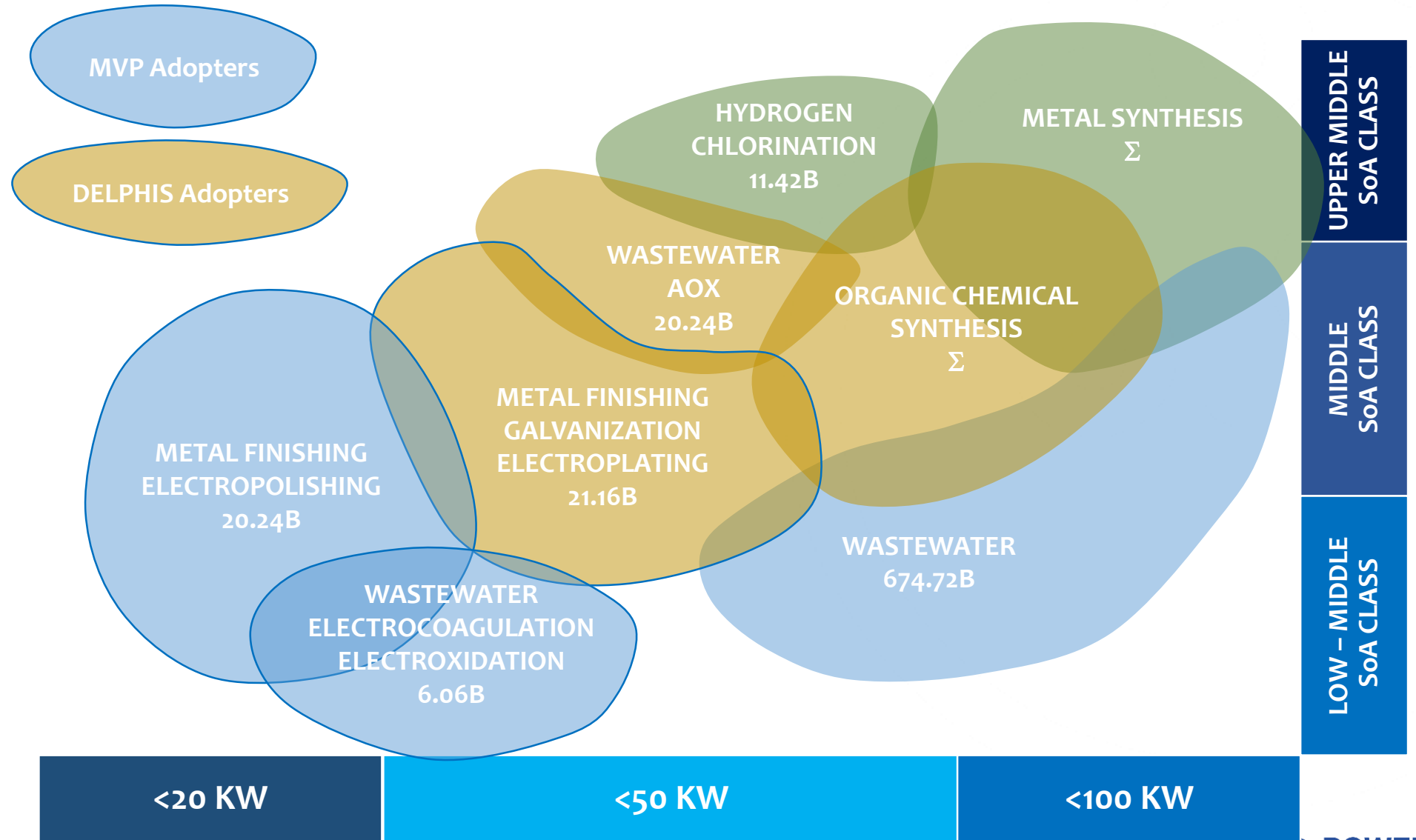


↳ Step-Down Rectified Current [SDRC] topology:

- ❌ Efficiency losses (25% higher than the load)
- ❌ Reactive Power ($\cos \varphi \ll 0.90$)
- ❌ Failure propensity
- ❌ High Volume – Huge Weight
- ❌ No real-time monitoring

A TRANSVERSAL OPPORTUNITY

Electrochemistry has been established as a **multibillion-dollar industry**.
Power electronics **SoA** has not pivoted on electrochemical applications.





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THE SOLUTION

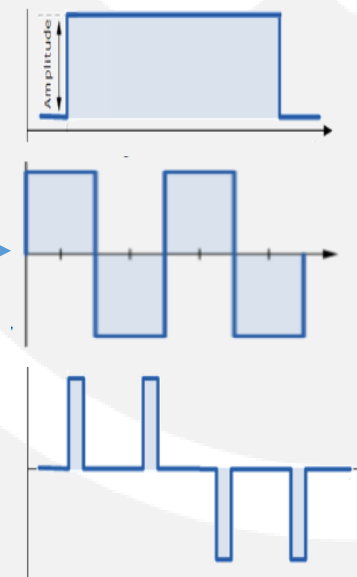
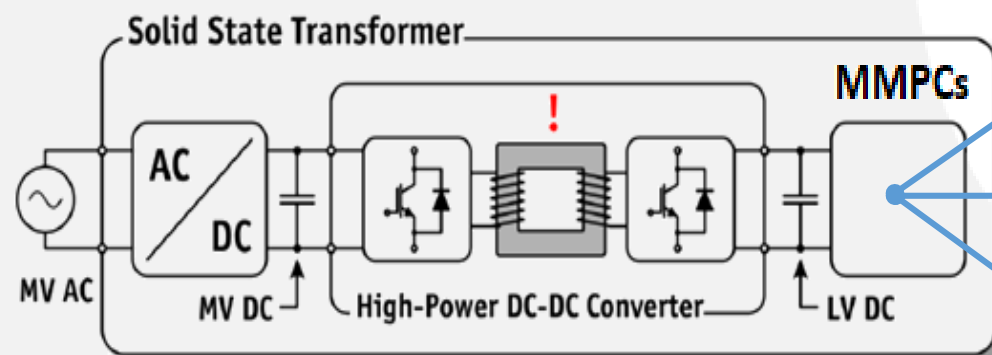
DELPHIS

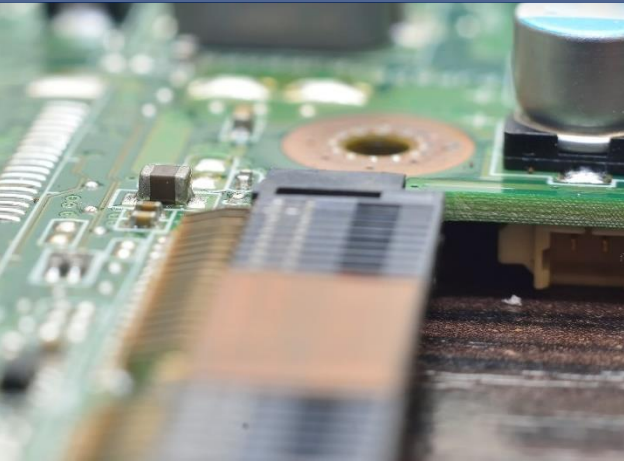
Disrupting **E**lectrochemical
Processes with **H**igh-Performance
Power **S**upplies



TECHNOLOGIES ADDRESSED

- i. Use of Semiconductors from Silicon Carbide (SiC) and Gallium Nitride (GaN)
- ii. Planar Transformer technologies (High Frequency)
- iii. Fault-Tolerant
- iv. Resonant Techniques
- v. PFCs Control
- vi. Advanced IoT Communication





DELIVERING BEST IN CLASS POWER ELECTRONICS

1. EXCELLENCE IN PERFORMANCE

Power sources offering i) high power density, ii) high frequency, and iii) high efficiency

2. PROFITABILITY COVERS CAPITAL COSTS

Commercial prices are aligned with marketed solutions, while ROI is achieved in < 9 months

3. TECHNIFICATION OF THE WHOLE INSTALLATION

Monitorisation, communication and control at power source is now possible (Industrial IoT)

**A PROVEN
BUSINESS MODEL
EVEN IN NEGATIVE
RATES
ENVIRONMENT**

CHARACTERISTICS

ENGINEERING

B2B / B2C Tailored solutions

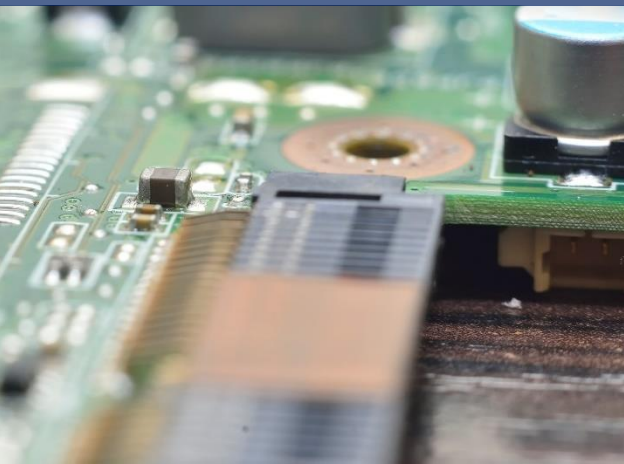
OEM

B2B - Power source – distributors – Turnkey

DELPHIS

B2C - End user

DELIVERING BEST IN CLASS POWER ELECTRONICS



Power Innotech have demonstrated its technical advantages in several installations. The figures addressed below corresponds to a 10m³ pig manure treatment plant located in Zaragoza (SPAIN), belonging to the company **eurogan**.

PARAMETER	CLASSICAL SYSTEMS	DELPHIS MVP	FINAL DELPHIS	TOTAL IMPROVEMENT
Average Efficiency	70 %	>75%	78%	+8%
Efficiency (@max current)	75% - 80%	>88%	95%	+15%
Weight	630 Kg	472 Kg	<170Kg	-75%
Volume	2,202 L	1,651 L	>500L	-70%
Power density	28.6 W/L	35.7 W/L	530.4W/L	+94.8%
Manufacturing cost	12,070 €	11,517 €	10,210€	-10%
Overconsumption	5 kW	3.75 kW	2.5 kW	-52%
Reactive Power	19.2 kVAR	1.92 kVAR	≈0.00 kVAR	-100%
WW Treatment cost*	0.45 €/m ³	0.29 €/m ³	0.20 €/m ³	-44.5%

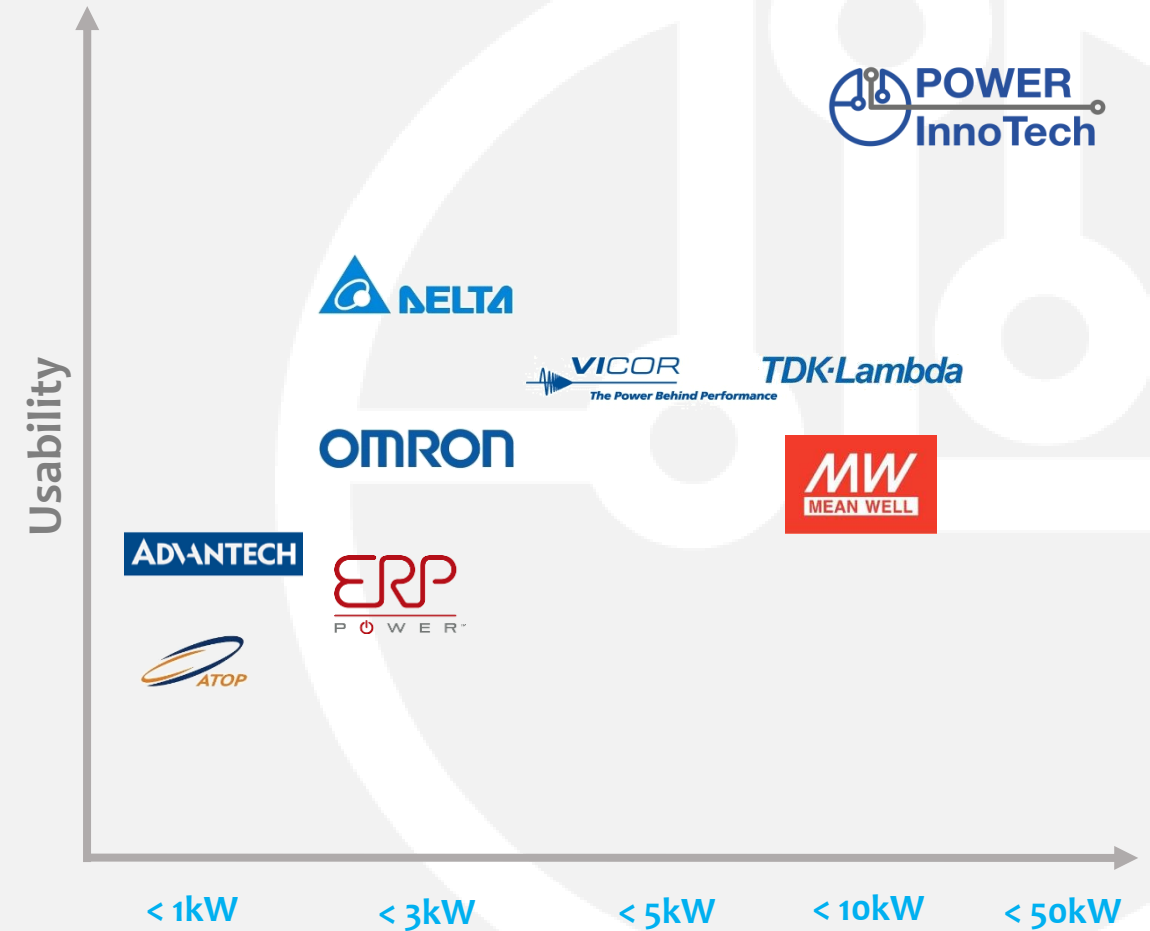
COMPETITIVE LANDSCAPE



ENGINEERING



OEM PROVIDERS





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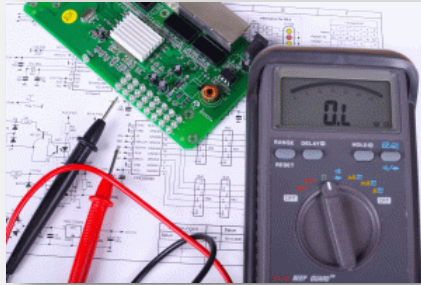


CONCLUDING
REMARKS

Our Skills!

POWER INNOTECH AT A GLANCE

Power Innotech is a Technological Start-up whose knowledge, products and services are focused on the **High Performance Power Electronics**.



Engineering



Development of
HW



Audit & Advice



Development
of SW & FW



Founded

June 2017



Offices

Terrassa (Barcelona), SPAIN



Partners

Research/Academia, Wastewater Treatment, Metal Finishing Sector



Structure

Privately-held; FFF



Business Model

B2B, B2C

MISSION, VISION AND VALUES

- **OUR MISSION** is to empower every electrochemical process on the planet by achieving more and consuming less.
- **VISION:** to become a first TIER, cutting-edge power technology company, providing the most advanced, reliable and modern solutions.
- **VALUES:**
 1. We are **customer focused**
 2. We never **stop improving**
 3. We are **transparent and brilliant**
 4. We move at the **speed of trust**
 - 5 . We are a **team**

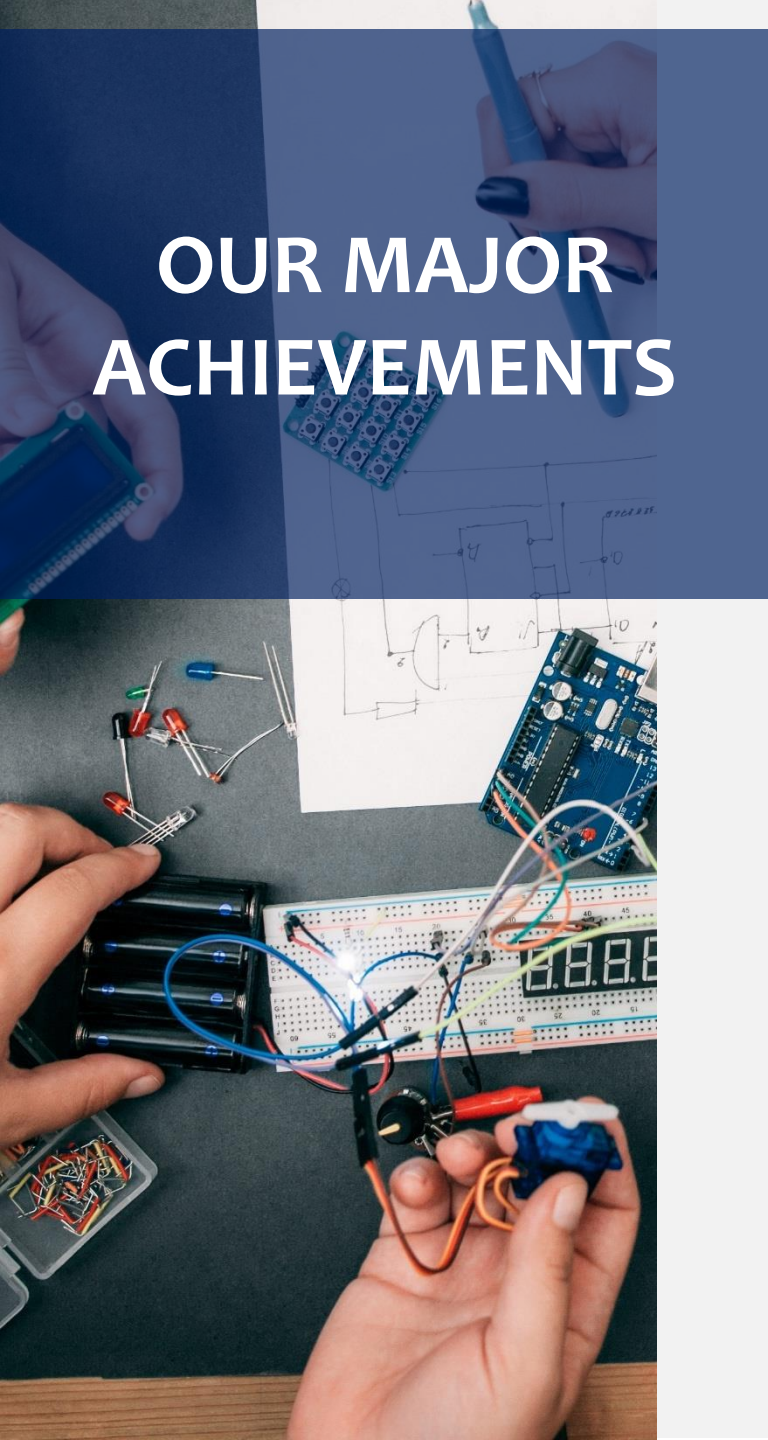


ROADMAP

2017 - 2020 PLAN

+18 years' experience in the design and optimization of advanced power converters, based SiC & GaN, active gate driving and fault tolerant systems.





OUR MAJOR ACHIEVEMENTS

- 10 MVPs sold in 2018
- 6 orders signed for 2019 (@ Jan '19)
- 3 pilots in development (120 potential contracts)
- Winner SME Instrument Phase 1 H2020
- Prized with EMPENTA – ESADE acceleration programme
- KIC and IQS Next Tech Candidates
- Organic growth (Positive EBIDTA)
- Increasing the team (8 employees + shareholders + advisors)
- Member of The WATER NETWORK

HIGHLIGHTED PARTNERS AND REFERENCES

CREE 

Wolfspeed 

HIMAG 
PLANAR

PAYTON
PLANAR

tc
TECNICAS REUNIDAS

Q HidroQuimia

Hidrowatt

APRIA
systems

Cyclus[®]
www.DepuracionIndustrial.com

SENER

GPA INNOVA

acciona
Agua

SITRa
agua industrial

GROUP
ttc

suez
environnement

eurogan

LEITAT Technological
Center
managing your technologies member of **TECNIO**

Fraunhofer
IGB

MCIA

CNM
CENTRO NACIONAL DE MICROELECTRONICA

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

UPC **UNIVERSITAT POLITÈCNICA DE CATALUNYA**
BARCELONATECH

eurecat
Centre Tecnològic de Catalunya



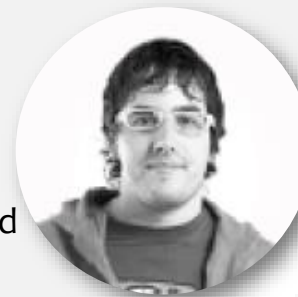
PhD. Vicent SALA
CEO and Founder

PhD. In Power Electronics, Head of MCIA Pow. Electronics, Professor UPC and EUNCET



MSc. Eng. Tomas RESANO
CTO and Founder

Electronics and Telecom Engineer. Project Manager and Senior Researcher



PhD. Jordi CUSIDÓ
Business Strategy and Partner

Founder of several Start-ups, as IGNITE, GARAGE LABS and SMARTIVE.



MSc. Eng. Victor HERRERO
CIO and Partner

MSc. In Chemical engineering. Entrepreneur. Expert in public/private funding.



MSc. Eng. Iratxe PERALES
COO and Partner

Double degree programme Industrial and Chemical engineering.

Other Team members

BSc. Víctor Morales – Software Developer
BSc. Manel Vilella – Hardware Developer
BSc. Raul Ruiz – Electric & Mechanical Designer

Advisors

MSc. Esther Lopez (AQUALOGY)
MSc. Lluís Carreras (TTC)
PhD. Julia García (LEITAT)

OUR TEAM



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- 1 DELPHIS comes from a REAL need
- 2 We have excellent contacts among the value chain
- 3 SoA technologies into traditional segments
- 4 Running pilots and orders confirm the potential and engagement
- 5 The product is targeting huge market segments
- 6 Execution, Commercialisation, Marketing and IPR plans are in place
- 7 DELPHIS IS OUR FLAGSHIP DEVELOPMENT

The background of the slide is a detailed image of a green printed circuit board (PCB) with various electronic components like resistors, capacitors, and integrated circuits. Overlaid on the PCB is a white network diagram consisting of numerous nodes connected by lines, resembling a complex web or a neural network. The text "THANK YOU!" is centered in a large, bold, dark red font.

THANK YOU!