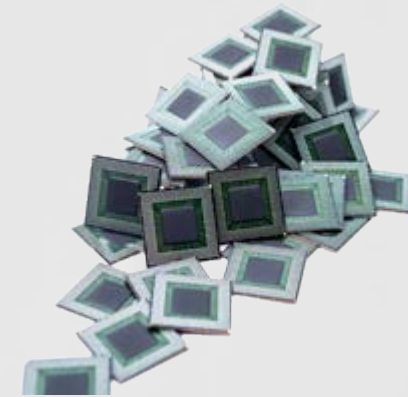




**mmeC**



SPACE PROJECTS COLLABORATION PLATFORM  
SUPPLY CHAIN MANAGEMENT

NICO BEYLEMANS

MARCH 2019

# OVERVIEW

- INTRODUCTION
- PORTFOLIO
- TODAY AND THE FUTURE

# TAKE HOME

- Different project options
- Opportunities and challenges
- Our contact details

# IMEC

4000 highly skilled researchers and employees

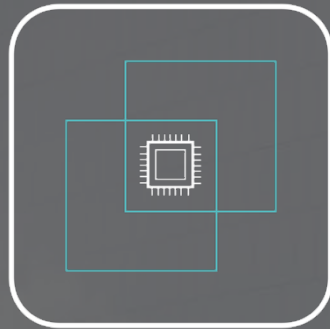
investment of 2B€ on advanced equipment

2,099 peer-reviewed papers in 2018

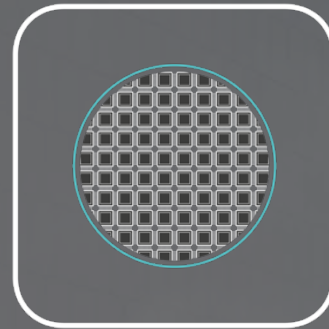
181 patents filed in 2018

Currently developing **2nm CMOS**

## MICROCHIP TECHNOLOGY ENABLES



INTEGRATION



MASS PRODUCTION



LOW COST

50 BILLION CONNECTED DEVICES BY 2020

**IOT  
SUPER BRAIN  
OF THE WORLD**



# IMEC. IC-LINK

## ASIC DESIGN, SERVICES AND PRODUCTION

> 1 000 COMPANIES AND ACADEMIC CUSTOMERS

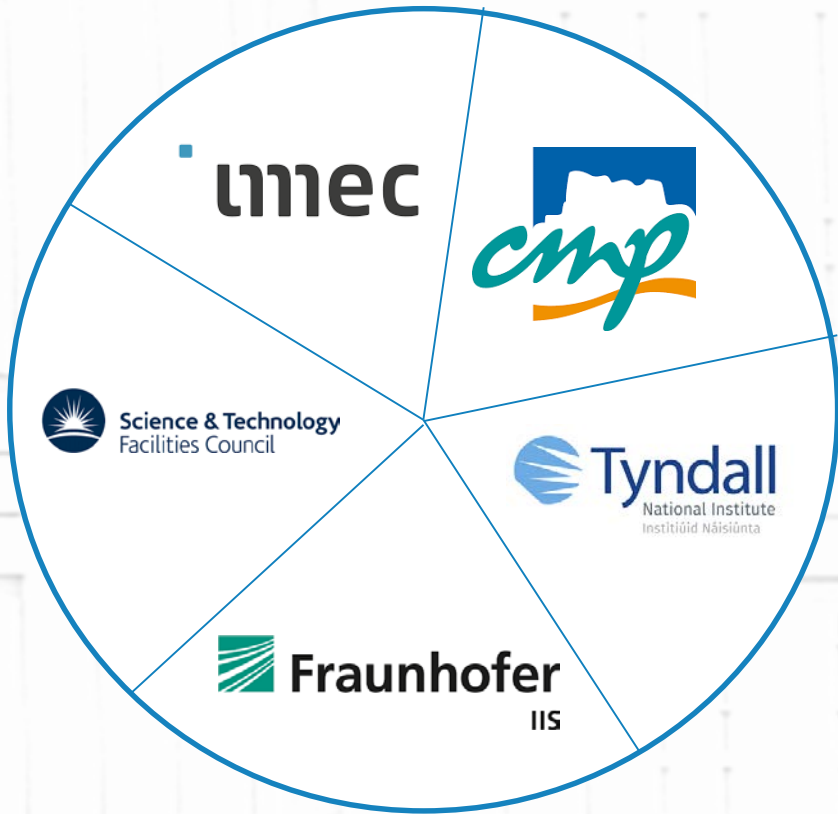
EUROPRACTICE SERVICE

DARE LIBRARY DEVELOPMENT

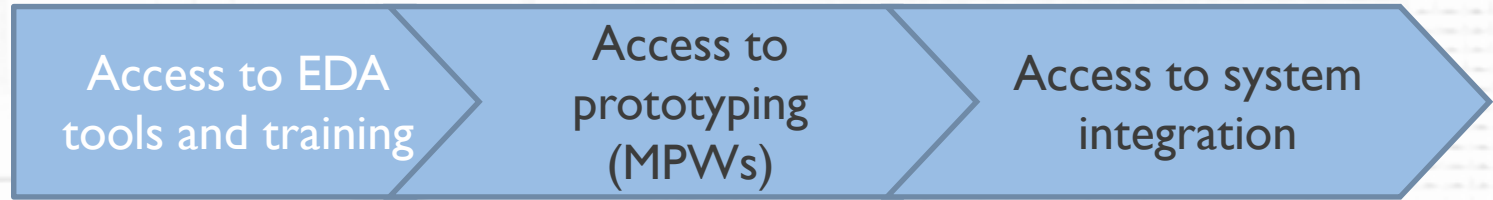
ASIC PRODUCTION



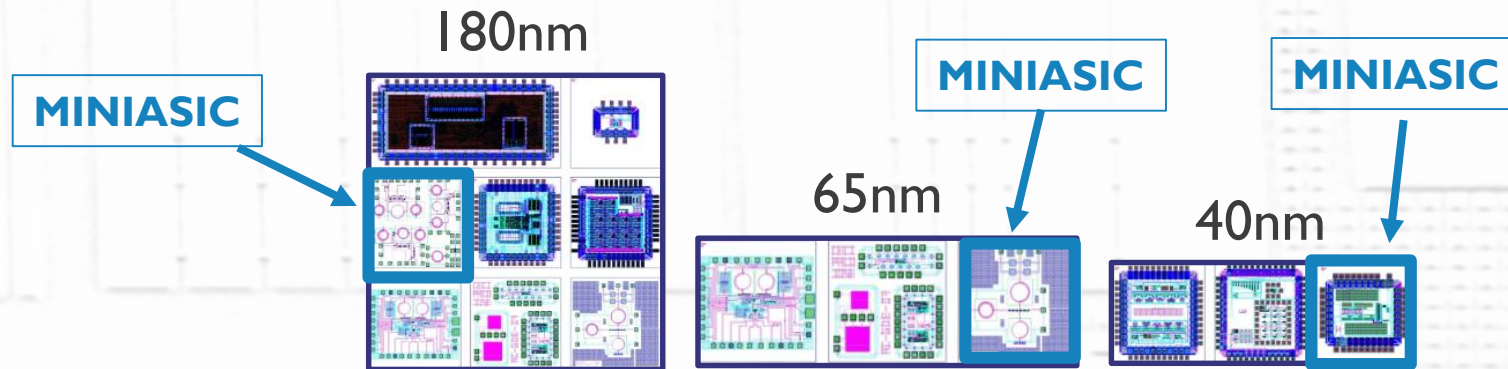
# EUROPRACTICE



Customer-base:  
Academics and industry  
(with focus on SMEs)



Technology-base:  
Commercial vendors / foundries and  
EU Pilot Lines



# DARE PLATFORMS



## DARE = DESIGN AGAINST RADIATION EFFECTS

- Cooperation with ESA & CERN
- Radiation-hardened-by-design libraries in standard commercial technology

- Lot validation up to Flight Module

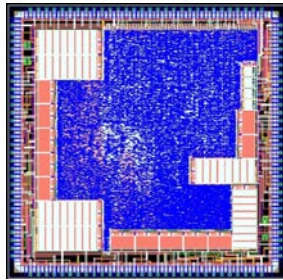
- Radiation-hardened-by-design libraries in standard commercial technologies

- DARE180U UMC MM/RF 180nm
- DARE180X XFAB XH018
- DARE90U UMC MM/RF 90nm
- DARE350ON OnSemi I3T80
- DARE65T TSMC 65nm LP
- DARE22G GF 22nm FDSOI
- (DARE16T TSMC I6FFC)

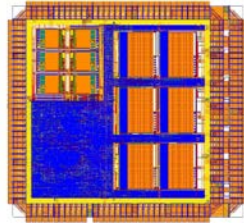
- <https://dare.imec-int.com/en/home>

- <https://www.imec-int.com/en/what-we-offer/ic-link/radiation-hardened-cmos-technology>

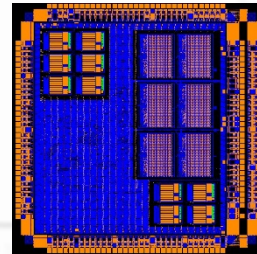
# APPLICATION CHIPS OVERVIEW



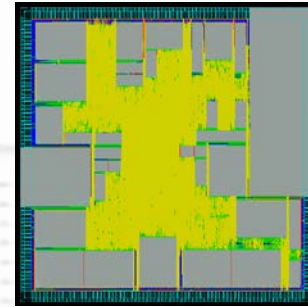
KNUT



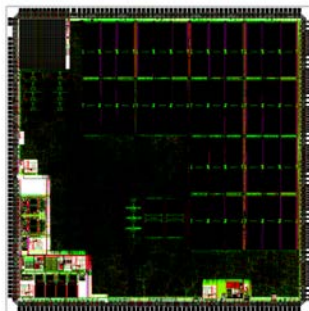
LARS



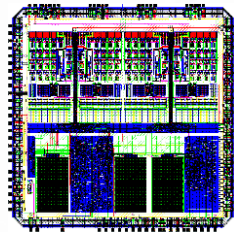
LARS2



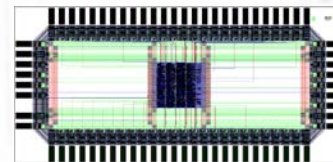
DPC



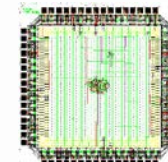
GR716  
microcontroller



FAIR



Digital companion  
to I3T80 chip

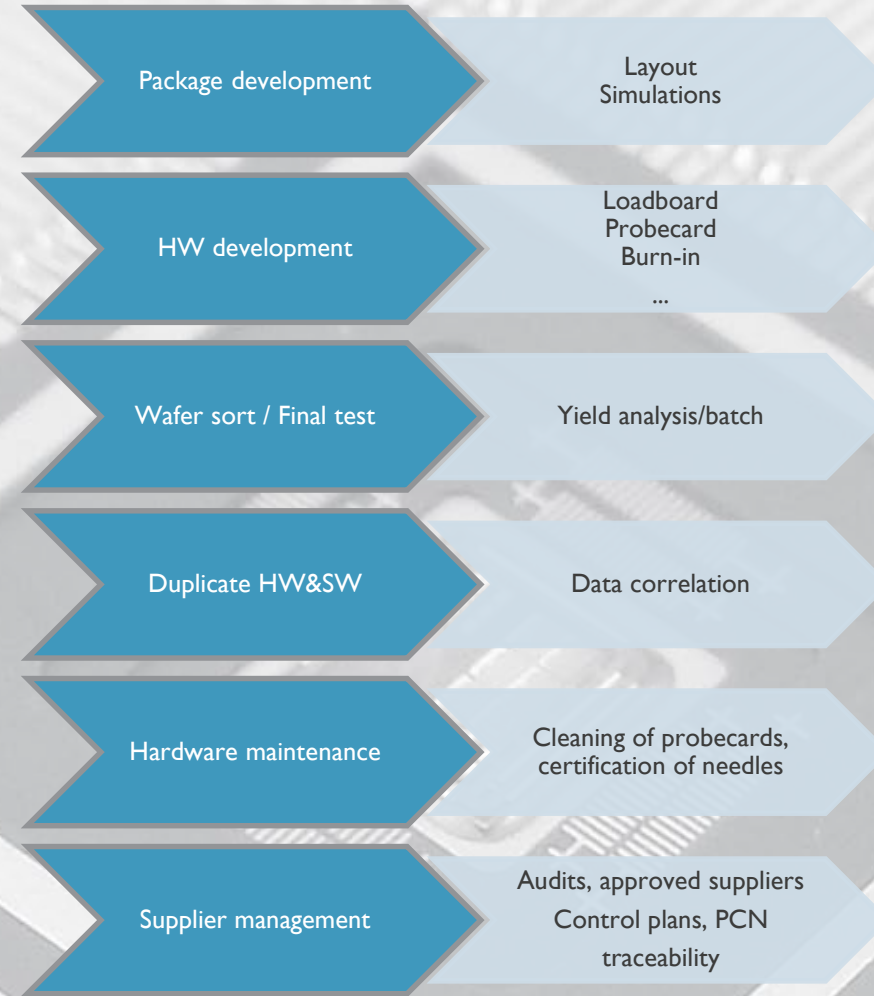
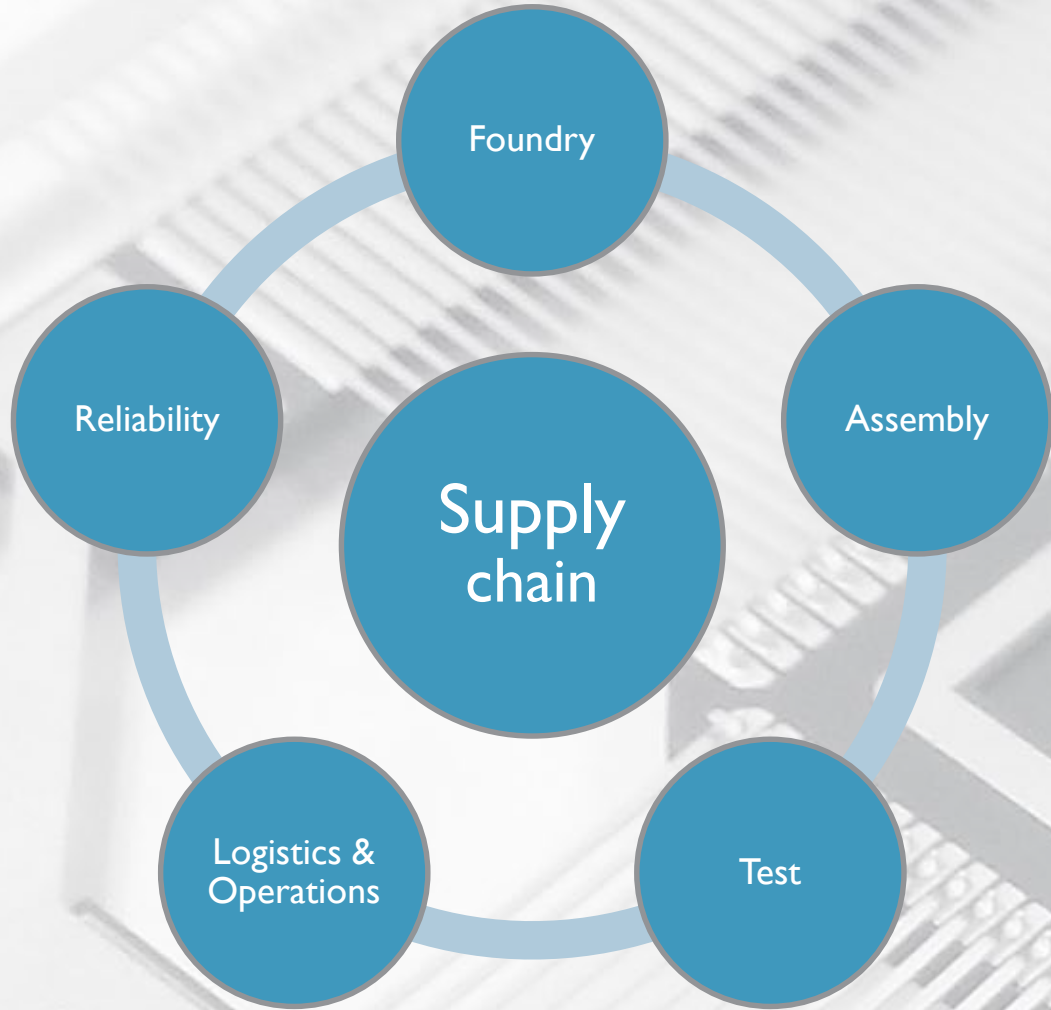


Relco



# ASIC PRODUCTION

## SUPPLY CHAIN DELIVERABLES



A trusted **one-stop-shop** for innovative products and prototypes

# AUTOMOTIVE PROJECT FLOW COMPLEMENTARY TO SPACE

Concept  
Initiation/Approval

Program  
Approval

Prototype

Pilot

Launch



Planning

Product design & dev.

Process design & development

Product & Process Validation

Planning

Production

Feedback Assessment and Corrective Action

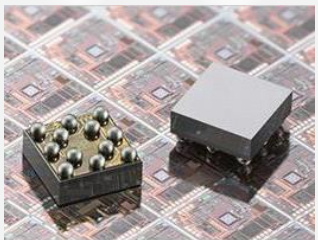
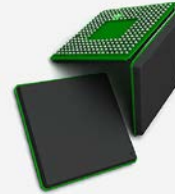
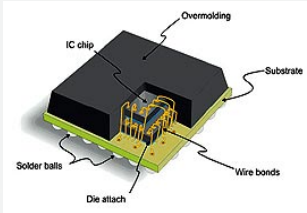
Plan & Define Program

Product Design &  
Development

Process Design &  
Development

Product & Process  
Validation

Feedback Assessment & Corrective Action





# THE FUTURE FORECAST AND CHALLENGES

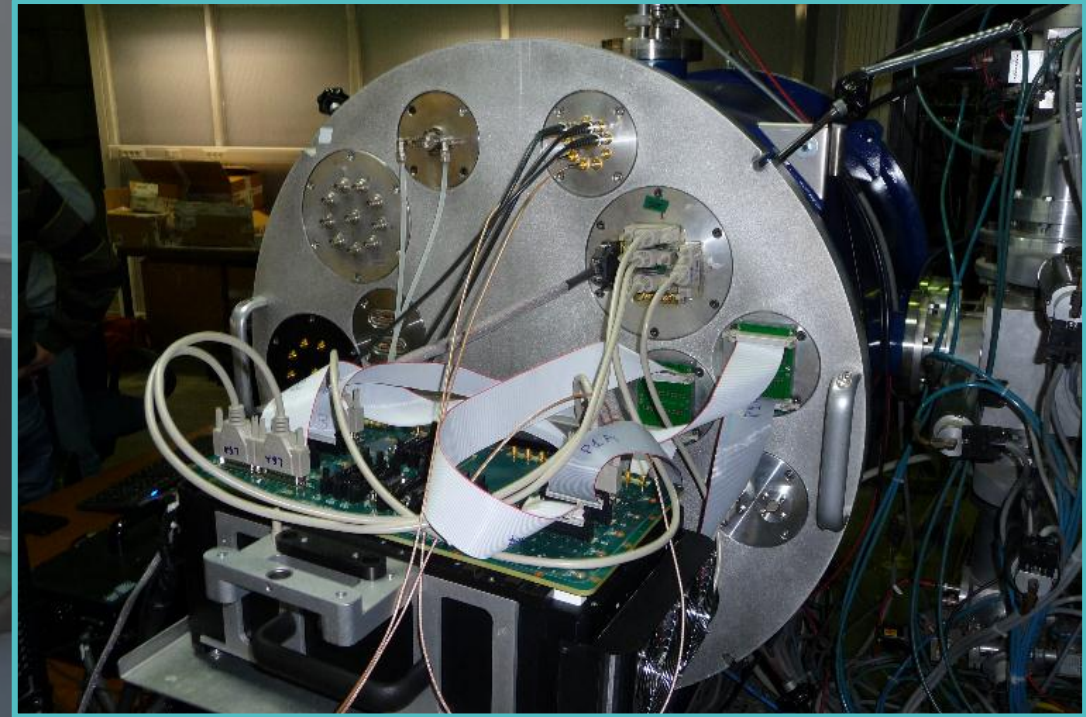
Customer requirements

Time to market

Budget

New space / automotive

Changing standards



- Qualification of Dies
- High pin count packages
- Plastic packages

# THANK YOU

Danny.Lambrichts@imec.be

Nico.Beylemans@imec.be

## IMEC'S MISSION

- Imec is the world-leading R&D and innovation hub in **nanoelectronics** and digital technology.
- As a **trusted partner** for companies, start-ups and academia we bring together brilliant minds from all over the world in a creative and stimulating environment.
- By leveraging our world-class infrastructure and local and global ecosystem of diverse expert partners across a multitude of industries, we accelerate progress towards a **connected, sustainable future.**

