

Chip design & industrialisation

Chip design, NEXT, September 29th



Chip design & industrialisation

A chip development
takes time,
cost lots of money,
small chance to success...

Everything is already there...

Systematic.... who??
Time, money, success



SystematicC facilitates innovation



Tesla Model Y / Models X, S and 3



SystematIC company

- Integrated Circuits: design, IP and products
- Innovative design sensor and power chips
- Industrial, consumer, automotive markets

25 years in Delft
>20 years in Asia
>5 years products

SystematIC provides technology for *smarter, smaller* and energy *efficient* systems



Innovation...our mission



Innovation:

bring technology successfully to the market

Innovation in **integration**:

EV & solar, haptic, biometric, class D audio, AI, energy harvesting, security.... Systematic projects 2023

Innovation through **cooperation**:

Foundry, Test & Assembly, M&S
IDM/OEM

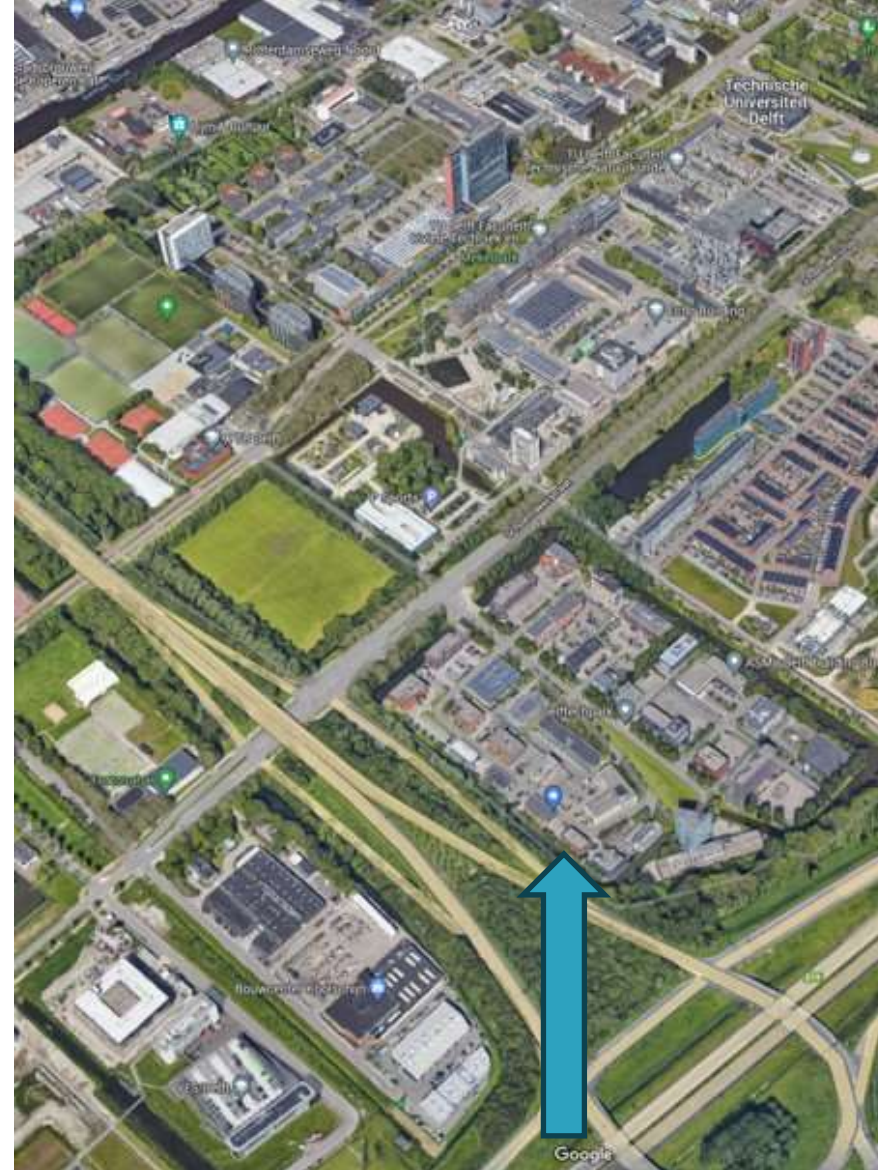
Complementary tech and new tech



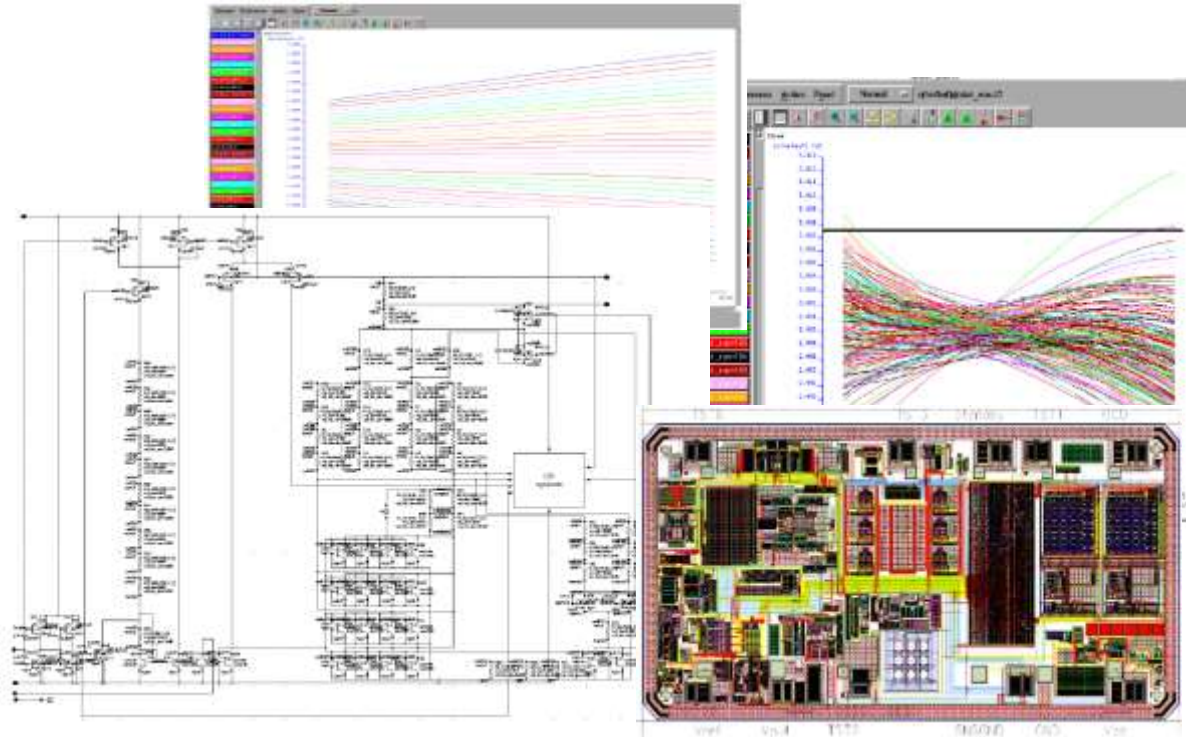
Importance Delft

- World famous TU : engineers, education
- SystematIC: design methodology
- System@IC: SoC, IP

Time, money, success



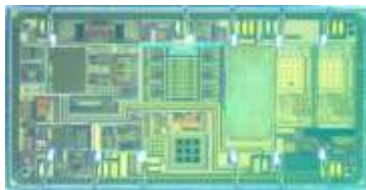
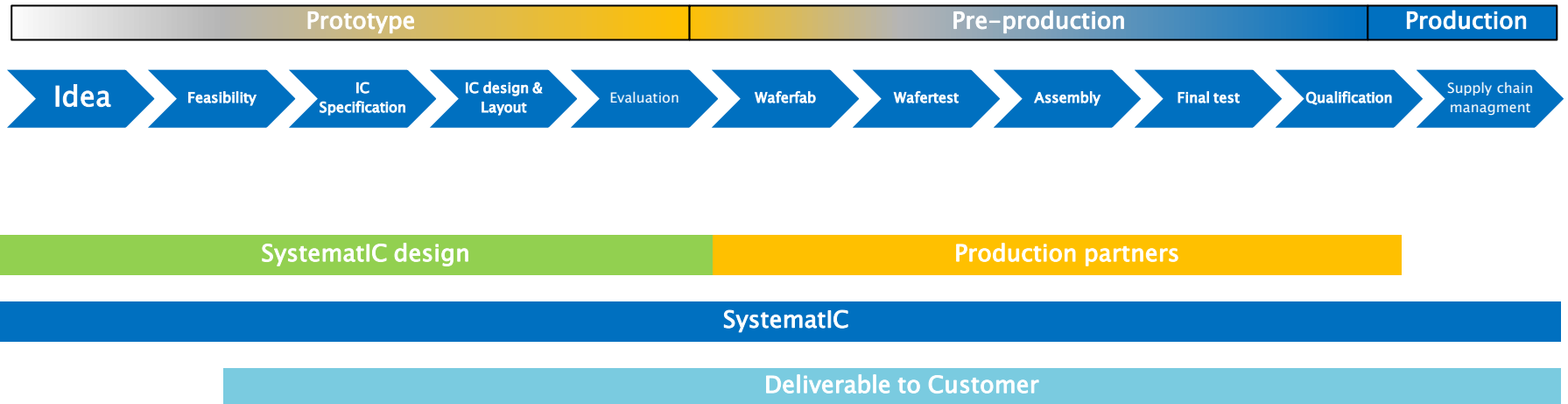
Day to day work...



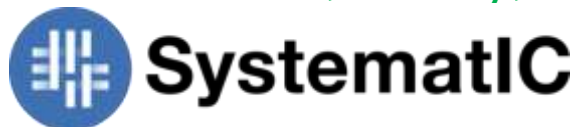
Chip architecture...design...layout...
Educated and experienced team, procedures, reviews,
advanced tooling, mature IC processes



.... industrialisation



Time, money, succes
Time, money, succes



Technology Trends in IC's

Big Trends... AI, wireless, Smart, EV, Digitisation

Motivation to integrate on a chip:

- Technological/Physical
- Strategic (IP protection)
- Commercial

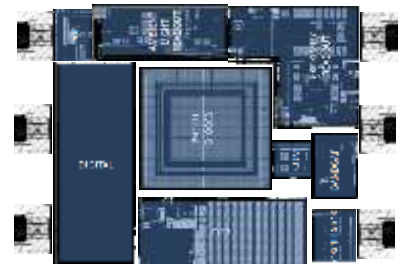


IC trends in our domain:

- Features (SoC), DFT, diagnosticslarger chip
- Less external componentslarger chip
- Cost pressure ...smaller chip

Technology

- CMOS :180..130...40...12 nm: mature processes
- HV, sensors, More than Moore, IP: reuse
- Low volume and local test/assembly options



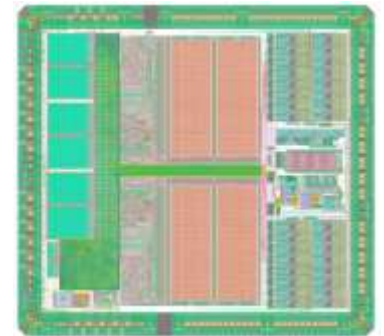
Time, money, success



Example: System@IC



- SoC integrated prototype for startup
- Sensor, modelling, AFE, ADC
- Digital: team, tools, ARM
- Succesfull first silicon!



Example: Isolated current sensor



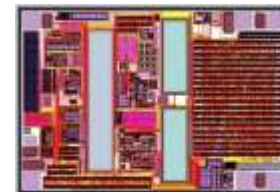
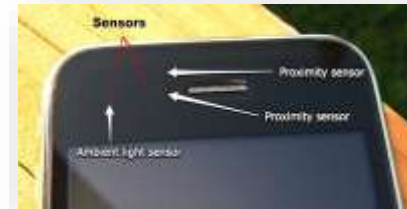
- Current sensors industrial, automotive & smart grid
- Applications: inverters, OCP, BMS
- Reduce BOM, smaller and smaller devices, features and functions



Example: PSALS

- Ambient light and proximity sensors
- Ambient light response similar to the human eye
- Proximity detection IR led based
- Low cost PS-ALS sensors use integrated diodes and IR light

Trend smaller and smaller: cheaper²



IC: Bridge to product innovation

- Make the possible possible in integration (laws of physics do apply)
- Optimize time and cost, reduce risks in custom IC's (business case?)
- Cooperation and supply chain partners in **NL-EU**

IC technology provides a bridge and facilitates product innovation



Thank you for your attention!



www.systemat-ic.com

WHAT WE OFFER

What is Systematic? Systematic is a leading provider of IC design and development services. We are a leading provider of IC design and development services. We are a leading provider of IC design and development services.

DESIGN SERVICES

 DESIGN SERVICES <p>Systematic provides a full range of IC design services, from concept to production. Our experienced engineers and designers work closely with our clients to understand their requirements and deliver high-quality, cost-effective solutions.</p>	 ASIC SOLUTIONS <p>Systematic provides a full range of ASIC design services, from concept to production. Our experienced engineers and designers work closely with our clients to understand their requirements and deliver high-quality, cost-effective solutions.</p>
--	---



Visit us online or in Delft!

