



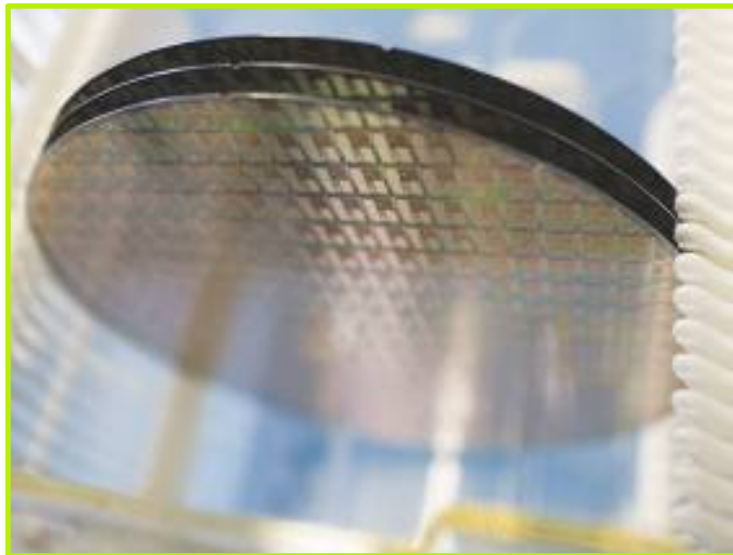
## **Manufacturing in the More-than-Moore era**

Rutger Wijburg  
SVP NXP Semiconductors

5<sup>th</sup> SEMI Brussels Forum 24 May, 2011

# NXP Semiconductors is an HPMS leader

NXP Semiconductors N.V. (NASDAQ: NXPI) provides High Performance Mixed Signal and Standard Product solutions that leverage its leading RF, Analog, Power Management, Interface, Security and Digital Processing expertise.



Our innovations are used in a wide range of automotive, identification, wireless infrastructure, lighting, industrial, mobile, consumer and computing applications.

A global semiconductor company with operations in more than 30 countries and 85% in-house manufacturing, NXP posted revenue of \$4.4 billion in 2010.

# Societal grand challenges drive market growth



## Energy Efficiency

- Efficient power conversion and low stand-by power
- Energy-saving lighting and back-lighting
- Energy conservation through demand side management
- Electric/lighter vehicles, intelligent traffic management



## Connected Mobility

- Proliferation of mobile data usage, wireless infra build-out
- Smart mobile devices: always-on, multimedia, location-based
- Connected car, many broadcast & connectivity standards
- New user interfaces (e.g., touch, joystick)



## Security

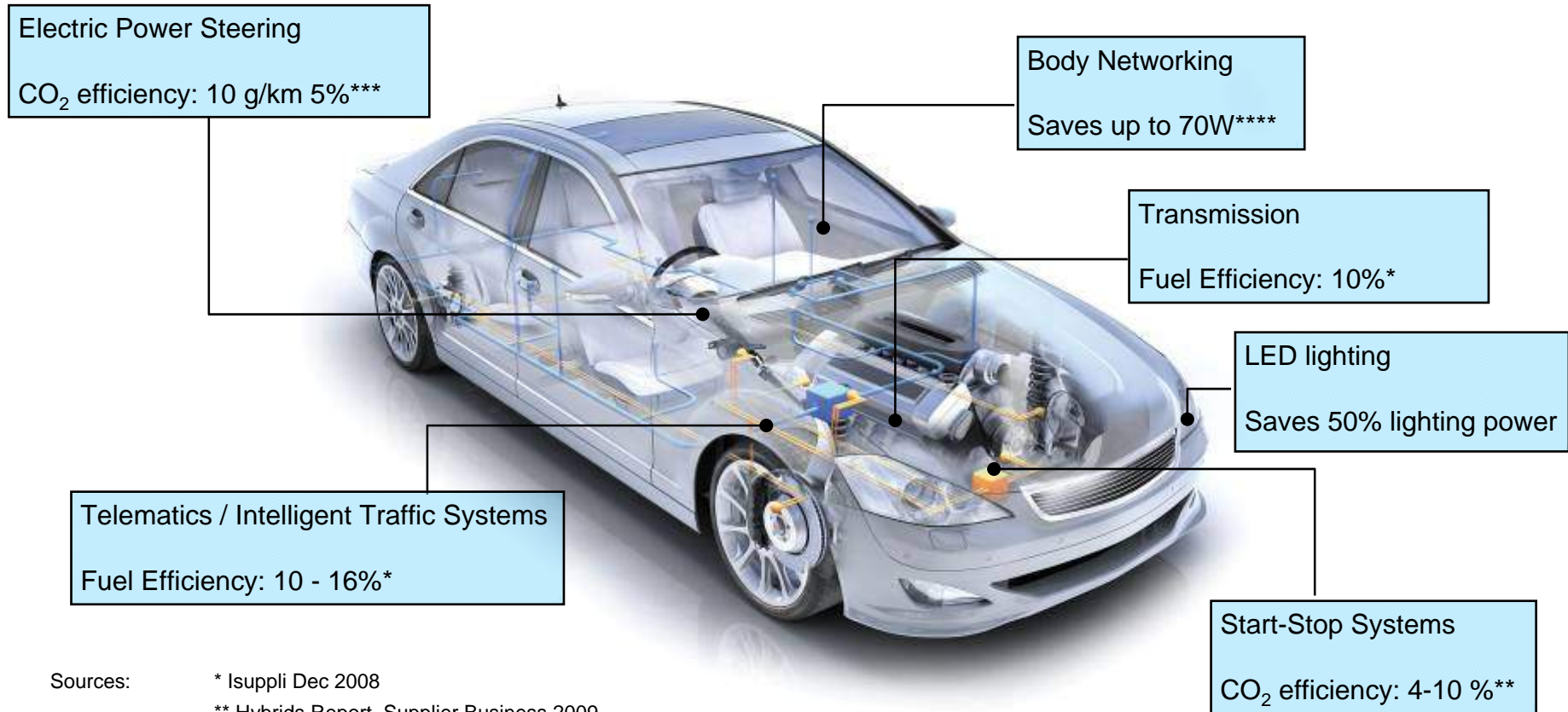
- Secure mobile transactions and secure identity
- Authentication, tagging and tracking
- Car and home access, security & remote diagnostics
- Radar and (body) scanning installations



## Health

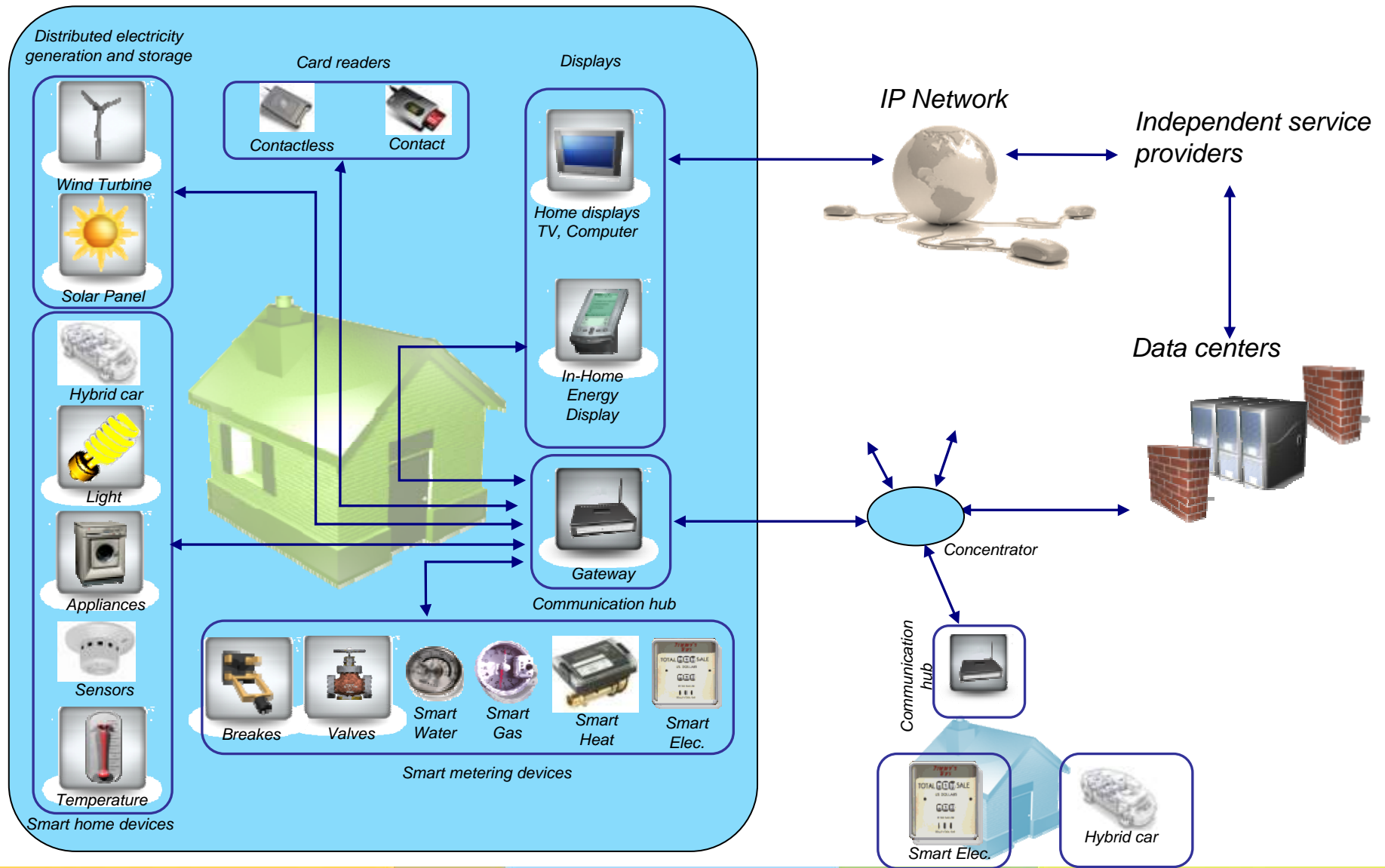
- Personal healthcare and portable emergency devices
- Connected hearing aids and implantable devices
- Car safety & comfort
- Electronic diagnostics

# Example: Fuel efficiency improvement in cars

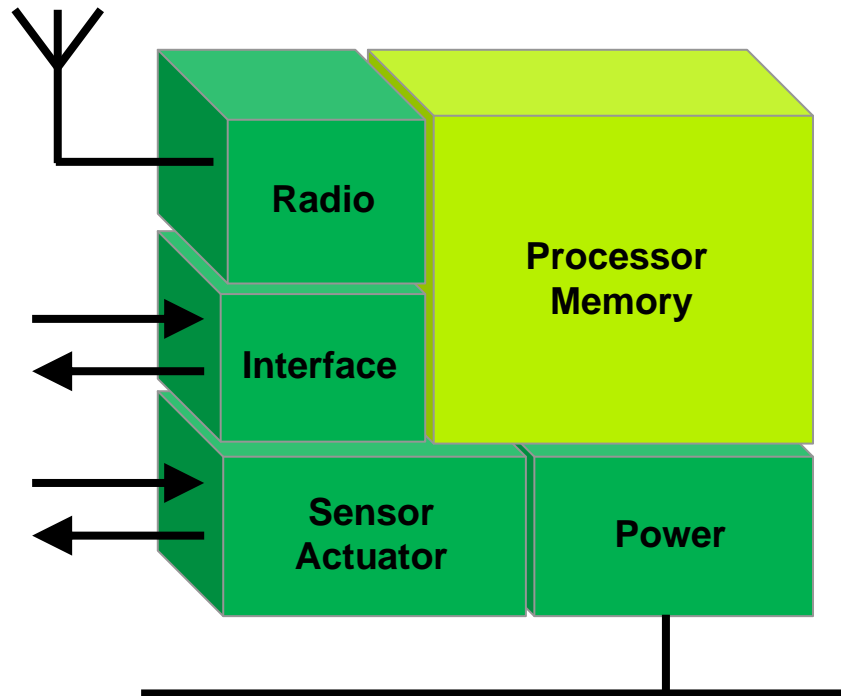




Sources:      \* Isuppli Dec 2008  
                 \*\* Hybrids Report, Supplier Business 2009  
                 \*\*\* ZFLS  
                 \*\*\*\* VDI Reports 2075(2009)

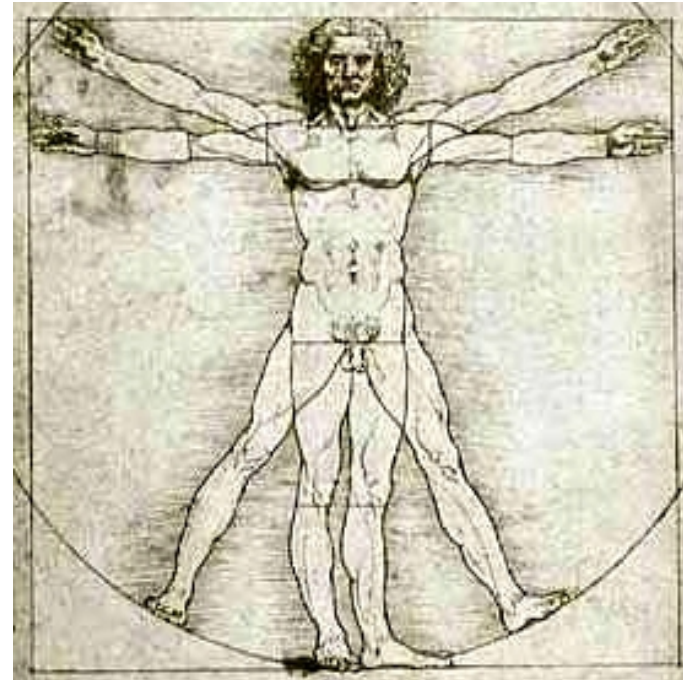
# Example: Smart Home and Smart Grid





# High Performance Mixed Signal solutions: an application optimized analog-digital mix

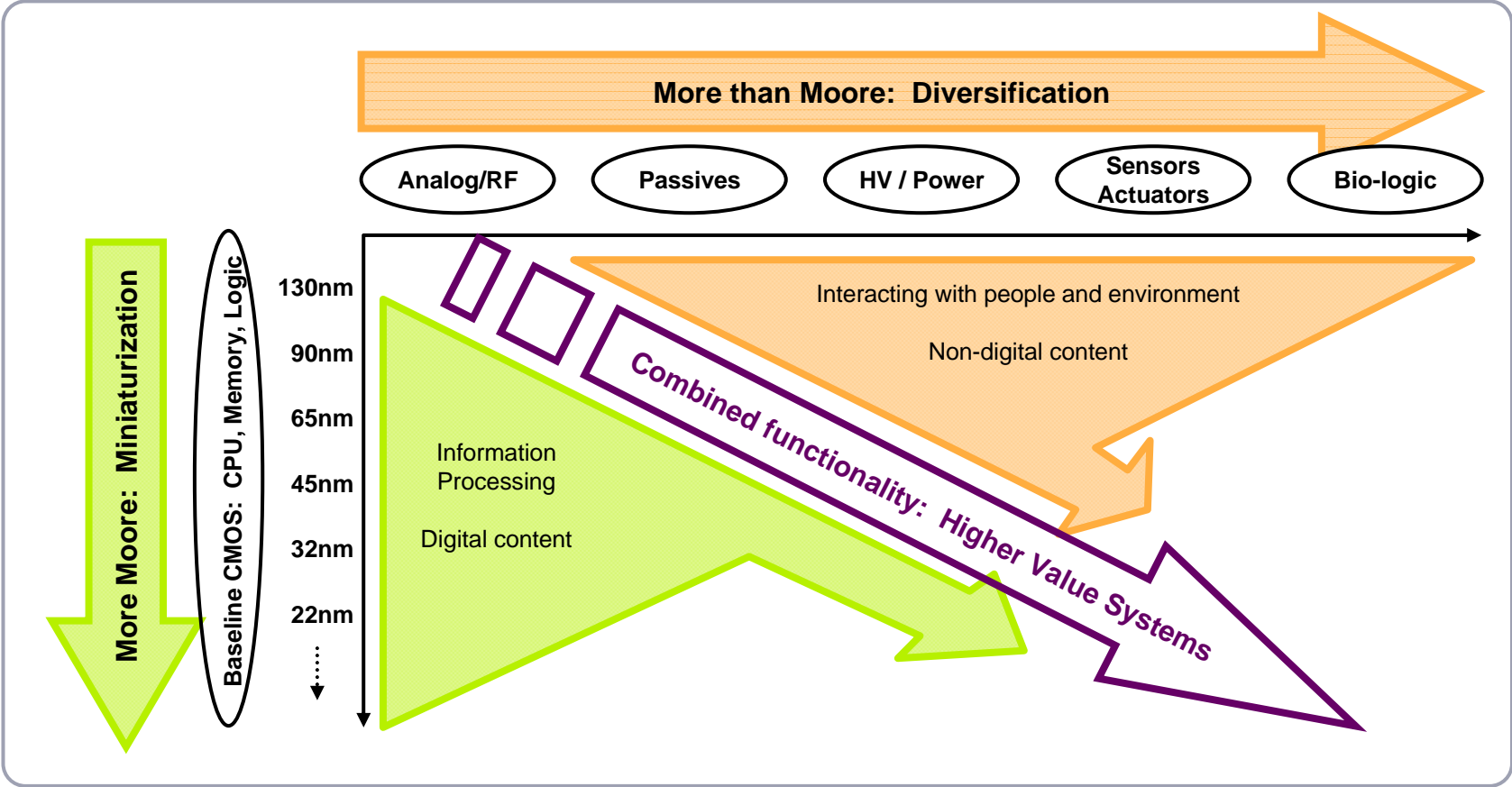


-  Mixed Signal sub-systems :  
interaction with the analog outside world
-  Digital advanced CMOS:  
on-chip calculation and data storage

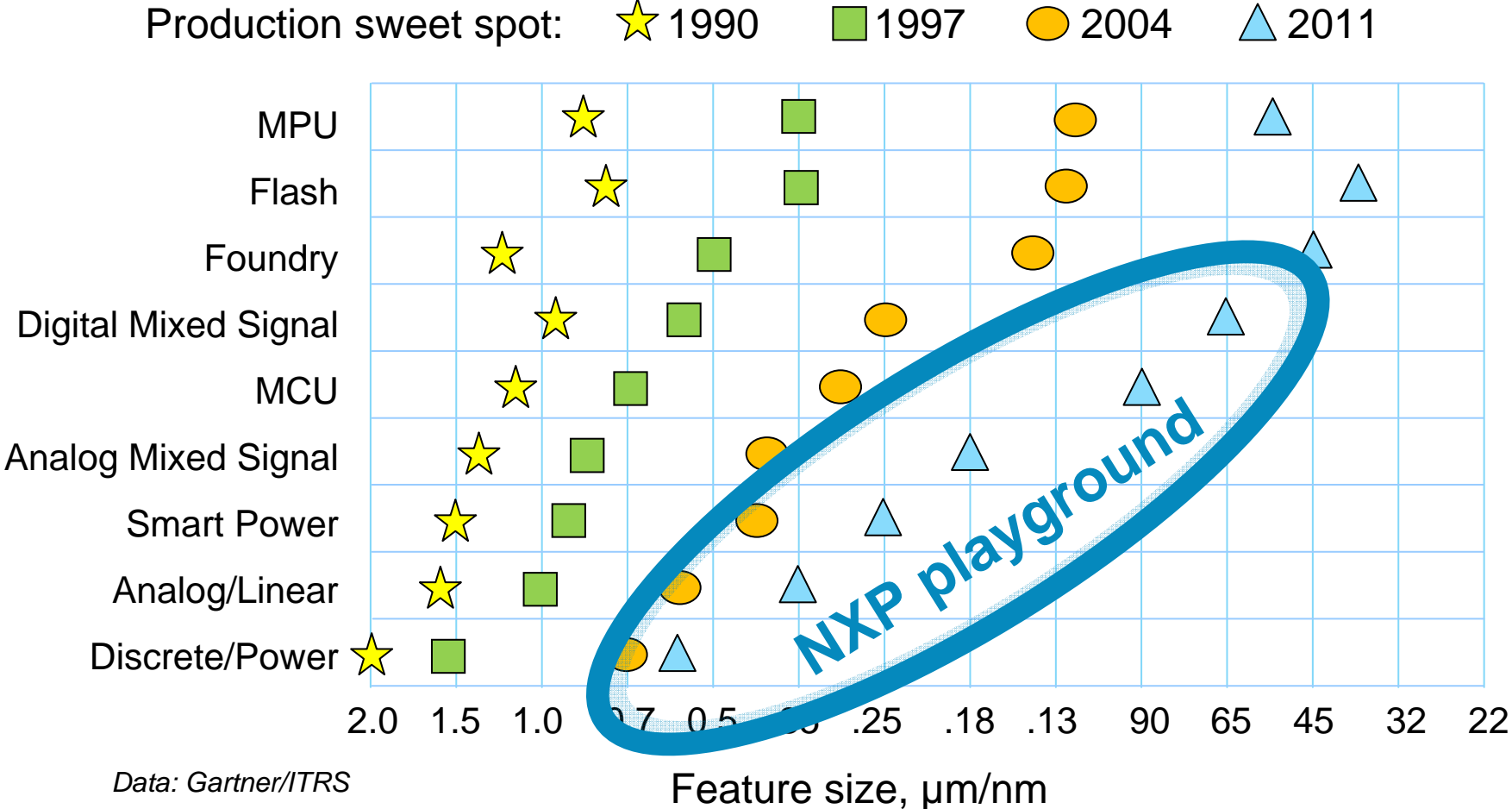


-  More than Moore :  
like the human body
-  More Moore:  
like the human brain

# More than Moore adds value



# HPMS nodes increasingly lag latest CMOS





# HPMS market continues to grow

- ▶ Europe is the stronghold in More than Moore design and manufacturing
- ▶ Capabilities and capacities need extension everywhere
- ▶ Now is the time for renewed public-private collaboration
- ▶ The KET approach can accelerate this innovation ecosystem



*NXP Hamburg*



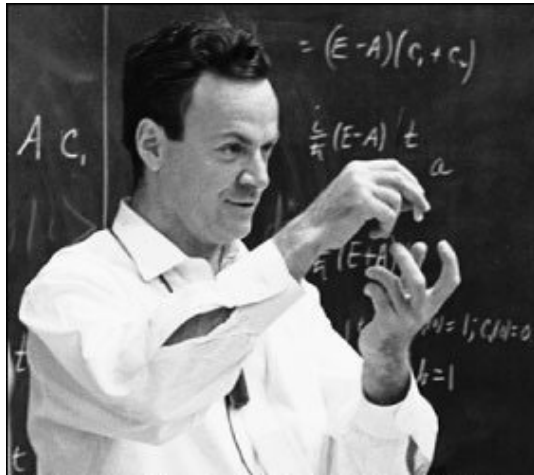
*NXP Nijmegen*



*NXP Manchester*

# 'There is plenty room at the bottom'

- ▶ Said Richard Feynman, scientist and later Nobel Prize winner



- ▶ In a legendary 1959 meeting of the American Physical Society, where he made clear why there is no fundamental limitation to writing the entire 24 volumes of the Encyclopedia Britannica on the head of a pin.
- ▶ 'All you need to do, is invent a cost-effective manufacturing'

Thank you!

Customer-focused  
passion to win

