

European 3D TSV Summit

On the road towards Manufacturing

January 22-23, 2013 Grenoble (France)

Is Known Good Die Good Enough?

James Quinn, VP Sales and Marketing, Multitest

A 3D map of Europe is shown in white, set against a dark blue background. Numerous yellow stars, similar to the European Union flag, are scattered across the map and floating in the air. Several small EU flags are planted in the map, some on blue bases. The overall theme is European technology or industry.

3D ICs - Is KGD good enough?

Leadership in More than Moore

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Leadership in More than Moore

3D ICs Today - on the way to volume

Known Good Die is not enough



Consumer (mobility)

- form factor
- smart power

High-end applications

- speed
- performance



Sensors

3D ICs

SoCs



SoCs:

- Established Process
- Test Standards
- Proven Test Equipment



adding



mechanical stimuli



MEMS - in the "early days":

- automotive - safety features
- strict IC qualification and test requirements
- high ASPs
- few standards
- custom-designed test equipment
- dedicated stimulus modules added to standard equipment



competitive
advantage

first to
market

"sensorization"

of consumer electronics



Sensors everywhere:

- high volumes
- shortened life cycles
- variety of stimuli
- multi-DOF stimuli
- cost matters
- equipment platforms


MEMS Fusion

how to
scale?

how to
ramp?

how to be
profitable?

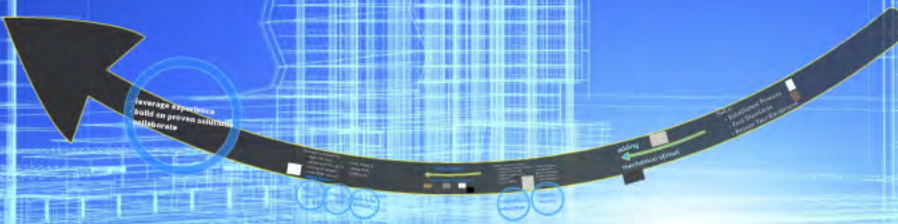
- **leverage experience**
- **build on proven solutions**
- **collaborate**



3D ICs

Sensors

SoCs



Sensors



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build on proven solutions
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3D ICs



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Leverage the Best Practise of MEMS / Sensors



- **leverage experience**
- **build on proven solutions**
- **collaborate**

3D ICs



Complexity of 3D Assembly

3D Partial Stack Test

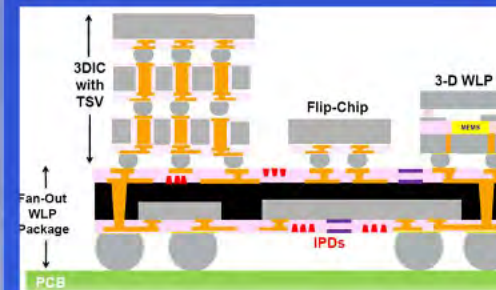


reduce
scrap cost

avoid
corruption of
good stacks

detect
assembly
defects

Test is also Process Control



Courtesy of Yole Development

For Best Cost of Test

Reliable supply chain for ALL elements in the stack

- quality
- traceability

Joint cooperation among supply chain

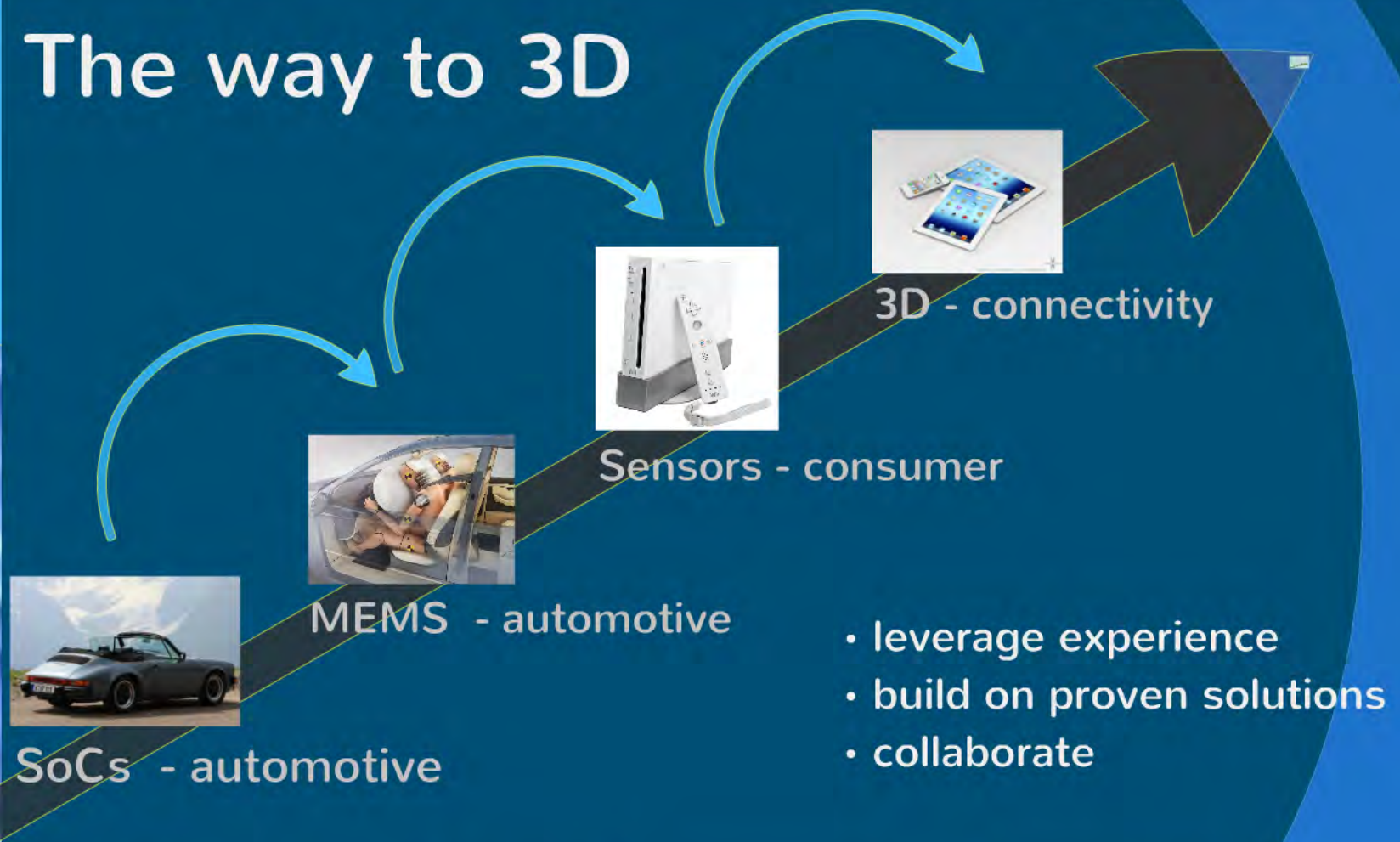
- DFT
- build on established equipment

Leverage process synergies across all test phases

- establish data links
- reduce complexity @ final test



The way to 3D





3D ICs

MEMS fusion

sensors

SoCs