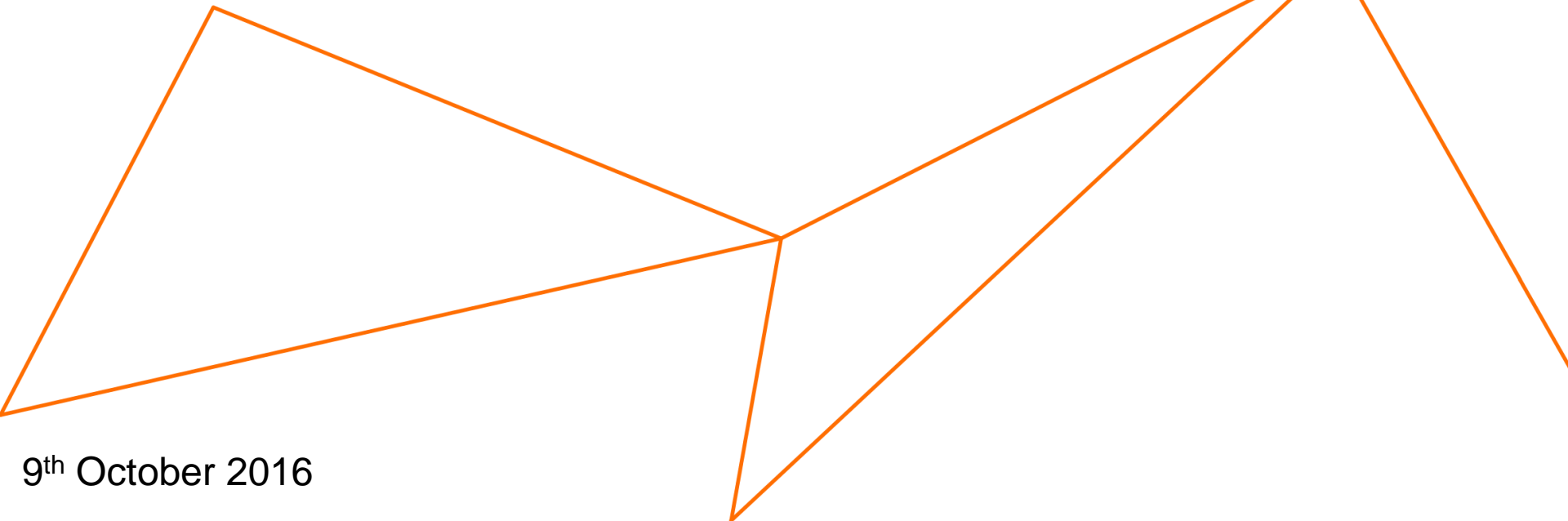


# OVERVIEW OF THE EUROPEAN MIM MARKET

## KEITH MURRAY, SANDVIK OSPREY LTD



9<sup>th</sup> October 2016

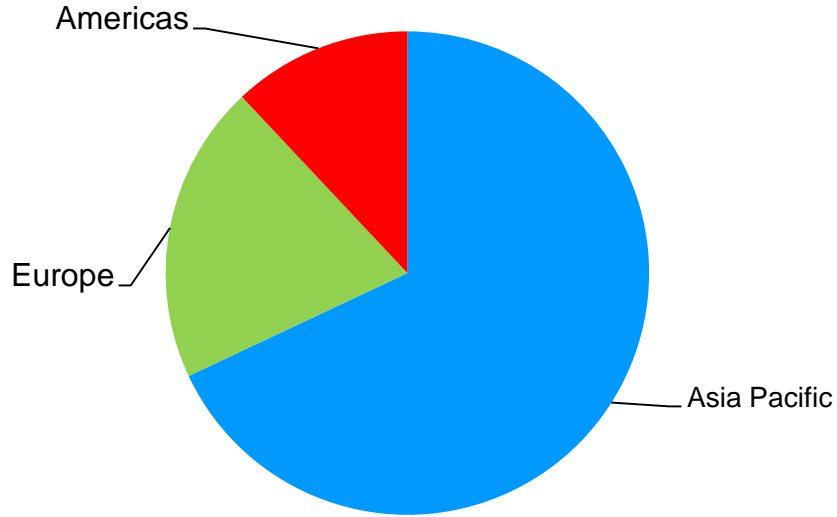
# OUTLINE OF THE PRESENTATION

## WORLD PM 2016

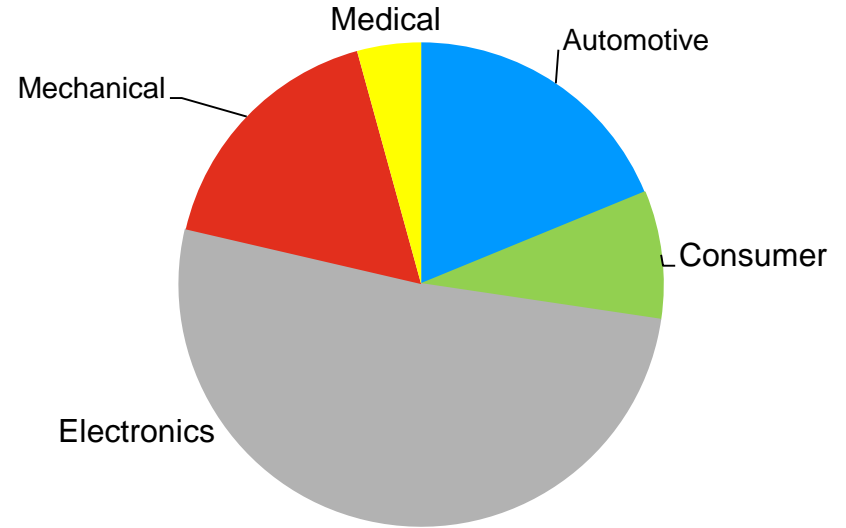
- European MIM Market in a global perspective
- Market status in North America and Asia
- Technology and Product trends
- Conclusions and outlook

# GLOBAL MIM OVERVIEW

Estimated global MIM Production by region

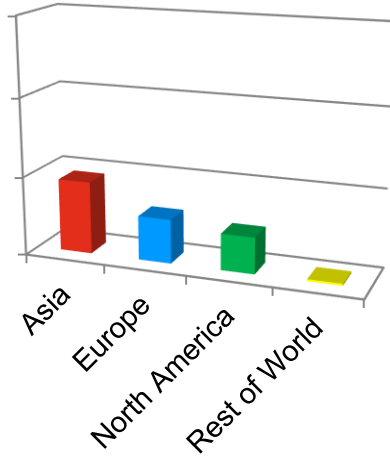


Estimated global MIM Production by sector

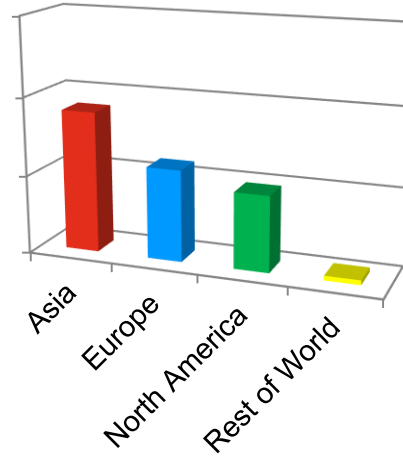


# MIM MARKET EVOLUTION

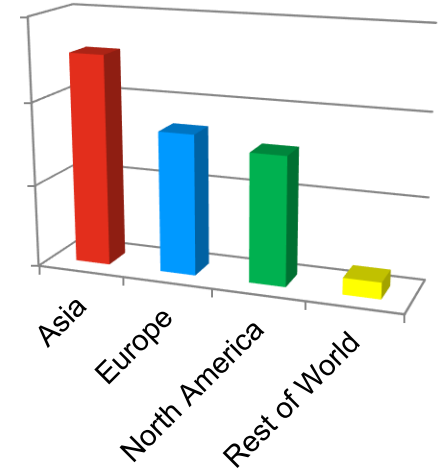
2009



2014



2020



\$ 985M

CAGR: 15.2%



\$ 2000M

CAGR: 7.6%

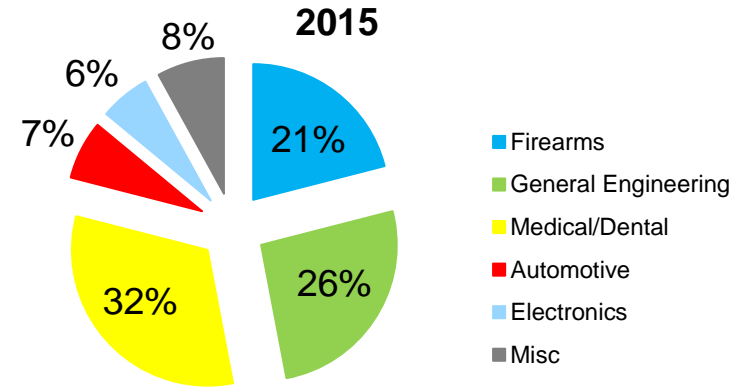
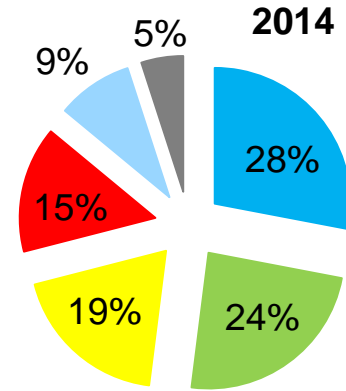


\$ 3100M

# NORTH AMERICAN UPDATE

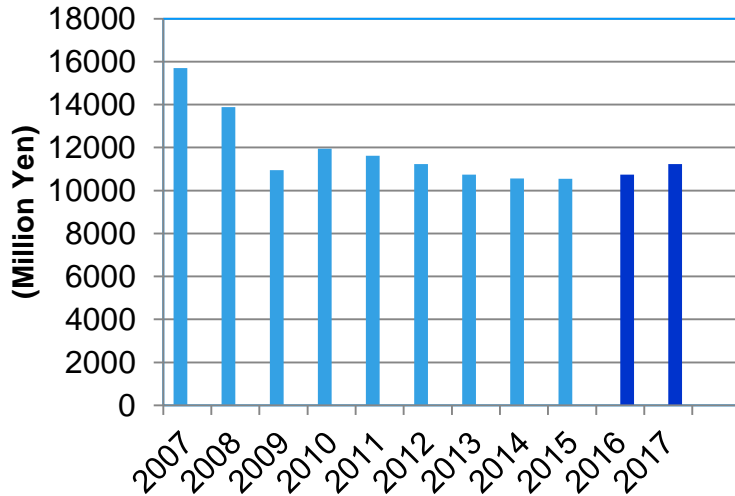
## THE FUTURE OUTLOOK REMAINS POSITIVE

- 2015 saw slower than expected growth in the US MIM market prompted by a decline in the domestic firearms market
- Despite this MIMA, the Metal Injection Moulding Association, reported modest growth in 2015 'in the lower single digits'
- This slowdown has driven a shift in the market mix
- Estimates predict 5-10% growth in 2016
- MIM in the USA continues to make inroads in the automotive market with applications covering engine, electrical systems and chassis components



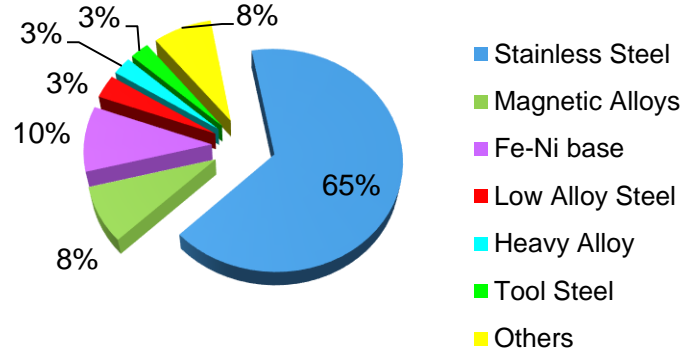
# THE JAPANESE MARKET CONTINUES TO CONTRACT

## Sales of MIM products in Japan

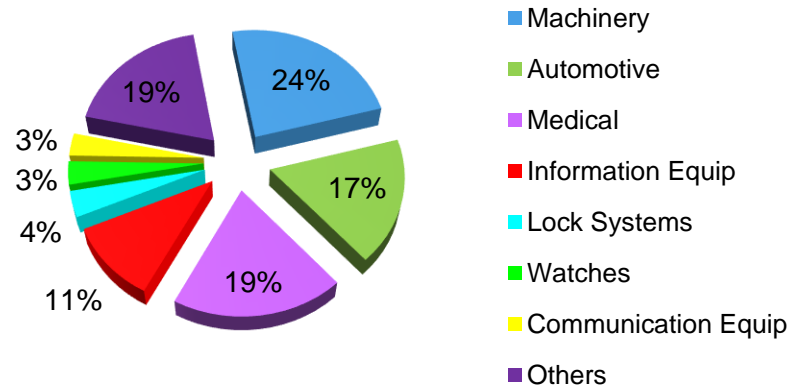


Source JPMA / PIM International

## Usage of MIM materials in Japan, 2015



## Markets for MIM Product in Japan, 2015



# TECHNOLOGICAL DEVELOPMENTS

EXPANDING THE RANGE OF MIM MATERIALS.....



A green aluminium MIM part, left, and the sintered part on the right

Aluminium -TU Wien

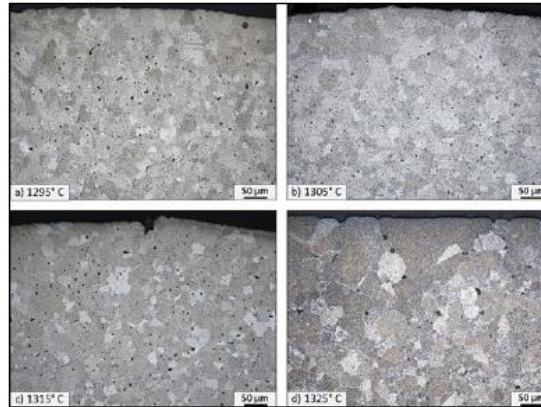
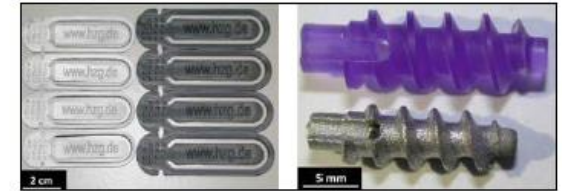


Fig. 9 Optical images showing the grain size at the edge of the samples sintered at a) 1295°C, b) 1305°C, c) 1315°C and d) 1325°C [6]

Advanced Nickel Superalloys  
- ZMP, RR Deustchland and  
Schunk Sintermetalltechnik



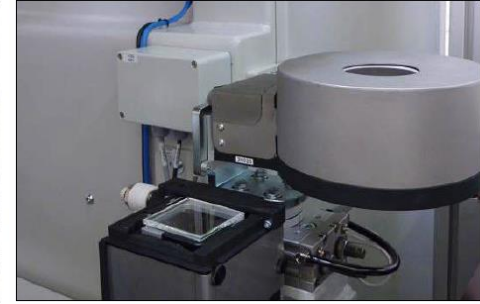
Magnesium – Helmholtz  
Zentrum Geestacht

# TECHNOLOGICAL DEVELOPMENTS

## PROCESS INNOVATIONS



Optical Metrology – Parmaco / Alicona



Automation / Inspection – Roboworker Automation



# THANK YOU FOR YOUR ATTENTION

