

World Investment Casting Market Review

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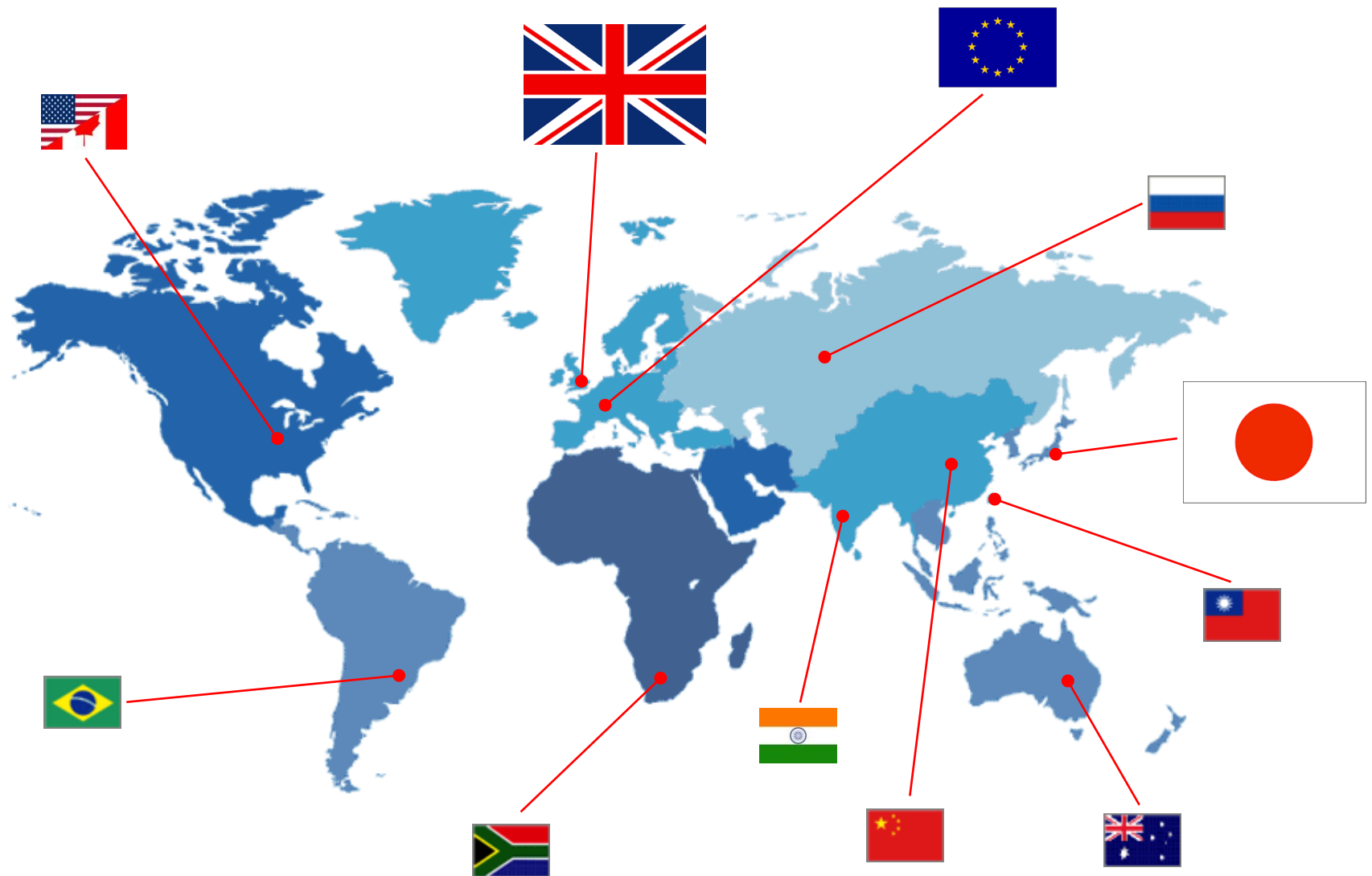
Agenda

- Blayson Introduction
- World Investment Casting Sales 2017
- Sales by Region
- Market Sector Analysis
- Market Sector Review
- 2017 Summary
- 2018 Prospects

Blayson Introduction

- Blayson was established in 1961
- Supplying a full range of wax materials worldwide through a global network of partners and distributors
- Serving aerospace, medical, industrial gas turbine, automotive and commercial markets
- Also a full range of products and services with the objective to support the foundry and improve wax control
- Research and development and wax control is of key importance and part of the Blayson ethos
- Technical Centres in Cambridge UK and Chiba Japan

Manufacturing Sites and Global Partners



Acknowledgements

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ICI - Investment Casting Institute, United States

EICF - European Investment Casters' Federation

CMF - Cast Metals Federation, UK

JFS - Japan Foundry Society

CFA - China Foundry Association

Other - Individual contributors

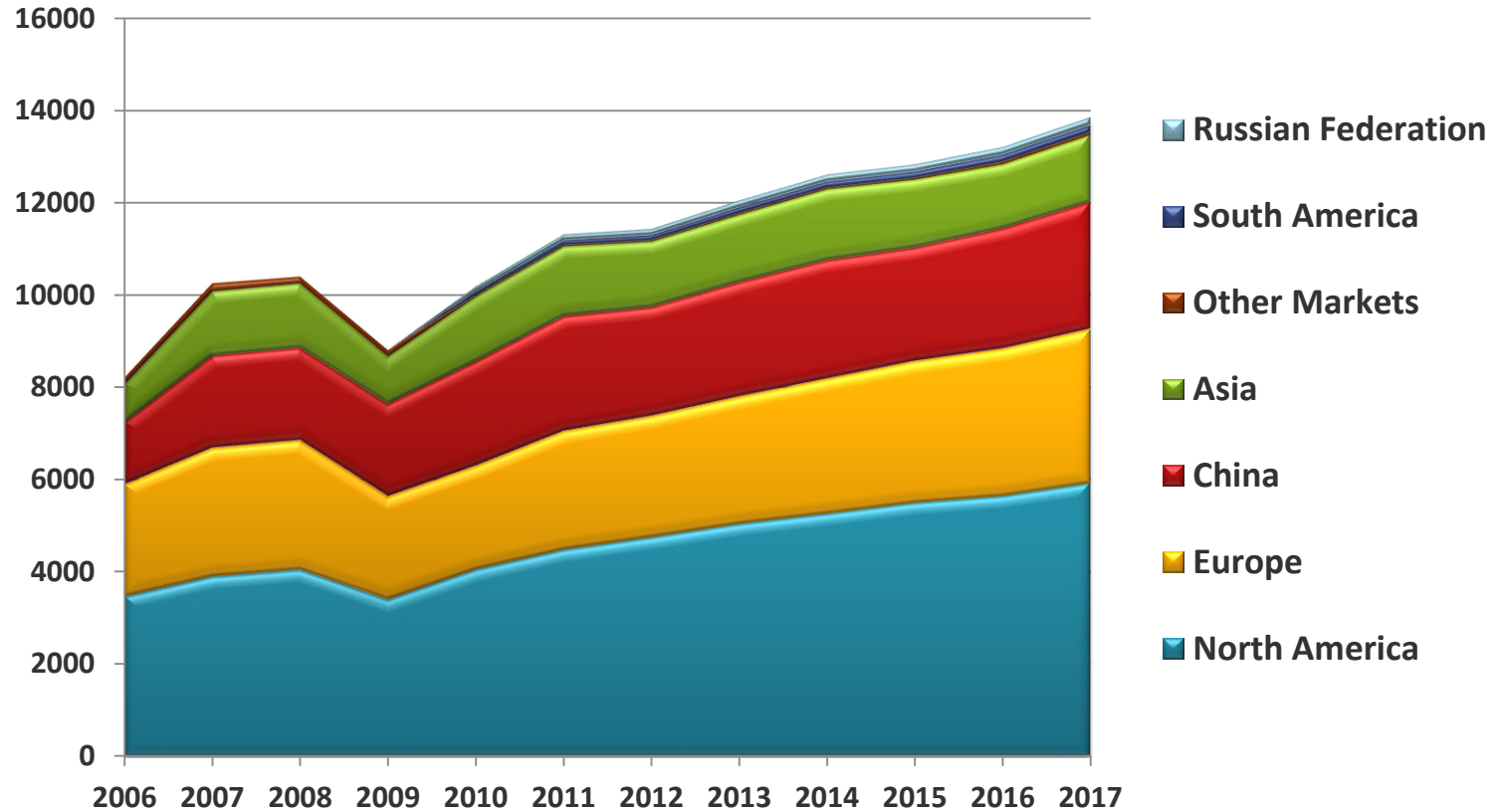
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World Investment Casting Sales 2017

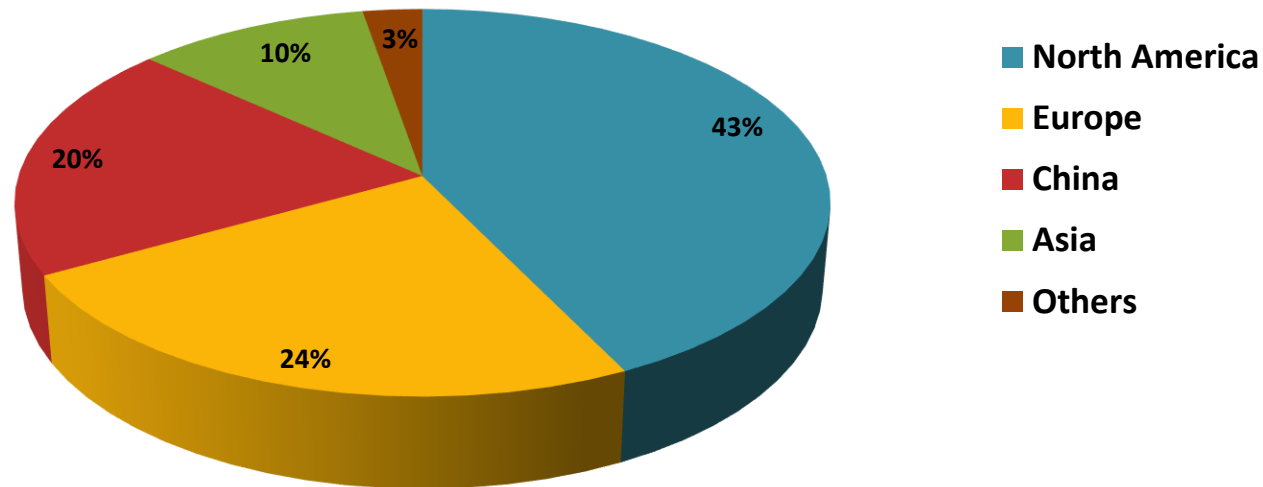
- Sales for the global investment casting industry in 2017 were US\$13.8 Billion
- This represents an increase approaching 5% compared to 2016
- Maintains a steady upward trend of total world investment casting sales
- These sales are currently driven by the continued high demand for High Added Value castings for the buoyant commercial aircraft market
- The automotive industry also performed well with improved casting sales across most regions

World Sales 2006-2017

World Investment Casting Sales US\$M



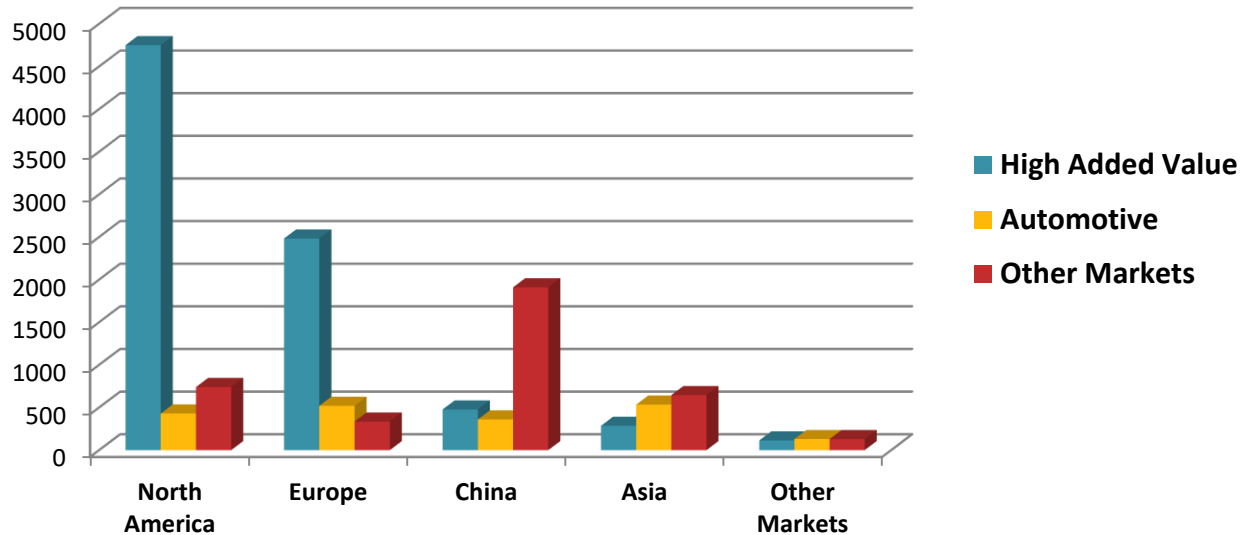
Sales by Region 2017



Regional market shares remain largely unchanged from 2016 with only China increasing to 20% due to its growing aerospace and automotive sectors.

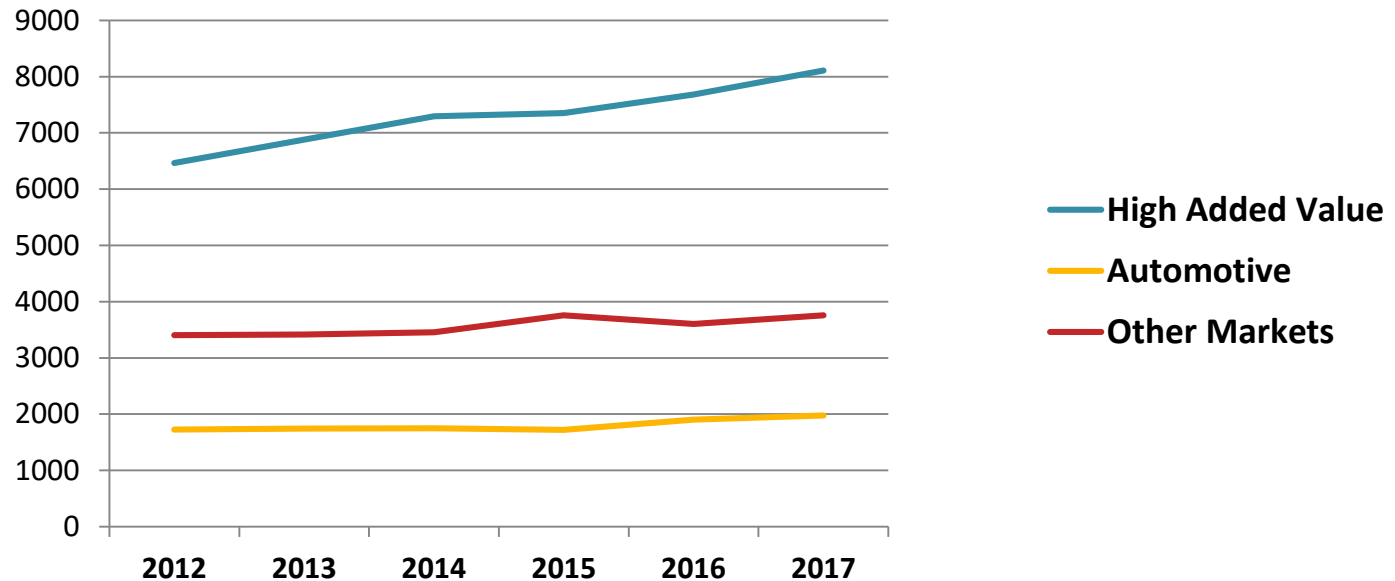
Region Sales by Sector 2017

Investment Casting Sales by Sector 2017 US\$M



Sales to the sectors across the regions remain unchanged with High Added Value casting production demonstrating its importance in North America and Europe.

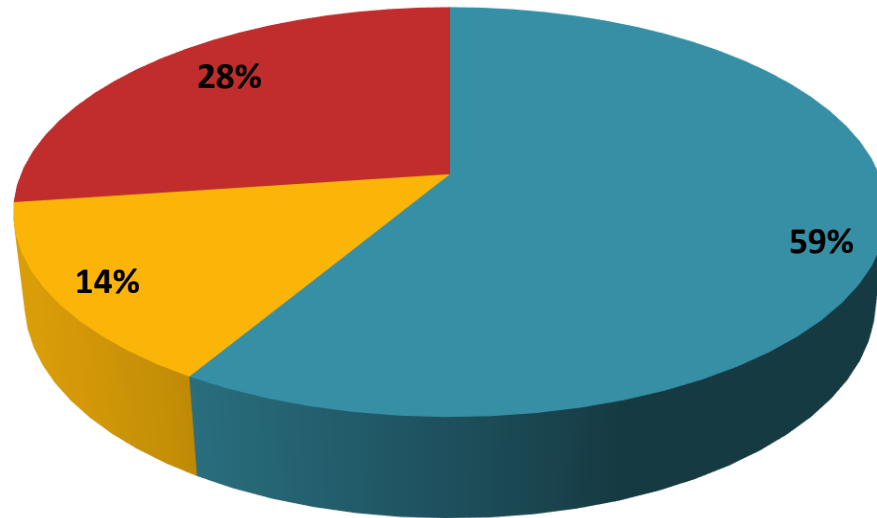
Investment Casting Sector Trends



The increasing dominance of the High Added Value sector is clearly demonstrated above. Automotive and Commercial casting sales improved in most markets.

Sector Share of Sales 2017

■ High Added Value ■ Automotive ■ Other Markets



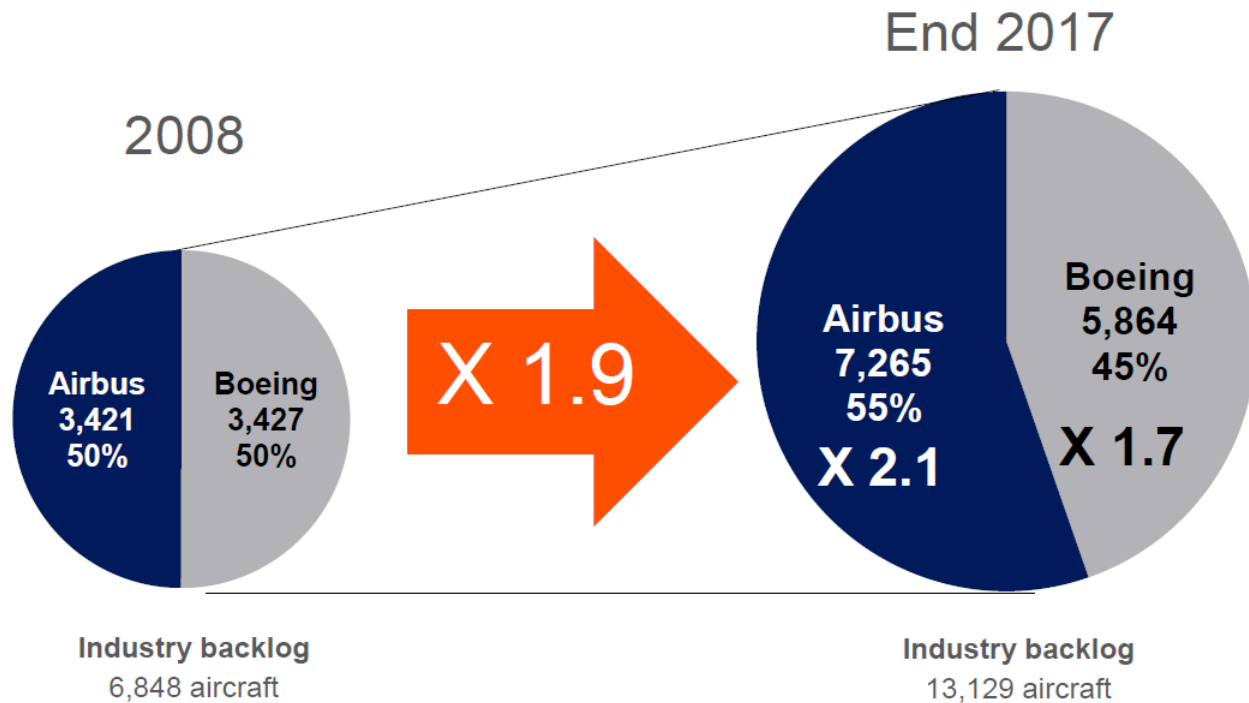
High Added Value casting sales account for around 59% of world investment casting sales.

Aerospace Review

- The commercial aircraft environment remains healthy with a large order backlog
- Boeing delivered 762 commercial aircraft in 2017 and received 912 net orders in 2017 with an order backlog of 5,864 aircraft
- Airbus delivered 718 commercial aircraft in 2017 and received 1,109 net orders in 2017 with an order backlog of 7,265 aircraft
- China's domestic aircraft parts and assembly manufacturing sector continues its growth
- Overall the aerospace sector was extremely buoyant throughout 2017

Aerospace Review

Backlog development 2008-2017



Data to end December 2017

AIRBUS

Industrial Gas Turbines Review

- Sales within the IGT sector reached a high level in 2017 with a 5% increase on 2016
- However the 4th quarter of 2017 showed a slow down in the IGT sector
- Order cancellations in North America and Europe were experienced during the 4th quarter of 2017
- This is likely to impact the market in 2018

Automotive Review

- Around 80 million passenger cars were sold worldwide in 2017
- An increase from 77 million in 2016
- Investment casting sales to the automotive sector rose by 4% in 2017 achieving an approximate value of US\$2 Billion
- The Chinese market performed well with an increase in sales of 5% in 2017
- North America showed fairly flat overall sales in 2017
- Growth for European car sales was steady in 2017 showing an increase of 3.2% on 2016

Other Sectors Review

Medical

- The medical castings sector in Western countries is benefiting from an ageing population with a more active lifestyle driving implant sales. An increase in sales of 6% was seen in 2017

Commercial

- This sector showed an increase in casting sales of 3 to 4% in 2017 resulting in an overall sales value of US\$3.7 Billion
- Market conditions appear relatively stable at present and casting sales to the oil industry were marginally higher

Industry Prospects for 2018

Aerospace

- The sector is predicted to continue with significant growth
- Industry order backlog of 13,129 aircraft at end of 2017
- Driven by growth in new carriers and low-cost airlines in developing and emerging markets, as well as expansion in established airlines
- The industry predicts strong growth in China's aviation sector over the long term
- Boeing predicts that China will need over 5000 new single-aisle airplanes by 2035

Industry Prospects for 2018

IGT

- The order downturn seen in Western markets raises questions about the overall performance of IGT in 2018
- Forward prospects for IGT market appear less favourable than 2017

Automotive

- Turbocharger wheel sales should continue to increase through 2018
- Global car sales likely to slow in 2018 but still remain at record levels

Industry Prospects for 2018

Medical

- The sector is expected to maintain a steady growth trend due to the demand for prosthetics for growing and ageing populations

Commercial

- Casting sales remain very competitive, moderate growth is expected in 2018

Summary

- The industry has continued to develop in 2017
- Investment casting sales showed growth of almost 5%
- Increasingly stringent demands present an ongoing challenge to foundries and suppliers
- Future market conditions appear positive in particular for the buoyant aerospace sector
- Opportunities for growth within the investment casting industry remain encouraging

This paper is available from
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Thank You

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