

The global CFRP market 2016

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The global CFRP market 2016



BMW 7 series with Carbon Core Technology, estimated production rate in 2016: ~64.000 (IHS) ↔ i3 in 2015: ~24.000 (IHS), image source: BMW

The global CFRP market 2016

Overview

1 The global Carbon Fiber market

- 1.1 By manufacturer
- 1.2 By region



2 The global Carbon Composites market

- 2.1 By matrix
- 2.2 By process
- 2.3 By region
- 2.4 By application



3 Trends and outlook

4. Conclusion

1 The global Carbon Fiber market

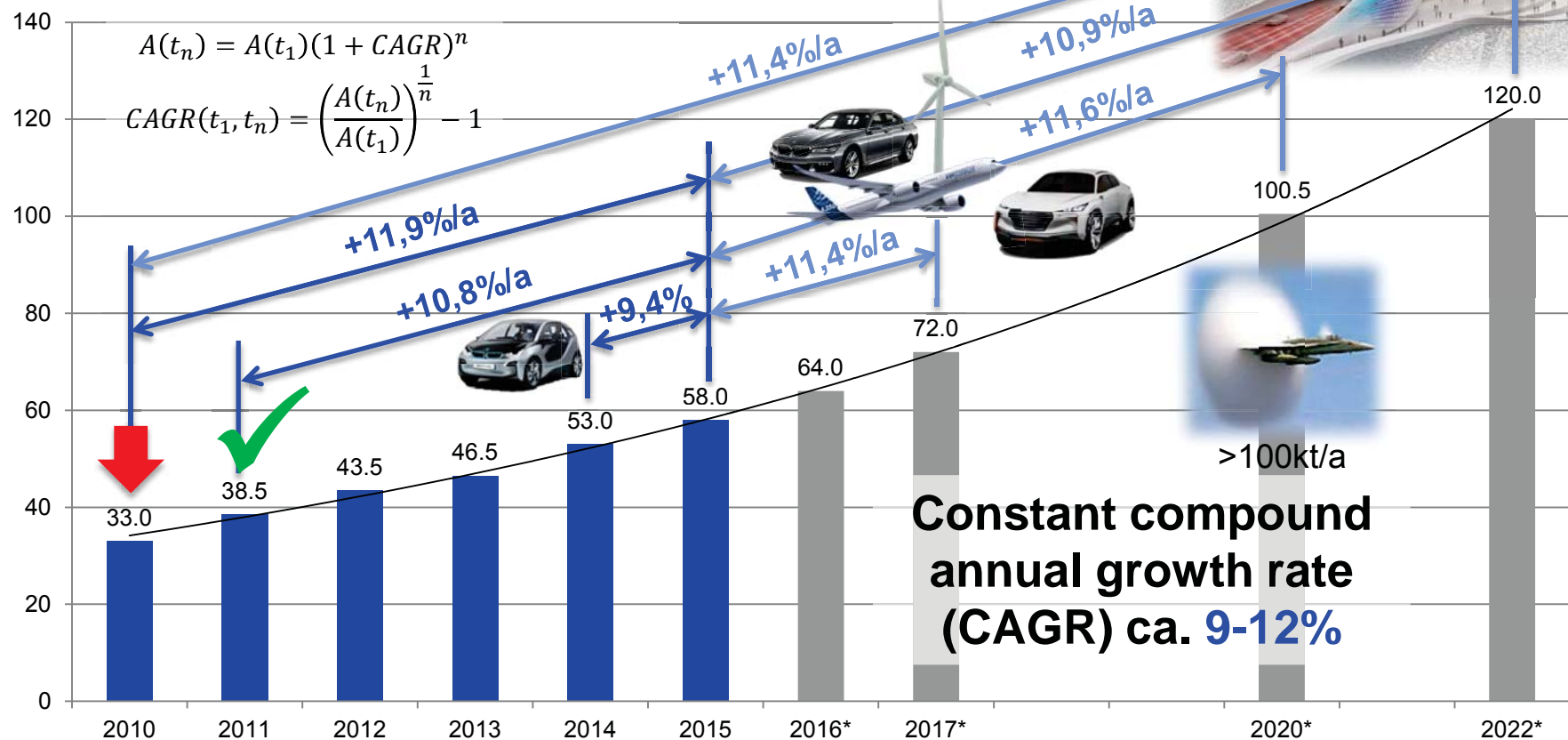


Processing of carbon fibers in Wackersdorf plant of SGL Automotive Carbon Fibers (ACF), source: BMW / SGL-ACF

1 The global Carbon Fiber market



Global demand of Carbon Fibers in thousand tonnes from 2010 to 2022 (* estimations)

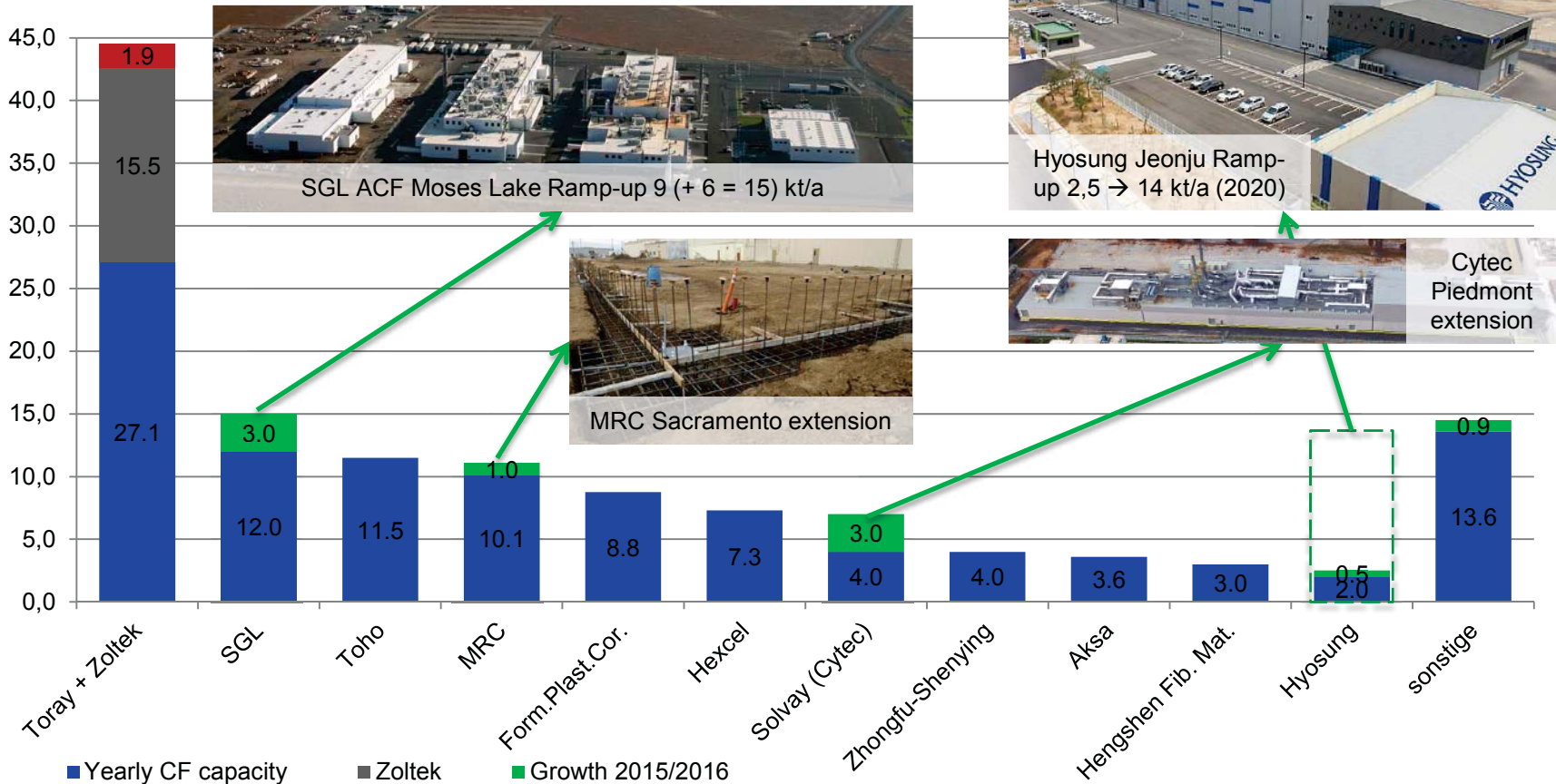


1 The global Carbon Fiber market

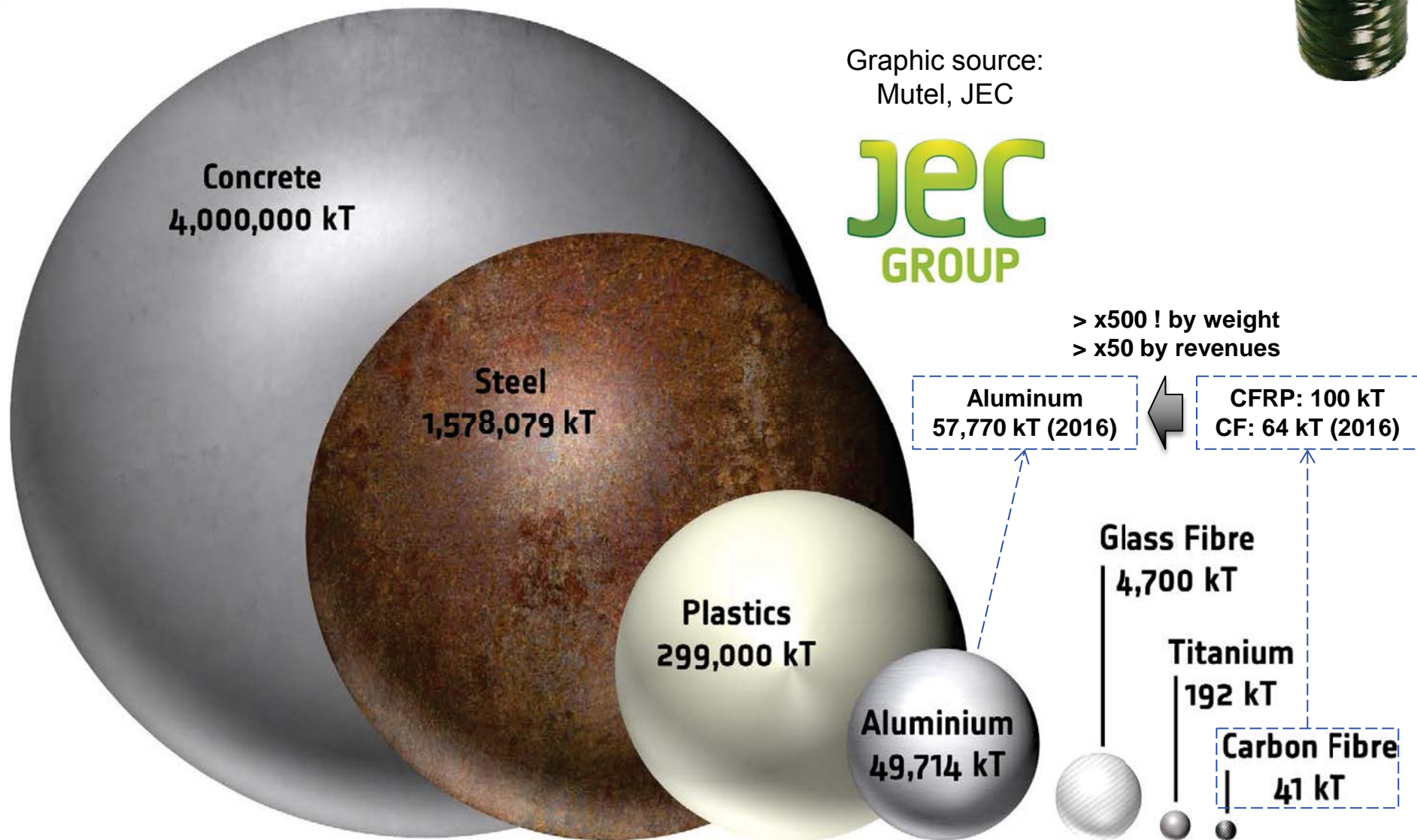


1.1 By manufacturer

Annual, theoretical CF capacity by manufacturer in thousand tons (2015).
 $\Sigma = 130,9$ kt (2014: 125 kt \rightarrow +4,7%)



1 The global Carbon Fiber market

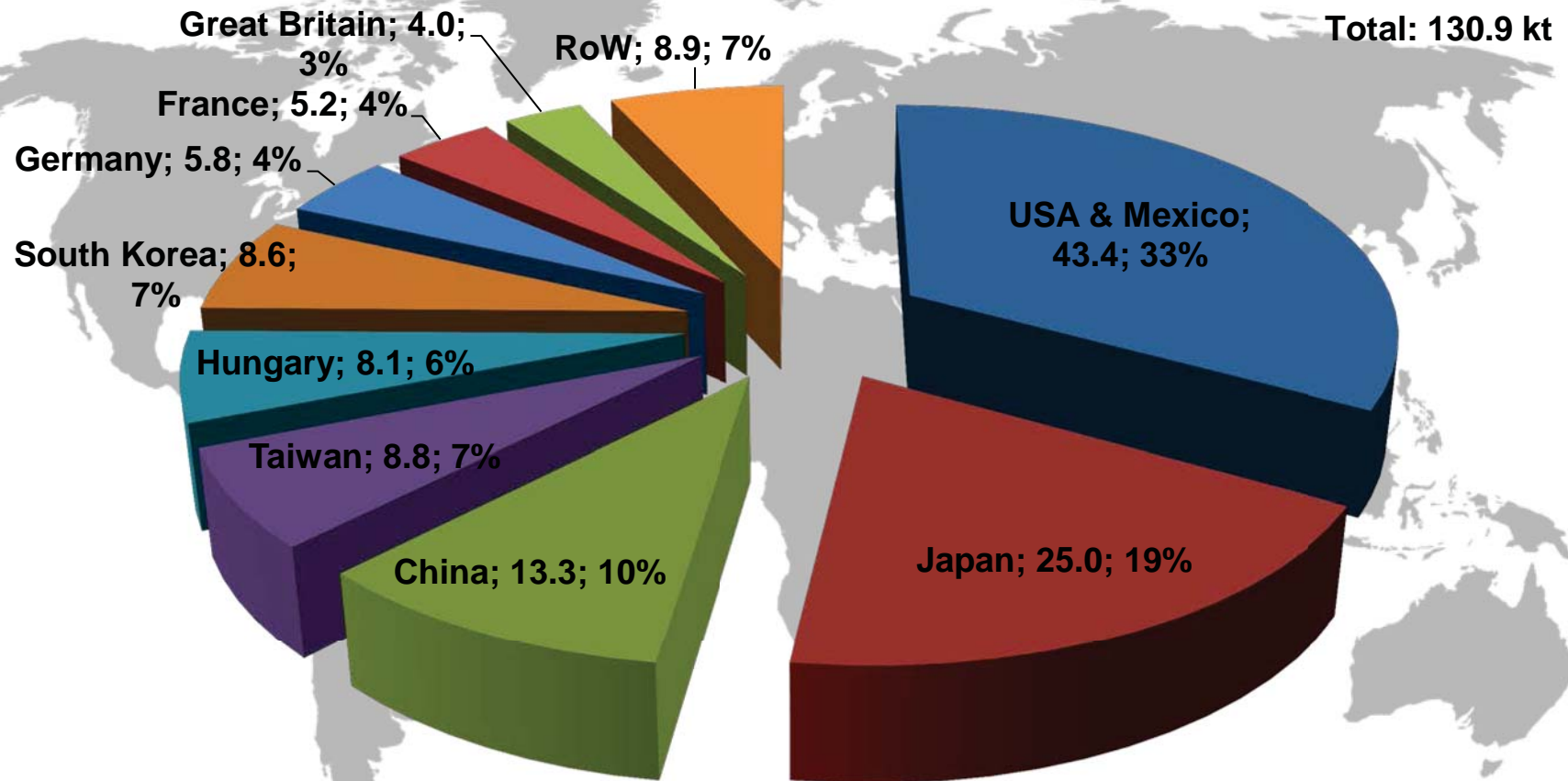


1 The global Carbon Fiber market



1.2 By region

Annual, theoretical CF capacity by regions in thousand tons (2015).



2 The global Carbon Composites market

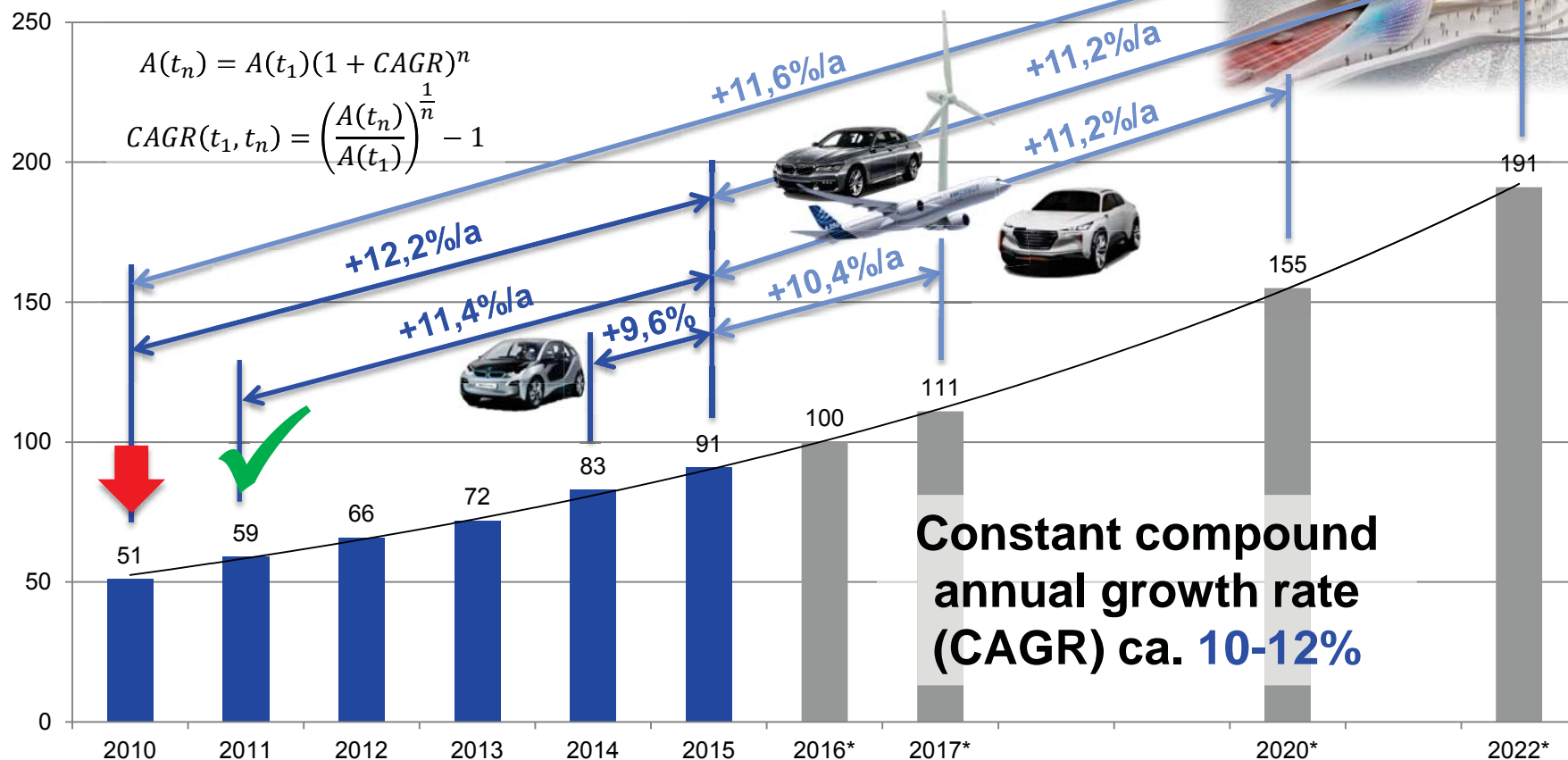


New Airbus Helicopter H160,
source: Airbus Helicopters

2 The global Carbon Composites market



Global demand of Carbon Composites in thousand tonnes from 2010 to 2022 (* estimations)

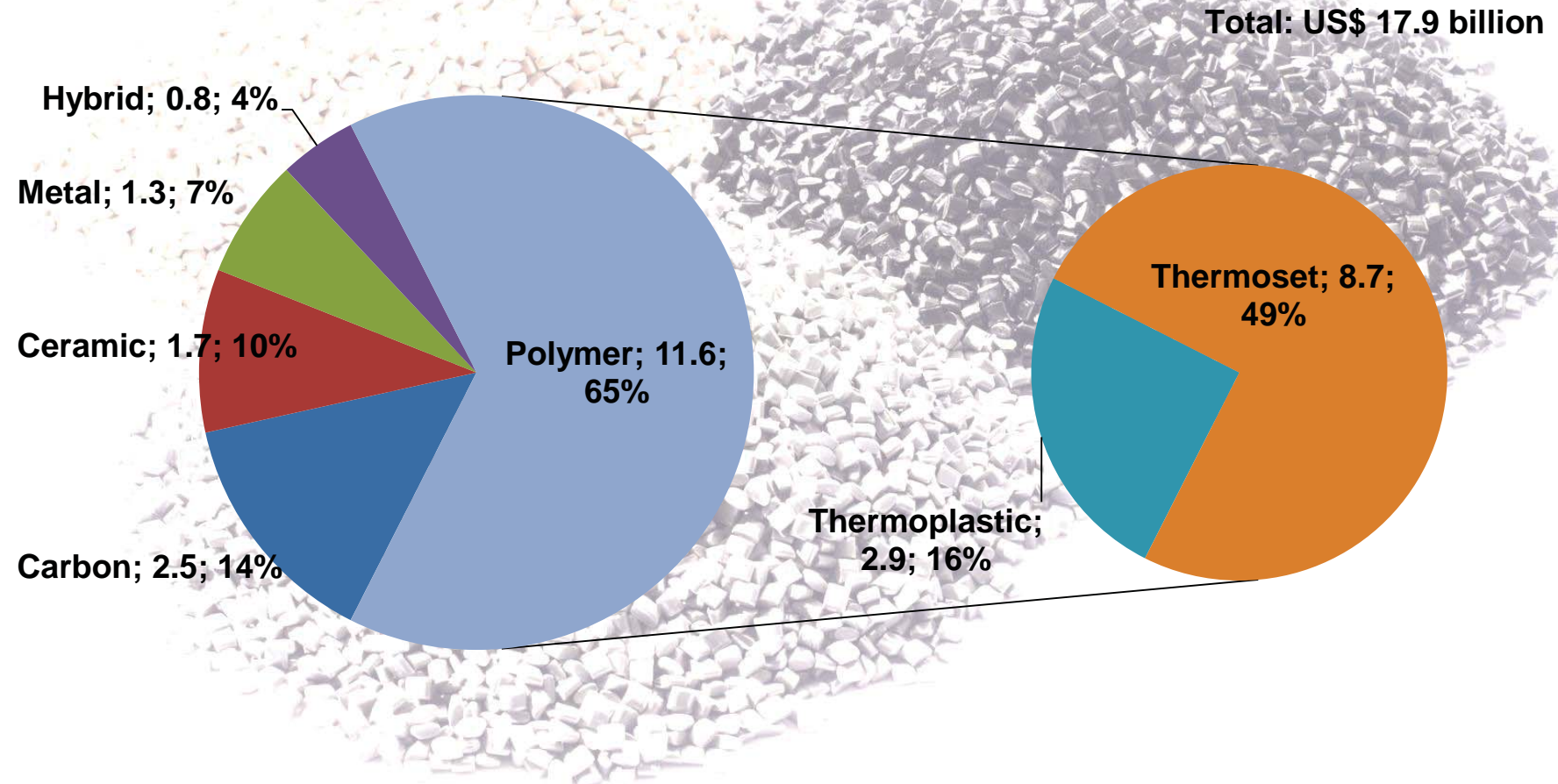


2 The global Carbon Composites market



2.1 By matrix

CC revenues in US\$ billion by matrix (2015)



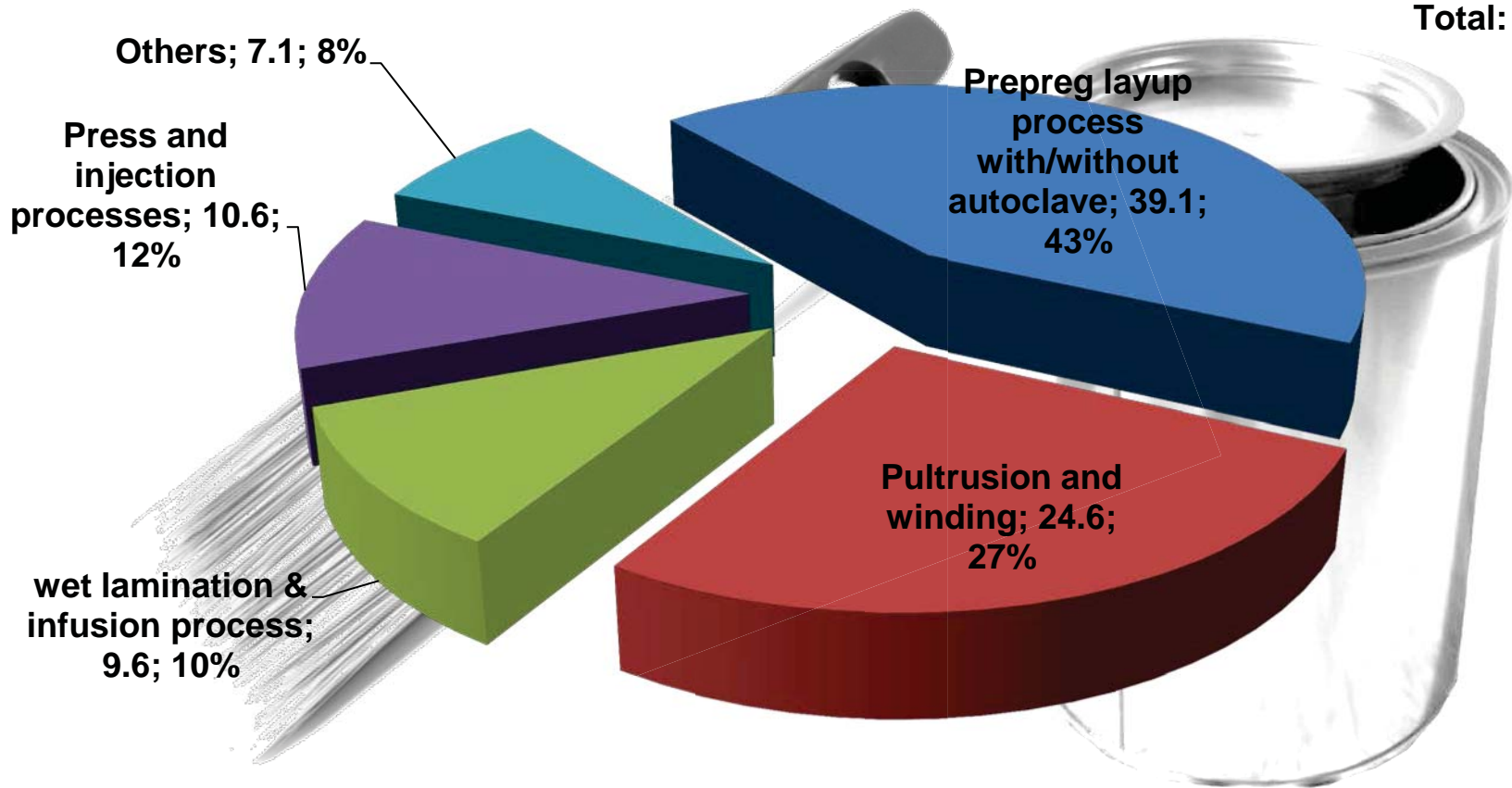
2 The global Carbon Composites market



2.2 By processes

With CFRP production processes generated amounts in thousand tonnes (2015)

Total: 91 kt

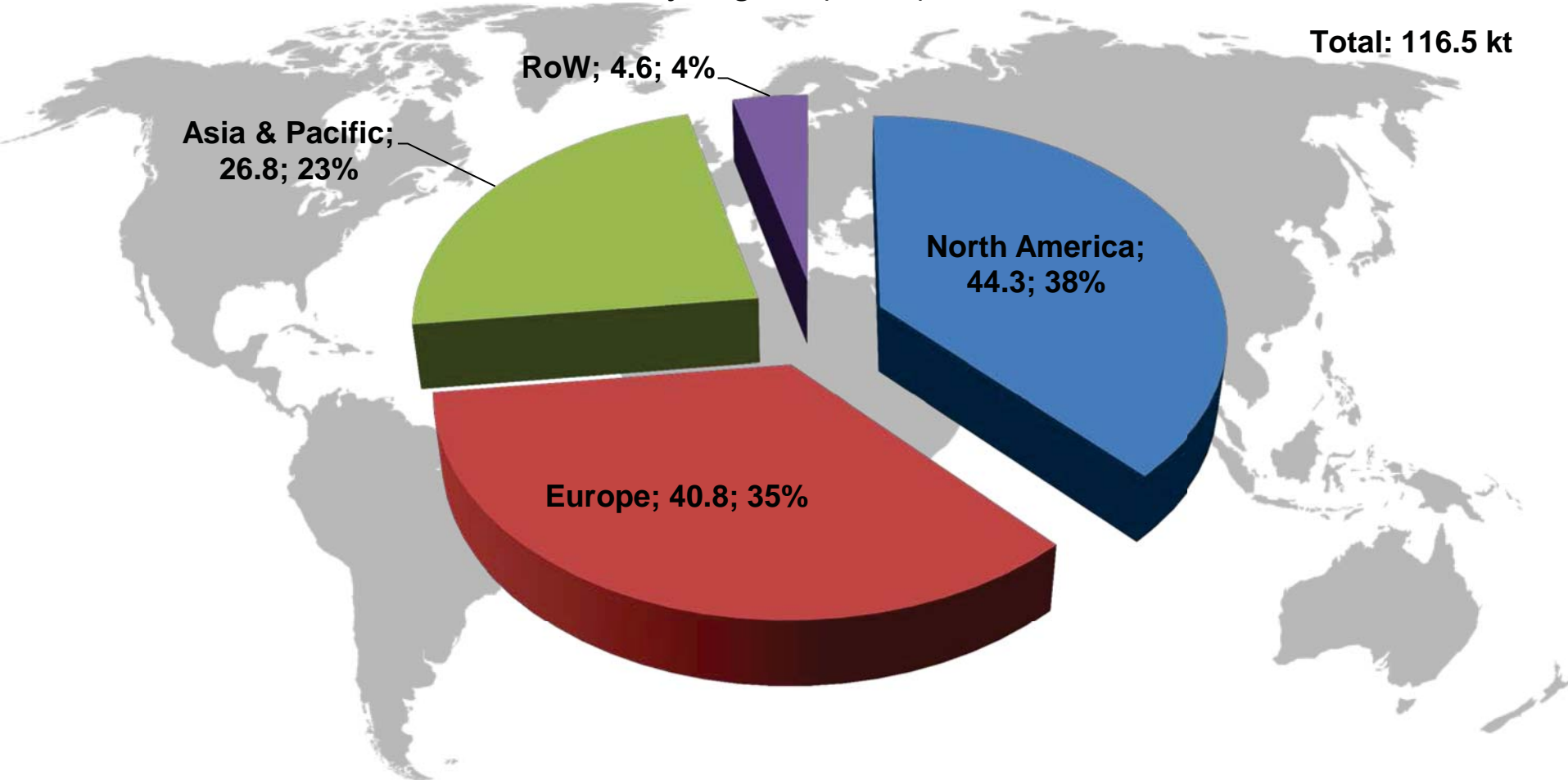


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2.3 By region

CC demand in thousand tonnes by region (2015)



2 The global Carbon Composites market



Tips of 58.5 meter long rotor blades for Siemens SWT-3.6-120 wind turbines on a jack-up vessel, source: Siemens

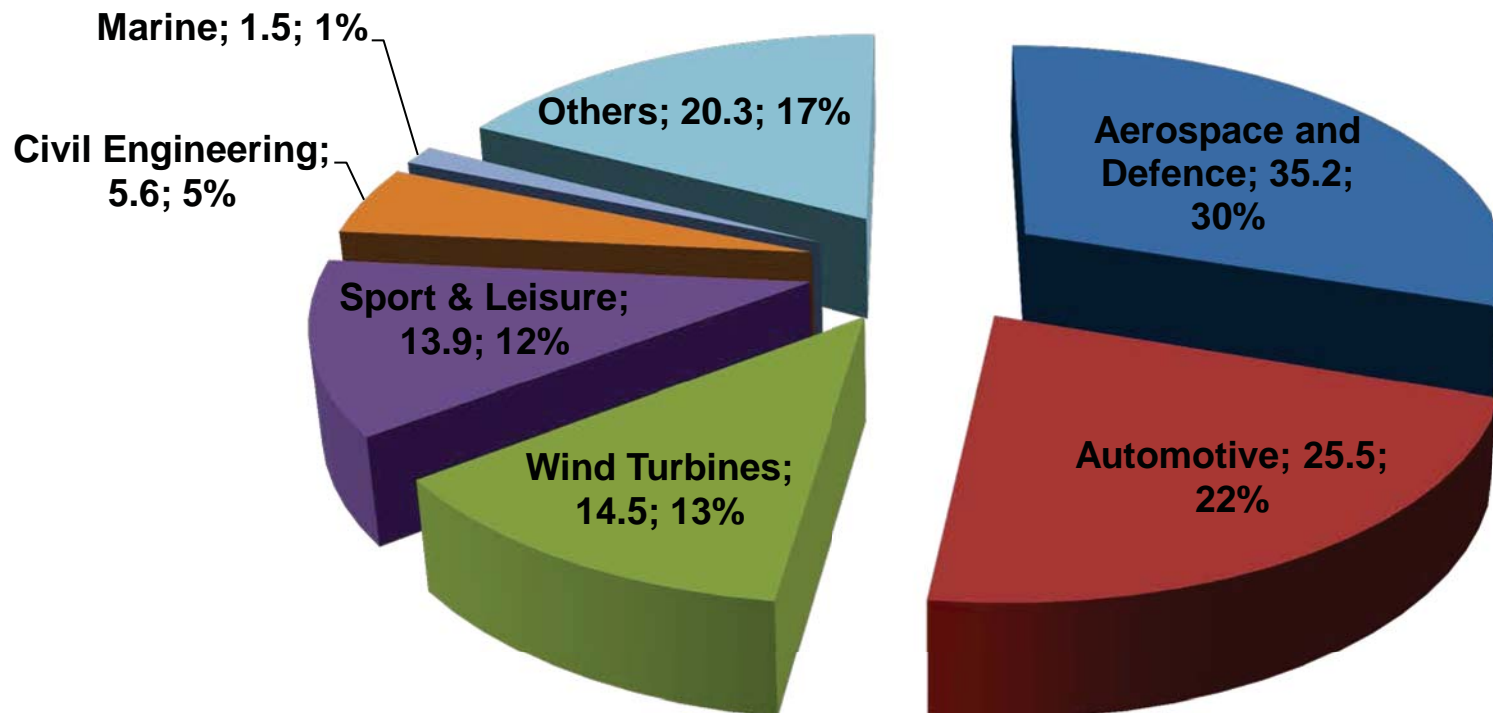
2 The global Carbon Composites market



2.4 By application

CC demand in thousand tonnes by application (2015)

Total: 116.5 kt

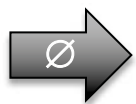
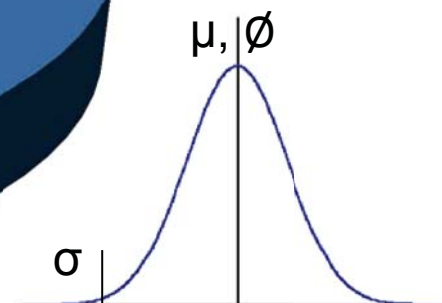
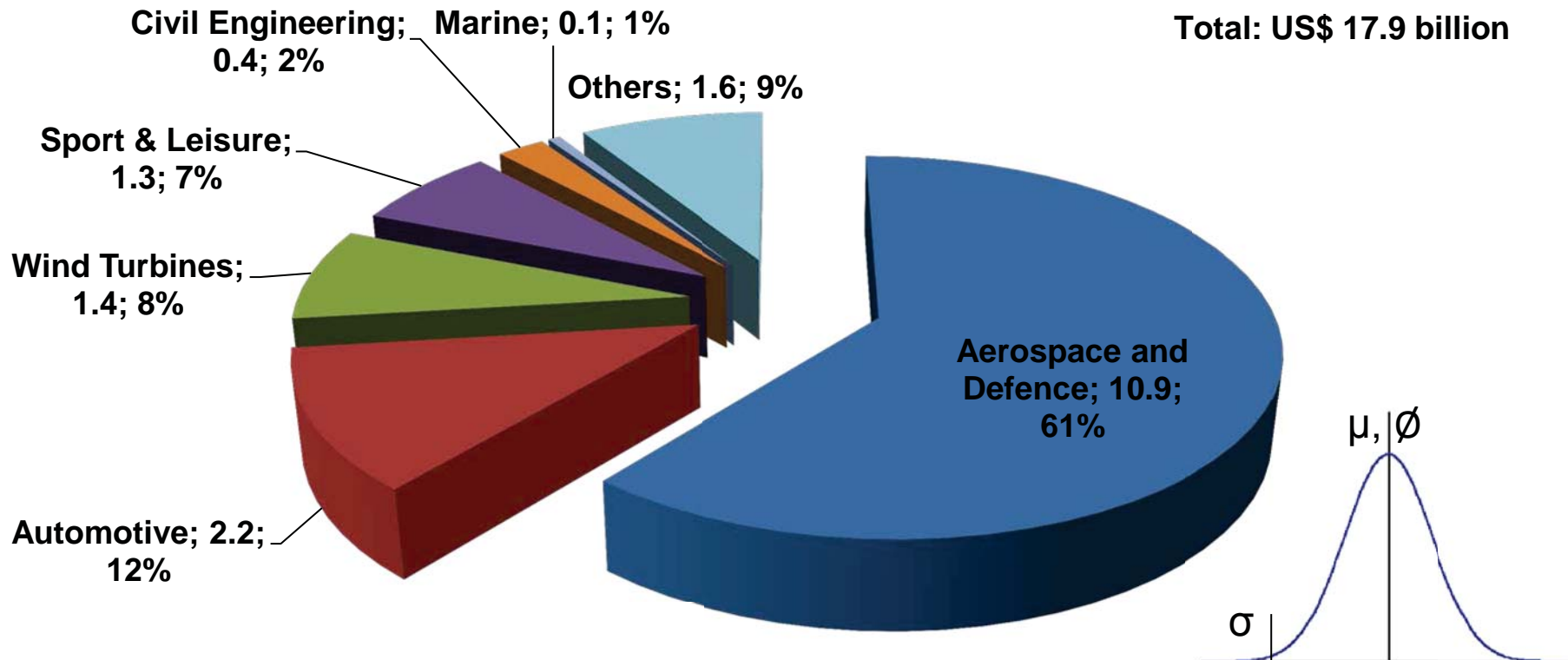


2 The global Carbon Composites market



2.4 By application

CC revenues in US\$ billion by application (2015)



Aerospace & Defence:	310 US\$/kg	Wind Turbines:	97 US\$/kg
Automotive:	86 US\$/kg	Sport & Leisure:	94 US\$/kg

3 Trends and outlook



Universität Stuttgart

ICD Institute for Computational Design
Faculty of Architecture and Urban Planning

itke Institute of Building Structures
and Structural Design

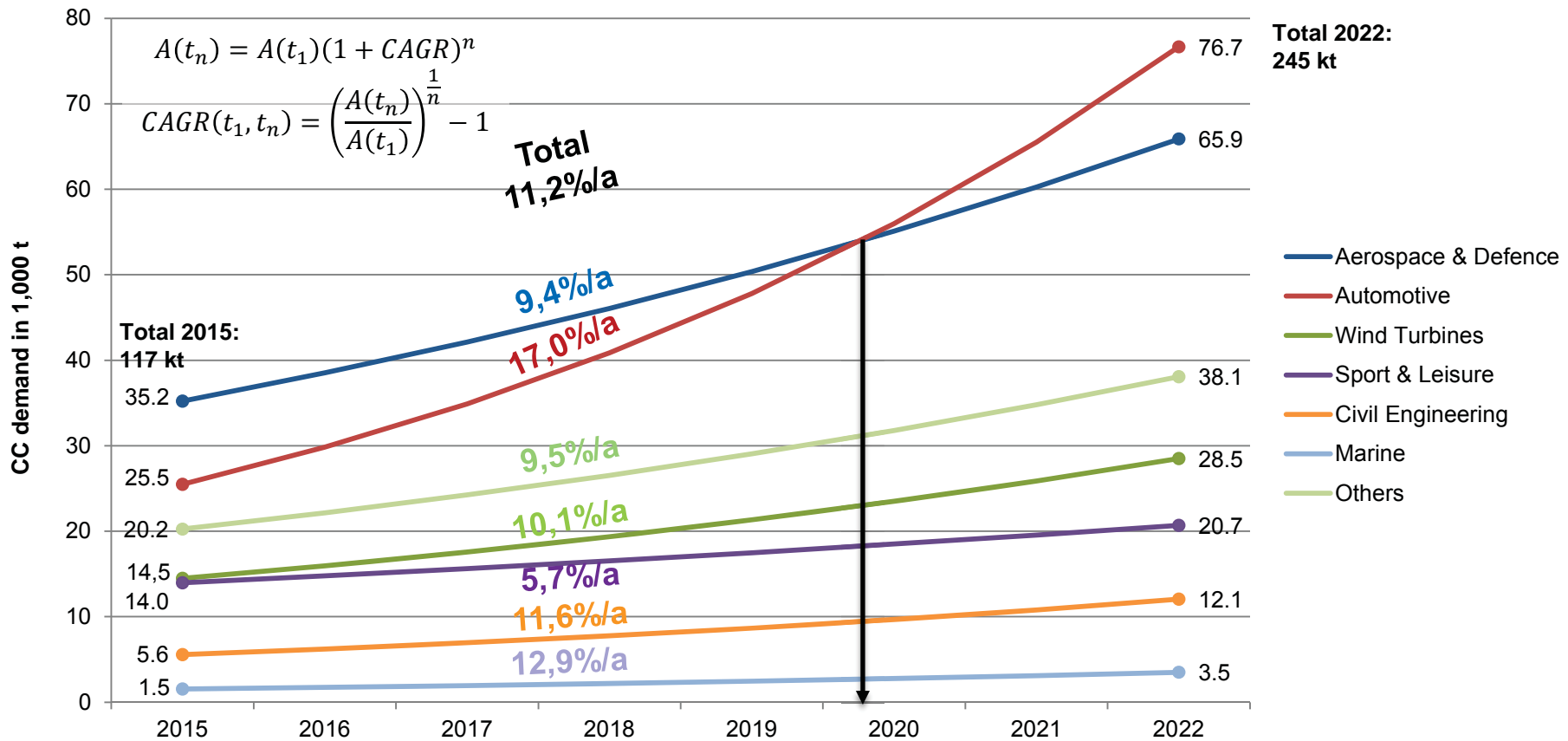


Automated production of the “Research Pavilion 2014-15” of University of Stuttgart’s Institute for Computational Design (ICD) and Institute of Building Structures and Structural Design (ITKE), source: Moritz Doerstelmann, ITKE

3 Trends and outlook



Estimated development of CC demand in thousand tonnes



4 Conclusion



Ariane 6 in 4 Booster configuration with CFRP Boosters presumably from MT Aerospace and AVIO, source: ESA

4 Conclusion

Core messages and forecast

- The global CF and CC market is and stays a promising business field with stable annual growth rates of **9-12%** over several years.
- The pressure of competition for CC increases due to hybrid lightweight material mixes (use of CC only where necessary and useful). Meanwhile CC settles its place in the material mix.
- Cost savings in material and production costs will be essential for an increasing share of CC in future applications.
- But: The market behaviour is more inertial than expected → positive as well as negative outliers not to be expected
- Stimulation by taxes and laws (e.g. in automotive, civil engineering and wind energy sector) can bring additional dynamics into the CF and CC market.

**Thank you very much for your attention.
Questions?**

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