

Composites Market Overview



By

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Composites Market Overview

- **About JEC**
- **Composites Market**
- **Trends**
- **Challenges**
- **Conclusion**

■ About JEC – core values

“ JEC represents, promotes and expands composites markets by providing global or local networking and information services ”

JEC is a Company created in December 1996 by CPC, the Center for Promotion of Composites, a non-profit association

Principles of governance

- The JEC Company has to generate its own revenues
- The JEC Company has to invest all benefits in the creation of new services for the industry

■ About JEC – its offer



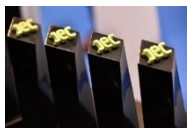
Medias



E-information



Studies



Innovation Programs
& Awards



Trade-shows



Conferences & Forums

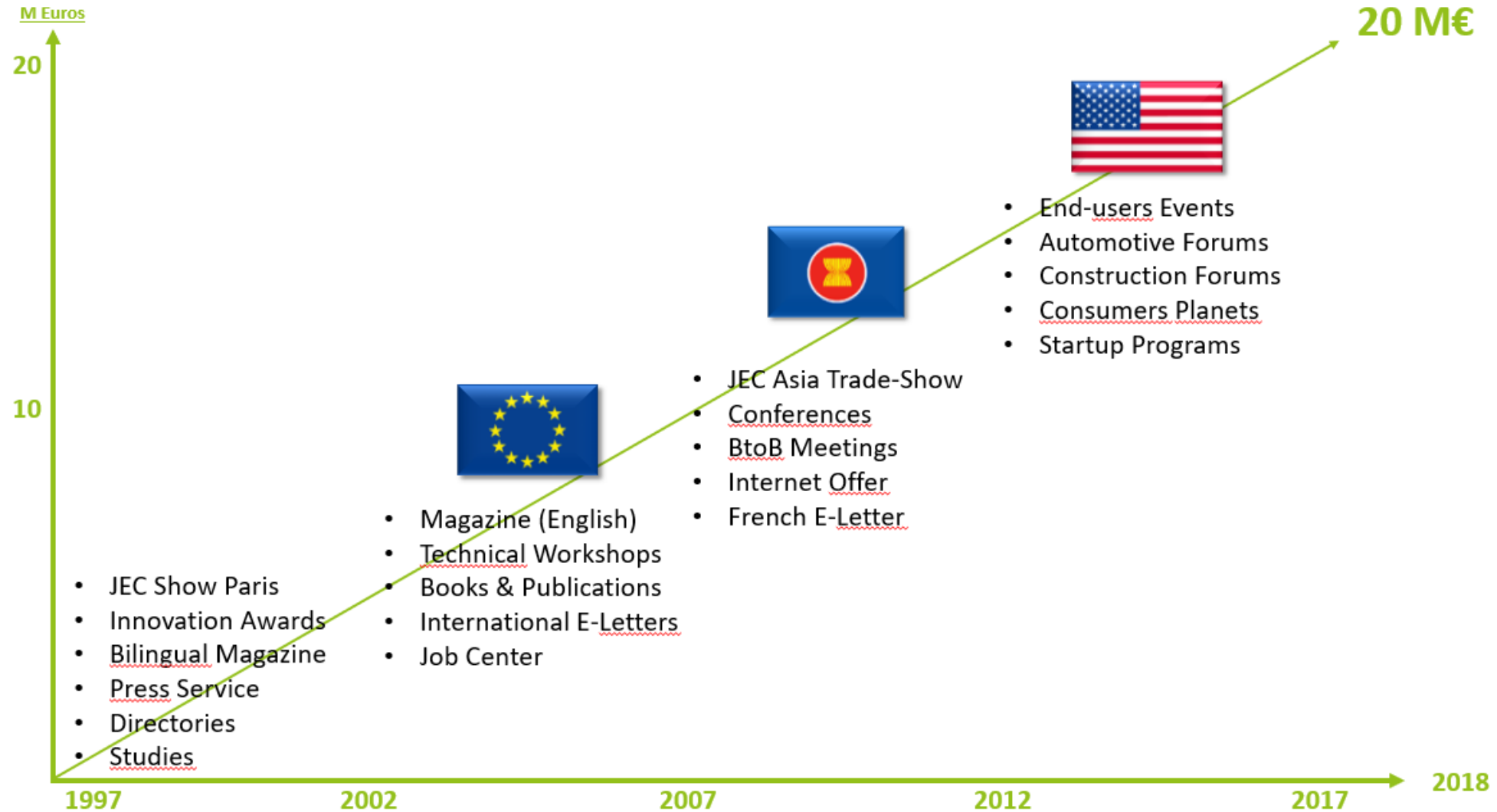


Networking Events



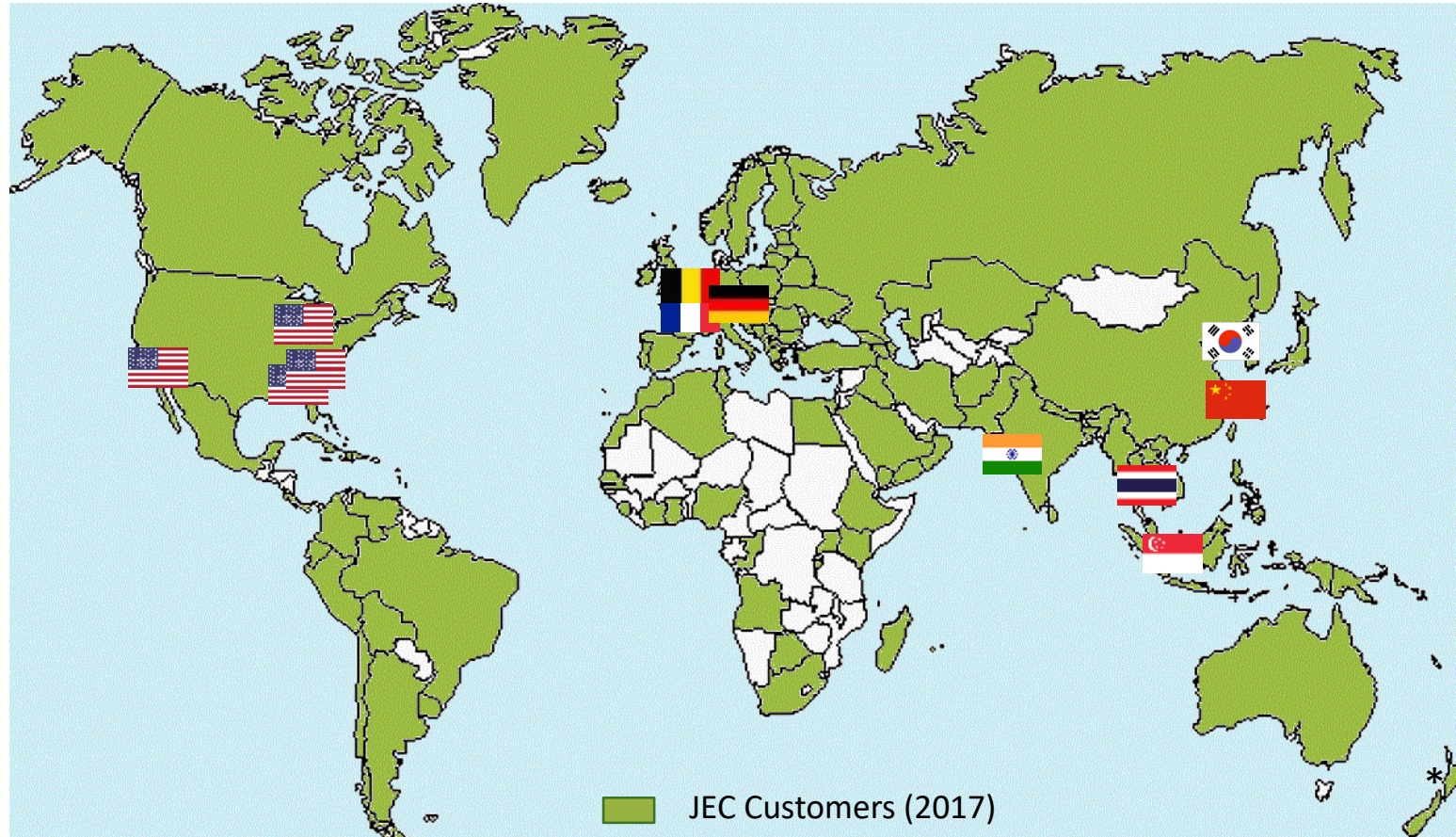
B to B meetings

■ About JEC - a success story



■ About JEC - a real global footprint

-  Brussels
-  Paris
-  Chicago
-  Knoxville
-  Atlanta
-  Newport Beach



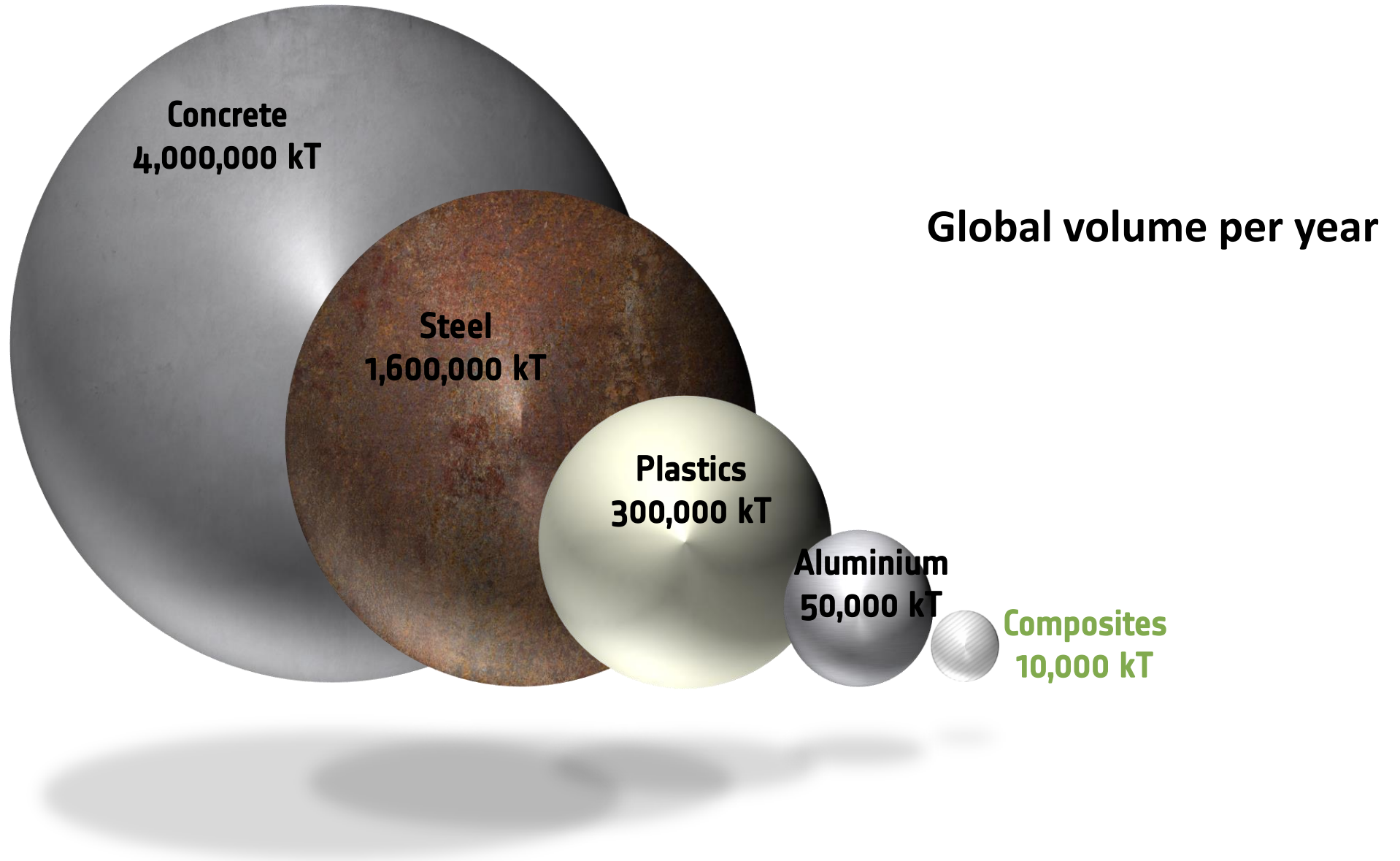
-  Augsburg
-  Shanghai
-  Bangkok
-  Mumbai
-  Singapore
-  Seoul

JEC Offices in North America (Atlanta, USA), Europe (Paris, France – Headquarters) and Asia (Singapore)

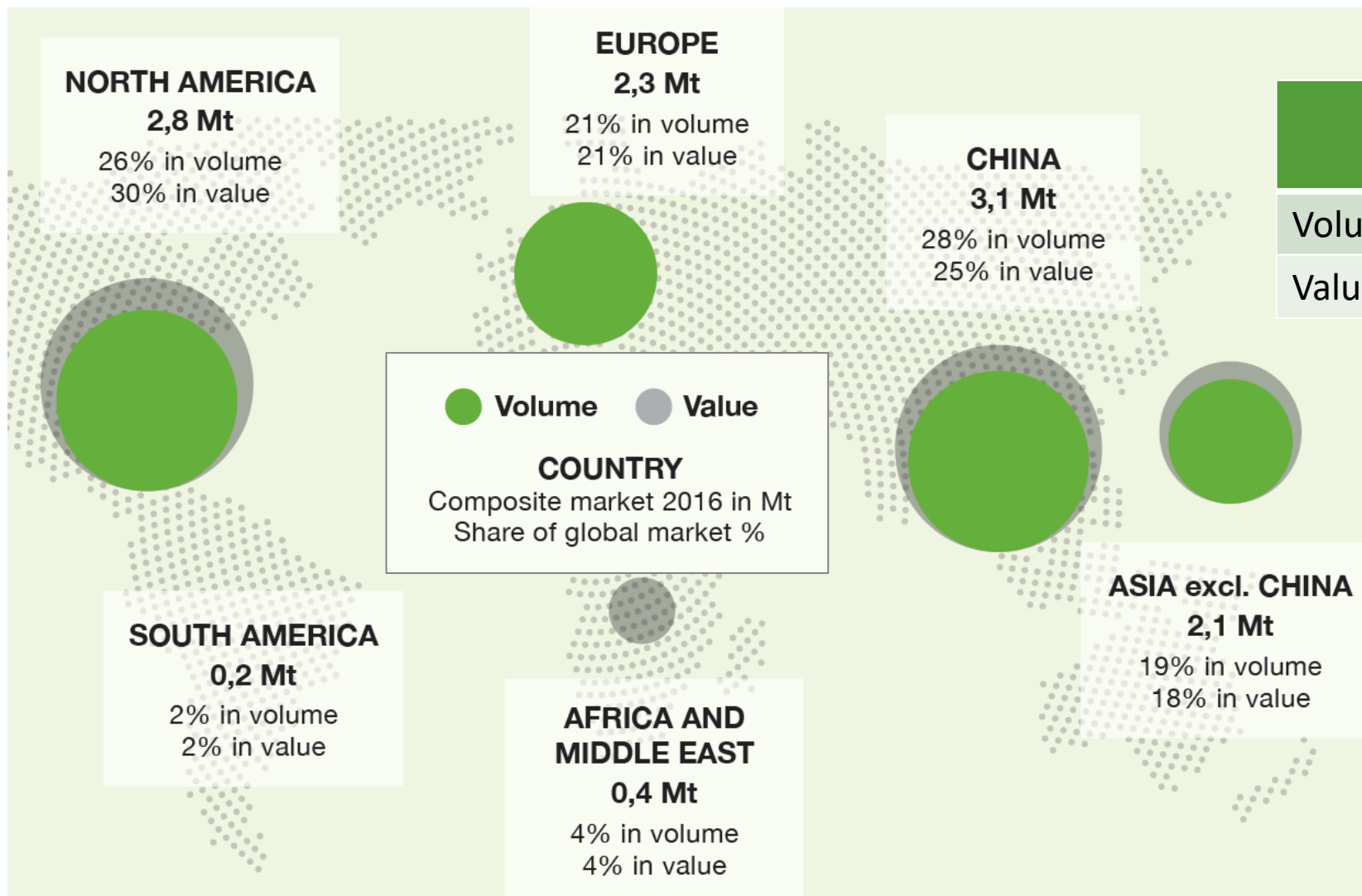
- **About JEC – Next International Composites Events**

<p>THE FUTURE OF Composites in Transportation BY JEC</p> <p>Chicago, IL, USA June 27-28, 2018</p>	<p>JEC ASIA 2018 International Composites Event</p> <p>Seoul, Rep. of Korea Nov 13-14-15, 2018</p>	<p>JEC WORLD 2019 The Leading International Composites Show</p> <p>March 12-13-14, 2019 PARIS-NORD VILLEPINTE</p>
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Composites Market – The Big Picture



■ The Composites Market - Global



Total World

	2015	2016	2021	CAGR 2016-2021
Volume (Mt)	10.4	10.8	12.9	4% p.a.
Value (B€)	71	74	94	5% p.a.

Asia in 2016

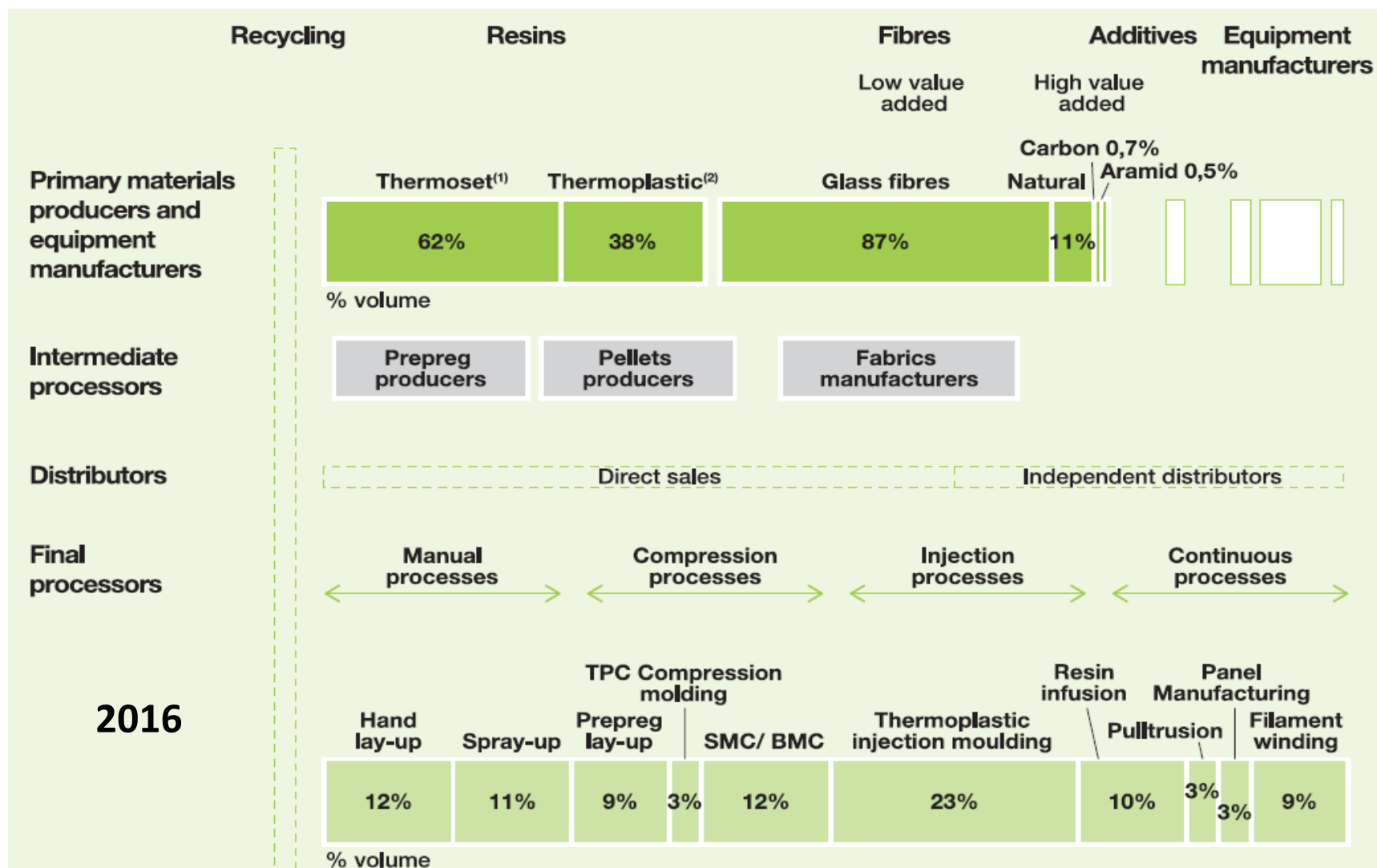
~ 50 % Volume

~ 40% Value

China 2016-2021

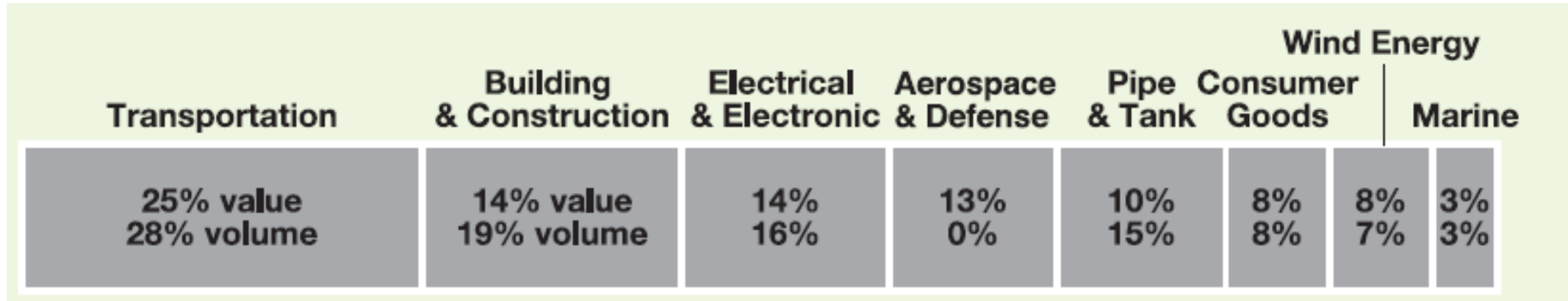
~ 60 % Volume growth

■ The Composites Market – value chain



■ The Composites Market – application sectors

2016

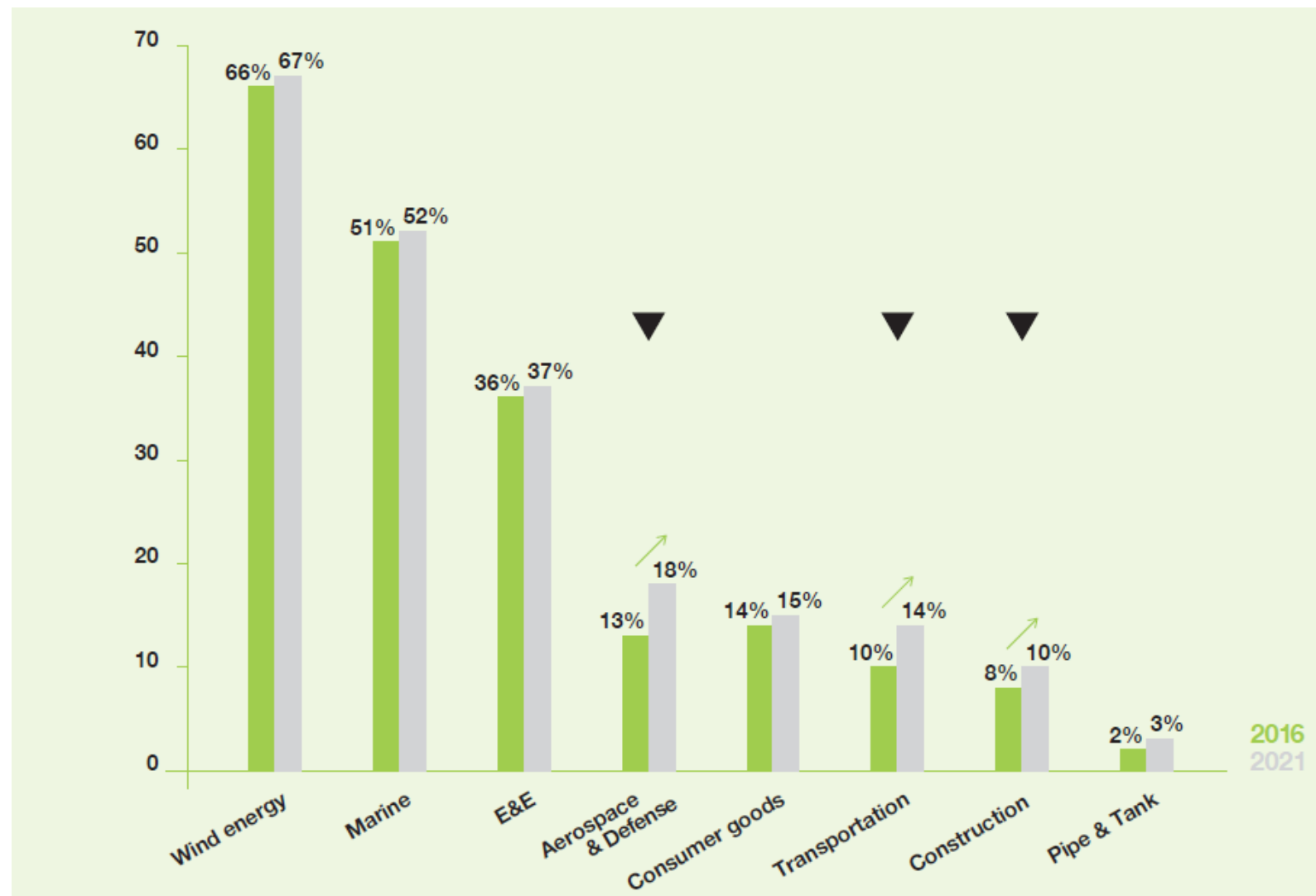


66% of the total value all together

63% of the Volume

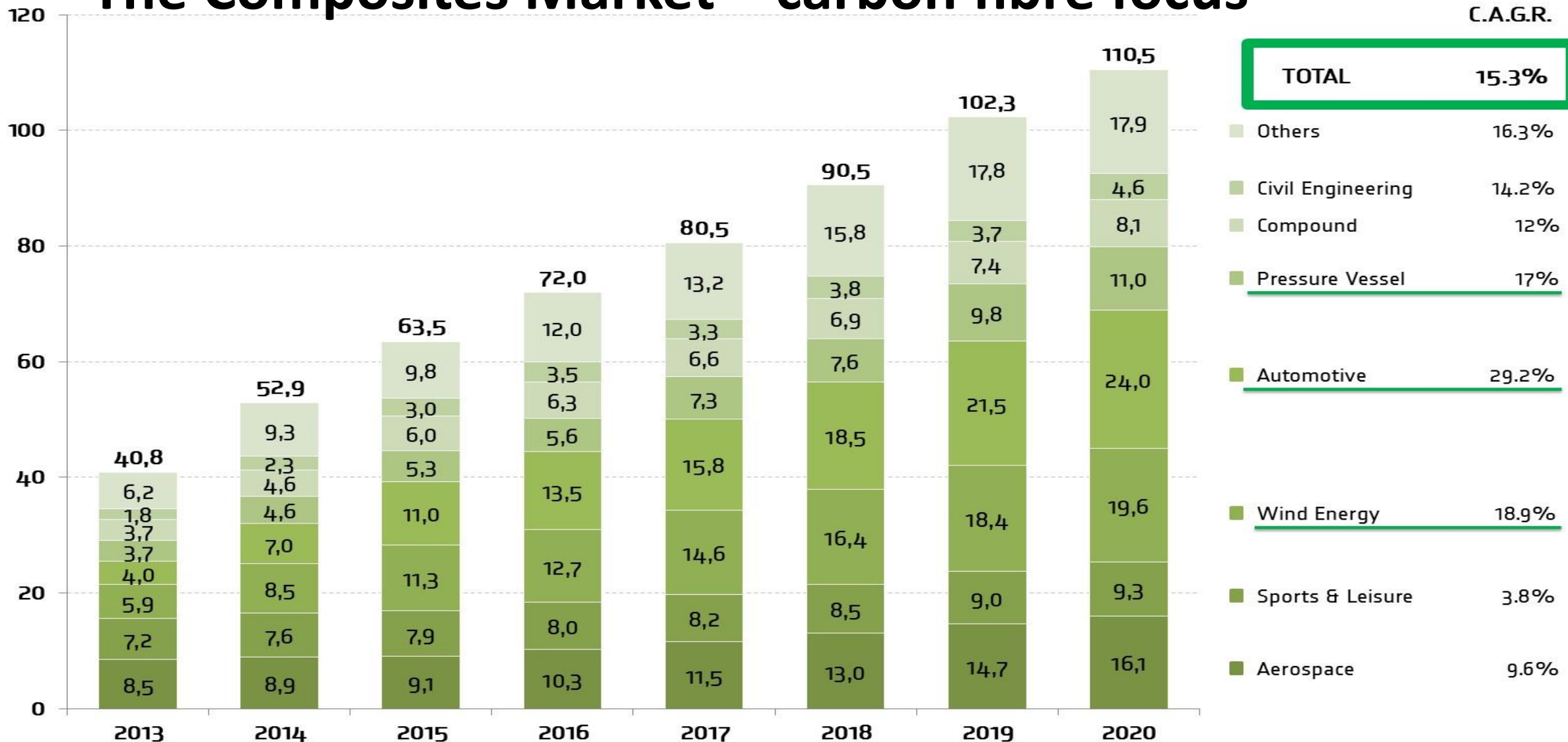
■ The Composites Market – application sector dynamic

Global penetration rate of composites per industry for 2016 & 2021 (in volume, in%)

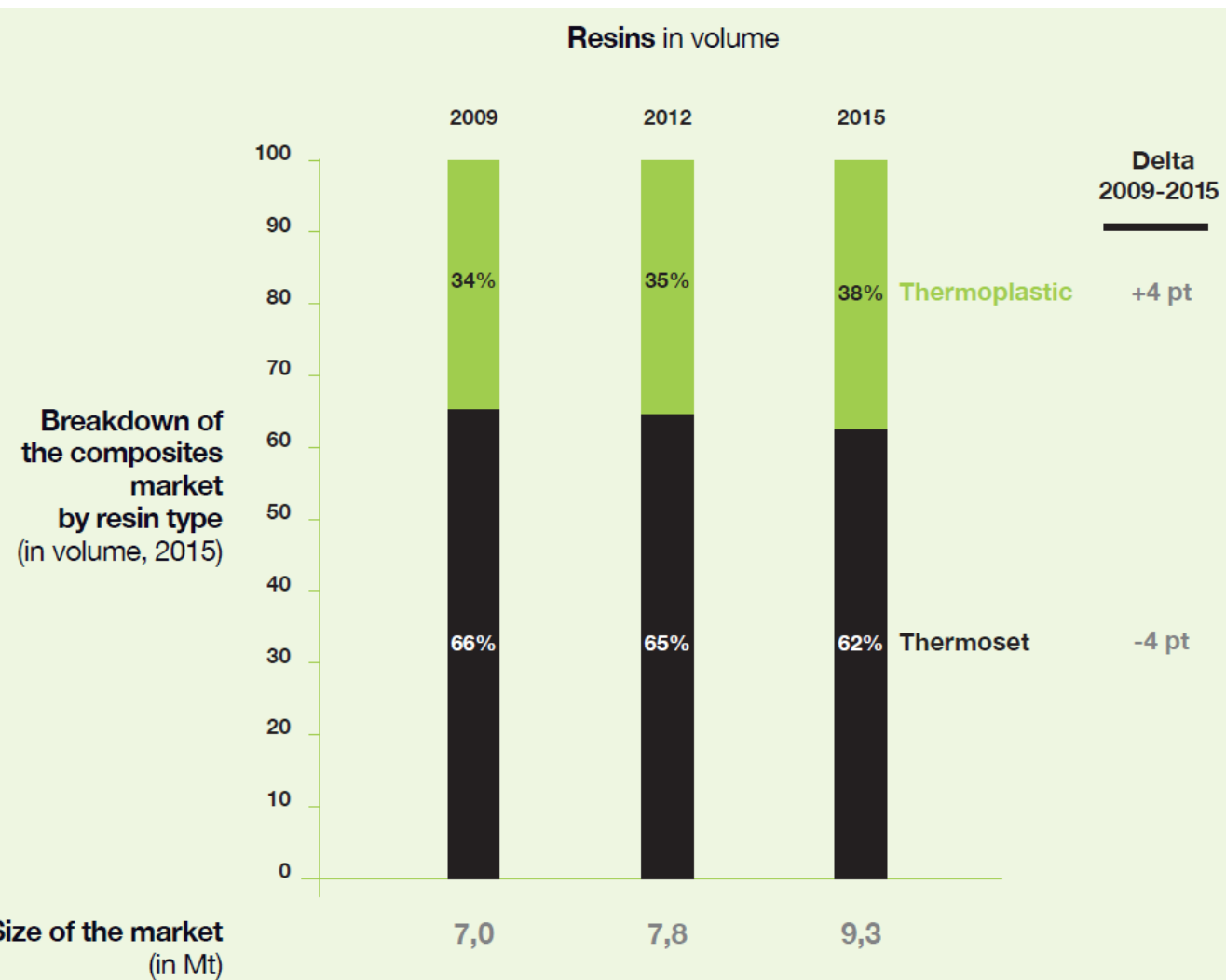


in kilo tons

The Composites Market – carbon fibre focus



■ The Composites Market – Trends - Materials



Thermoplastics market share is still growing in a growing market

■ *Mouvements in the CF area*

- Toray's purchase of Tencate
- Hexcel acquisition of Oxford Performance Materials and agreement with Arkema
- Solvay (Cytec)
- Teijin (incorporation of Toho Tenax no longer a stand-alone brand)
- SGL / BASF research

■ *More CF compounds, even with PP*

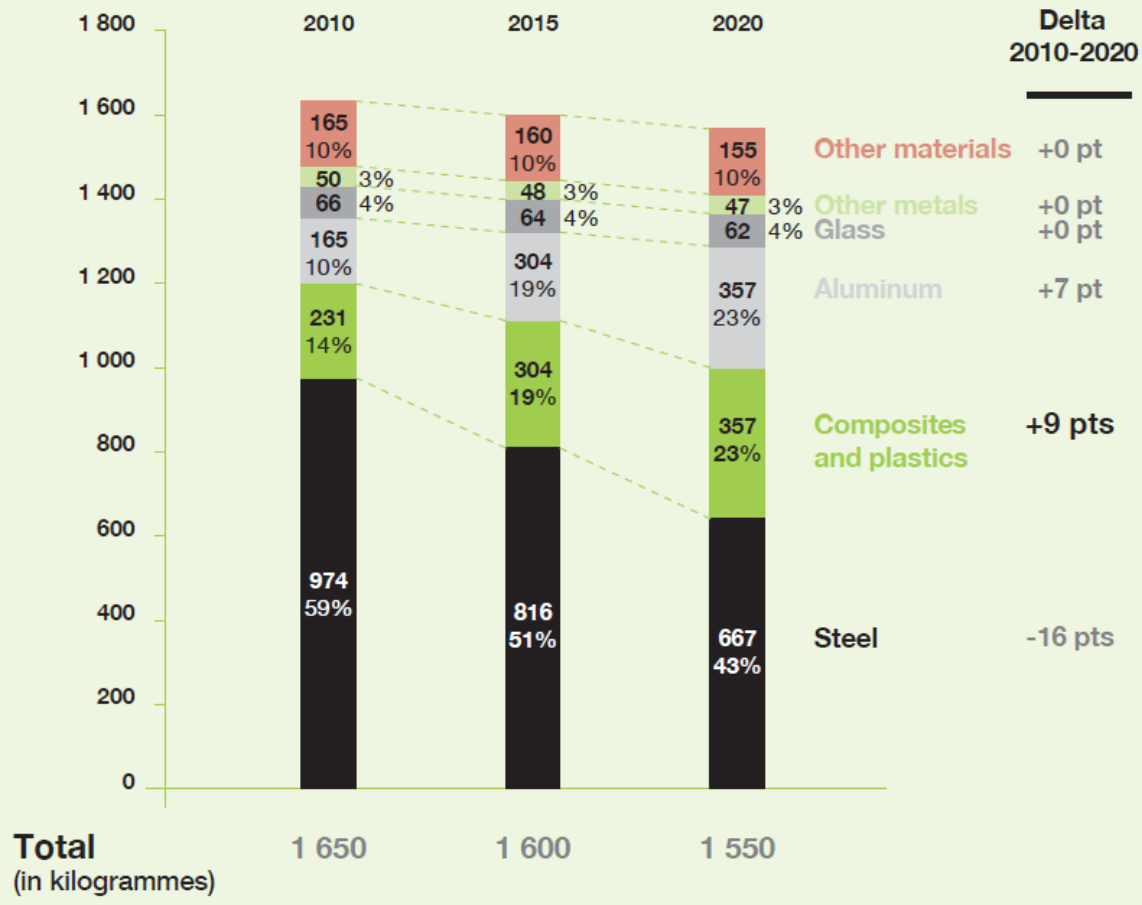
■ *TP filament winding*

C-SMC for Automotive

- Menzolit
- Mitsubishi Rayon
- Polynt
- Magna
- Toyota
- Lamborghini (VW group)

■ The Composites Market – Trends - Ecosystems

Average weight distribution of a car by material (in kilogrammes)



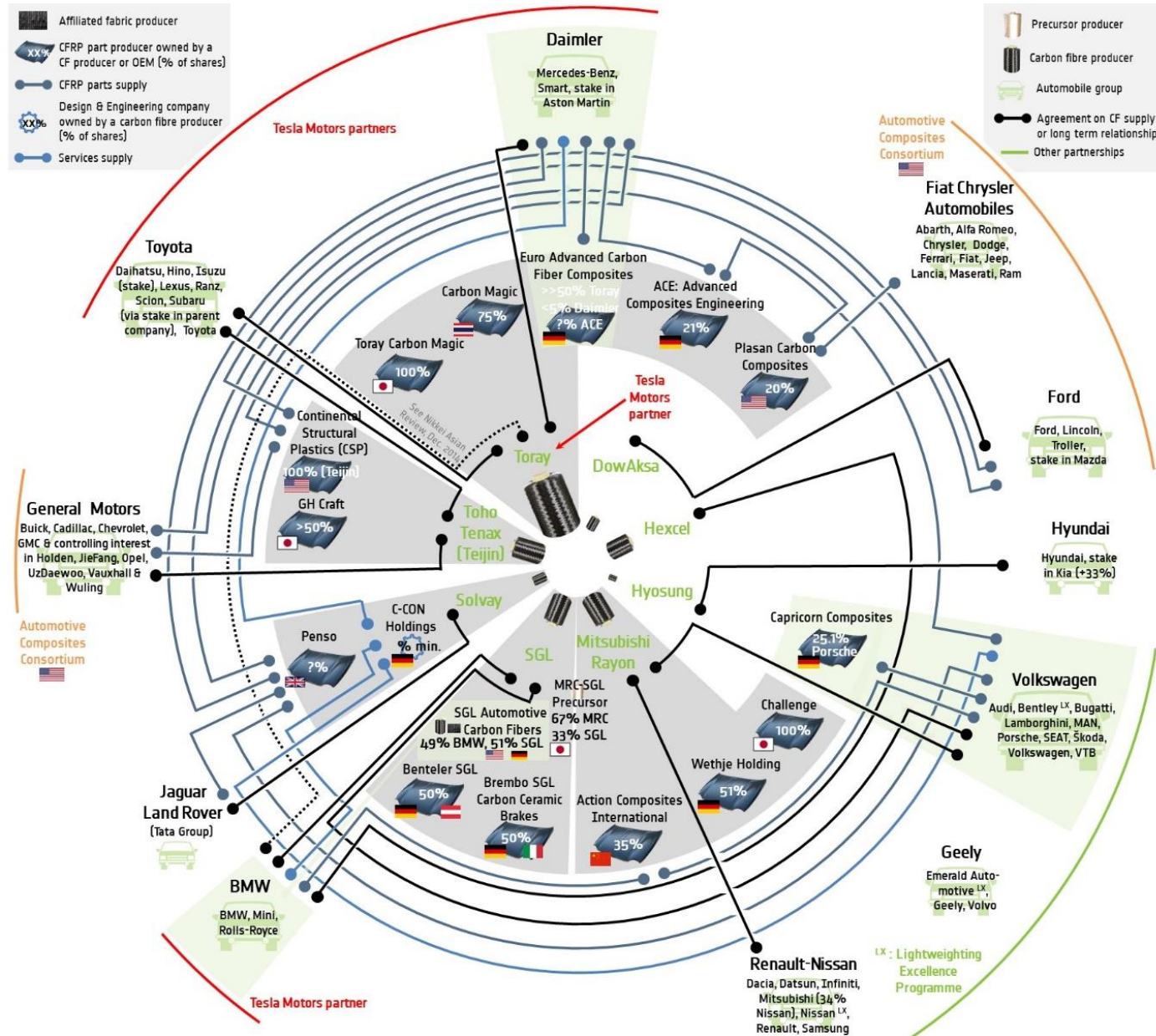
Formation of battle lines & opportunities

- *In Automotive* (agreements – see next slide)
- *For Hydrogen (Hydrogen Council)* change of Automotive paradigm



The Composites Market – Trends – Ecosystems

Automotive (agreements & relations)



■ **The Composites Market - Challenges**

- **Automation still needs to be pushed further**
- **Pressure on total costs of a solution**
- **3D Printing**
- **Recycling**

■ Conclusion

- Future really promising for Composites
- Aerospace & Defence, Transportation and Construction should increase their penetration rate greatly
- In 30 years, Automotive & Energy landscape should be greatly different
- Still work to do on Automation, Costs and Recycling

THANK YOU



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