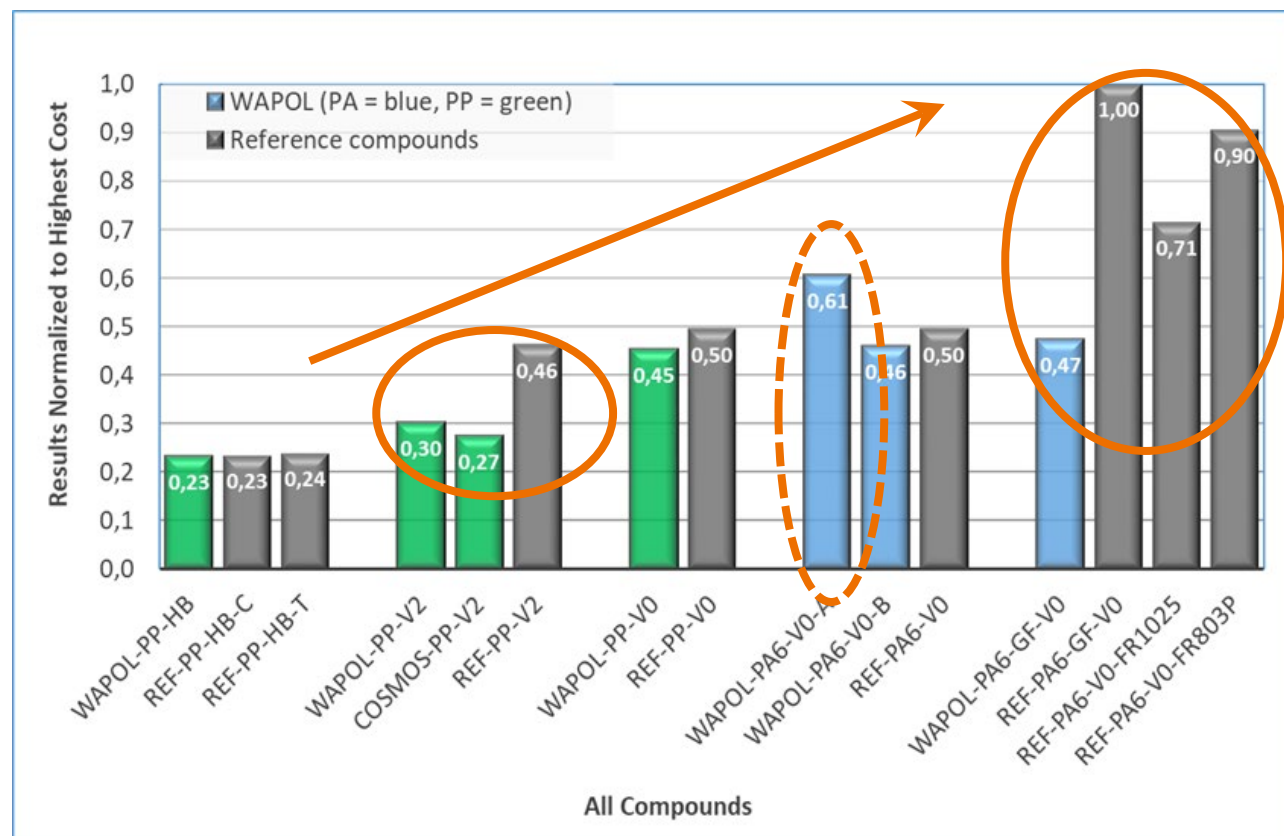


WAPOL polymer formulations

POLYMER	GRADE	No Br, no Sb and....	PILOT PLANT	INDUSTRIAL PLANT	COMMERCIAL INTEREST	COST (up to % less)
PP	PP-HB	No P	✓	✓	✓ IRIS AMBIENTE	10
	PP-V2	No P	✓	✓	?	
	PP-V0	Low P	✓	✓	?	
PA	PA6-V0	No P/low P	✓	✓	✓	25-35
	PA66-V0	No P/low P	✓	✓	✗	
	PA6-25GF-V0	No P	✓	✓	✓ VELAWORKS	30-35

LCC screening results

- The WAPOL results are less than or equal to their reference compounds, except WAPOL-PA6-V0-A (however this has not been used for prototypes)
- Best cost savings are for the PP-V2 and PA6-GF-V0 comparisons.
- General trend toward higher cost with higher UL94 rating (HB-->V2-->V0).
- The results for WAPOL-PP-V0, WAPOL-PA6-V0-B and WAPOL-PA6-GF-V0 are nearly the same. Consider other factors such as strength, weight, or environmental impact for decisions.

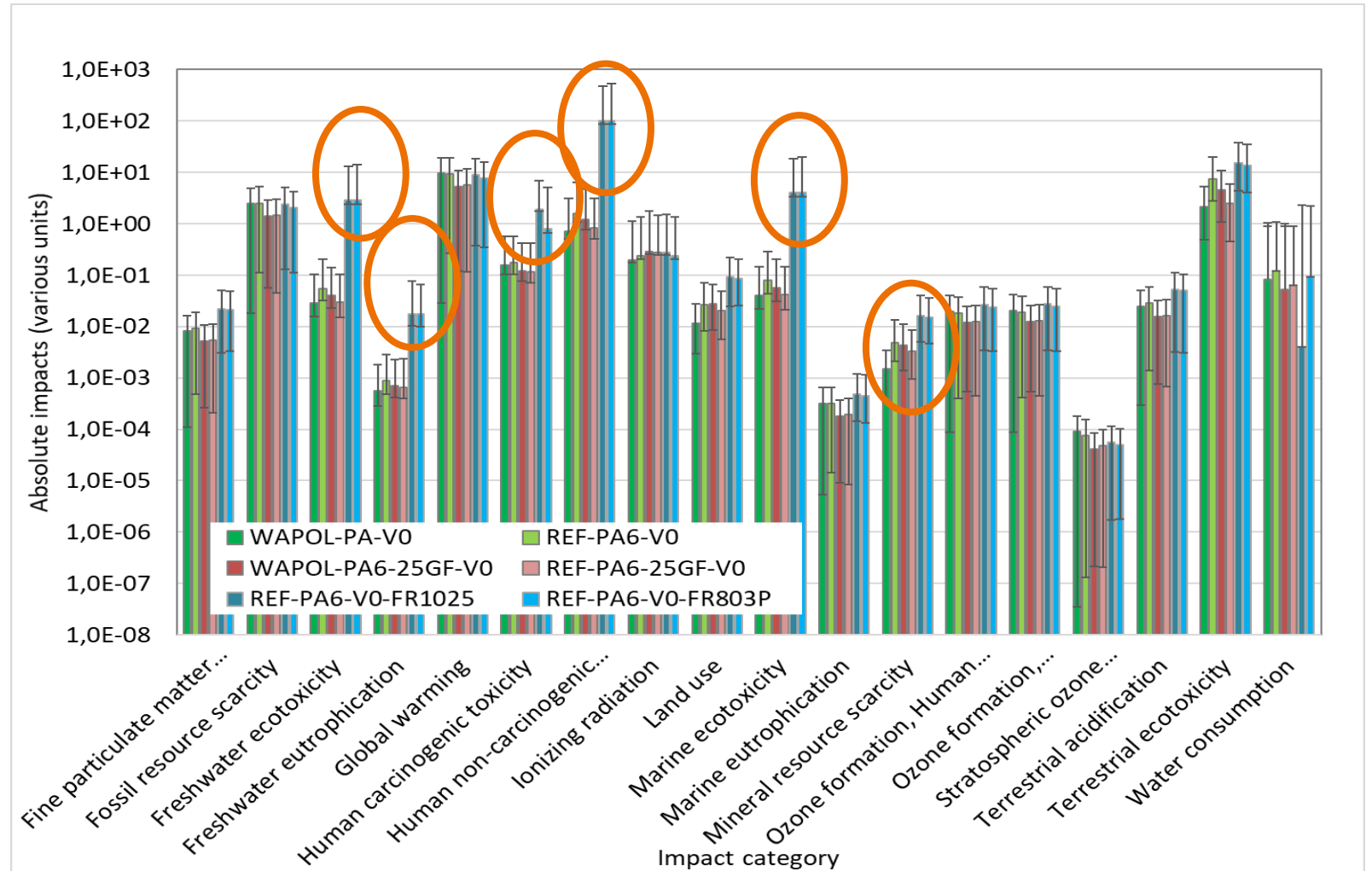


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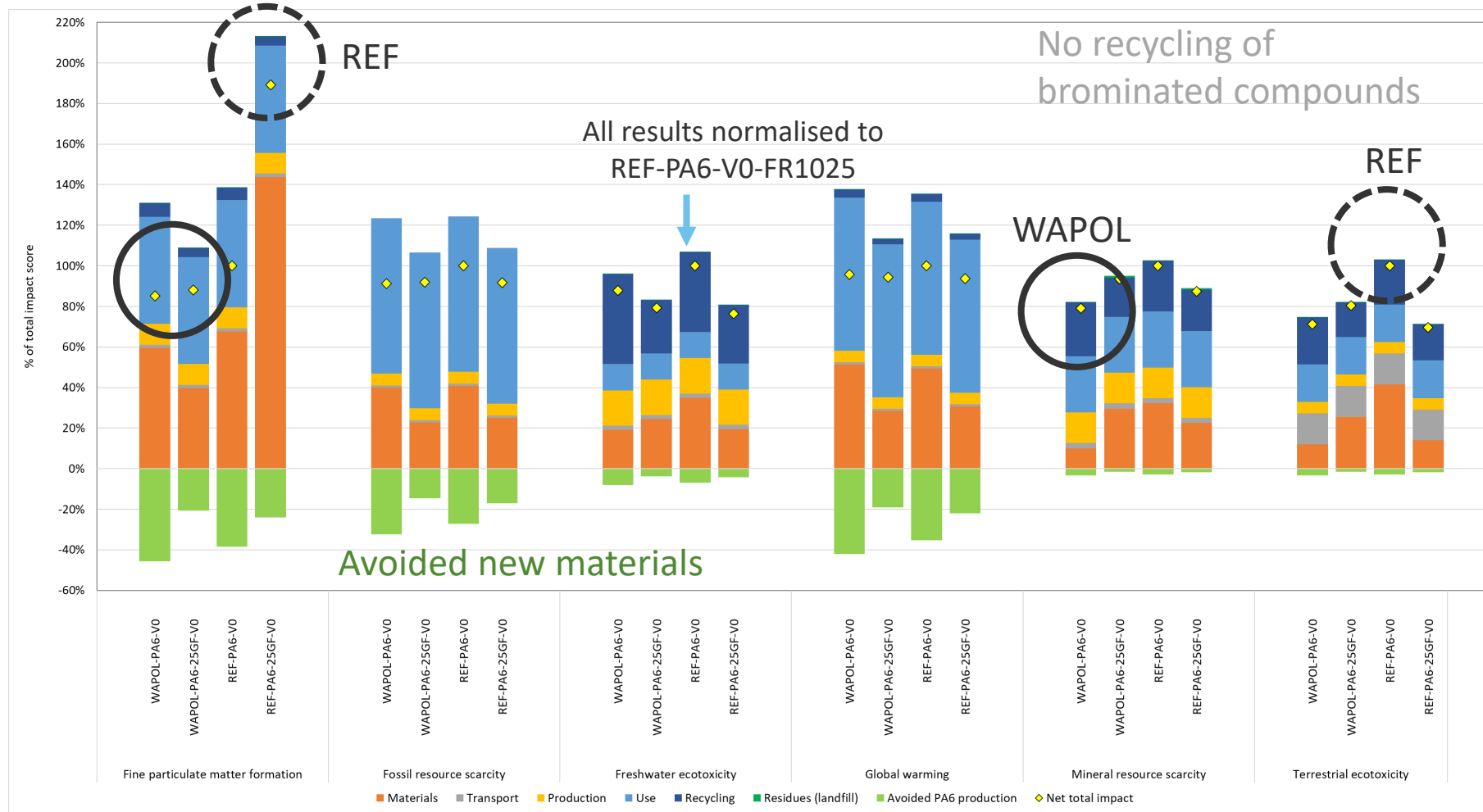
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Connecting matters

LCA screening results

- All impact categories considered
- Results are similar for PP-based compounds
- WAPOL compounds have less impact than antimony/bromine compounds (market counterparts) in 6 categories



LCA Results- Recycling as End-of-Life Scenario - PA

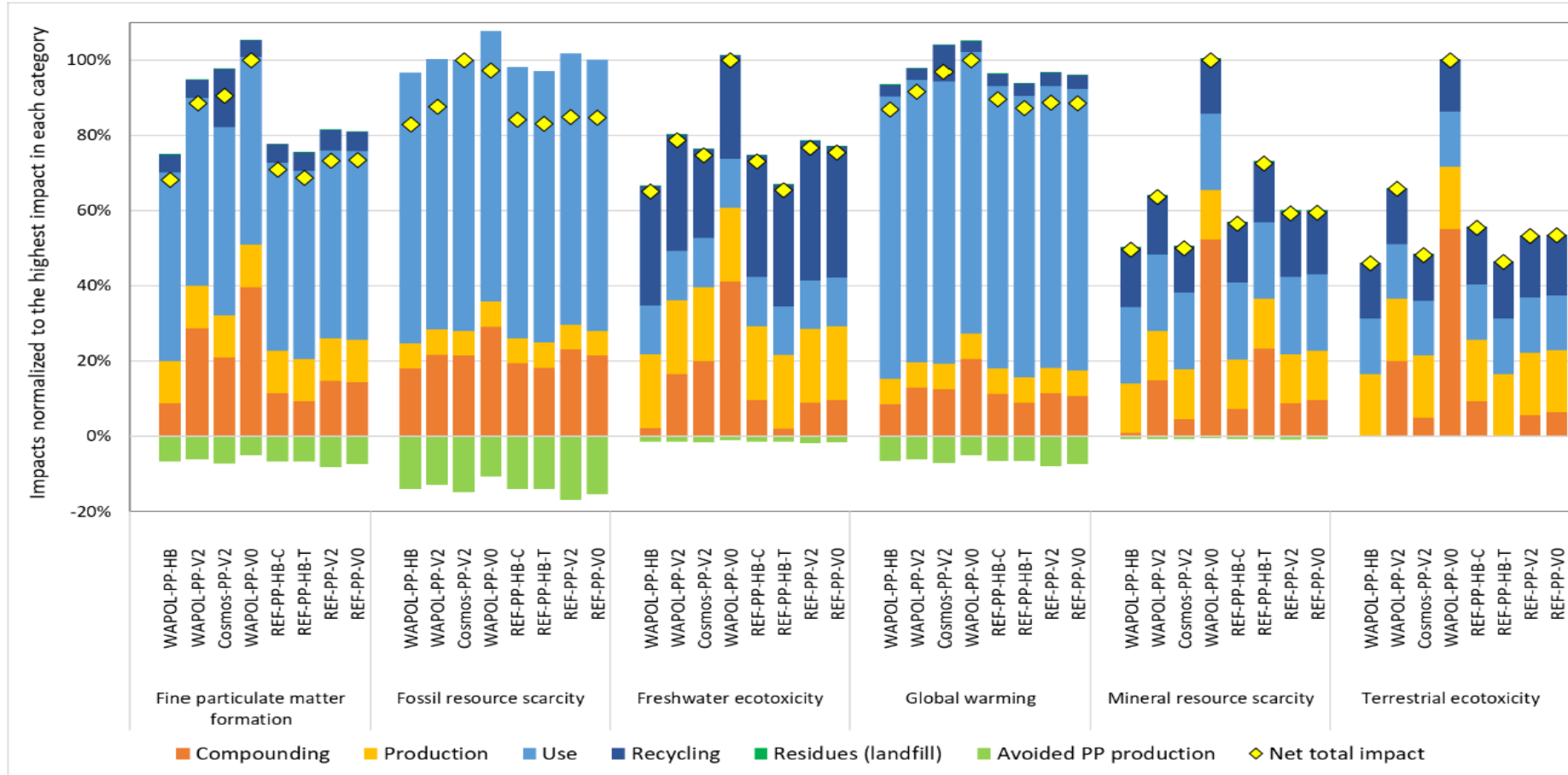


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LCA Results- Recycling as End-of-Life Scenario - PP



WAPOL Prototype production (polyamide)

Demo 1: ashtray
(Ypsilon, Fiat 500, Fiat 500 BEV,
Jeep Renegade, Fiat 500X)

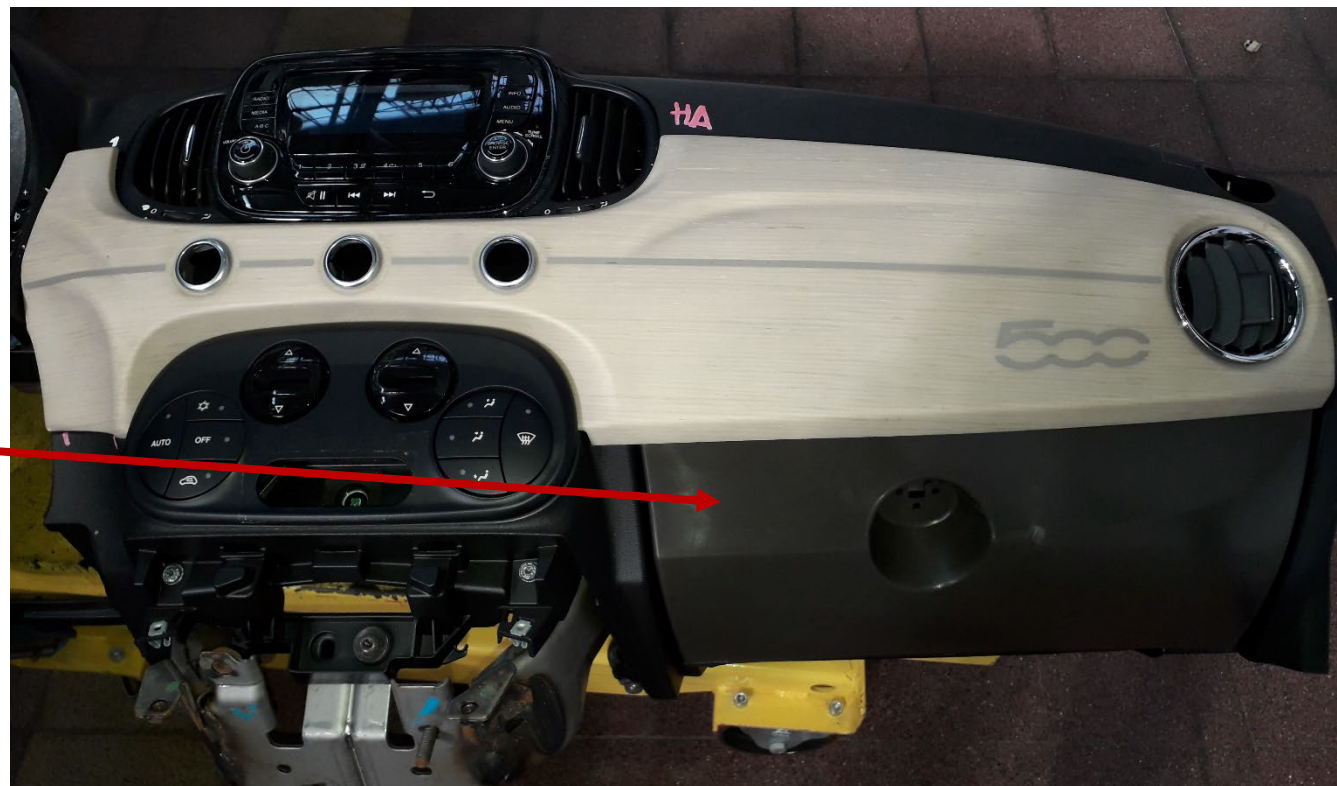


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WAPOL Prototype production (polypropylene)

Demo 2: interior trim
(Fiat 500)

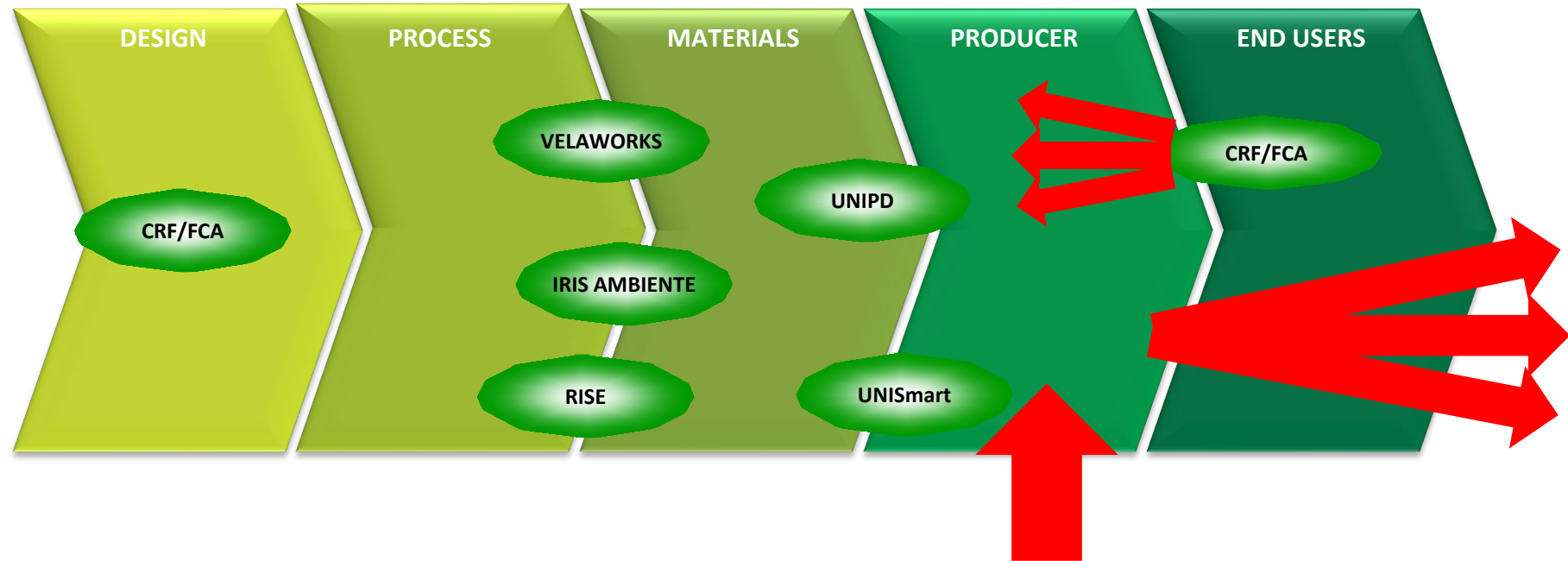


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WPO – Implementation plan

Scalability



Value chain

- Contacts with potential new compounders to be included in FCA value chain
- Exploitation of results toward existing players



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WPO – Market assessment

International Motor Vehicle Sales Outlook (mns units)					
	2000–15	2016	2017	2018e	2019f
Total Sales	54.9	77.3	79.0	78.7	78.7
North America*	17.9	21.0	20.7	20.6	20.1
Canada	1.62	1.95	2.04	1.98	1.93
United States	15.24	17.46	17.13	17.21	16.80
Mexico	0.99	1.60	1.53	1.42	1.36
Western Europe	13.7	14.0	14.3	14.2	14.2
Germany	3.23	3.35	3.44	3.44	3.43
Eastern Europe	3.1	3.1	3.4	3.5	3.6
Russia	1.87	1.43	1.60	1.80	1.86
Asia	17.1	36.1	37.1	36.8	37.1
China**	7.31	23.57	24.20	23.48	23.50
India	1.23	2.09	2.19	2.37	2.49
South America	3.2	3.1	3.5	3.7	3.8
Brazil	1.94	1.39	1.50	1.71	1.84

*Includes light trucks. **Includes crossover utility vehicles from 2005.
Sources: Scotiabank Economics, Ward's Automotive Reports, Bloomberg.

