



Materials and Fastening Solutions Study

May, 2009

Conducted by:



Introduction and Methodology

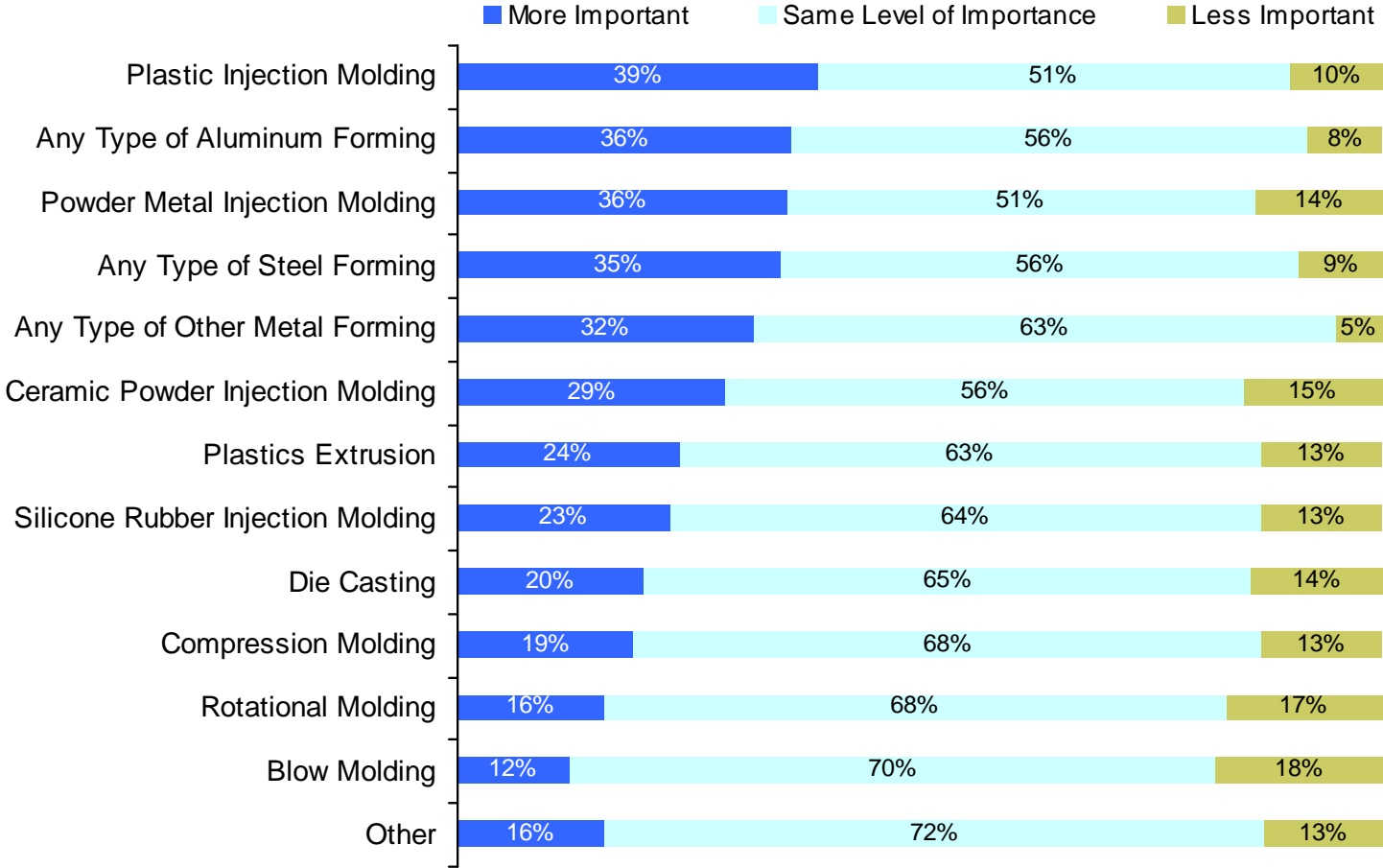
Purpose and Objectives

- This research was conducted to provide *Design News'* with current information on the growing importance of processes and prototyping as it pertains to materials and fastening solutions
- More specifically the study examines:
 - Materials engineers would like improved and how it should be improved
 - Future trends for molding and forming processes
 - Projects in which plastics would replace metals
 - Methods for prototyping
 - The future of rapid prototyping technologies
 - Attribute ratings of materials suppliers
 - Respondent demographics

Methodology

- This study was conducted in May, 2009 among Design News subscribers who specify ferrous and non-ferrous metals, fastening, joining, assembly, and plastics and non-metals
- An email invitation was broadcast to all sample members asking for their participation in the study. The invitation contained a link to the questionnaire
- In total, 278 individuals completed the survey

Compared to a year ago, do you expect these processes to become more important, less important, or to be about the same looking ahead over the next 12 months?

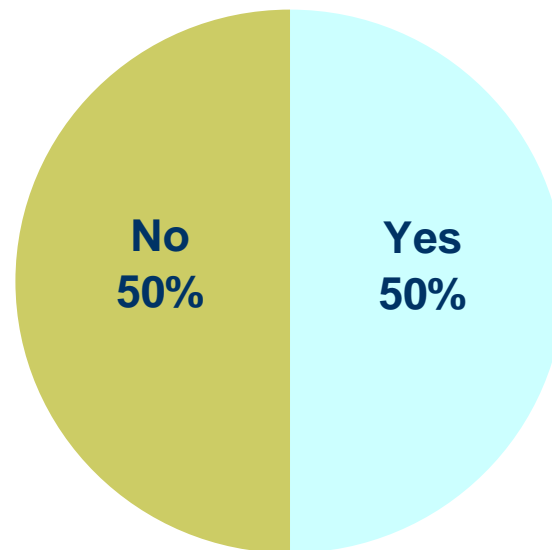


What other processes do you feel will become more important over the next 12 months?

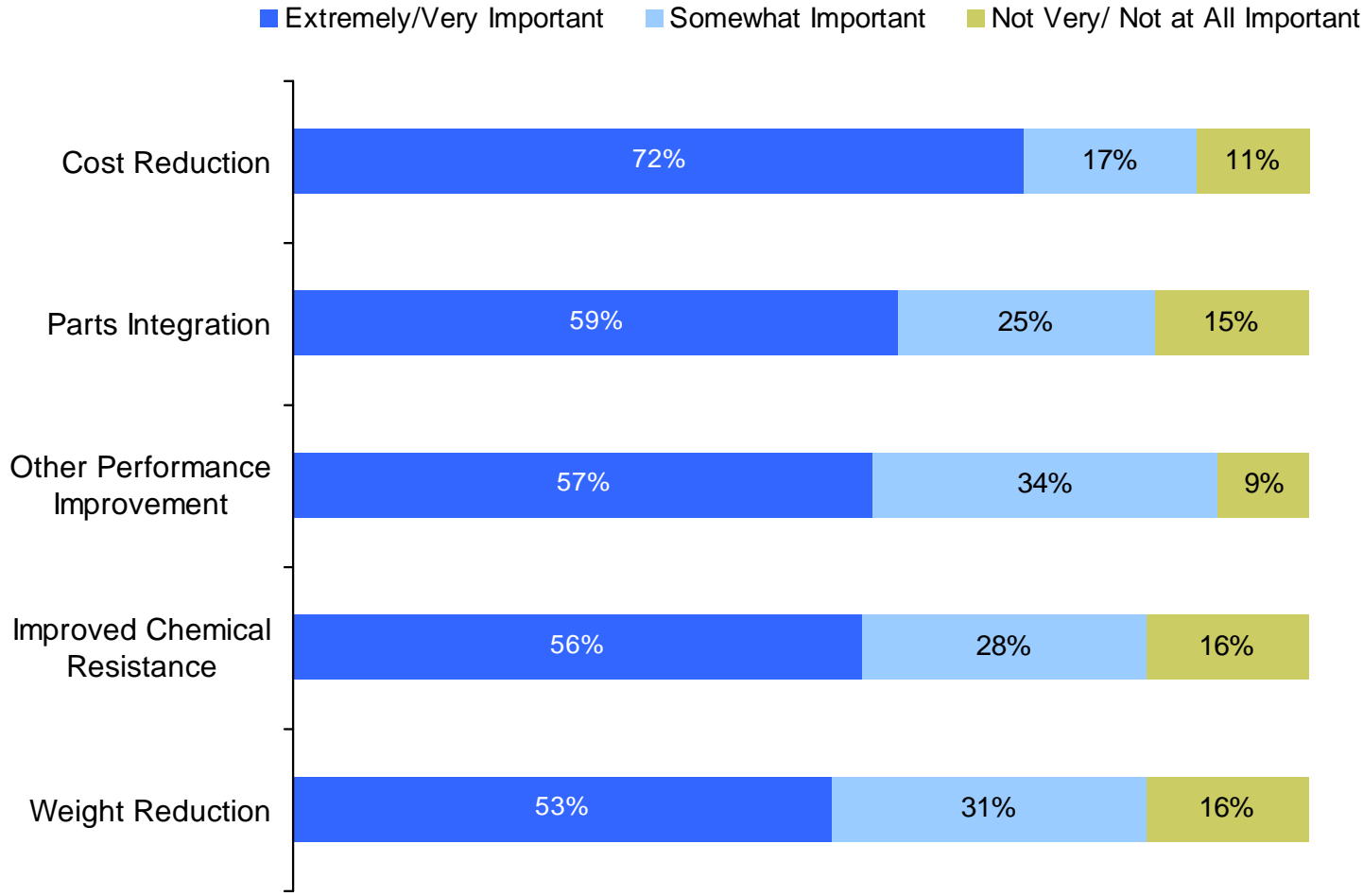
	# of mentions
Recycling/Green Technology	5
3D Printing	6
composite	7
Heat treatment	4
Molding	6
Casting	4
Steel	6
Nano	5
Rapid prototyping	16
Water jet & laser cutting	4
Welding	9
Other	27 (examples follow)
	Carbon fiber layup
	Silicone processing
	Titanium hot forming

3 mentions each
Energy
Assembly
CMC
Fastening
Hydroforming
Sintered
Paining
Rapid manufacturing
Metal
2 mentions each
Aluminum forming
Dip brazing
Machining
Powder coating
Resin transfer molding
Roll forming
Surface
Thermoforming
Vacuum

For any project on which you are now working, are you considering any substitutions of metal with plastic?

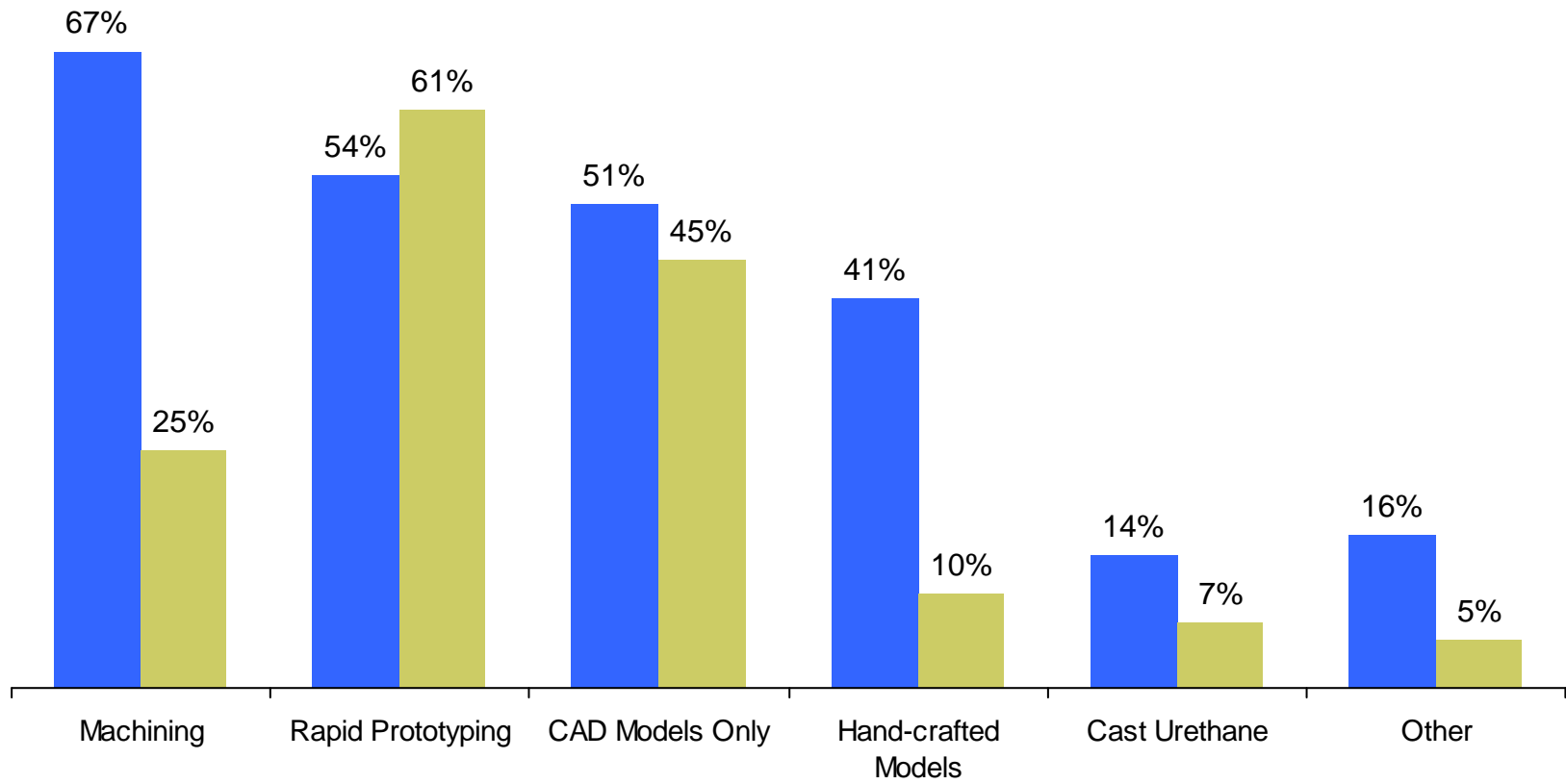


How important are each of the following when considering to substitute metal with plastic?

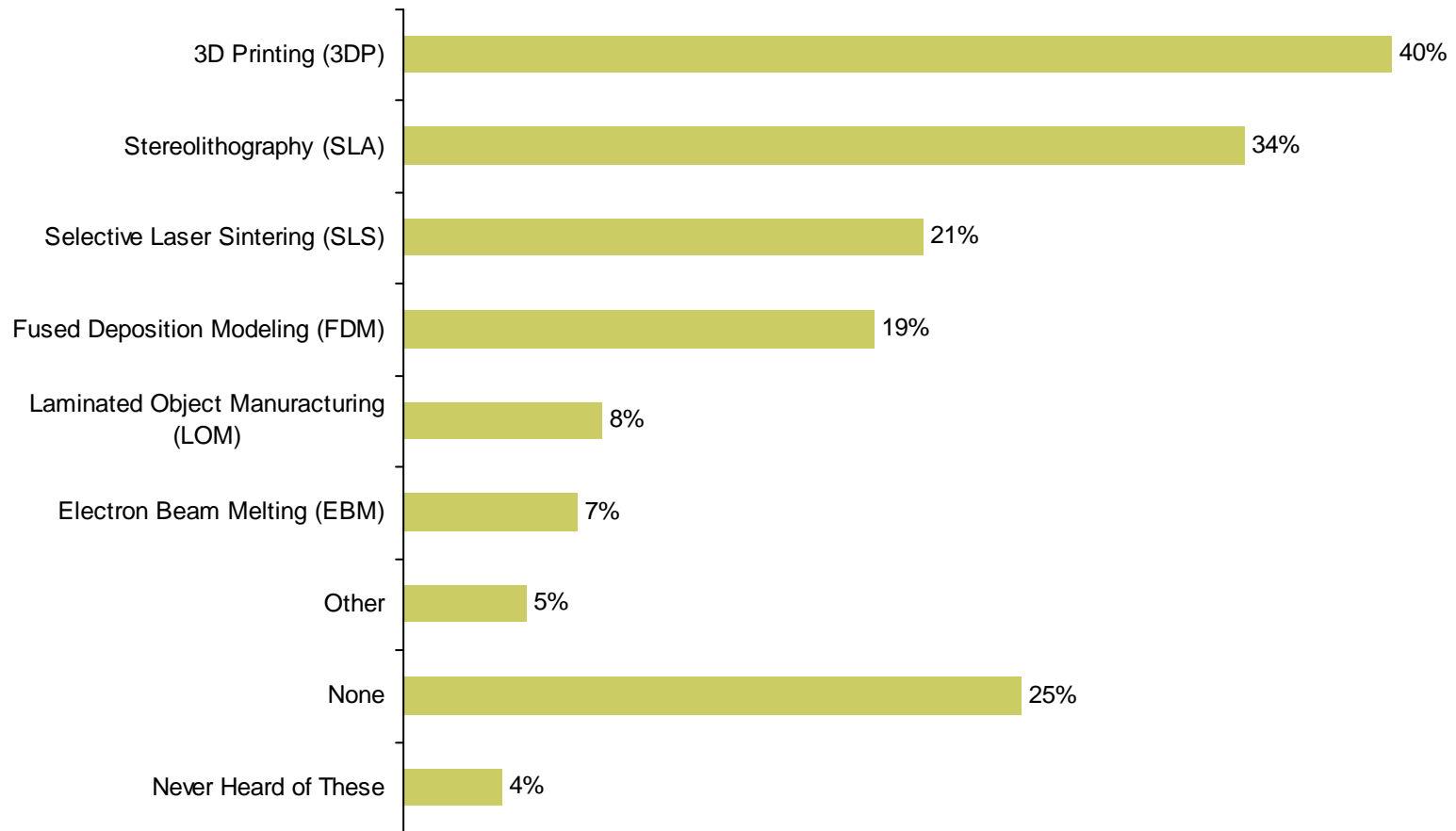


What approaches do you use to make prototypes and which will become more important over the next 12 months?

■ Approaches Currently Using ■ Approaches Important Over the Next 12 Months

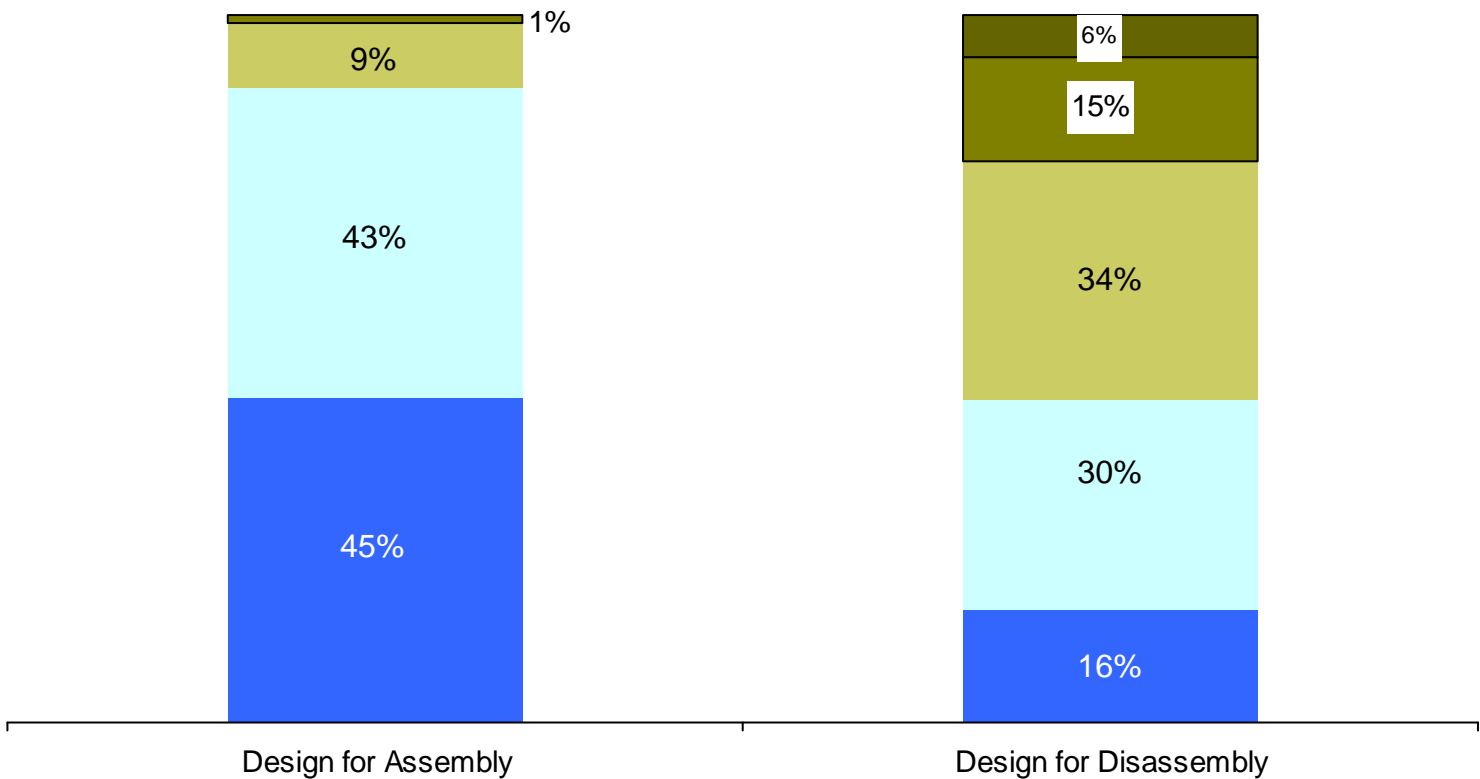


Which of the following rapid prototyping technologies do you think will have the greatest impact on your work in the next 12 to 24 months?



How important are each of these issues as you design new products?

■ Extremely Important ■ Very Important ■ Somewhat Important ■ Not Very Important ■ Not at All Important



How would you rate your materials suppliers' performance in each of the following areas?

	Excellent/ Very good	Excellent	Very Good	Good	Fair	Poor
Product quality	54%	12%	42%	40%	6%	0%
Accuracy in data sheets	44%	10%	34%	42%	12%	2%
Technical resources	39%	8%	31%	43%	17%	1%
Support for new applications	39%	7%	32%	41%	19%	2%
Product availability	38%	8%	30%	49%	10%	2%
Follow-up on problems	37%	8%	29%	42%	20%	1%
Cost of products	20%	5%	15%	53%	24%	3%

What is your job title or function?

