

China Design Capabilities Survey 2007

Yorbe Zhang
Editor-in-Chief
EE Times-China

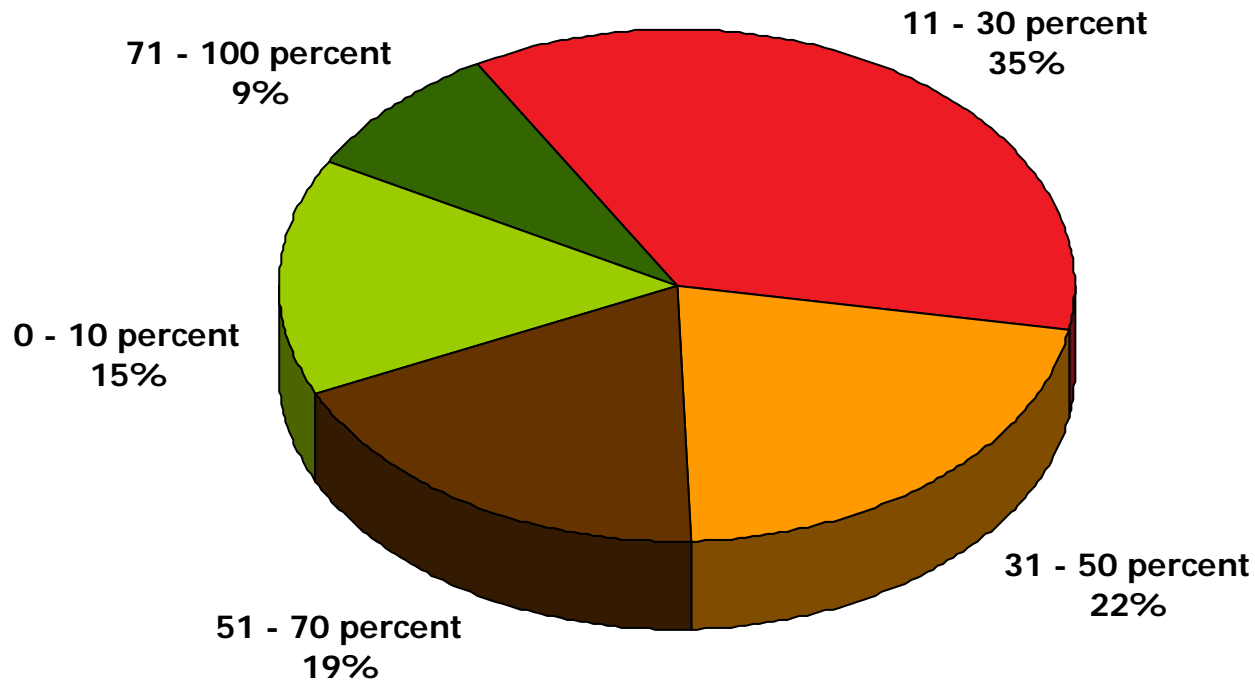
Methodology

In July 2007, a survey conducted by EE Times-China attracted a total of 1,627 responses from engineers across mainland China. A total of 1,383 responses were qualified.

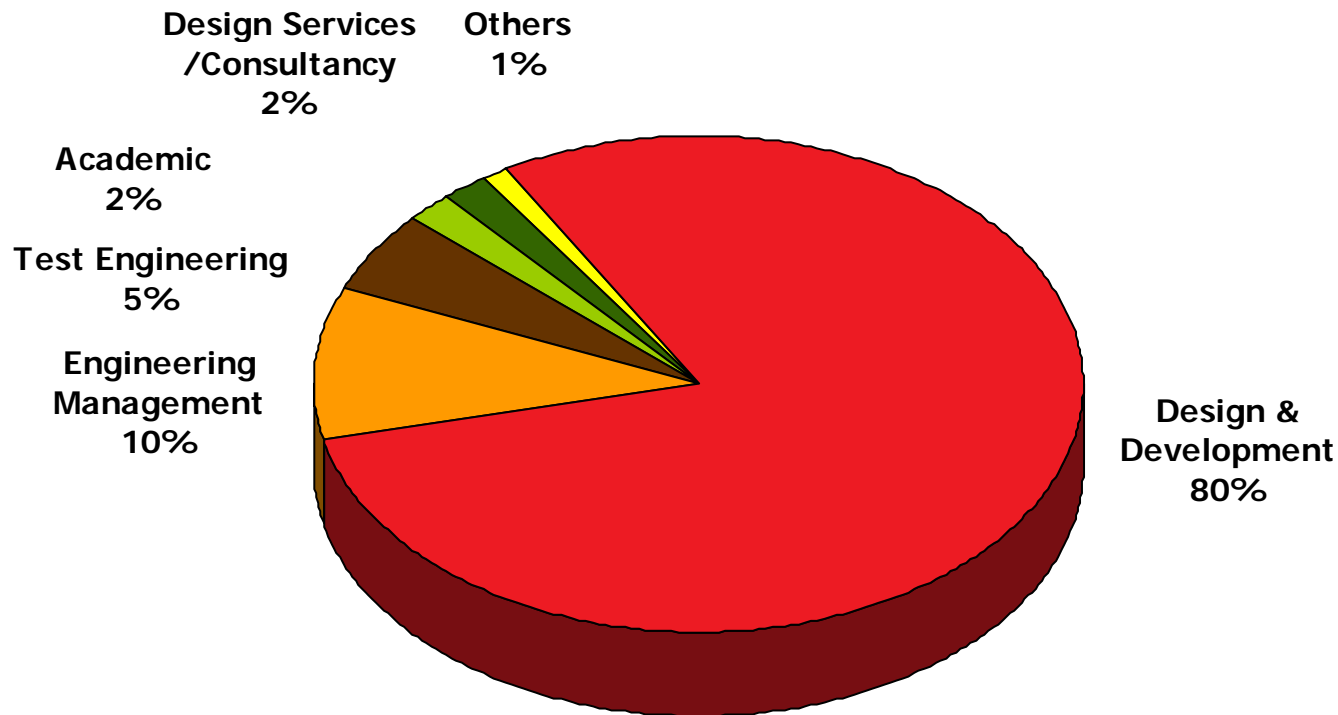
The objective of the survey was to benchmark electronics design activity in China, and determine the methodologies applied by China's engineers.

Respondent profile

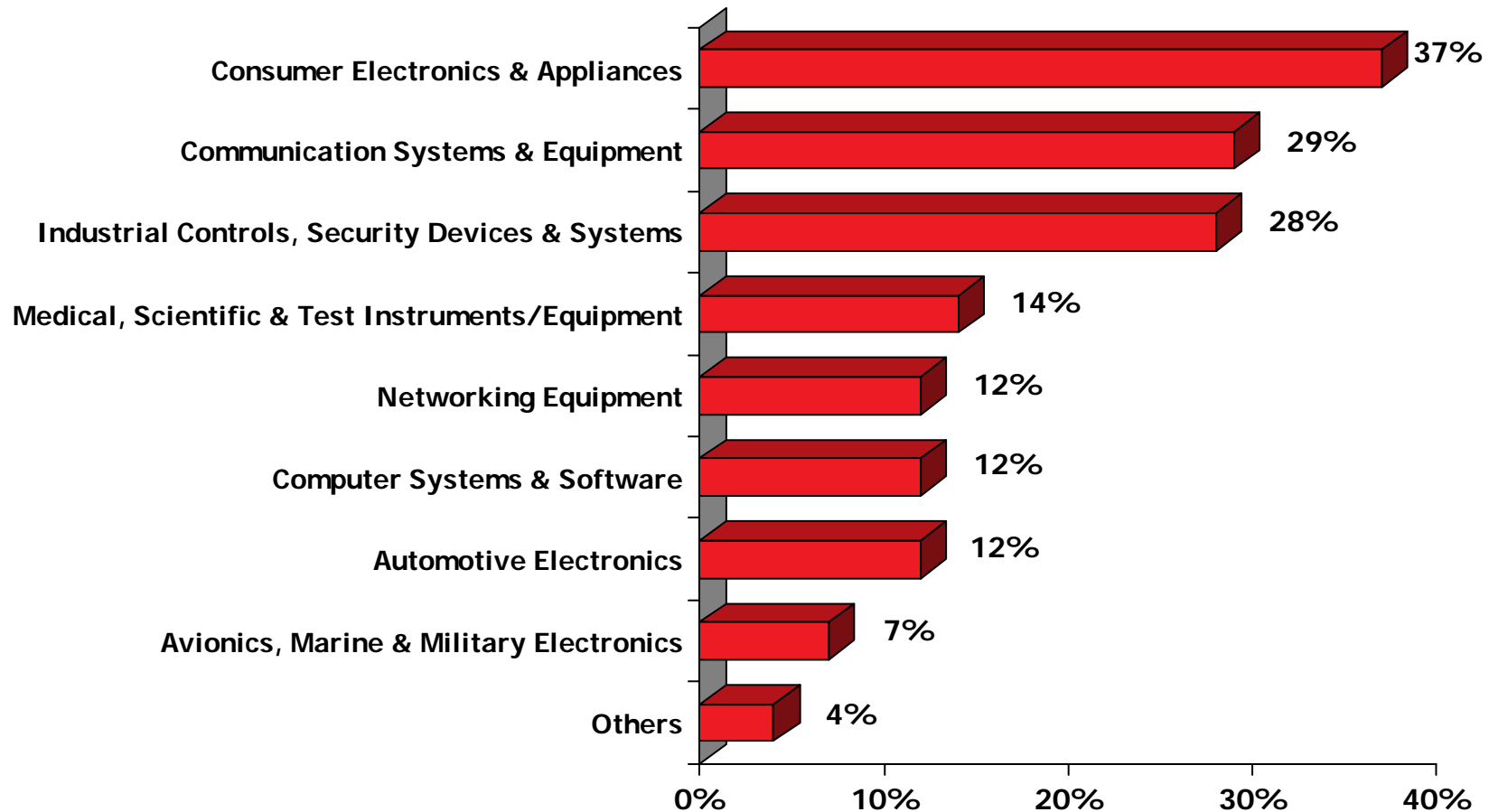
On average, R&D engineers account for 35% of total company workforce



80% of respondents fulfill a design & development-related job function

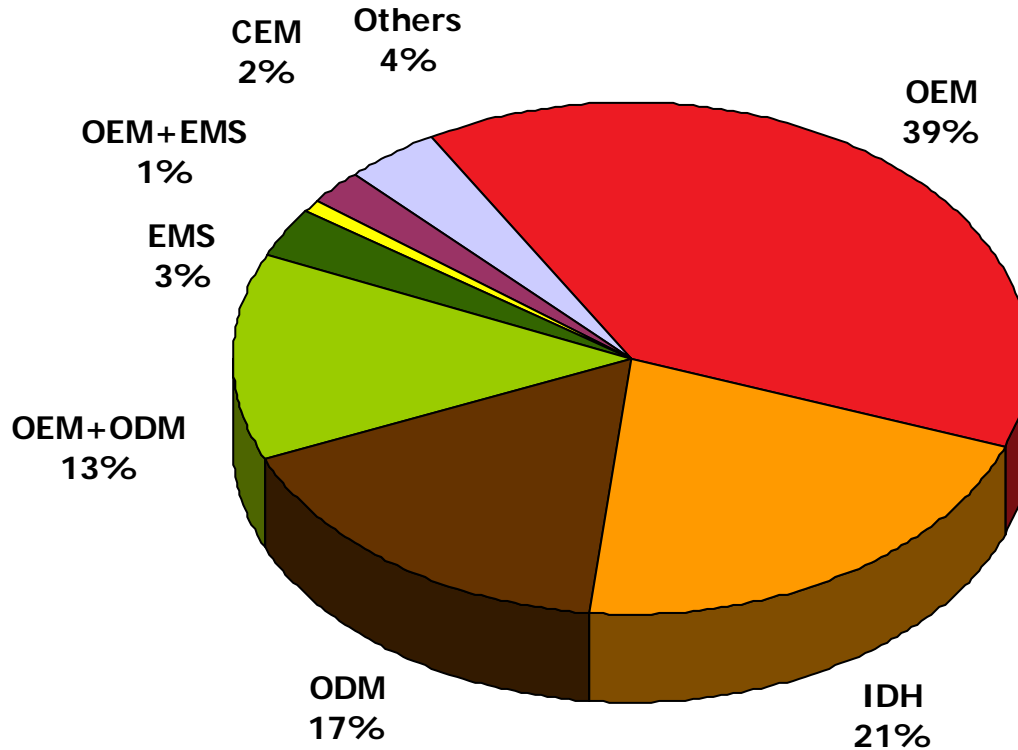


They design a wide range of electronic products

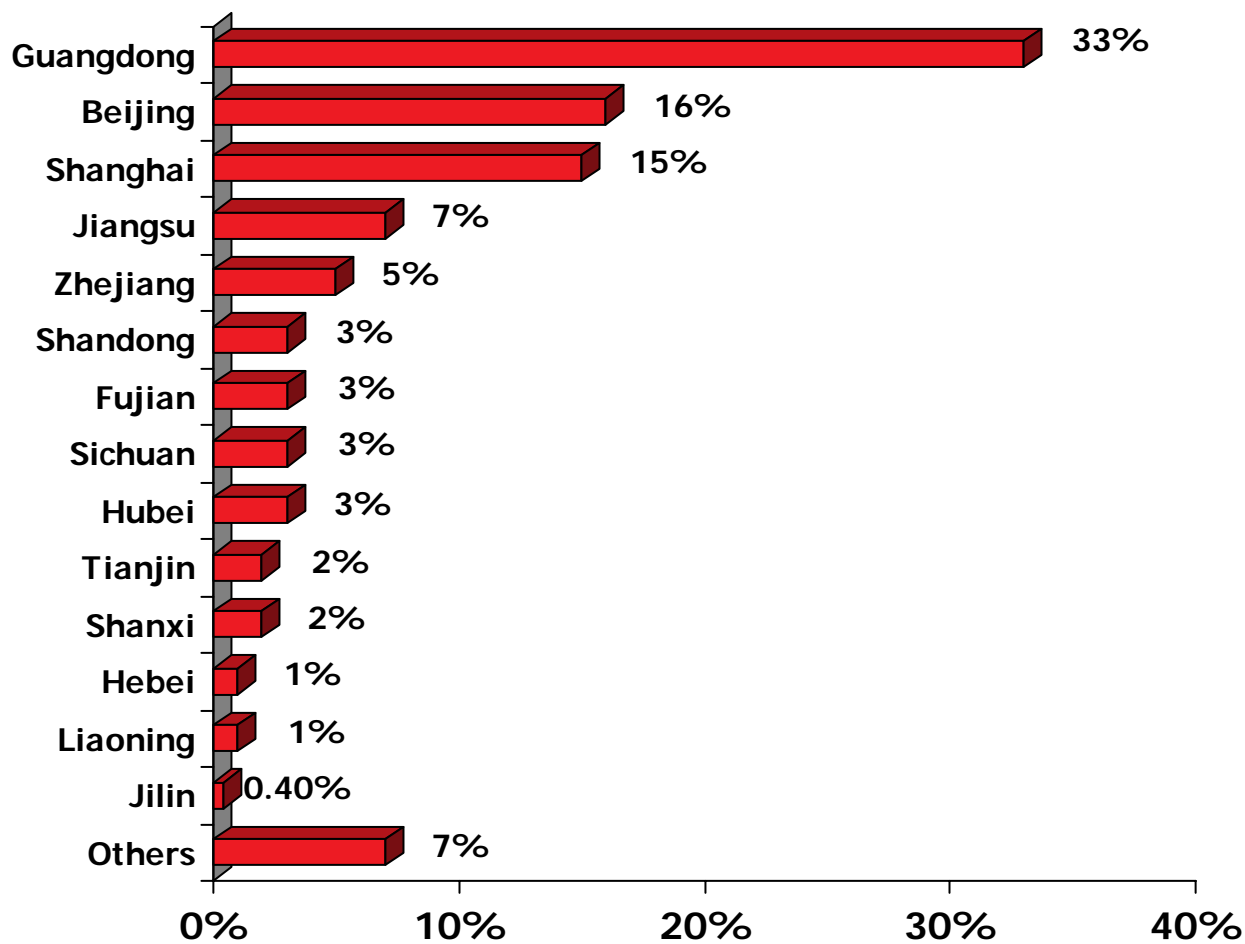


*Multiple responses allowed

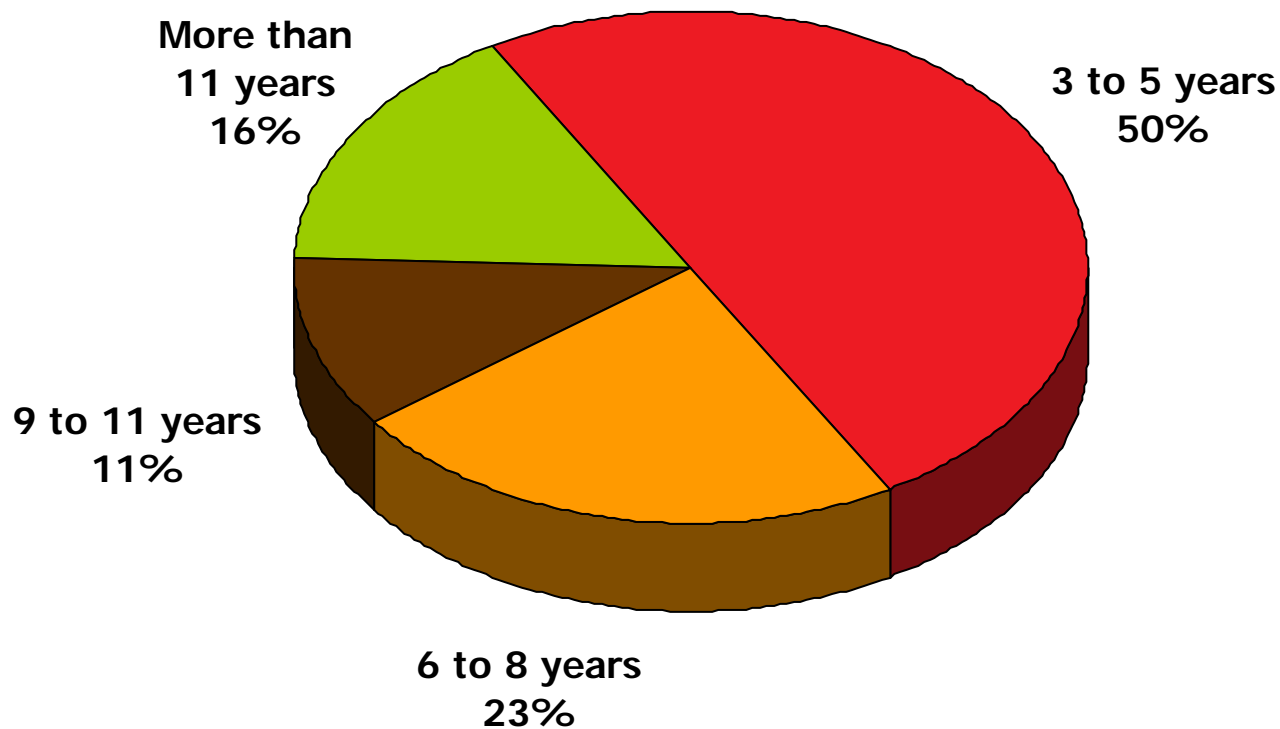
...and work for a variety of electronics manufacturers...



...that are primarily based in Guangdong

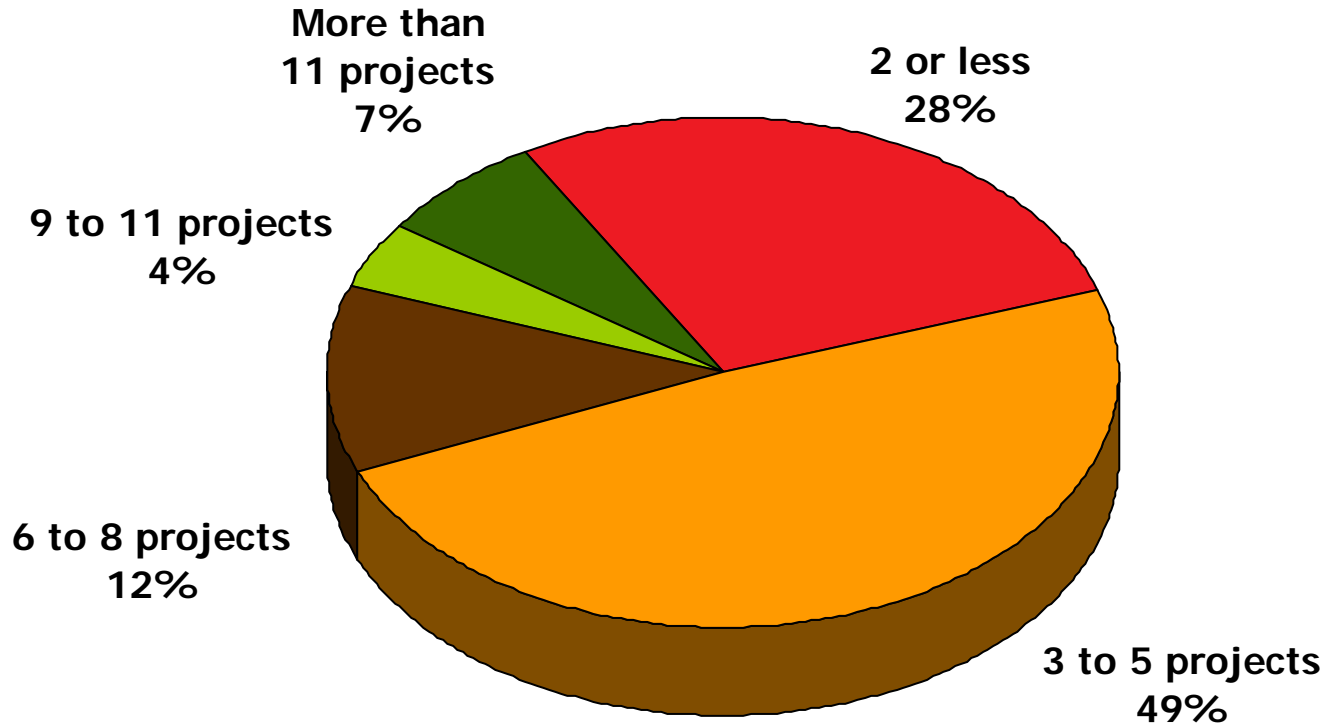


Respondents have an average 7 years electronics design experience...



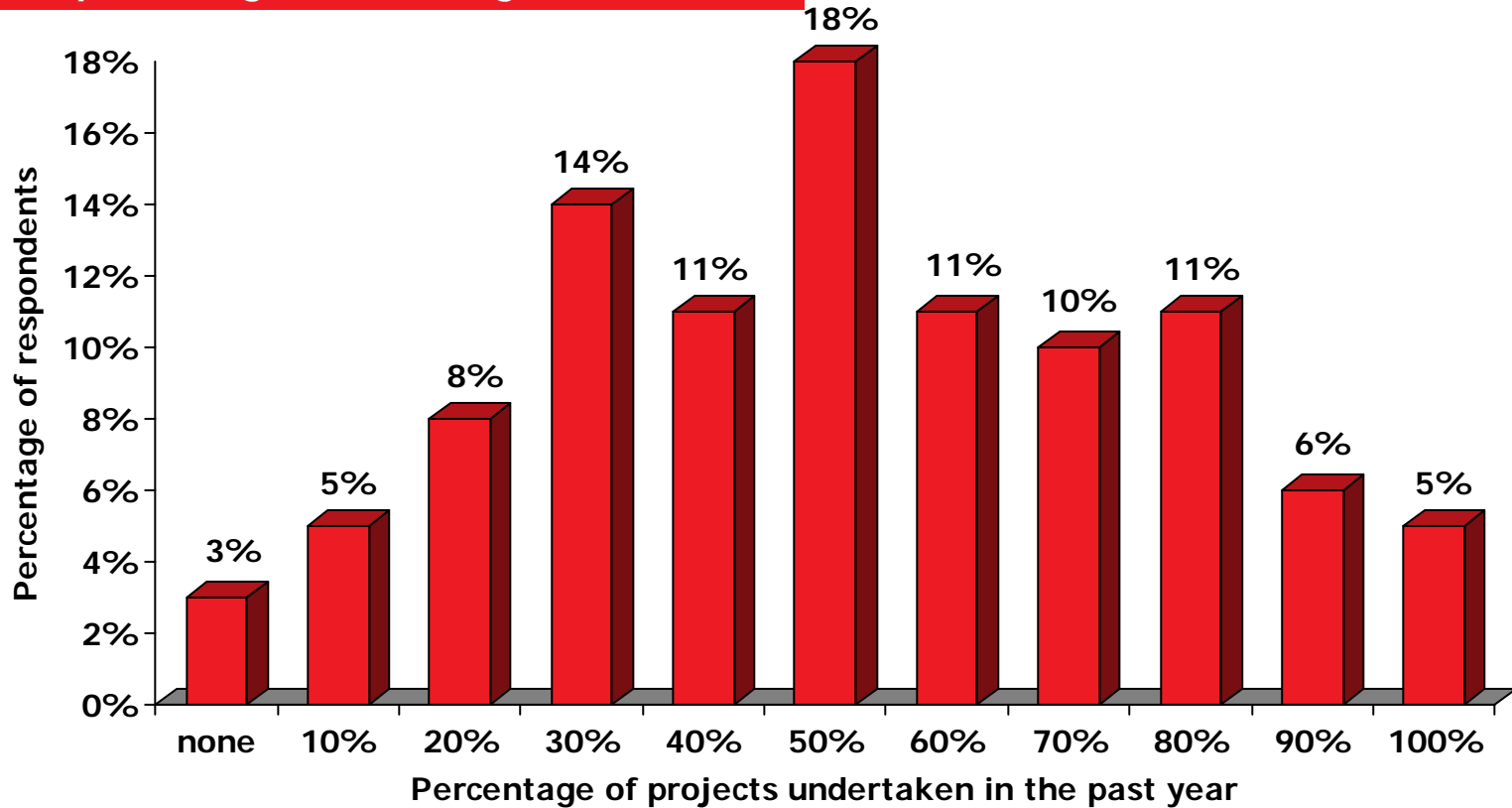
*Only engineers with at least 3 years design experience were qualified for this research

...and have undertaken an average 4 design projects in the past 12 months



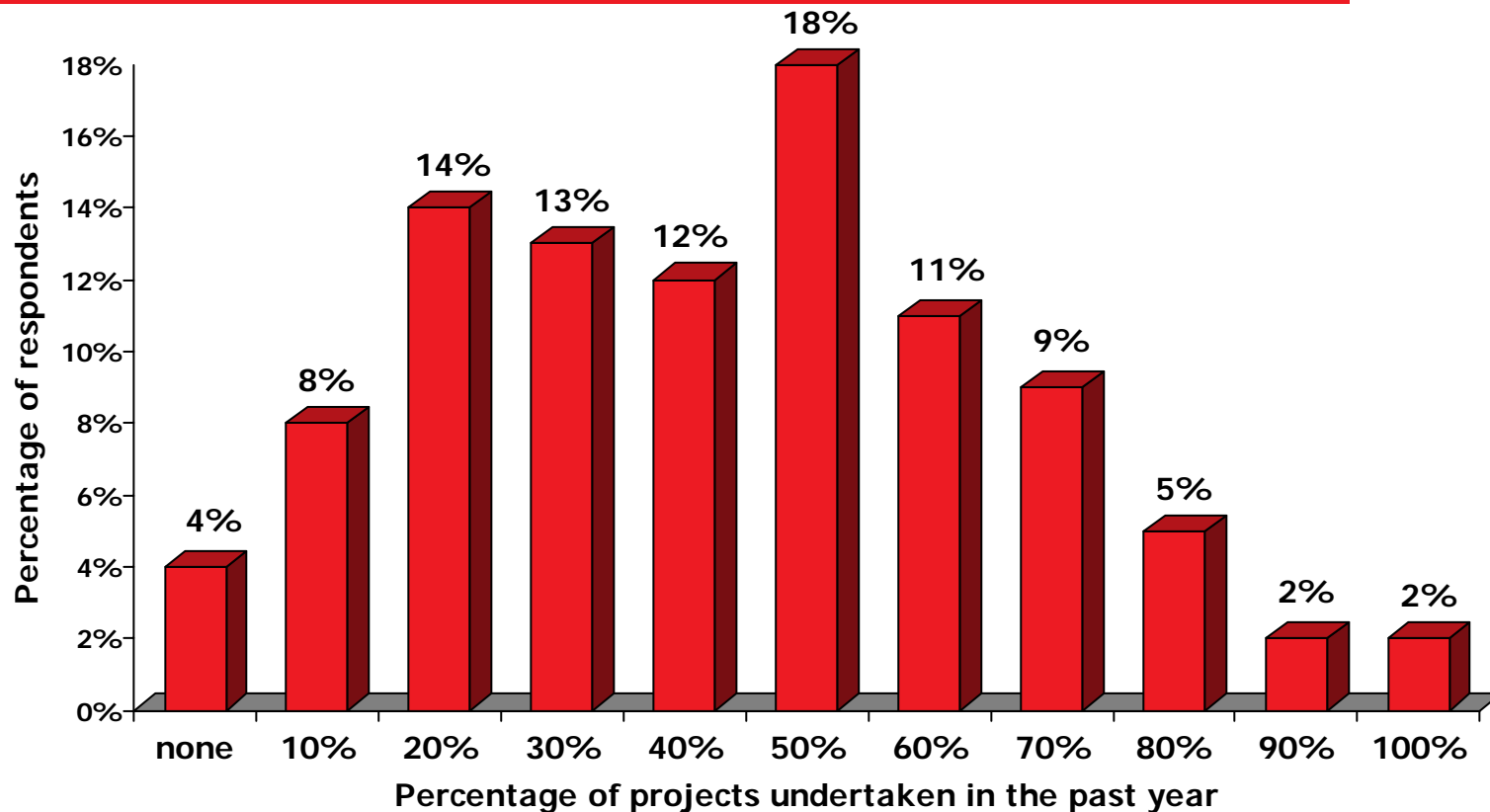
On average, 51% of these were new design projects...

What percentage of the designs were new?



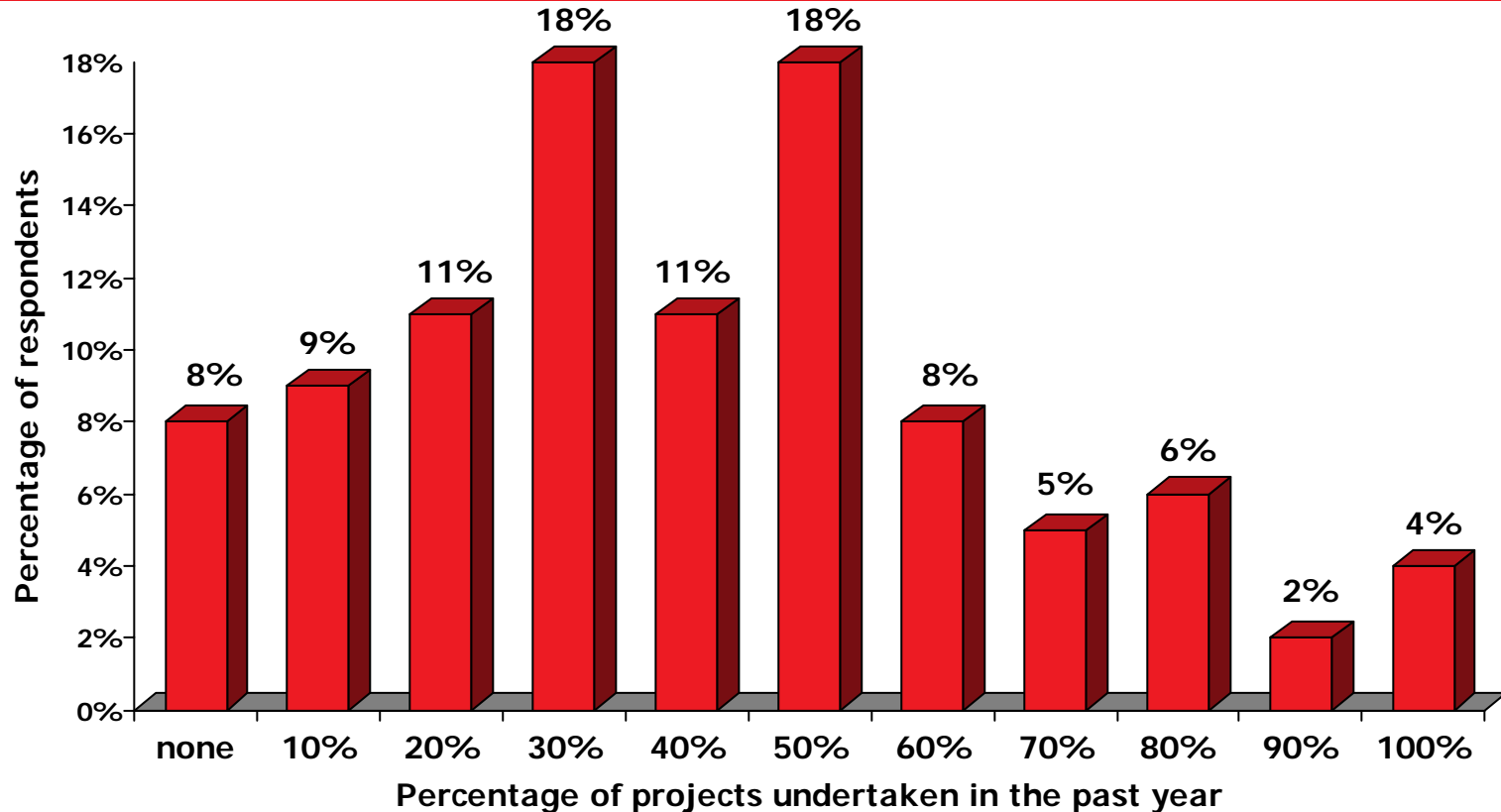
...and 43% were enhancements of existing designs

What percentage of the designs were enhancements of existing designs?



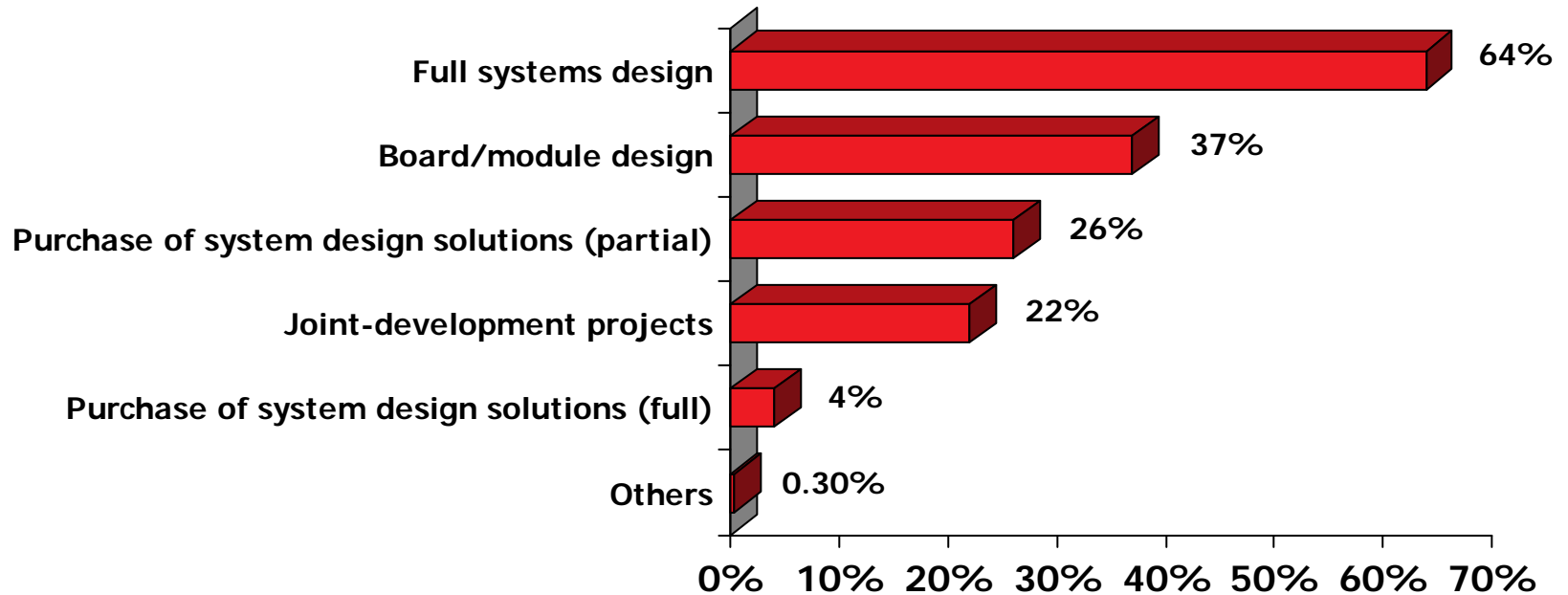
An average 40% of projects were based on external system design solutions

What percentage of the designs were based on external system design solutions?

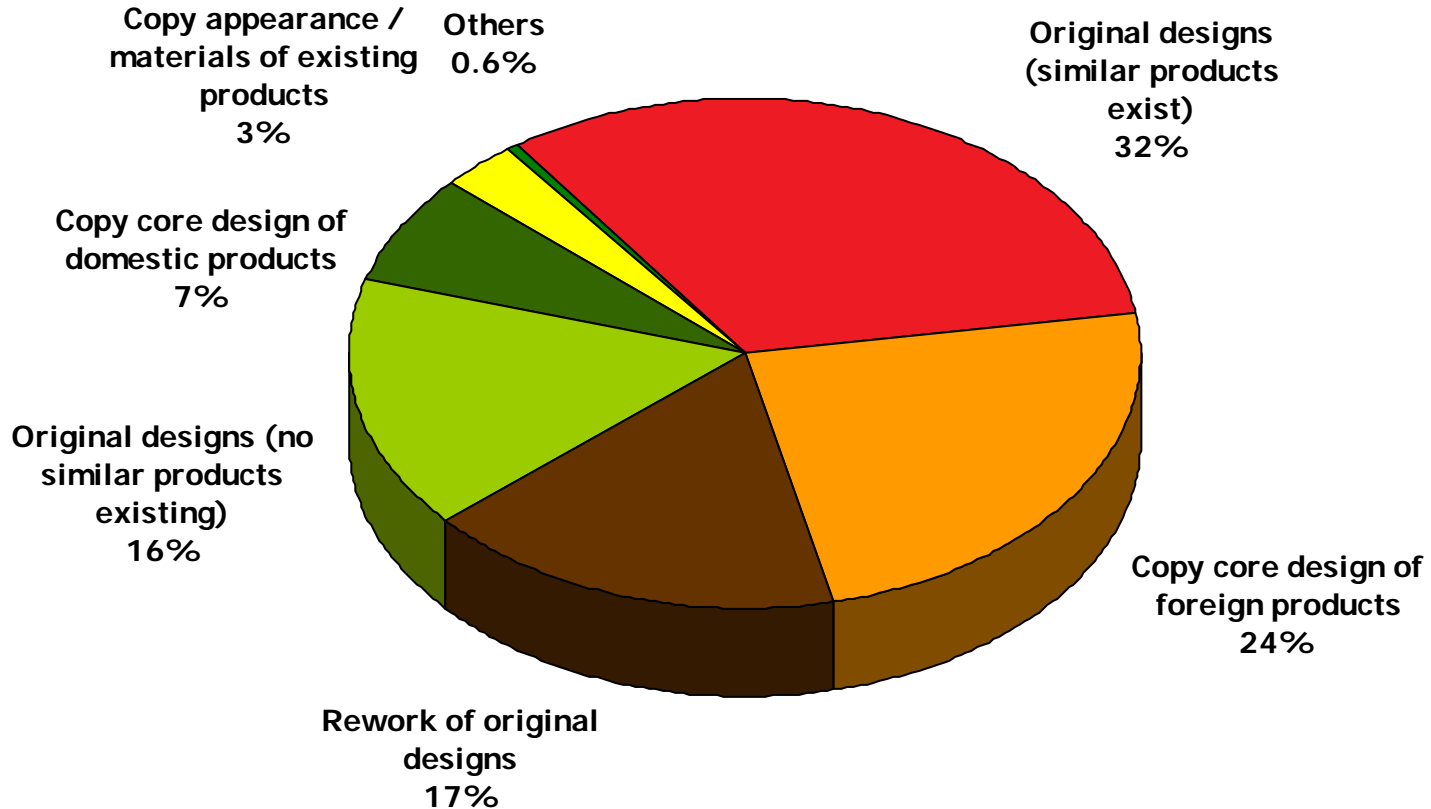


Design process & project implementation

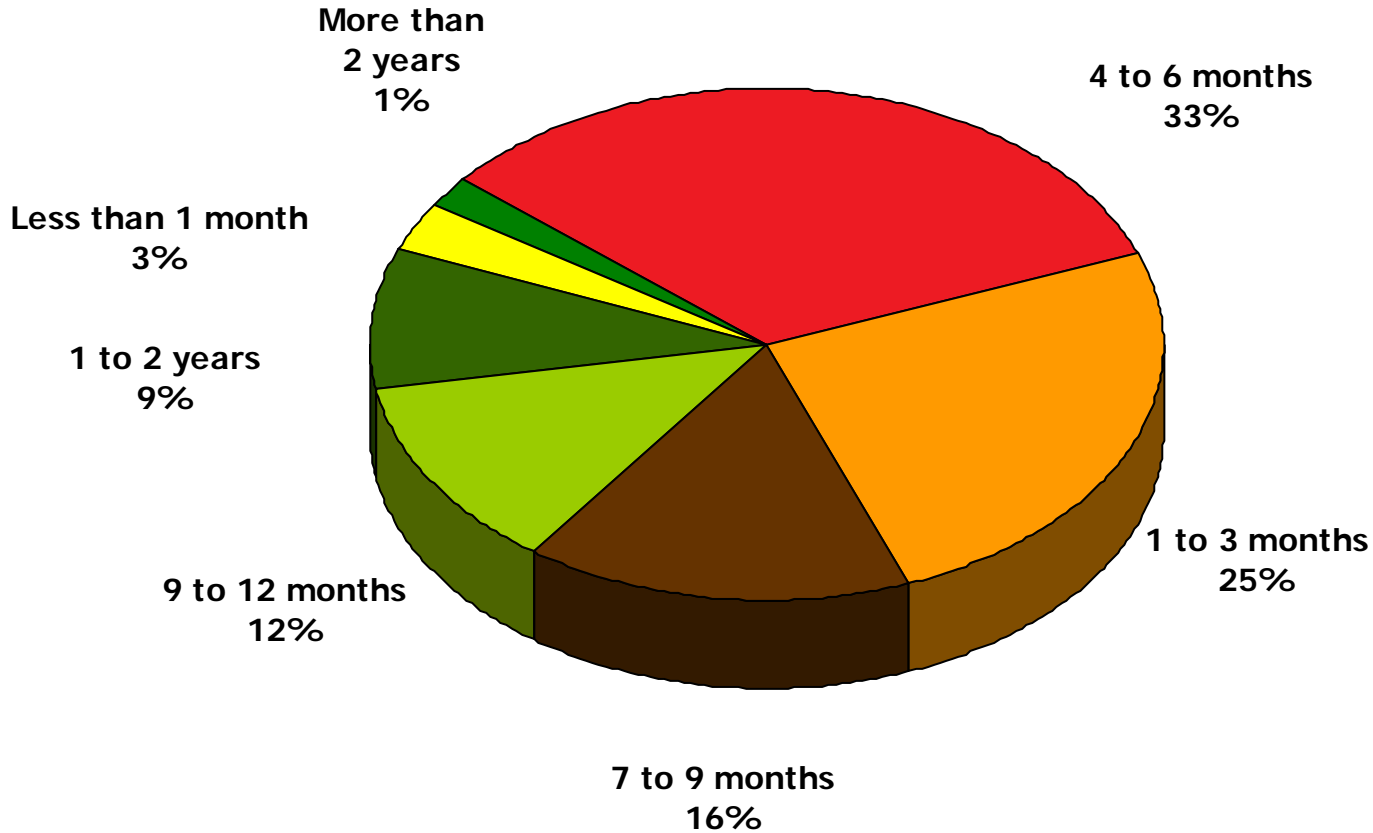
Respondents possess a wide range of design capabilities



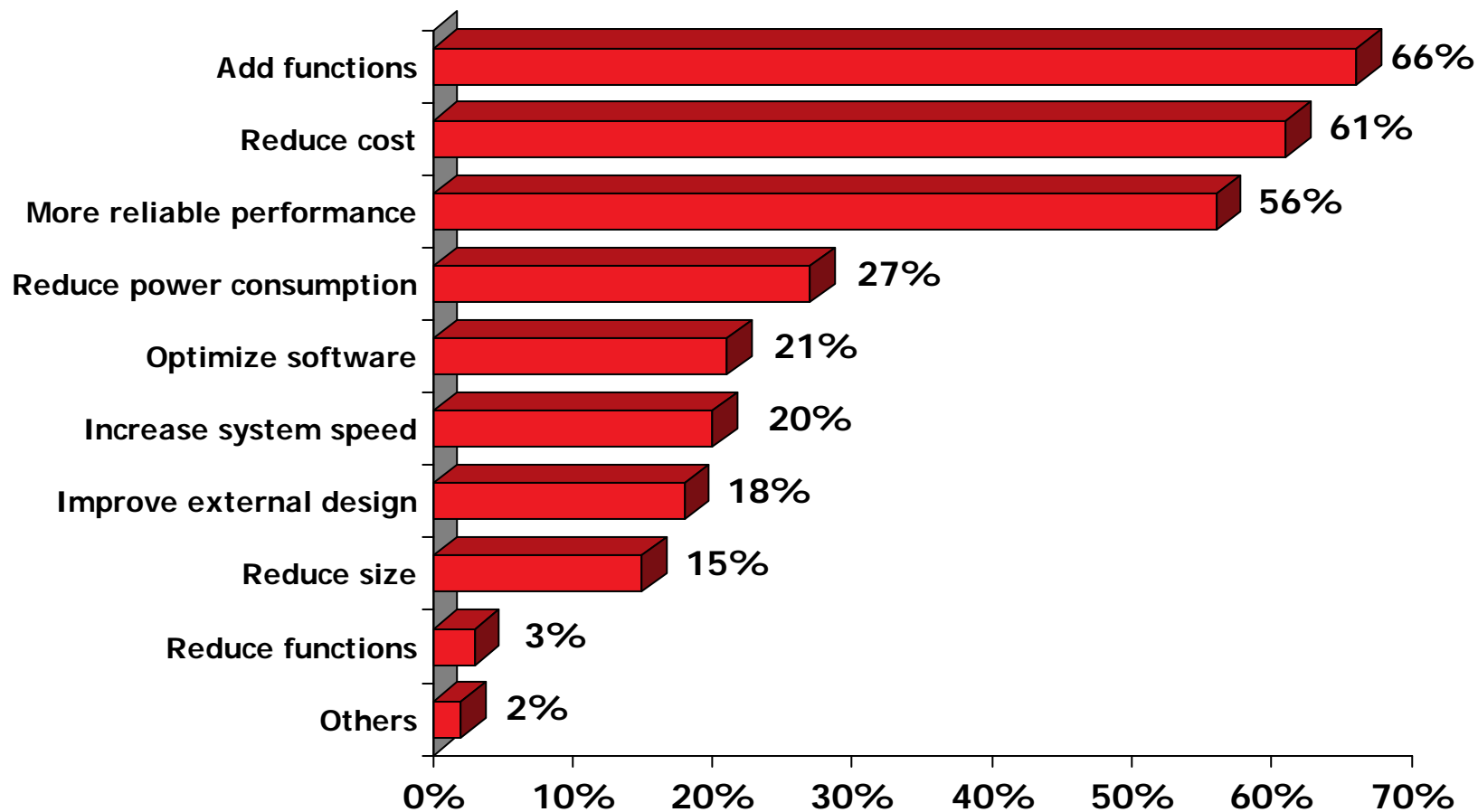
65% of them either develop or rework original designs



It takes them an average of 7 months to complete each design project

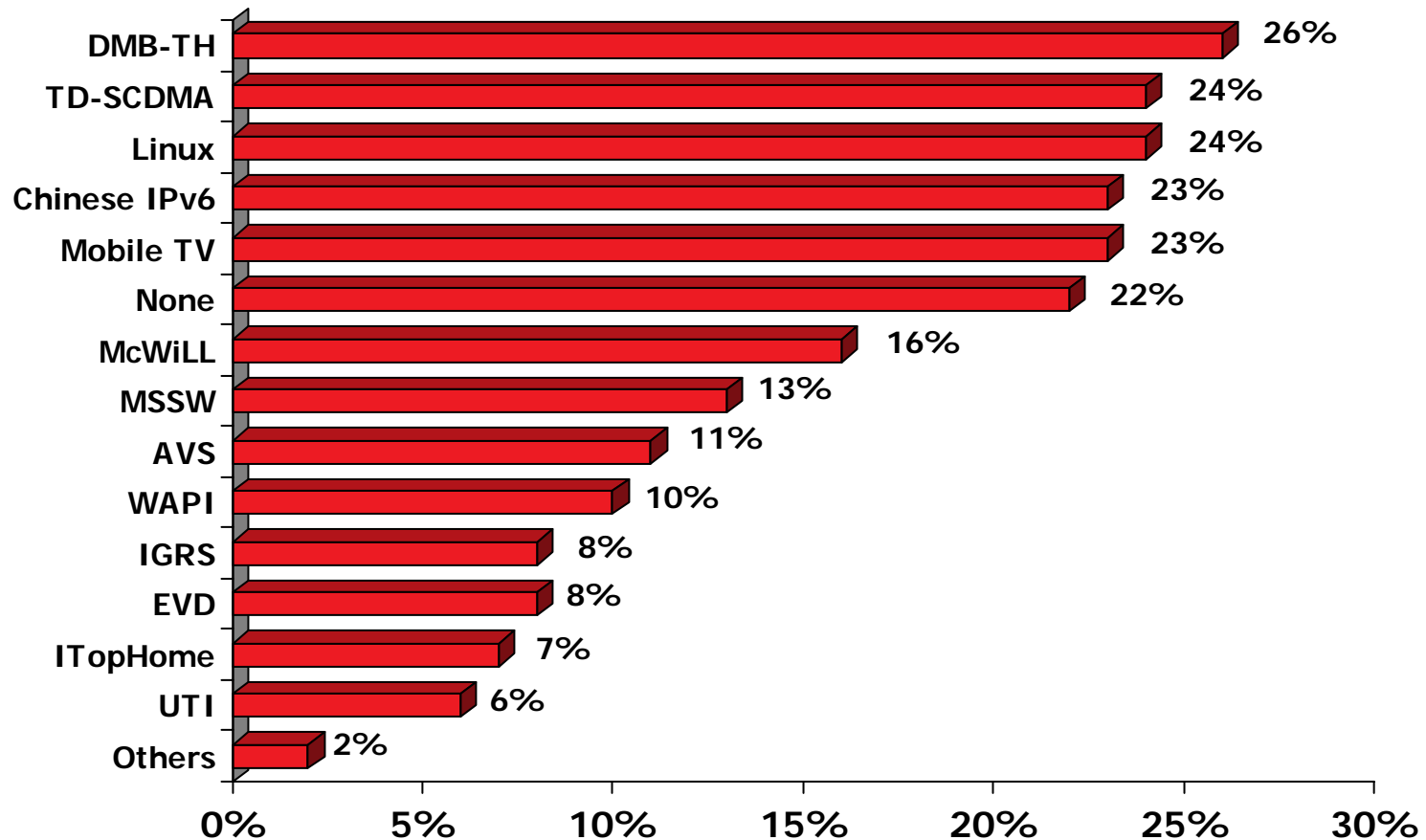


Respondents are primarily looking at adding functions this year...



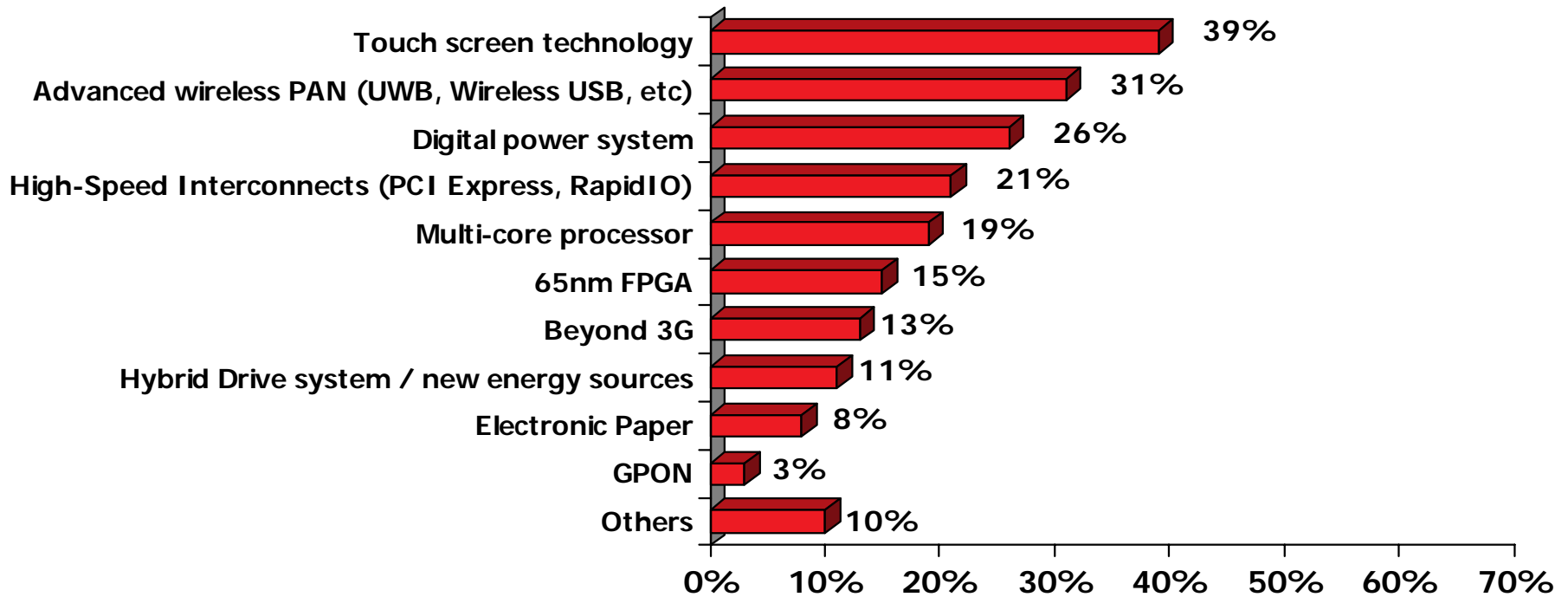
*Multiple responses allowed

...and are interested in applying various Chinese standards in the next 2 years



*Multiple responses allowed

In the next two years, they plan to apply these technologies in design projects



*Multiple responses allowed

They face a variety of technical challenges...

Challenges	2007	2006
EMI/EMC design	43%	42%
RF design	32%	33%
Signal processing	29%	27%
Low-noise circuit design	27%	30%
Power management	24%	24%
Design for manufacturing	17%	16%
Test & measurement	17%	15%
Design for test	14%	13%
PCB design	13%	14%
Thermal design	13%	11%
FPGA/CPLD application	11%	11%
Microwave design	10%	10%
Environmental protection	8%	10%
Logic design	7%	7%
ESD design	7%	-
Others	7%	-

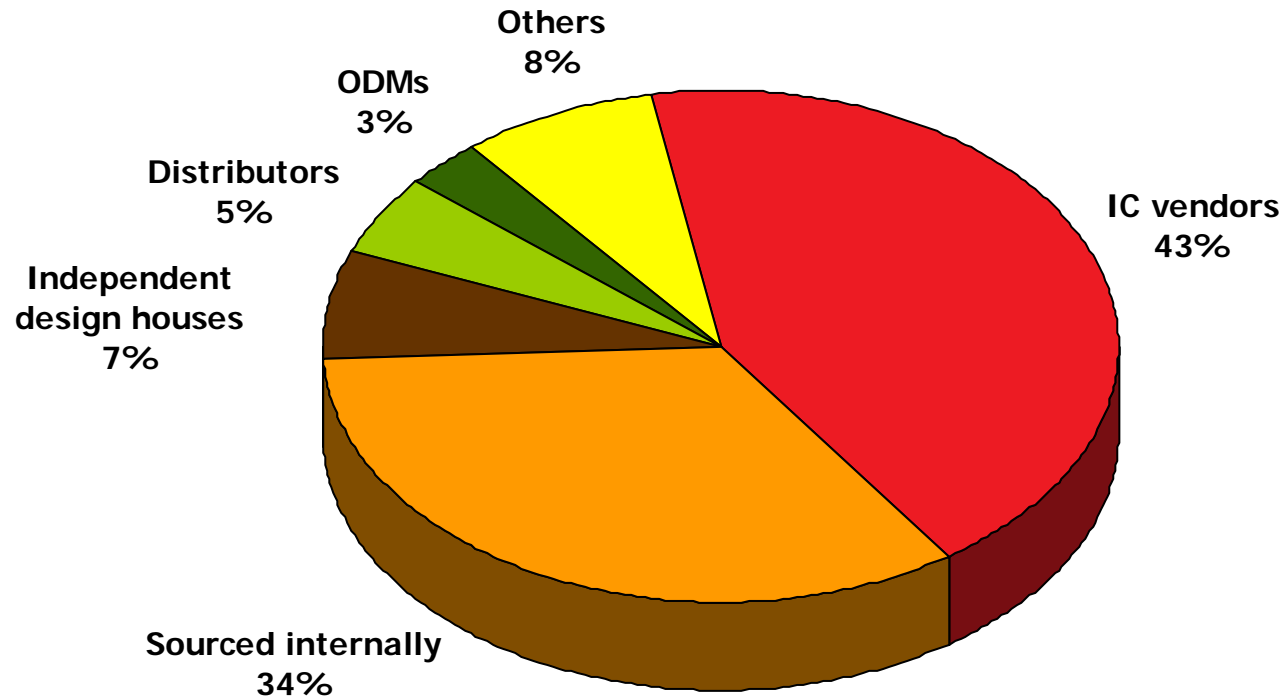
*Multiple responses allowed; respondents were asked to select their top-three challenges

...and general design challenges

Challenges	2007	2005
Need to understand technical trends	39%	41%
Need to understand standards	37%	37%
Need advanced test equipment	29%	30%
Need information on latest components	21%	25%
Need reference solutions/designs	19%	18%
Lack of appropriate development tools	18%	-
Need design platforms	17%	18%
Need technical documents	17%	18%
Need to understand overall system	16%	18%
Need more design experience	16%	18%
Language of technical documents	11%	13%
Enhancing reference designs	10%	9%
License/royalty fees/patents	10%	10%
Need theoretical knowledge	6%	6%
Others	3%	-

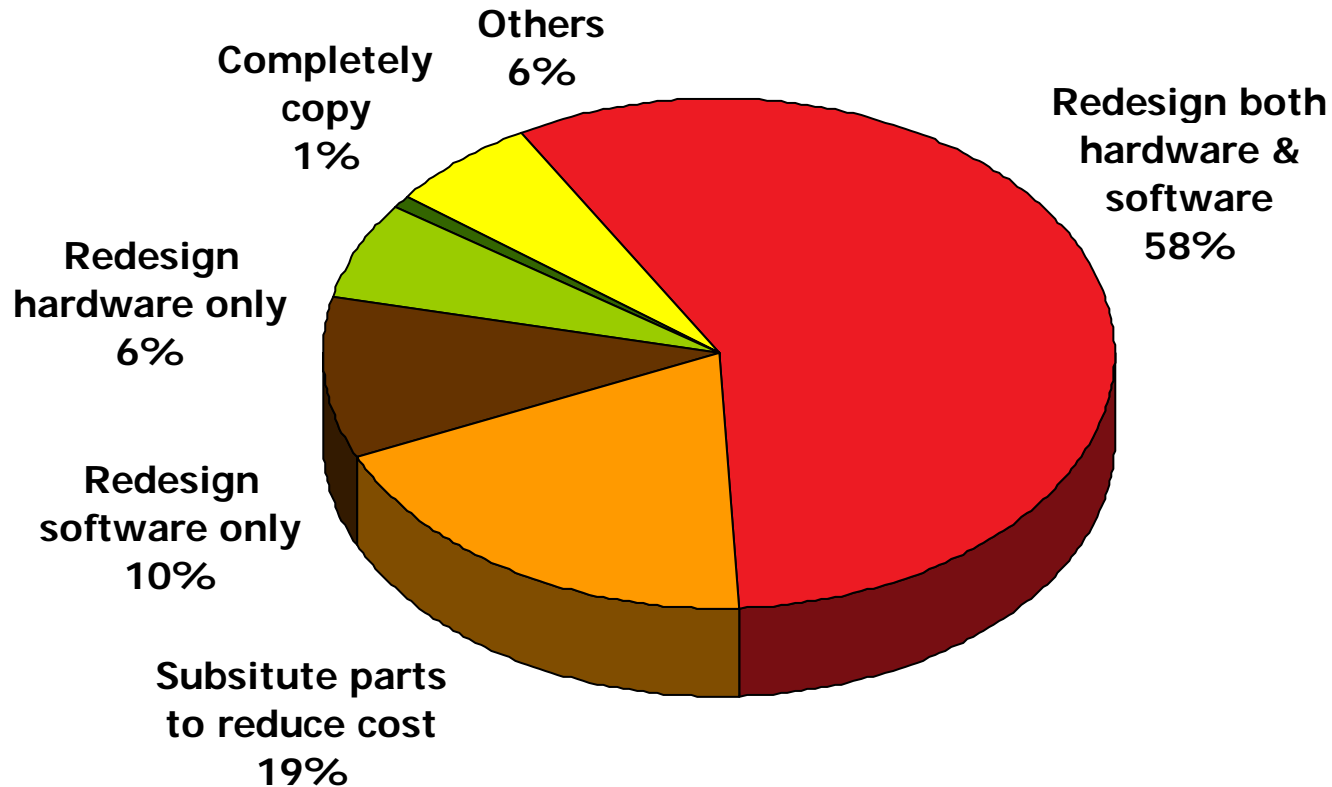
*Multiple responses allowed; respondents were asked to select their top-three challenges

66% rely on external sources for system design solutions



*Percentages based on respondents who use reference designs

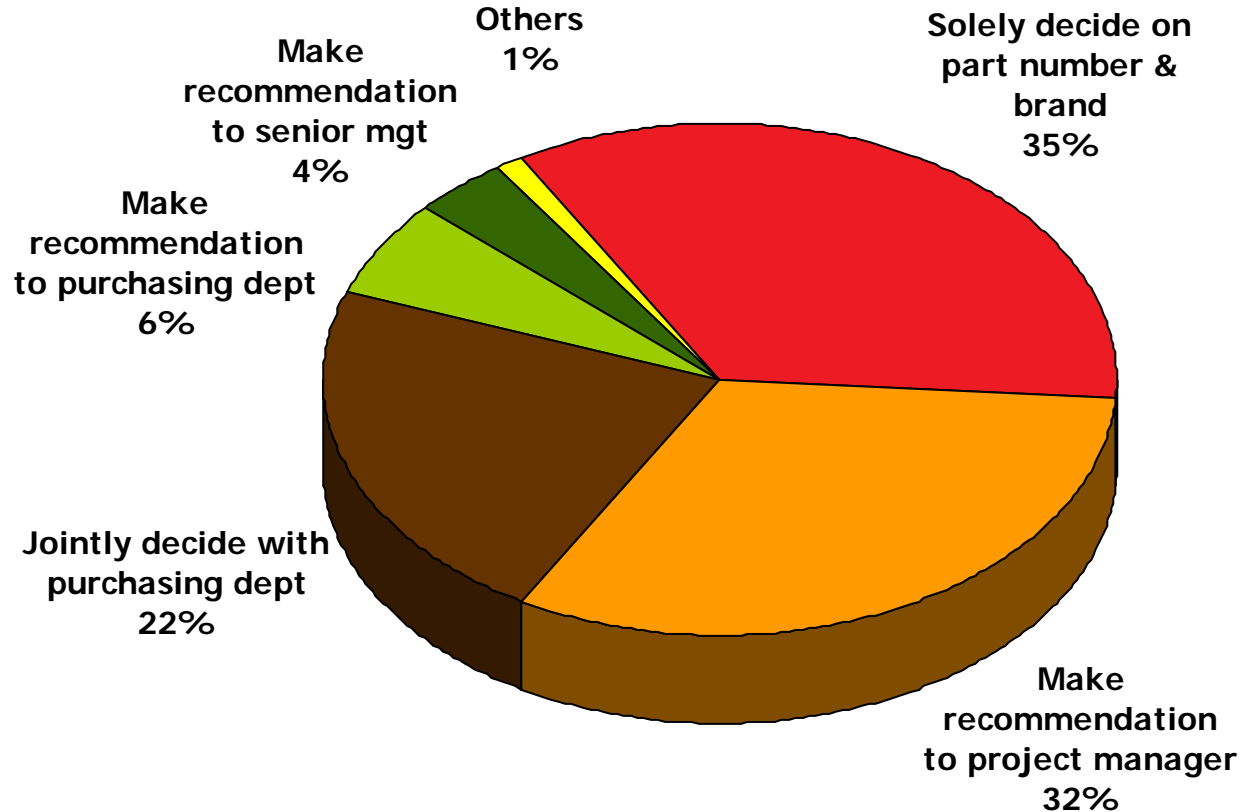
74% redesign the hardware and/or the software of the design solution



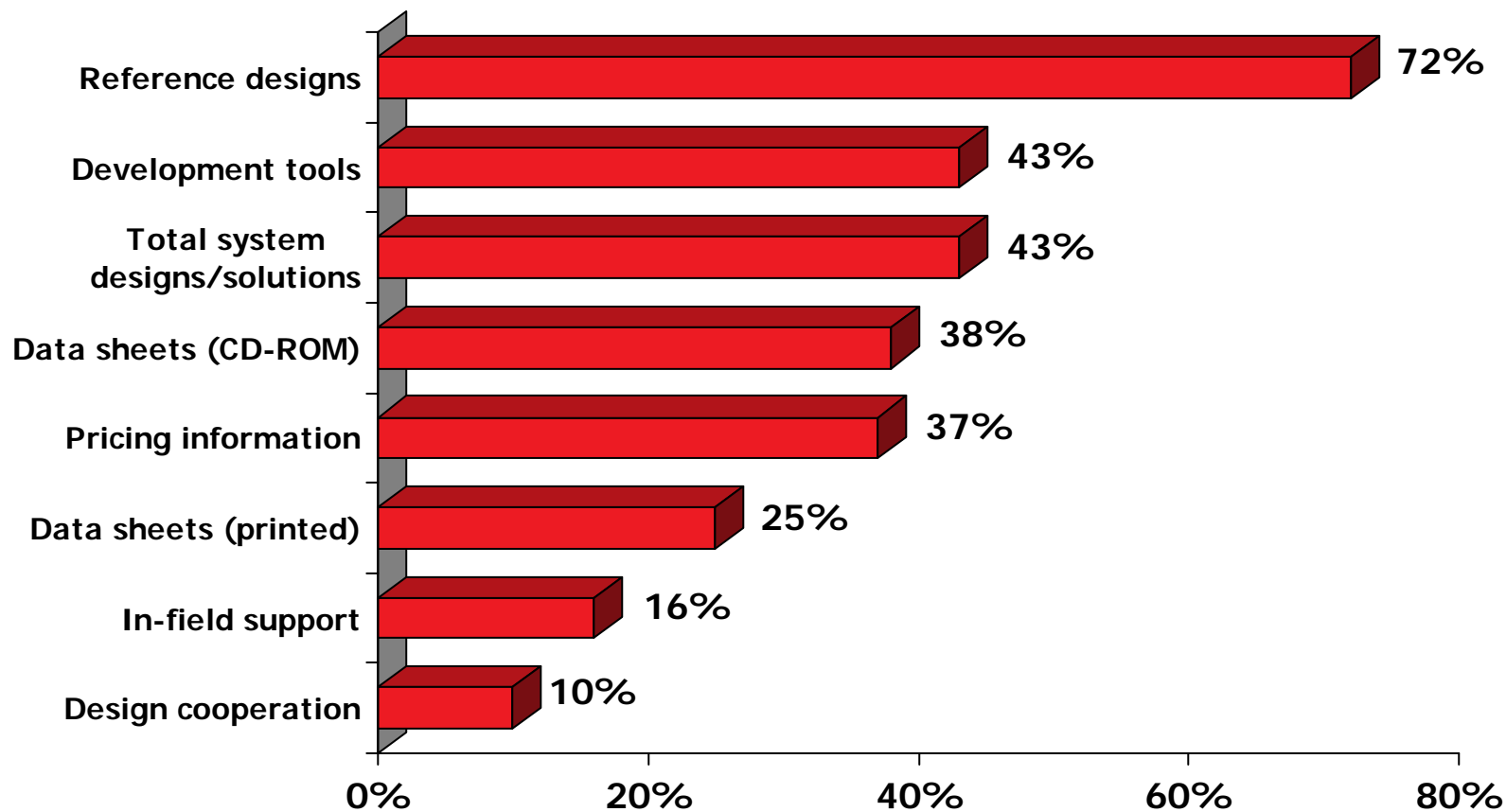
*Percentages based on respondents who use reference designs

IC & component-selection

Engineers actively participate in their company's component-selection process

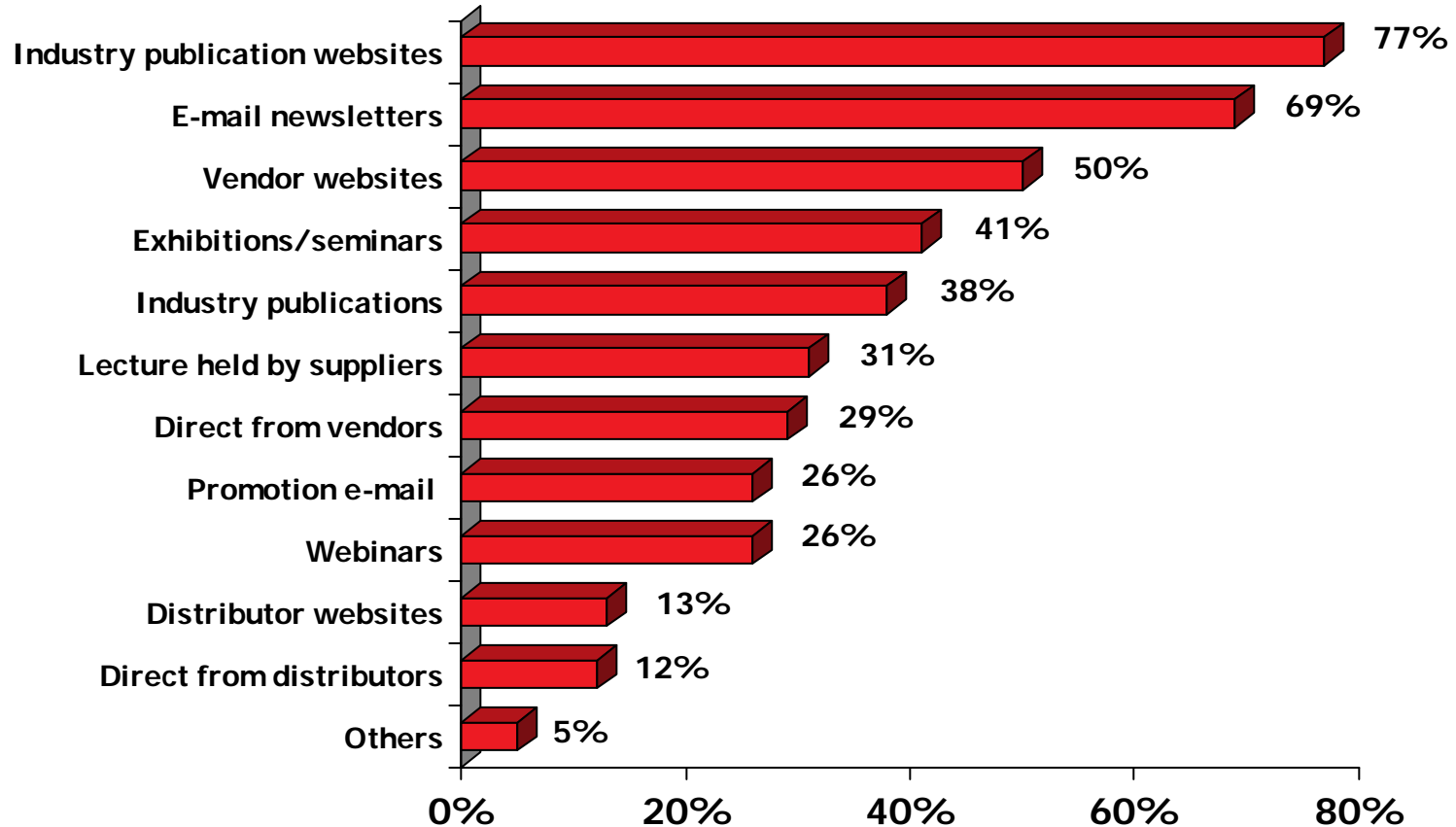


They rely on various services/sources in selecting components and designs...



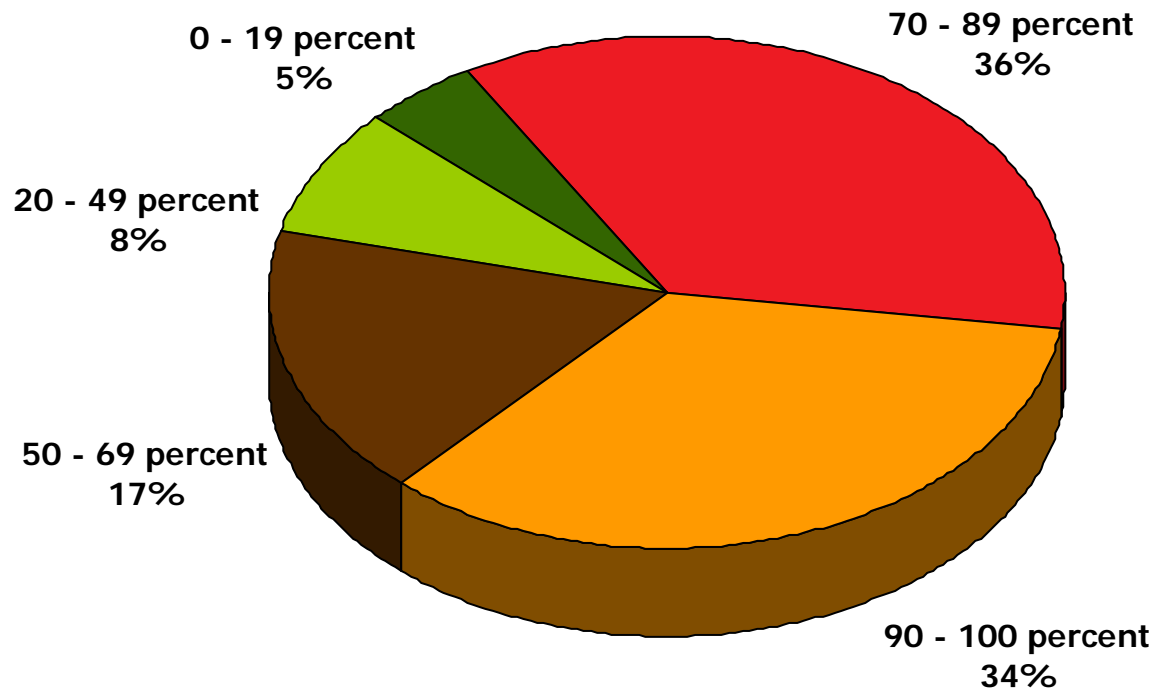
*Multiple responses allowed; respondents were asked to select their three most-preferred sources

...and turn to industry publications for advice on the latest technologies

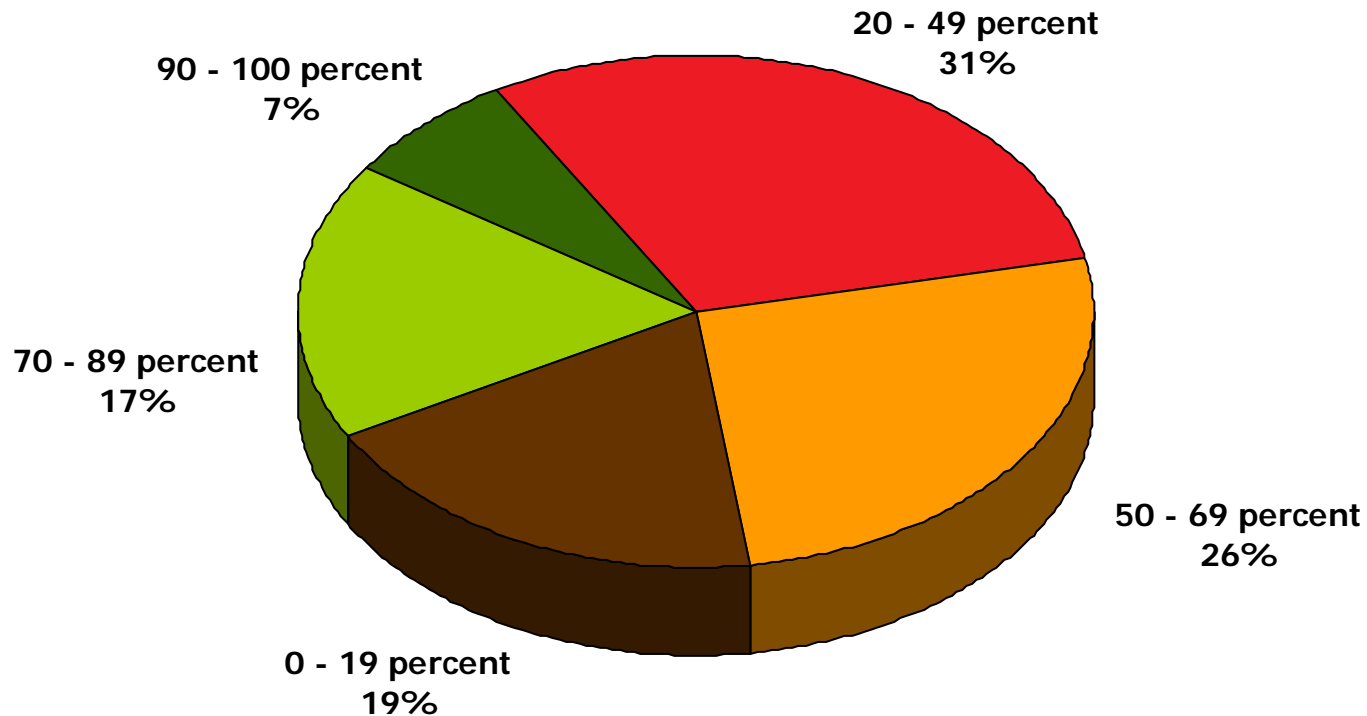


*Multiple responses allowed

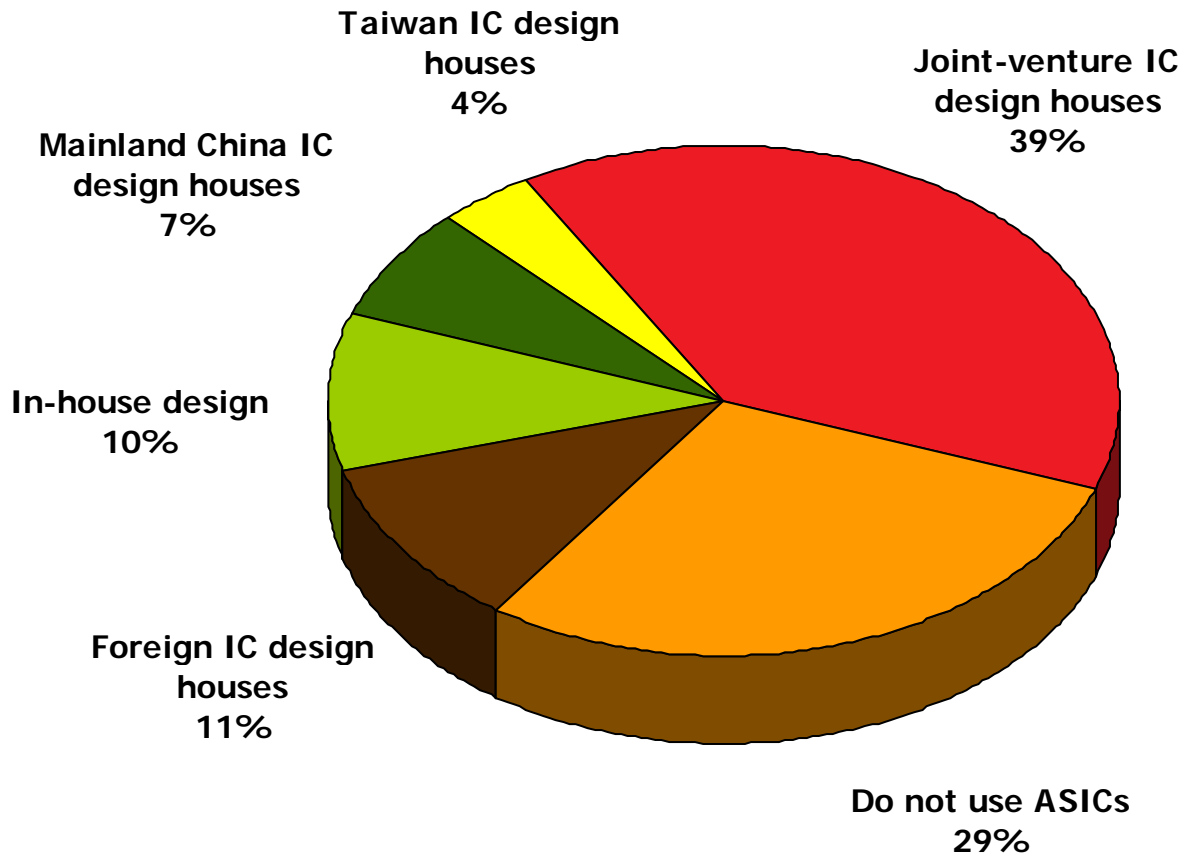
On average, 75% of ICs used are foreign brands...



...while an average 50% of discrete devices used are foreign brands



They use ASICs from...



*Percentages based on respondents who use reference designs