

Over 20 years serving the embedded community!

2012 Embedded Market Survey

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David Blaza (david.blaza@ubm.com) or

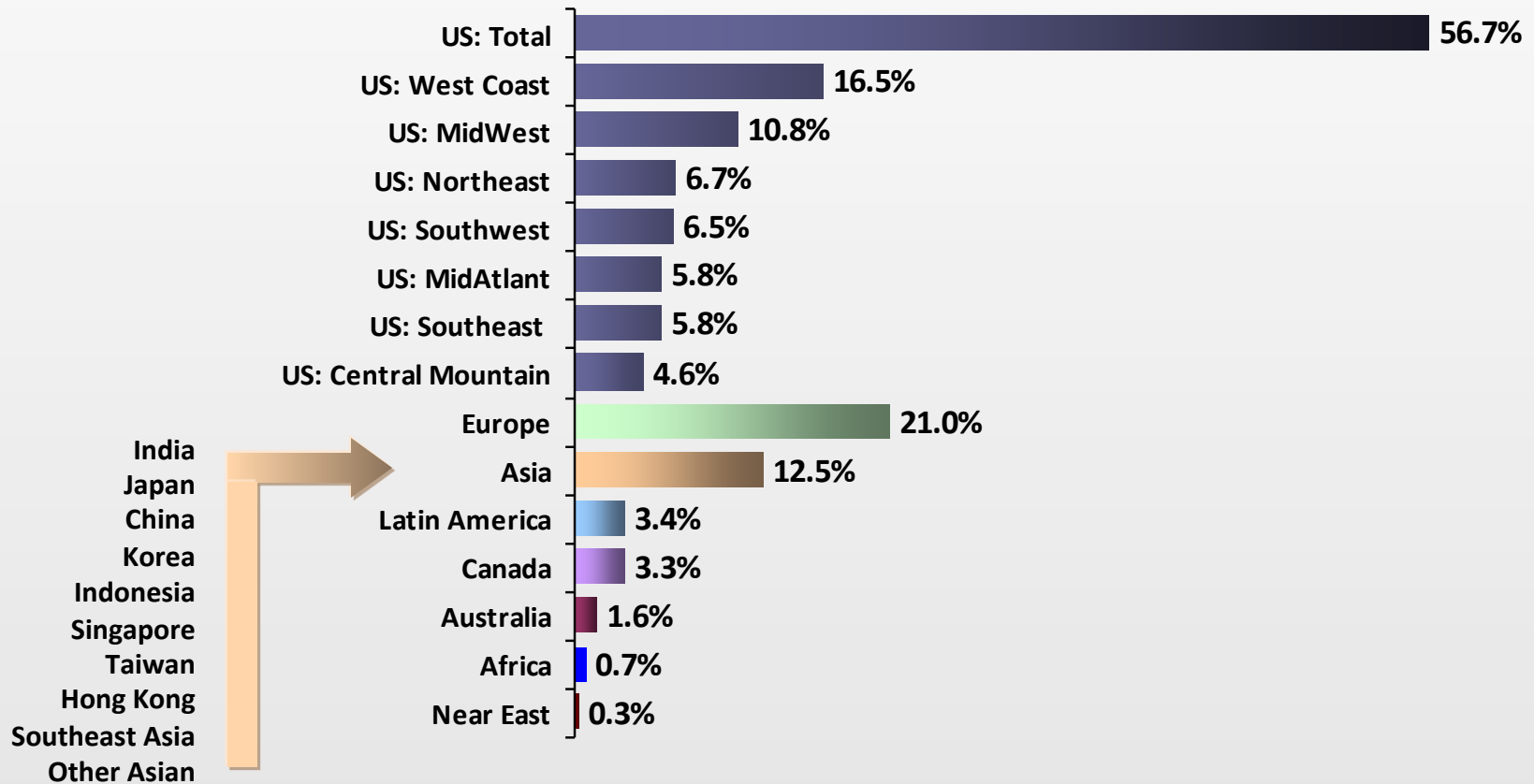
Colin Holland (colin.holland@ubm.com)

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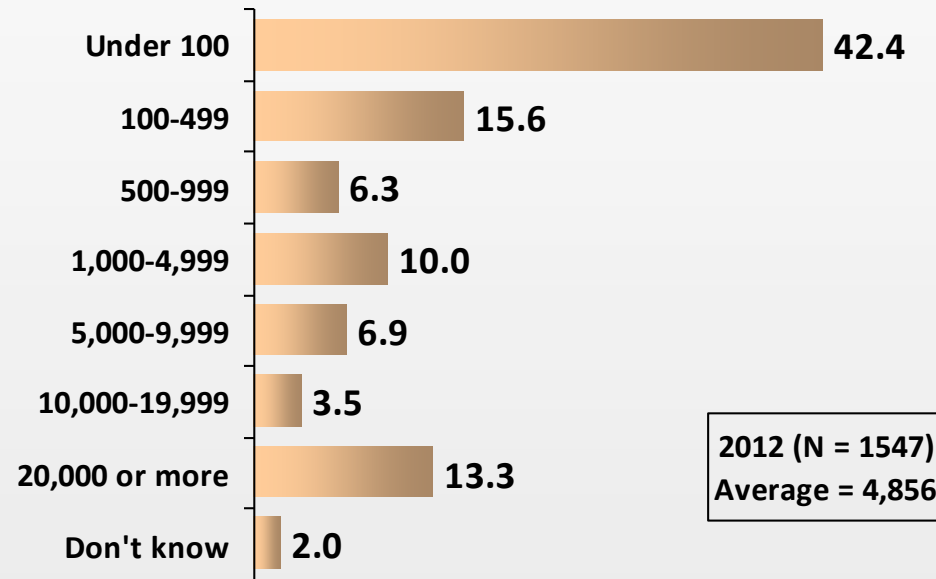
Purpose and Methodology

- **Purpose:** To profile the findings of the 2012 results of UBM Electronics annual comprehensive survey of the embedded systems markets worldwide. Findings include tools and work environment, applications, methods and processes, operating systems, and brands and chips currently used by or being considered by embedded developers. Many questions in this survey have been trended over three to five years.
- **Methodology:** Web survey conducted from January 10, 2012 -- February 3, 2012
- **Returns: 1,704** valid respondents 95% +/- 2.36% confidence overall
 - **Sample:** E-mail invitations were sent to the following subscribers UBM Electronics Group embedded brands, with two reminder invitations
 - *Embedded.com Newsletter Subscribers*
 - *Embedded Systems Design (ESD)*
 - *EE Times*

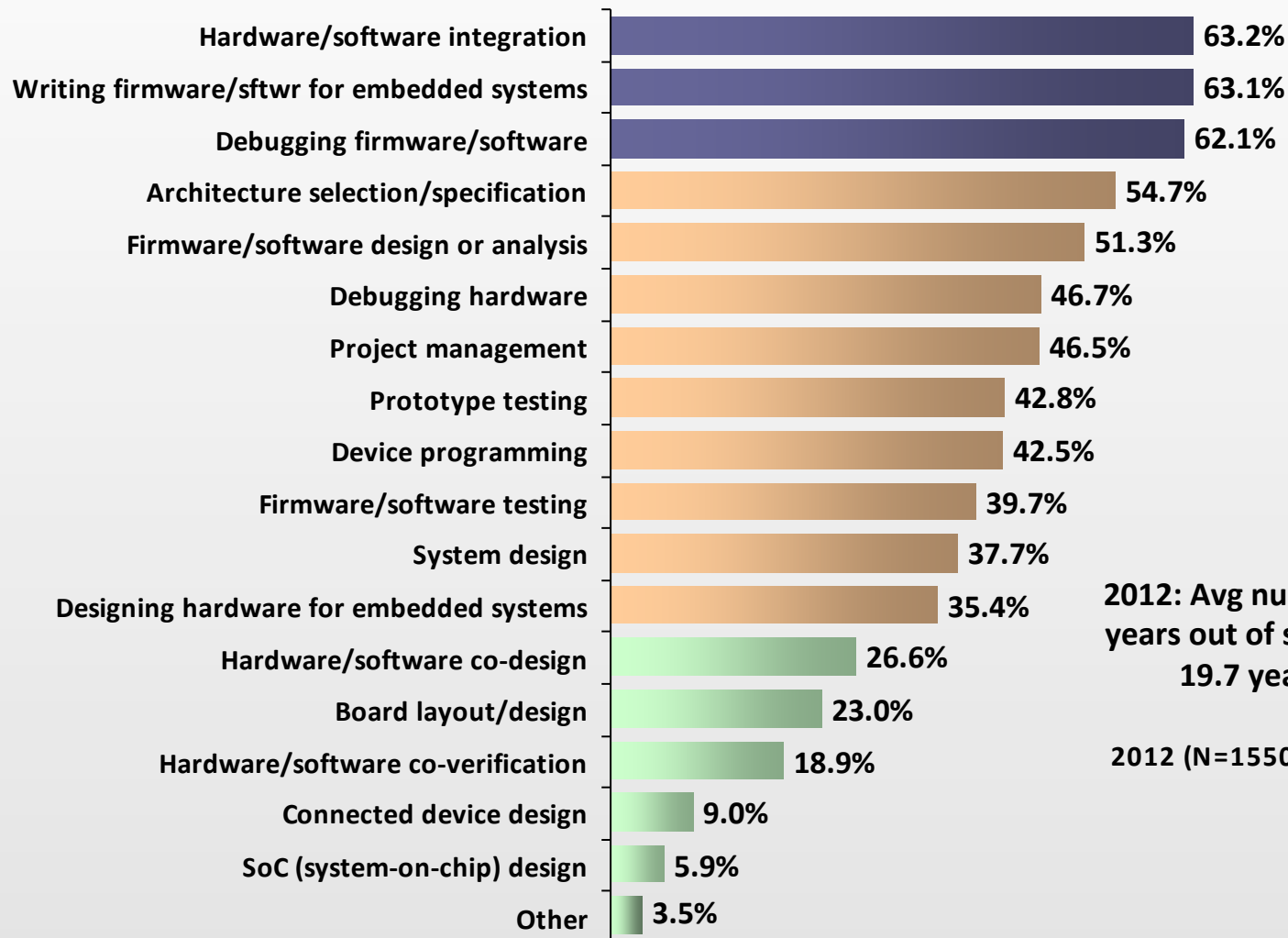
In which region of the world do you reside?



How many employees does your company have at all locations?



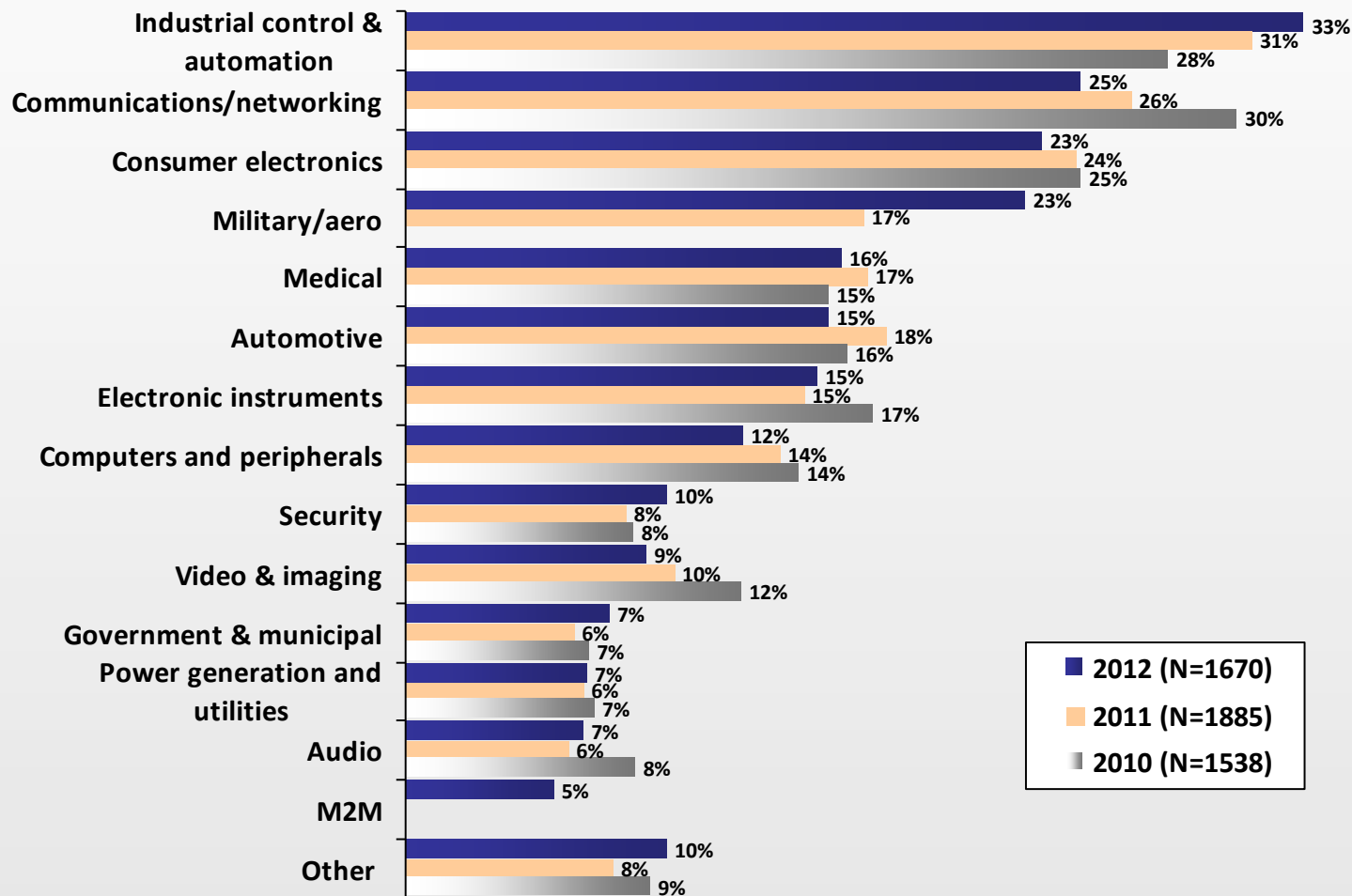
My job function includes:



2012: Avg number of
years out of school =
19.7 years

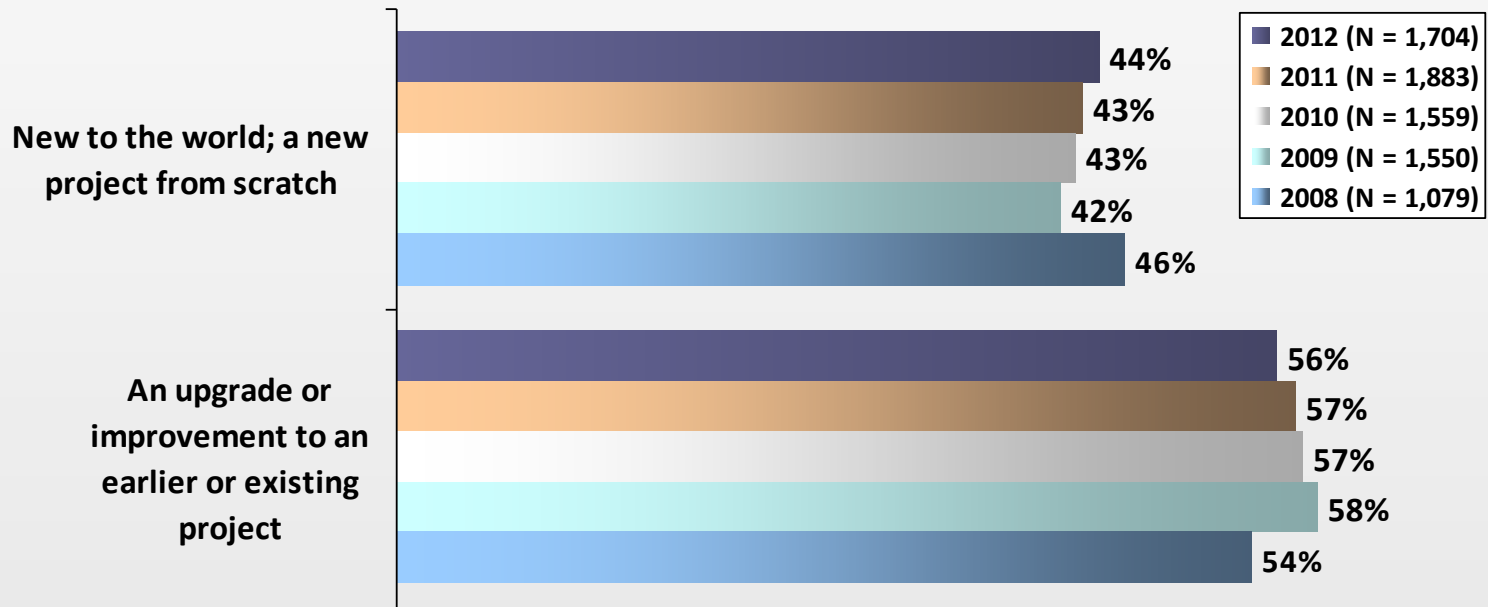
2012 (N=1550)

For what types of applications are your embedded projects developed?

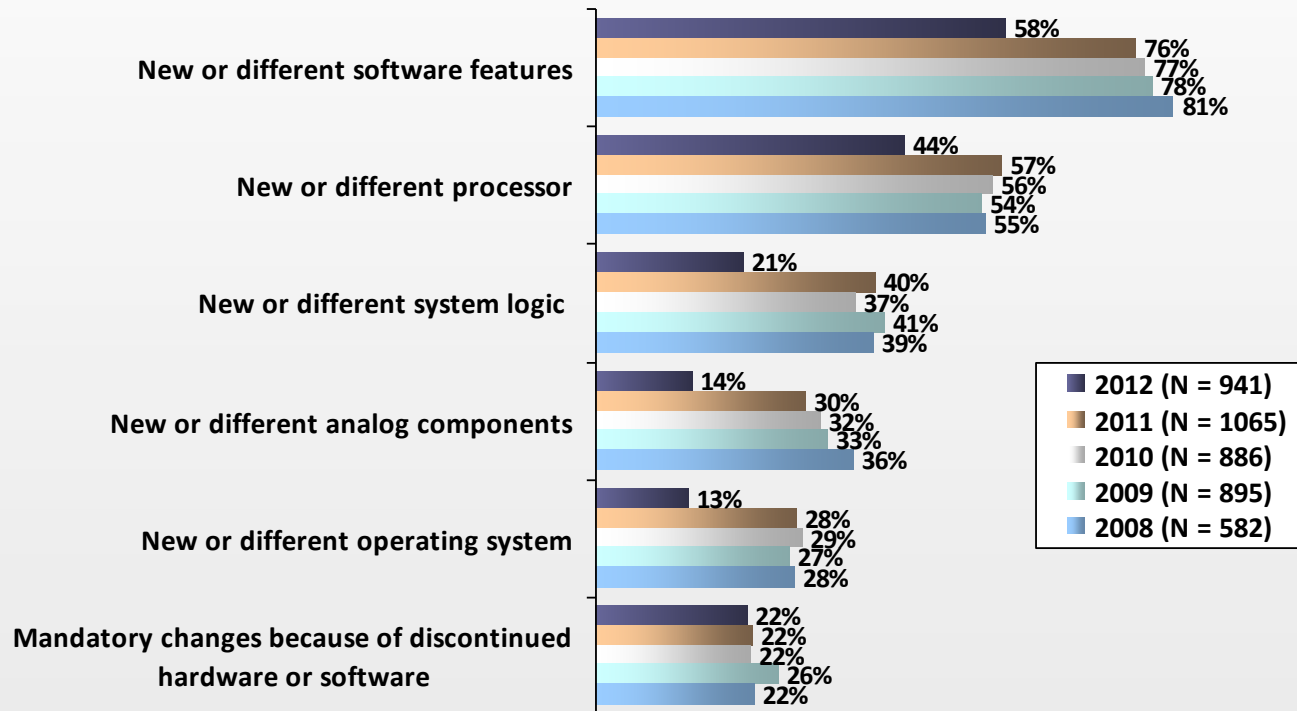


CURRENT EMBEDDED DESIGN ENVIRONMENT

My current embedded project is:

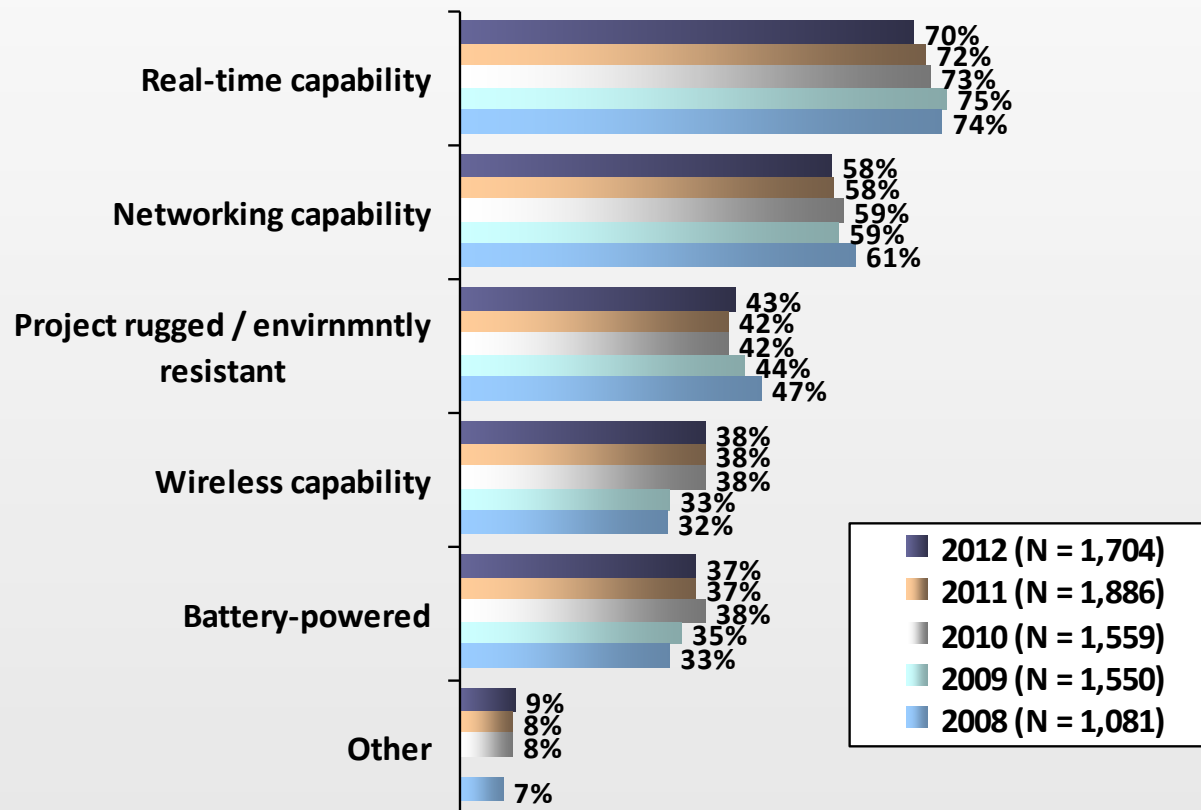


What does the upgrade or improvement include?

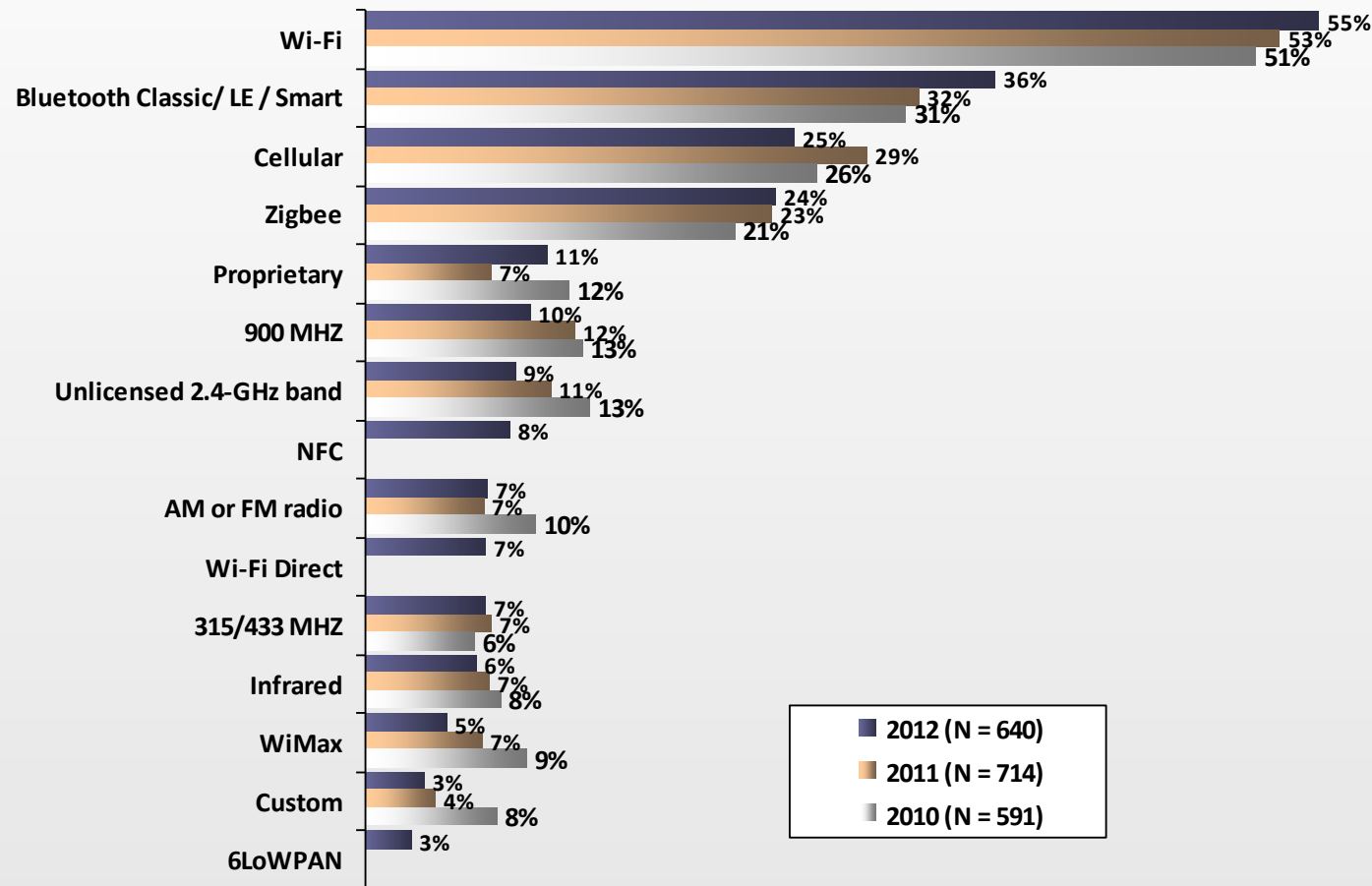


Base = Those whose current project is an upgrade/improvement

Which of the following capabilities are included in your current embedded project?



If wireless, what wireless interfaces does your current embedded project include?



How many people are on your embedded project team?

In 2012,
QA Engineers and
Systems Engineers /
Integrators were also
asked about:

QA = 2.6 / team

Systems = 2.6 / team

Team 2012 =	14.5
- Software Engineer =	5.6
- Hardware Engineer =	5.6
- Firmware Engineer =	3.3

2012 (N = 1,595)

2011 (N = 1,846)

2010 (N = 1,467)

2009 (N = 1,518)

Team 2011 =	13.5
- Software Engineer =	5.9
- Hardware Engineer =	4.2
- Firmware Engineer =	3.4

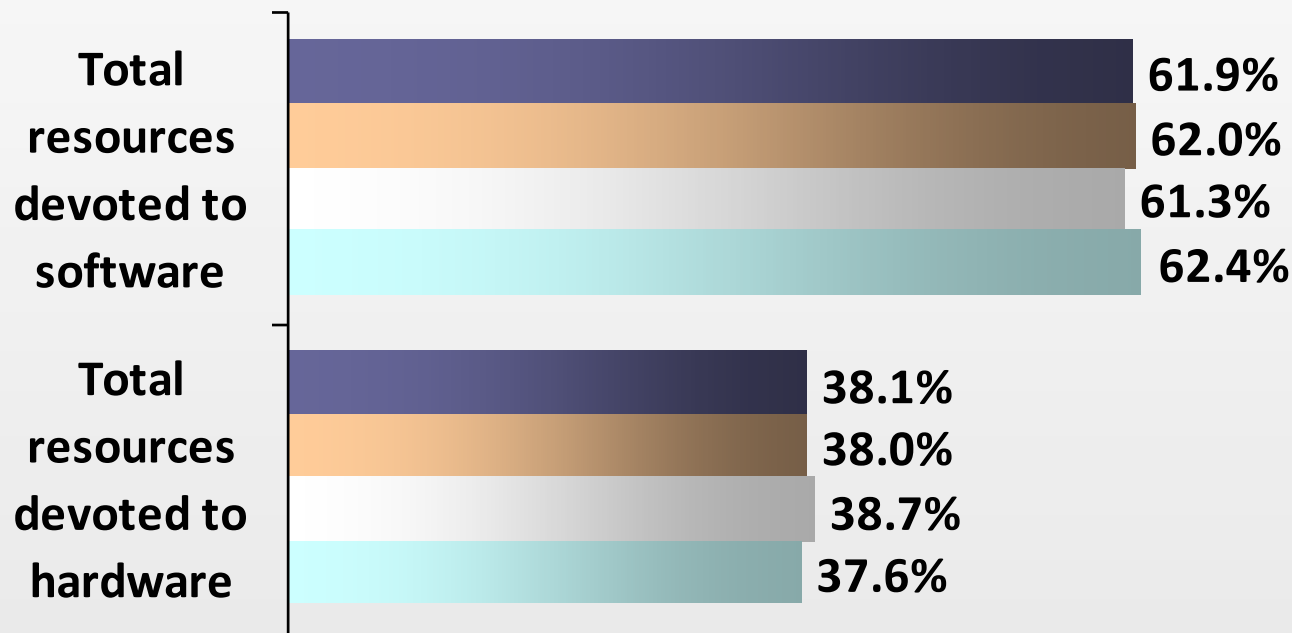
Team 2010 =	18.9*
- Software Engineer =	9.4
- Hardware Engineer =	5.3
- Firmware Engineer =	4.2

*In 2010, a
number of teams
were very large
that affected the
mean.

Team 2009 =	13.6
- Software Engineer =	6.6
- Hardware Engineer =	4.3
- Firmware Engineer =	2.7

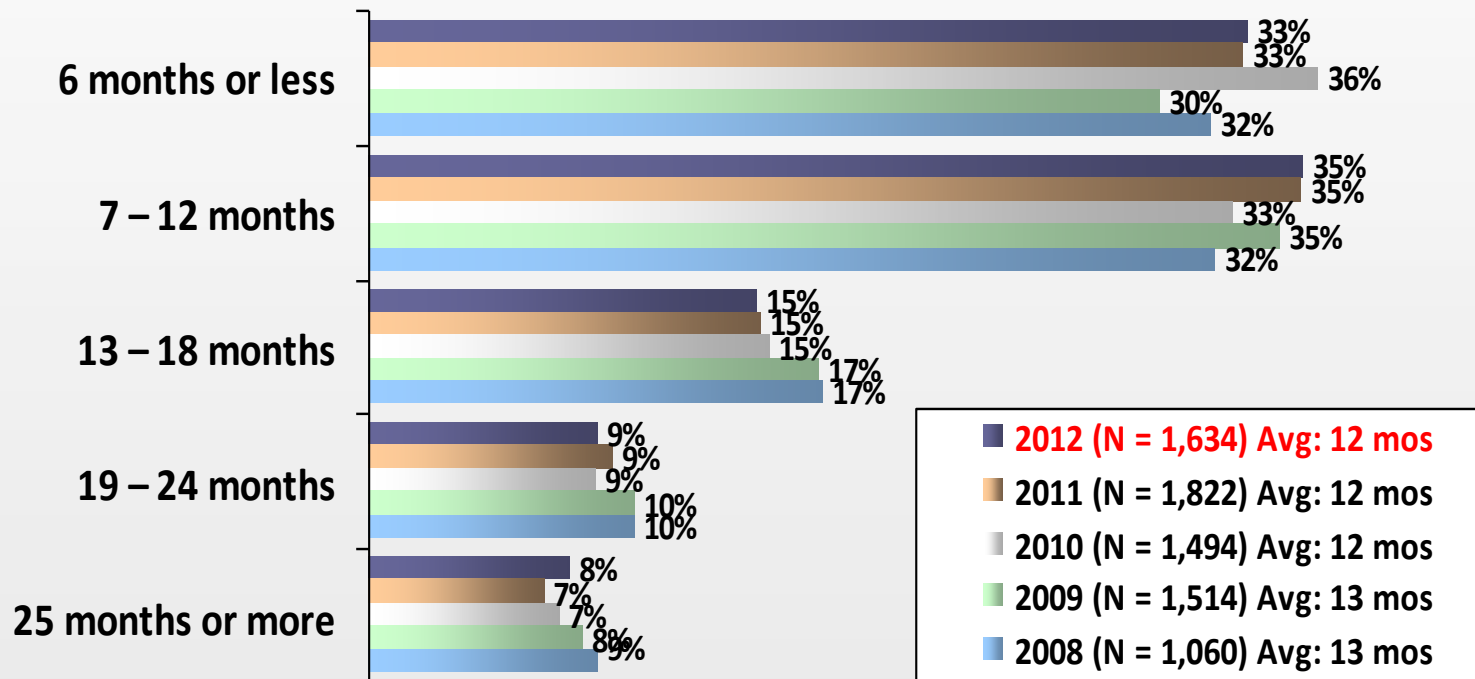


What is your development team's ratio of total resources (including time/dollars/manpower) spent on software vs. hardware for your embedded projects?

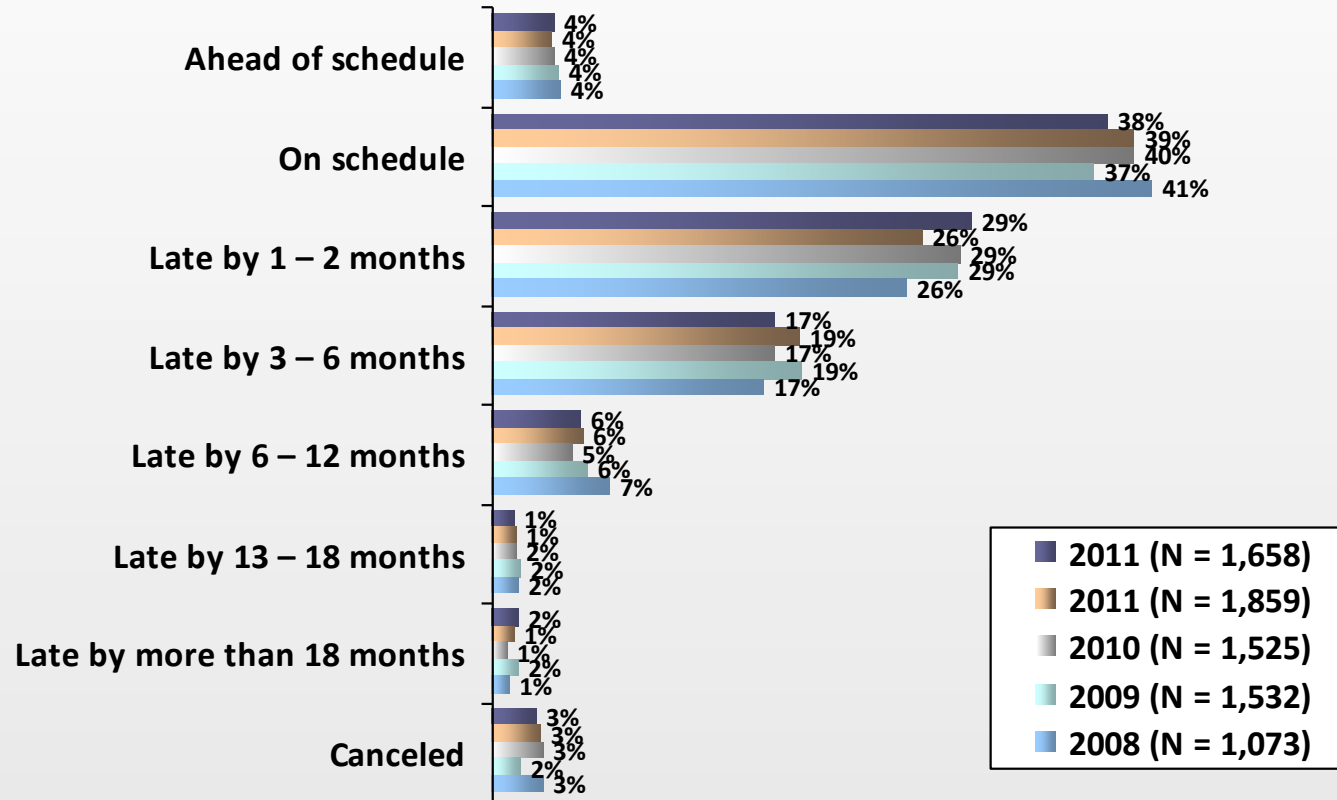


■ 2012 (N = 1,675)
■ 2011 (N = 1,878)
■ 2010 (N = 1,542)
■ 2009 (N = 1,536)

How long did the last project you completed take to finish?

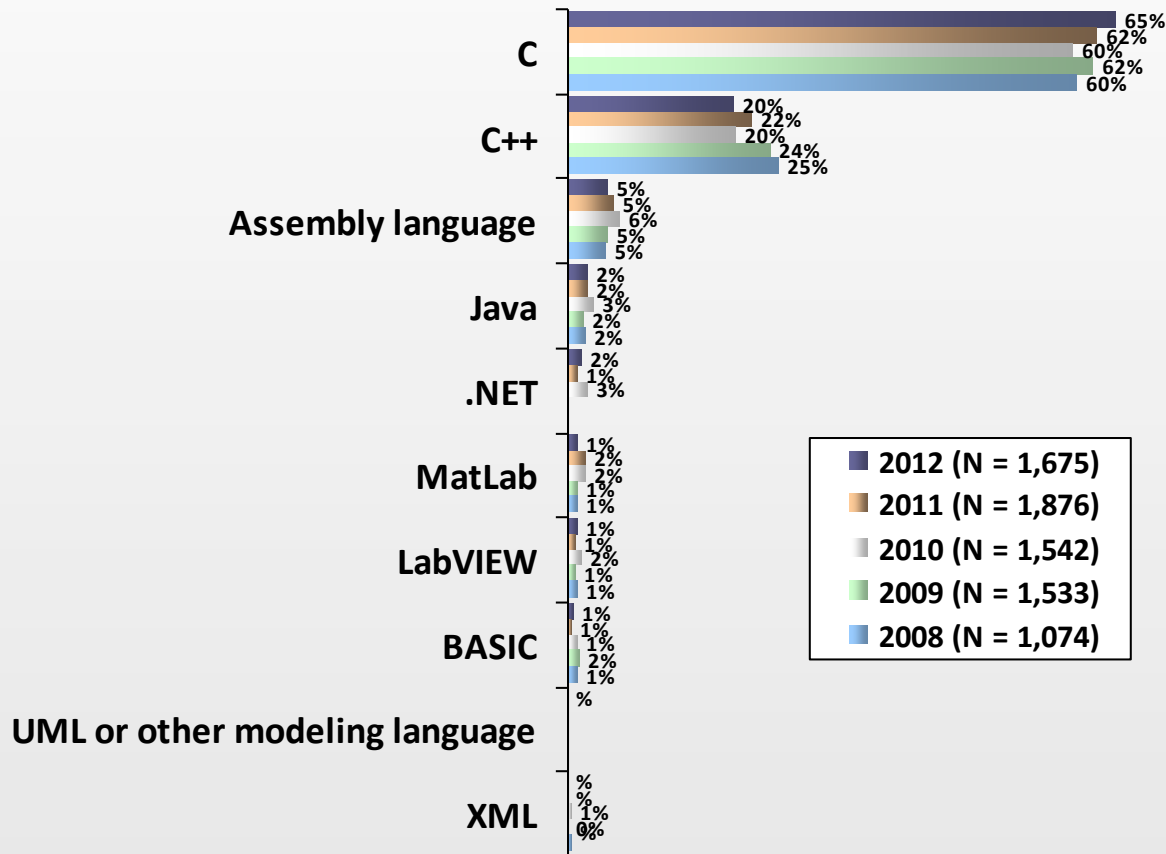


Was that project completed . . .

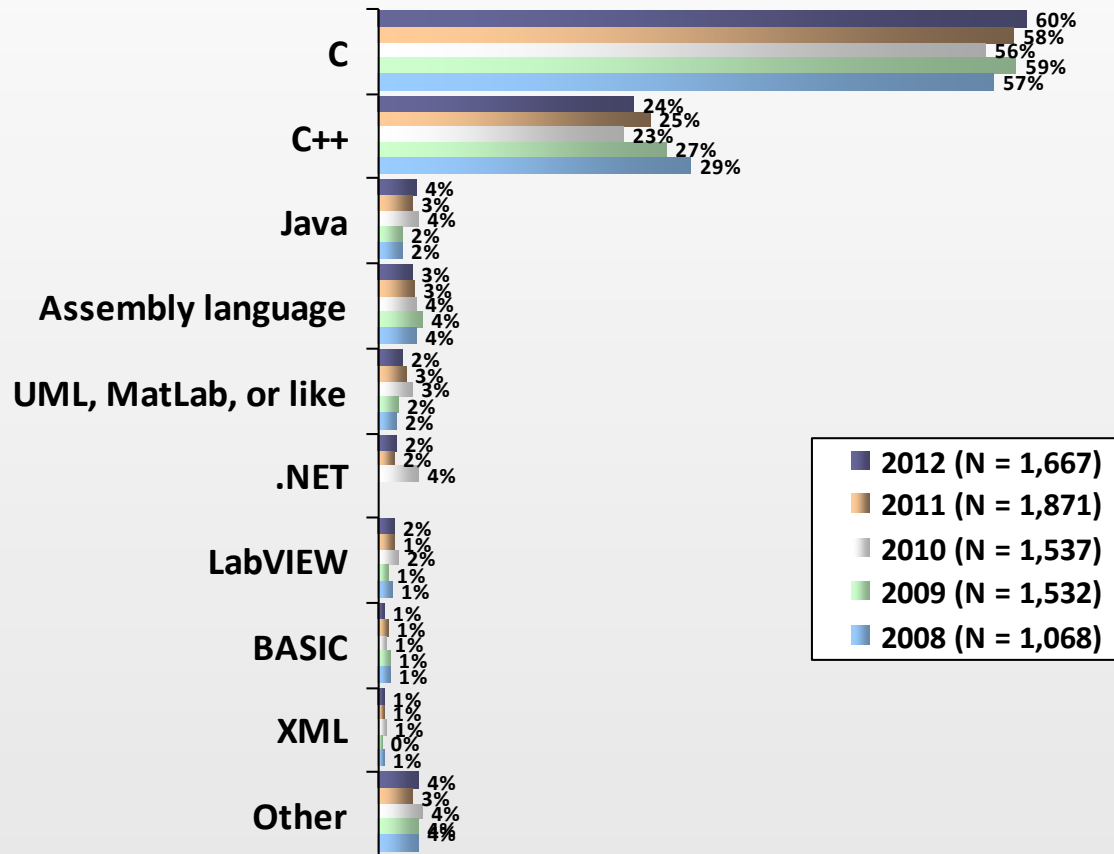


For 2012, 42% of all projects finished on or ahead of schedule and 58% of all projects finished late or cancelled, which is almost no change from 2011 and 2010.

My current embedded project is programmed mostly in:

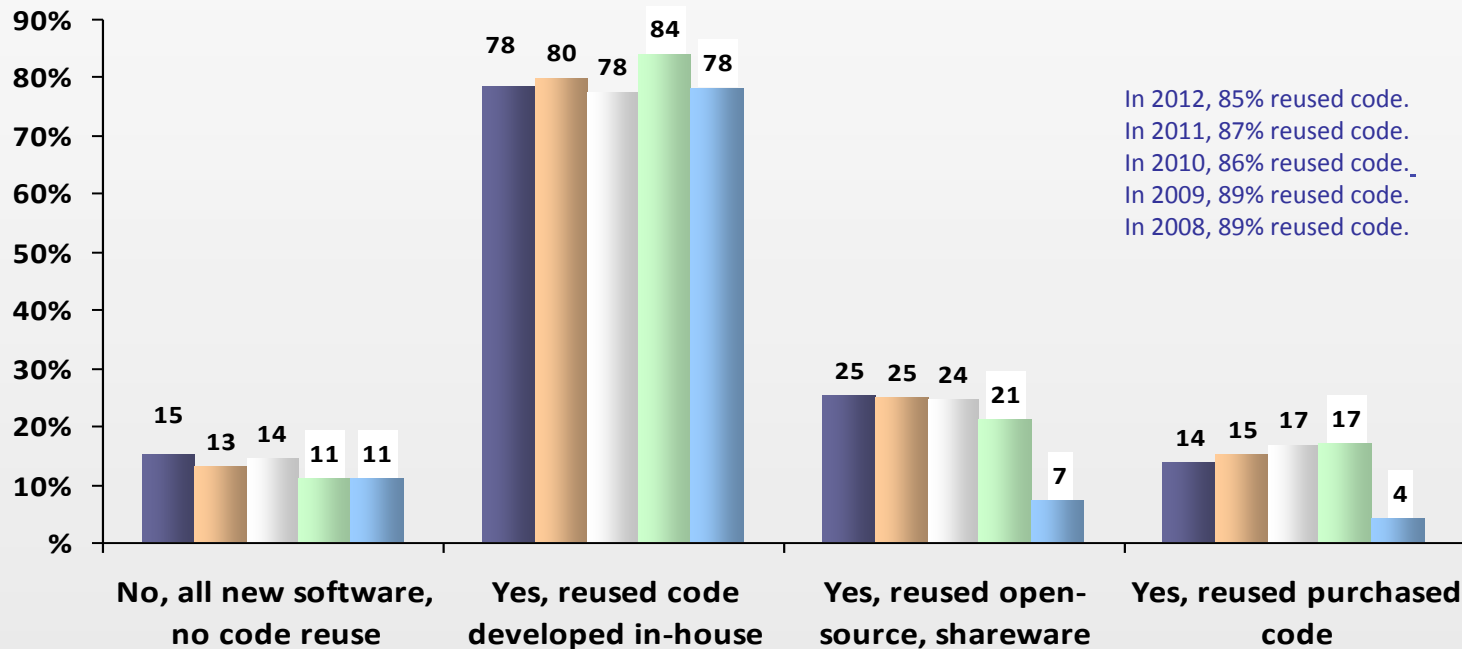


My next embedded project will likely be programmed mostly in:



Does your current project reuse code from a previous embedded project?

A very slight change in usage of RTOS, kernels, execs, schedulers over past 5 years

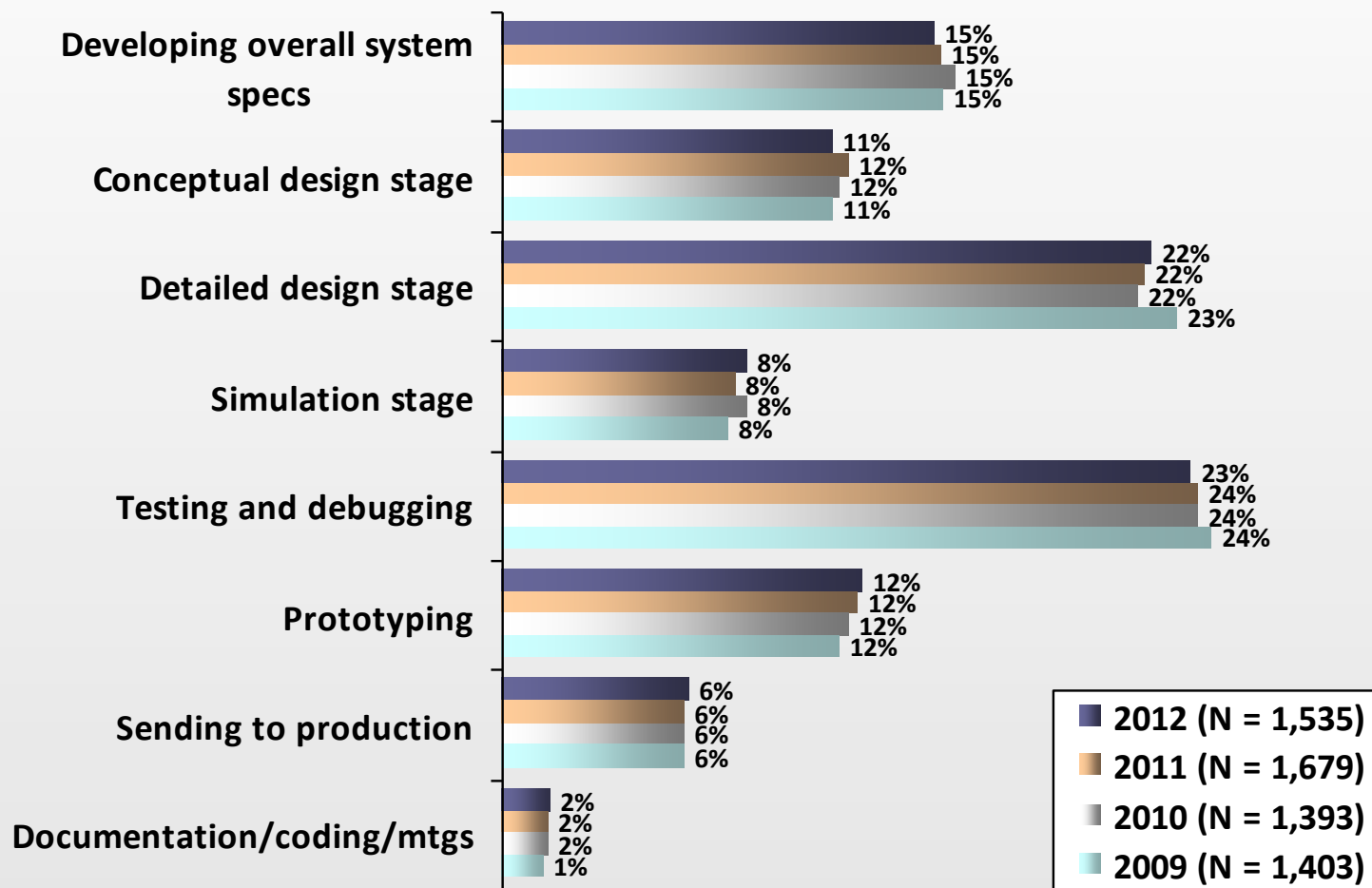


In 2012, 85% reused code.
In 2011, 87% reused code.
In 2010, 86% reused code.
In 2009, 89% reused code.
In 2008, 89% reused code.

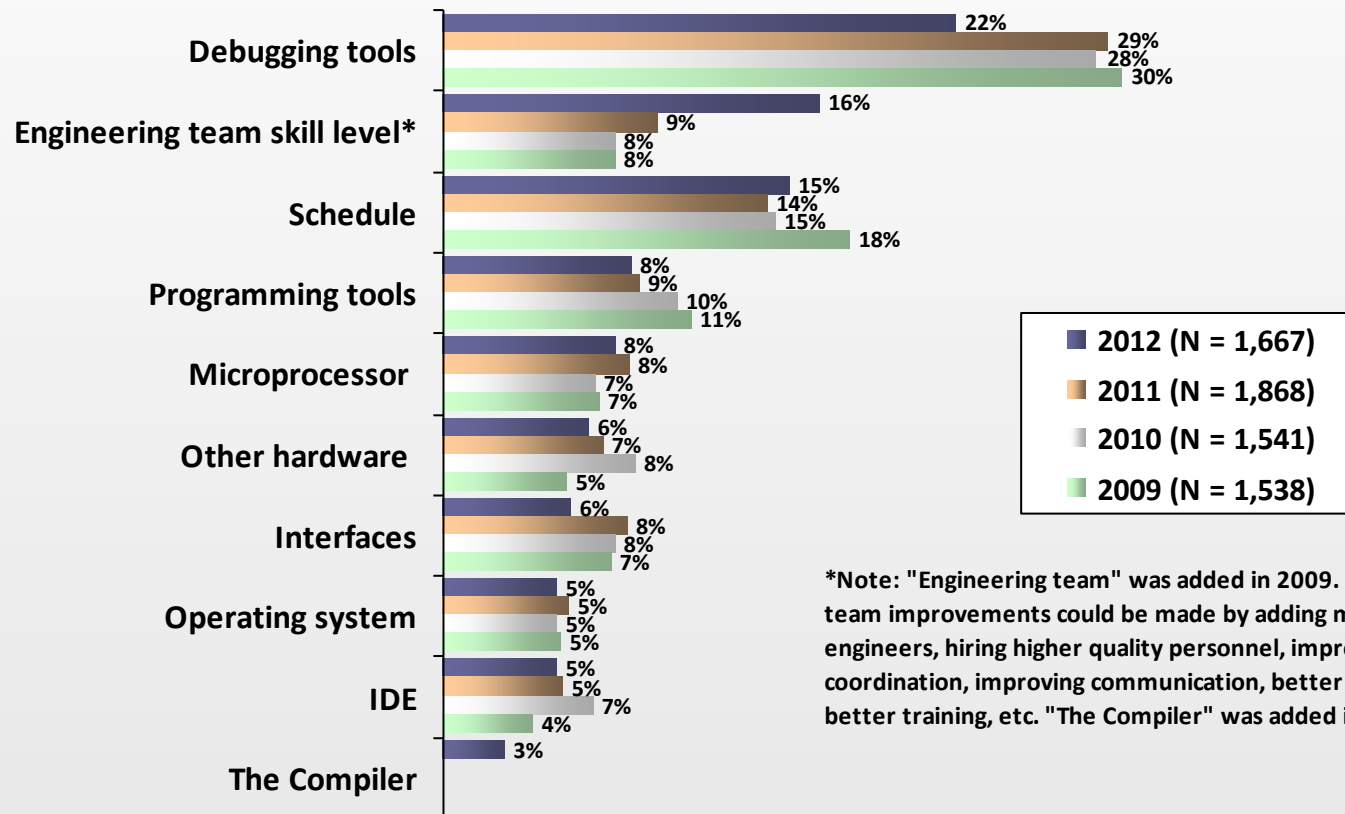
■ 2012 (N = 1,659) ■ 2011 (N = 1,862) ■ 2010 (N = 1,540) ■ 2009 (N = 1,534) ■ 2008 (N = 1,068)

EMBEDDED DESIGN PROCESS

What percentage of your design time is spent on each of the following stages?

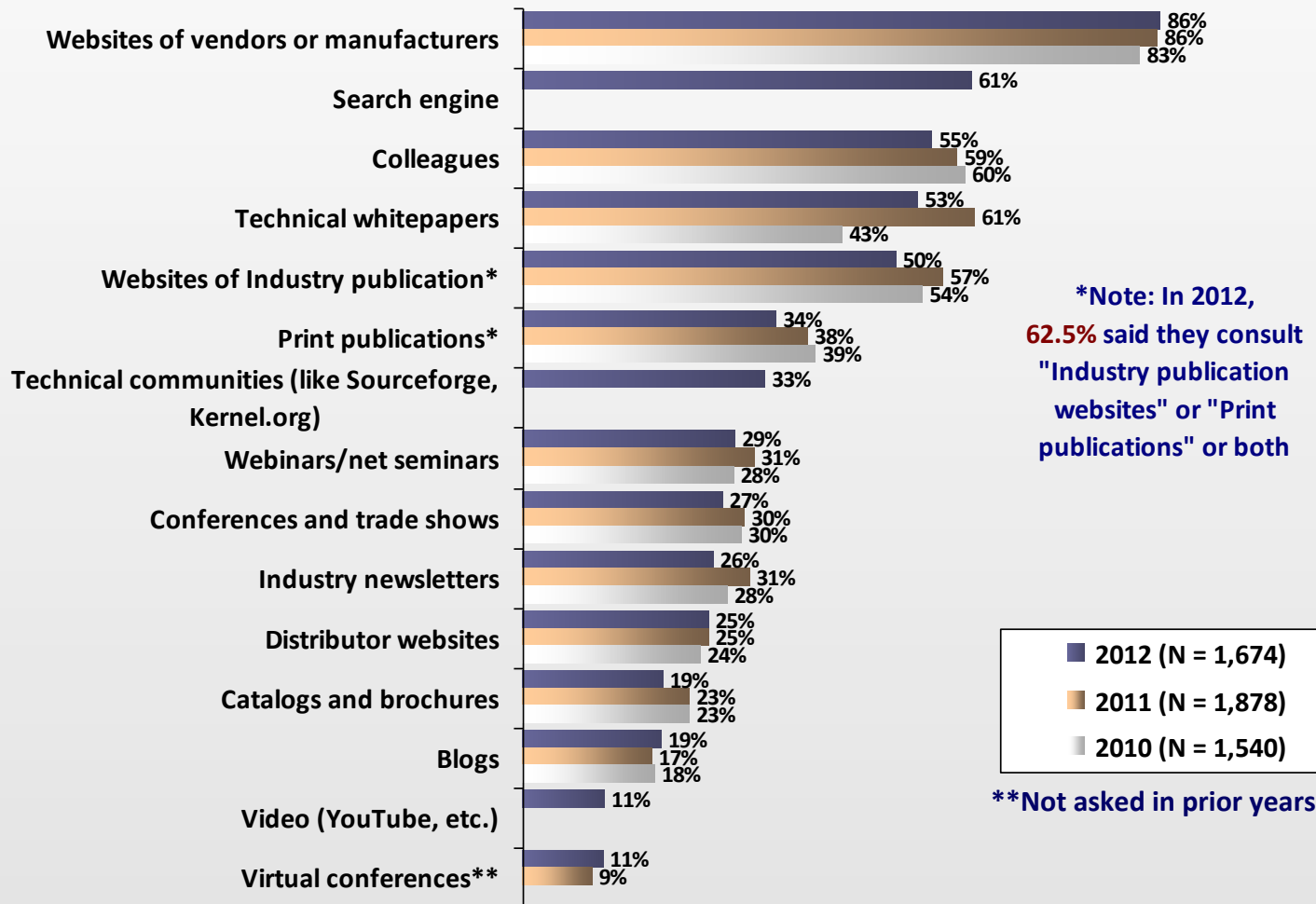


If you could improve one thing about your embedded design activities, what would it be?



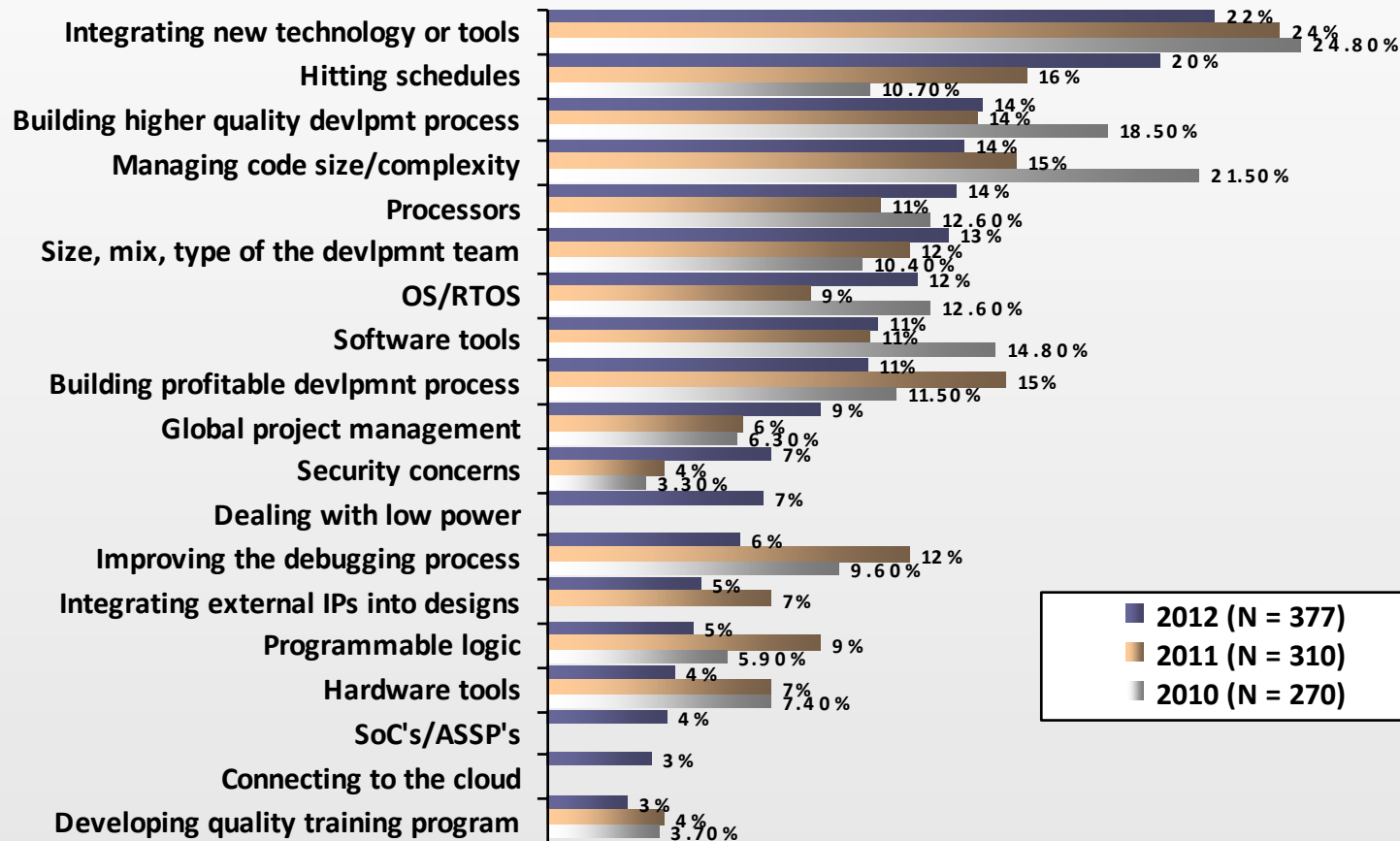
*Note: "Engineering team" was added in 2009. Engineering team improvements could be made by adding more engineers, hiring higher quality personnel, improving coordination, improving communication, better leadership, better training, etc. "The Compiler" was added in 2012.

In general, what sources of information do you consult to research your embedded design decisions? (Only top 14 are displayed.)



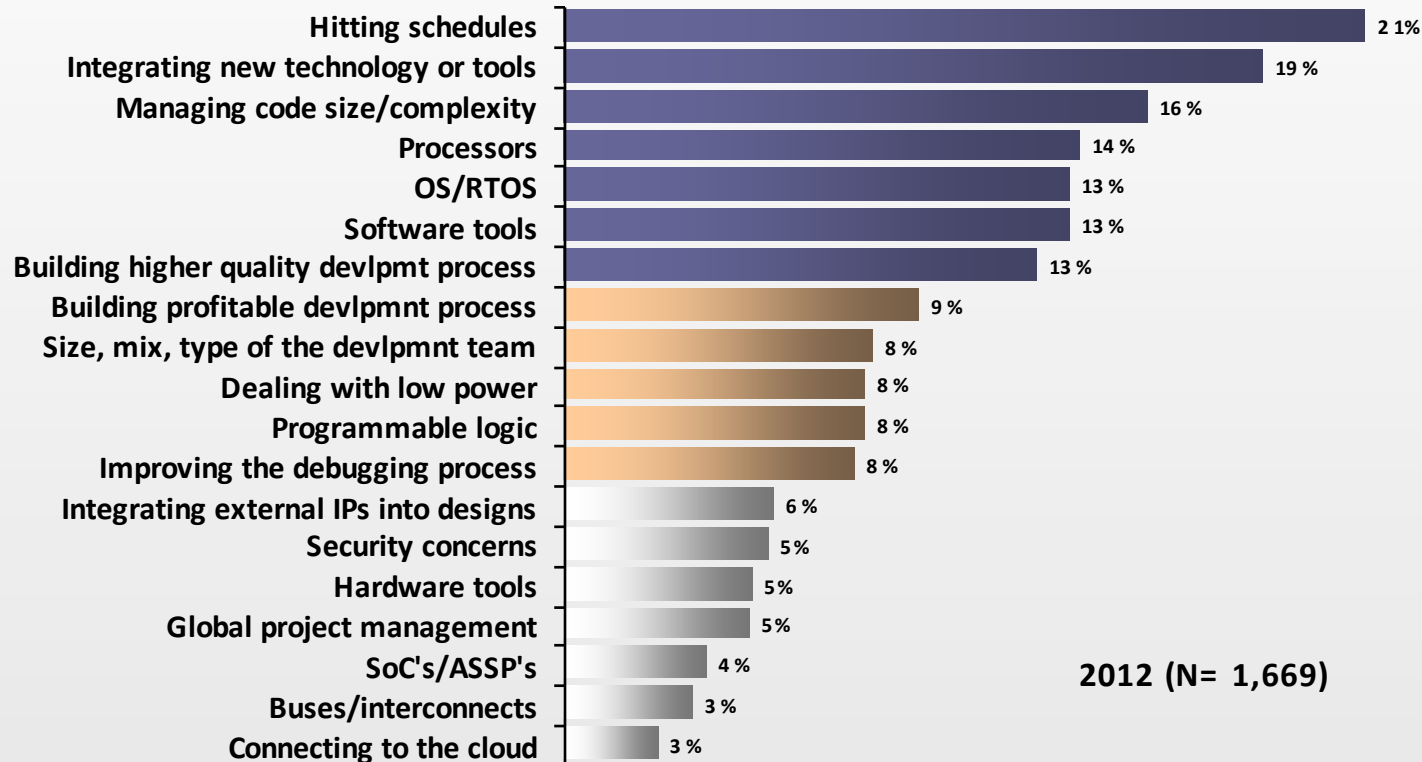
Thinking about the next year, what areas will be your greatest technology challenges?

Managers Only



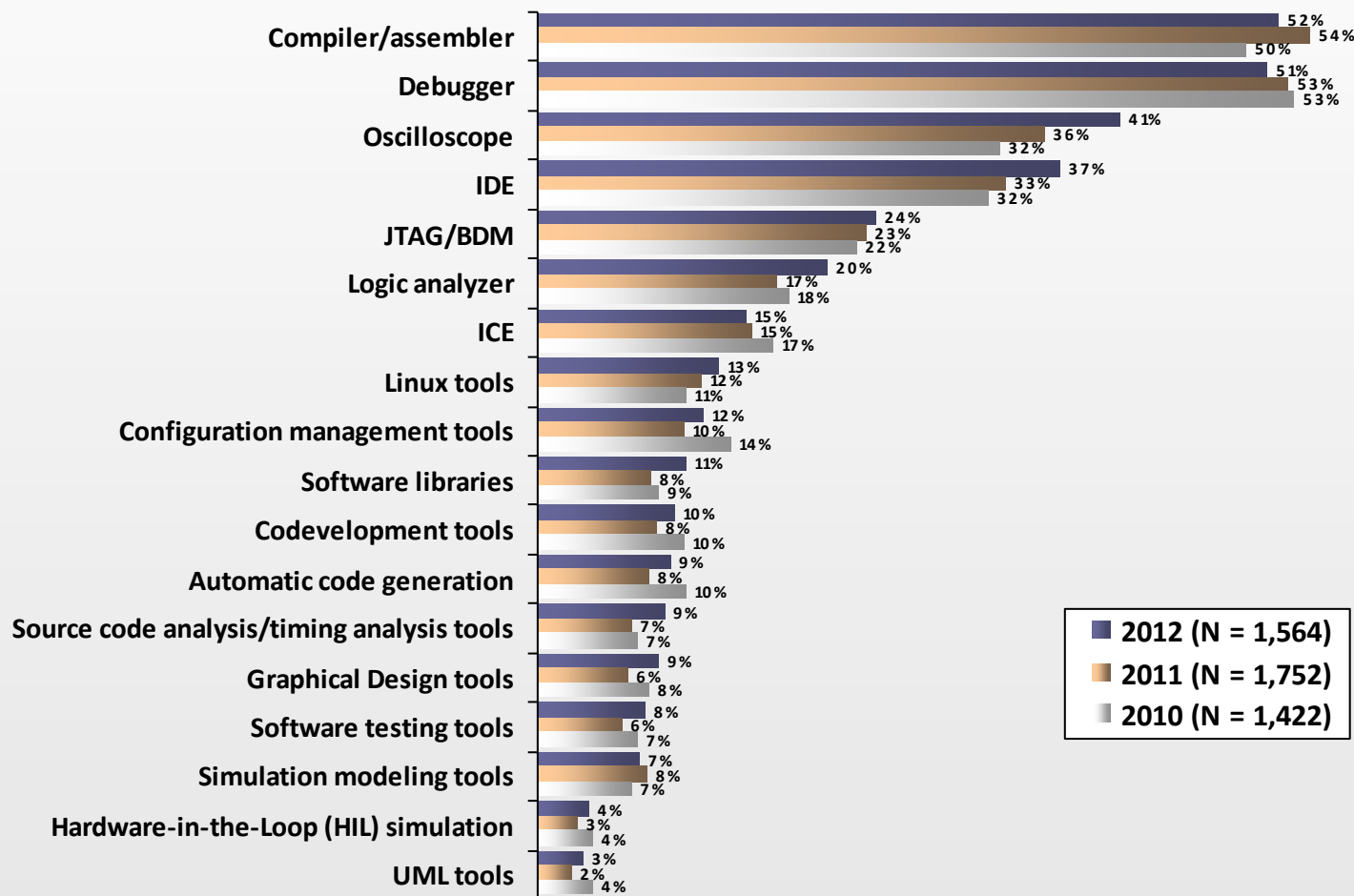
Thinking about the next year, what areas will be your greatest technology challenges?

2012 Engineers & Managers



2012 (N= 1,669)

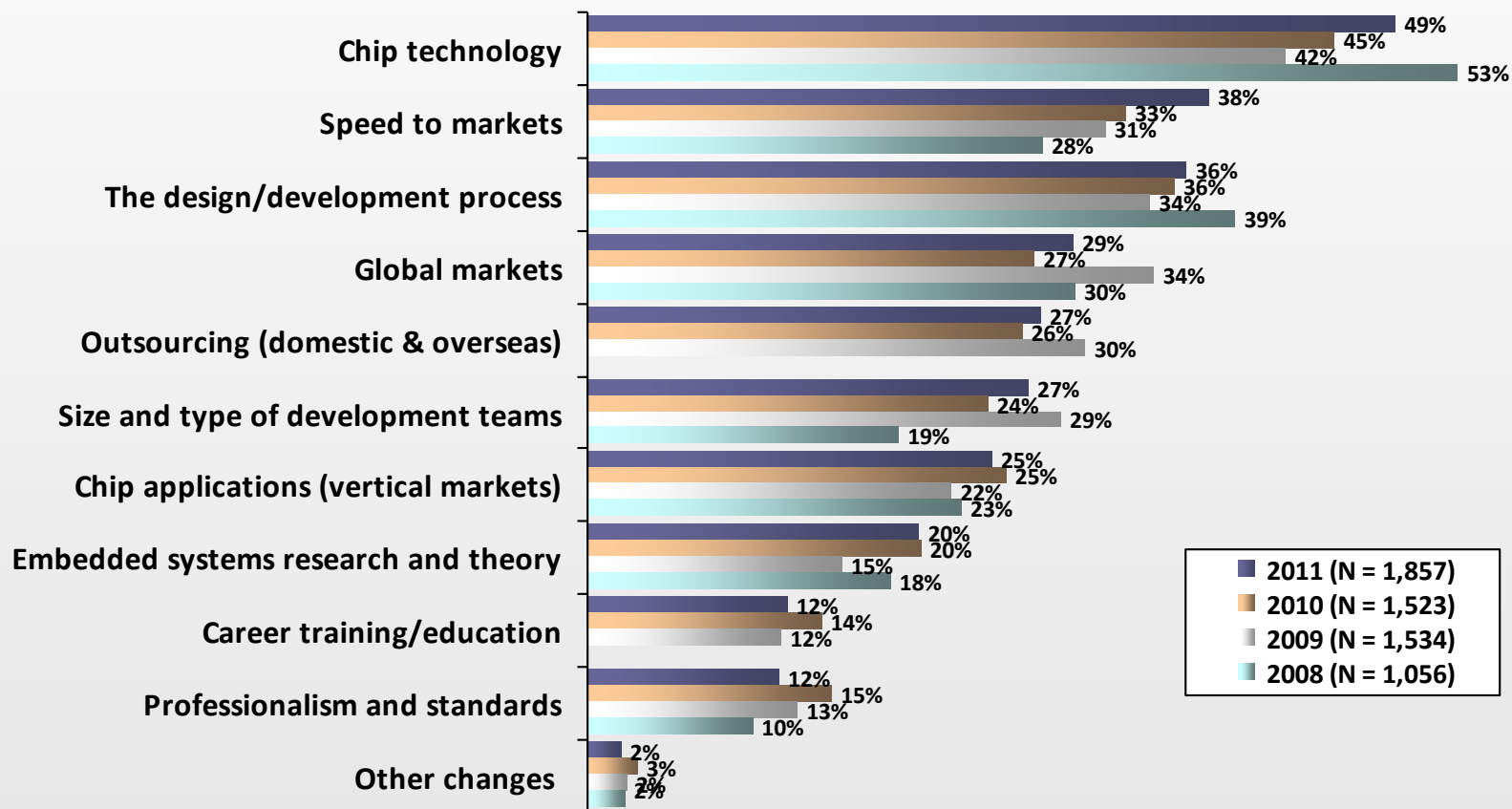
Which of the following are your favorite/most important software/hardware tools? (Top 18 shown only)



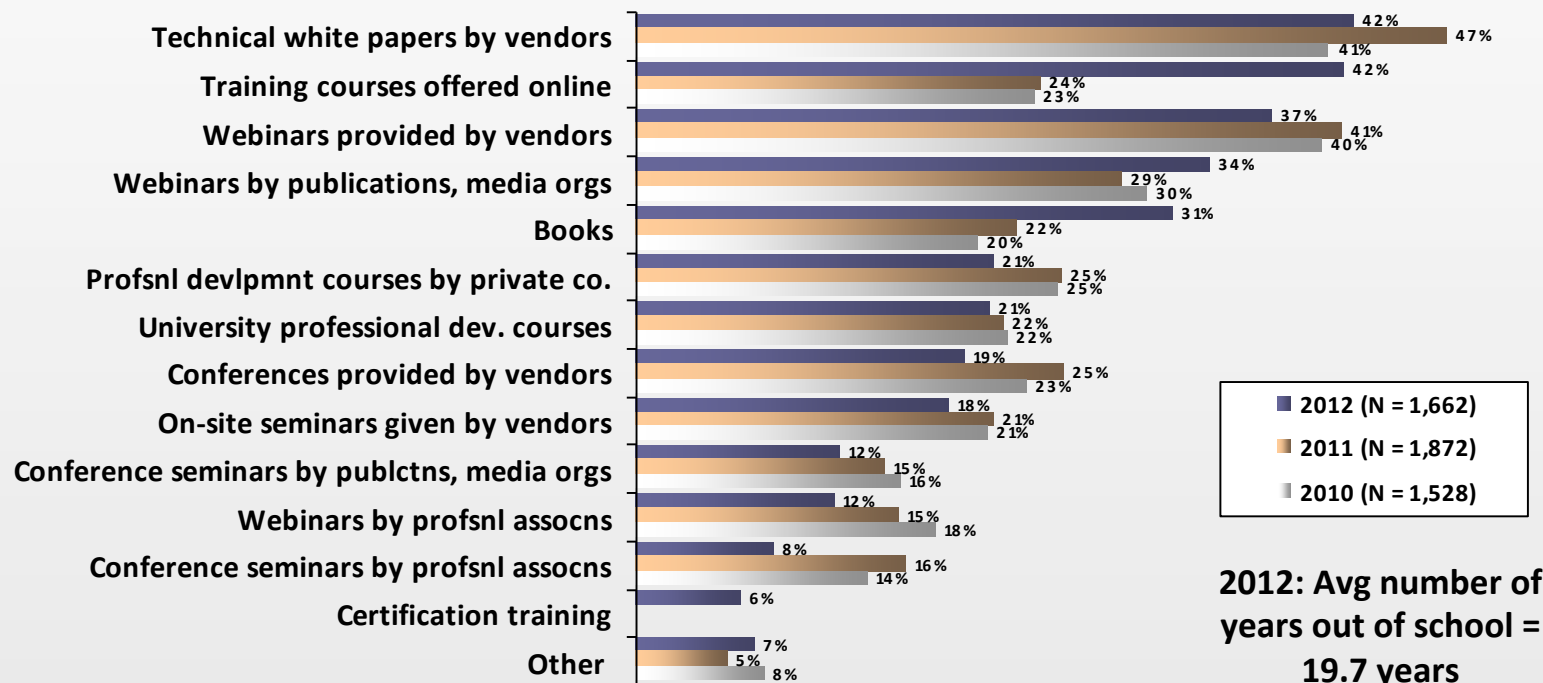
Which of the following conferences have you attended in the last two years, and which do you plan to attend in the next year?

Conferences	2012 Have Attended	2012 Plan to attend
Embedded Systems Conference (Silicon Valley)	23%	27%
ARM TechCon	17%	22%
Embedded Systems Conference (Boston)	15%	18%
Freescale Technology Forum	14%	12%
CES (Las Vegas)	11%	14%
Embedded World (Nuremberg)	10%	12%
Intel Developer Forum	10%	11%
Real Time Computer Show (RTECC)	9%	10%
DesignCon	8%	10%
Electronica	7%	9%
Microchip MASTERS Conference	7%	9%
CeBIT	7%	8%
Embedded Linux Conference (ELC)	6%	13%
Embedded Systems Conference (India)	6%	10%
DAC	4%	6%
Embedded Systems Show (UK)	3%	4%
Embedded Systems Technology (Japan)	2%	4%
IIC (China)	2%	5%
Embedded Systems Conference (Brazil)	2%	3%
Total attending/planning to attend	779	894

Looking ahead over the next 2-5 years, select the areas below that you think will see the most dramatic changes?



What are the most effective ways that you systematically or formally maintain, educate, and advance your professional skills?

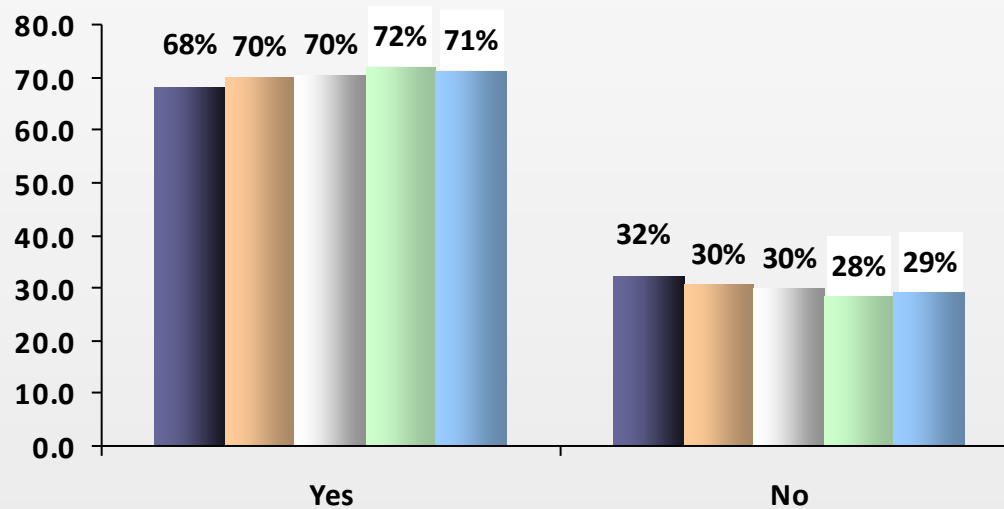


**Average Number of Days Per Year
Spent on Career Training**
 2012 = **11.7 days** per year
 2011 = **11.2 days** per year
 2010 = **11.7 days** per year

OPERATING SYSTEMS

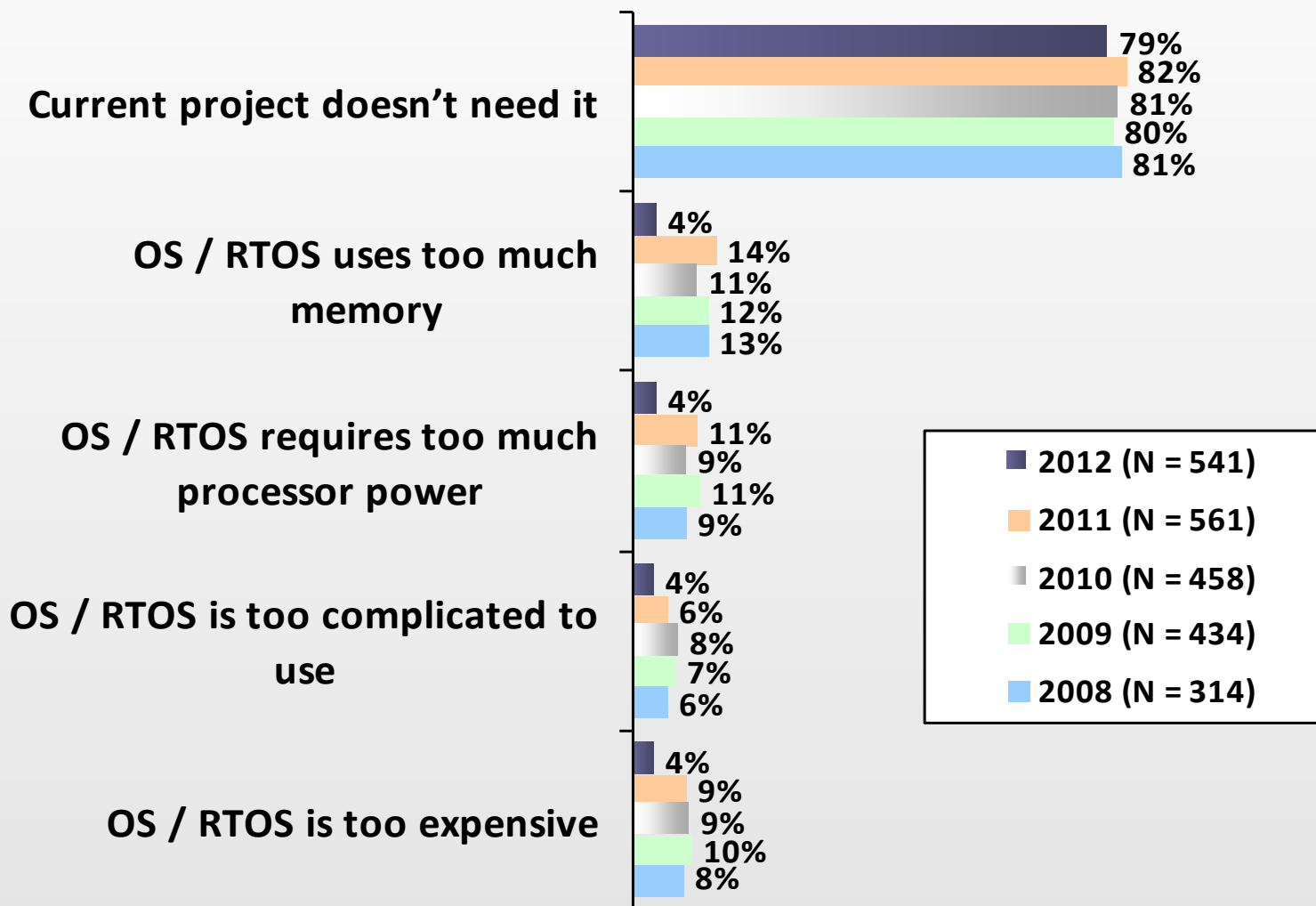
Does your current embedded project use an operating system, RTOS, kernel, software executive, or scheduler of any kind?

A very slight change in usage of RTOS, kernels, execs, schedulers over past 5 years

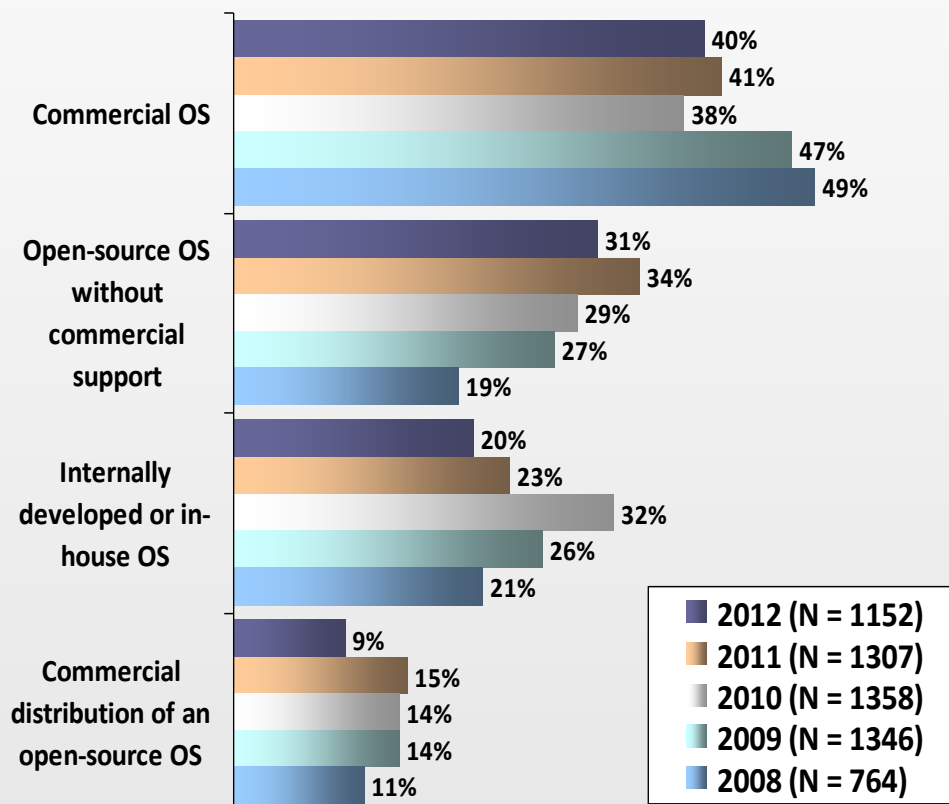


■ 2012 (N = 1,712) ■ 2011 (N = 1,882) ■ 2010 (N = 1,552) ■ 2009 (N = 1,546) ■ 2008 (N = 1,080)

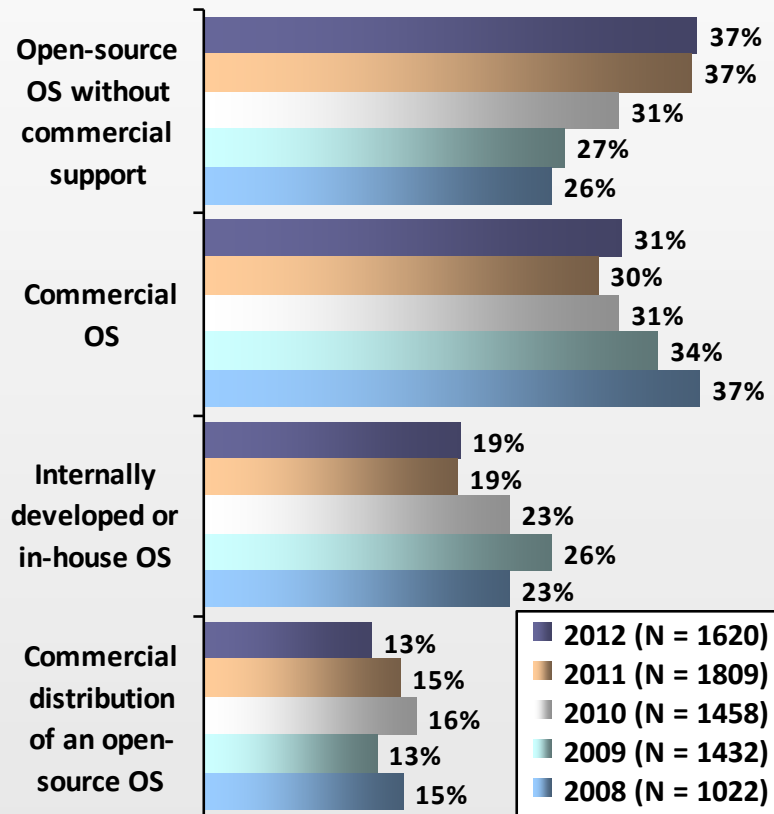
If current embedded project does not use an operating system, RTOS, kernel, software executive, or scheduler of any kind, why not?



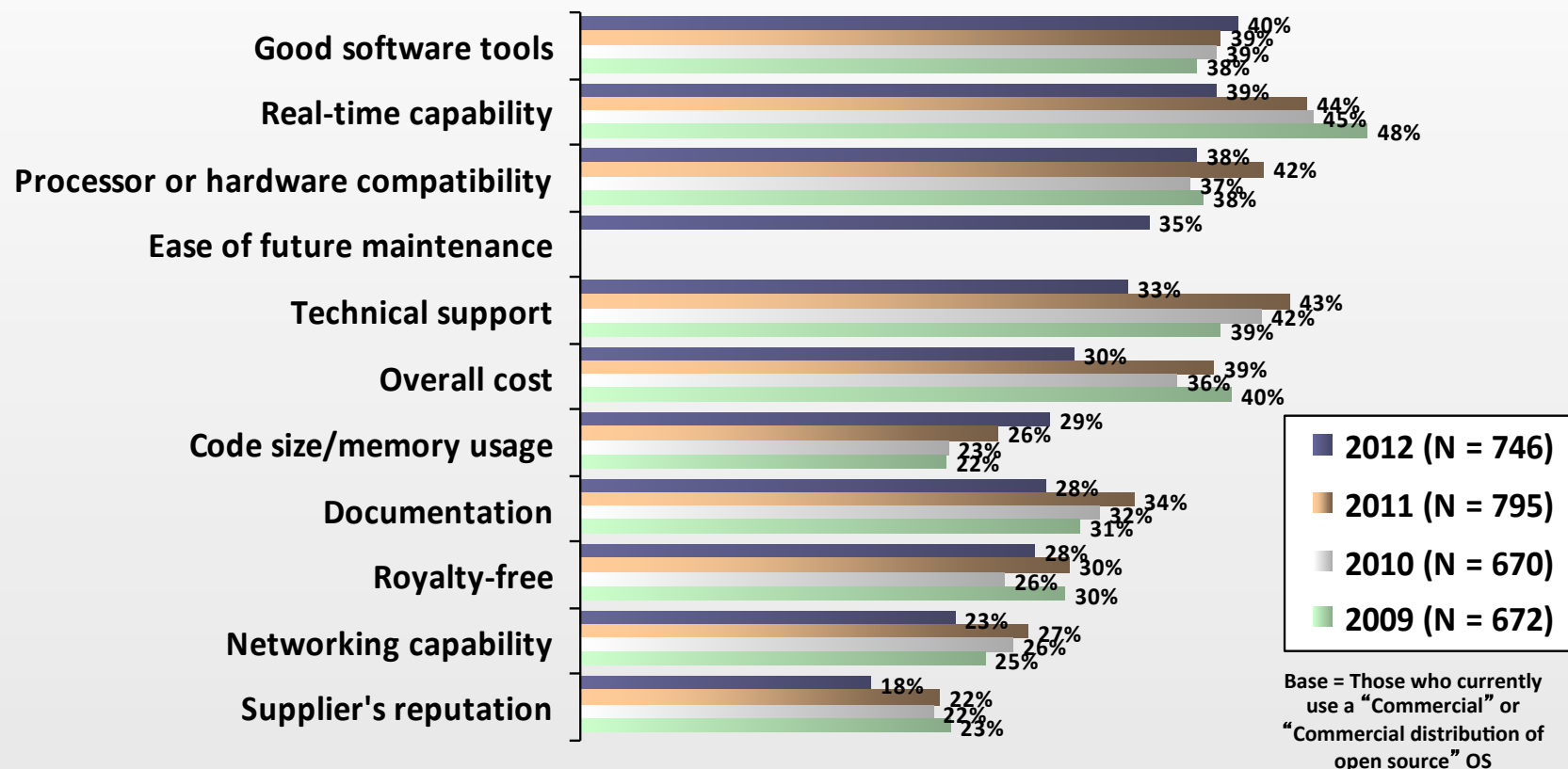
My current embedded project uses:



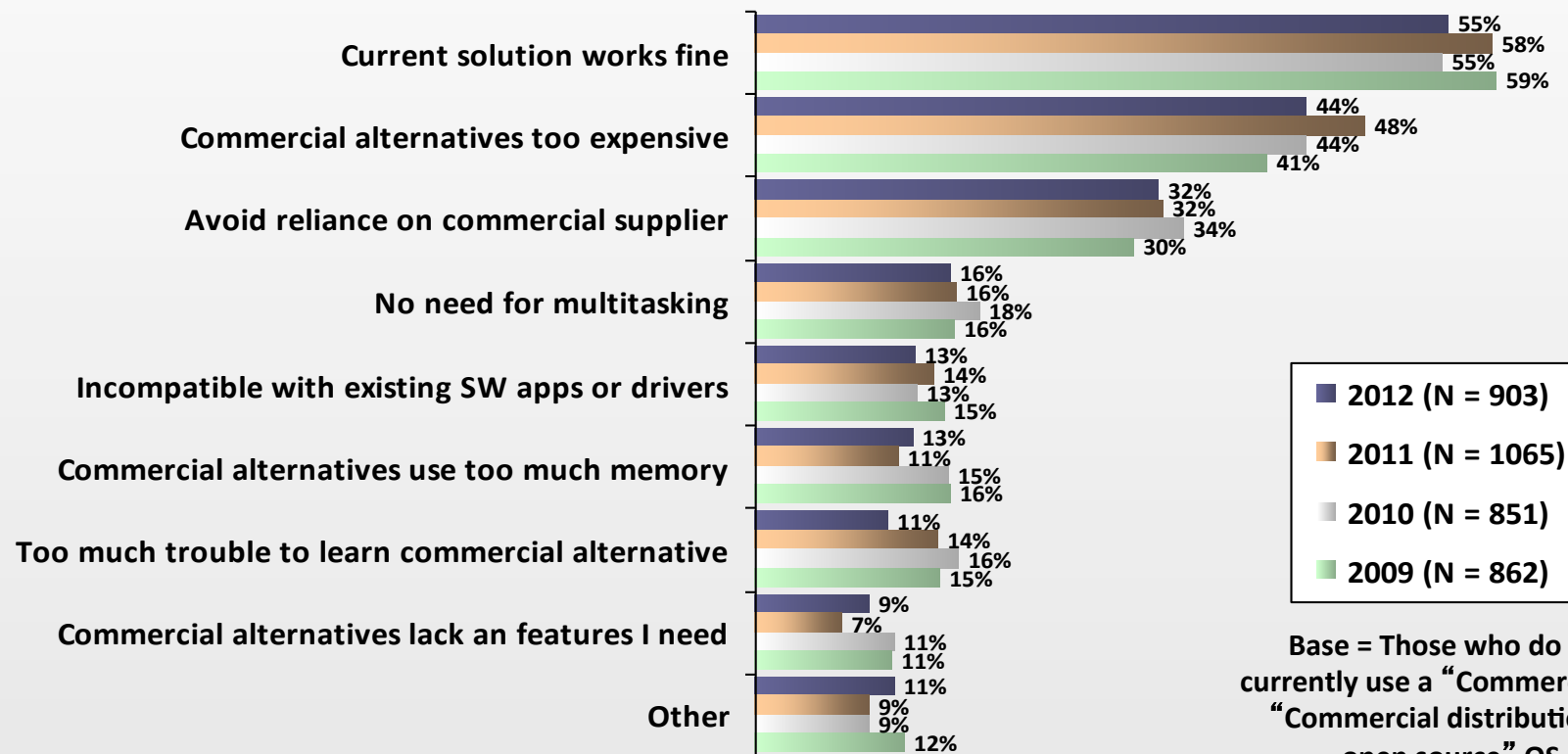
My next embedded project will likely use:



Which factors most influenced your decision to use a commercial operating system? (Top 11 choices.)

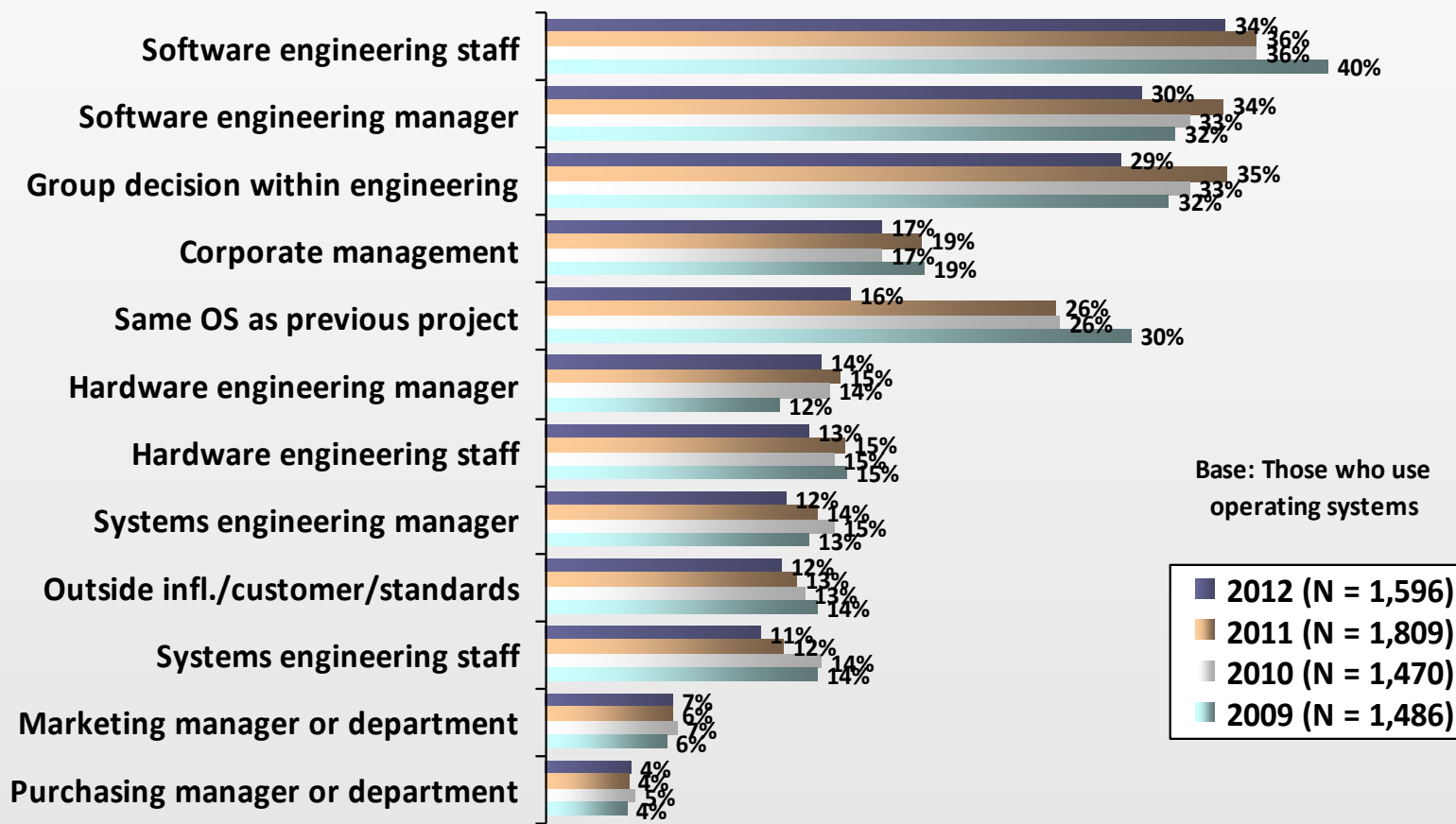


What are your reasons for not using a commercial operating system?

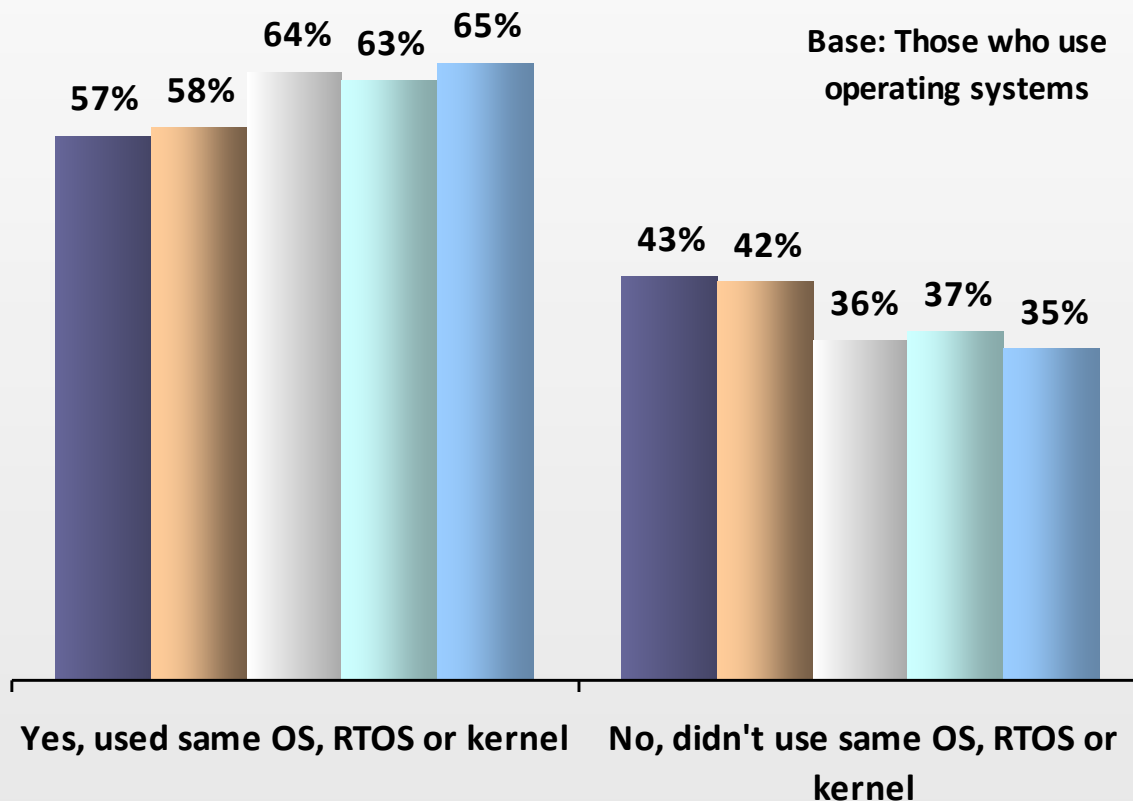


Base = Those who do not currently use a “Commercial” or “Commercial distribution of open source” OS

Who were the greatest influences on the choice of operating system?



Did you use the same operating system, RTOS, or kernel as in your previous project?



2012 (N = 1,644)

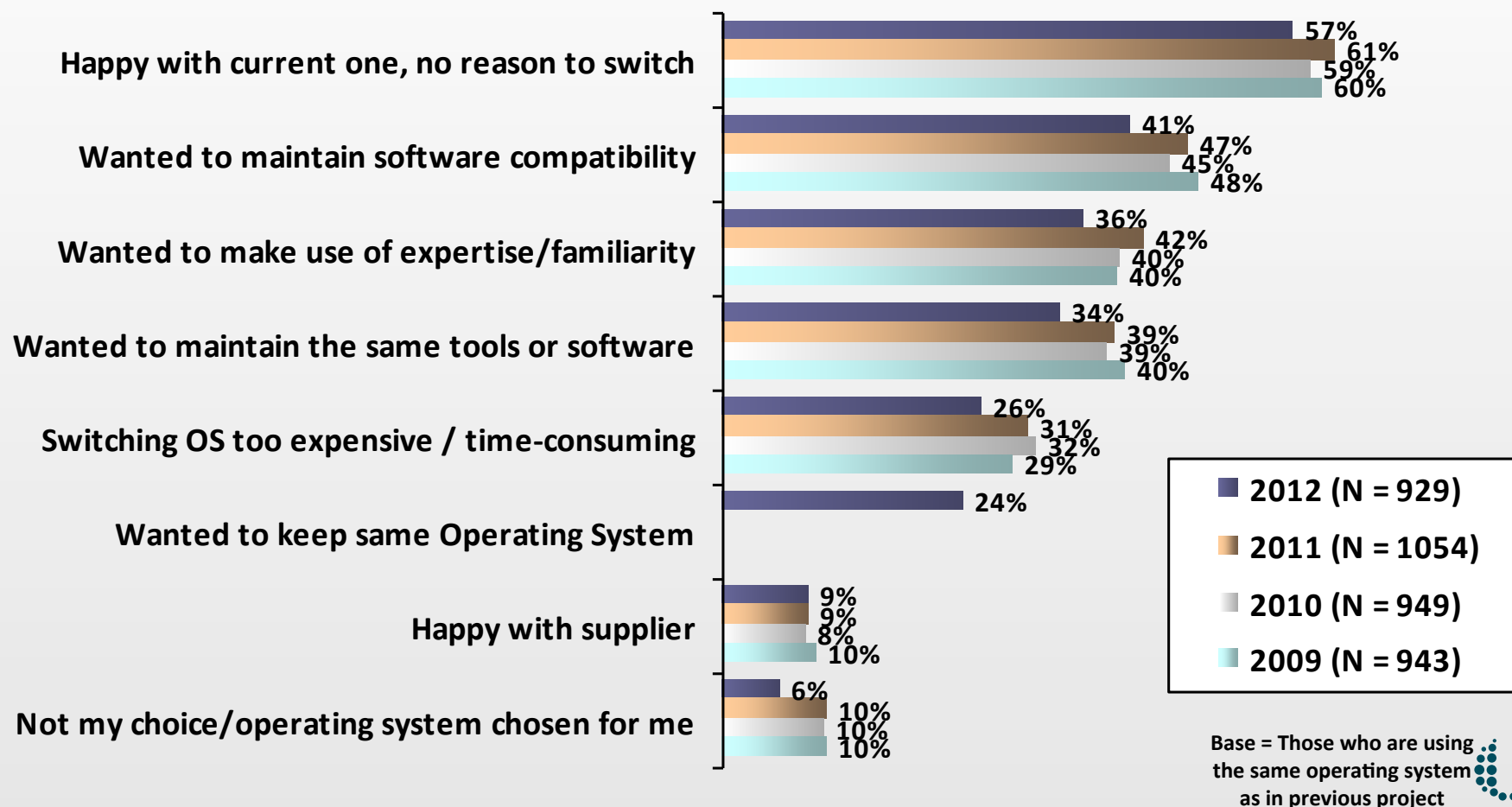
2011 (N = 1,840)

2010 (N = 1,492)

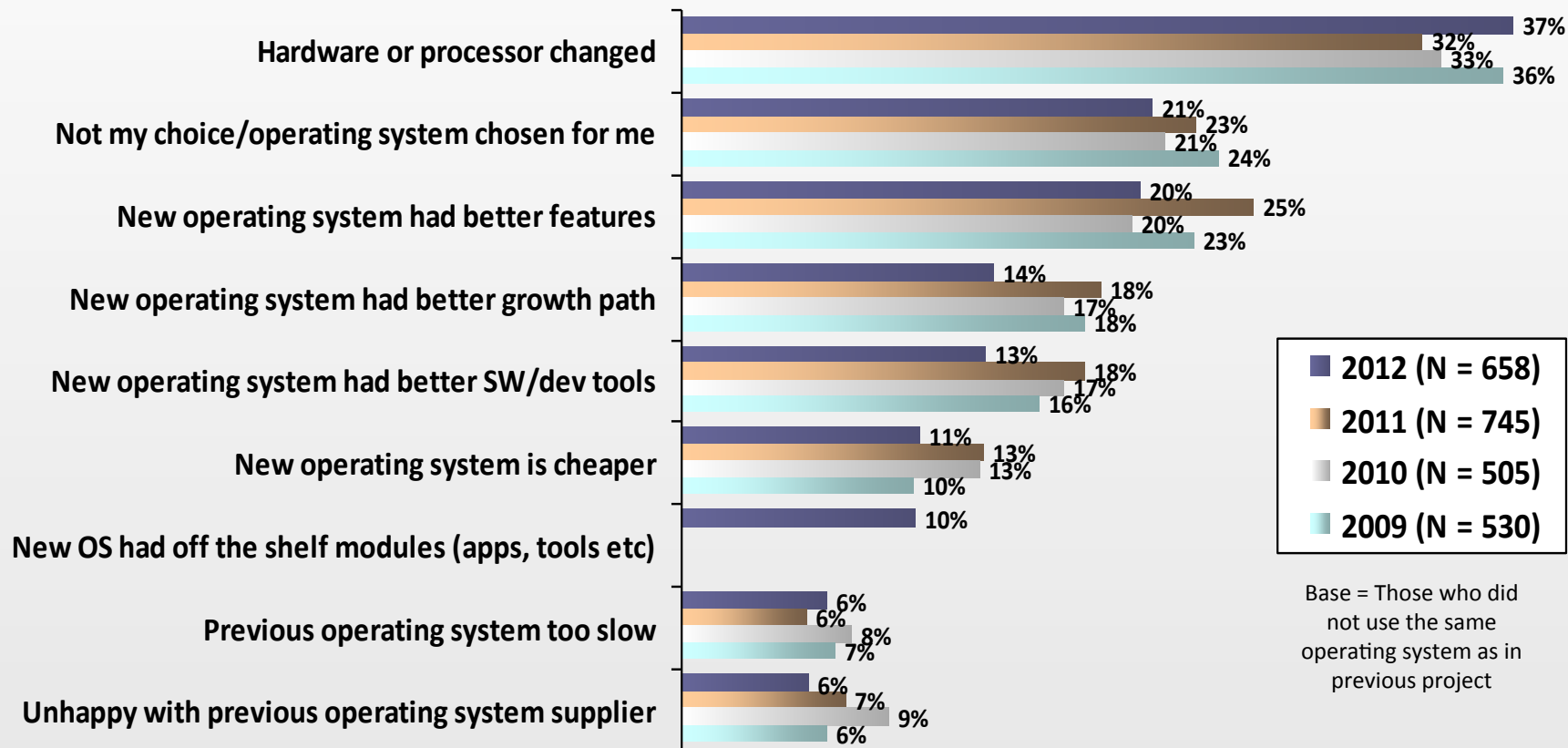
2009 (N = 1,501)

2008 (N = 759)

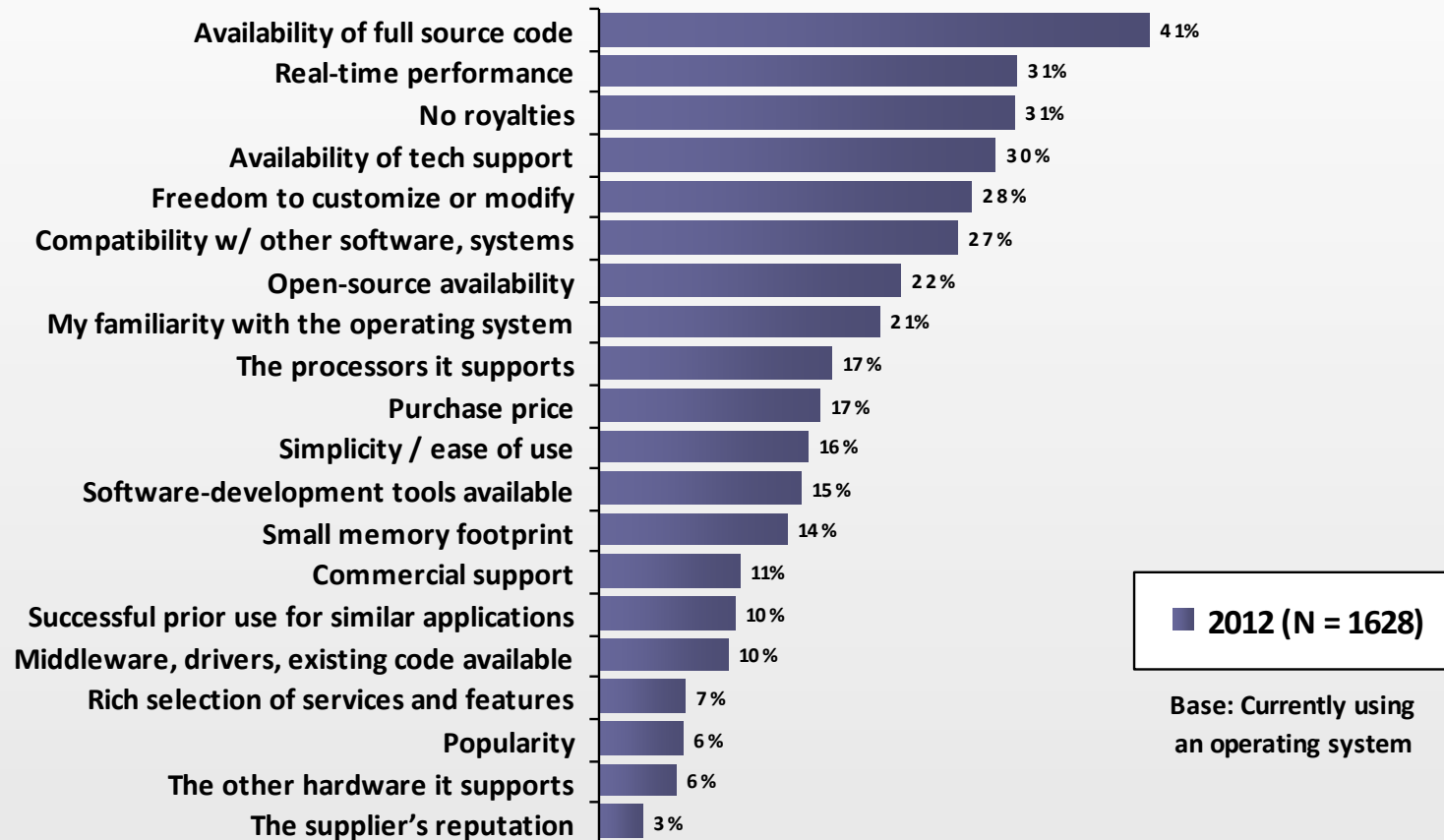
Why did you use the same operating system?



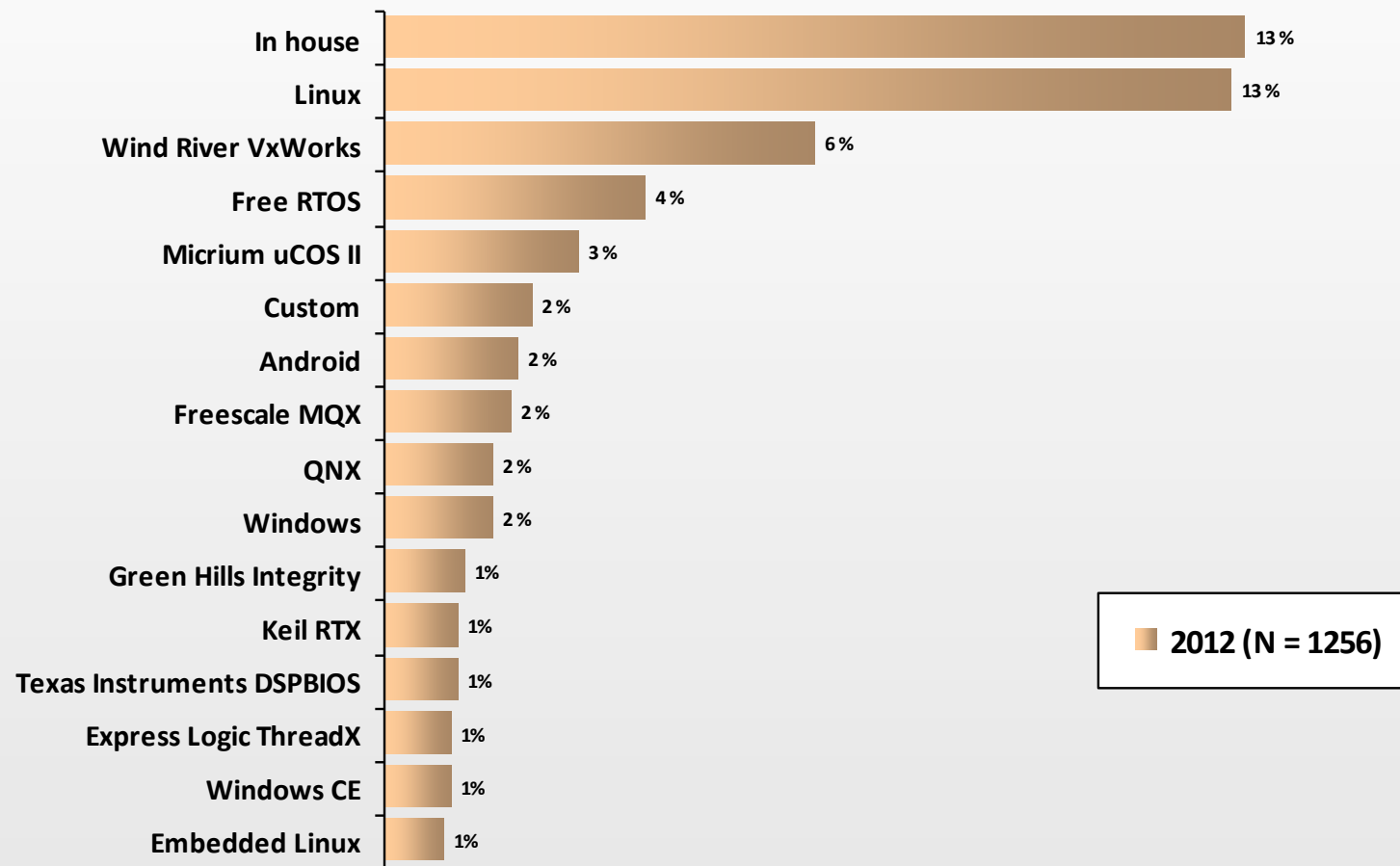
Why did you switch operating systems?



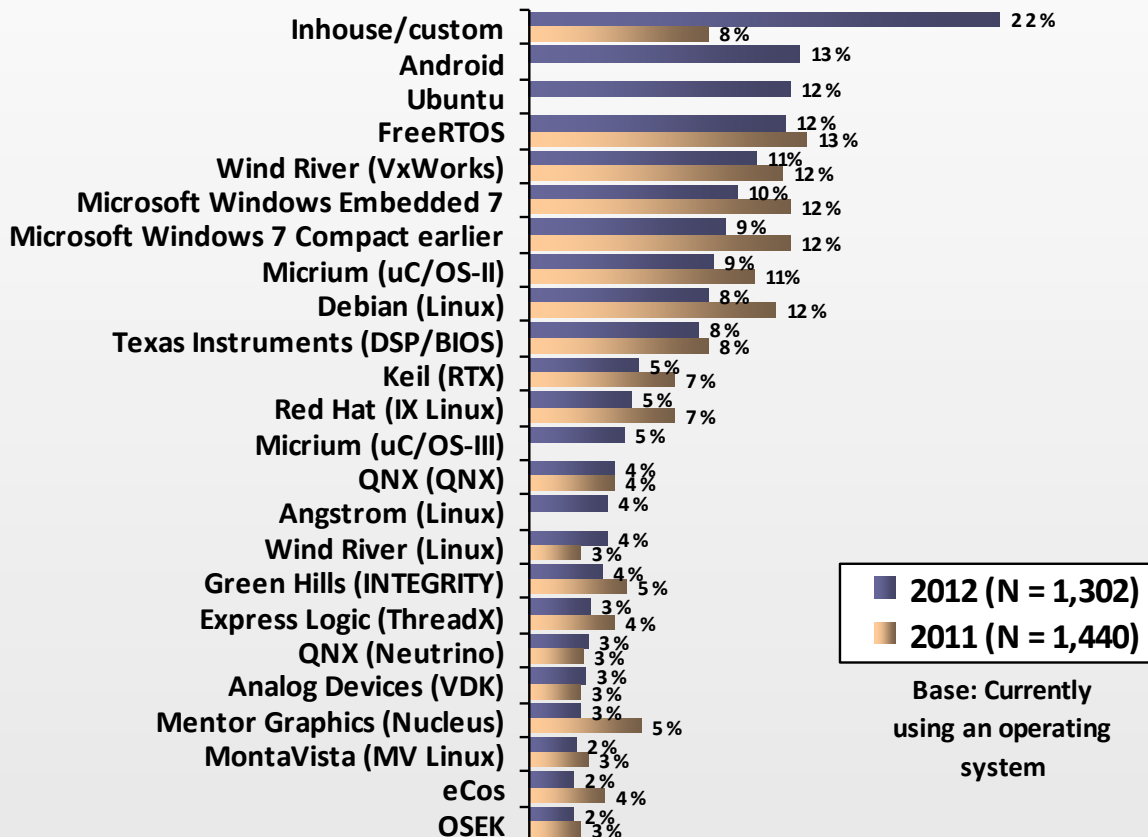
In 2012, what are the most important factors in choosing an operating system.



What operating system or real time operating system (RTOS) was used in your last project? (Please type in your answer -- unaided)

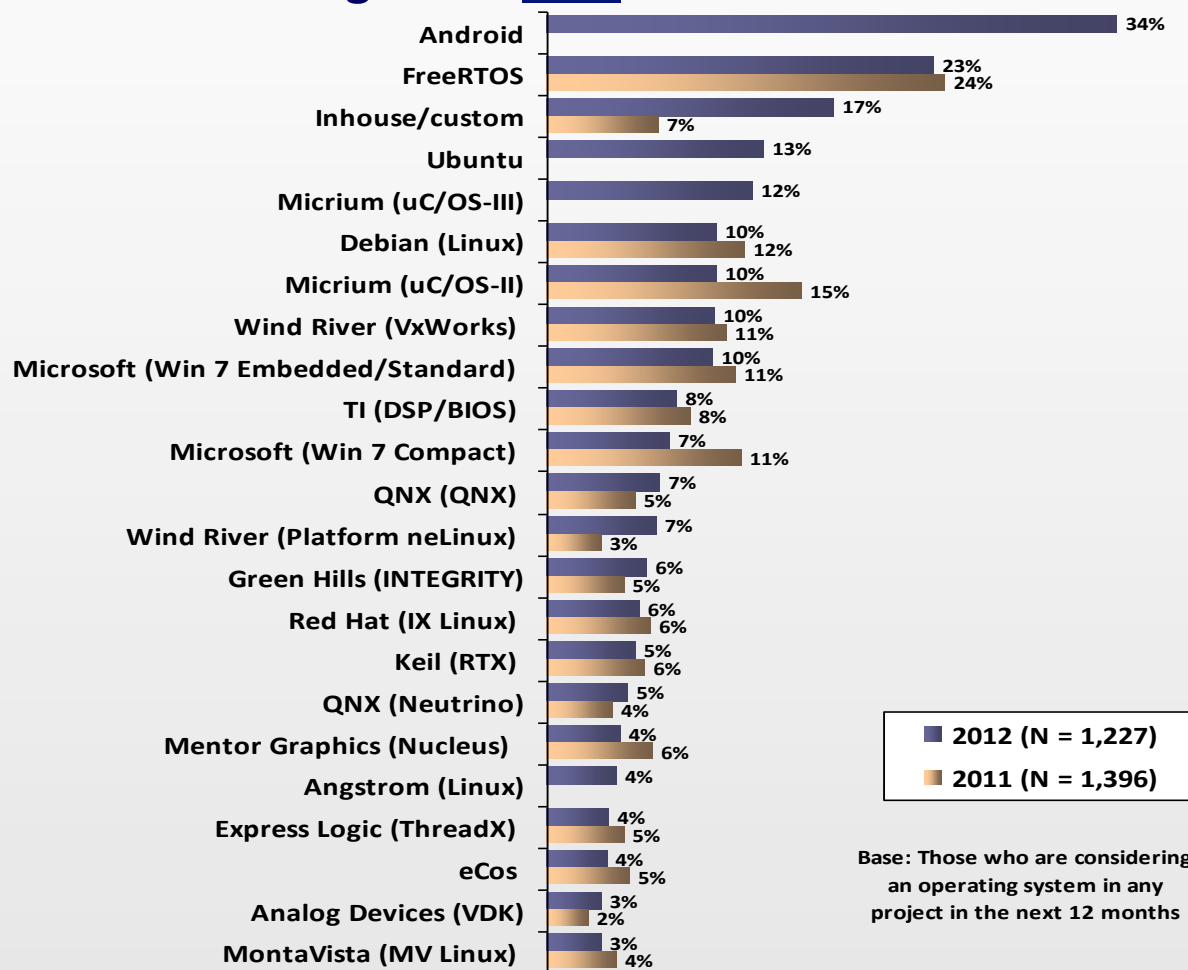


Please select **ALL** of the operating systems you are currently using.



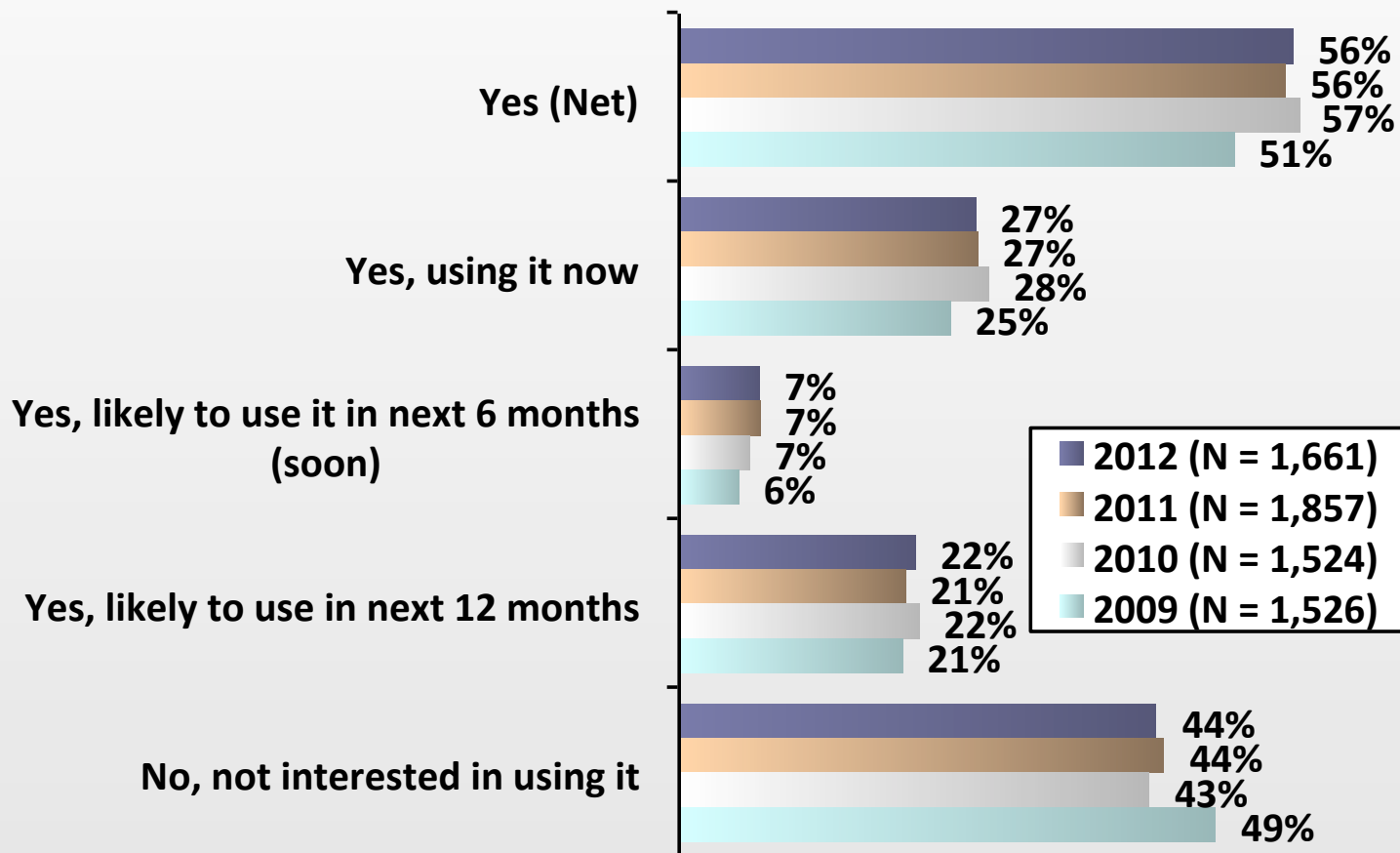
Only Operating Systems that had 2% or more are shown.

Please select ALL of the operating systems you are considering using in the next 12 months.

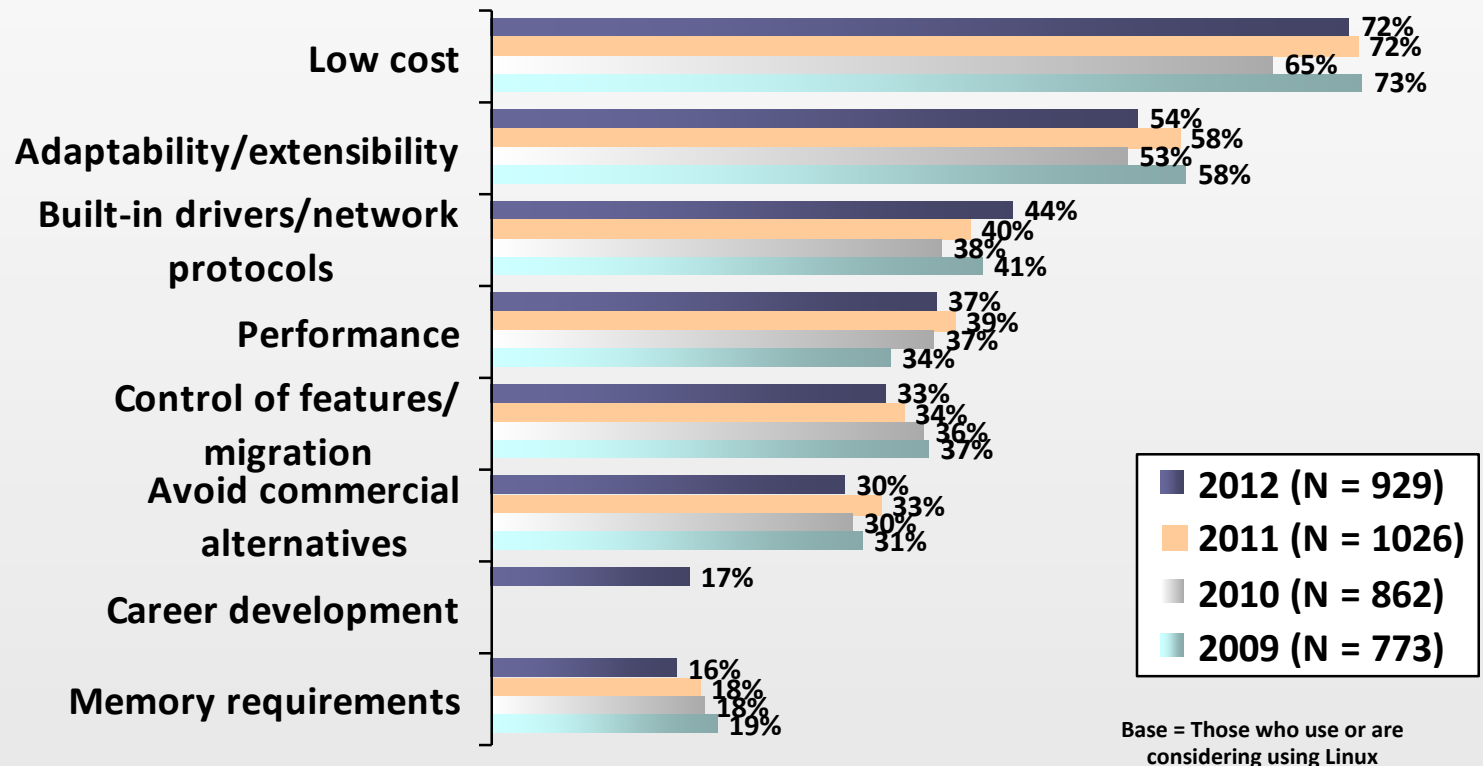


Only Operating Systems over 3% are shown

Are you considering using embedded Linux?

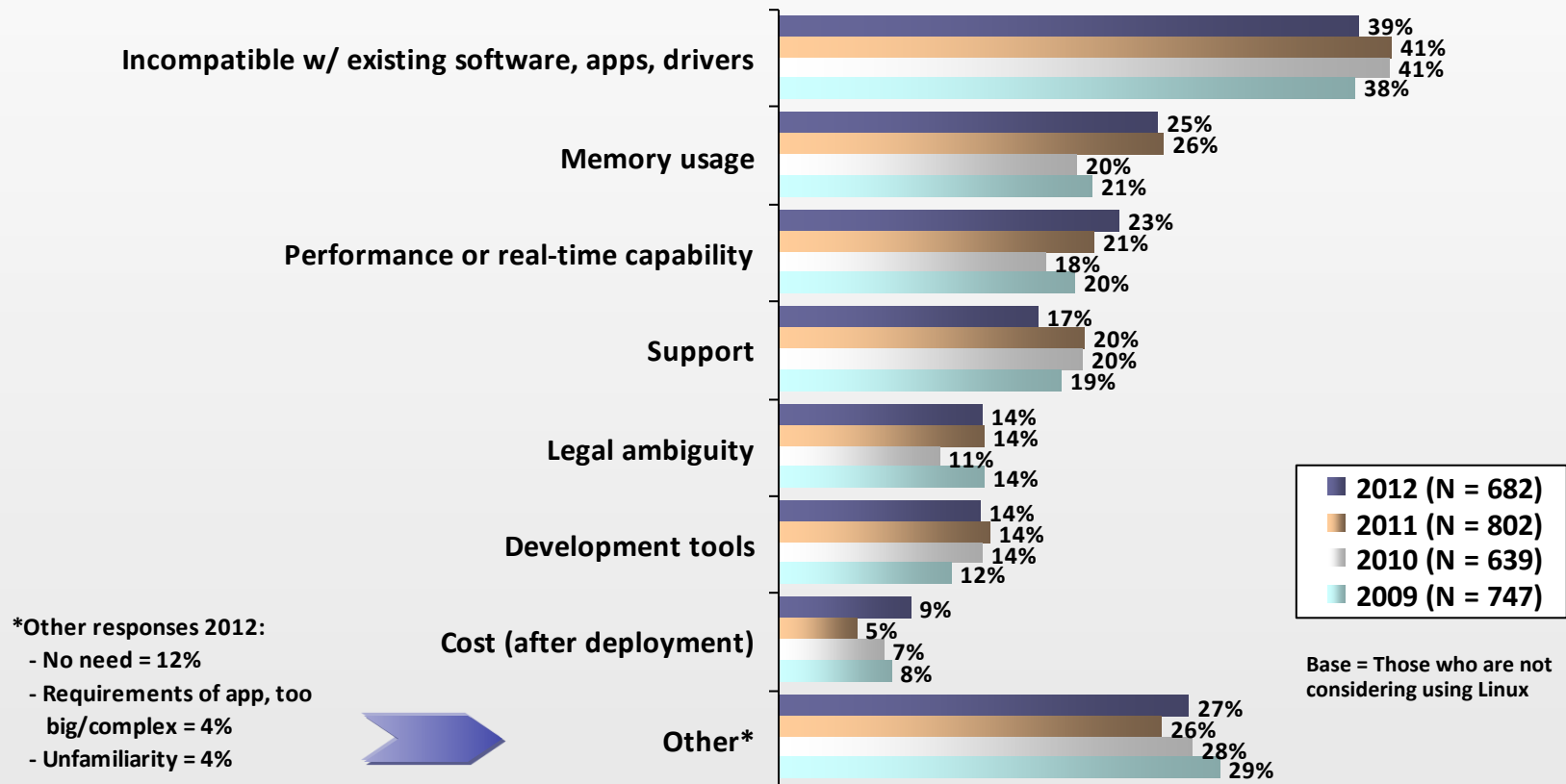


Why are you interested in embedded Linux?

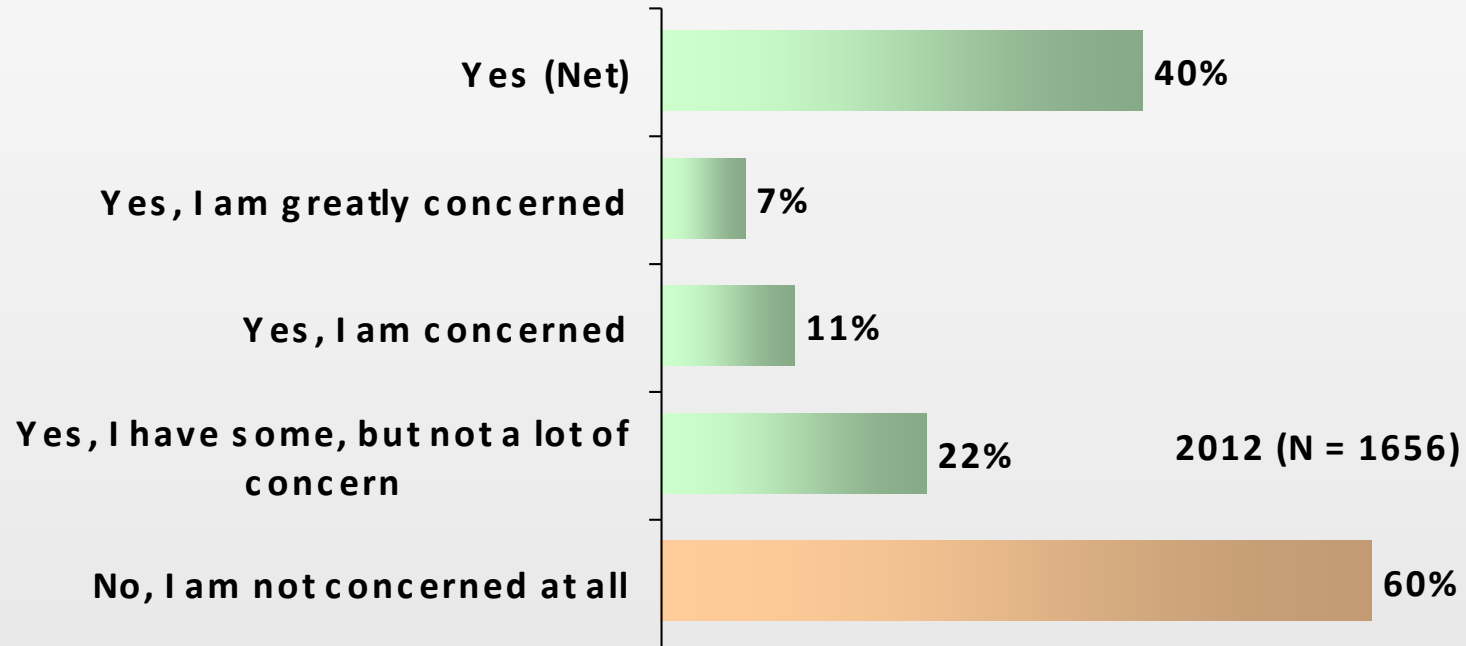


Base = Those who use or are considering using Linux

Why are you not interested in embedded Linux?

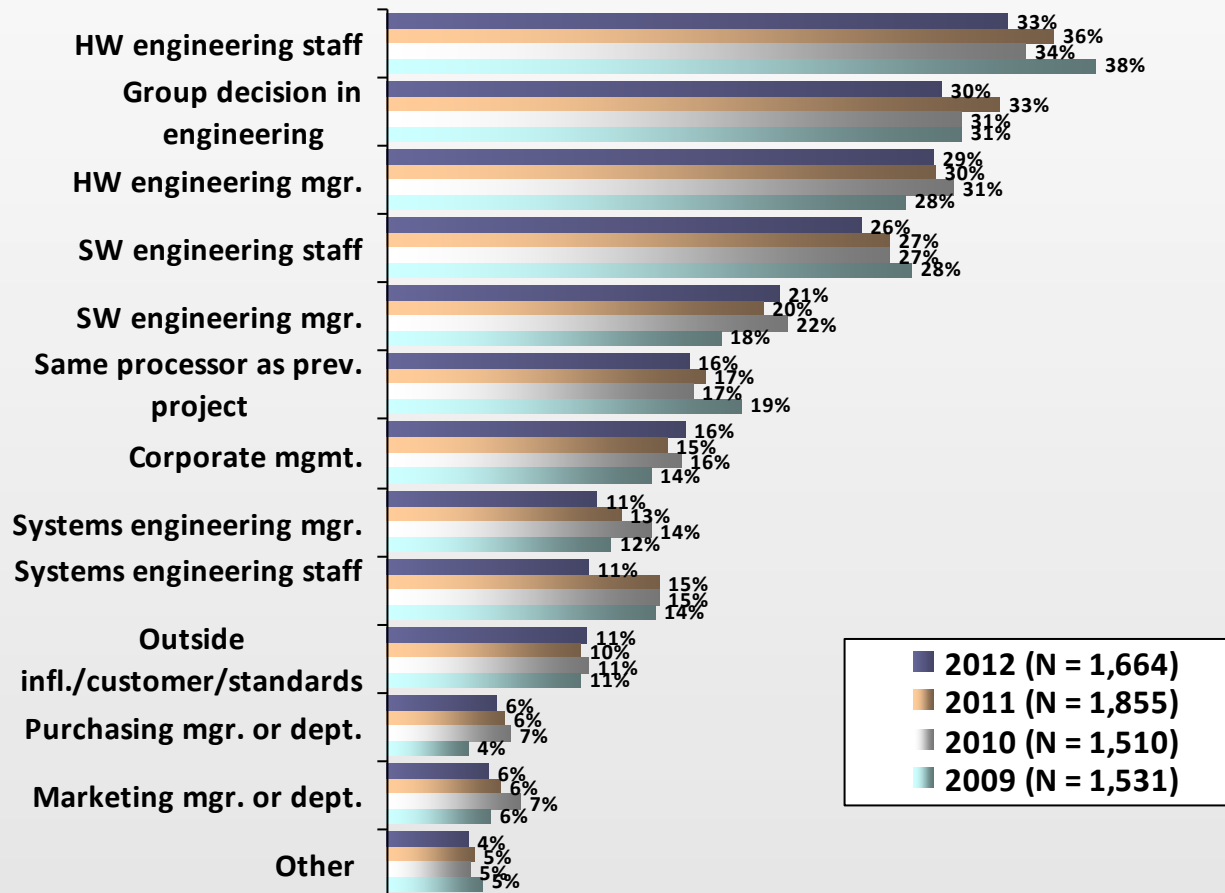


Are you at all concerned with the recent acquisitions of operating-system vendors by microprocessor vendors?

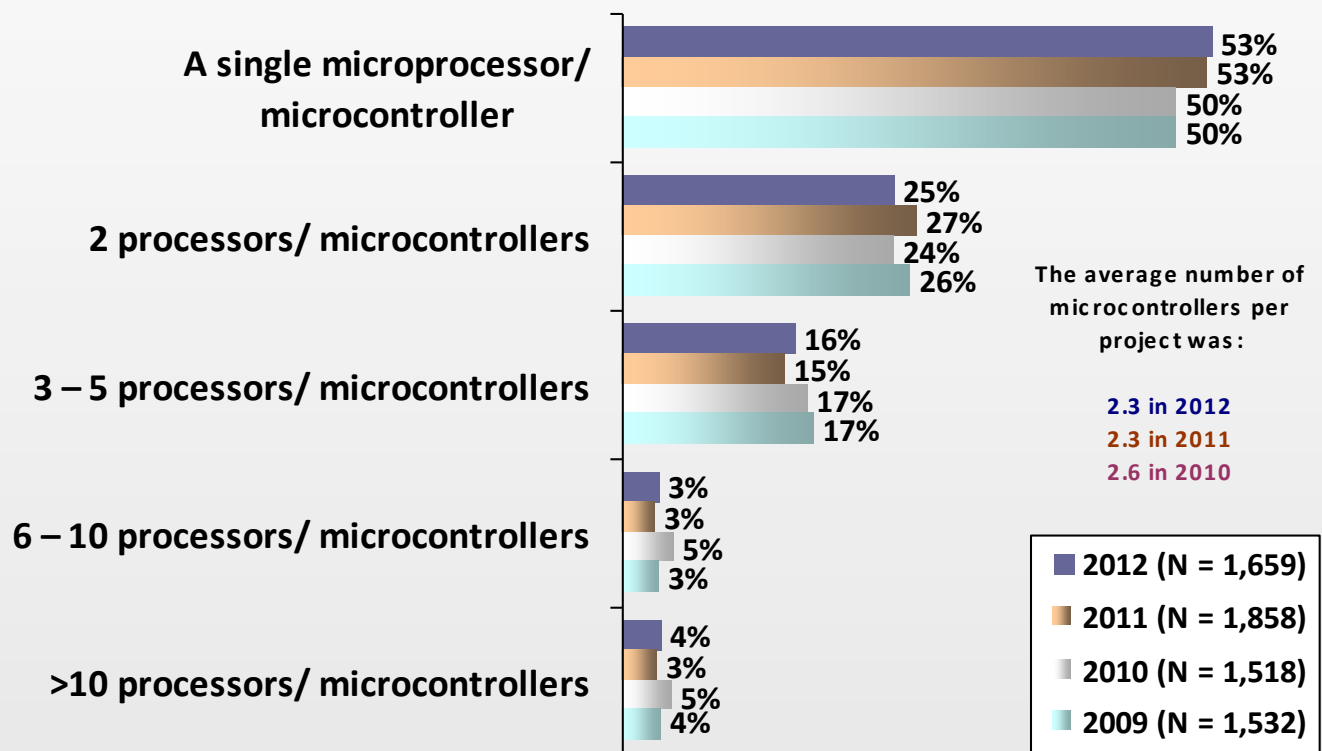


MICROPROCESSORS

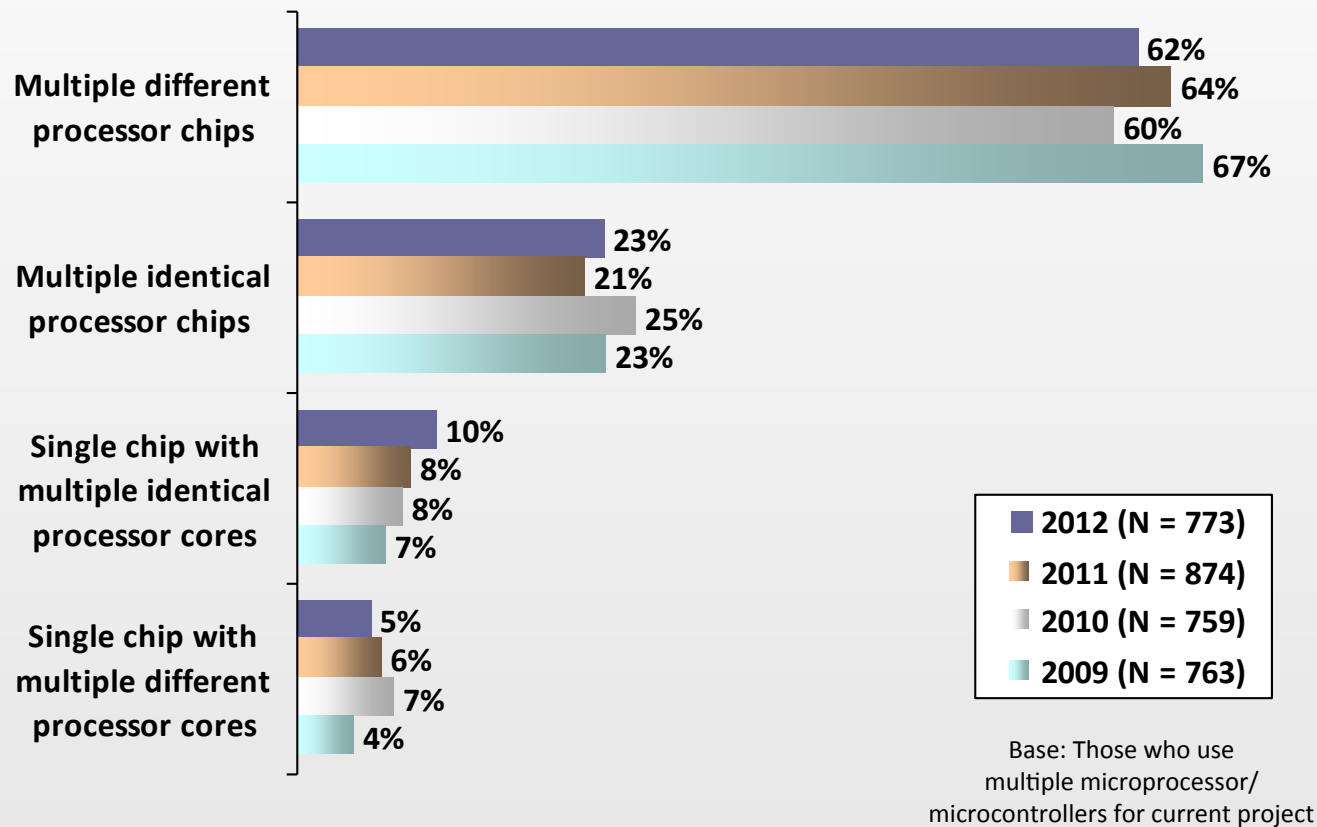
Who were the greatest influences on the choice of the processor for your current project?



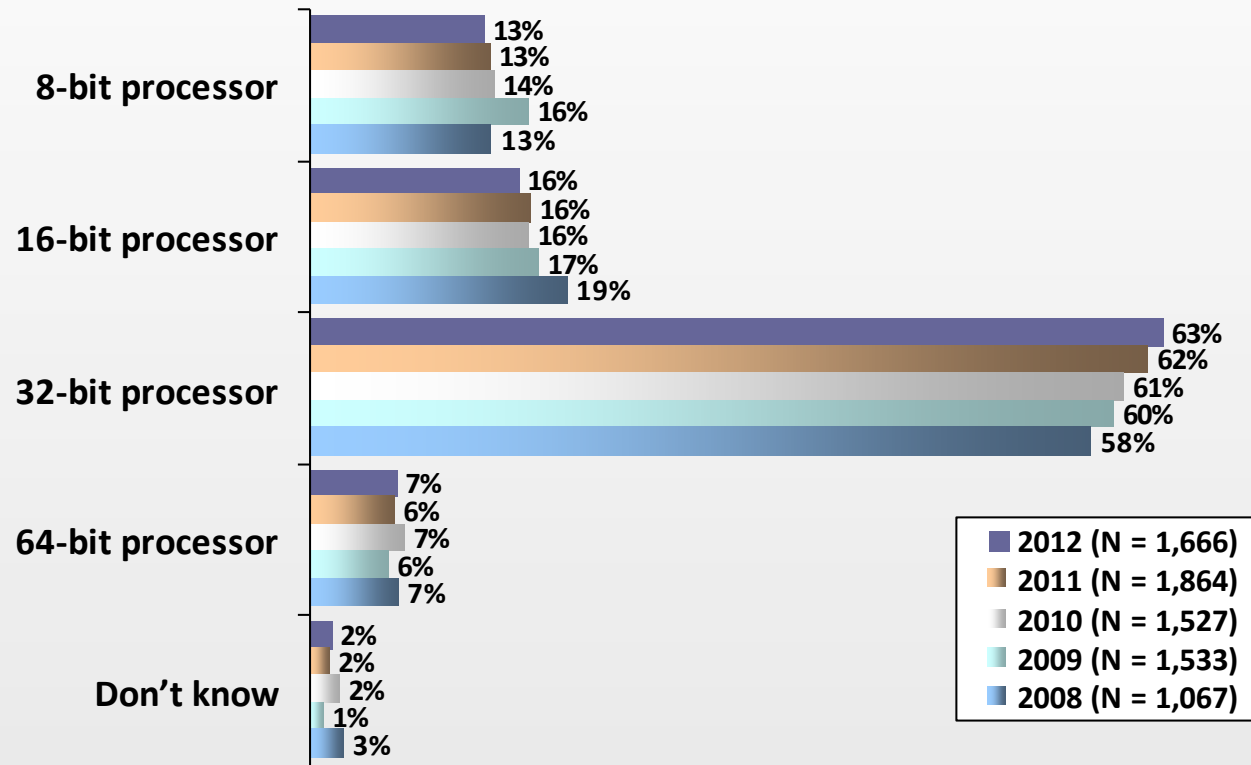
My current embedded project contains:



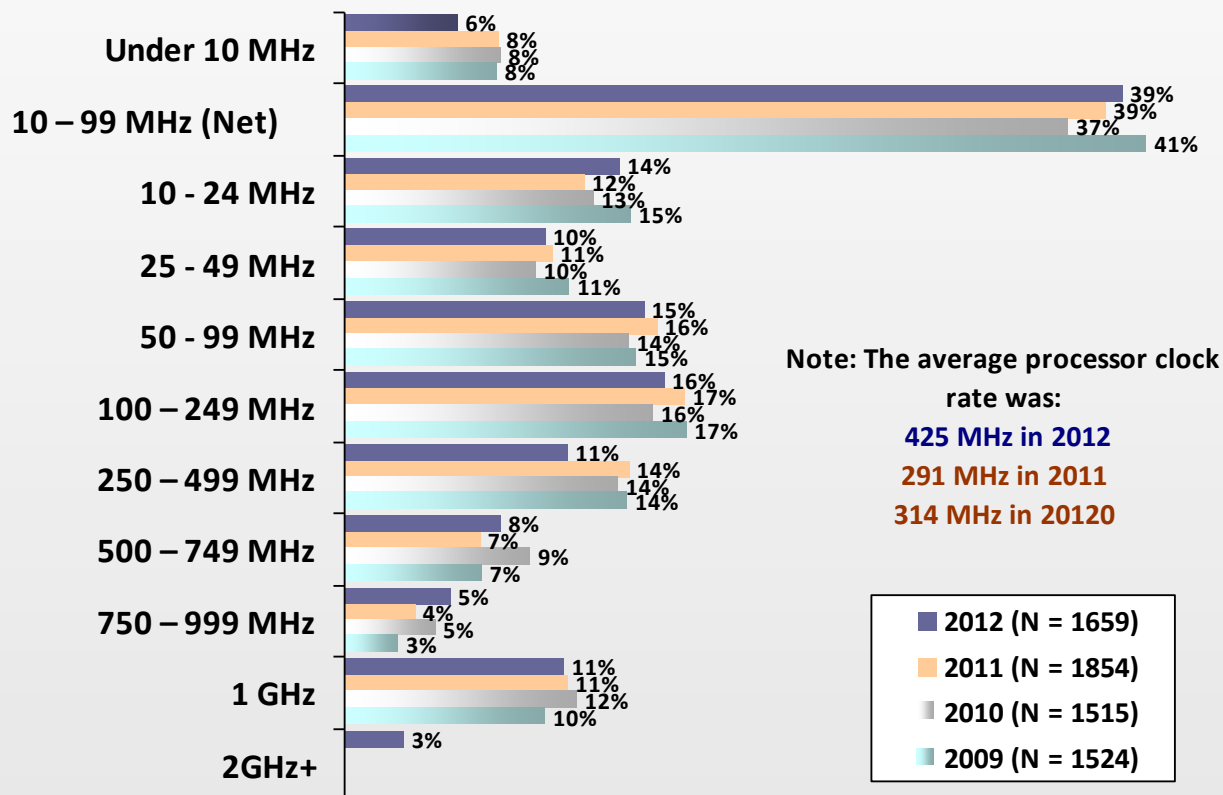
Does your multiple-processor embedded project contain . . .



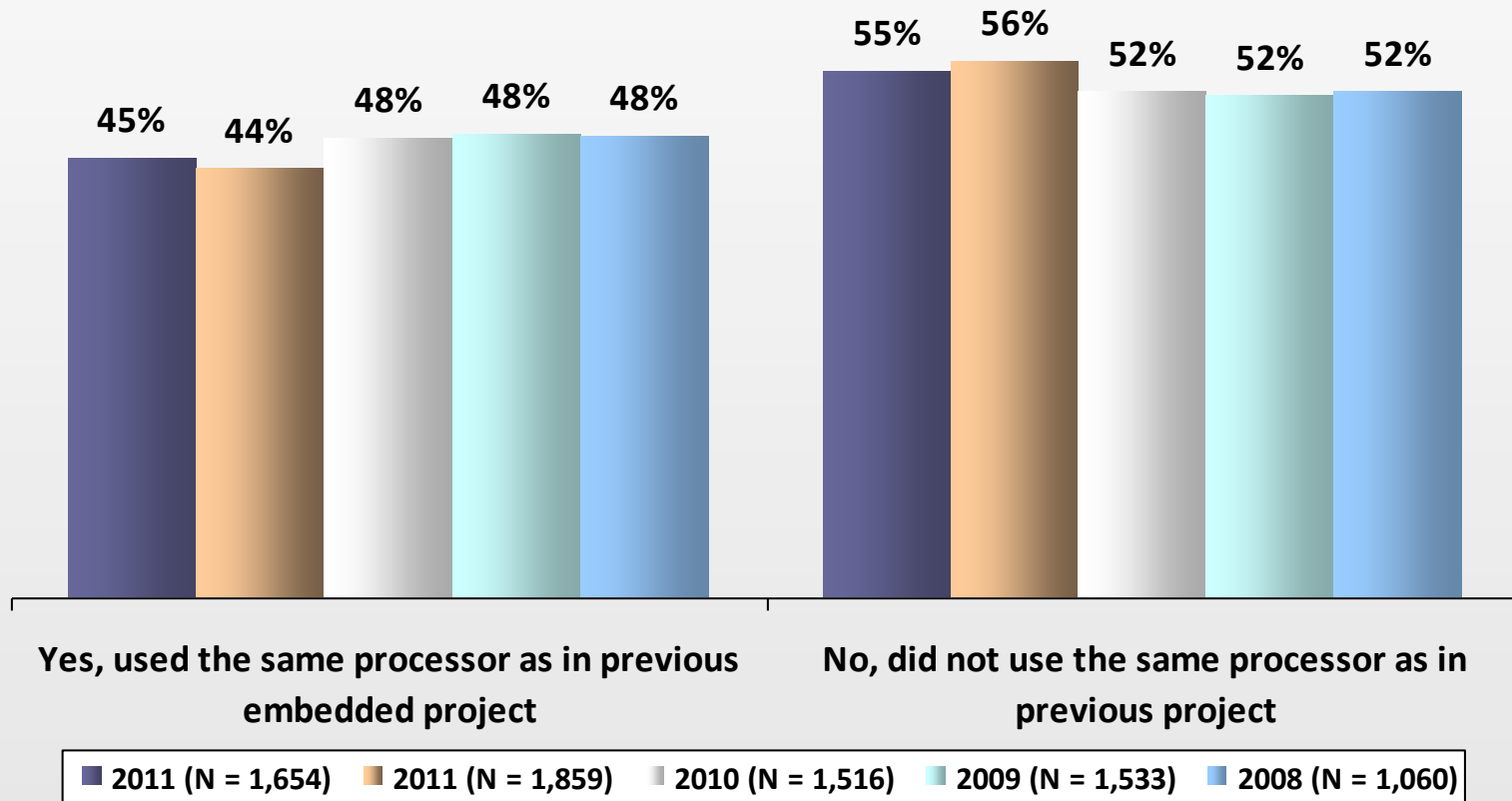
My current embedded project's main processor is a:



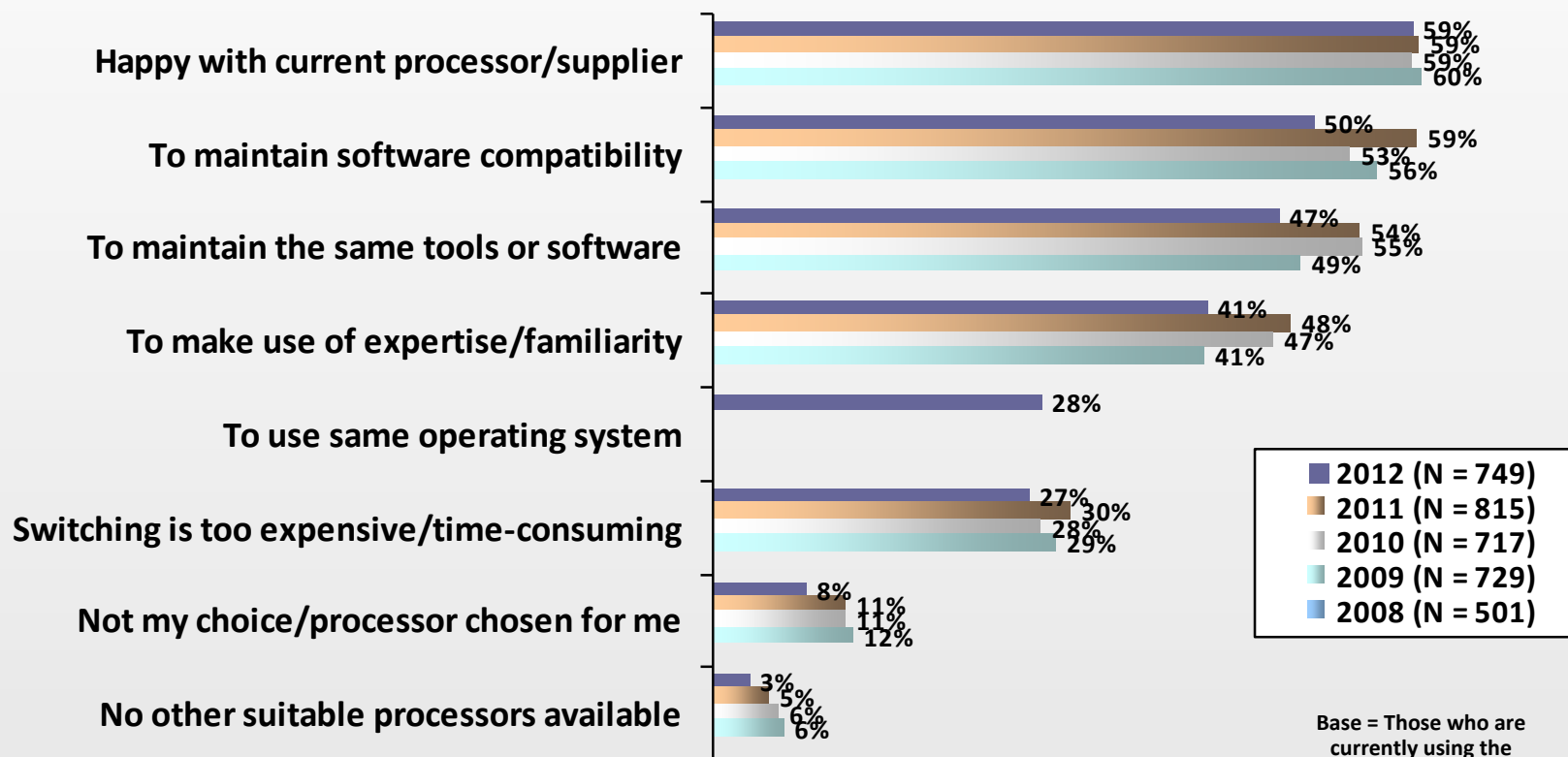
My current embedded project's main processor clock rate is:



Did you use the same processor as in your previous embedded project?

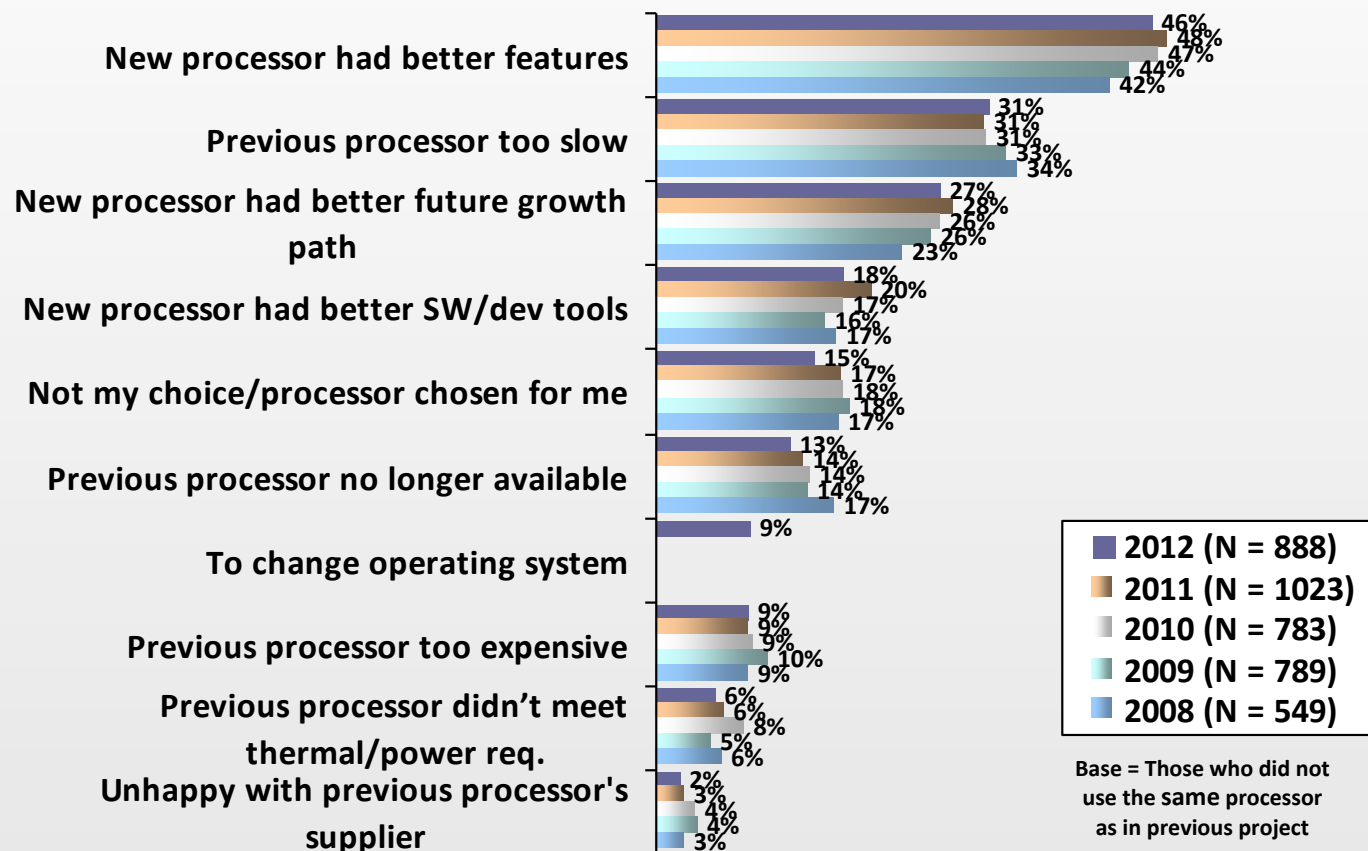


Why did you use the same processor?

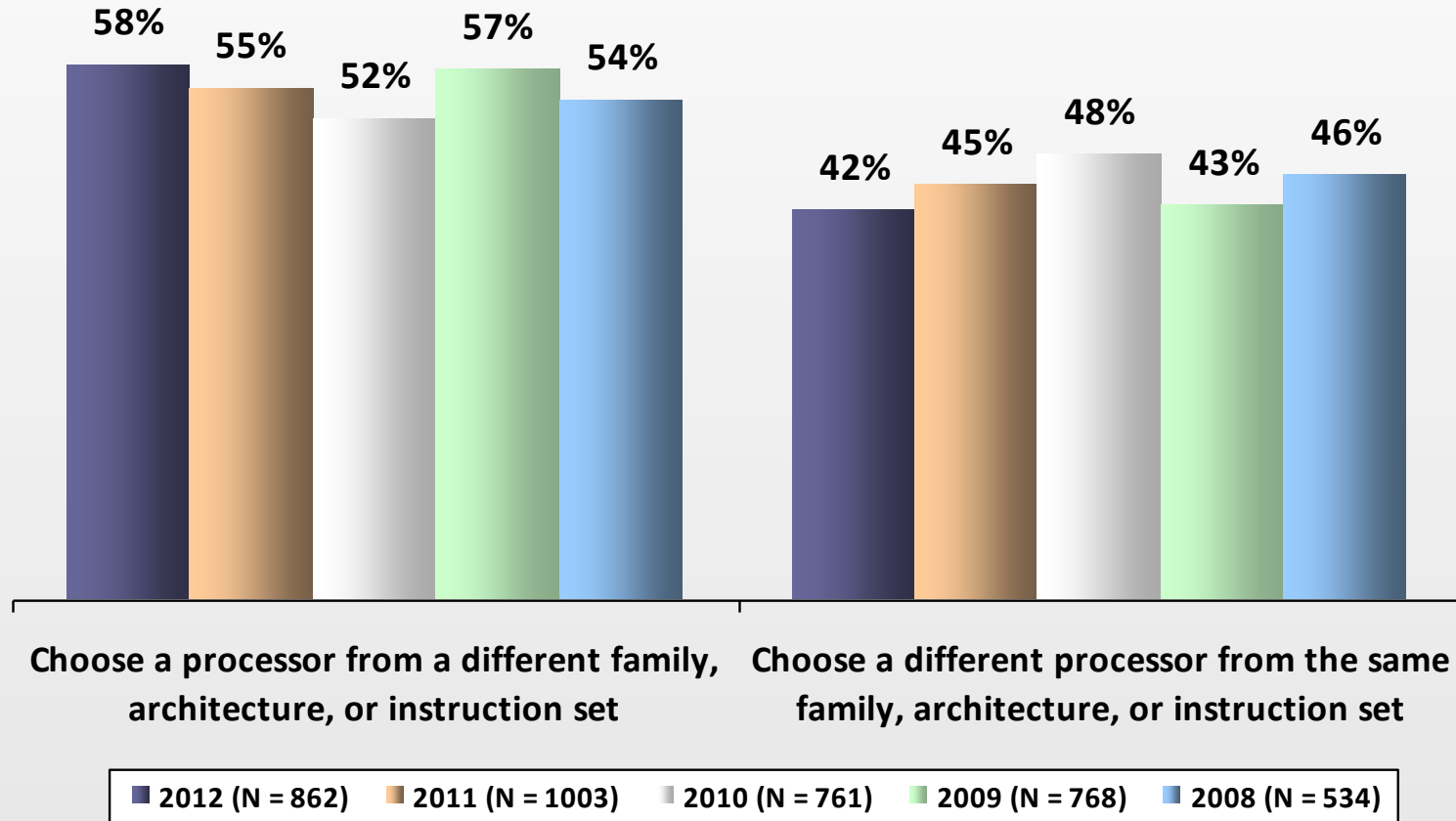


Base = Those who are currently using the same processor as in previous project

What were your reasons for switching processors?

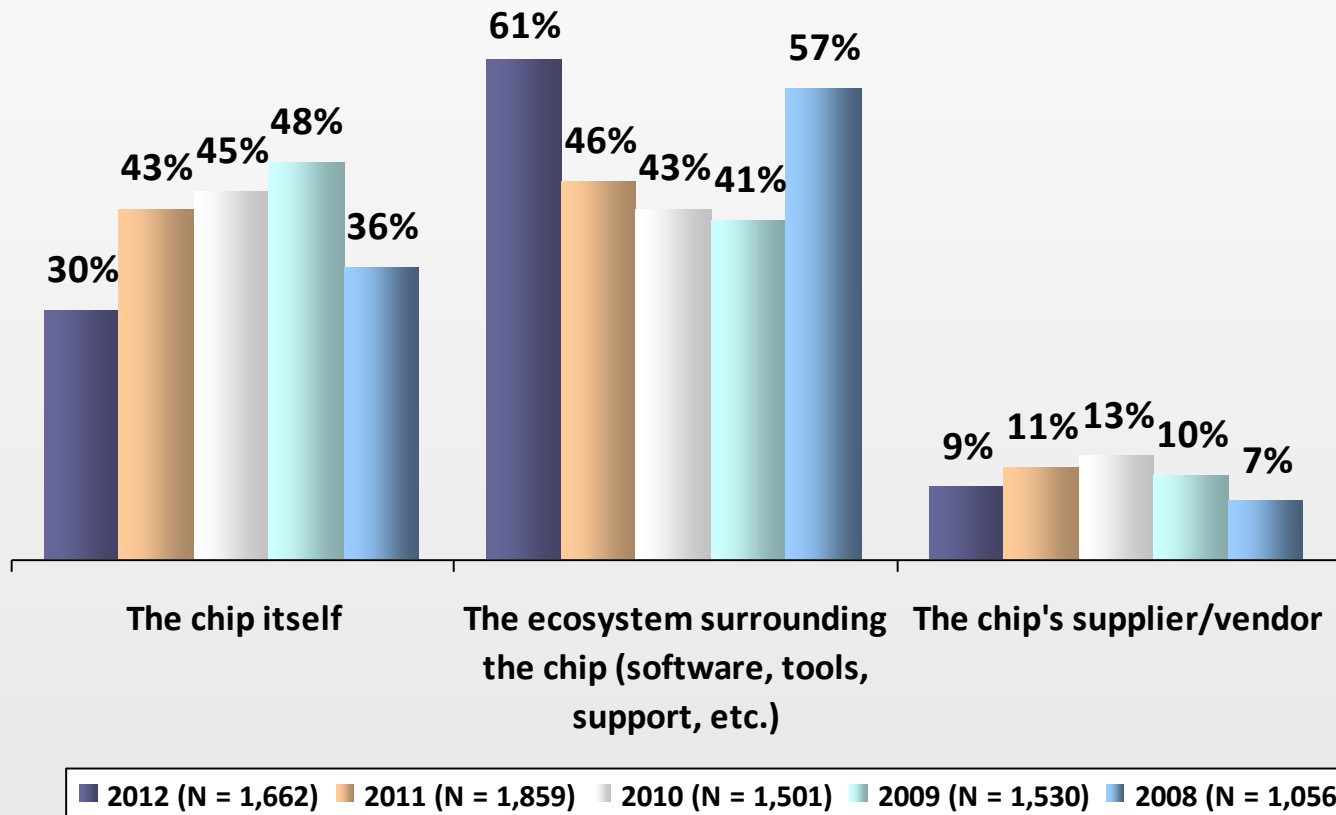


Did you . . .

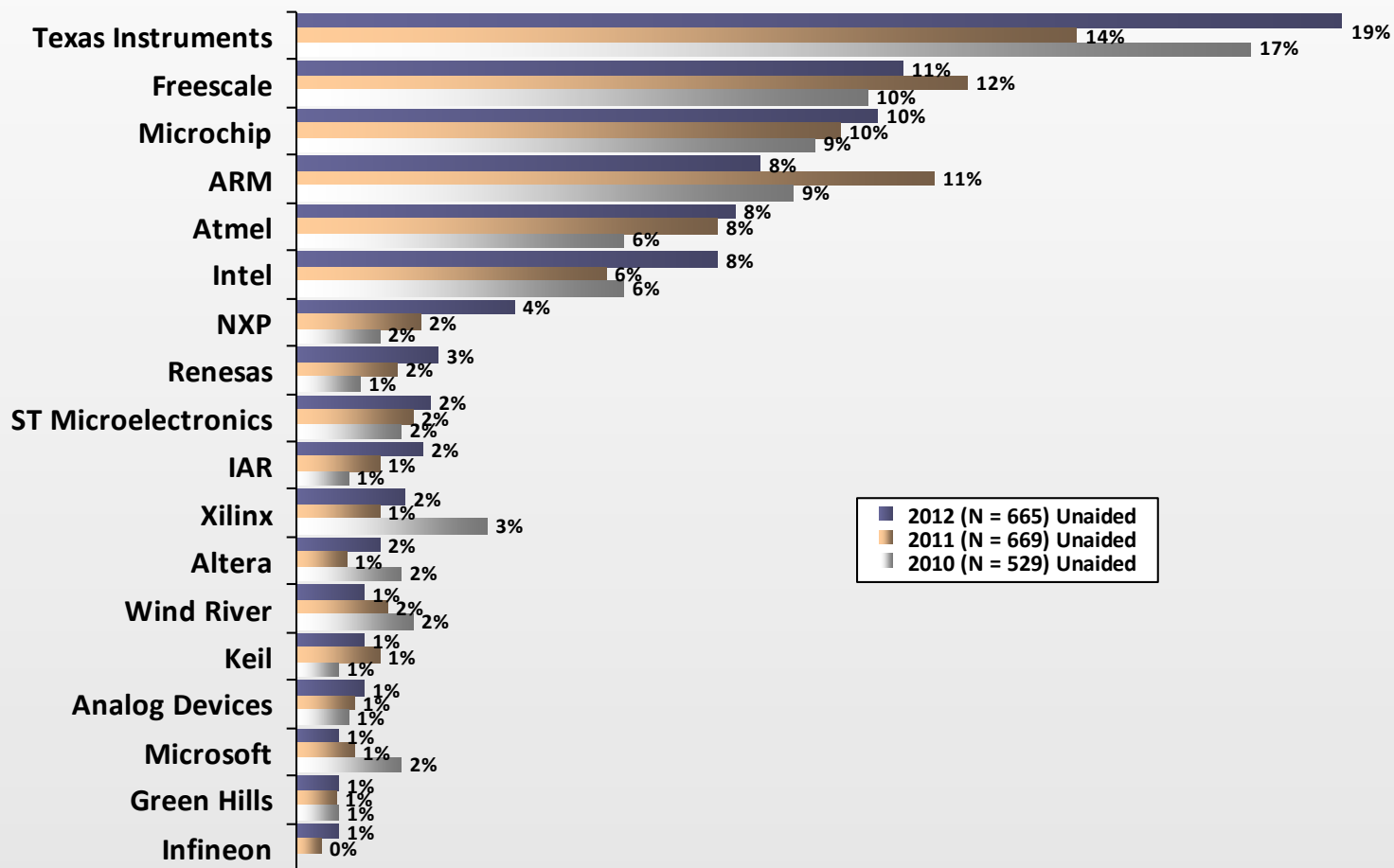


Base = Those who did not use the same processor as in previous project

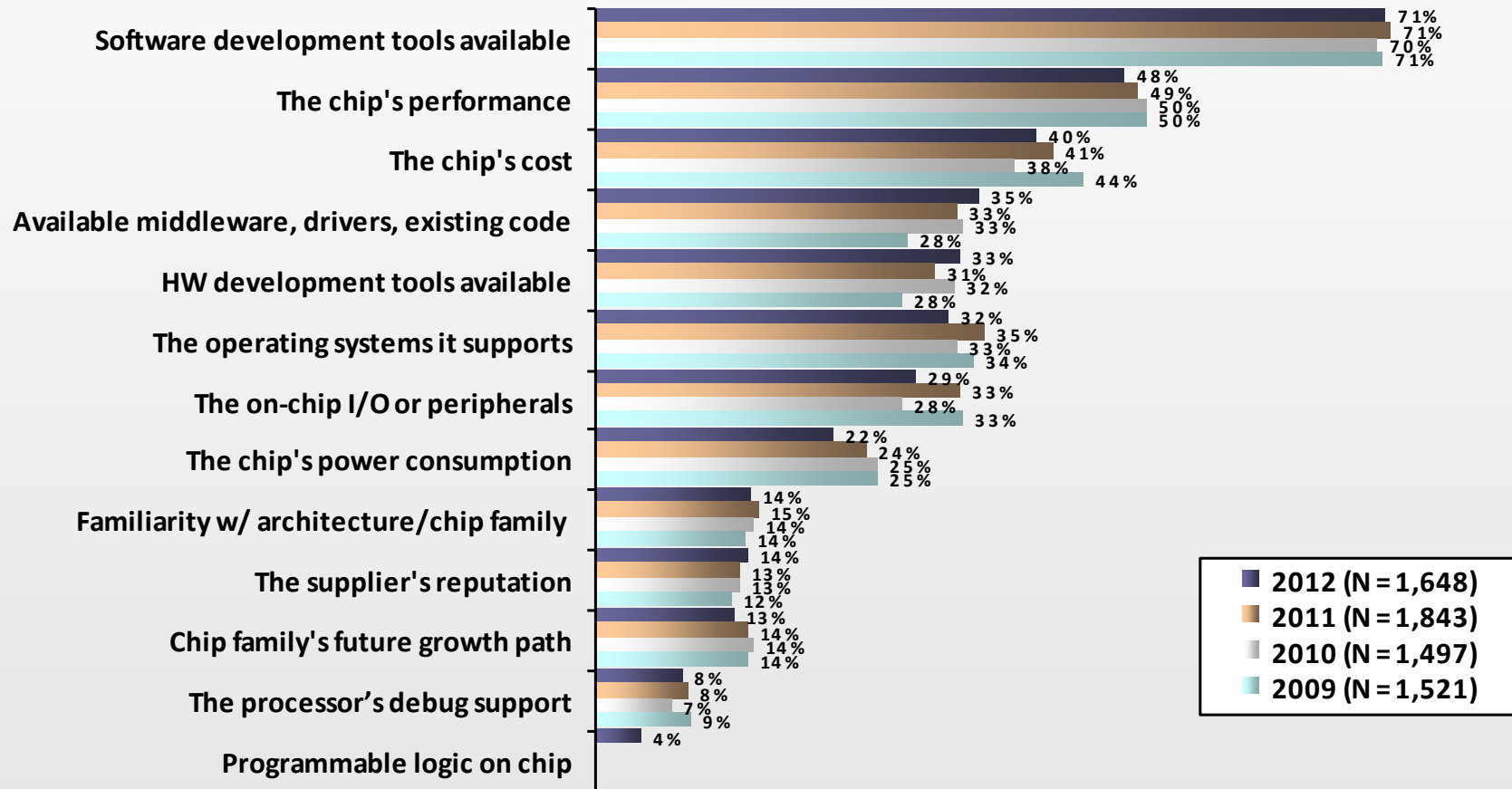
What's most important when choosing a microprocessor?



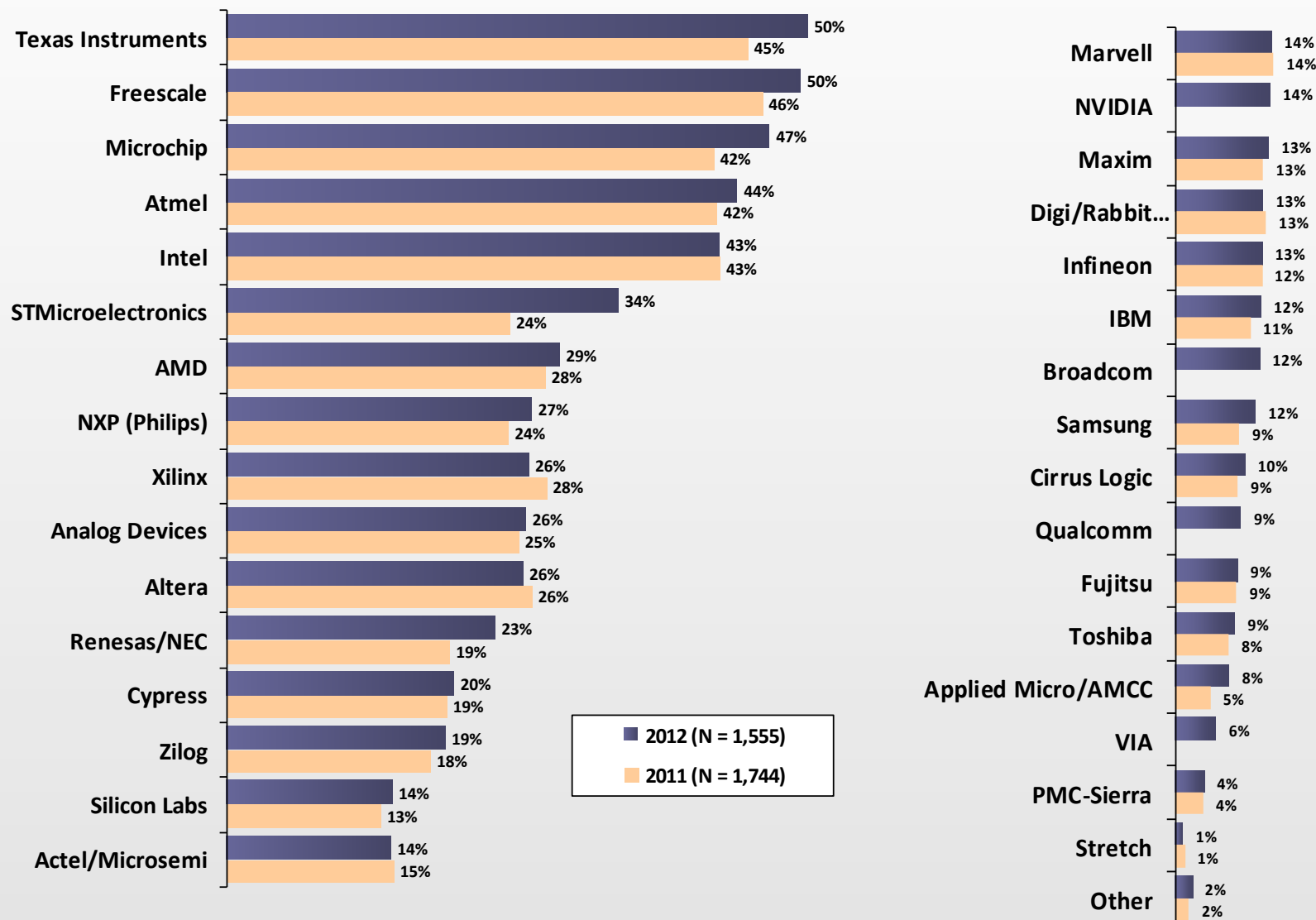
If you selected "ecosystem," please write in ONE vendor that has the best ecosystem for your needs. (Unaided)



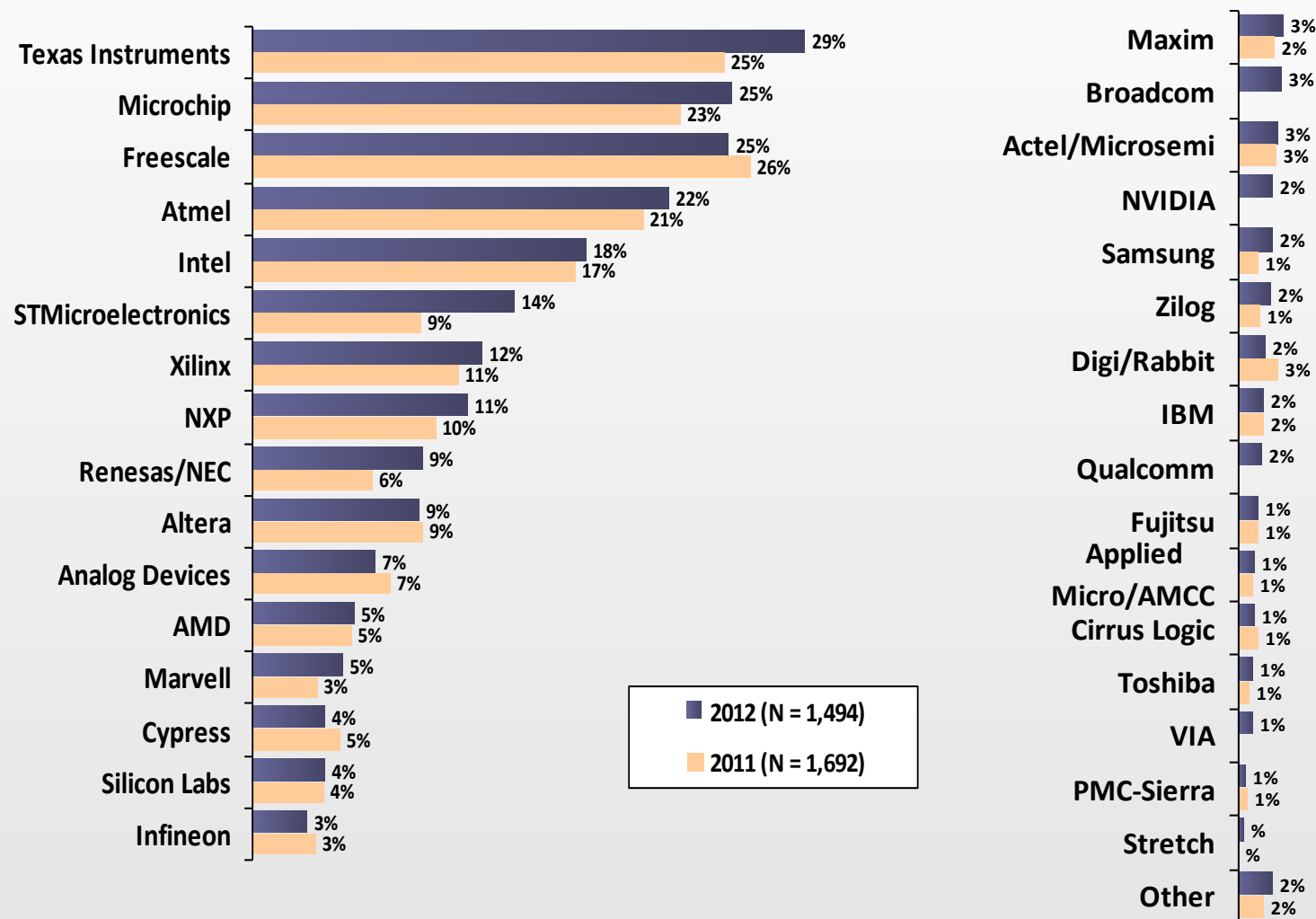
What are the most important factors in choosing a processor?



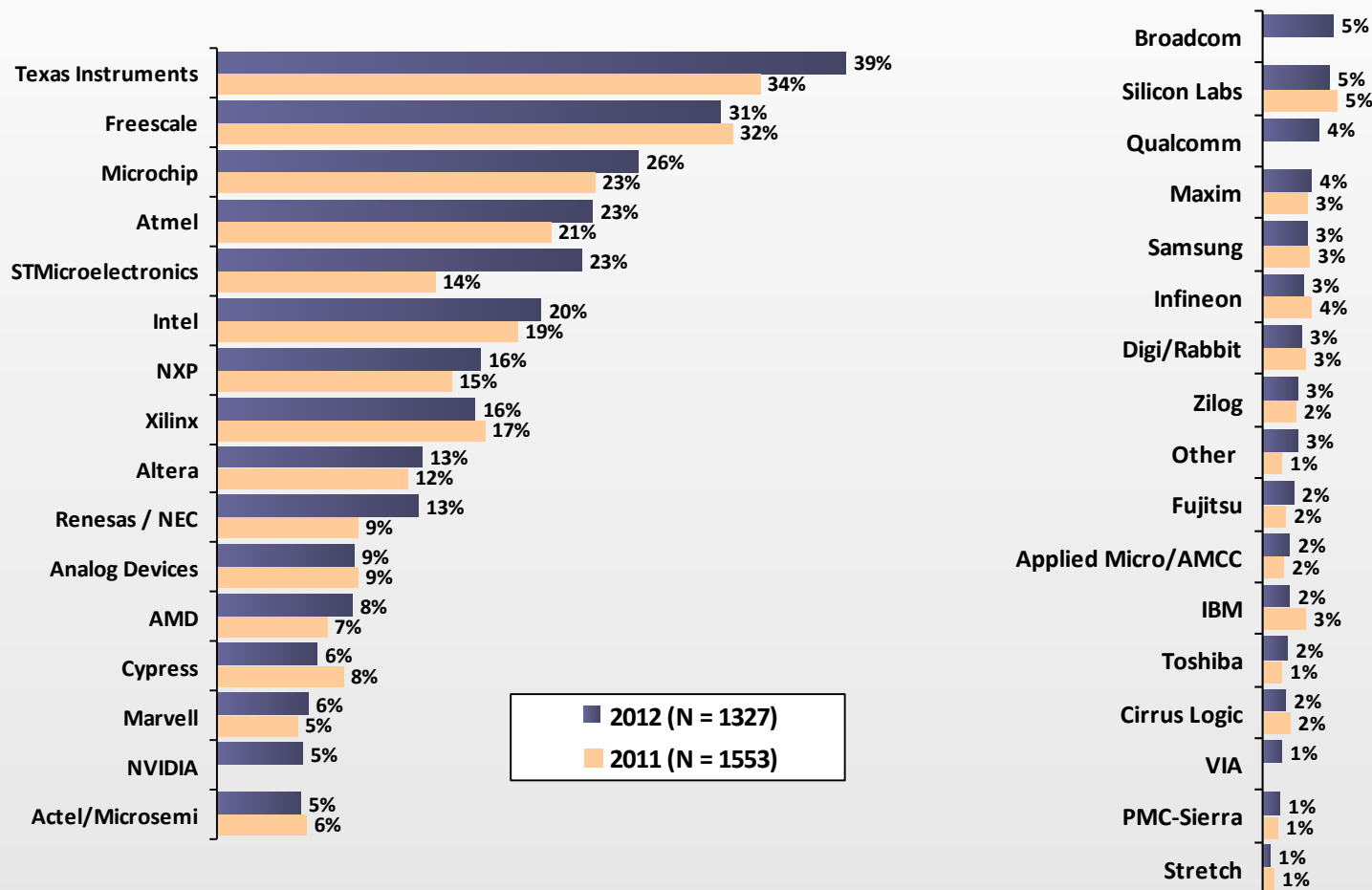
Please select the processor vendors you are familiar with.



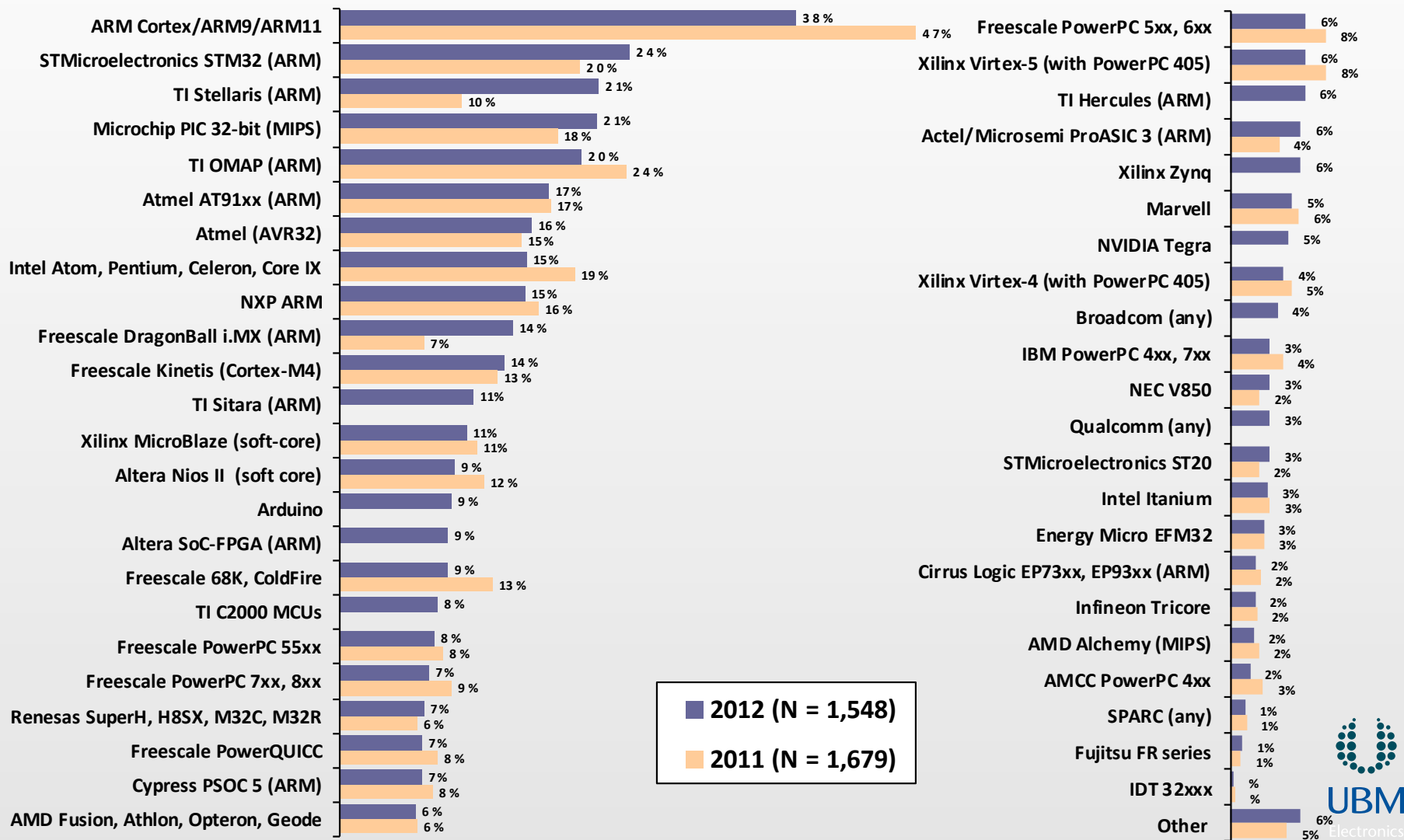
Please select the processor vendors you are currently using.



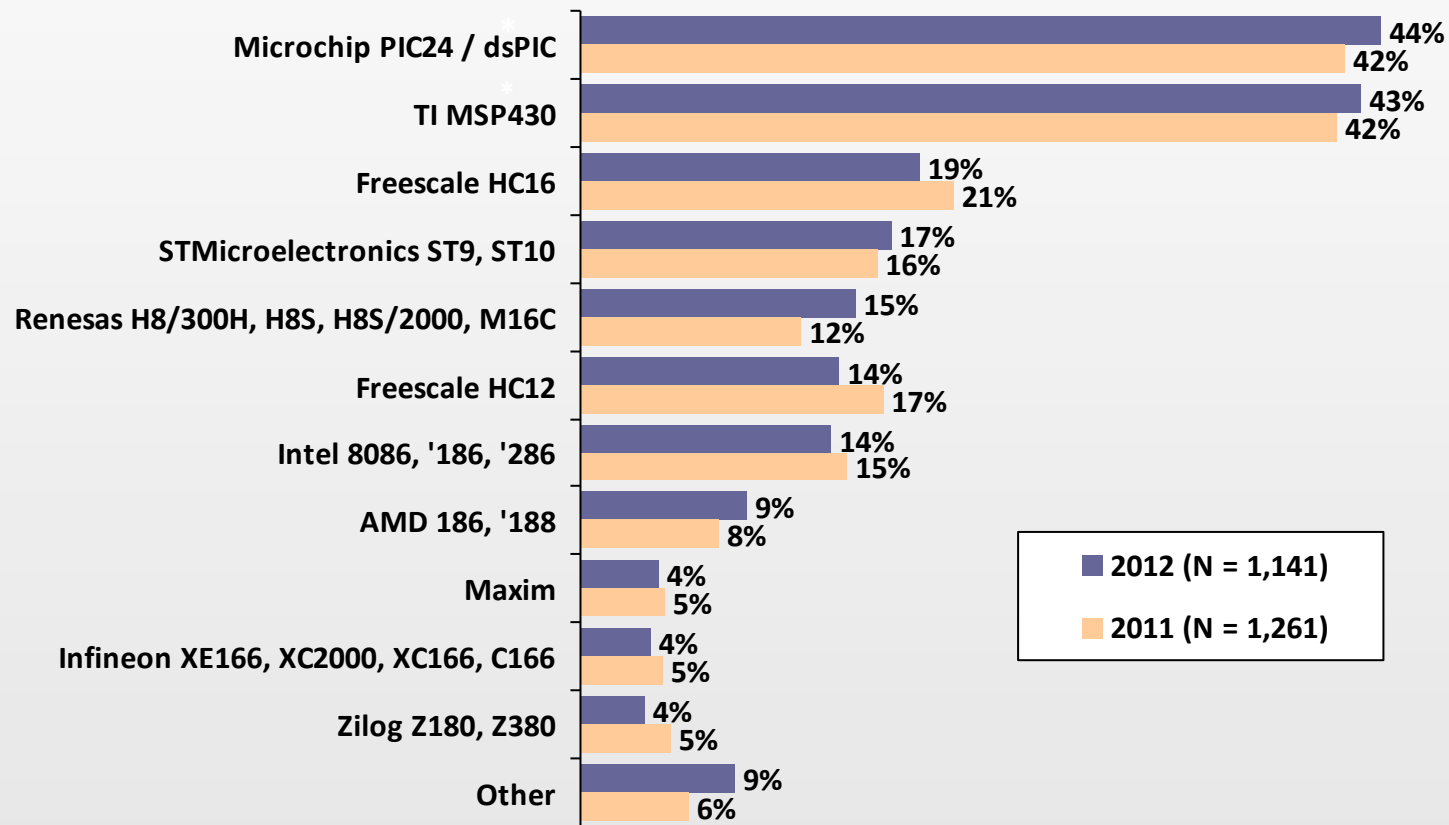
Please select the processor vendors you are considering using on your next project.



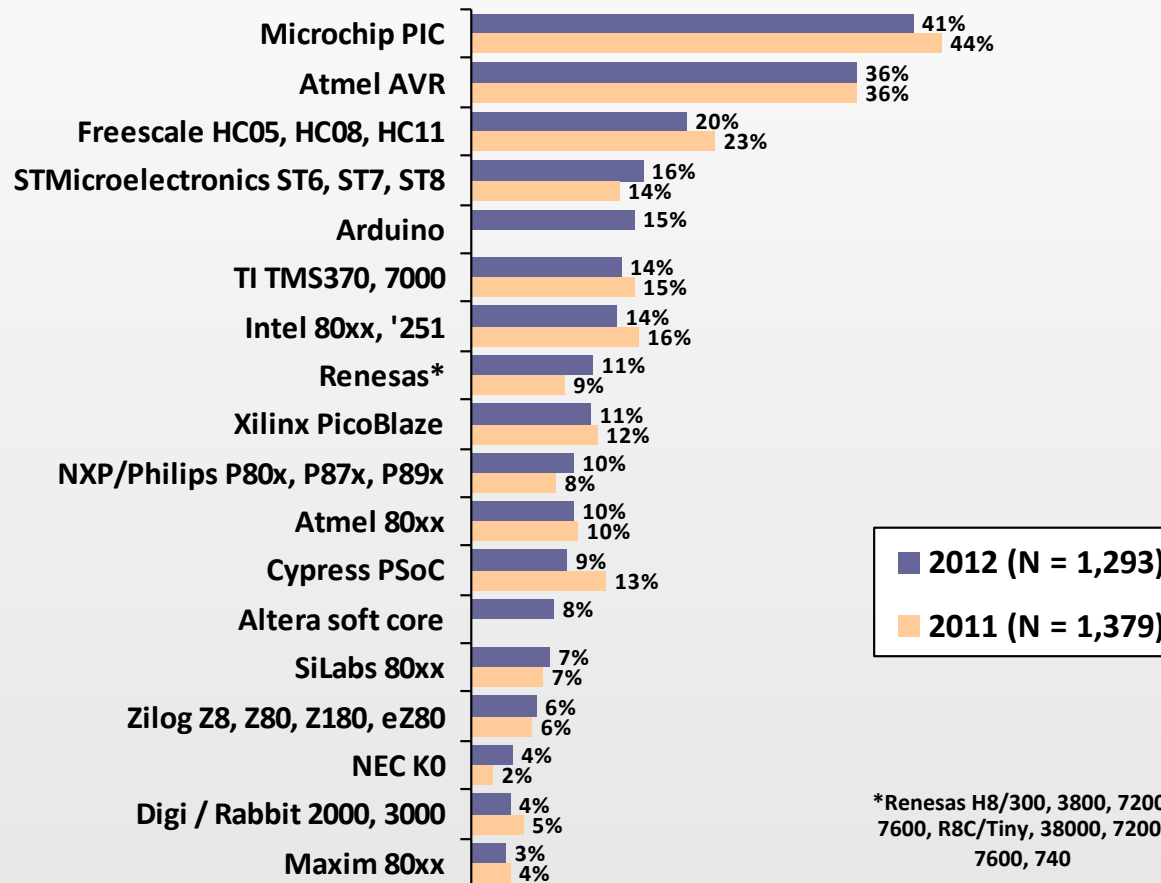
Which of the following 32-bit chip families would you consider for your next embedded project?



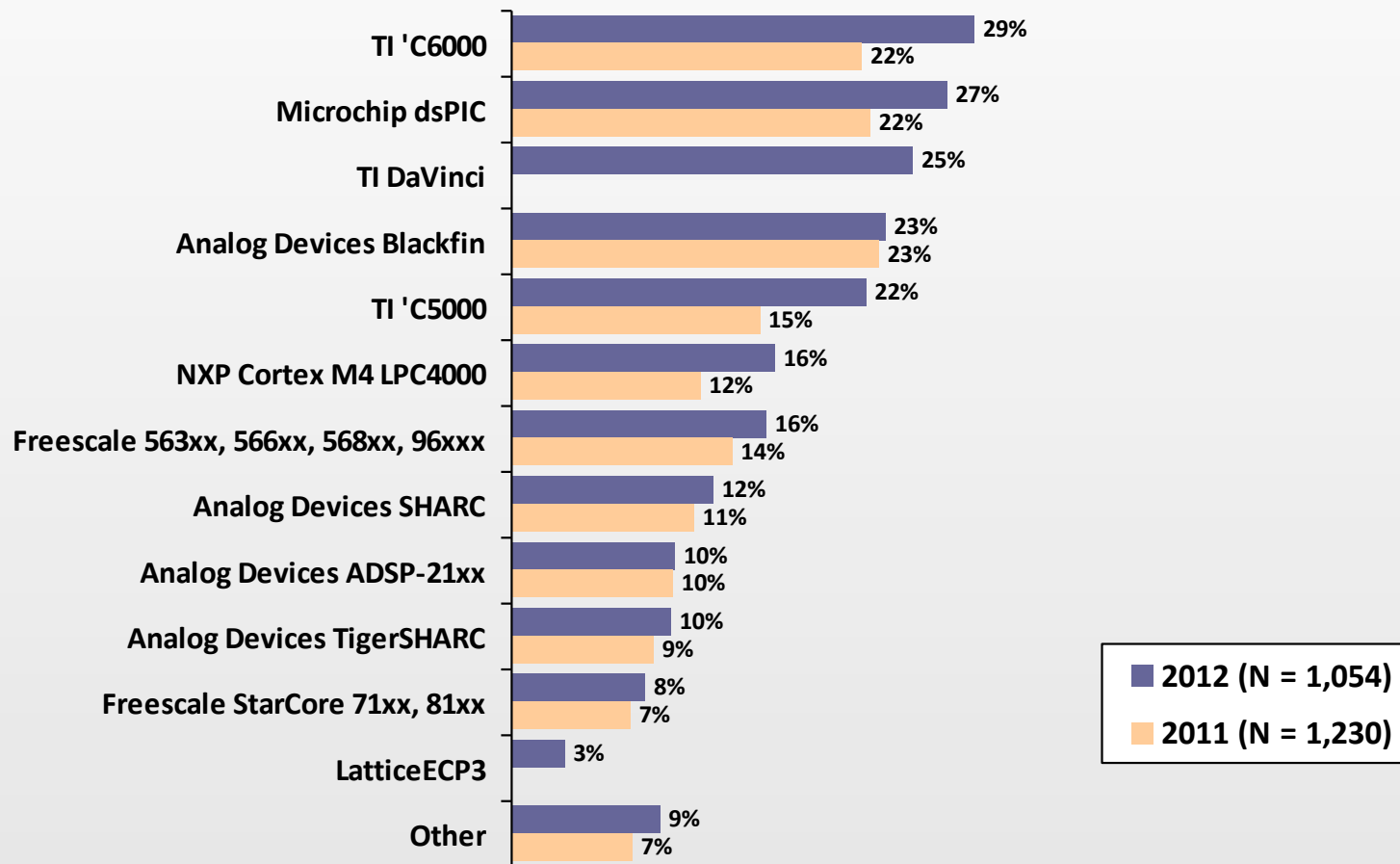
Which of the following 16-bit chip families would you consider for your next embedded project?



Which of the following 8-bit chip families would you consider for your next embedded project?

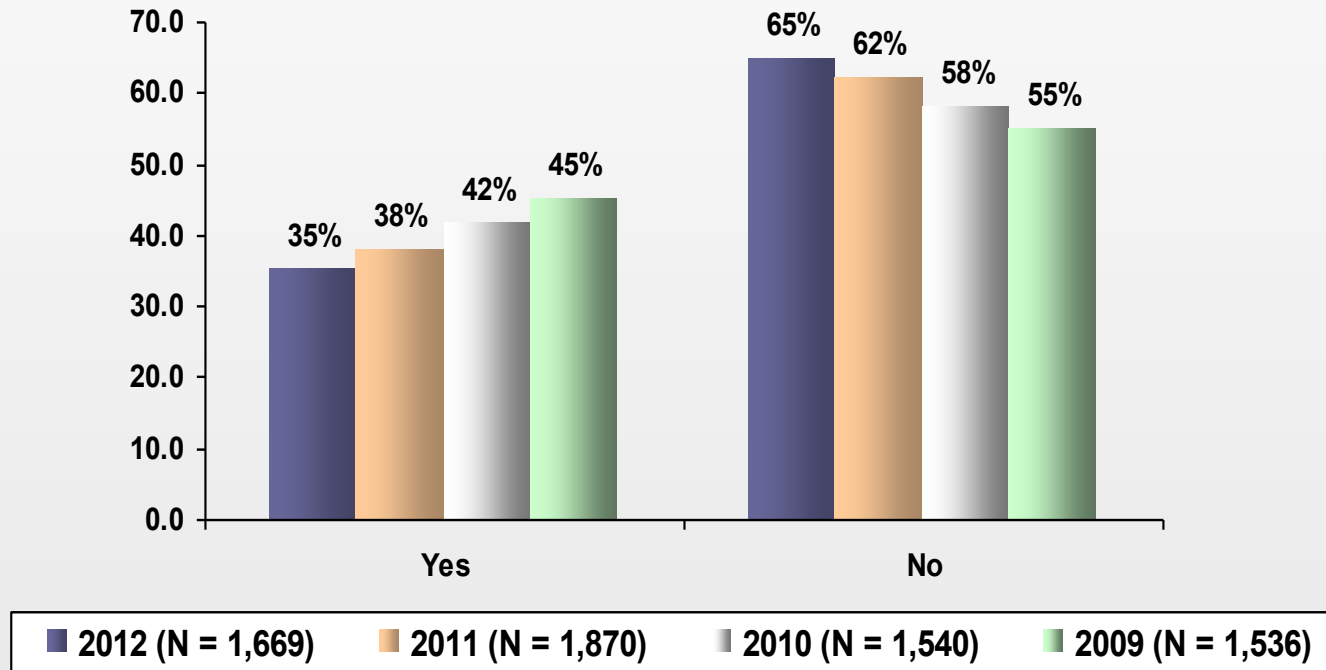


Which of the following DSP chip families would you consider for your next embedded project?

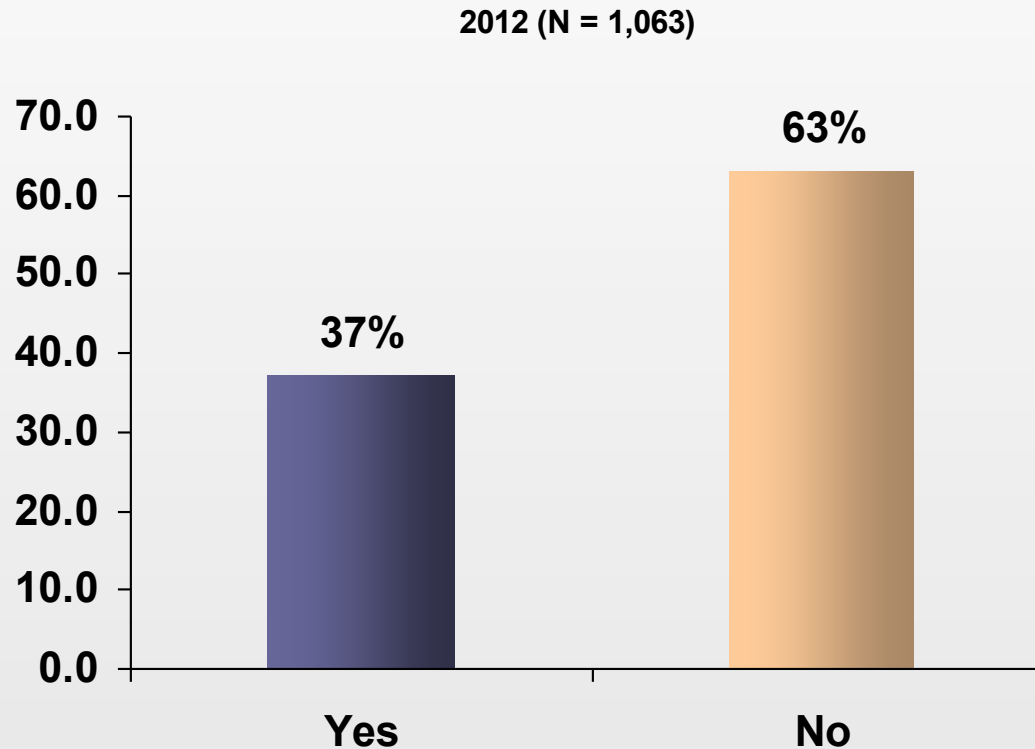


FPGAs, MEMORY, LCDs

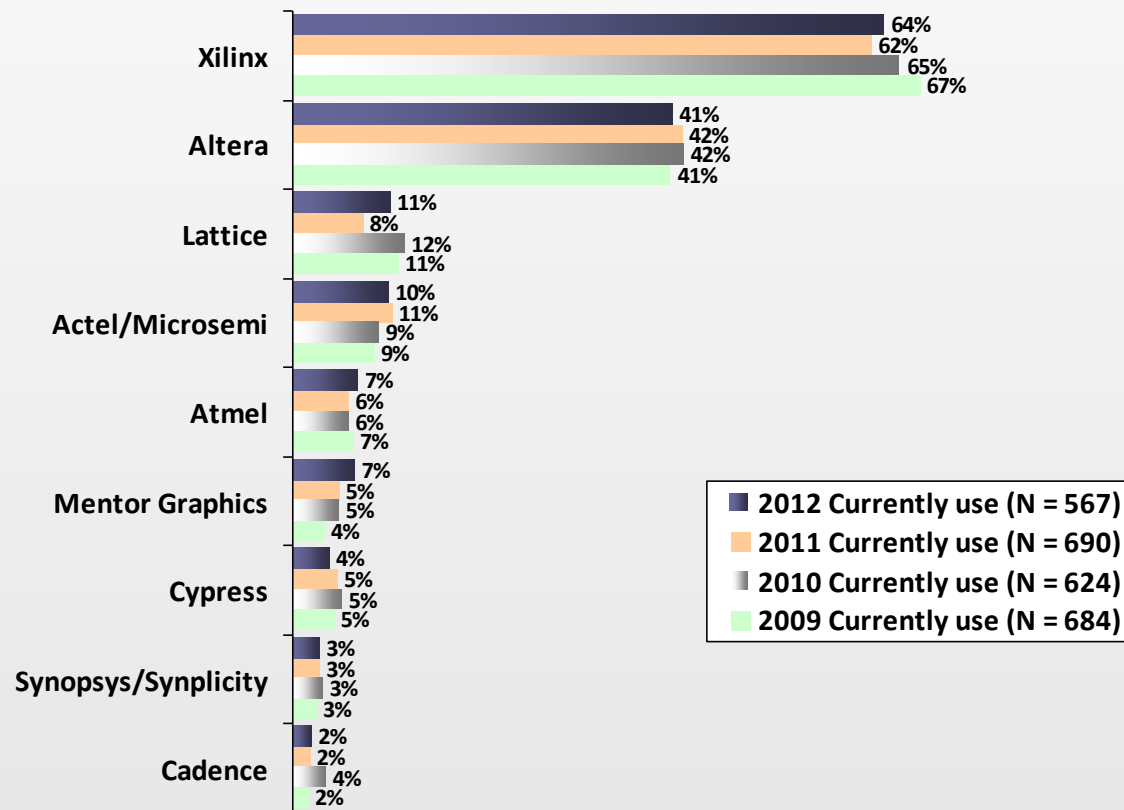
Does your current embedded project contain FPGAs/programmable logic?



If project doesn't contain any FPGAs, will the trend towards FPGAs with built in multicore processors change your mind??

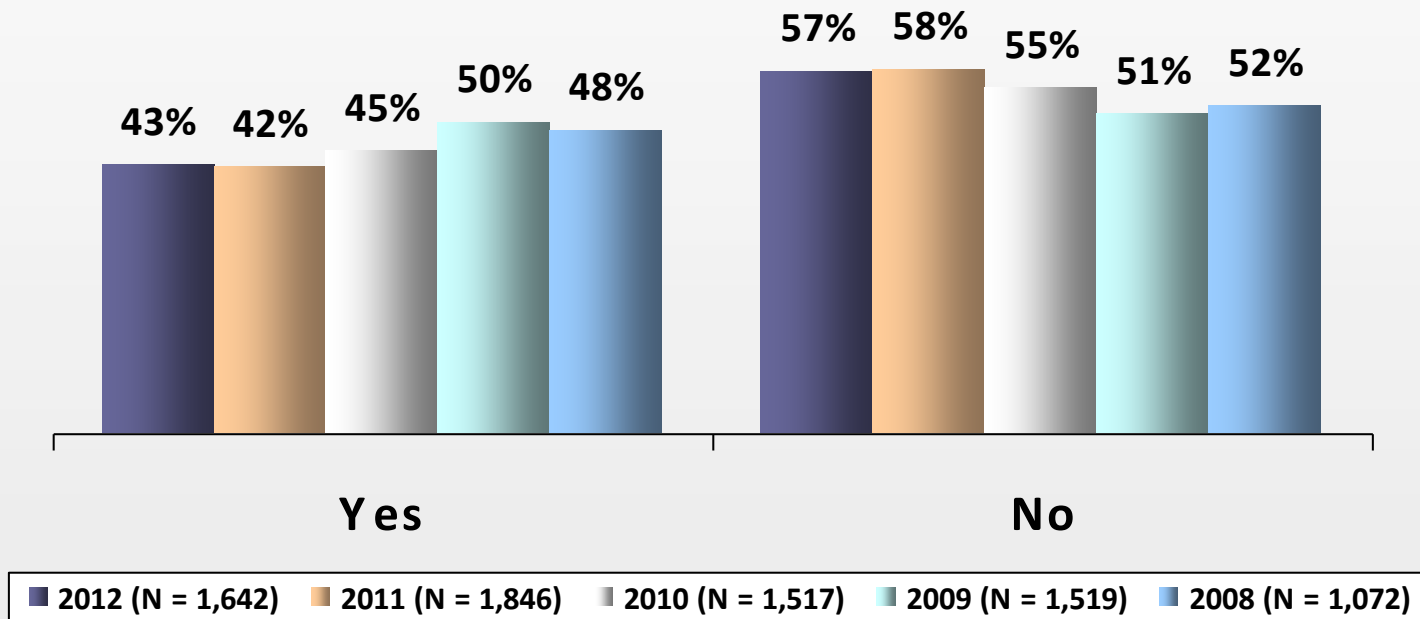


If yes, which of the following vendors does your current embedded projects use for FPGAs?

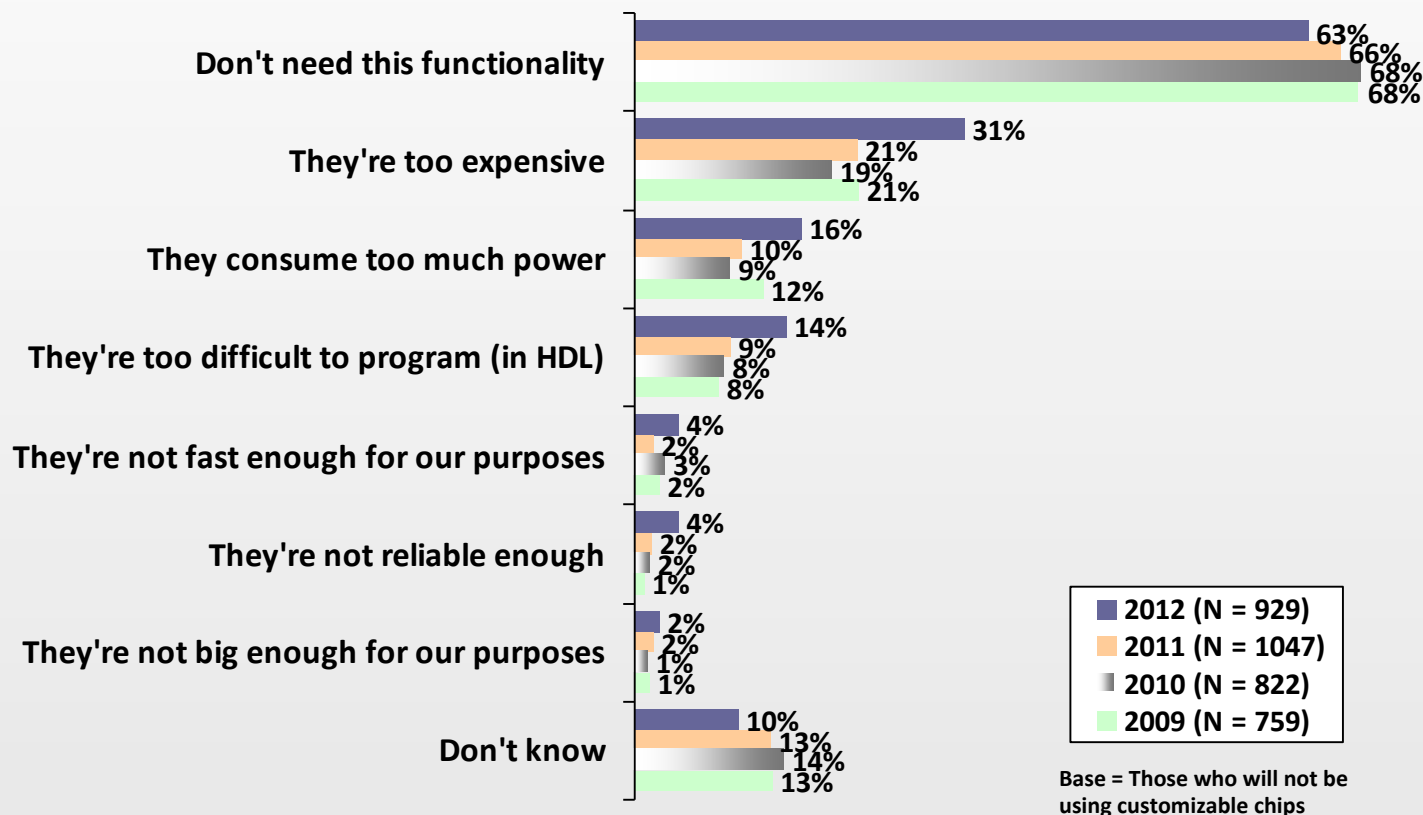


Tabula and Achronix were both less than ½ of one percent.

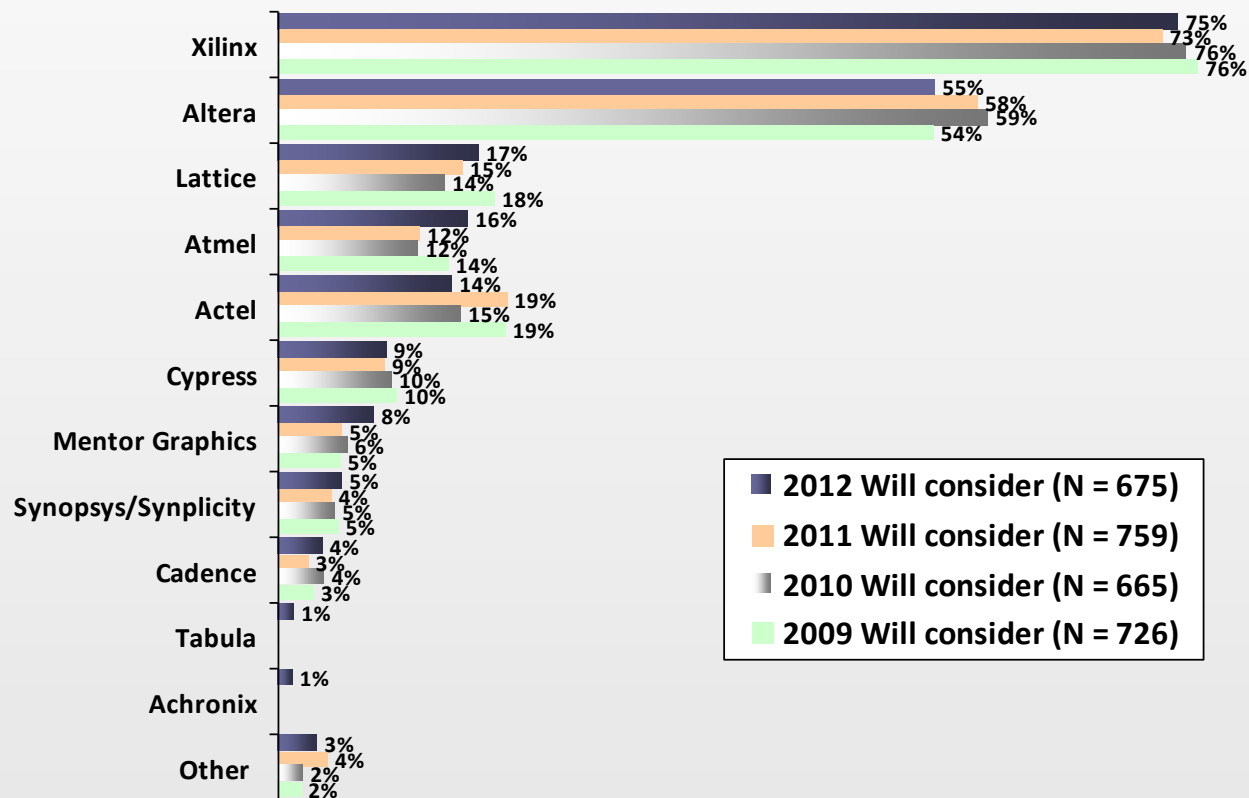
Will your next embedded project likely contain FPGAs/programmable logic?



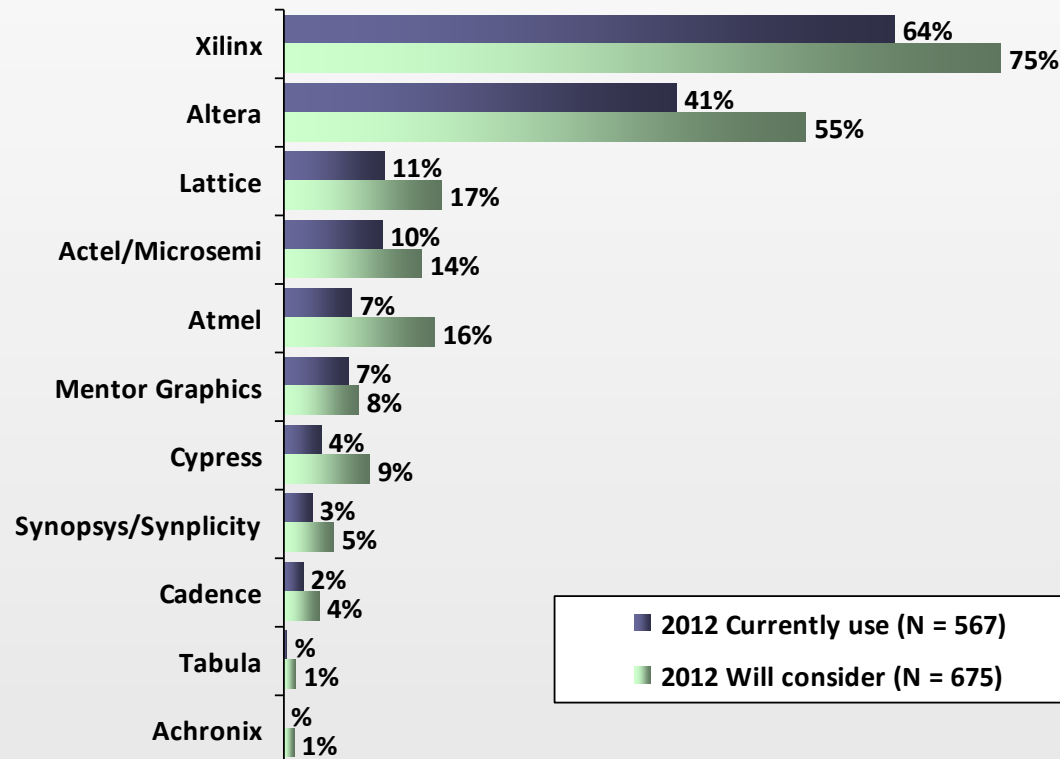
Why won't your next project include customizable chips?



If yes, which of the following vendors will you
consider in your **next** embedded project for FPGAs?

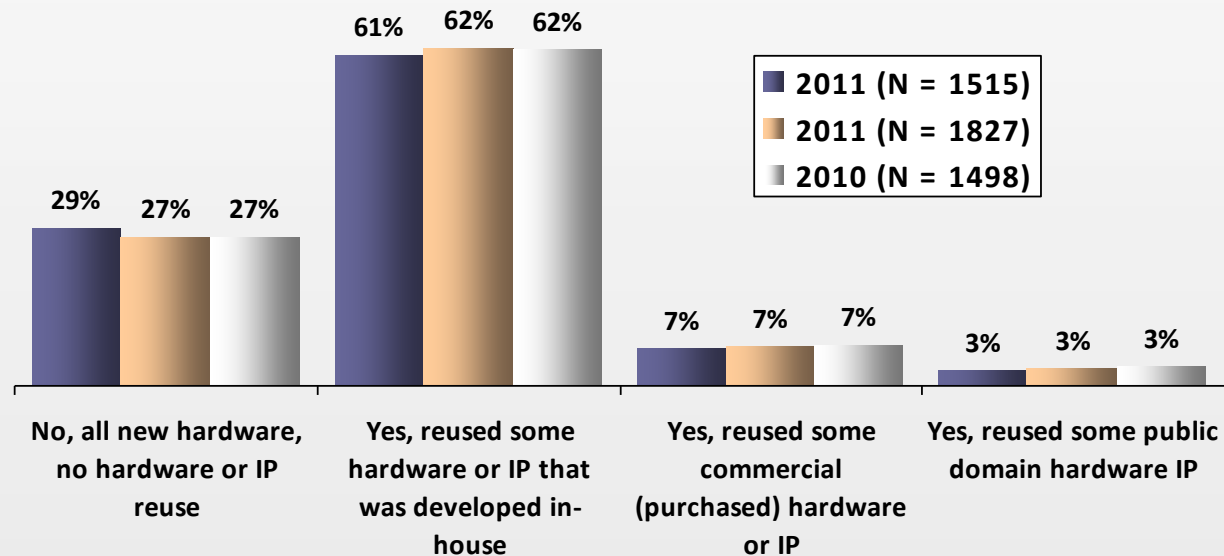


For **2012** only -- which of the following vendors does your current embedded projects use for FPGAs, and which will you consider in your next embedded project?

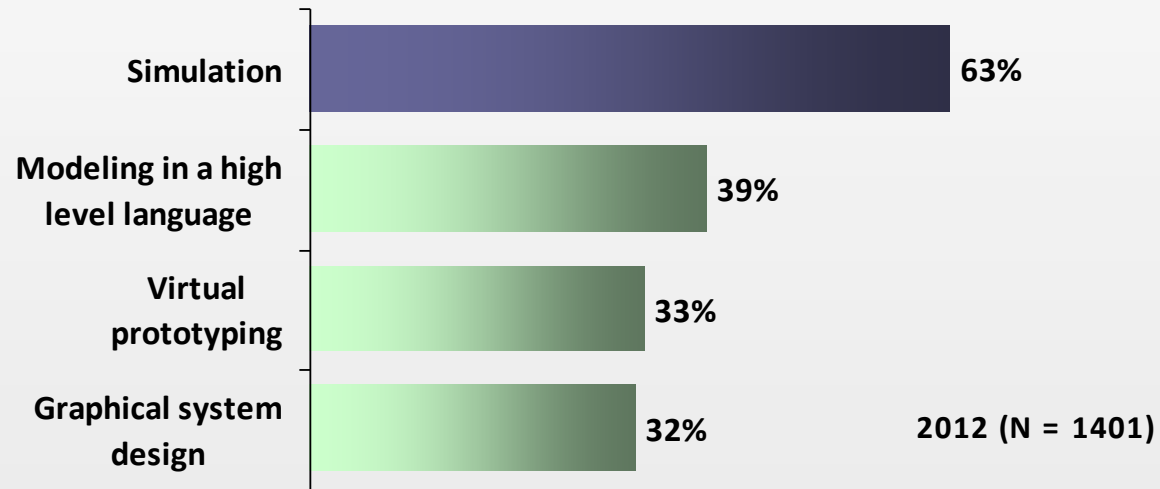


HARDWARE IPs, SYSTEM LEVEL DESIGN, & USE OF GUIs

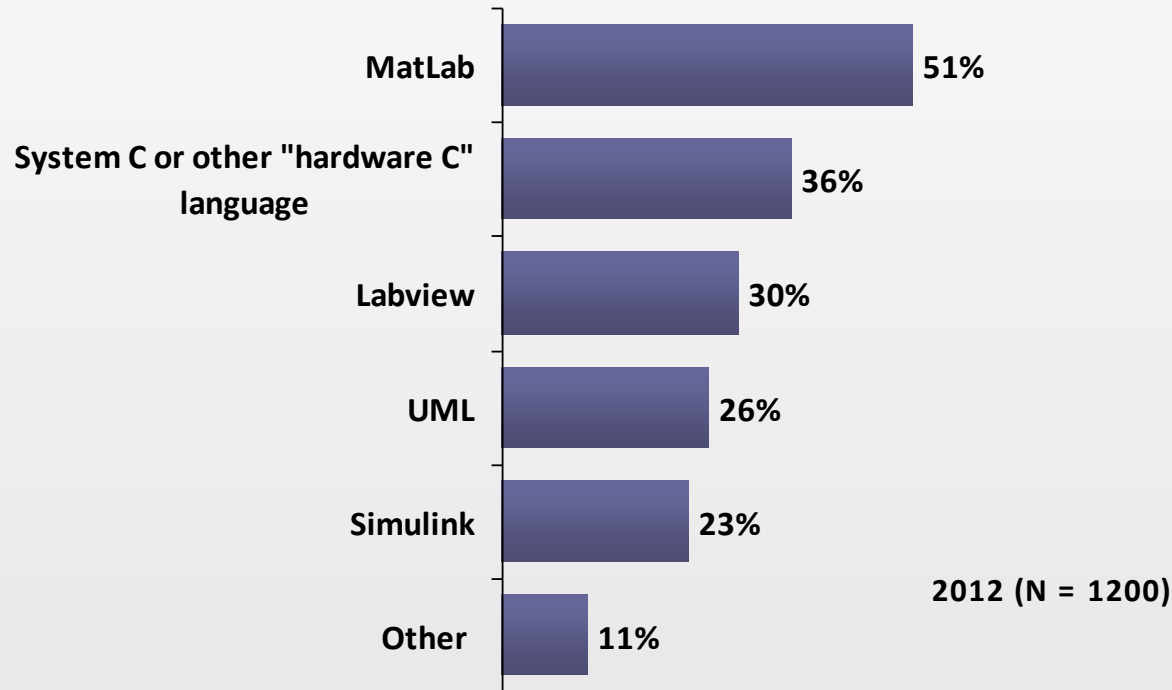
Does your current embedded project reuse hardware or hardware IP from a previous project?



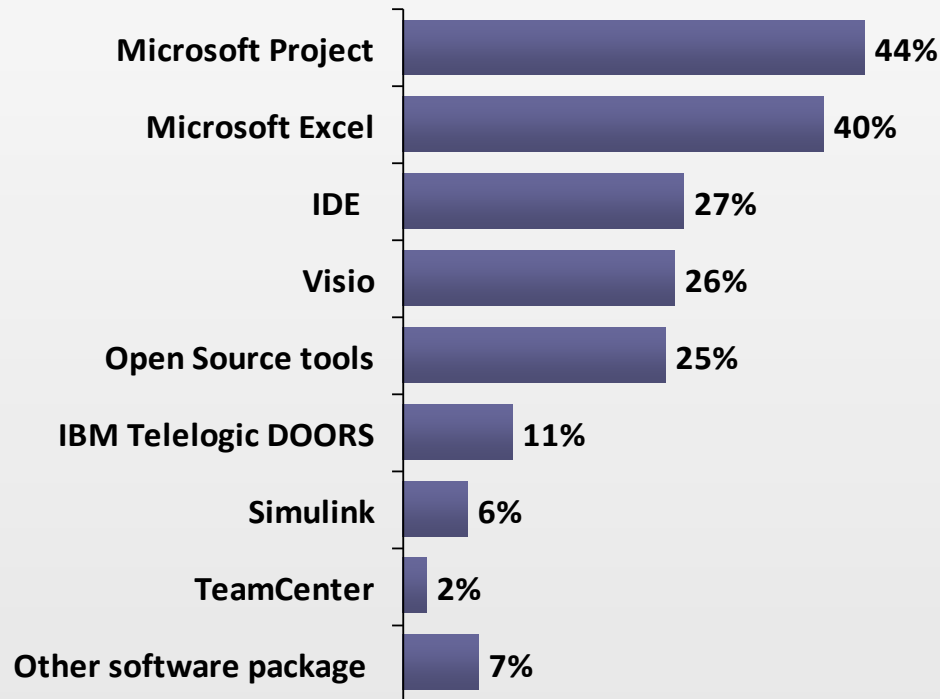
Which of the following design techniques will become more important to your designs in the future?



What system level design tools do you or your organization currently use?

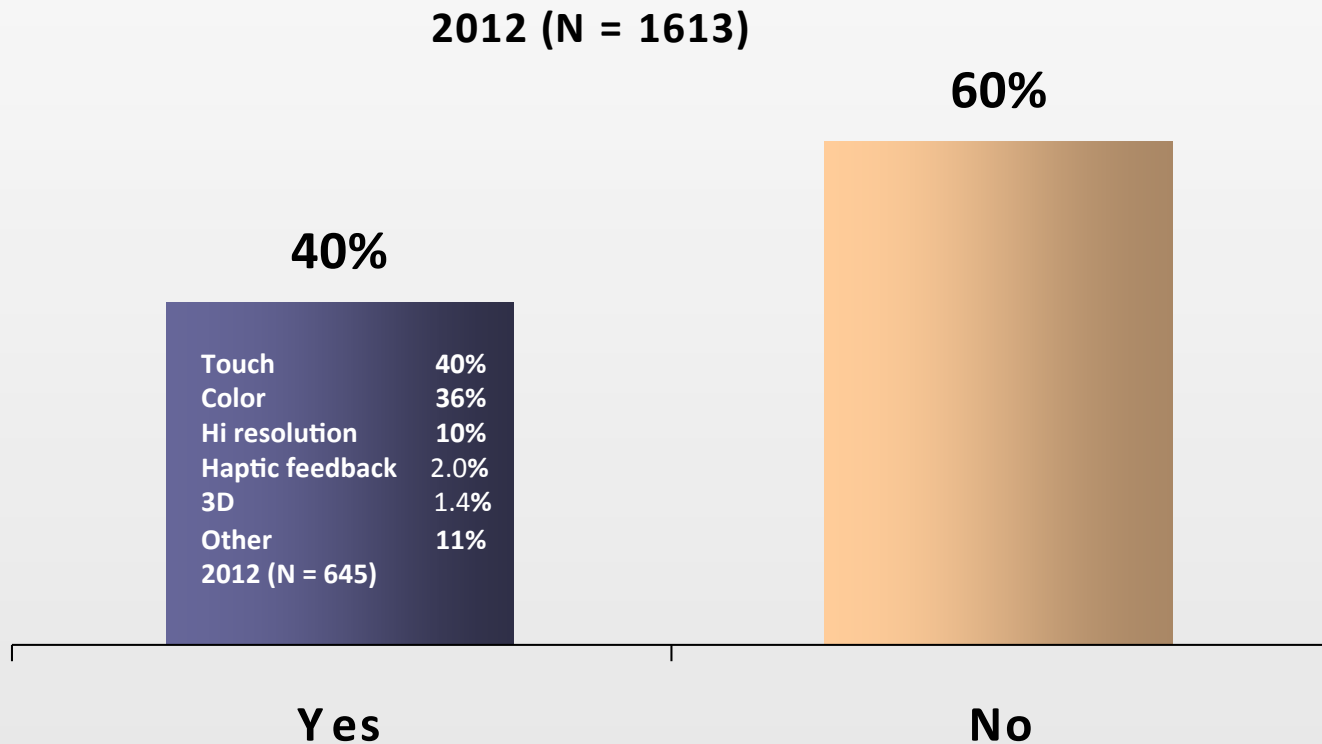


Which of the following project management software packages do you currently use?



2012 (N = 1404)

Does your current design use a graphical user interface?



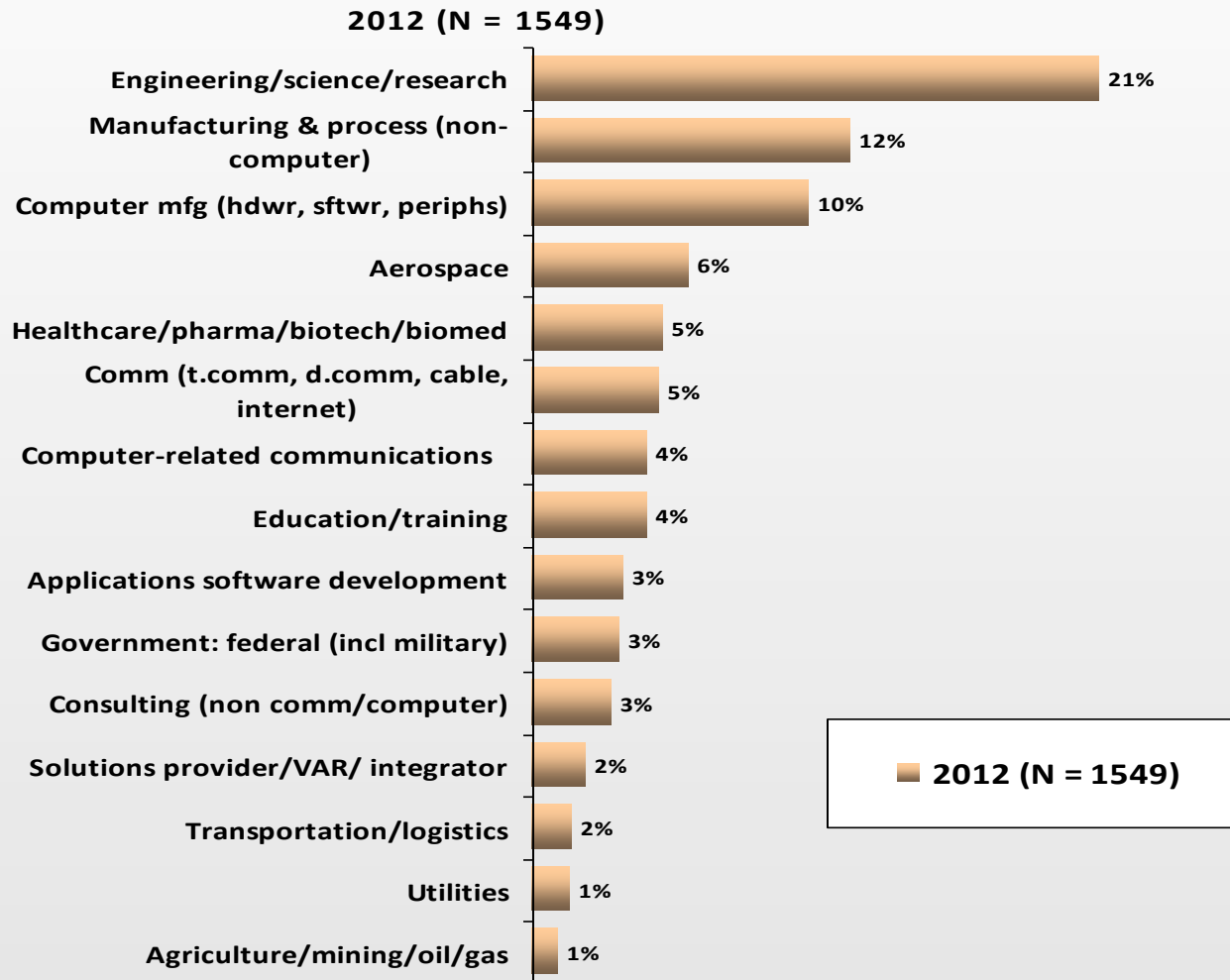
Over 20 years serving the embedded community!

2012 Embedded Market Survey

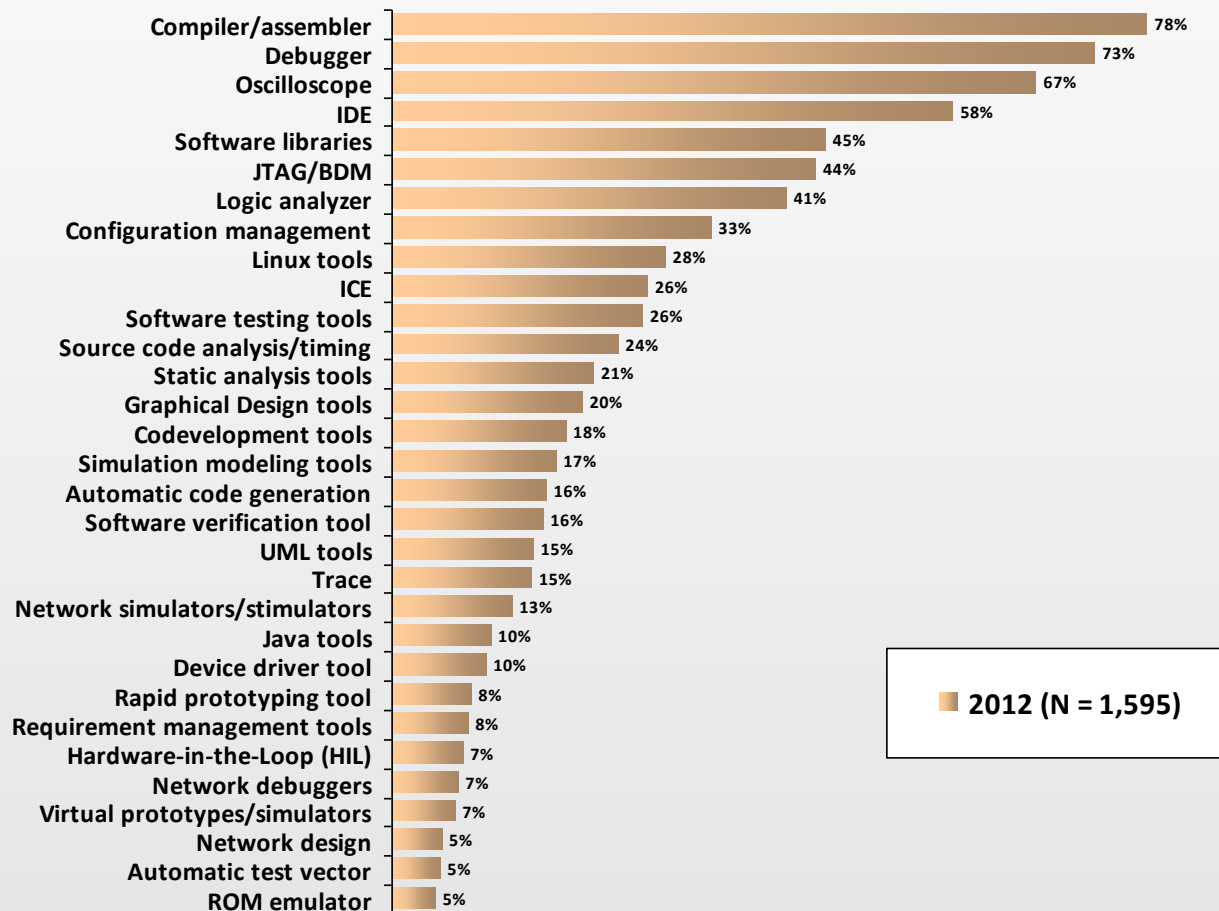
ESC at DESIGN West 2012

APPENDIX
SLIDES FOR REFERENCE
OR SPECIAL USE

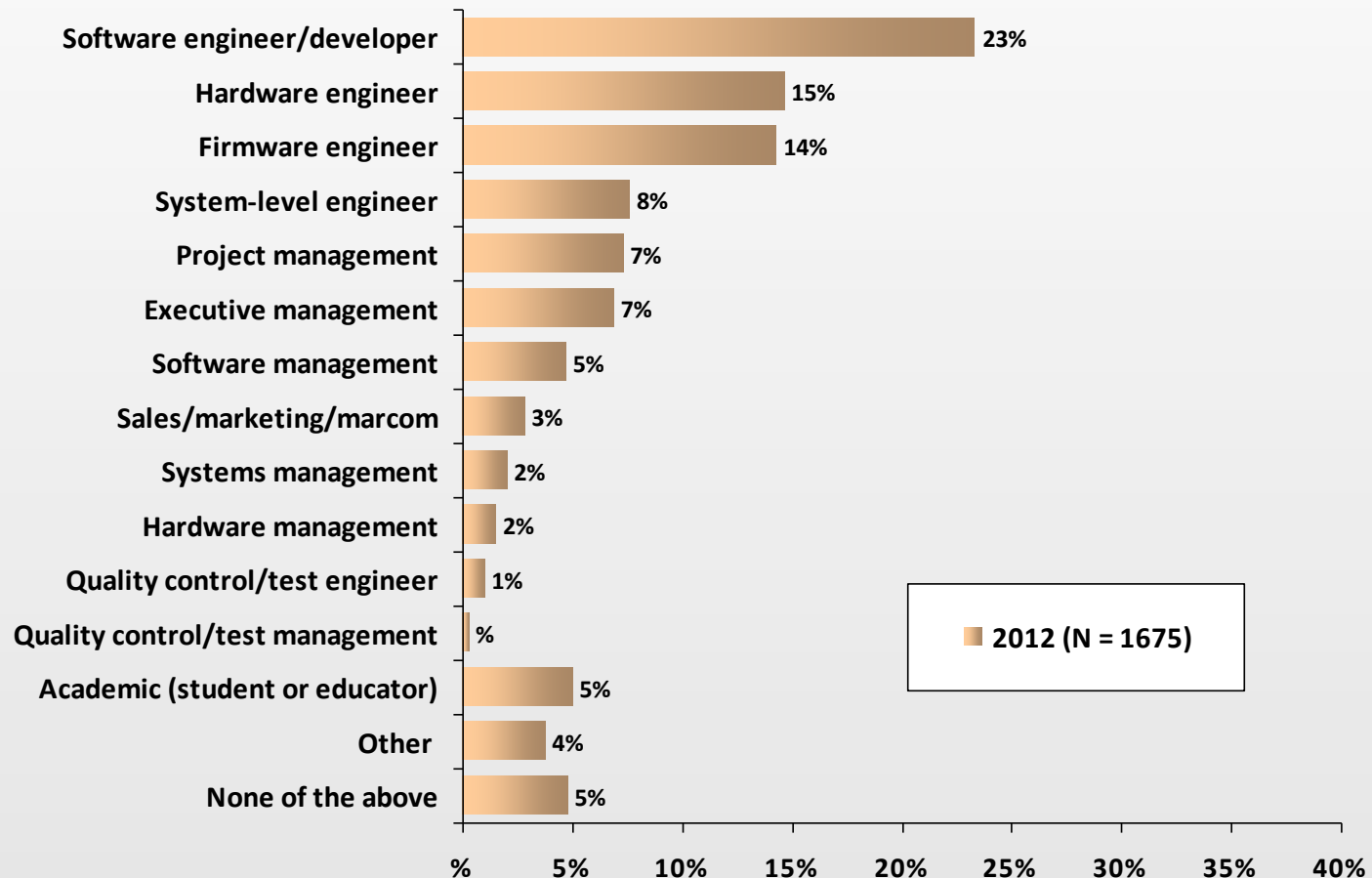
What is your organization's primary business activity?



Which of the following software/hardware tools do you currently use?



What role do you primarily play in your organization's embedded systems projects



My current embedded project uses . . .

My next embedded project is likely to use . . .

■ 2011 Currently use (N = 1,730)
 ■ 2010 Currently use (N = 1,420)
 ■ 2009 Currently use (N = 1,451)
 ■ 2008 Currently use (N = 978)

■ 2011 Likely to use (N = 1,734)
 ■ 2010 Likely to use (N = 1,416)
 ■ 2009 Likely to use (N = 1,447)
 ■ 2008 Likely to use (N = 974)

