

# Ease of Use and the Embedded Engineer

## Survey Research Results



Conducted by:



[freescale.com](http://freescale.com)

**In today's competitive market, it is vital that a company maintain a strong online presence. Survey results indicate that companies should concentrate their Internet presence on maintaining a comprehensive, informative and easily navigable website.**

## Executive Summary

In August 2011, Advantage Business Media conducted a research project on behalf of Freescale Semiconductor, leveraging ECN's global database, with the goal to better understand what semiconductor companies need to deliver to facilitate the work of embedded engineers. Given the growing complexity of embedded technologies, the need for increased support and enablement is apparent. Exacerbated by the shrinking time to market window, areas that ease the development process can substantially shorten design cycles and also are acknowledged to reduce development costs.

Specific objectives of the research included:

- Determining the benefits of an “easy to work with” embedded solution
- The influence of “easy to work with” in making design-in decisions
- Factors to consider in “ease of use” in regard to designing with embedded solutions
- The importance of companies being “easy to work with” in contrast to other selection criteria
- Free-form thoughts and opinions of designers in defining “easy to work with”

## Respondent Demographics

This survey was conducted according to prescribed survey methodologies. Results are based on 1056 completed survey questionnaires. The audience studied included electronic design engineers and engineering managers who subscribe to *ECN* (Electronic Component News) magazine.

- 94 percent of respondents are employed in an engineering role/engineering management role.
- Within the past 12 months, 86 percent of respondents have designed with, bought or specified semiconductor products, including:
  - o 62 percent analog/ICs
  - o 56.4 percent microprocessors or microcontrollers
  - o 54.6 percent sensor components

## Top Level Results on Semiconductor Solution Ease of Use

- The vast majority of respondents (92 percent) indicate that a product's ability to be easy to work with influences their design-in decisions.
- The most important stage of the development process where ease of use is critical is during detailed design and layout.
- Developers acknowledge that the most important benefits of an easy-to-work-with solution are minimizing level of design difficulty and an overall reduction in development cost.
- When engaged in a design project, respondents consider the website of a semiconductor manufacturer (70 percent), recommendations from other engineers (60 percent) and reference designs (61 percent) to be the most useful sources of information.

## Top-Level Results on Semiconductor Company Being Easy to Work With

- The majority of respondents (52 percent) indicate that it is a “very important” criterion in the selection process for a company to be easy to work with.
- The characteristics most frequently cited by respondents associated with “easy to do business with” were “documentation” (83 percent) and “technical support” (72 percent).

For a quick look at the direction and emphasis of the verbatim comments, see the word cloud below.



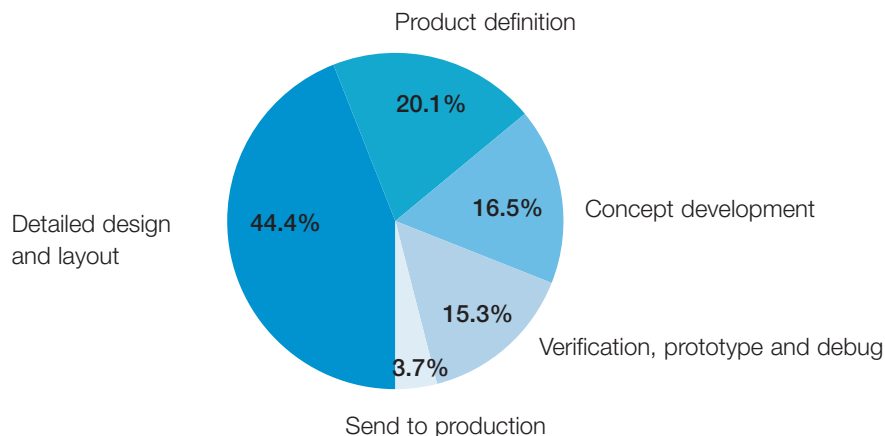
The purchase of a semiconductor product is heavily influenced by the buyer's perception that the product is easy to use and that the manufacturer is easy to work with. Survey results indicate that semiconductor companies should concentrate their Internet presence on maintaining a comprehensive, informative, accurate and easily navigable website. Word of mouth from other engineers is also an extremely important factor in the purchasing process and a method to publicize feedback from satisfied customers.

In today's embedded market, it's not enough to have great technology; semiconductor companies must offer the support, enablement, product longevity and processes that reflect "easy to work with" and "easy to use" as exemplified by the ability to provide:

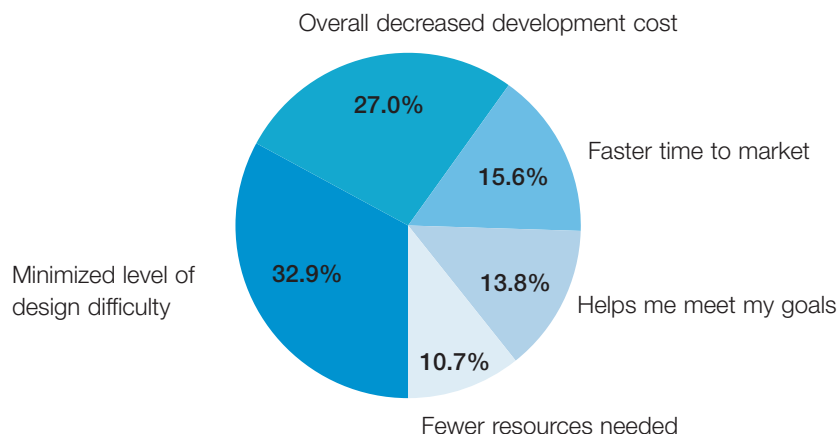
- Reference designs and tools throughout the design life cycle
- Critical information and training about solutions to help customers build their knowledge and technical skills and stay ahead in this rapidly changing industry

Electronic design engineers shared their opinions on the importance of ease of use when working with semiconductor products. Their responses to the worldwide survey questions are represented below.

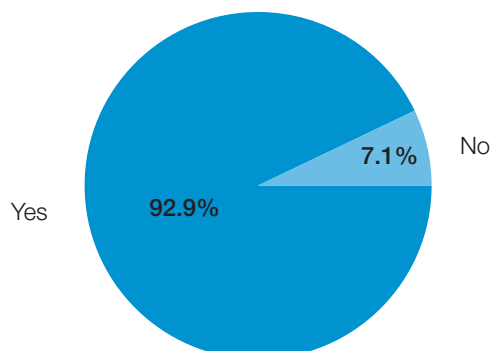
### During which stage of development is ease of use most important to you?



### What is the most important benefit of an easy-to-work-with embedded solution?



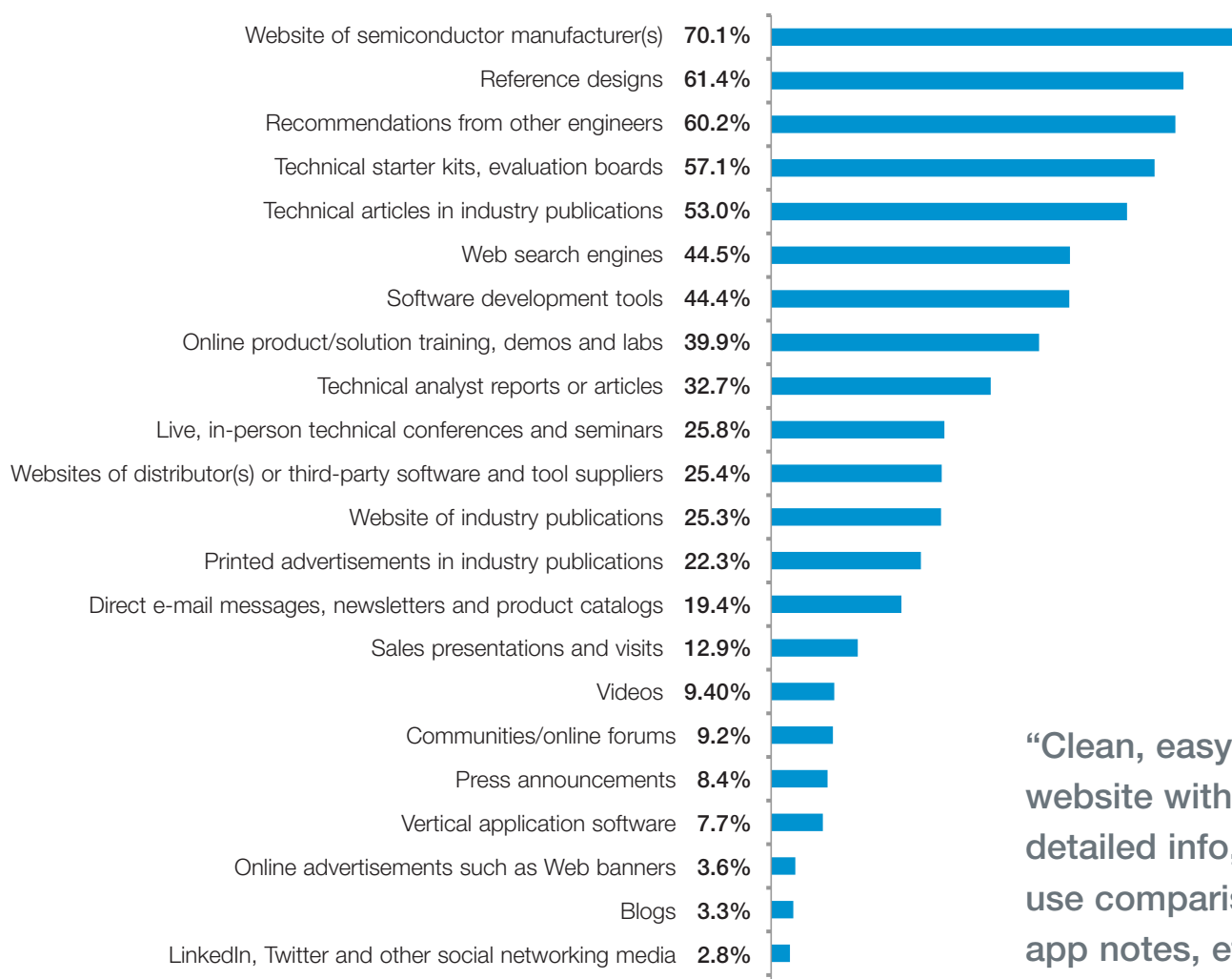
### When selecting a semiconductor/IC does the product's ability to be easy to work with influence your design decisions?



“Robust documentation. Inexpensive evaluation/ starter boards, with usage examples (with source code, as applicable). Buying software not required. Excellent support from FAEs and forums.”

—Software Engineer,  
Nanking, China

**What types of information are important to you for ease of use when you are choosing semiconductor suppliers?**



**“Clean, easy-to-use website with plenty of detailed info, easy-to-use comparison tables, app notes, etc.”**

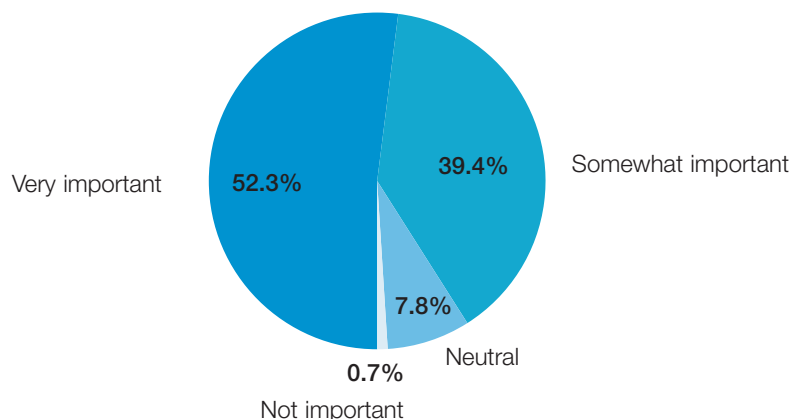
*—Electronic Engineer,  
Hong Kong*

**“Technical support is number one.”**

*—Senior Research Specialist,  
Minnesota, U.S.*

For this section, the questions apply to what makes a semiconductor company easy to work with.

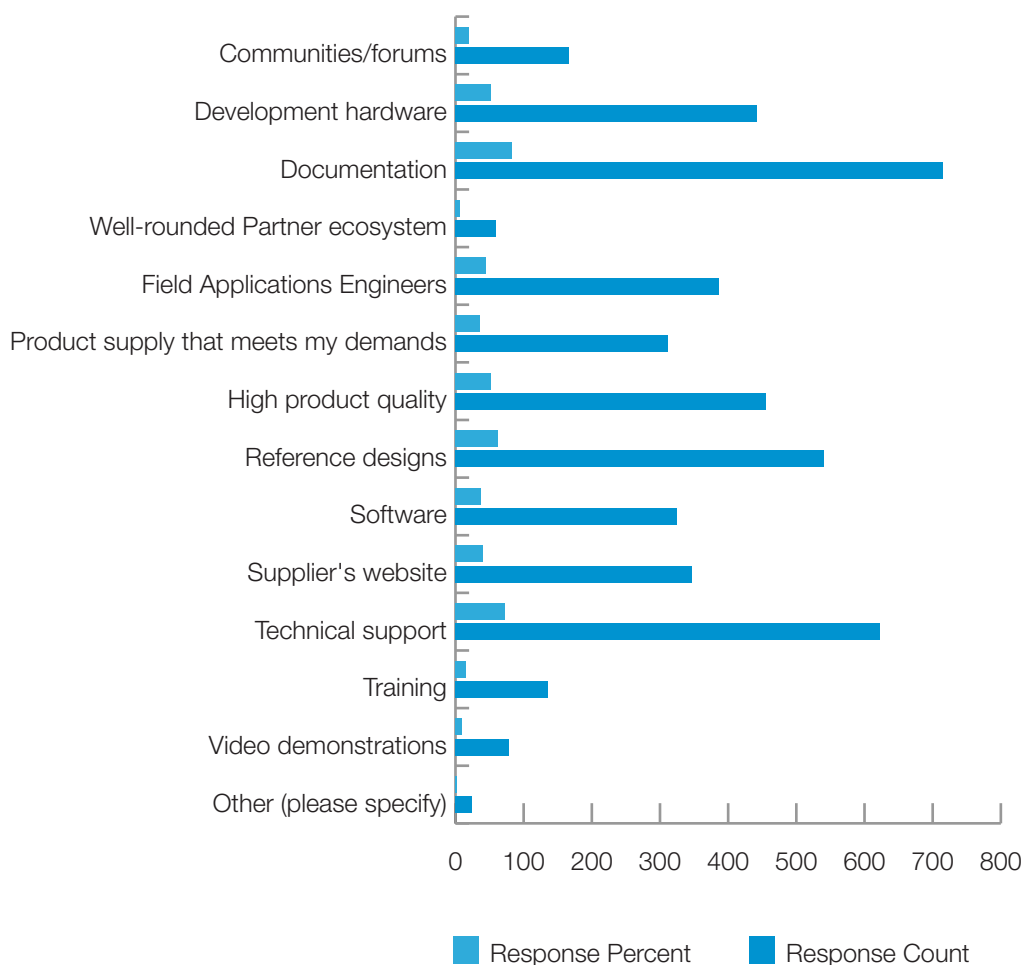
In your selection criteria, how important would you rank a company being easy to work with (in contrast to other selection attributes like price, performance or supplier leadership)?



“All of product literature is open and readily available, most tools are low cost and open-source (or free).”

—Design Engineer, British Columbia, Canada

Which of these characteristics of a semiconductor company do you associate with “easy to do business with?”



“Wide range of development kits plus good training and tech support.”

—Principal Engineer, Belgium



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