

# OFFSHORE NEW PRODUCT DEVELOPMENT: SURVEY RESULTS



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February, 2009

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Researchers from the University of California, Irvine conducted a survey of U.S.-based electronics manufacturers in 2008. The topic was offshore new product development (NPD), including drivers, obstacles, performance and management practices. This report summarizes the main findings from the survey.

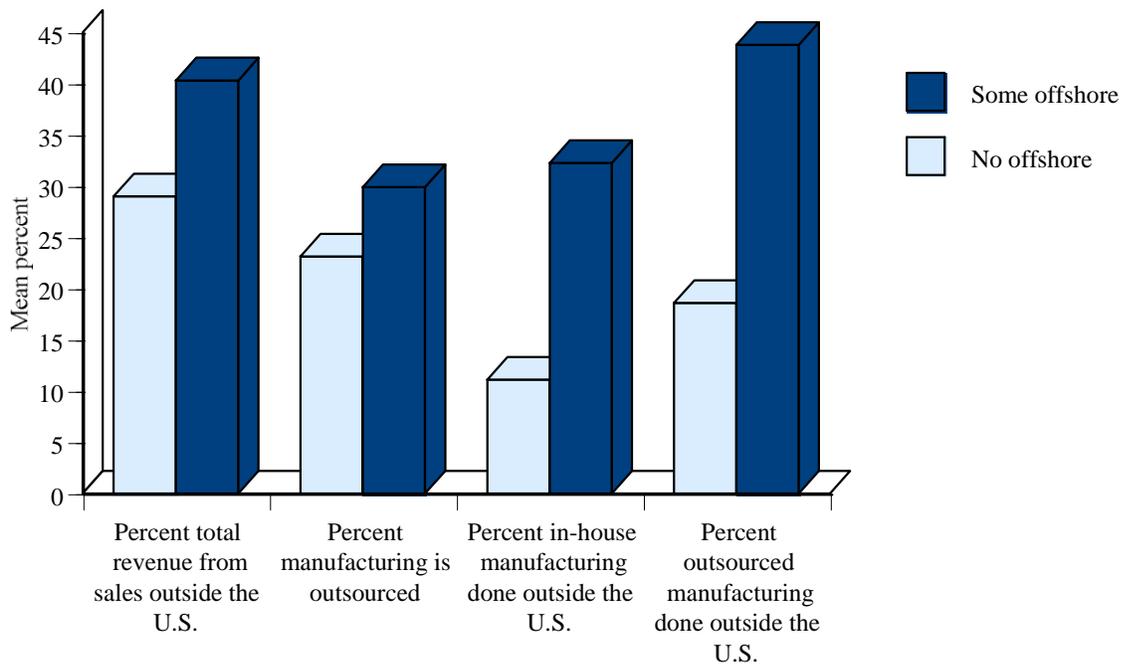
**Survey respondents**

A telephone survey was conducted by Abt SRBI from July 29, 2008 to October 1, 2008. There are a total of 423 companies, 195 of which have NPD activities outside the U.S. through their own subsidiaries, joint ventures, or in an outsourcing relationship. All companies are manufacturers of electronic devices (SIC codes 357, 366, 367, 381, 382, and 384). Respondents included managers engaged in NPD. The response rate for the survey was 23.6%.

**Offshore versus non-offshore companies**

Using the full sample of firms, we can compare companies that conduct at least some new product development offshore with those that do not. We find several differences (Figure 1).

**Figure 1. Comparison of offshore and non-offshore companies**

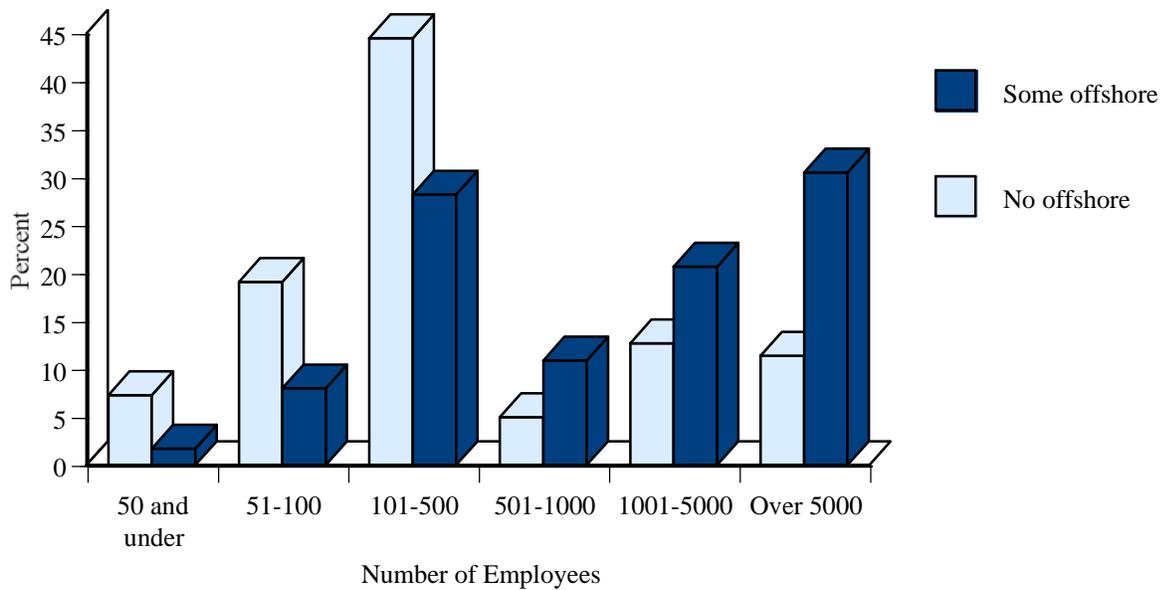


Companies that do some NPD offshore earn a significantly higher share of their revenues outside the U.S. than those with no offshore NPD. This shows that there is a relationship between selling products outside the U.S. and conducting NPD offshore, possibly because firms that sell in other markets need to be close to those markets to develop products for them.

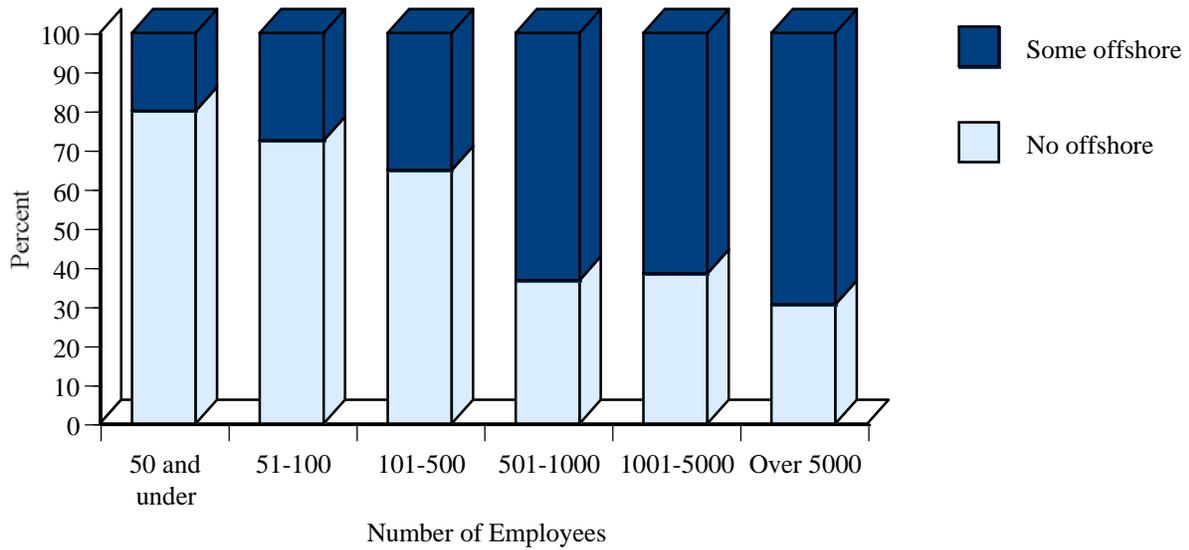
Firms that do NPD offshore outsource a somewhat higher share of their manufacturing to other firms. They also do a much higher share of manufacturing outside the U.S., whether it is their own in-house manufacturing or outsourced manufacturing. This suggests that manufacturing “pulls” NPD with it to offshore locations, because of the need for at least some NPD activities to be near the plant where the product will be manufactured.

Another difference is in company size. Those that do NPD offshore tend to be larger than those that do not (Figure 2). Looked at another way, larger firms are more likely to have offshore NPD operations than smaller firms (Figure 3).

**Figure 2. Firm size of offshore versus non-offshore firms**

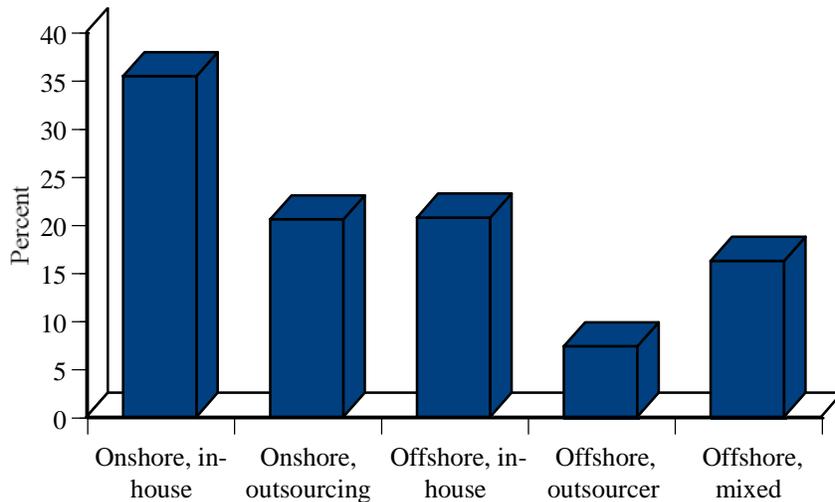


**Figure 3. Percent of firms with offshore NPD by firm size**



A final difference is the mode of offshore NPD, whether it is done in-house (captive offshoring), is outsourced, or if both are used. Looking at the entire sample, the largest number of firms has no offshore NPD. Among those with offshore development, most firms have in-house only, or both (mixed), with fewer relying entirely on outsourcers for offshore NPD (Figure 4).

**Figure 4. Modes of sourcing NPD**



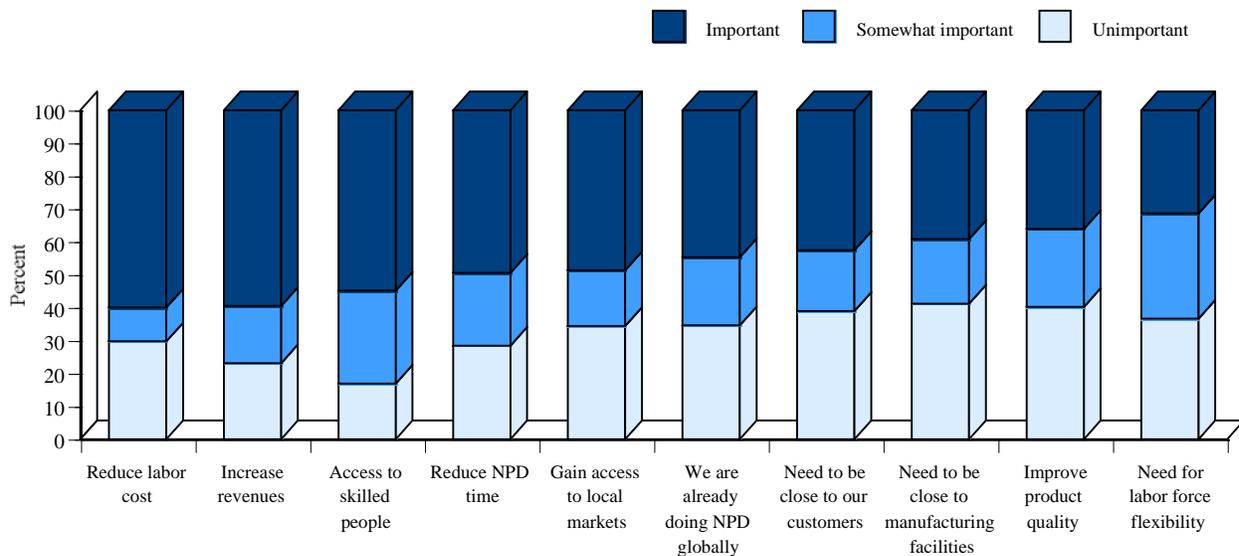
## Drivers of offshore NPD

The biggest reason that firms have gone offshore for NPD is to reduce labor costs, mentioned as important by 60% of respondents whose firms have some offshore NPD (Figure 5). This is consistent with most surveys that look at why firms move business activities offshore.

Interestingly, an equal percentage of respondents cited increasing revenues as important. This could be because they are looking to gain access to local markets where they locate NPD (cited by 49%), as well as the fact that using offshore NPD enables them to develop more products faster, and thus increase sales. In fact, 50% said that reducing NPD time was an important factor in the offshoring decision. The other big factor is access to skilled people, cited by 55%.

Only 39% said that the need to be close to manufacturing facilities was an important driver. This is somewhat surprising, given that firms with offshore manufacturing are much more likely to also have offshore NPD, as noted above.

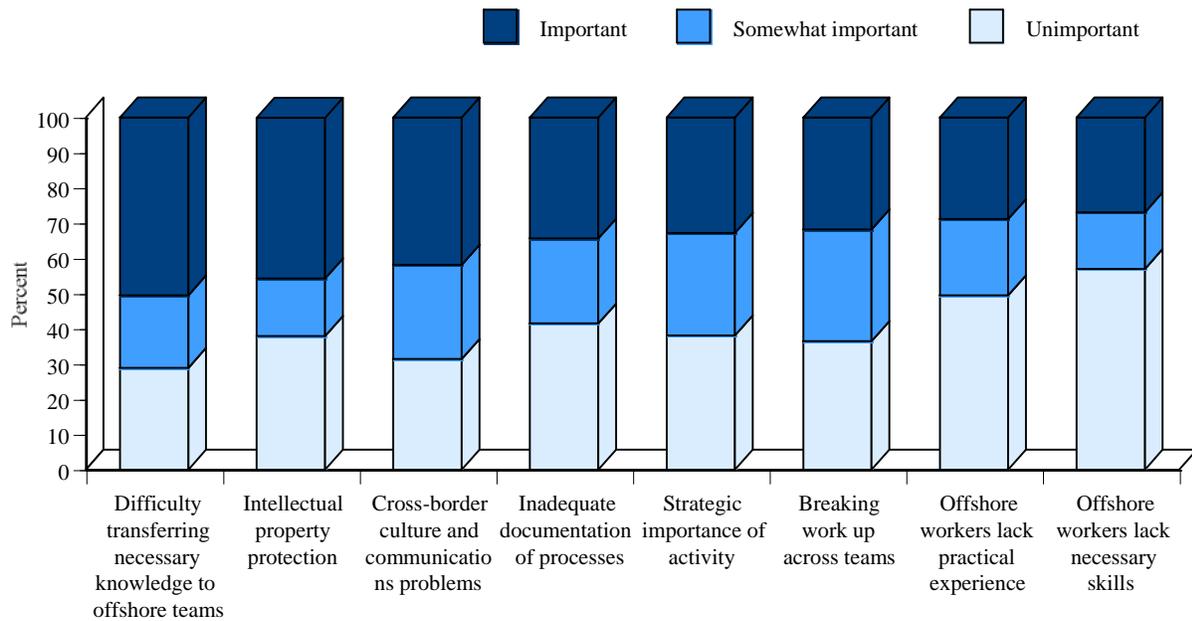
**Figure 5. Offshore drivers for NPD**



## Obstacles to offshoring

The most commonly mentioned obstacle to doing NPD offshore was difficulty transferring knowledge to offshore teams, followed by concerns about intellectual property protection and cross-border culture and communications problems (Figure 6). On the other hand, problems with offshore workers lacking necessary skills or practical experience were mentioned least often, and is consistent with “access to skilled people” being cited as a key driver for offshoring (Figure 5 above).

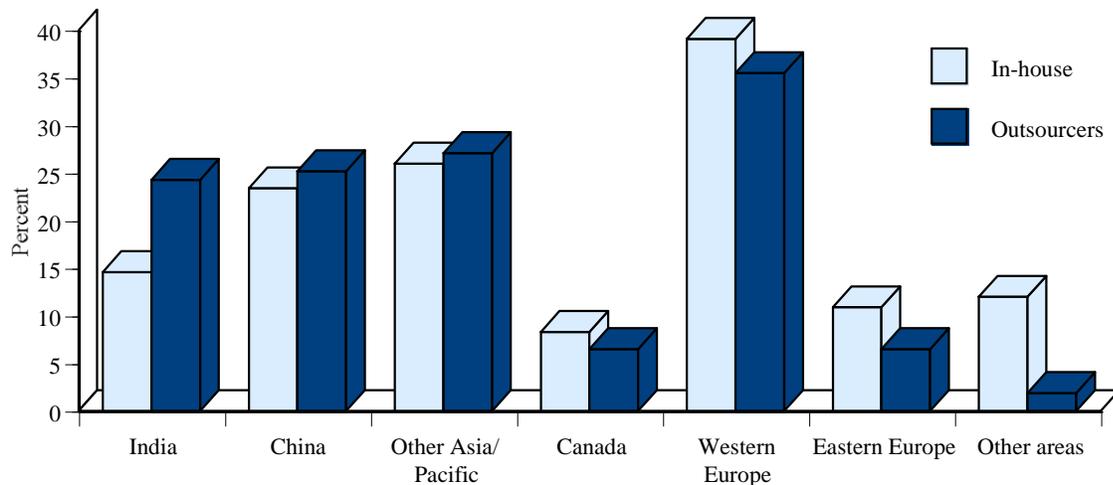
**Figure 6. Obstacles to offshore NPD**



**Location of offshore NPD**

The most frequent location for offshore NPD is Western Europe, where 39% of firms have in-house NPD activities and 35% have outsourced NPD (Figure 7). On the other hand, the total for India, China and other Asia-Pacific comes to 64% for in-house and 77% for outsourced NPD, meaning that the Asia-Pacific region as a whole is a more frequent location than Europe, even when Eastern Europe is included (firms could have NPD in more than one location). This is consistent with the frequent characterization of the Asia-Pacific region, especially China, as the world’s factory, because manufacturing tends to pull NPD to factory locations. Other areas of the world have only limited offshore NPD activity.

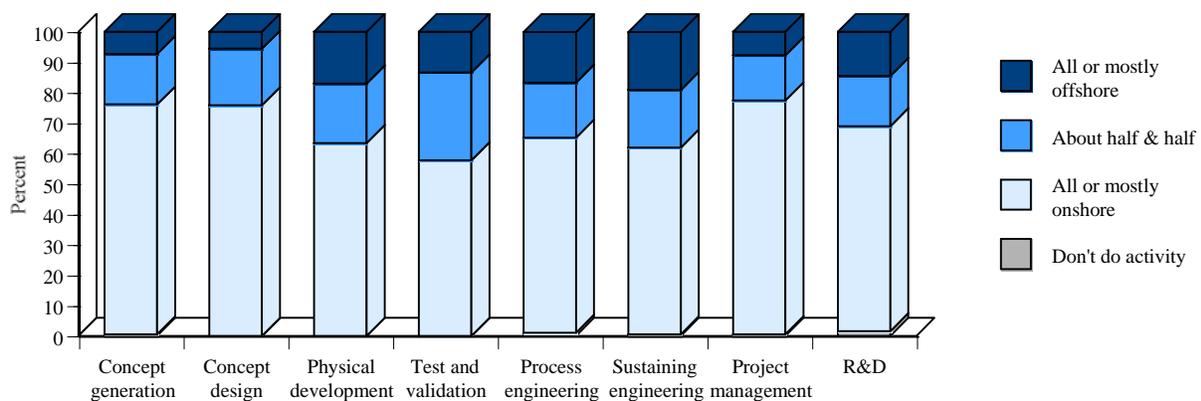
**Figure 7. Locations of offshore NPD**



## Which activities do firms conduct offshore?

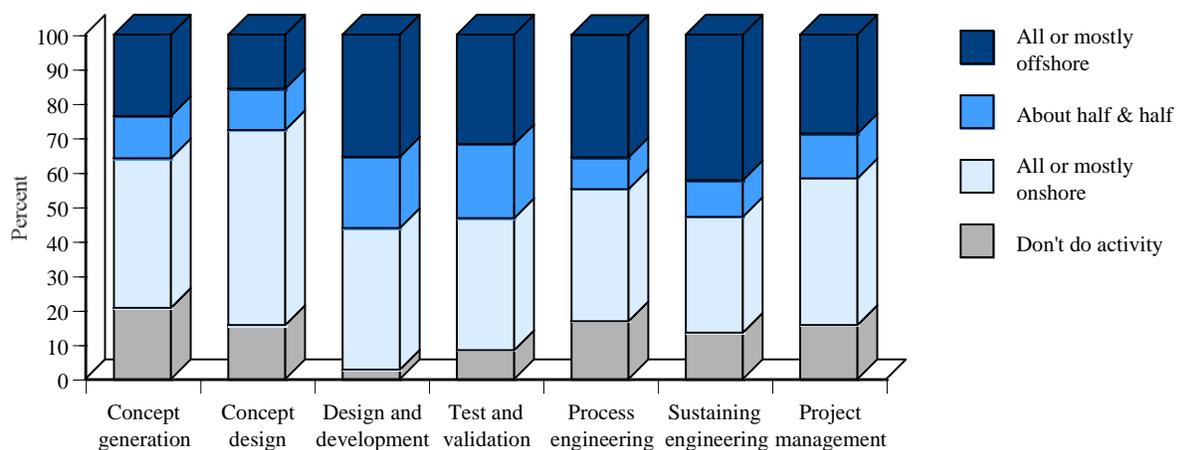
New product development can be divided into several phases or activities, from concept generation to sustaining engineering, in addition to project management and R&D. Some activities are offshored more frequently than others. The most frequently offshored activities for in-house NPD were physical development, test and validation, process engineering and sustaining engineering (Figure 8). Those activities can be separated from the earlier concept generation and design activities which tend to be done mostly in the U.S. to be close to the home market and where the most experienced personnel are likely to be available.

**Figure 8. Proportion of in-house NPD activities done onshore and offshore**



The relative patterns are similar for outsourced NPD, but the frequency of offshoring all activities is higher when NPD is outsourced (Figure 9). This is probably due to the fact that NPD is often outsourced to foreign companies, such as original design manufacturers, who do NPD in their own home country or close to their production facilities which are more likely to be offshored.

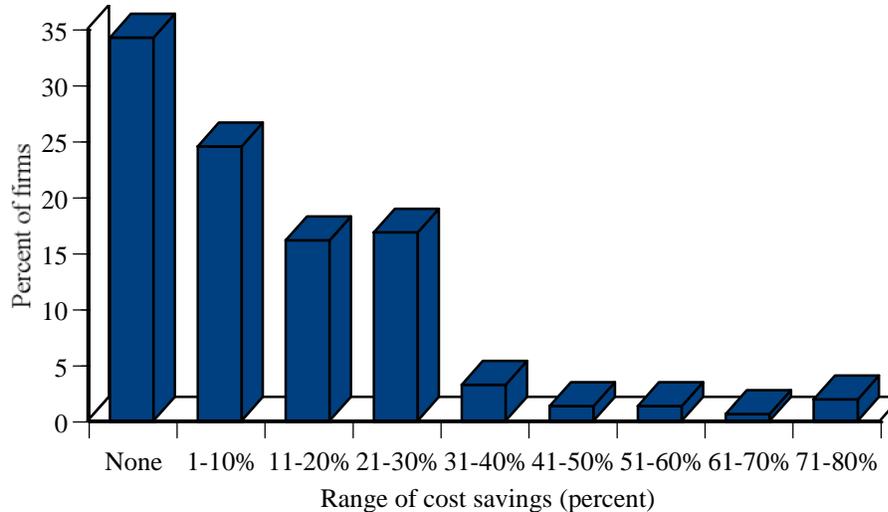
**Figure 9. Proportion of outsourced NPD done onshore and offshore**



## Performance of offshore NPD

As noted before, the most important reason for conducting NPD offshore was to reduce costs. Among our respondents, the mean cost savings associated with offshore NPD was 14%, with a median of 10%. Cost savings varied significantly. Fully 34% of firms reported no cost savings at all, while 17% reported savings of 21-30% and 8% reported savings of over 30% (Figure 10).

**Figure 10. Cost savings from offshore NPD**

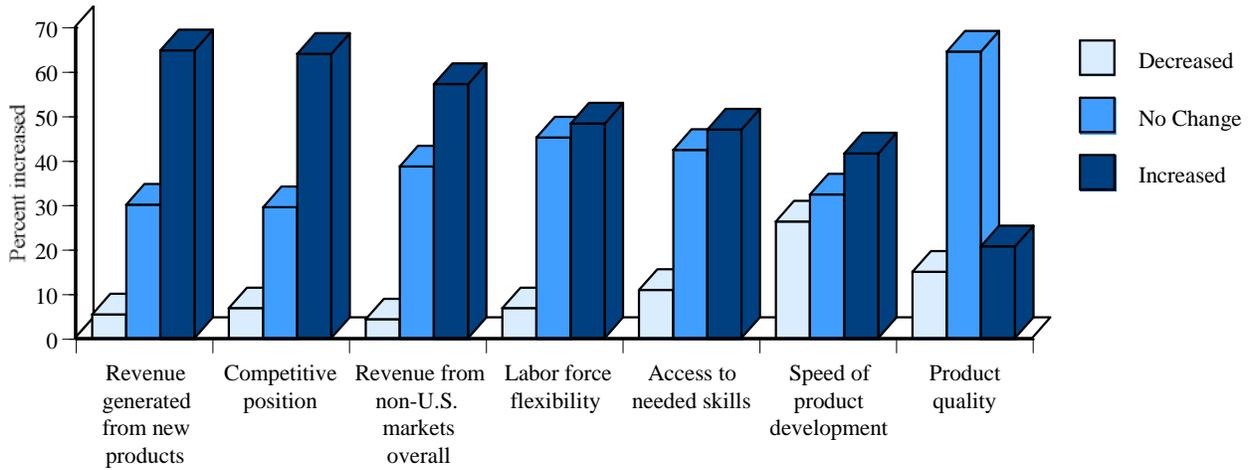


In terms of other measures of performance, the largest share of firms reported an increase in revenue from new products and improved competitive position; both were reported by almost two-thirds of respondents (Figure 11). This result is interesting as offshoring is more commonly thought of as a means to reduce costs or access talent, but is consistent with the idea that offshoring enables firms to bring more products to market faster.

On the other hand, only 41% reported an increase in speed of product development, while 26% reported a decrease in speed. So, it may be that offshoring allows firms to work on more products at a time rather than increase the speed of development of any particular product.

Improved access to skills and greater labor force flexibility were reported by about half of respondents. In terms of quality, most reported no change.

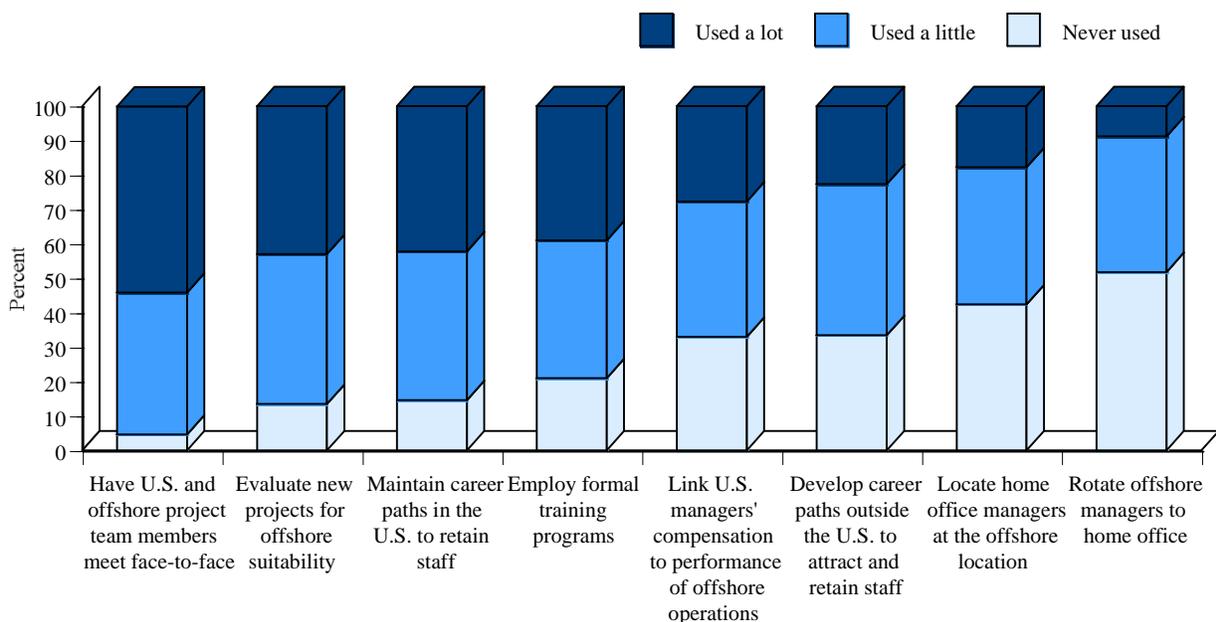
**Figure 11. Impacts of offshore NPD on performance**



### Management practices

Firms use a variety of practices to manage offshore NPD processes. The most commonly used is having U.S. and offshore team members meet face-to-face (Figure 12). This suggests that it is difficult to coordinate work between distant locations remotely, even with access to telecommunications, the Internet and other technologies, and that there is still a need for personal interaction. These interactions appear to be short-term, however, as it is much rarer for firms to locate home office managers at the offshore location or bring offshore managers to the home location.

**Figure 12. Use of offshore management practices**

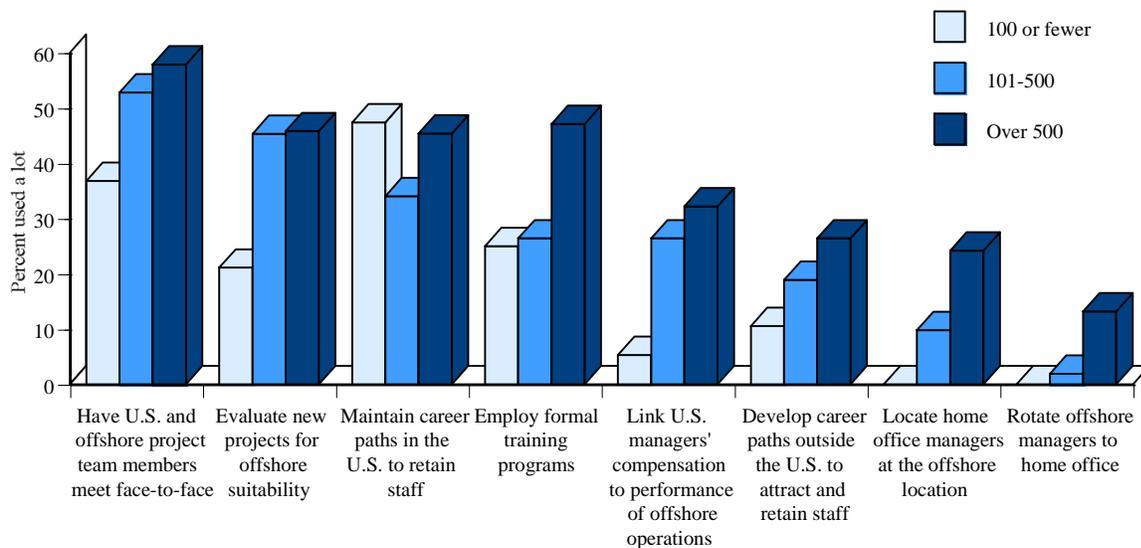


Over 40% of firms evaluate new projects for suitability for offshoring a lot. Those who do are probably more likely to locate NPD activities offshore.

In terms of human resource practices, over 40% report maintaining career paths in the U.S. to retain staff a lot, an important issue when activities are being moved offshore and workers may be concerned about their own careers with the company. A smaller number (23%) develop career paths outside the U.S. to attract and retain staff in offshore locations. About 40% employ formal training programs to facilitate offshoring.

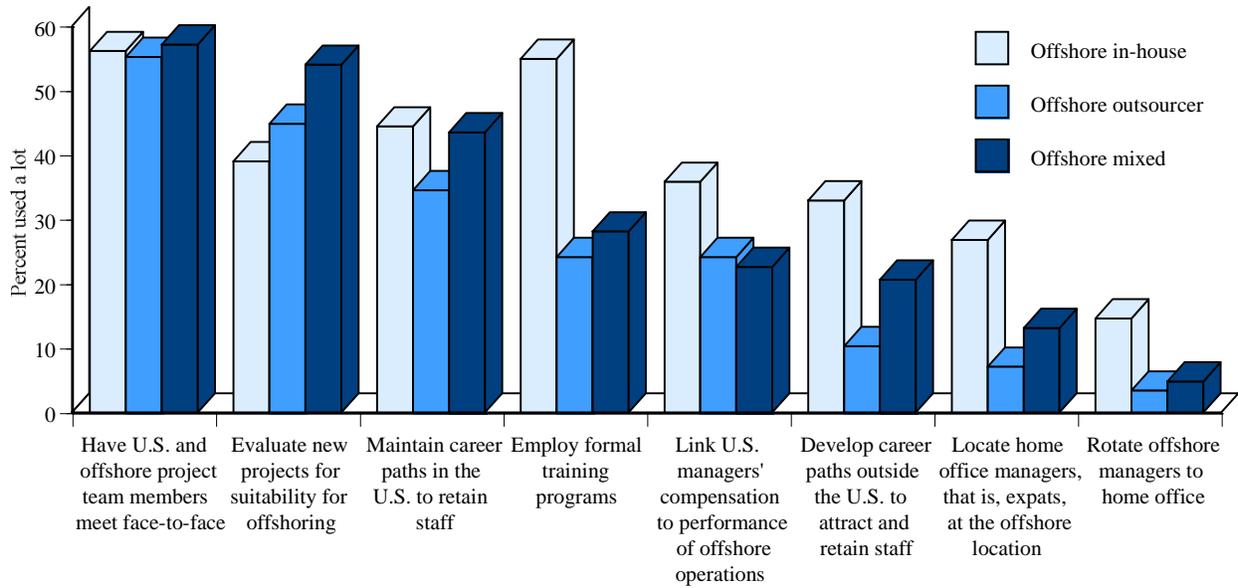
Interestingly, the use of these different management practices varies considerably by firm size (Figure 13). There are significant differences by size in the use of every management practice except for maintaining career paths in the U.S. and evaluating new projects for offshore suitability. In most cases, larger firms are more likely to employ a given management practice, perhaps because they generally have more formalized structures and processes, as suggested by the overall pattern in the figure.

**Figure 13. Offshore management practices by firm size**



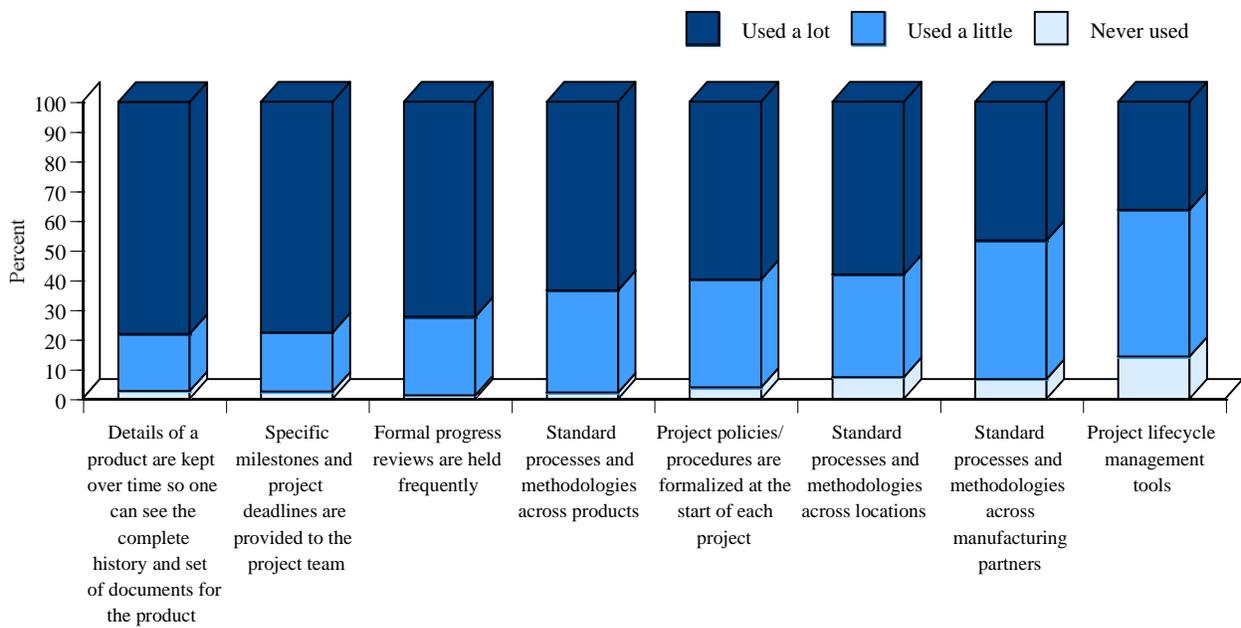
Firms also differed in their management practices depending on their mode of offshoring, whether in-house, outsourced or both (Figure 14). There were significant differences in employing formal training programs, developing career paths outside the U.S., locating home office managers as expats at the offshore location, and rotating offshore managers to the home office. In each case, it was firms with in-house (captive) NPD that were more likely to use such practices than those who outsourced only. Firms that go offshore through in-house subsidiaries apparently invest more in facilitating the offshore process, while those who outsource may leave more up to their outsource providers.

**Figure 14. Use of offshore management practices by mode of offshoring**



All respondents (including non-offshore firms) were asked about their management of the NPD process. The vast majority of firms keep product documentation over time (Figure 15). They also use well-defined development processes, such as specific milestones and deadlines and formal progress reviews. Least common is the use of project lifecycle management tools.

**Figure 15. New product development practices—all firms**



It is expected, based on other studies, that firms that go offshore would tend to make greater use of formal NPD processes in order to coordinate such activities over long distances. Yet, we find little difference among those who are offshore and those who are not in our full sample (Figure 16). Offshore firms are more likely to provide specific milestones and deadlines, and less likely to use project lifecycle management tools. Other differences are not statistically significant.

**Figure 16. NPD process—offshore versus non-offshore companies**

