



Cyon Research 2010 Survey of Engineering Software Users

A Cyon Research Report

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Executive Summary

Is there light at the end of the tunnel?

Has customers' outlook changed? What are they contemplating for future spending? When they resume spending, what are their top priorities? How might they allocate their next marginal spend?

How happy are customers with their CAD, CAE, and PDM software? What's keeping them from switching to competing offerings? How do they view relative offerings when the choice is between best point-solutions and well-integrated set of products? What are customers thinking about many of the latest technologies?

Cyon Research's recently completed survey of technical software users helps answer these questions and others like them. This survey is based on validated responses from more than 700 users of CAD and CAE software and focuses on customer resistance to change software (**software stickiness**), **spending priorities**, desire for a **best-in-class versus a best-integrated solution**, and interest in **new technologies**.

Our survey reveals increasing optimism when compared with 2009. About 55% expected revenue growth during the second half of this year and 60% expected to see measurable revenue growth in 2011. Nearly 40% expect that their firms will resume hiring engineering and design personnel. Not only were the numbers more positive than last year but the comments we received were also more upbeat on the whole.

We saw a significant drop in the percentage of customers considering cuts in spending. In particular, only 9% are planning on cutting maintenance of seats in use. Compare that with the 40% we reported last year.

On the spending side, software upgrades/updates led the way with 28% of our respondents planning to purchase updates of existing software and 17%

planning to purchase new software capability. A larger portion of the planned increase in spending on updates is from respondents in AEC sectors than from those in manufacturing. Planned spending on updates was stronger in EMEA than in Asia-Pacific or Americas regions.

When offered the opportunity to add 10% to their budget for software spending, the top items expenditures budgeted were for upgrades and maintenance, additional analysis capability, and software for the early stages of design.

When software spending was only part of the overall increase, it garnered less than a fifth of budget allocations, with the top budget wish list allocated to training and education and to documenting and improving workflow/processes.

Existing suppliers of engineering software should not become overly upbeat about their prospects. More than 60% said their companies had switched CAD software and nearly 30 percent of those surveyed are sufficiently dissatisfied with their current software tools that they would like to switch.

Among the major classes of software, customers are most dissatisfied with their PDM systems. More than 25% of SMBs and 30% of large firms were either in the process of switching PDM systems or had just switched within the past two years, about twice the rate of change for CAD or CAE systems. 45% of large firms are going through or have just gone through a consolidation of PDM software.

The above data are merely a sample of the vast amount of information Cyon Research has amassed in our survey. Our Survey of Engineering Software Users is an ongoing project, intended to capture market trends early. Cyon Research's subscribers receive this and other updates as part of their subscription.

Cyon Research 2010 Survey of Engineering Software Users

A Cyon Research White Paper

Cyon Research completed a survey of individuals from companies that use engineering design software. The current survey is a continuation of our research into customer thinking, with a focus on software *stickiness*¹, spending priorities, and attention to selected new technologies.

This current survey is based on the responses from 702 validated customers, three-quarters of whom are from the Americas, 15% from EMEA, and 8% from Asia-Pacific. They can be filtered by: the software they use, the industries in which their company operates, the size of the firm, the number of seats of various types of software used, and other factors.

The survey looked at these key types of information: demographics²; software *stickiness*; preference for best-in-class versus best-integration; spending priorities; expectations for spending, staffing, and performance gains; and technology initiatives.

Software stickiness refers to the reluctance of firms to switch from one software tool to a competing software tool. We looked at what factors were preventing respondents from switching to a different CAD or CAE system, would they like to switch, and when they last went through a transition, whether by reason of choice, or due to some corporate consolidation.

Many software vendors have focused on providing the best possible point solution to a given problem. Others have focus on integrating point solutions into comprehensive, interoperable suites of solutions. We looked at the preference for **best-in-class** or **best-integrated** solution and explored how various types of customers differed in their preference or indifference for the each of solution.

We also looked at respondent's **expectations** for their firms staffing changes, revenue growth, and improvements they expected to see in the next 18 months in their customer satisfaction, market share, product development cycle time, product quality, and profitability. We also extended our ongoing research into specific actions related to spending and cutting expenditures for engineering software and maintenance.

In the area of **spending priorities**, we looked at how respondents felt their firms would allocate funding if the firm had an extra 10% added to its software acquisition budget. Separately, we asked how respondents would allocate a similar, extra

10% budget increase among a range of initiatives, including software spending.

Lastly, we explored respondents' involvement and **interest in new technologies**, ranging from augmented reality (AR) to Twitter, and current and planned technology initiatives.

The resulting data is being made available³ in an accessible, easily explorable format, based on tools from Tableau Software. In preparing this report, we focused on information of value both to companies that sell technical software to the manufacturing and AEC markets, and to those who invest in such companies.

This report includes general observations that are drawn from the collective respondent base. The data support significant, additional analysis of relevance to organizations, which is a separate service⁴ that Cyon Research provides to its clients.

Observations

The primary purpose of Cyon Research's work is to get a deeper understanding of issues, policies, and practices surrounding the acquisition and deployment of software for design and engi-

1 Software stickiness is similar to customer loyalty, but refers to customers' resistance to change rather than affinity to the software.

2 Details on demographics of the survey respondents are at the end of the report, as is our methodology for collecting and evaluating the data.

3 Cyon Research is making the workbook with the demographics data available to the public at no charge at <http://cyonresearch.com/whitepapers>. The other data is available for purchase from Cyon Research.

4 Readers interested in a deeper analysis of the data can contact Brad Holtz at Cyon Research. Brad can be reached at 301-365-9085 or brad.holtz@cyonresearch.com

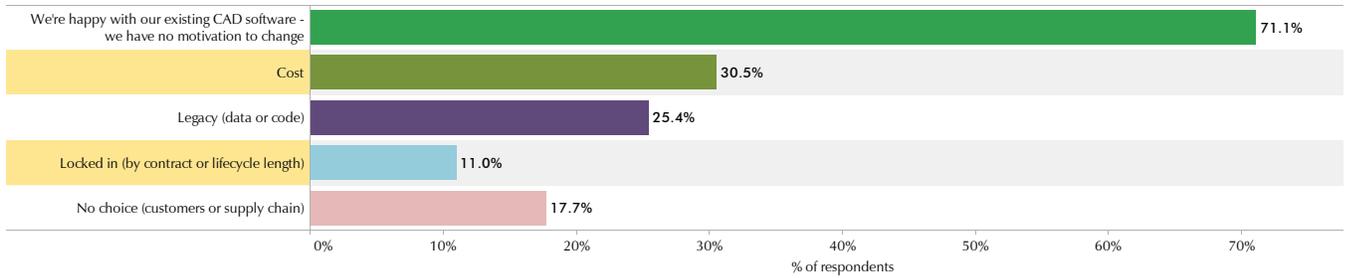


Figure 1. What's keeping respondents from changing to different CAD Software.

neering. These observations may either confirm our expectations, or to identify areas that warrant further exploration.

Software Stickiness

The following questions about software stickiness were asked of survey respondents, as shown in Figures 1 through 10.

- What's keeping you from changing to different CAD software?
- What's keeping you from changing to a different CAE system?
- When was the last time your firm went through (or considered) a software transition of its primary software platform?

CAD Software Satisfaction

We were somewhat surprised by the low rate of satisfaction for CAD software. As you can see in Figure 1, 71% were happy with their current CAD system, which means that almost 30% of our respondent base was not happy with their current software. This percentage was fairly consistent and did not vary based on company revenue, role of the respondent, how much the respondent used CAD, CAD vendor, or geography.

The only exceptions to that 30% unhappy rate were based on number of CAD seats (firms with fewer than 10 seats had a greater percentage of respondents who were happy); specialized MCAD versus mainstream MCAD⁵ (37% of the respondents from firms with specialized MCAD⁶ were

5 See Cyon Research white paper, "A Fresh Look at the Value-Proposition of High-End MCAD," published in 2007, available at <http://cyonresearch.com/whitepapers>

6 46% of respondents with CATIA V5 did not indicate that they did not want to change compared to 35% of the respondents with NX. Both figures are abysmal.

unhappy, versus 28% for those with mainstream MCAD). Also notable was the poor showing of BOTH Revit and MicroStation, at 44% and 35%, respectively. The only notable bright spot on the vendor side was for respondents with Nemetschek Vectorworks, at 20%. Autodesk and Bentley might (rightfully) claim that their products are more complex and therefore our results may include a respondent bias for simplicity. This thesis would be worth exploring.

Many who indicated they were happy, also indicated one or more reasons they would not

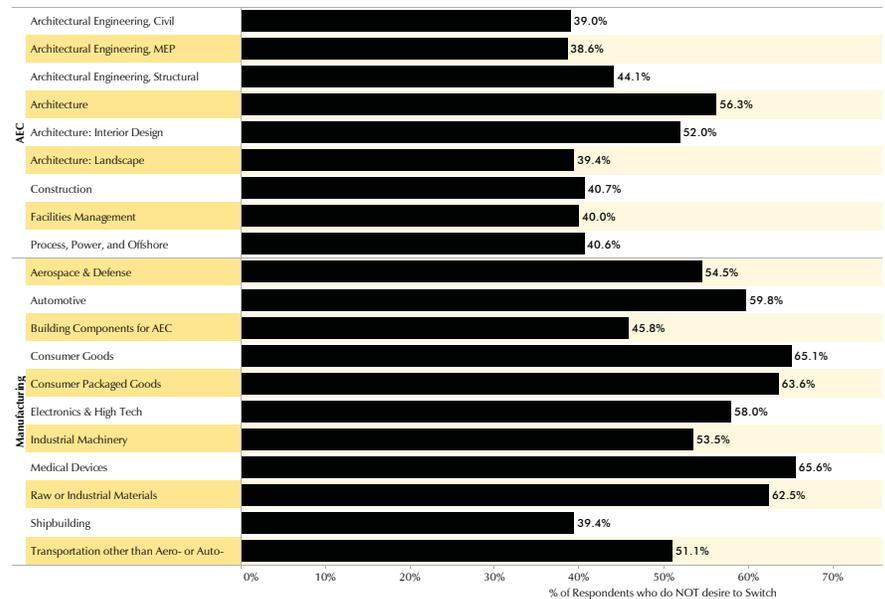


Figure 2. Percentage of respondents, by sector, who said they were happy with their existing CAD software and did NOT also indicate reasons for not switching.

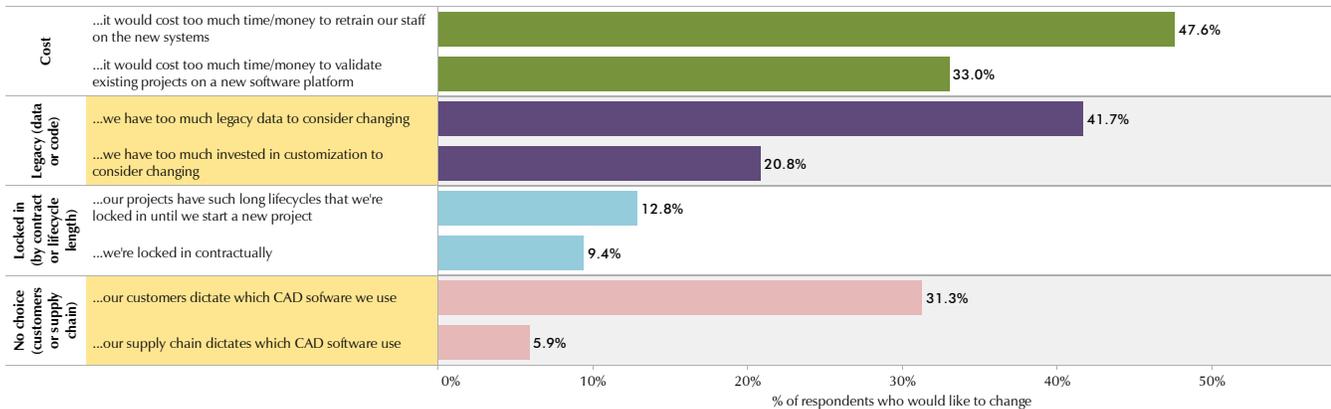


Figure 3. Similar to Figure 1, but looking only at those who are not happy with their current system. Numbers represent percentage of respondents who gave us at least one reason for not changing.

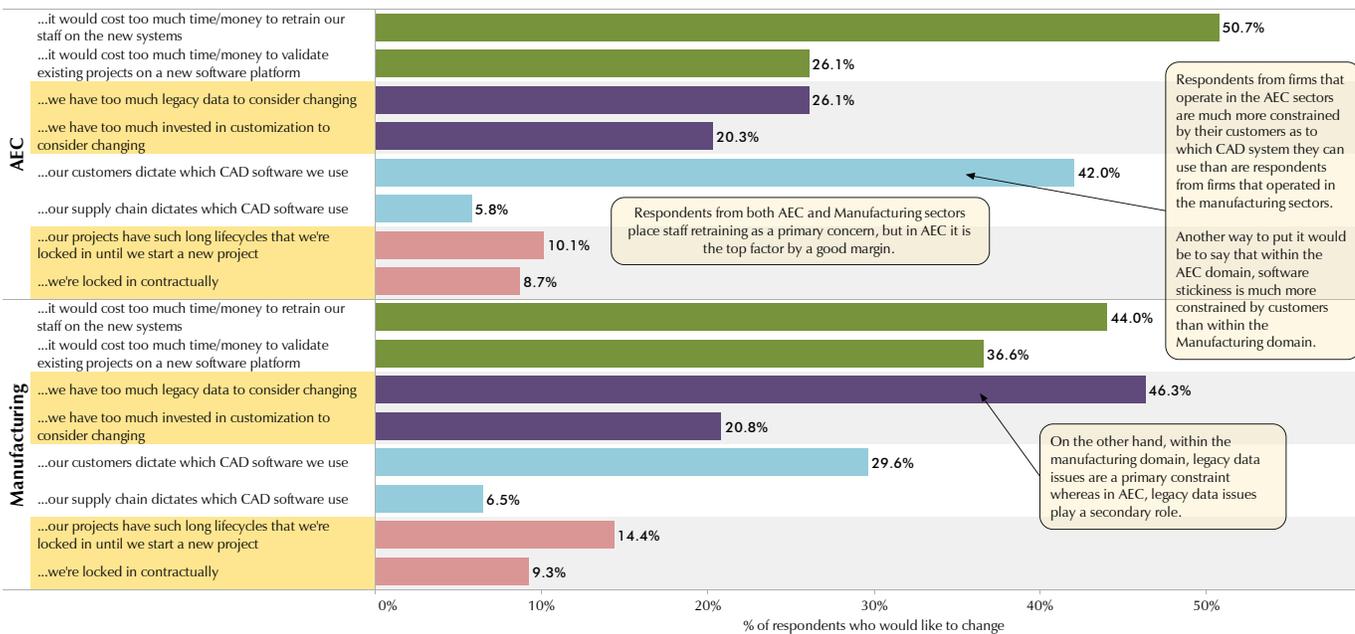
consider switching. When we looked at ONLY those who indicated they were happy with their existing CAD system and did NOT also indicate a reason for not switching⁷, the numbers were

⁷ Another way of describing this: of those who gave a valid response to the question, what percentage were just happy and didn't also give a reason not to change.

even more surprising (Figure 2). While it is likely that some portion of low figures in Figure 2 may be attributed to the wording of the question (i.e., happy customers reporting what WOULD prevent them from switching, should they at some time find themselves unhappy), we feel

that it is still indicative of a poor showing by ALL CAD vendors.

Cyon Research initially thought that more respondents would be happy with their current software and would be uninterested in switching. Upon reflection, perhaps one reason so many are unhappy is that those making the purchase decisions have different



Stickiness Reasons

- Cost
- Legacy (data or code)
- Locked in (by contract or lifecycle length)
- No choice (customers or supply chain)

Figure 4. Similar to Figure 2, showing the differences between the AEC and manufacturing sectors.

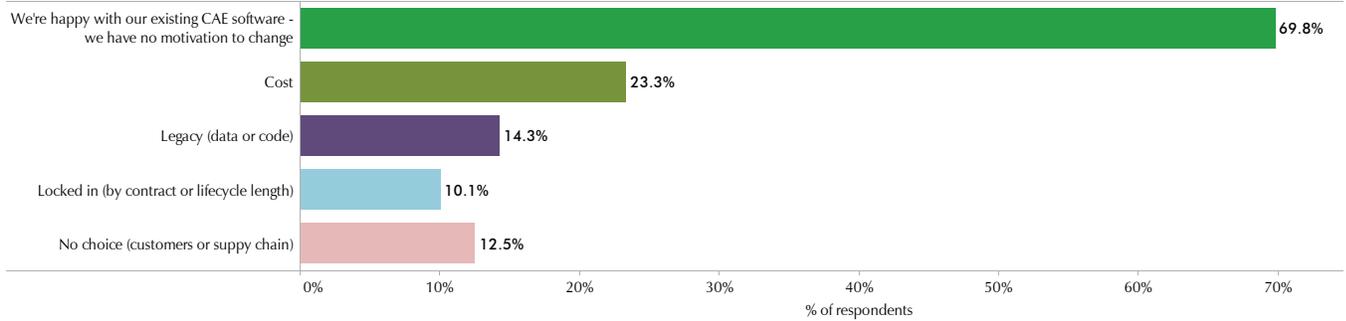


Figure 5. What's keeping respondents from changing to different CAE software? Compare with Figure 1, for CAD software.

criteria than those who are actually using these tools.

The two primary reasons for not changing CAD software were the **cost of training employees to use the new software** and the fact that the respondents felt they had **too much legacy data** to consider changing (Figure 3). This was followed by the problems that would be incurred in transitioning **existing projects** to the new software. While 16 percent stated that **their customers dictated what they use** only a fifth as many stated that **what they used was determined by supply chain requirements**.

Respondents from **AEC** sectors showed a higher percentage constrained by **customer requirements** than those from

manufacturing sectors. On the other hand, respondents from manufacturing sectors named **legacy data** and the **cost to validate existing projects on a new software platform** at much higher rate than did those from AEC sectors (Figure 4). Sectors within AEC and Manufacturing showed considerable variance concerning the relative importance of the different factors influencing changes in software. As an example, twice the percentage of respondents from the **shipbuilding** sector were concerned about **legacy data** as were respondents from **consumer packaged goods**. This is consistent with expectations—projects in the shipbuilding sector have much longer lifecycles. In general, **larger**

firms had more reasons for not switching with **legacy data** specifically standing out. **CEO and other senior executives** were most concerned about **customer requirements** while others were more concerned about **costs**.

Respondents from firms with a **large number of MCAD seats** installed had more reasons for not switching than did smaller firms.

Stickiness of CAE Software

For respondents with CAE software, stickiness for the most part was similar, but lower than for CAD software (Figure 5). The only notable differences were significantly less concern for **legacy data** (23% versus 42%) and a slight increase in **contract-**

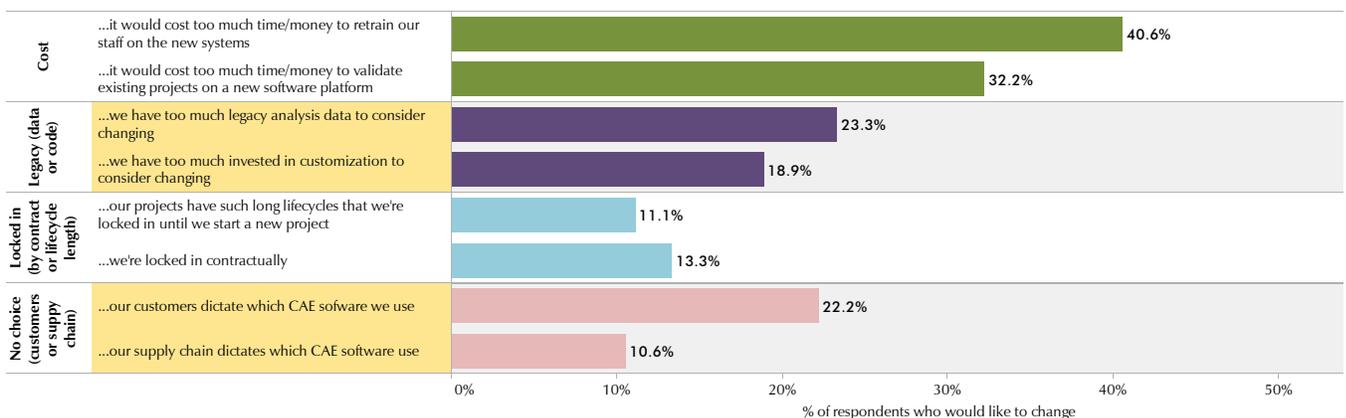


Figure 6. Similar to Figure 3, but for CAE software. Note the lower figures for legacy data and customer lock-in.

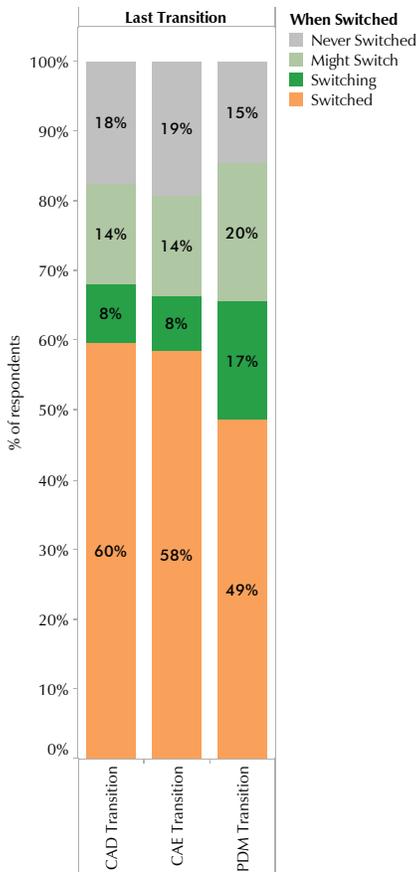


Figure 8. Respondents' **transitions** of CAD, CAE, and PDM software.

tual lock-in (13% versus 9%) (Figure 6).

Once again the **cost of retraining** was the main reason for not switching. Interestingly, the **number of CAE software systems used by a respondent** had very little impact on the results, with one exception: those with only one or two CAE software products were half as likely to mention **legacy issues** as those with three or more (25% versus 50%).

Software Transitions

Customers who are considering switching CAD or CAE software fall into two main categories:

- those who made or are considering a switch without pressure due to external factors (Figure 8).
- those who made or are considering a software switch due to some form of business consolidation⁸ (Figure 9).

Cyon has reviewed this in several different ways, including an extensive analysis concerning preferences for **best-integrated** versus best-in-class solutions as compared to plans. The highlights of this analysis are described below.

Among the respondents who were going through a **transition** from one CAD software to another (excluding consolidations), about 18 percent have **never switched** CAD software while 60 percent have **already done so** at least once. The balance, or 22 percent, are at some stage of **making a switch** (Figure 8, first column).

Among the respondents to the current survey who were involved in some form of business **consolidation**, about a third are currently either **considering, planning** or are **in the process of switching** their primary CAD software (green sections of Figure 9). About half of this class of users has already done so (orange), with most doing so **two or more years ago**. Only 18 percent said that they **never have switched** CAD software and have no intention of doing so at this time. Interestingly, most of those that switched due to consolidation **during the past**

⁸ For the purposes of this study, the term “consolidation” includes transitions due to mergers, acquisitions, and other software diversity reduction activities.

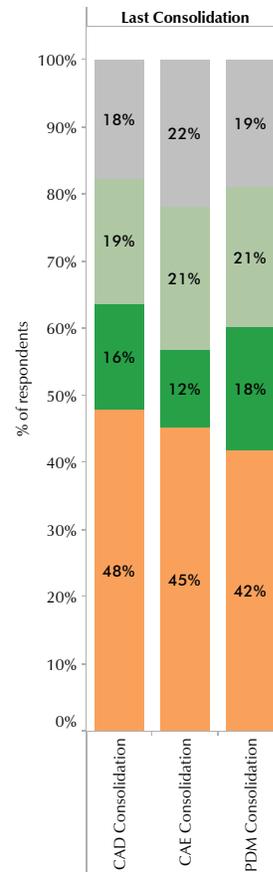
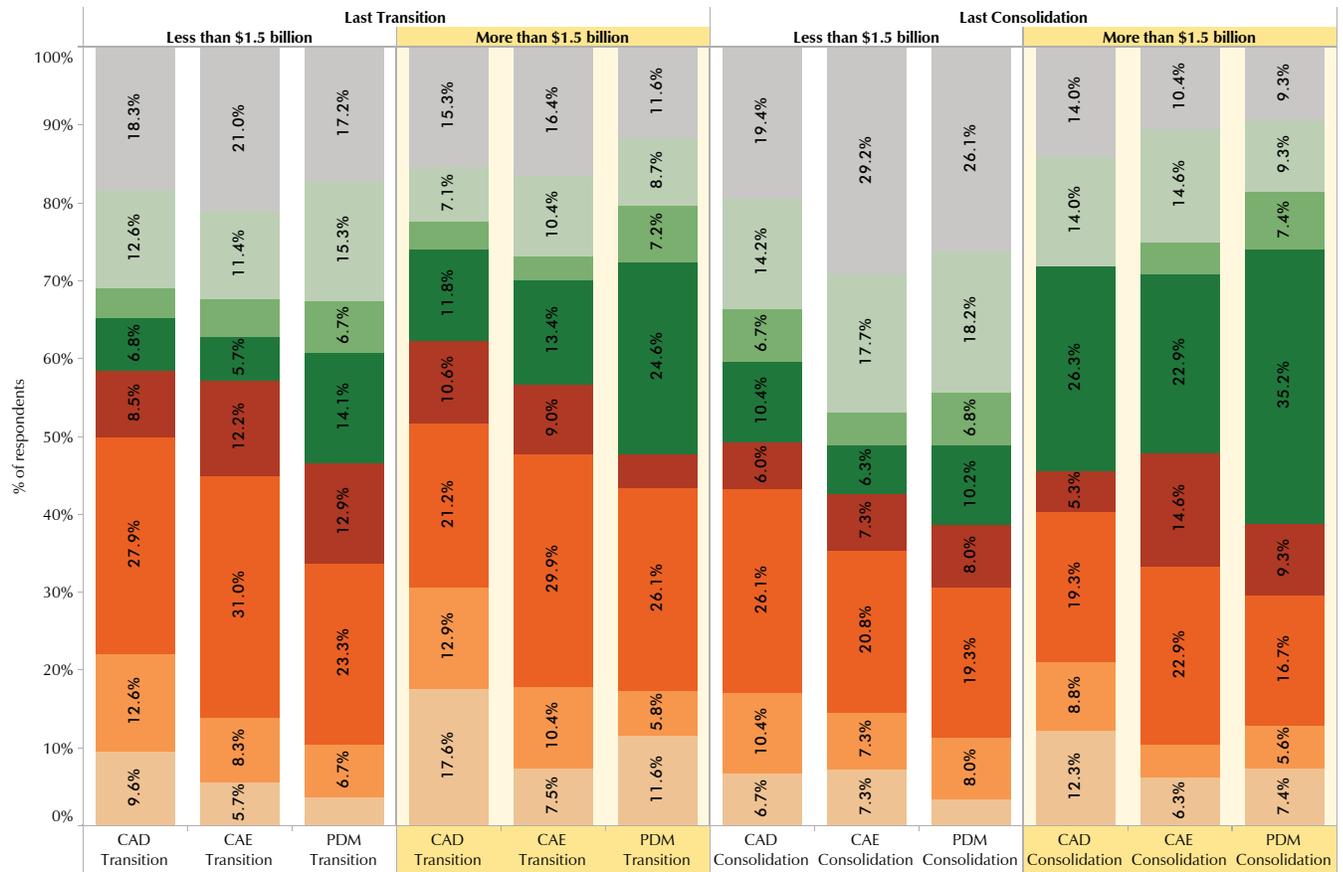


Figure 9. Respondents' CAD, CAE, and PDM software **consolidations**. Similar to Figure 8, but for consolidations of software rather than transitions.

two years were companies with **\$30 to \$200 million in annual revenue**. More than half that are **in the process of making a switch** are large companies—those with **more than \$1.5 billion in revenue**.

When we dive deeper into the data, several interesting things emerge. First, transitions of PDM software are occurring at twice the rate of transitions of CAD or CAE software. Second, the percentage of large⁹ firms in the middle of software consolida-

⁹ For the purposes of this study, we will consider large to mean firms with more than \$1.5B in annual revenue, and SMB to refer to smaller firms.



- When**
- We've never switched systems
 - We're considering switching in the future
 - We're planning on switching soon
 - We're in the middle of a transition now
 - We switched less than 2 years ago
 - 2-6 years ago
 - 6-10 years ago
 - More than 10 years ago

Figure 10. Similar to Figures 8 and 9, but finer grained and comparing large firms (those with more than \$1.5B in annual revenue) with SMB (firms with less than \$1.5B in annual revenue). Red color indicates that a switch has taken place, with lighter tones showing less recent changes. Bright green indicates changes taking place now, with lighter tones indicated likelihood of future activity. Grey shows those who have never switched and have no plans to switch.

tions is two- to three-times that of SMBs. While we expect large firms to have higher percentage of active change, we were not expecting the differential to be as large as we found. And third, we were surprised that, particularly for SMBs, there was so little difference between CAD and CAE transitions. (Figure 10).

Respondents' Remarks on Software Stickiness

A number of respondents reported that their firms considered moving to a new CAD platform, but did not do so because of the **cost**, because the new software **lacked capabilities they needed**, or just due to **corporate inertia**.

One theme permeates the responses—a move from AutoCAD, but not necessarily away

from Autodesk. The positive news for Autodesk is that long time customers are upgrading to Inventor for mechanical design and Revit for architectural design.¹⁰ We interpret that action as consistent with the general move of industry from generic 2D to vertically oriented 3D professional tools.

¹⁰ Very few respondents told us they moved to either Inventor or Revit as a move away from other (not AutoCAD) software.

We received a good number of responses from SolidWorks users. Interestingly, more than half of those are former AutoCAD users. The others moving to SolidWorks were discontinuing a variety of products including Pro/ENGINEER, Ideas, Solid Edge and CADKEY. All the comments we received from SolidWorks users were positive about the change. Said one user about his transition from generic 2D to vertically oriented 3D professional tools,

“AutoCAD to SolidWorks, best thing since sliced bread.”

For some organizations, switching software for CAD, CAE and PLM has been an extensive process.

“From multiple CAD tools to CATIA V5 - difficult for some pockets of Pro/ENGINEER users, excellent for SolidWorks, Inventor, and Anvil users. For CAE tools, to ANSYS Workbench and Mechanical, the transition has been quite painless, other than licensing. For PDM, it is not a simple process to migrate millions of objects; we are in the middle of a three year plan to perform this transition”

Not everyone was pleased with software their firm had chosen:

“Tried to consolidate to CATIA but it proved unworkable - too expensive”

“A transition from IronCAD to Inventor was only partially satisfactory due to software robustness - still using both systems”

“I find the software 10+ years behind what I’ve used in other companies and feel there has been no ‘ground swell’ of support for change, except from newer and younger employees.”

Written remarks on CAD and CAE software followed the non-written portion. The two issues cited most frequently for sticking with existing CAE were the **cost of making a change** and that the **current software met their needs**.

There were a broader range of reasons for not changing CAD software as compared to CAE software. **Cost** was still a big issue and many felt that their current tools met their needs. In addition some cited internal staff differences while others were concerned about **legacy data**. A number stated that they were already in the process of making a change or were willing to do so.

Best-in-Class versus Best Integrated

One of the key debates among software vendors (and among their customers) is the relative importance of best-in-class solutions and best-integrated solutions. To address this we asked this question, with the results shown in Figures 11 through 15:

- When it comes to software for design and engineering (including BIM, PLM, DP, CAE, etc.), my firm typically prefers to select...

Respondents answered the question for each of **CAD, CAE, ERP,** and **general office software**. The choices allowed were:

- *The best point-solution for each functional application. My firm can handle the integration if/when necessary* (Figure 11, red).
- *The best point-solution for each functional application, so long as the solutions can communicate with each other* (Figure 11, orange).
- *A well integrated set of products, even if each component is not the best point-solution* (Figure 11, green).

This was a tricky issue to analyze, perhaps due to the way we asked the question. In retrospect, it appears that respondents did not make as much of the distinction as we had expected to see between the **middle option** (orange) and the two extremes (red and green). As a result, it appears that the best way to get a meaningful understanding would be to look at the data in red and green and consider the orange component as relatively neutral (no preference). While not entirely accurate, doing so will avoid erroneous conclusions.

For example, in Figure 11 below, the most accurate state-

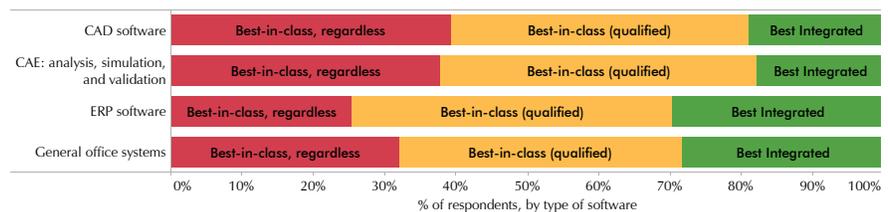


Figure 11. Best-in-class versus Best Integrated.

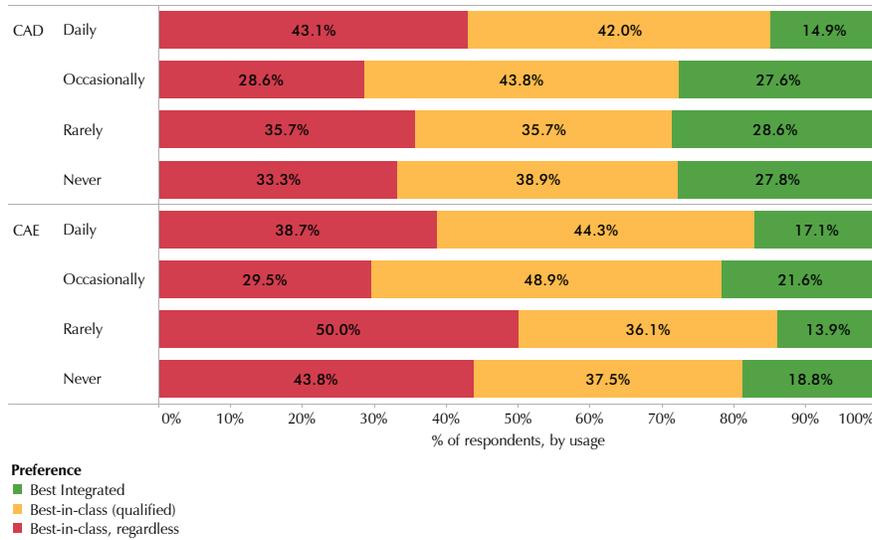


Figure 12. Similar to Figure 11, showing for CAD and CAE, by differences of intensity of CAD use.

ment would be that a larger percentage (38% versus 25%) of respondents are interested in **best point-solution** for **CAD** and **CAE** than they are for **ERP**. Similarly, respondents taken as a whole, were twice as likely (38% versus 18%) to indicate a preference for **best point-solution** (**best-of-breed** or **best-in-class**) than a **well integrated set of products** (**best-integrated**).

We found the data in Figure 12 to be interesting. It was not surprising to us that **daily users of CAD** had a higher demand for **best-in-class** (red) than did their peers who were not daily users. What we did not expect was that only 15% of them would express a preference for the best-integrated solution.

Similarly, while the preference in CAE for **best-integrated** was relatively low across usage types, it was at least consistent. What was interesting here was significantly higher polarization in favor of

best-in-class among those that **rarely** use CAD software.

In general, fewer than 20 percent preferred **best-integrated** CAE. This did not vary notably by respondent's title.

Those who had the most responsibility for managing software,

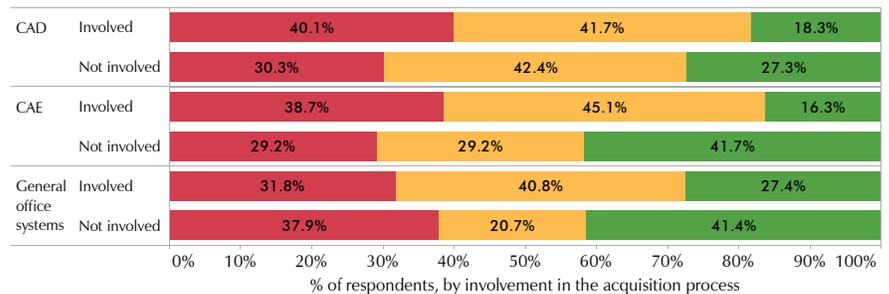


Figure 13. Similar to Figure 11, showing differences by involvement in the acquisition process.

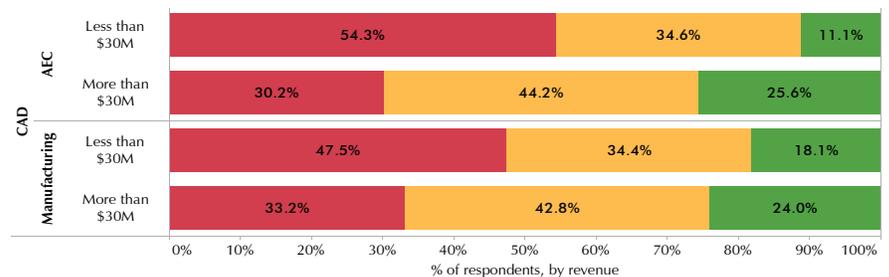


Figure 14. Similar to Figure 11, for CAD software, showing preferences by sector and annual revenue.

such as team leaders, CAD managers and project managers, showed a higher percentage in favor of **best-integrated** than did other respondents.

We found an interesting correlation in the relationship between a respondents role in the software acquisition process and preference for **best-in-class** or **best-integrated** (Figure 13). Respondents **involved in the software acquisition** process showed a slightly greater percentage preferring **best-in-class**, than did their peers not involved in the software acquisition process. This was notable, but not a strong correlation. What WAS a strong correlation, was the preference for **best-integrated** software by those NOT involved in the software acquisition process. This was accentuated by a higher

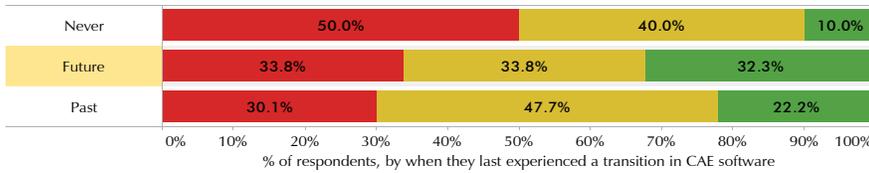


Figure 15. Similar to Figure 11, showing for CAD, by when respondents last experienced a transition in CAE software.

level of polarization¹¹ among those not involved in the software acquisition process.

Respondents from the **AEC** and **manufacturing** sectors did not notably differ in their distribution of preference for best-in-class versus best integrated, except for firms with **less than \$30 million in annual revenue** (Figure 14). For them, those from the AEC sectors had a higher percentage preference for **best-in-class** CAD software and lower percentage preference for **best-integrated** CAD software than did their peers from the manufacturing sectors. More importantly, there was no notable differentiation in preference by annual revenue EXCEPT for firms with less than \$30 million in annual revenue. Respondents from these **small firms** expressed a significantly higher percentage preference for **best-in-class** CAD software than did their peers from larger firms.

As respondents move towards deployment of **Windows 7** they appear to become more interested in **best-integrated** CAD and CAE. Companies that have decided not to deploy Windows 7 or are not paying attention to Windows 7 showed a higher percentage interested in **best-in-class**.

¹¹ Polarization in this context refers to more red and green, and less orange.

Cyon Research also looked at the potential correlations between **transition or consolidation of systems** and preference for **best-in-class** or **best-integrated**. There was only one notable correlation—those that were actively or considering switching CAE systems¹² had a higher percentage preferring best-integrated CAD solution and a lower uncertainty (orange) than those that had undergone a transition of CAE system in the past, and much higher than those that have never experienced a transition of CAE software (Figure 15).

We also looked for correlations with respondent’s plans for adding new capability. Responses were evenly balanced between **best-integrated** and **best-in-class** CAD software, but for CAE software, there was a higher percentage preference for **best-in-class**. This held true for companies considering upgrading their software.

Expectations

A primary goal of Cyon Research’s studies is to get a better understanding of what drives customer software purchases. A key component of their thinking is their vision of what they expect to happen in the near future. We

¹² See dark green portions of Figure 10, shown in Figure 15 as “Future”.

asked the following questions to address these expectations, with the results shown in Figures 16 through 27:

- *For the first half of 2010, I expect that our firm will make the following staffing changes to its core staff (does not include outsourcing or offshoring issues)*
 - *By how much do you expect your company’s REVENUE to change, compared to the same period in 2009?*
 - *Over the next 18 months, by how much do you expect to improve your product development cycle time; product quality; market share; customer satisfaction; and profitability?*
- We also extended our ongoing research into specific actions related to spending and cutting expenditures for engineering software and maintenance:
- *With respect to software tools for design and engineering, I expect that my firm will do the following¹³ during first half of 2010?*

Staffing

Our study closed in January, 2010. At the time, the general economic picture (at least in the US) was optimistic that we were coming out of the economic downfall. As we write this today, a positive economic outlook seems less certain.

At the time, however, 38% of our respondents expected to hire in **design and engineering** departments, and about 25% expected to hire in **manufac-**

¹³ List of options is described in “Spending and Cutting” below, and shown in Figure 24.

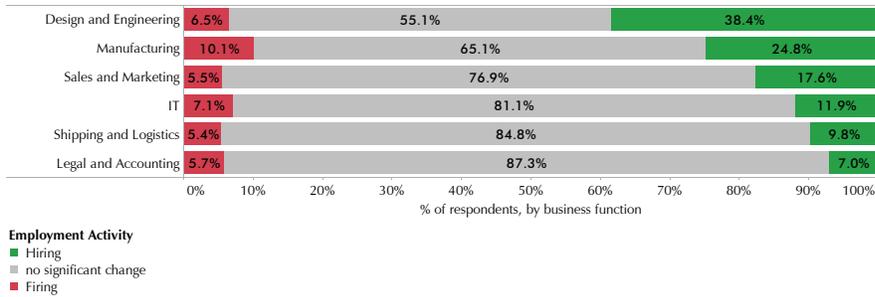


Figure 16. Expected hiring and firing by respondent's firms, for the first half of 2010, by business function.

turing (Figure 16).¹⁴ Expectations regarding adding design and engineering personnel was across the board irrespective of the respondent's position in the company, involvement in the procurement process or any other demographic. Very few expected any substantial layoffs.

Responses regarding hiring did not vary much by firm size and

14 Actually, 38% of respondents who were able to answer the question. Excluded from this are respondents who "did not know" or considered this information "above my pay grade." When you add those into the basis, the figure drops slightly, to 33%.

staff additions were fairly consistent for different size companies, but **large firms** indicated they would be reducing staff at a much greater rate than did SMBs (Figure 17).

We also found a slight correlation between firms planning on cutting staff and those that indicated a preference for best-integrated CAD software.

Revenue

We have been tracking respondents expectations for revenue growth over multiple surveys.

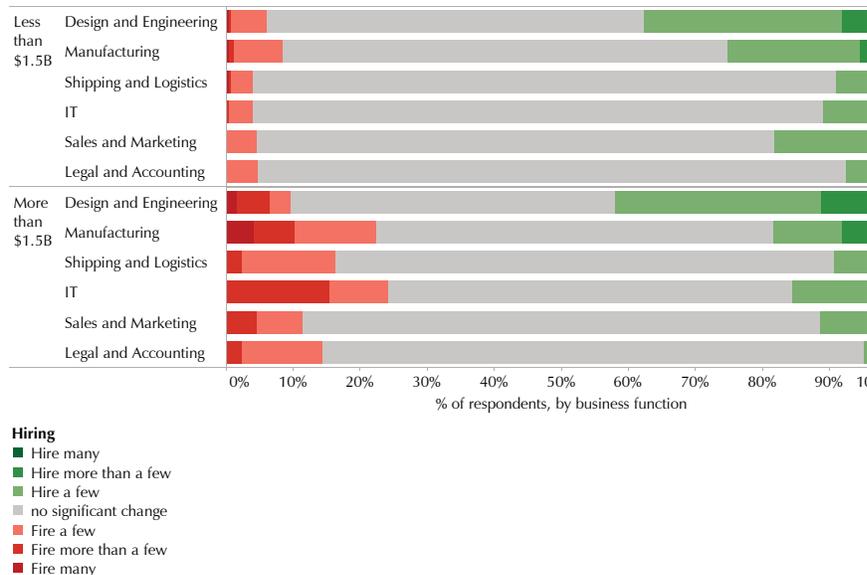


Figure 17. Similar to Figure 16, showing finer grain of detail and also differences between large firms and SMBs. Respondents by MCAE system deployed. [We have elected to refrain from labeling the individual values, for purposes of clarity]

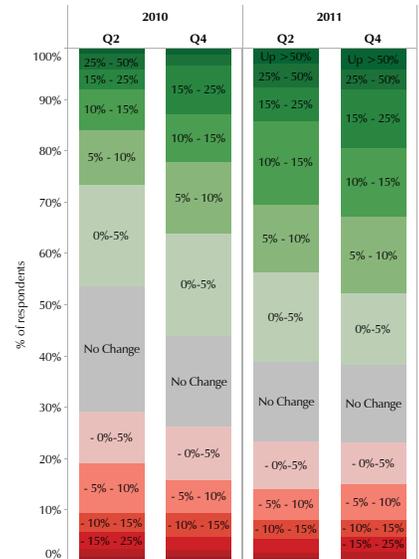


Figure 18. "By how much do you expect your company's REVENUE to change, compared to the same period in 2009?" Labels show range of revenue change for each color band.

Current survey results are shown in Figure 18. As you can see, slightly fewer than 30% of the respondents indicated an expectation for a decline (red) in year-over-year revenue for the first half of 2010 (as highlighted in Figure 19). For the second half of 2010, slightly fewer expect to have a decline in year-over-year revenue and similarly, fewer respondents expected revenue to be flat in the next three half-year periods (gray).

When compared with our survey from the prior year for the same period, respondents actually had higher expectations near-term in the current survey, but that expectation was relatively flat (while still positive) for 2011. In our prior survey, when 2011 was still further removed, respondents had expected to be recovering at a greater rate (compare slope of highlighted areas in Figures 19 and 20).



Figure 19. Similar to Figure 18, showing data values and highlighting limits of revenue drops. Labels show % of respondent for each band of revenue change.

Results for AEC and manufacturing sectors were almost identical, with the exception of expectations for Q2 2010, where 35% of respondents from AEC sectors expected lower revenue, compared to 27% from the manufacturing sectors (Figure 21).

Interestingly, firms with annual revenue between \$30 million and \$200 million were both the most optimistic and most certain¹⁵ for year-over-year revenue improvement from 2010 to 2011.

There was not much variance by title, with the exception that management (other than CxO) had the highest percentage of expectation for a drop in revenue, but that difference was only for 2010.



Figure 20. Similar to Figure 19, but showing data from Cyon Research's survey from the prior year. Note the difference in slope of the highlighted sections between Figures 19 and 20.

We did observe a difference between revenue expectations of respondents with CATIA V5 and those with NX. A larger proportion of NX customers than CATIA V5 customers expected to recover (revenue growth) near term. The differences tapered out by the end of 2011, but more NX customers showed expectations of positive gain in the current year. The only sector difference was for 2010.

But far more respondents were positive about business volume going forward. The three major reasons were **growing order volume, internal business developments, and new products**. For example:

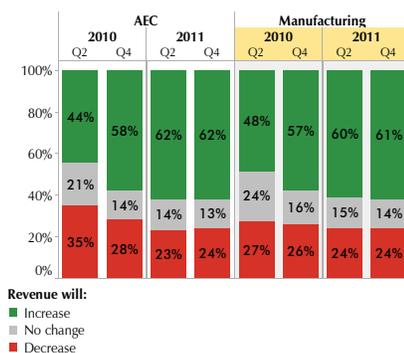


Figure 21. Similar to Figure 18, showing differences between AEC and mfg.

entials we saw that matched this was medical devices, which had a growth curve similar to NX's.

Comments received in response to this question ranged from very negative to quite positive. Perhaps the most negative respondent stated

"The economy is in the toilet and nobody is bothering to do R&D or product improvement."

Others felt that their companies were simply not responding to a changing business environment. Readers should consider whether their own firms suffer from some of the following complaints.

"Shrinking niche market with increasing competition and poor management. Management wants design to correct problems that are process-related without giving it authority. Sales is not aggressively pushing key technology. QA is non-existent or pushed onto design. Very young design staff with no clear vision of the future or knowledge of the customer."

"Business is good. Lot of work on the books and continuing to get more construction/engineering work despite economic climate. Primarily, as we're well vested in growing segments (Energy, Healthcare, Government)."

¹⁵ We are interpreting the sharp drop in respondents expecting little to no change (levels of less than 10%) to be best described as reflecting a greater certainty of expectations of improvement.

“By diversifying and continuing to improve processes in what we currently do”

“We are seeing improvement now in our business, but also are intensely reviewing process improvements in order to get to market quicker with higher quality products.”

Others see the situation being dependent on the overall economy or on their specific industry, some positive,

“Our customers have shared they will be buying a little bit more in the next couple years as long as the economy continues to rebound”

and others negative:

“I have no clue what further horrors this economy has in store for us.”

The same attitudes exist where the situation is industry dependent:

“Aerospace is slow to recover.”

“Nuclear industry is in a renaissance, and we are right in the middle of it!”

Improvements

In our previous survey, respondents gave us key reasons they invest in design software. Chief among them was a desire to achieve **improvements in profitability, product quality, market share, reductions in product development cycle time, and improvements in their customers’ satisfaction.** Customers have invested in design and engineering software to help achieve these goals. To see how well customers view their investment, we asked each respondent how well they expected their firm to do in achieving these goals. Figure 22 shows the results, with improvements in blue, increasing in intensity with increasing expectations.

In one of these areas, **market share**, it’s a zero-sum game—wins must come at the expense of others. Which is why the results in Figure 22 must be taken

in context of the “Lake Woebegone” factor¹⁶.

For the most part, expected gains were low. On average, fewer than 25% of respondents expected to see more than 10% gains in any area over an 18 month period. While we gave no instructions as to how respondents might quantify such gains, it does seem that such expectations, for the most part, are not unreasonable. The question is, are those gains enough to justify increased expenditures in these areas? Or, are these gains what respondents expect to see given the major cuts they’ve experienced recently?

As for differences between groups, respondents from **AEC** sectors expected less improvements in **project development cycle time** than their peers from the **manufacturing** sectors. That expectation may be because many of the factors such

¹⁶ In a prior report we asked our survey audience how they thought they would do in comparison with their peers. Half expected to do better than their peers but only 15% expected to do worse. We referred to this as the “Lake Woebegone” effect, in recognition of Garrison Keeler’s radio show where “... all the children are above average.”

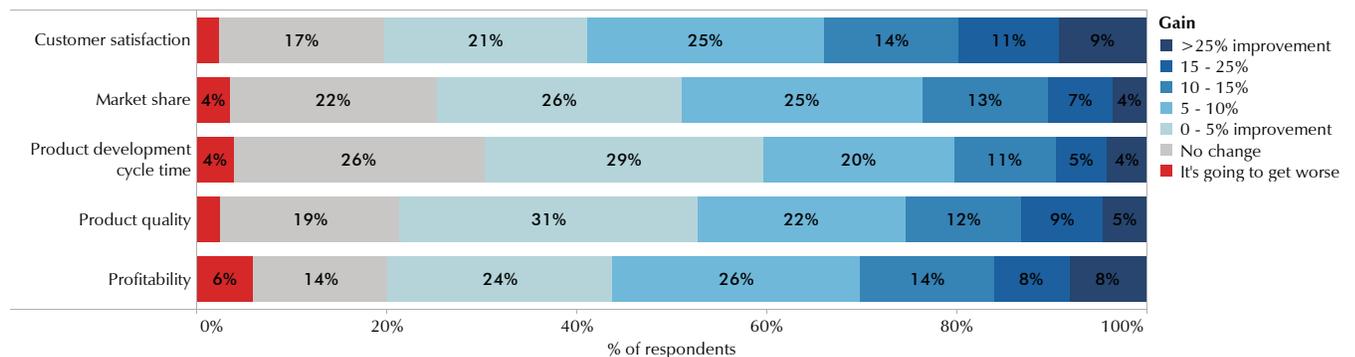


Figure 22. Expectations of improvements over the next 18 months in areas that are primary reasons for justifying investments in design software.

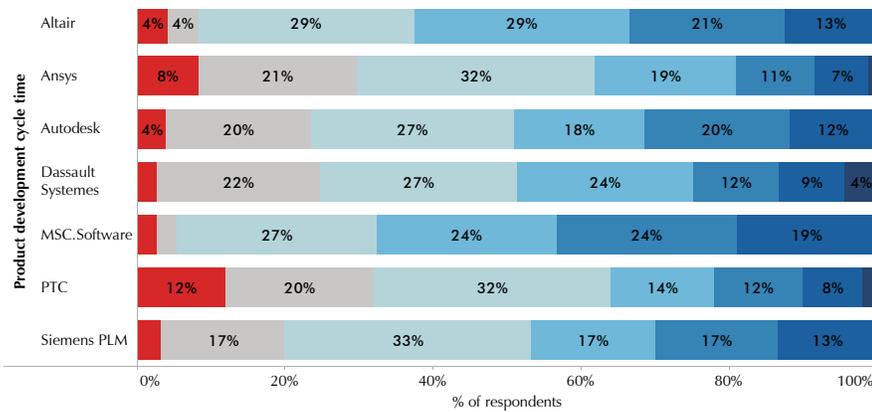


Figure 23. Similar to Figure 22, showing expected improvements in product development cycle time for respondents with CAE software from these CAE vendors.

as financing and permitting that affect project completion schedules are out of the hands of the design firms.

Curiously, with respect to **profitability**, respondents from **AEC** sectors also had both more who expected little gain, and more who expected significant gain (greater than 10%) than their peers from the **manufacturing** sectors.

Respondents who rarely used CAD software were significantly more optimistic¹⁷ about their ability to achieve in each area (other than profitability) than were their peers who use CAD software more often (or never).

We looked at how respondents differed by which CAD system they used. There were many intriguing hints at differences, but few that we felt were strong enough to support publication. Among those who did seem to pass that bar, respondents with

¹⁷ We're using the term optimistic here to describe the much higher level of expected improvement based on the percentage of respondents times expected gain. It's not entirely accurate as a term, but it seems supportable.

CATIA V5 showed more optimism in their ability to improve their customers' satisfaction than did respondents with NX. In the other areas, comparisons between the two were mixed.

For respondents with CAE software, the standout result was in the area of **product development cycle time** improvement. As shown in Figure 23, respondents with CAE software from MSC.Software and from Altair expected to experience greater improvements in their product development cycle time than did their peers with CAE software from other vendors. We have no explanation for this, though it deserves more research.

Comments from the respondents about these improvements were evenly split between a focus on business issues,

"We are learning our core skills are better employed in a new direction in the current economic reality"

a focus on technology,

"Introducing automation into the CAE process will significant-

ly reduce product development cycle time"

and new product development:

"Market-based product development initiatives and improved product development project management methodologies."

Other factors mentioned included people issues,

"We've hired several great people over the past year, clients are happier, business is looking up!"

quality,

"Product quality and customer satisfaction are already exemplary and must be maintained"

and increased sales volume,

"Increase in purchase orders for green energy installations"

Spending Outlook

This is the third year Cyon Research has addressed spending outlook in its studies. In the first survey, we asked how firms might act in a downturn (this was before the current downturn). Last year's study showed data on the actions actually taken as a result of a downturn. In this current study, we asked about current spending plans for 2010. We asked if they had **planned**, were **considering**, were **unclear**, or had **rejected**¹⁸ each of these spending actions

- Buy new capability (modules or products)
- Increase # of seats licensed

¹⁸ The actual wording of this option was "Not going to happen"

- Buy updates of existing software and cutting actions
- Kill maintenance on licensed seats in use
- Decrease # of seats licensed
- Decrease # of applications

Before we look at the results of this important question it might be useful to relate what was heard at COFES¹⁹ this past April. A representative of one of the major automobile manufacturers who was discussing design efficiency commented:

“We previously had 500 engineers doing body engineering, today we have 200 and they are doing more designs and better designs.”

19 COFES: The Congress of the Future of Engineering Software is a Cyon Research event for the design and engineering software industry. For more information, see <http://cofes.com>

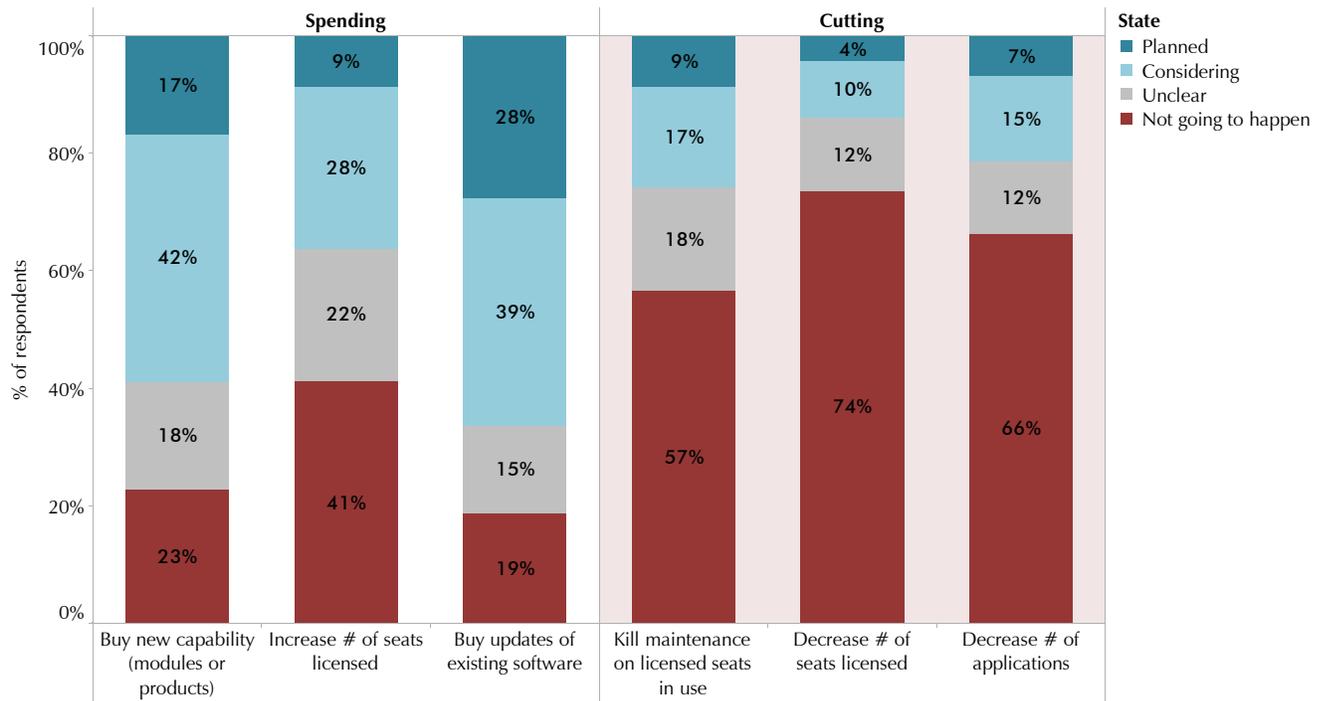


Figure 24. “With respect to software tools for design and engineering, I expect that my firm will do the following during first half of 2010.”

If engineers and designers are able to do more work and produce better results, does that mean we are going to need fewer seats of technical software in the future? Perhaps, but it is also possible that they will need more comprehensive suites of software than they used in the past.

Compared to previous Cyon surveys, the results appear more optimistic—if they hold true, we should see an uptick in spending. Given the recent quarterly financials from Autodesk, PTC, Dassault Systemes, ANSYS, and others, it appears to have happened. Nearly 60% stated that they are **planning** or **considering buying new software capability**, and two-thirds were **planning** or **considering purchasing software updates** (Figure 24, first and third columns).

At the same time, 28% are **planning** or **considering killing**

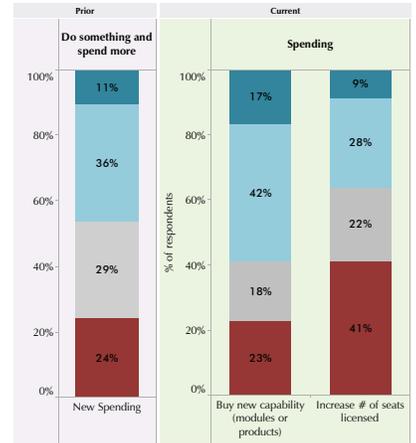


Figure 25. Comparison of current survey data (2010) (pale green background), with prior survey data (2009) (pale pink background).

maintenance of technical software seats in use. This number is about the same percentage as those who said that they were planning or considering cutting maintenance across the board in our last survey. Similarly, a comparison between spending in the prior and current survey seems to indicate that those from the

prior survey who were **planning** on spending were likely to have planned on spending to **acquire new capabilities** rather than **additional capacity** (Figure 25).

There was not much difference between respondents from AEC sectors and respondents from manufacturing sectors, except in the area of **spending for updates of existing software**, where a larger percentage of respondents from the AEC sectors than from manufacturing sectors were **planning to buy new updates of existing software**. We speculate that this intention may be because more manufacturing customers have maintenance contracts and are therefore already up-to-date.

With respect to **annual revenue**, there was a direct correlation between company size and

likelihood of planning to change the number of seats. **Smaller firms** were less likely to be **planning to change their number of seats** and more likely to have rejected the prospect (Figure 26, boxes A and B). **Larger firms** were more likely to be **planning on changing the number of seats**. This correlation held for both adding and cutting the number of seats licensed.

A higher percentage of **large firms** than SMBs were planning to **kill maintenance on existing seats** (Figure 26, box C) and **decreasing the number of applications** they use (Figure 26, box D).

Interestingly, respondents from EMEA²⁰ were almost twice as likely than their peers from the

²⁰ The region consisting of Europe, Middle East, and Africa.

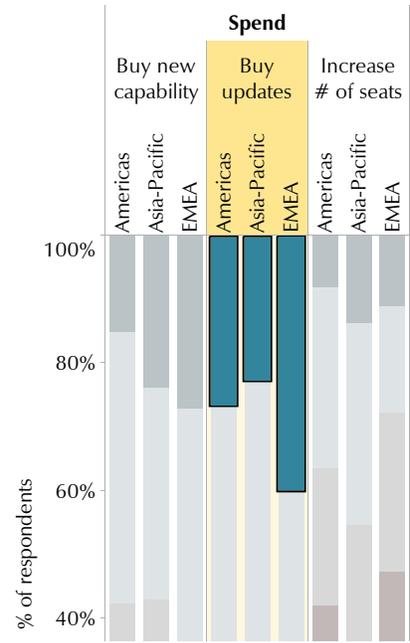


Figure 27. Similar to Figure 24, showing spending by region.

Americas or Asia-Pacific regions to be **planning on spending for software updates** (Figure 27).

The respondents' positions in their companies does not appear to have any significant impact on their buying and cost saving preferences except that fewer **CxOs** were willing to **decrease the number of seats licensed**.

Users of MCAE software were fairly consistent about plans for increased purchases or reducing costs of technical software except that respondents with MCAE software from Autodesk²¹ were much less likely to be planning to either increase purchases or reduce costs than their peers with software from other MCAE vendors. Respondents with MCAE software from Siemens PLM had somewhat more aggressive plans

²¹ Includes respondents with MoldFlow, Algor, and other MCAE software developed or acquired by Autodesk.

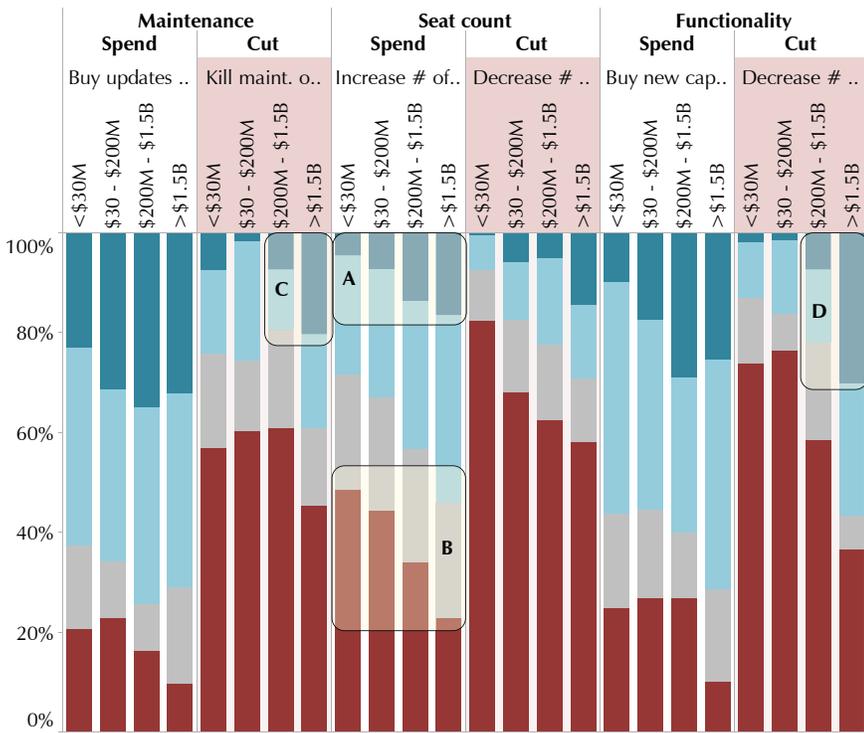


Figure 26. Similar to Figure 24, showing differences by annual revenue.

than their peers with MCAE software from Dassault Systemes or MSC.Software.

Spending Priorities

During the current economic downturn, most firms have significantly cut spending for software and other investments into their design and engineering departments. We asked the following questions about how extra budget might be spent, with results shown in Figures 28 through 35.

- If your firm had been able to add an extra 10% to its budget for software tools listed below²², how WOULD the firm choose to spend that money?
- If your firm was able to add an extra 10% to its budget for the items below²³, how SHOULD that money be spent?

What is interesting is that the extra 10% amount is quite small when compared to the amount that many firms are likely to

22 List is shown in Figure 28.

23 List is shown in Figure 33.

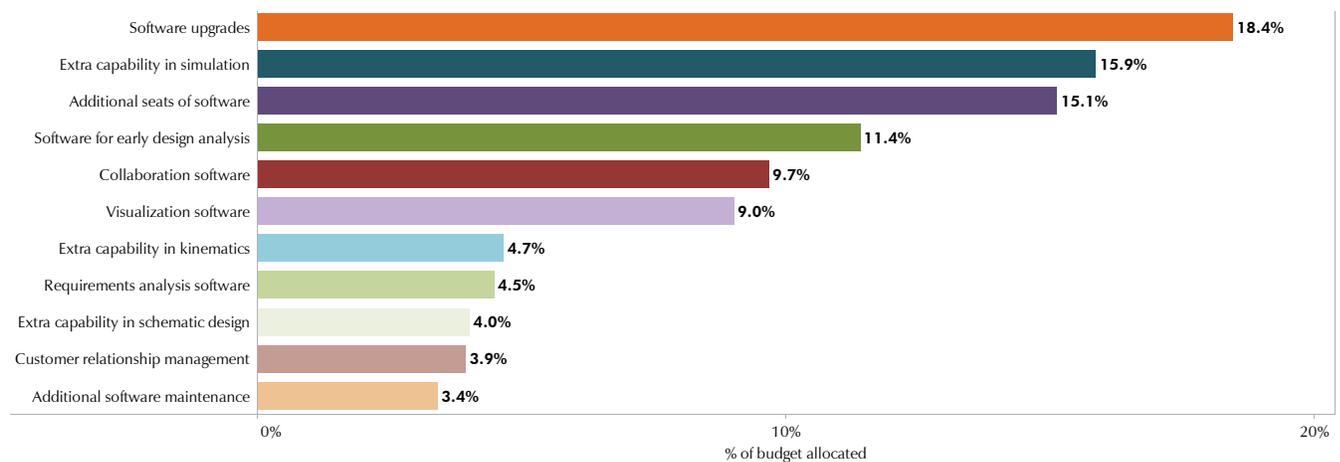


Figure 28. "If your firm had been able to add an extra 10% to its budget for software tools listed below, how WOULD firm choose to spend that money?"

restore to their budgets. What we have asked, therefore, is how firms might rethink real future spending.

Software Tools

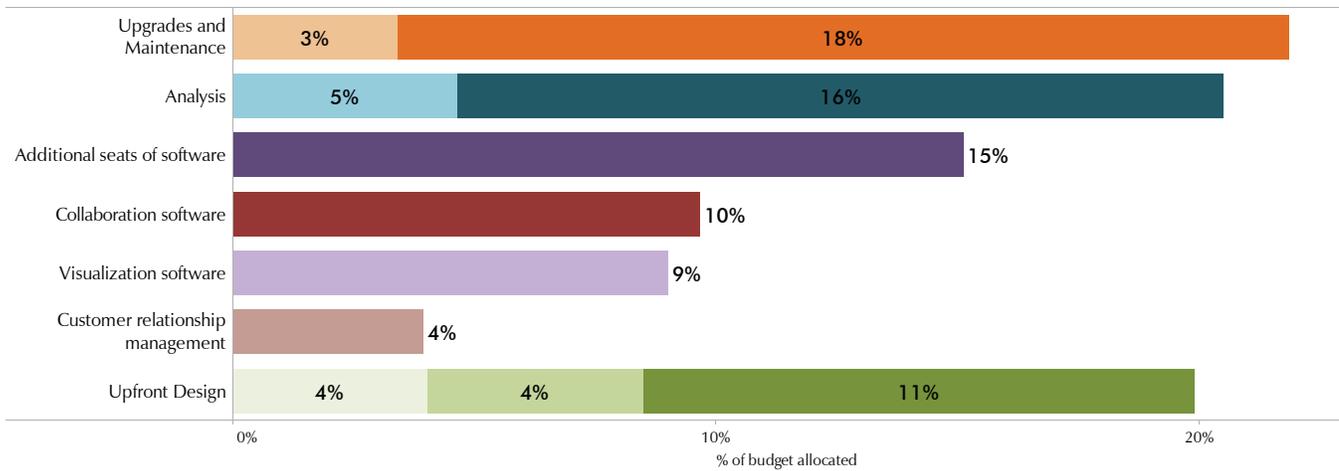
This is a key question in the survey, since it indicates what companies see as their most pressing needs. Respondents were allowed to allocate a portion of their allotted 10% budget to each of the software categories we listed, as shown in Figure 28. **Software upgrades** tops the list, slightly edging out **extra capability in simulation** and **additional seats of software** for the top expenditures.

More interesting is Figure 29, which combines the related items of **software upgrades** and **additional software maintenance** into **Upgrades and Maintenance**; combines the two CAE selections, **Extra capability in simulation** and **Extra capability in kinematics** into **Analysis**; and combines **Extra capability in schematic design** with **Requirements analysis**

software and **Software for early design analysis** into **Up-front Design**.

There were several significant differences when **AEC** users were compared to **manufacturing** users. Twice as many manufacturing users would spend the money on **additional software seats** as would AEC users (Figure 30, purple). Not surprising was that the same ratio existed regarding **adding simulation software**. On the other hand, nearly three times as many AEC users would add **collaboration software** as would manufacturing users (Figure 30, red). Manufacturing users were also somewhat more prone to **purchase software upgrades** (Figure 30, orange).

When we looked at sectors within AEC, nearly all indicated **collaboration software** as the most pressing need, sometimes by a factor of more than two over any other category. The exceptions were **architecture**, where **software upgrades** were slightly more important and **process, power and offshore** users



Budget Categories

- Software upgrades
- Additional software maintenance
- Extra capability in simulation
- Extra capability in kinematics
- Additional seats of software
- Collaboration software
- Visualization software
- Customer relationship management
- Software for early design analysis
- Requirements analysis software
- Extra capability in schematic design

Figure 29. Similar to Figure 28, but grouped by category.

where **additional simulation capability** was the most important by a significant margin.

Within the manufacturing sector there was less consistency. Each group had its own prefer-

ences as shown in the detail data although **additional seats of software, software upgrades, and additional simulation capability** were strong within almost all groups. Exceptions were the **shipbuilding** sector

which showed very little interest in **software upgrades, manufacturers of building components** who had a strong interest in **early design analysis software** and **manufacturers of consumer goods** who had little

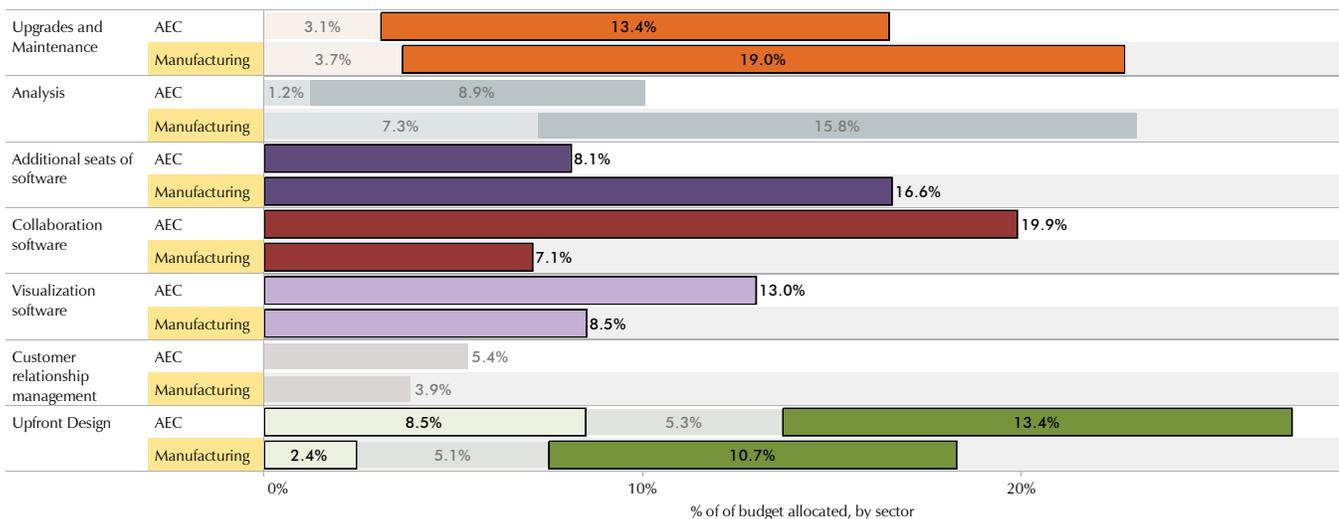


Figure 30. Similar to Figure 29, showing differences between **AEC** and **manufacturing** sectors. Meaningful differences are highlighted.

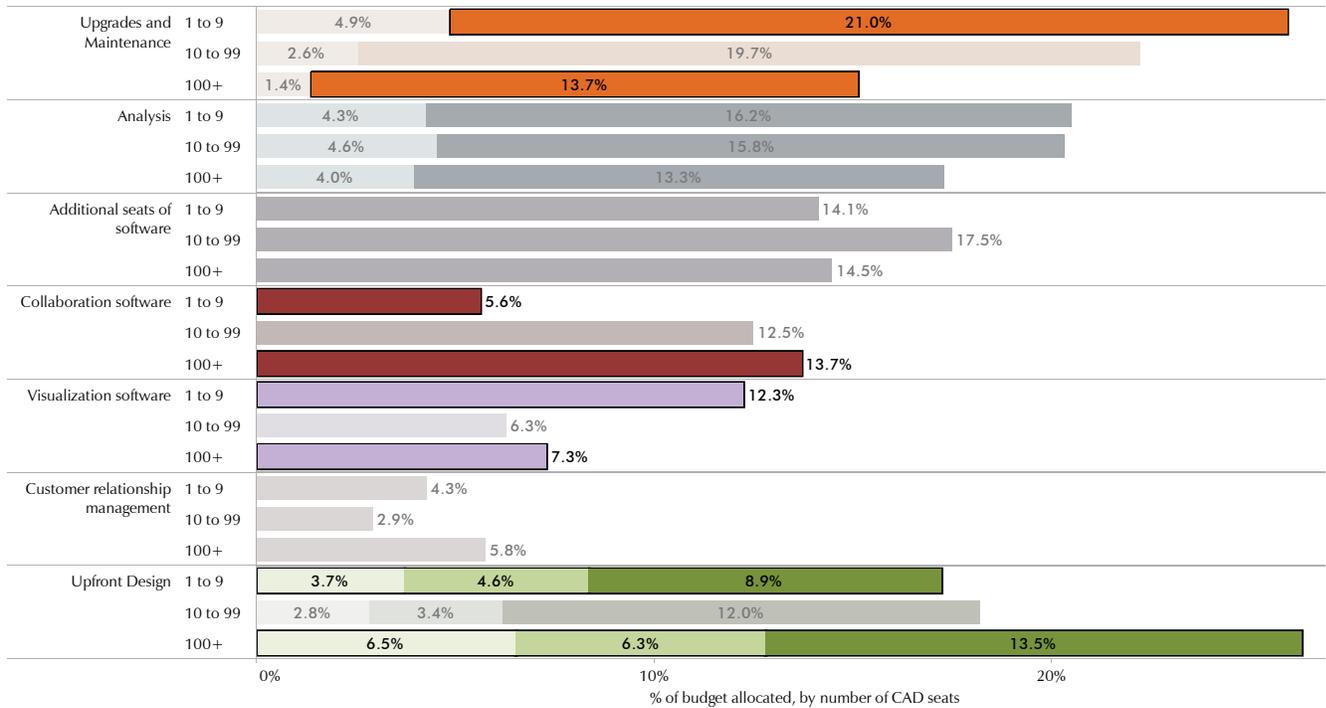


Figure 31. Similar to Figure 29, showing differences by number of CAD seats. Meaningful differences are highlighted.

interest in **additional simulation software**.

Smaller firms, whether measured by number of CAD seats (Figure 31) or annual revenue (Figure 32), allocated a significantly higher percentage allocated to catching up with **upgrades and**

maintenance than their larger counterparts. It seems reasonable to attribute this to a higher likelihood of stronger maintenance policies at larger firms.

Similarly, smaller firms place a larger emphasis on their need to

allocate budget for **visualization software** than did larger firms.

On the other hand, they budgeted less for **collaboration software** than larger firms.

We also found two areas where allocations by **annual revenue**

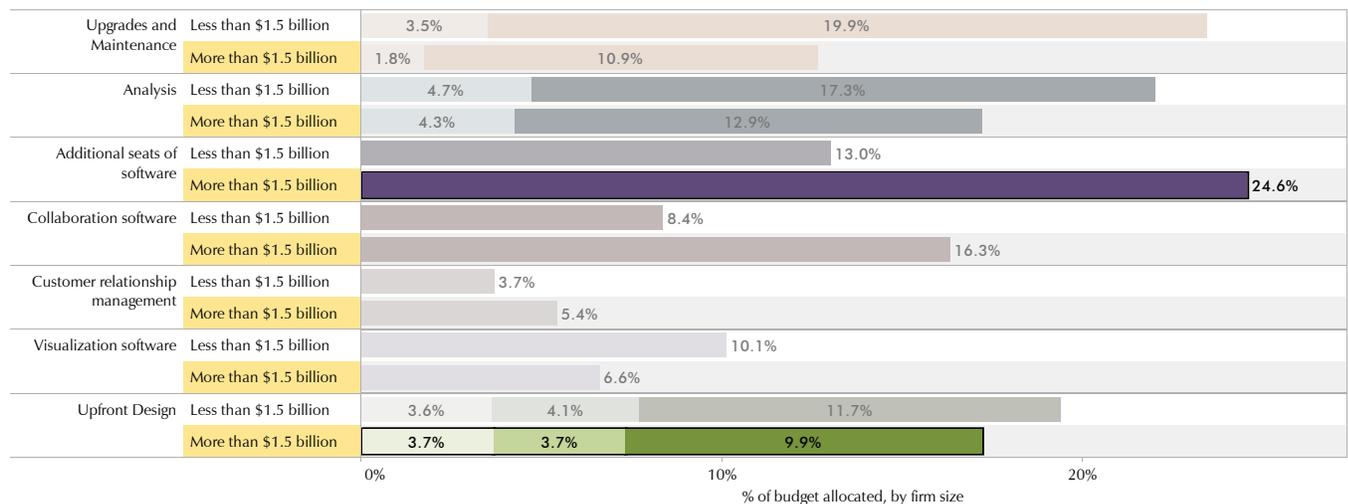


Figure 32. Similar to Figure 31, but by firm size rather than number of CAD seats. Highlighted are areas that seemingly contradict Figure 31.

and **number of CAD seats** were not in sync:

- **additional seats of software**, where **large firms** showed a strong preference for more seats but **firms with more CAD seats** did not show the same preference; and
- **upfront design**, where there was a higher allocation among **firms with more CAD seats**, but little differentiation by **annual revenue**.

When comparing responses by CAD software vendor, several trends stood out. Autodesk users were predisposed to spend the extra money on **software upgrades**, Dassault Systemes users on **additional simulation capability**, McNeel and Nemetschek users on **visualization software** and Siemens PLM users on **additional seats of software** and **additional simulation capability**.

We found no significant differences between **mainstream** MCAD and **specialized** MCAD users.

When comparing responses by MCAE software vendor, respondents with MCAE software from

Altair, Autodesk, and Dassault Systemes allocated extra funds to **additional simulation capability** while ANSYS users were more interested in **additional seats of software**. Overall, respondents with MCAE users would spend extra funds on **additional simulation capability, additional software seats, and software upgrades**.

Investments in Design and Engineering

In the previous question, we asked respondents to divvy up spending among different options for spending on software. In this next question, software was just one of the alternatives, as we asked respondents to consider how their firms should allocate an additional 10% among a variety of potential initiatives, including software.

When software was just one of the choices among investments in design and engineering, respondents allocated to it only about a quarter of the overall spend (14% for **more tools**, 12% for **better tools**) (Figure 33).

Not surprisingly, **training and education for existing personnel** led the way with more than 22% of budget allocated, across the board.

We were surprised that **documenting and improving workflow and processes** was mentioned as the next highest priority. While we agree that this is a strong need, regardless of sectors, prior to this survey we would have guessed that respondents would not have identified its importance.

Respondents from the **AEC** sectors placed a greater emphasis on budgeting for **quality control** than did their peers from the **manufacturing** sectors, but were less interested in **adding more personnel** (Figure 34). Sectors within AEC and within manufacturing did not show notable differences.

Respondent's position within the firm did not have a major impact on where money should be spent except that middle management expressed a higher interest in **more personnel**.

We also saw no notable differences by role a respondent

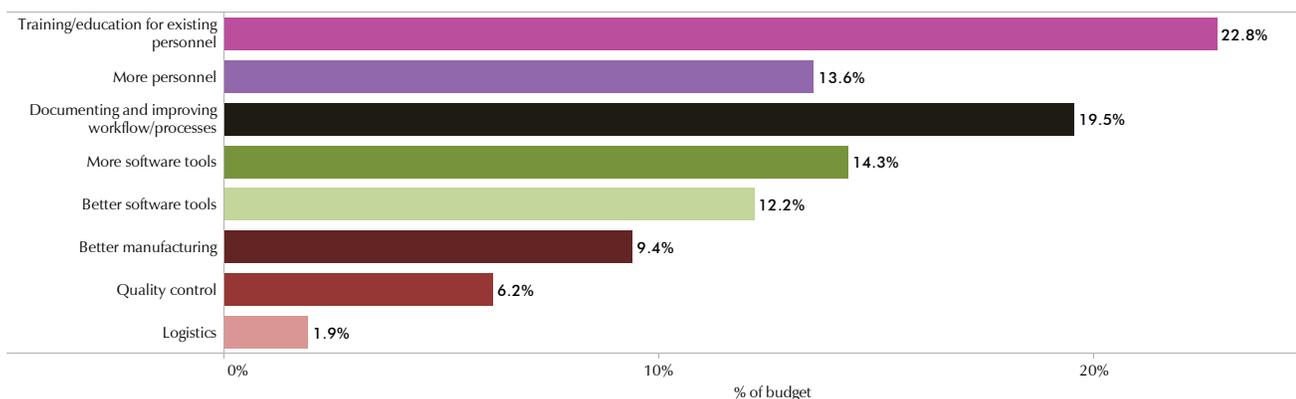


Figure 33. "If your firm had was able to add an extra 10% to its budget for these items, how SHOULD that money be spent?"

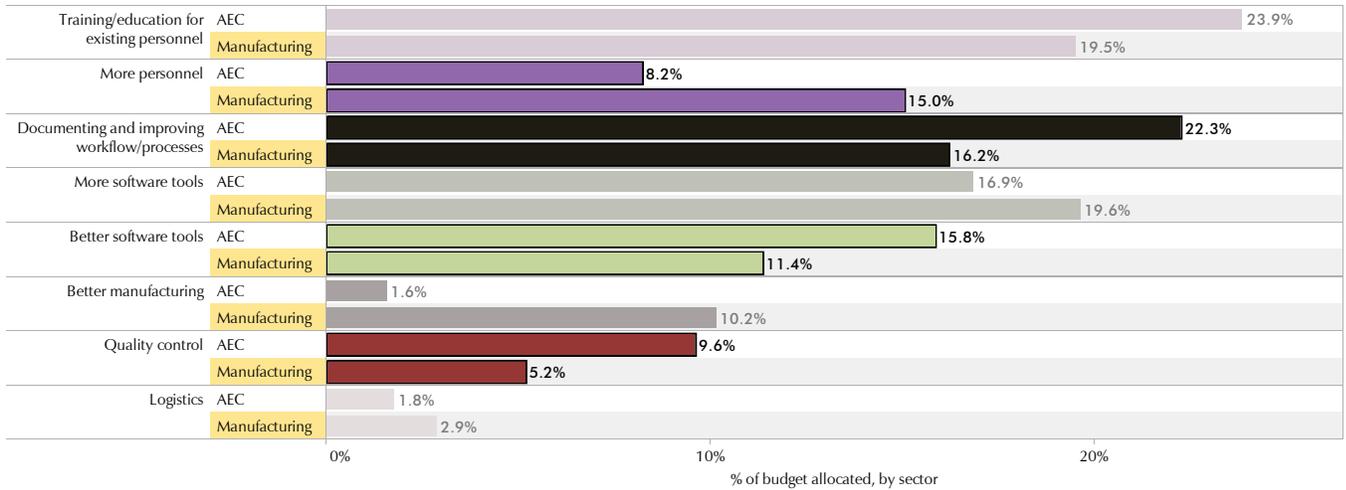


Figure 34. Similar to Figure 33, showing differences between AEC and manufacturing sectors. Meaningful differences are highlighted.

played in the procurement process or by **CAD software**.

Among respondents with MCAE software, there were some differences. Respondents with MCAE software from Altair allocated notably higher amounts to **more personnel**. Respondents with

MCAE software from Altair and Siemens PLM MCAE users also placed budget emphasis on **more software tools**, while those with software from MSC Software would spend more for **better software tools**. Those with MCAE software from ANSYS and PTC would spend extra

money on **documenting and improving workflow**.

Interpreting these results is tricky. With MSC Software, for instance, one interpretation might be that the tools need improvement. An equally plausible interpretation might be that users of MCAE

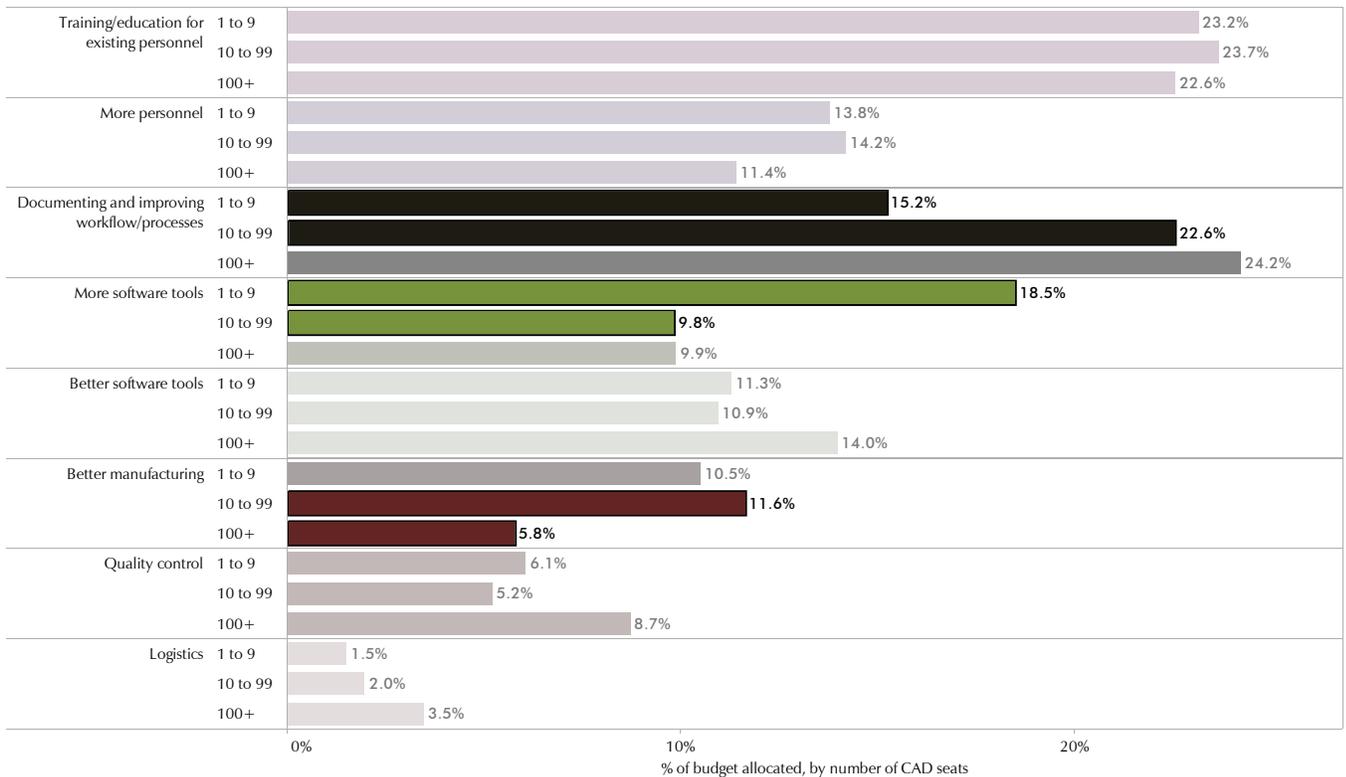


Figure 35. Similar to Figure 33, showing differences by number of CAD seats. Meaningful differences are highlighted.

software from MSC. Software are looking for tools that make it easier for them to accomplish what they want—in other words, tools designed for power users might be in the hands of those who aren't. This is worthy of further investigation.

Figure 35 highlights the differences between smaller and larger firms. Unlike the allocations for **software tools** previously mentioned, there was no inconsistency between the results for **number of CAD seats** and those for **annual revenue**. The highest allocation for larger firms was **documenting and improving workflow and design processes**. All firms, regardless of size, made a high allocation to **training and education for existing personnel**, but the **smallest firms** (those with fewer than 9 CAD seats), placed a much higher allocation to **more**

software tools than did their larger counterparts.

New Technologies

In order to get a better understanding of acceptance and acceleration paths of selected technologies, we asked our respondents,

- *At what level has YOUR FIRM engaged with the following technologies²⁴?*

We also asked them to comment on their current transitions and current and planned initiatives for design and engineering:

- *What are the top two or three transitions that your firm's IT department is engaged in?*
- *What are your firm's top two or three CURRENT (2009) initiatives for design/engineering?*
- *What are your firm's top two or three initiatives for design/*

²⁴ Listed in Figure 36.

engineering PLANNED FOR 2010/2011?

These latter questions were asked in a narrative form. The only prompting given was the suggestion:

- *"(examples might be moving to SharePoint, moving to Windows 7, transitioning from Unix, unifying software platforms from multiple acquisitions...)"*

We coded and categorized the results of these responses to form the basis for our analyses, with the results shown in Figures 36 through 38.

Technologies

Cyon listed 12 different technologies ranging from social media such as **Twitter**, to **Cloud Computing** (Figure 36). Space does not permit us to explore all the responses in depth so we will just cover some of the highlights. Two technologies that have yet to

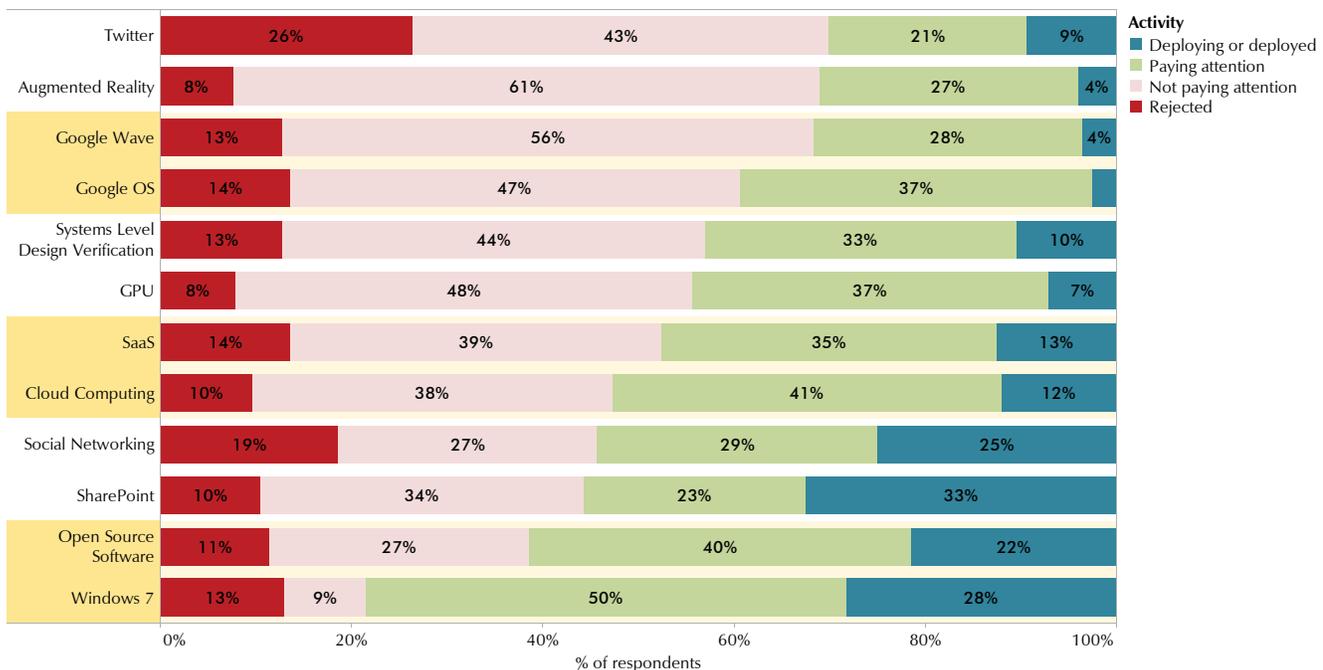


Figure 36. "At what level has YOUR FIRM engaged with the following technologies?"

receive much attention within our space are **Augmented Reality** and **Google Wave**²⁵ with more than 50% respondents indicating that they were not paying attention to the technologies.

Another technology that is not under active consideration is **Twitter**—only 30% stated that they were paying attention or involved in its deployment and 26% had actively rejected corporate use of **Twitter**. Cyon Research is well aware that many companies are extremely concerned about security issues related to web sites such as **Twitter** and **Facebook**.

Obviously, **Windows 7** is on many people’s mind these days. 28% percent of respondents have already deployed **Windows 7** or are in the process of doing so. Another 50% are paying attention while 13% have rejected it. We felt that this number was low since 84% of respondents have technology based on the Microsoft IT stack²⁶. So we looked a little closer. Of those using the Microsoft IT stack, about 9% had rejected Windows 7 but among the 16% who were using a different IT stack, 17% had rejected **Windows 7**.

Other technologies with a high level of interest were **Open Source Software**, Microsoft’s **SharePoint**, and **Social**

25 Subsequent to the close of this survey, Google officially pulled the plug on Google Wave, though we do expect to see the technologies of Google Wave to reappear in different forms at a later date.

26 In a question not otherwise presented here, we asked about which technology stacks respondents had deployed.

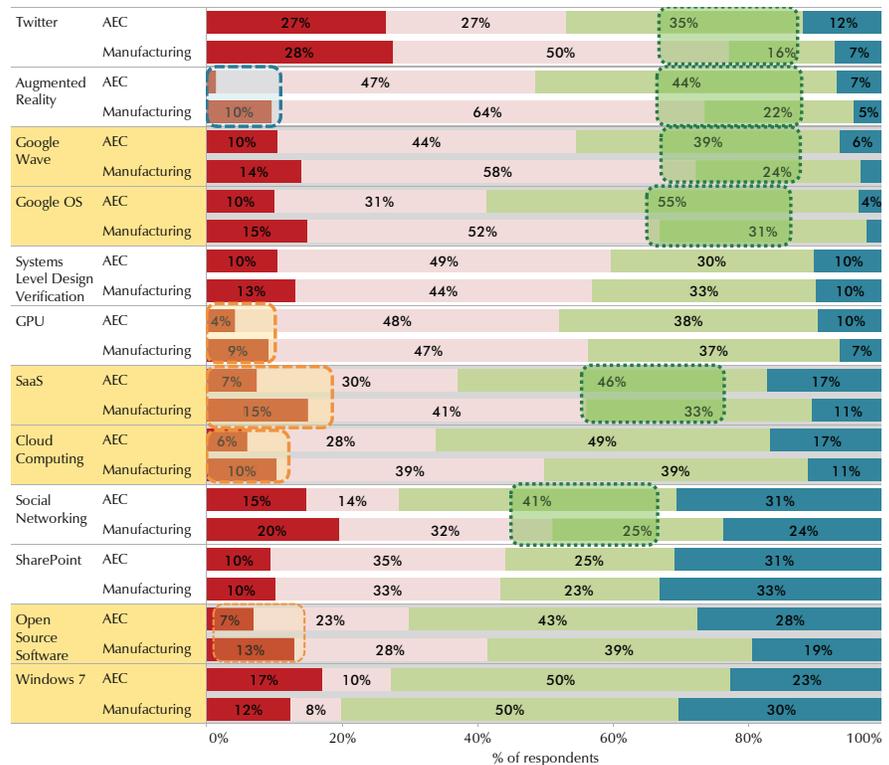


Figure 38. Similar to Figure 37, showing differences between responses from those in the AEC versus manufacturing sectors.

Networking. A third of the respondents were either using **SharePoint** or in the process of deploying it.

When **AEC** customers were compared to **manufacturing** customers a number of issues stood out. Respondents from the manufacturing sectors had rejected the use of **Augmented Reality** at a much greater rate than those from the AEC sectors (Figure 38, blue box). Respondents from the manufacturing sectors were about twice as likely to have rejected **GPUs**, **SaaS**, **Cloud Computing** and **Open Source Software** as those from AEC sectors (Figure 38, orange boxes). AEC firms were paying much more attention to **Twitter**, **Augmented Reality**, **Google Wave**, **Google OS**, **SaaS** and **Social Networking** than firms in

the manufacturing sector (Figure 38, green boxes).

We saw a strong correlation between company revenue and the percentage of respondents paying attention to or deploying these technologies: **Augmented reality**, **Systems Level Design Verification**, **Cloud Computing** and **SharePoint**—the larger the firm’s revenue, the higher the percentage of interest. This was especially strong for **SharePoint**, with 32% either paying attention or in deployment in small firms versus 90% in large firms.

When we looked at responses by title or position, the only notable variance was that very few CxOs indicated that they were deploying **SharePoint**. In this current study, we do have a good proportion of our CxO population

from smaller firms. Given the correlation we saw with firm size, above, we went back and took a look, controlling for firm size. The result still showed a strong result. We can only conclude that the **SharePoint** activity may be taking place outside of view of the executive offices.

Respondents with CAD software from PTC or Siemens PLM were much more likely than those with CAD software from Autodesk or Dassault Systemes to be deploying **SharePoint**. We do not find this surprising, given that Siemens PLM Software began leveraging **SharePoint** in 2001 with Solid Edge Insight and that PTC was early to market with ProjectPoint, also leveraging **SharePoint**.

Other than for **SharePoint**, we saw no notable correlations based on CAD software in use.

A higher percentage of respondents with **specialized** MCAD software are **paying attention to** or **deploying SaaS, Cloud Computing, SharePoint**, and **System level design verification** than are respondents with **mainstream** MCAD software

Our survey closed prior to the SolidWorks World 2010 event, where Dassault Systemes SolidWorks disclosed its plans for **Cloud Computing**. Our respondents with SolidWorks were significantly less likely to be paying attention to **Cloud Computing** than users of other mainstream MCAD products. It will be interesting to see the extent to which this has changed since that announcement.

Within the **AEC** sectors, respondents with AEC software from Autodesk²⁷ were more interested in **Google Wave** than their counterparts who were using Bentley or Nemetschek software. Nemetschek users were generally much less interested in most of these new technologies, especially **SharePoint** and **Windows 7**²⁸.

There generally was not much variance among MCAE users regarding these technologies although we were surprised that there was not more attention being paid yet to **Cloud Computing**. Companies with a large number of MCAD and/or MCAE seats installed were significantly more interested in investigating and deploying nearly all of these technologies than were smaller installations.

Current IT transitions

It was no surprise that the transition most often cited was the switch to **Windows 7**. The other Microsoft product that garnered the most mentions was **SharePoint**. On the other hand, we are starting to see far more interest in Apple and **Mac OS X** operating system than we have seen in the past. It will be interesting to see if this trend continues and more technical software vendors support this platform.

²⁷ We recognize that many AutoCAD users use AutoCAD for AEC, but when we refer to AEC software from Autodesk, we are including Revit, but not AutoCAD or AutoCAD LT.

²⁸ These results for Nemetschek Vectorworks are not surprising, given the relative strength of its Mac-based offerings.

Many respondents indicated that their firms were planning to implement new computer equipment and/or new software, but too few were specific as to which products were being considered.

Various aspects of **operational consolidation, improved data communications, and improved data management** were frequently cited as was **cloud computing, outsourcing** and open source computing. New software from Oracle and more frequently, from SAP was mentioned, as was ERP in general.

The transition to **64-bit computing** was mentioned twice as frequently as was **social networking**.

Current initiatives for design and engineering

Many of the responses were product development related, including **improving the design process, new product development, reduce time to market** and **improve product quality**. Other responses identified specific areas that were undergoing change including **3D modeling, BIM, CAE, CFD, cloud computing, design automation, FEA**, and **standards**.

In business areas, respondents mentioned **consolidation, cost reduction, increasing sales, education, improving sales and profits, better software utilization, lean product development, and upgrading software**.

Planned Initiatives

The four issues that came up most often for deployment in 2010 or 2011 were **improving design processes, improving sales, improving profits, and developing new products**. A number of respondents are also planning to **investigate new software or new hardware** as well as look at ways to integrate this technology more effectively. Specific technologies mentioned included visualization, PDM, PLM, IFD, FEA, and BIM.

In closing

This Cyon Research 2010 Survey of Engineering Software Users report provides only a sample of the richness of information we have collected and explored.

Of particular note was the extent to which many firms have changed from a pessimistic frame of mind to a more opti-

mistic outlook. This change is consistent with the longer-term outlook we had provided in our prior survey.

Also of note is the large number of firms that are actively engaged in software transitions or consolidations (Figure 10, green).

We have designed our research to be of particular value to organizations that sell engineering software. We have limited our presentation here to only the information of interest to a broad audience. Much of the richness and value, however, is only manifest when exploring the specifics.

For readers interested in accessing this rich data, we have developed worksheets for data exploration. These business intelligence (BI) worksheets are available for purchase from Cyon

Research. We can also provide you with custom research.

We continue to revisit these subjects on an annual basis and would appreciate any suggestions you might have or support for the next survey, and how you would like to see the resulting information presented.

In order to appreciate the observations presented in this report, it is helpful to understand both the demographics and methodology of the report.

Demographics

Our data was collected via SurveyMonkey, in both English and Russian²⁹.

Cyon Research sent invitations to participate in the survey to users

²⁹ We created the survey in English. Our friends from Russia, Oleg Shilovitsky and David Levin, assisted us with a version of the study translated to Russian.

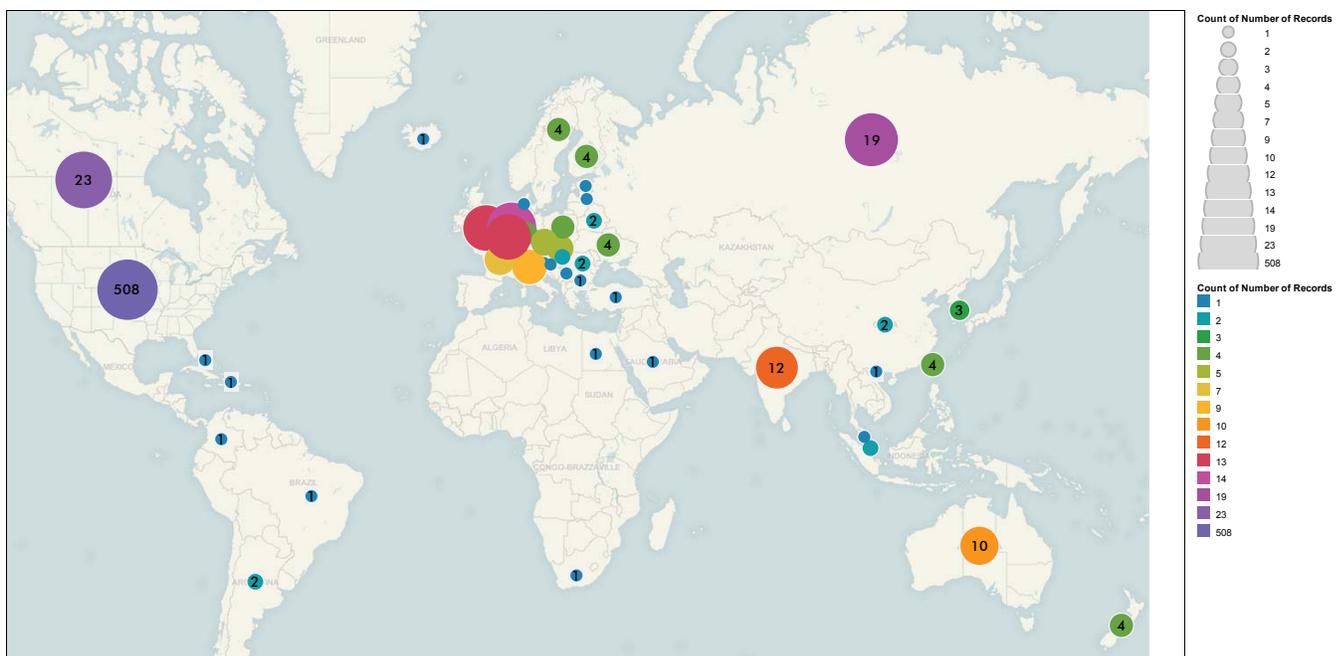


Figure 39. Geographic distribution of respondents.

from our database. Desktop Engineering³⁰, ConnectPress, and other publications were given an opportunity to invite their readers to participate. A tracking link to the survey was also given for broad distribution to representatives from vendors in the study. We also used social networks to distribute links, including Twitter and LinkedIn.

Of the 959 surveys we received, we validated 702 as coming from the user community, representing 45 countries³¹. The 702 respondents represent more than 650 companies. Figure 39 shows the geographic distribution of the respondents.

The industry sectors our respondents participate in are shown in Figures 40. Broadly, respondents were from firms in **manufacturing** sectors (76%) and **AEC**

30 We continue to be impressed with the strong response rate receive from readers of Desktop Engineering, who made up more than 40% of our respondents. No other single publication's readers accounted for more than 5% of respondents.

31 We identified country by IP address, cross-checked with respondents responses.

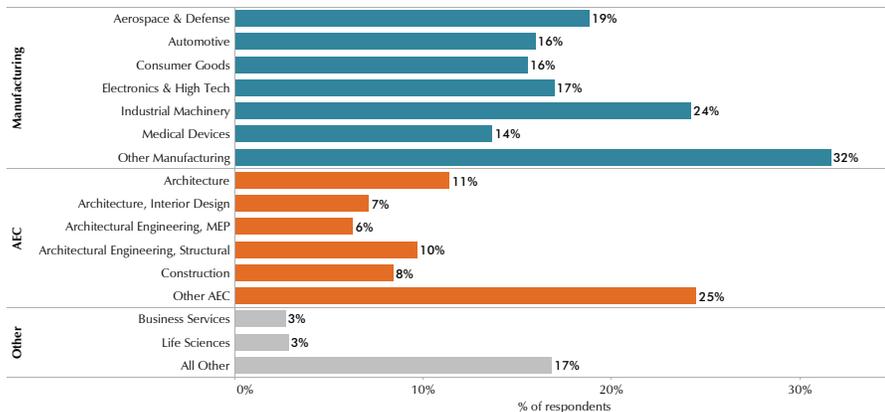


Figure 40. Respondents by industry sector. Many respondents' firms participate in more than one sector.

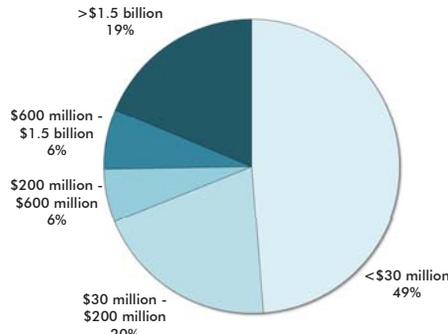


Figure 41. Respondents by company size (annual revenue).

(Architecture, Engineering and Construction) sectors (26%), with (18%) participating in other sectors, including **energy, life sciences/healthcare, business services**, etc.³²

The distribution of firm sizes among respondents, shown in Figure 41, is similar to our prior survey—about half of the respondents in this survey fall into the category of less than \$30M annual revenue. Because of this we took special care to control for size for all of our observations.

A diverse set of corporate responsibilities was represented

32 Totals add up to more than 100% as many respondents' firms participate in multiple sectors.

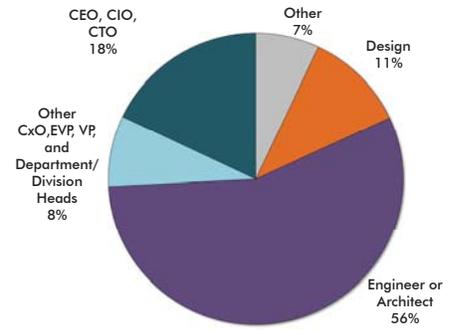


Figure 42. Respondents by role.

by these respondents, with more than (56%) being either engineers or architects³³. Another 26% were management-level individuals, ranging from department heads to CEOs (Figure 42).

A large majority (70%) of our respondents personally used CAD software on a **daily** basis. Only 10% used CAD themselves **rarely** or **never** (Figure 43).

Of respondents with **mainstream** or **specialized** MCAD software, 10% have deployed specialized MCAD without also deploying mainstream MCAD. Twice that many have deployed **both** mainstream AND specialized software (Figure 44).

Figures 45 and 46 show the distribution of the number of users/seats of CAD and CAE software deployed at the respondents' firms.

33 The category "Engineer or Architect" includes those who identified themselves not only as an engineer or architect, but also project manager, program manager, engineering manager, team leader, supervisor, assistant manager, business development, CAD manager, CAD administrator, and PLM manager. The role of analyst is included under the "other" category.

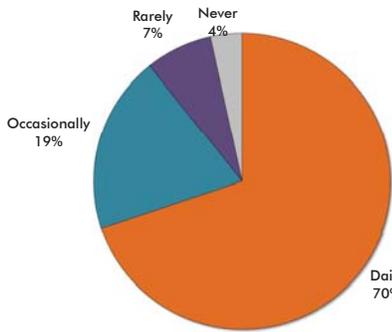


Figure 43. Respondents by CAD usage.

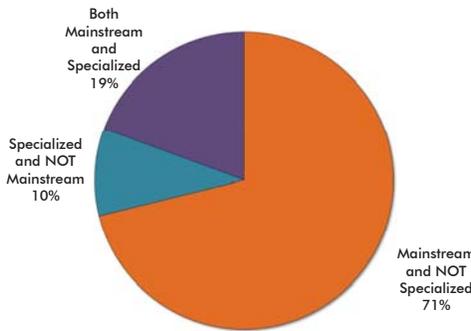


Figure 44. Respondents by type of MCAD — specialized versus mainstream and both

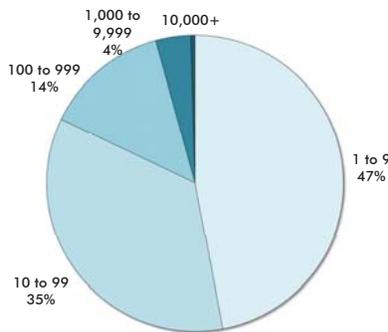


Figure 45. Respondents by number of CAD users/seats.

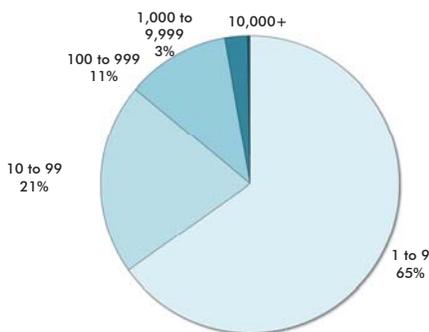


Figure 46. Respondents by number of CAE users/seats.

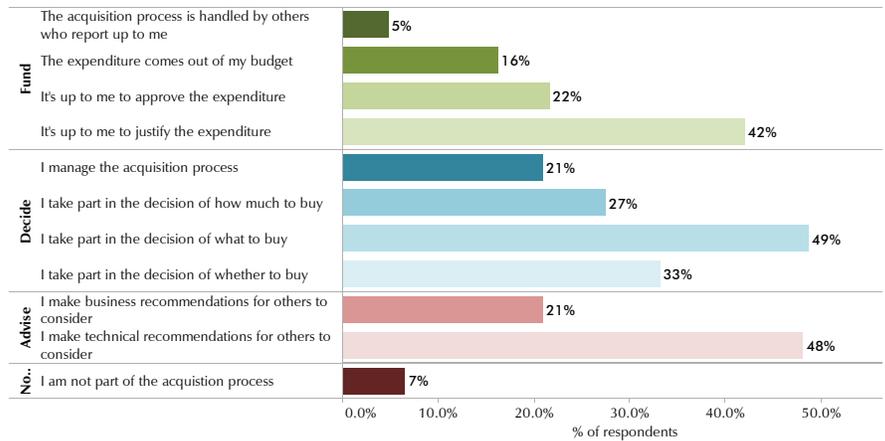


Figure 47. Respondents by acquisition responsibility. Many respondents have more than one role.

The roles our respondents play in the acquisition process are shown in Figure 47.

Figures 48 and 49 show the representation of major software tools in use at respondents' firms for CAD (Figure 48), and CAE (Figure 49).

We need to emphasize that Figures 39 through 49 describe who has responded to the survey, not the makeup of our industry; nor does it in any way reflect the market share of any of the software vendors in the survey. Our methodology focuses on acquiring deep insights into the mind of the customer base, and is not designed to reflect market share.

Methodology

In this survey, we expanded our questions with the goal of providing data of interest to the sales channel. We estimate that respondents spent, on average, about 30 to 40 minutes to complete the survey. The result is a tremendous volume of detailed data that required considerable effort in order to enable us to

present the findings described above.

In our 2008 survey, in which the data was collected prior to the general market collapse, we posed 24 questions on subjects including user classification by industry sector and position, products deployed, purchasing criteria, and spending intentions.

In our 2009 survey, we revisited questions from the prior survey in more detail, in particular looking at how users have reacted with regard to spending, so that we might consider actions and new plans versus prior intentions.

This current survey added depth to the spending/cutting decisions and added focus to areas that affect the likelihood of customers changing which software they used.

Some questions asked for a relatively simple answer, such as the size of one's company and the role the respondent played in that company. Other questions requested a specific response such as whether or not the respondent's company had slowed

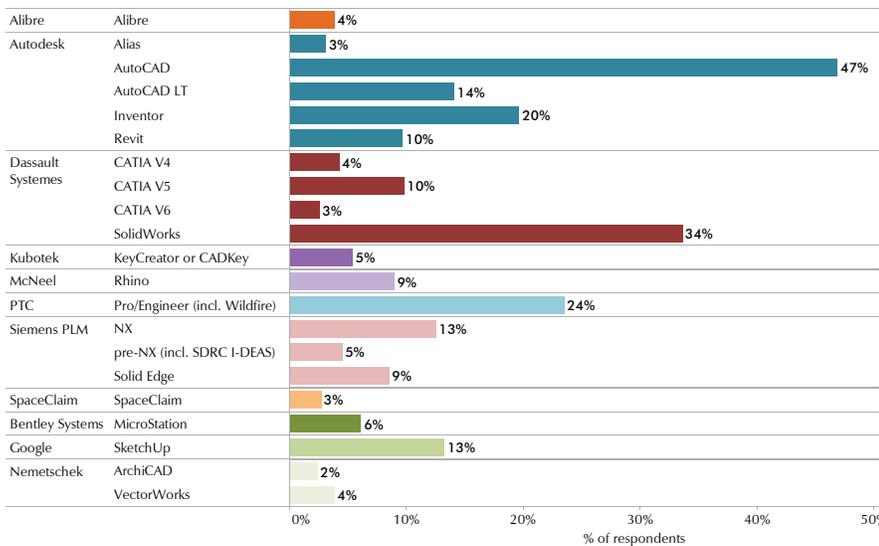


Figure 48. Respondents by CAD software in deployed.

software maintenance or procurement due to the economic downturn.

This current survey did not request any value judgment on the part of the respondent, but it did ask respondents to consider and place a hard number to represent percentage improvements expected.

In most cases the results of this survey were consistent with those of the prior survey. (When we investigated the few notable discrepancies, they disappeared when we made adjustments to account for the different makeup of the set of respondents.) The key point is that the results have important implications for the vendors.

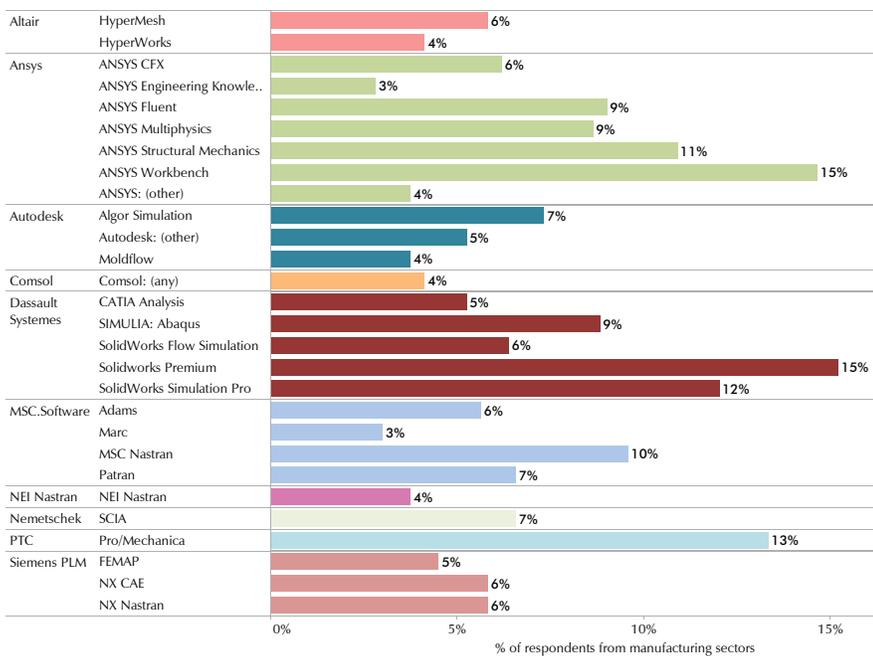


Figure 49. Respondents by CAE software deployed.

The questions asked required several types of responses.

When we analyzed the data, we explored how each of many factors (company size, industry sector, product type, number of users/seats, etc.) affected the results for each of the areas under investigation.

For some of the questions, we chose to forego good numerical results in favor of getting a broader range of responses. These were questions like:

- *What are your firm's top two or three initiatives for design/engineering PLANNED FOR 2010/2011?*

For these questions, we only accepted narrative responses. In our analysis of these narrative replies, we grouped similar responses into categories, and then reviewed the resulting list of categories.

Our analysis of the survey data indicates that there are significant differences among a variety of groups of respondents in terms of:

- The size of the business (either by annual revenue or by number of CAD seats)
- Which CAD or CAE software tools they use
- Specialized MCAD software versus those with mainstream MCAD software
- Industry sector
- Those who have cut spending versus those that have increased spending

These findings are relevant to software vendors and industry investors.



About Cyon Research

Cyon Research is a consulting firm that provides design, engineering, construction, and manufacturing firms with a strategic outlook on the software tools and processes they rely on to create the world around us. Cyon Research also supports the vendor community with its unbiased insight, vision, methodologies, and expertise to help them understand the complex nature of their markets, and grow by serving the needs of their customer base.

Cyon Research brings to its clients a unique combination of experience, perspective, and insight, supported by an extensive network of well-established industry relationships. Our close contacts throughout the user, analyst, vendor, and developer communities provide surprising benefits for our clients and add significant value to our services.

These relationships are enhanced by COFES: The Congress on the Future of Engineering Software, our annual invitation-only event. COFES is where attendees can make the types of connections that just aren't possible through any means other than face-to-face.

The focus of our research within the realm of design, engineering, construction, and manufacturing is the technologies and markets that are likely to become real within the next two to six years.

The domain of our research is the tools, processes, and procedures used in the design, engineering, management, and production of the built environment and manufactured goods.

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