Productivity and Return on Investment from SolidWorks® 3D CAD Software

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Prepared by:
Elizabeth B. Ames, MBA 2007
MIT Sloan School of Management
Massachusetts Institute of Technology
eames@sloan.mit.edu

Based on Previous ROI Report Prepared by:
Michael L. Volpe, MBA 2003
MIT Sloan School of Management
Massachusetts Institute of Technology
michael.volpe@sloan.mit.edu

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Executive Summary

This report summarizes the results of a third-party survey of the productivity gains experienced by more than 1,000 users of SolidWorks 3D computer-aided design (CAD) software. This data is useful to companies considering a purchase of new CAD software. The findings of the study show that using SolidWorks 3D CAD software for product development produces the following results:

- 95% of the companies responding reported an increase in productivity;
- 81% of respondents reported better design visualization with SolidWorks 3D CAD software;
- 69% of respondents reported that SolidWorks 3D CAD software enables them to design better products;
- 54% of the respondents reported faster product time-to-market;
- The average time-to-increased-productivity was about ten weeks;
- The results are consistent across different industries and previous CAD systems used.

When evaluating CAD systems, manufacturers often view increased productivity as the most important point of comparison. To obtain the most objective understanding of potential productivity gains, manufacturers should calculate their expected Return on Investment (ROI) and consider as many quantifiable benefits as possible.

To calculate expected ROI, manufacturers should use Total Cost of Ownership (TCO) to compare costs, including those for hardware, maintenance, upgrades, support, and training. This report provides details on how companies can calculate TCO, determine expected ROI, and evaluate CAD vendors before making a decision to purchase a new CAD system.

Survey Purpose and Method

The purpose of this survey was to have a third party measure the ROI and the productivity impact experienced by companies from many industries who migrated to SolidWorks 3D CAD software from a previous CAD system. An invitation to participate in a web-based survey was distributed to thousands of SolidWorks customers. The survey produced over 1,000 responses that were suitable for analysis.

Discussion of Key Findings

Overall, 95% of the companies reported an increase in productivity from using SolidWorks 3D CAD software. Survey respondents cited multiple areas where they had experienced productivity increases, such as faster design iterations, fewer design errors, a reduction in the number of Engineering Change Orders (ECOs) and the time required to complete an ECO, and an acceleration in product time-to-market. An in-depth review of the data reveals several key findings.

Most Frequent Benefits of SolidWorks 3D CAD Software

Faster design iterations was the most frequently cited productivity benefit of using SolidWorks 3D CAD software, with 69% of respondents reporting that SolidWorks enables them to work through design iterations more quickly. 67% of respondents reported that SolidWorks enables them to design with fewer errors. Faster design iterations and fewer errors have a direct impact on product time-to-market and can be an important advantage for nearly every manufacturing business.

Many of the specific productivity benefits cited by respondents also contribute to accelerating the product development process. For example, reducing both the amount of time spent on a given change to a product design and the overall number of changes required both help manufacturers bring products to market faster. 54% of respondents specifically reported getting products to market faster after migrating to SolidWorks 3D CAD software. Beating a competitor to market usually enables a manufacturer to both capture more market share and realize higher sales and profit margins.

ROI Comes from Many Sources

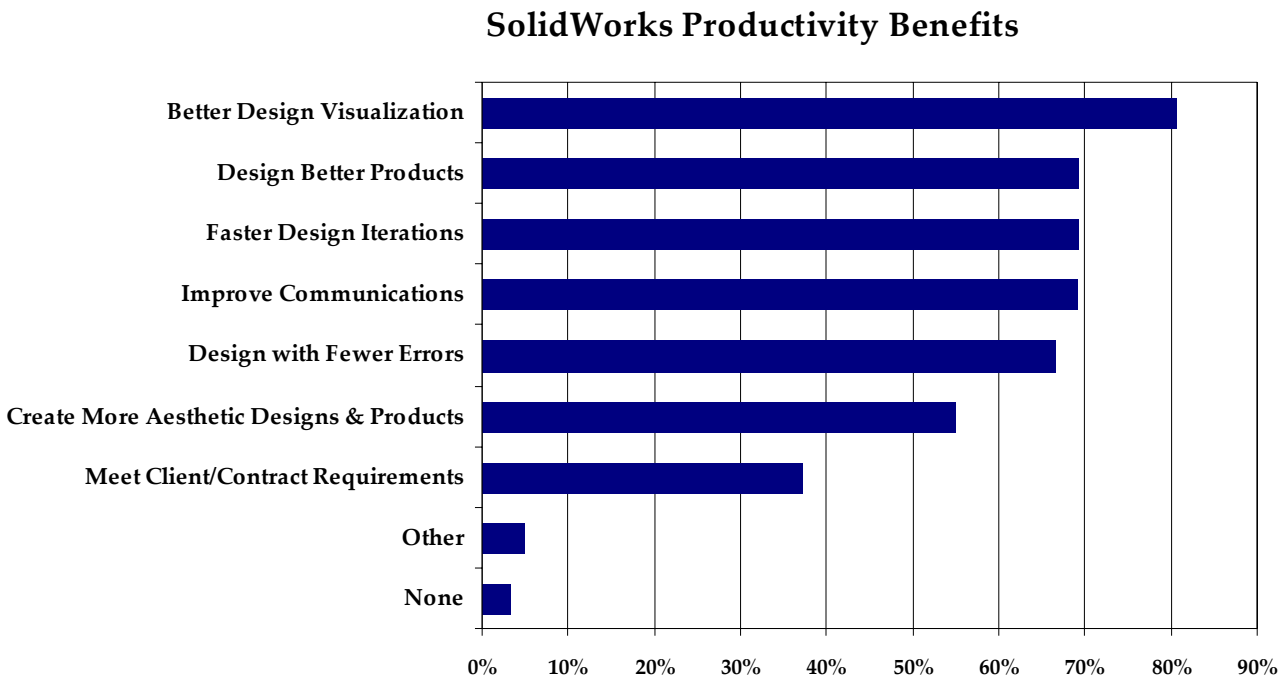
The ROI a company experiences as a result of using SolidWorks 3D CAD software is related to several specific productivity benefits.

Productivity Benefit	Percent of Respondents Reporting
Faster Design Iterations	69%
Design with Fewer Errors	67%
Reduced Time Spent on Average ECO	61%
Faster Time to Market	54%
Reduced Volume of ECOs	37%
Reported Any Productivity Increase	**95%**

More than 95% of the companies in the survey reported one of the specific productivity increases listed above.

SolidWorks Qualitative Productivity Benefits

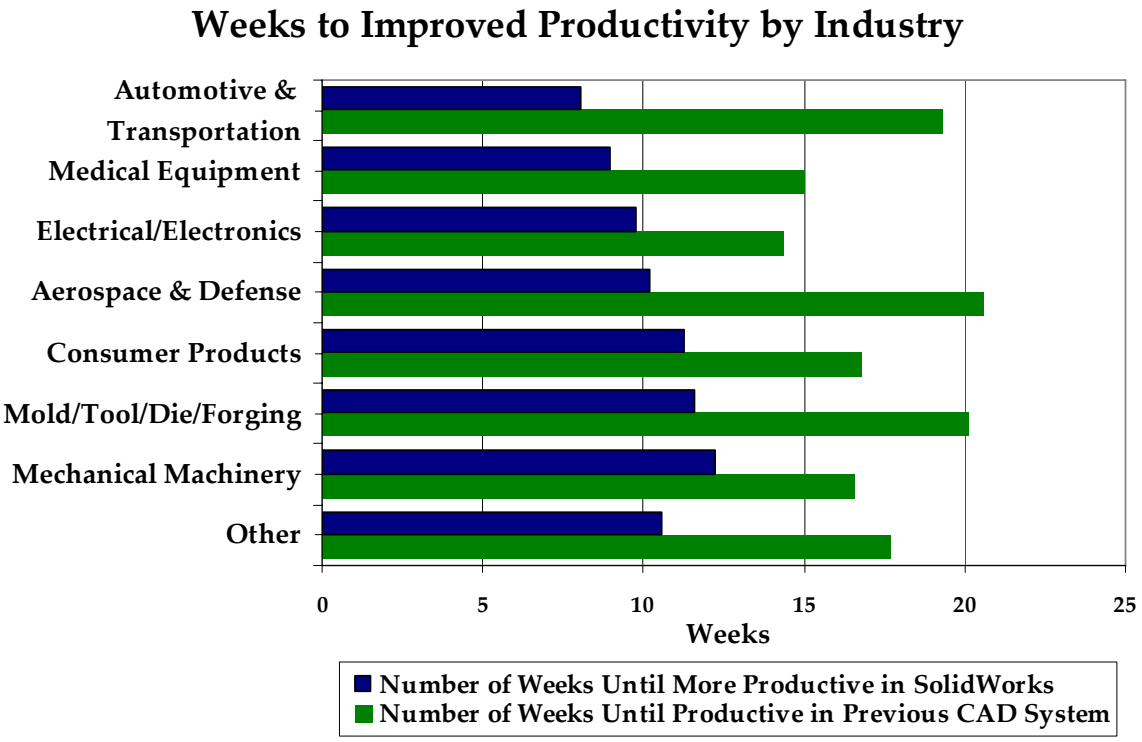
The productivity benefits a company experiences as a result of using SolidWorks 3D CAD software include numerous qualitative benefits as well. Over 80% of respondents reported that SolidWorks enables them to better visualize their designs, while 69% said that they are, in fact, able to design better products since their company migrated to SolidWorks.



Respondents also reported that migrating to SolidWorks has a positive impact on communication, both internally with design teams and externally with manufacturers and clients. Over 50% of companies also said that they are able to design more aesthetic products with SolidWorks. Designing better, more aesthetic products and improving communication with clients can have a windfall of benefits, such as increasing a company's competitive edge and profit margins.

Productivity Gains Materialize Quickly

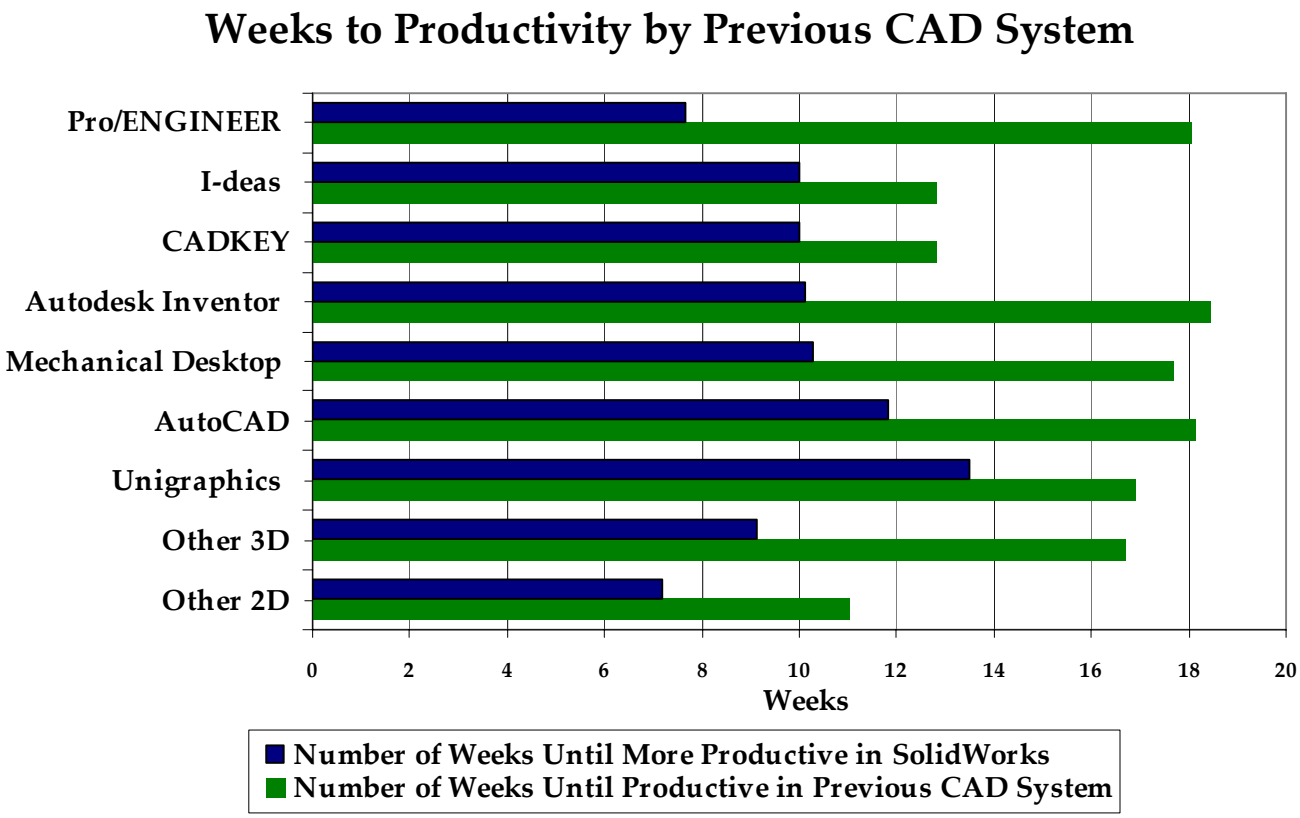
Learning and becoming fluent in a new CAD system quickly is an important component when calculating ROI. Having your engineers and designers become productive in a new CAD system in a short period of time compensates for any down-time related to the transition. Survey respondents indicated that it took about two and a half months (10.3 weeks) on average to become more productive with SolidWorks than their previous CAD system. Respondents reported that with their previous CAD systems it took on average almost 4.5 months to become productive, or 70% longer than SolidWorks. The data varies slightly from industry to industry.



These responses show that SolidWorks enables manufacturers in a variety of industries to become more productive in a relatively short amount of time, particularly in comparison to other CAD systems available in the market.

Productivity Gains Realized after Migrating from Other CAD Systems

In analyzing the number of weeks until users were more productive in SolidWorks than their previous CAD system, respondents consistently reached productivity more quickly in SolidWorks than in their previous CAD systems.

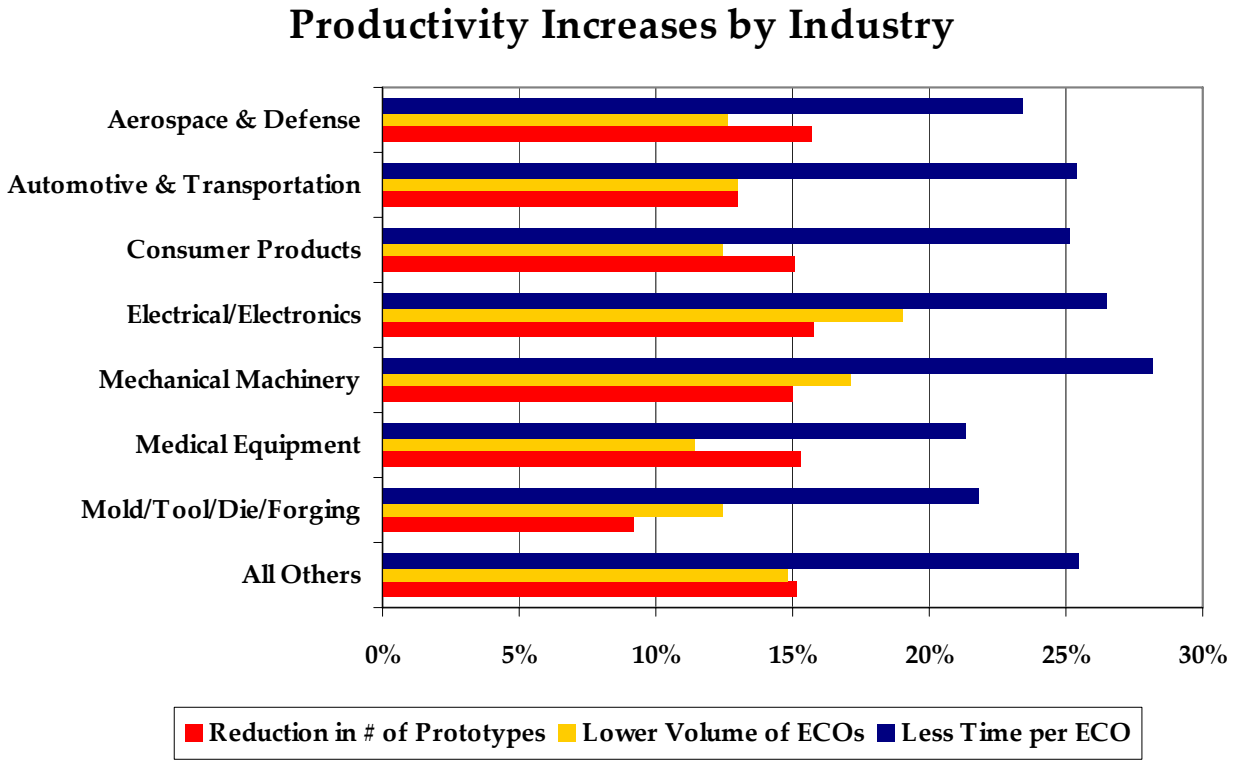


* Not enough survey responses for inclusion of Solid Edge

Across all of the CAD systems, ramp up time to productivity in SolidWorks was nearly half that of competitor CAD systems. For Pro/ENGINEER® users, reaching productivity in Pro/ENGINEER took 18 weeks on average, whereas reaching greater productivity in SolidWorks took 8 weeks. Both Autodesk® Inventor™ users and Mechanical Desktop® users reported an 80% faster ramp up time when switching to SolidWorks, needing 10 weeks to achieve greater productivity, versus needing 18 weeks to reach productivity in their previous CAD systems. Companies across different CAD systems reported requiring less time to reach greater productivity in SolidWorks CAD software.

Productivity Increases are Consistent Across Many Industries

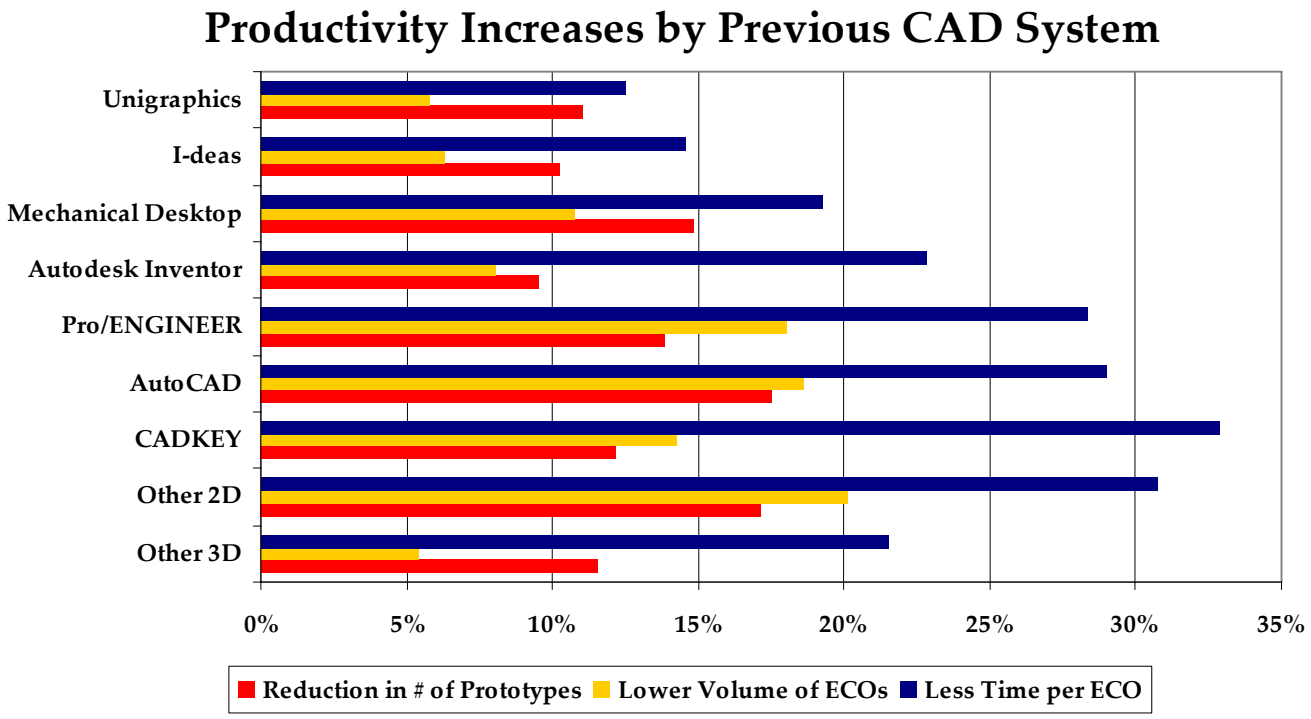
Across all the industries surveyed, the results are generally consistent, showing that different types of companies have realized productivity gains by using SolidWorks software. For example, the decrease in the number of ECOs and the time spent processing each ECO were reduced by an average of 15% and 25%, respectively, across all industries. Detail is provided in Appendix B.



Regionally dispersed companies ranging greatly in size, industry, and number of design engineers on average experienced a reduction in the number of prototypes needed, as well as experiencing fewer ECOs and less time required to complete an ECO after migrating to SolidWorks CAD software.

Productivity Benefits Realized after Migrating from Other CAD Systems

In analyzing the productivity benefits of using SolidWorks software based on the previous CAD system used, respondents reported an increase in productivity no matter which CAD system they had used previously.

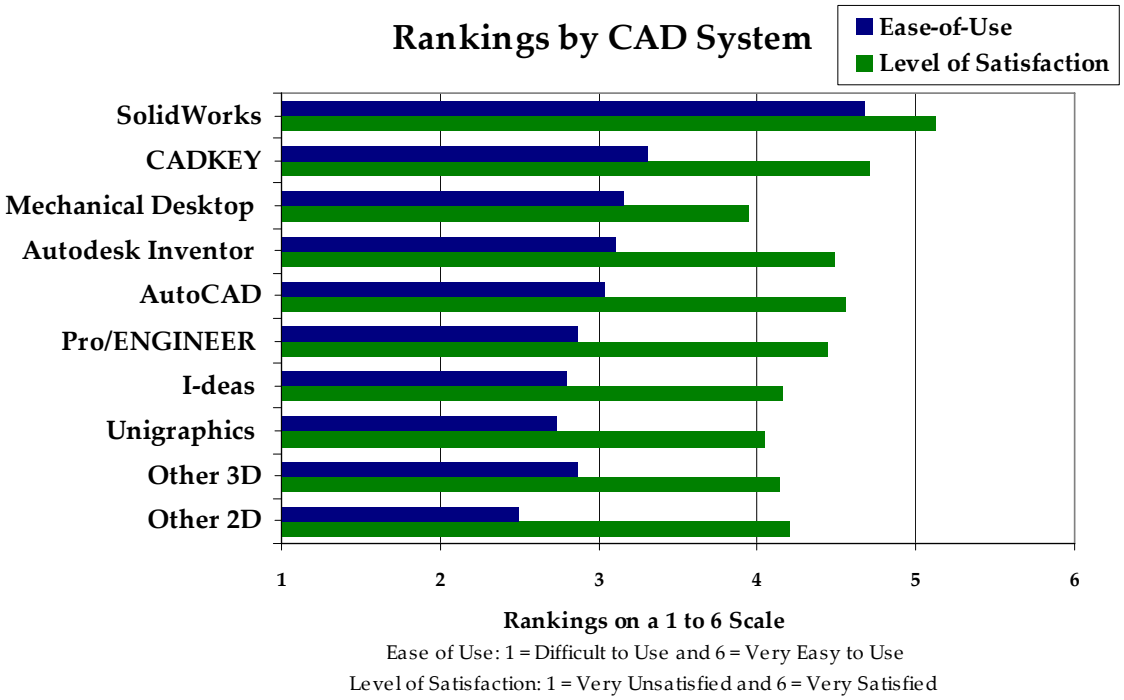


* Not enough survey responses for inclusion of Solid Edge

Respondents who switched to SolidWorks CAD software from CADKEY®, AutoCAD®, and Pro/ENGINEER reported the highest productivity level increases on average, with productivity increases greater than 10% across all three categories. All respondents, regardless of which previous CAD system they used, experienced on average at least a 5% productivity increase in each of these categories.

Ease–of-Use and Level of Satisfaction

Ease-of-use is an important factor in converting to a new CAD system, and also impacts long term productivity. Survey respondents on average ranked SolidWorks as significantly easier to use than their previous CAD systems, which was consistent for users adopting SolidWorks from both 2D and 3D CAD.



Ease of Use: 1 = Difficult to Use and 6 = Very Easy to Use

Level of Satisfaction: 1 = Very Unsatisfied and 6 = Very Satisfied

* Not enough survey responses for inclusion of Solid Edge

Respondents also reported a higher level of satisfaction with SolidWorks than their previous CAD systems, regardless of which system they switched from. Greater ease–of-use and a higher level of satisfaction are illustrative of a more enabling software design tool.

Survey Comments Support Data on Productivity

The comments provided by respondents provide additional support for the conclusions drawn from the data.

"[We are] able to create and manage larger and more complicated projects with more confidence in the same amount of time needed for smaller project done in our old system."

– Medical Equipment company with a design team of two

"HVVi Semiconductor is a fabless semiconductor company still in the start-up phase. We use SolidWorks for developing test fixtures, packages and analyzing heat transfer characteristics. Once we made the decision to acquire SolidWorks, we were producing useful drawings/documents within two weeks. The ease-of-use is incredible. The integration of the tool is great. Changes in a drawing are immediately reflected in assemblies and parts. COSMOS is well integrated as well (compared to using ANSYS with SolidWorks). SolidWorks has allowed us to generate conceptual drawings of our product to show customers and investors. The quality of the work instills credibility. By first prototyping within SolidWorks, we are able to ensure form, fit and function before committing to dollars for fabrication. Mistakes are rare if this procedure is followed. SolidWorks is one of the best designed (and supported) CAD tools available."

– HVVi Semiconductor company with a design team of four (previously used AutoCAD)

"1) Short learning curve for engineers-in-training in capturing design intents and to communicate their thoughts. 2) Design concepts and configurations are quantified using SolidWorks for meeting design requirements, constraints and functionality. 3) Ease of design revision and documentation. 4) Availability of SolidWorks + COSMOSWorks combo makes design optimization possible at the conceptual design stage."

– Company in Higher Education Industry with a design team of six (previously used Pro/ENGINEER)

"[We are] able to design products as easily as they are imagined, whereas before designs had to be compromised because of the CAD system."

– Medical Equipment company with a design team of eight (previously Pro/ENGINEER)

"McDantim is a very small company with a stable line of products. We only rarely develop new products, but when we do, SolidWorks has been extremely valuable in giving us confidence that all the parts will work together as intended. We also use SolidWorks for marketing and for communicating ideas within the company."

– Powdered Metal company with a design team of three (previously used AutoCAD)

SolidWorks COSMOS® Analysis Benefits

Of the SolidWorks customers surveyed, 51% have used COSMOS analysis software during their design process. Of SolidWorks users who have adopted COSMOS for analysis, 69% reported that they have now begun to perform analysis sooner in their design process. When asked what benefits these customers have noticed from doing design analysis earlier in the design cycle, they provided the following comments:

"Customers like seeing the results. [COSMOS] saves me from having to do hand calculations, and the reports look very snazzy indeed. The best benefit for me is being able to visualize the stresses –the process is not just analyzing dry numbers anymore."

– Mold/Tool/Die company with a design team of two (previously used AutoCAD)

"Early detection of potential material strength issues can be detected. Feasibility of projects can be ascertained at an early stage, reducing wasted time and effort."

– Hydraulic Adapters company with a design team of four (previously used AutoCAD LT®)

"[With COSMOS, we benefit from] fewer iterations on designs; Fewer modifications to prototypes for production design; Increased support from management due to improved confidence in designs."

– Medical Equipment company with a design team of 25 (previously used Autodesk Inventor)

"[COSMOS allows us] less rework down the pipe, and we are sending models out for analysis less frequently than before, resulting in cost-savings across the board.."

– Underground Hardrock Mining Equipment company (previously used AutoCAD)

"It is easier to locate possible flaws in a design. If a flaw is found, it is easier to test that single component as opposed to the entire design. You don't want to build up an entire unit to find out that it is not going to work because a small part failed."

– Aerospace & Defense company with a design team of 10 (previously used Pro/ENGINEER)

"It allows us to identify potential problems with the design. Our user base [is] very dedicated to our products but also demand quality and performance at a reasonable cost."

– Company in the Education Industry with a design team of six (previously used AutoCAD)

Sample ROI Calculations

While any business needs to perform its own ROI calculation based on its unique processes and needs (suggestions on how to do this are contained in Appendix C), the data gathered through this survey can be a useful guide in determining if new CAD software makes sense. Three sample ROI calculations for different hypothetical businesses follow. Detail is included in Appendixes D, E, and F.

Small Mold/Tool/Die/Forging Shop

This business has four designers who use Pro/ENGINEER. Their average salary is $58,000 per year plus 30% for benefits and overhead. The engineering and design group processes about 150 ECOs per year. Each ECO takes about eight hours to process. The company typically launches fifteen new products each year, each of which generates about $40,000 in annual revenue with a 25% gross profit margin. The product design cycle averages two months. We will also assume that they will also purchase new hardware. Finally, we will assume that they are in a growing industry with a moderate cost of capital and apply a 10% discount rate.

Using the data from the survey as a guide, we can expect that this company will realize the following productivity gains as a result of migrating to SolidWorks:

- 19% improved time-to-market
- 13% reduction in volume of ECOs
- 22% decrease in engineering time per ECO

If we assume that the first year cost of license, hardware, training (including lost productivity), support, installation, and management is $8,000 per seat, and that maintenance, upgrades, and any additional costs are $2,000 a year after that, then SolidWorks more than pays for itself in the first year, providing a one-year ROI of over $60,000 and a three-year ROI of over $205,000.

Medium Medical Equipment Company

This business has 15 designers that are currently using Pro/ENGINEER. The average salary is $115,000 per year plus 30% in benefits and overhead. The engineering and design group processes about 1000 ECOs each year. Each ECO takes about 20 hours to process. The company typically launches five new products each year, which bring in about $500,000 in annual revenue with a 50% gross profit margin. The product design cycle averages nine months. We will

assume that they will not have to make any hardware upgrades or other adjustments. Finally, we will assume they are in a high-growth industry with a high the cost of capital and apply a 20% discount rate.

Using the data from the survey as a guide, we can expect that this company will realize the following productivity gains as a result of migrating to SolidWorks:

- 13% improved time-to-market
- 11% reduction in volume of ECOs
- 21% decrease in engineering time per ECO

If we assume that the first year cost of license, hardware, training (including lost productivity), support, installation, and management is $10,000 per seat, and that maintenance, upgrades, and any additional costs are $2,500 a year after that, then SolidWorks provides a one-year ROI of over $1.3 million and a three-year ROI of over $3.4 million.

Large Mechanical Machinery Company

This business has 30 designers that are currently using Mechanical Desktop. The average salary is $55,500 per year plus 35% in benefits and overhead. The engineering and design group processes about 2500 ECOs each year. Each ECO takes about one hour to process. The company typically launches four new products each year, which bring in about $300,000 in annual revenue with a 25% gross profit margin. The product design cycle averages 18 months. We will assume that they will not have to make any hardware upgrades or other adjustments. Finally, we will assume they are in an extremely high-growth industry with a high the cost of capital and apply a 25% discount rate.

Using the data from the survey as a guide, we can expect that this company will realize the following productivity gains as a result of migrating to SolidWorks:

- 30% improved time-to-market
- 17% reduction in volume of ECOs
- 28% decrease in engineering time per ECO

If we assume that the first year cost of license, hardware, training (including lost productivity), support, installation, and management is $10,000 per seat, and that maintenance, upgrades, and any additional costs are $2,500 a year after that, then SolidWorks provides a one-year ROI of over $560,000 and a three-year ROI of over $1.6 million.

Appendix A: Disclosure

I am a graduate degree candidate in the 2007 MBA class at the MIT Sloan School of Management with experience in marketing research and information and records management consulting. I believe this survey was conducted impartially and the conclusions drawn are based on sound statistical and business analysis. This report was based on a previous version prepared in August of 2002 by Michael L. Volpe, MBA 2003, MIT Sloan School of Management. I want to disclose that I received financial consideration for my work in conducting the survey and preparing the report. I encourage all companies to do thorough research into all appropriate CAD systems before purchasing and not to rely exclusively on this or any other single piece of information.

- Elizabeth B. Ames

Appendix B: Table of Summary Results

(Numbers represent average from responses to survey questions)

	# of Weeks Until Productive in Previous CAD	# of Weeks Until More Productive in SolidWorks	% Decrease in Number of ECOs	% Decrease in Time to Complete Each ECO	% Decrease in Number of Prototypes Needed	% Scrap Savings by Reducing Design Errors	% Scrap Savings from CAM Integration	% Faster Time to Market
All respondents	**16.6**	**10.2**	**15%**	**25%**	**15%**	**18%**	**16%**	**20%**
By Industry								
Aerospace & Defense	20.6	10.2	13%	23%	16%	19%	21%	15%
Automotive & Transportation	19.3	8.1	13%	25%	13%	19%	16%	25%
Consumer Products	16.8	11.3	13%	25%	15%	14%	15%	25%
Electrical/Electronics	14.4	9.7	19%	27%	16%	18%	15%	19%
Mechanical Machinery	16.6	12.2	17%	28%	15%	19%	14%	30%
Medical Equipment	15.0	8.9	11%	21%	15%	21%	17%	13%
Mold/Tool/Die/Forging	20.1	11.6	13%	22%	9%	15%	15%	19%
All Others	17.7	10.5	15%	25%	15%	18%	17%	16%
By Previous CAD System								
AutoCAD	18.1	11.8	19%	29%	18%	18%	18%	26%
AutoDesk Inventor	18.5	10.1	8%	23%	10%	18%	14%	13%
CADKEY	12.8	10.0	14%	33%	12%	17%	16%	15%
Mechanical Desktop	17.7	10.3	11%	19%	15%	19%	13%	22%
Pro/ENGINEER	18.1	7.6	18%	28%	14%	21%	13%	8%
I-deas	12.8	10.0	6%	15%	10%	17%	15%	11%
Solid Edge	4.8	6.3	12%	17%	16%	27%	15%	22%
Unigraphics	16.9	13.5	6%	13%	11%	13%	14%	14%
Other 2D	11.0	7.2	20%	31%	17%	17%	19%	24%
Other 3D	16.7	9.1	5%	22%	12%	15%	10%	19%

* Solid Edge was not included in the graphs in the report since there were a small number of responses and a large variance in the responses received. I have shown the data here for reference, however it is less reliable than other data in the report.

Appendix C: CAD Evaluation Recommendation

When doing an evaluation of a CAD system, I recommend that companies evaluate the total cost of ownership (TCO) and return on investment (ROI) from each CAD system for comparison. The upfront license cost is often only a small portion of the total cost, so it is important to use the TCO methodology to measure costs. Calculating the ROI enables manufacturers to compare the real value of different systems. The choice of a CAD system should be based on ROI. For example, a system with a 20% higher TCO but a 50% higher ROI is still the right choice even though the upfront cost is higher.

Total Cost of Ownership (TCO) Methodology

- What is the total expected cost? Include all aspects of cost over the expected life of the software, or at least a minimum of the next three to five years.
    - Training (both cost of training and lost productivity while engineers are in class)
    - Internal maintenance (your additional MIS costs)
    - Additional hardware (if software necessitates the purchase of new hardware)
    - Future upgrades
    - Service and support

Return on Investment (ROI) Methodology

- Quantify all of the expected benefits from the software. What is the specific dollar value that this software can provide by…
    - Getting to market faster?
    - Increasing engineering productivity through?
        - Cutting the volume of ECOs?
        - Lowering the time spent processing each ECO?
        - Reducing the number of design errors?
    - Decreasing manufacturing scrap?
    - Lower training, retraining, or hiring costs?
    - Better communication with partners?
    - Using less expensive hardware?

Within the categories of TCO and ROI, there are numerous detailed lines of questioning that you should pursue when evaluating a CAD software product. Following are topics you might want to evaluate when comparing CAD systems.

Handling of Large/Complex Assemblies

- What size of assemblies do you expect to work on?
- Can the CAD system you are evaluating handle assemblies of that size?
- Have you seen it in action?

Ease of Use

- How long will it take to make changes to your parts? Will you save any time processing your typical ECO?
- How long will it take for you to become a productive user of the new software?

Related Applications

- What related applications are important to you, both now and in the future? (e.g., product data management (PDM), finite element analysis (FEA), etc.).
- Are these related applications available for this CAD system?
- Are the ones that are available best of breed, or at least good enough for your needs?
- How integrated are they?
- How much additional training will they require?

Market Acceptance

- How many other companies are using this product?
- What is the track record of other companies achieving productivity gains?
- Will your file types work with your external partners?
- Will you be stuck using an unpopular file format?

Compatibility with Legacy Data

- How easy is it to import old parts and assemblies?
- How long will one of your parts typically take to import?
- Do you need to convert all of your legacy data?
- In order to be productive, what portion of legacy data would need to be converted and how long would this take?

After-Sales Support

- How does the company provide technical and user support?
- What will this cost and when is it available?
- What do other customers have to say about their experience?

Vendor Viability

- How long has this vendor been around?
- Do they have a track record?
- Are they profitable?
- What is their cash position?
- Are their sales growing? (both in dollars and number of seats)
- Will they be around for the next five to 10 years? Where can you get support if they go bankrupt?

Appendix D: Sample ROI for Small Mold/Tool/Die/Forging Shop

Cost Savings from Faster Time-to-Market

Size of engineering and design team	4
Average fully-loaded salary (includes variable overhead)	$75,000
Time-to-market improvement using SolidWorks	**19%**
Annual time savings from increased productivity (in man-hours)	1,520
Annual cost savings from improved time-to-market	**$57,000**

Increased Profit from Faster Time-to-Market

Number of new products per year	15
Average annual revenue per product	$40,000
Average profit margin for a new product	25%
Current product development process time (months)	2
Time-to-market improvement using SolidWorks	**19%**
Time-to-market improvement (months)	0.38
Annual financial value of improved time-to-market	**$4,750**

Cost Savings on Routine Changes to Existing Designs

Current number of ECOs per year	150
Current average time to complete one ECO (hours)	8
Total time currently spent on ECOs (man-hours)	1200
Reduction in number of ECOs from SolidWorks	**13%**
Reduction in time per ECO from SolidWorks	**22%**
Annual reduction in time spent on ECOs (man-hours)	814.32
Annual cost savings of increased productivity	**$30,537**

Summary of Savings and Increased Profit

Cost savings from improved time-to-market	$57,000
Additional profit from improved time-to-market	$4,750
Cost savings of other increased productivity	$30,537
Discount rate	10%
Annual financial benefit from SolidWorks	**$92,287**
Three year financial benefit from SolidWorks, net present value	**$252,455**

Total Cost of Ownership (TCO)

Assumed first year total cost (including license, hardware, training, support, installation, management, etc.) per seat	($8,000)
Assumed annual cost after first year (including upgrades, support, additional training, etc.) per seat	($2,000)
Number of seats purchased	4
TCO for first year for all seats	**($32,000)**
TCO over three year period for all seats, net present value	**($47,194)**

Return on Investment (ROI)

Total ROI for first year	**$60,287**
ROI for first three years, net present value	**$205,261**

Appendix E: Sample ROI for Medium Medical Equipment Company

Cost Savings from Faster Time-to-Market

Size of engineering and design team	15
Average fully-loaded salary (includes variable overhead)	$150,000
Time-to-market improvement using SolidWorks	**13%**
Annual time savings from increased productivity (in man-hours)	3,900
Annual cost savings from improved time-to-market	**$292,500**

Increased Profit from Faster Time-to-Market

Number of new products per year	5
Average annual revenue per product	$500,000
Average profit margin for a new product	50%
Current product development process time (months)	9
Time-to-market improvement using SolidWorks	**13%**
Time-to-market improvement (months)	1.17
Annual financial value of improved time-to-market	**$121,875**

Cost Savings on Routine Changes to Existing Designs

Current number of ECOs per year	1000
Current average time to complete one ECO (hours)	20
Total time currently spent on ECOs (man-hours)	20000
Reduction in number of ECOs from SolidWorks	**11%**
Reduction in time per ECO from SolidWorks	**21%**
Annual reduction in time spent on ECOs (man-hours)	14,062
Annual cost savings of increased productivity	**$1,054,650**

Summary of Savings and Increased Profit

Cost savings from improved time-to-market	$292,500
Additional profit from improved time-to-market	$121,875
Cost savings of other increased productivity	$1,054,650
Discount rate	20%
Annual financial benefit from SolidWorks	**$1,469,025**
Three year financial benefit from SolidWorks, net present value	**$3,713,369**

Total Cost of Ownership (TCO)

Assumed first year total cost (including license, hardware, training, support, installation, management, etc.) per seat	($10,000)
Assumed annual cost after first year (including upgrades, support, additional training, etc.) per seat	($2,500)
Number of seats purchased	15
TCO for first year for all seats	**($150,000)**
TCO over three year period for all seats, net present value	**($217,308)**

Return on Investment (ROI)

Total ROI for first year	**$1,319,025**
ROI for first three years, net present value	**$3,496,061**

Appendix F: Sample ROI for Large Mechanical Machinery Company

Cost Savings from Faster Time-to-Market

Size of engineering and design team	30
Average fully-loaded salary (includes variable overhead)	$75,000
Time-to-market improvement using SolidWorks	**30%**
Annual time savings from increased productivity (in man-hours)	18,000
Annual cost savings from improved time-to-market	**$675,000**

Increased Profit from Faster Time-to-Market

Number of new products per year	4
Average annual revenue per product	$300,000
Average profit margin for a new product	25%
Current product development process time (months)	18
Time-to-market improvement using SolidWorks	**30%**
Time-to-market improvement (months)	5.4
Annual financial value of improved time-to-market	**$135,000**

Cost Savings on Routine Changes to Existing Designs

Current number of ECOs per year	2500
Current average time to complete one ECO (hours)	1
Total time currently spent on ECOs (man-hours)	2500
Reduction in number of ECOs from SolidWorks	**17%**
Reduction in time per ECO from SolidWorks	**28%**
Annual reduction in time spent on ECOs (man-hours)	1494
Annual cost savings of increased productivity	**$56,025**

Summary of Savings and Increased Profit

Cost savings from improved time-to-market	$675,000
Additional profit from improved time-to-market	$135,000
Cost savings of other increased productivity	$56,025
Discount rate	25%
Annual financial benefit from SolidWorks	**$866,025**
Three year financial benefit from SolidWorks, net present value	**$2,113,101**

Total Cost of Ownership (TCO)

Assumed first year total cost (including license, hardware, training, support, installation, management, etc.) per seat	($10,000)
Assumed annual cost after first year (including upgrades, support, additional training, etc.) per seat	($2,500)
Number of seats purchased	30
TCO for first year for all seats	**($300,000)**
TCO over three year period for all seats, net present value	**($430,588)**

Return on Investment (ROI)

Total ROI for first year	**$566,025**
ROI for first three years, net present value	**$1,682,513**

Elizabeth B. Ames, MBA 2007
Massachusetts Institute of Technology