

THE STRATEGIC VALUE OF INFORMATION IN THE RFQ RESPONSE PROCESS

**PREPARED FOR
DASSAULT SYSTEMES**

BY



AUGUST 2007

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Acknowledgements

The authors wish to thank the automotive supplier executives from BorgWarner, Bosch, Collins & Aikman, Cooper Standard, Dana, Plastic Omnium and Schefenacker who made this study possible with their participation in executive interviews.

Steven Szakaly of the Center for Automotive Research (CAR) assisted during interviews. Diana Douglass added invaluable input with the preparation of study deliverables, as well as the interview instruments, and numerous other documents.

As with all research projects performed by CAR, this study would not have been possible without the support of a funder. We wish to thank Dassault Systemes for its support of this effort.

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Executive Summary

During the summer of 2006 CAR researchers conducted interviews with executives of automotive suppliers responsible for their company's Request For Quotation (RFQ) response process. Seven automotive suppliers participated in the research. This report presents the results and analysis of these interviews that addressed the respondents' satisfaction with their RFQ response process as it pertains to revenue acquisition and Engineering Change Notices (ECNs). The questions focused on the comprehensiveness, acquisition, and use of internal company information related to their response processes. The questions also asked about the impacts of not having all the necessary information available during the process and what the interviewees' firms do to make sure they have all the engineering and business information they need during the process to make sure they do not miss out on any promising business opportunities.

The questions specifically addressed potential problems in the suppliers' assessment of component weight, dimensions, performance requirements, materials, and subcomponents. The interviewers then asked about the companies' priorities and estimates as they related to costs, profitability, cycle times, scrap rate, plant floor utilization, labor content, and other tactical and strategic response factors. The questionnaire and subsequent interview went into even more extensive detail about how the companies explored component design and manufacturing alternatives through specific processes and analytic techniques like simulation and three dimensional design.

While the interview responses show the companies were generally satisfied with their firm's RFQ process, they also suggested they were less than satisfied with various components of the RFQs they received including incomplete data, dimensions, and performance requirements. The interviewees indicated financial considerations, especially profitability of the RFQ, were most important in deciding whether to pursue a project. However, on occasion even this would be sacrificed to win business in the long-run strategic interest of the company. Nevertheless, profitability of the business won was perhaps the one factor that could be thought of as too important to get wrong.

The respondents indicated they had more difficulty preparing more intricate quotes for components new to their firm or more complex. This was less of a concern for commoditized parts and products their firm was more familiar with. The largest problem faced in responding to an RFQ was fulfilling their obligations once the business had been won. This was most challenging when dealing with products that fit or interacted with products produced by other suppliers. They also expressed having some difficulty predicting the cost of materials and components purchased from lower tiers.

When it came to the questions about the process of responding to RFQs, many of the interviewees mentioned it would help if they were better able to use data that existed from other products and proposals. There was suggestion that a compilation of best

practices within the company would be of great assistance. This compilation would also assist by increasing collaboration among employees with knowledge who worked in places dispersed around the world. Both cultural and technical obstacles could be handled more effectively. Practices of this sort may help them avoid unexpected costs like late design changes.

All of the companies interviewed used some sort of software to manage the RFQ response process. Often this was a spreadsheet model of the business, technical, and cost inputs. In most cases this was developed and optimized within their firm to address the response-specific needs of their company. More advanced design and engineering software was less likely to come into play during an RFQ response because of limited time and experience and because the company often lacked the information and data required by the model. Advanced software applications were used in the cases where the product was relatively complex, the responding firms had more time to respond, and/or they had a history of using the model for previous products and the data was available.

This report concludes with a series of recommendations that could be implemented to improve the RFQ response process at automotive suppliers facing challenges similar to those experienced by the responding firms. The availability and visibility of information was expressed as a significant problem by the interviewees. To combat this problem, suppliers should make better use of historical data and use technology to estimate or predict what they do not know. When possible, suppliers should use modeling and simulation applications to understand the components specified in the RFQ as well as possible. When automotive OEMs provide insufficient or incomplete data in their RFQs, suppliers should make careful use of assumptions to ensure they will be able to protect their profit margins in the event they win the business. Finally, due to the extreme time pressure faced while responding to multiple RFQs simultaneously, suppliers should make the most efficient use of time by deploying appropriate computer applications where they will make the largest difference.

Introduction

The gestation of a new component made by an automotive supplier typically begins with a Request For Quotation (RFQ) being issued by the supplier's customer, the Original Equipment Manufacturer (OEM). The supplier typically has about two weeks to submit its response. The complex set of decisions made during this two-week period has perhaps the largest impact on the supplier's bottom line of any business function it performs. The supplier's response to the RFQ will define a business relationship between it and its OEM customer for perhaps five years or more. In order for both firms to be successful, and for both to realize the full benefits of the business contract into which they've entered, it is imperative that the supplier RFQ response process be well informed and carefully executed.

Research previously performed by the Center for Automotive Research (CAR) indicates the RFQ response process often suffers from the problems of inaccurate and incomplete data, time pressure, organizational problems, and numerous other challenges that prevent the process from serving both the supplier and its customer to its fullest potential.

CAR's previous research revealed the average automotive supplier surveyed responds to an average of 495 RFQs per year, or about 2 per working day. Only 25% of new business RFQs result in new business for each supplier. The financial implications of both winning and processing RFQs are different for large and small suppliers. CAR's previous research determined that the average cost of replying to a new business RFQ is about \$61,000 for large firms compared to \$22,400 for small firms. The average new business RFQ was determined to be worth about \$55 million of new revenue for large suppliers and about \$2.0 million for small.¹

Recent years have seen automotive suppliers beset by considerable financial pressure. Many automotive suppliers that were once at the head of their industry have been forced into bankruptcy and liquidation. With the automotive landscape growing more challenging with each passing year, it is critical that automotive suppliers execute the RFQ response process to the best of their potential.

¹ Morell, Jonathan, Bernard Swiecki, and David Andrea, *Automotive Suppliers and the Revenue Acquisition Process: What's Working and What's Not?*, Center for Automotive Research, September 2002.

Methodology

This paper represents the results of interviews with executives at seven automotive suppliers. The suppliers selected produce automotive components of varying complexity. All have substantial responsibility for the design and engineering of the components they supply. Tooling and raw materials suppliers were not selected for participation.

The automotive supplier executives interviewed typically head the sales department in their firm. Several interviews included staff who support these executives. Interviews were performed using a written interview instrument and typically lasted less than two hours.

Researchers from the Center for Automotive Research (CAR) conducted seven interviews. There were at least two researchers present at each interview. They met with one or more individuals who were familiar with the RFQ process at the seven participating companies. The interviewers worked together and followed an interview guide that outlined a set of questions and issues that were shared with the respondents before the interview. The researchers took notes and recorded audio responses to assure they captured the key points in all of the interviews.

The questions in the outline were generally taken in the same order in all of the interviews. The interview guide served as a basic checklist during the interviews to make sure that all the relevant questions were covered. However, there was extensive follow-up discussion following each question to explore and clarify the responses. This approach presumed that there was common information that needed to be obtained from each of the companies, and standardized questions were used to make sure that each topic was addressed, but extensive discussion followed the initial response to explore the issue in greater depth and to open the discussion to new ideas that may not have been anticipated in preparation for the interviews. While the interview guide provided a relatively standardized structure for the open-ended interviews, the discussions were fairly conversational and situational when warranted. The information collected benefited from both the strength of standard questions and increased relevance through less-structured informal conversation.

Terminology

CAE: Computer Aided Engineering
ECN: Electronic Change Notice
FEA: Finite Element Analysis
OEM: Original Equipment Manufacturer, automaker
RFQ: Request For Quotation

Interviewees' satisfaction with their firm's RFQ response process

All but one of the interviewees indicated that they are generally satisfied with how their firms respond to OEMs from customers. Responses to further questions, however, revealed that while the majority of interviewees are satisfied with their firm's RFQ response process as a whole, there are areas where they would like to improve. All interviewees pointed out shortcomings in their firm's RFQ response processes. All indicated the RFQ response process at their firm is either slowed down or otherwise hindered by problems with the RFQs they receive. The interviewees stated that OEMs make the RFQ response unnecessarily difficult by including insufficient or unclear information.

This question, the first the interviewees were asked, began a trend that returned throughout the interviews. The interviewees were nearly unanimous in decrying the incomplete data, dimensions, and performance requirements in the RFQs they receive from OEMs. The interviewees are forced to contribute considerable resources to coping with this problem. The interviewees agreed that, by providing more complete information in their RFQs, the OEMs would have benefits beyond making the response process easier on suppliers. It would allow the suppliers to provide components that would provide better value for their customers while giving the suppliers a better chance to turn a profit.

Finding sufficient time to respond to the RFQ was also pointed out as a major problem. Previous CAR research indicates that the average automotive supplier responds to nearly 500 RFQs per year. Given that there are about 260 workdays in a year, suppliers are responding to, on average, 1.9 RFQs each workday.² Most RFQs for new business have a response deadline of about two weeks. To handle such a workload of RFQs, suppliers have to commit the time of employees working in numerous corporate functions. While resources such as historical data from previous RFQs, financial databases, and numerous simulation applications are often available to the staff responding to RFQs, it is a challenge to find the time (due to RFQ prioritization, standard practices, etc.) to use them. The interviewees' responses and previous CAR research indicate that it is not enough for these resources to be available. Suppliers are not likely to use them unless their value is understood and they are available through computer applications that make them easy to apply to the RFQ at hand.

² Morell, Jonathan, Bernard Swiecki, and David Andrea, *Automotive Suppliers and the Revenue Acquisition Process: What's Working and What's Not?*, Center for Automotive Research, September 2002.

The decision process during RFQ response

As previously stated, previous CAR research indicates that automotive suppliers respond to, on average, 1.9 RFQs each workday. Such a heavy RFQ workload means suppliers are not able to give each RFQ their full attention. In order to maximize profits, it is critical to identify the RFQs with the greatest strategic impact on the company and commit precious time and resources to the most promising opportunities.

Interviewees were asked to discuss the importance of each of the following when prioritizing RFQ response:

- Revenue size of RFQ
- Profitability of RFQ
- Impact on capacity utilization
- Customer goodwill
- Revenue replacement
- Customer revenue mix
- Alignment with core design technologies and manufacturing processes

All of the interviewees indicated the profitability of an RFQ under consideration was the most important factor in deciding which RFQs receive top priority. The three items interviewees were asked about that dealt with financial results (profitability, revenue size and revenue replacement importance) were rated as the three most important factors in deciding which RFQs to pursue. The interviewees indicated that revenue replacement is slightly more important than revenue size of the RFQ under consideration.

Customer revenue mix and capacity utilization impact were deemed of medium importance. Alignment with core design technologies and manufacturing processes and customer good will were considered least important. Although each of these considerations has a financial impact, they were not considered as important as those whose impact on the bottom line is more direct.

The interviewees believe financial considerations trump all other factors. Operational impacts, such as filling capacity and aligning new business with the firm's existing technology and expertise, can be accomplished if the financial incentive is high enough. Customer goodwill was rated least important, indicating the responding firms are not willing to pursue opportunities to placate customers at the expense of accepting bad business.

The interviewees qualified their responses with indications that each of the factors will be ignored in certain situations. Even profitability, which was deemed most important, will occasionally be sacrificed to win business from a new, strategically important customer. Some of the factors discussed during the interviews can have a critical impact in responding to some RFQs and a smaller one when responding to others. Alignment with core design technologies and manufacturing processes, for example, was not rated as one of the critical factors in general but can have a substantial impact

on profitability, which was deemed most important. For RFQs in which this is particularly the case, this factor would be considered more important. One interviewee commented, even though customer goodwill is not as important a consideration as the other factors, his firm tries to make sure that its main customers are always taken care of. There are no hard and fast rules, then, and deciding when to forsake profits for strategic gains is challenging. Given the potential for exceptions to be made under certain circumstances, it is critical that suppliers understand the full impact of an RFQ before deciding whether, and how vigorously, to pursue it. Previous CAR research indicates that, when the decision is made to pursue a given RFQ, the average new business RFQ takes just over 14 days to process, with a minimum of just over 3 days for the shortest example respondents recalled³.

The interviewees' focus on financial importance echoes results from previous CAR research, which found that revenue size of contract and profitability were tied for first in importance when responding to RFQs for new business opportunities. The lower emphasis on customer goodwill is also consistent between the two studies.

³ Morell, Jonathan, Bernard Swiecki, and David Andrea, *Automotive Suppliers and the Revenue Acquisition Process: What's Working and What's Not?*, Center for Automotive Research, September 2002.

Understanding the RFQ and its significance for the company

Understanding of the component being quoted

In order to prioritize which RFQs a supplier will pursue most vigorously, the full impact of the RFQ on the company must be understood. This is true for both the inner workings of the firm as well as external factors such as changes caused by the customer OEM and parts bought from lower tier firms.

Interviewees were asked to indicate how much difficulty their firm has with six different problems while responding to an RFQ and trying to fulfill their obligations once the business has been won. They provided their answers for the following:

- Component weight was incorrectly estimated
- Component dimensions are more difficult to meet
- Component performance requirements are more difficult to meet
- Materials must be changed from original specifications
- Components were missed or omitted from original response
- Initial production cycle times and/or run rates did not meet those used to calculate product costs for the quote response

Many interviewees qualified their responses by saying the problems are less of a concern for the more commoditized parts of their business and a bigger concern for those components that are either new to their firm or are more complex.

Interviewees indicated the largest problem they face when responding to an RFQ and fulfilling their obligations once the business has been won is component performance requirements are more difficult to meet than initially expected. Several indicated that this problem is made more challenging by the fact that the component they are providing must fit and interact with components produced by other suppliers. The uncertainty of interacting with parts from other suppliers, as well as the difficult and unpredictable nature of sourcing from lower tiers, were often cited as significant problems during the interviews.

The interviewees indicated meeting component dimensions and changing materials from those originally specified were the next two largest problems. Difficulty in meeting component dimensions is also a problem that can impact component performance and fit with other vehicle parts supplied by other suppliers. Problems caused by the need to change materials from those originally specified can be a significant factor in decreasing the profitability of the business quoted in the RFQ response. While OEMs will generally be responsible for changes in materials they initiate, the supplier is likely to cover the cost if it incorrectly believed that a less expensive material would be sufficient when it developed its RFQ response.

Interviewees indicated problems stemming from initial production cycle times and/or run rates not meeting those used to calculate product costs for the quote response were

nearly as important. This problem is also likely to be exacerbated by the fact that, in responding to a question asked later in the interview, interviewees indicated that they do not engage in a substantial amount of simulating manufacturing processes when responding to RFQs. The interviewees' comments, as well as previous CAR research, indicate that if suppliers had the appropriate software solution available, as well as enough time to use it, this problem could perhaps be alleviated.

Interviewees indicated they do not experience significant problems resulting from incorrectly estimated component weight and components being missed or omitted from their initial response. Anecdotal evidence suggests this problem is more widespread among most suppliers than it is among those interviewed for this paper and that the interviewees considered this less of a problem because they know how to deal with the omission of a component, and not because they never miss components in their RFQ responses. This factor is also a good example of a situation where the problem is greater for more complex components comprised of numerous parts.

Understanding what it will take for the supplier to meet obligations of an RFQ under consideration

Interviewees were asked to estimate how accurately their firms can predict the following during the RFQ response process:

- Cost and time requirements of product development and design
- Cost of materials
- Cost of components purchased from lower tier suppliers
- Profitability of business won
- Cycle times for manufacturing and assembly
- Manufacturing scrap rate
- Raw material scrap rate
- Plant floor utilization
- Labor content

The interviewees indicated they have the greatest difficulty with accurately predicting cost of components purchased from lower tiers and cost of materials. It is important to note at least some of the difficulty in these areas stems from the fact both are subject to external changes. The fluctuating cost of materials used in large volumes by automotive suppliers, such as plastic resins, steel, aluminum, and copper, has been a difficult problem for the automotive industry over the last several years. Likewise, the cost of components purchased from lower tier suppliers is subject to be altered by those suppliers. One interviewee stated the cost of components purchased from lower tiers is not a significant problem for his firm because it exerts significant pricing pressure on lower tier suppliers, not because the lower tier suppliers are predictable.

When asked how big a problem cost of materials was from an internal perspective, excluding unpredictability caused by changing market costs of materials, the

interviewees largely agreed that, while not as big a problem as changing commodity prices, incorrectly predicted cost of materials due to incorrectly choosing the necessary material, or the amount of material needed, was still a problem. This is consistent with the previous question, in which the interviewees indicated the need to change materials from original specifications is a significant problem relative to the other factors about which they were asked. It is logical, then, that the cost implications of these changes are also considered important

Three of the items about which interviewees were asked fell into the category of “medium” accuracy in terms of how well the interviewees’ firms were able to predict them. These items include profitability of business won, cycle times for manufacturing assembly, and manufacturing scrap rate.

The profitability of business won is perhaps the one factor that can be thought of as too important to get wrong. More than any other factor mentioned, it is dependent on how well the interviewees’ firms can predict the other factors about which they were asked. Several interviewees noted they will ensure they achieve profit performance relatively close to their expectations by finding efficiencies anywhere they can. While such an approach can be used to achieve profitability when various cost estimates were missed, it also represents a missed opportunity to increase profit margin had the cost estimates been accurate to start with. The “medium” issues, including cycle times for manufacturing assembly and manufacturing scrap rate, would also produce problems that have to be corrected for desired profitability to be achieved.

The interviewees indicated their firms do not have difficulty in predicting raw material scrap rate, plant floor utilization, labor content, and the cost and time requirements of product development and design. In some cases, interviewees indicated the reason they were able to accurately predict these factors is they had installed software to estimate the necessary parameters.

Understanding the potential impact of an RFQ under consideration

Interviewees were asked how well-known the impact of a given RFQ under consideration is on each of the following, should the business be won:

- New facilities
- New production lines and tools
- New manufacturing staff
- New engineering staff
- Decision of which existing facilities to use based on location, labor rates, shipping costs, import/export tariffs, etc.

The interviewees expressed confidence that, for the majority of the items considered, their firm is able to accurately predict the impact an RFQ will have on these business functions if the firm is successful in winning the business.

The items for which the interviewees expressed very high levels of understanding include new facilities, new production lines and tools, and decision of which existing facilities to use based on location, labor rates, shipping costs, import/export tariffs, etc. Several interviewees expressed the point of view that some of the items about which they were queried can be viewed as good problems to have. For example, even if a supplier was not correct in predicting whether winning new business would necessitate a new facility, it is still considered positive news to have so much business that a new facility is needed.

When asked about whether they have more RFQ responses in play with various OEMs than (should they all be awarded) the supplier has the resources to support, most of the interviewees responded in the affirmative. Again, the point of view surfaced that it is good to need new resources for new business. This point of view is perhaps the reason the firms felt confident about their ability to predict these eventualities.

In only two of the cases, new manufacturing staff and new engineering staff, did the interviewees indicate less confidence in accurate prediction of the impact of RFQs. Some of the interviewees indicated that, where a gap exists due to inaccurate forecasts, they use temporary engineers or temporary manufacturing employees to fill in the gaps. Several interviewees expressed the concern that unpredictable or contradicting engineering changes from their OEM customers made it difficult to predict the time and resources necessary in their engineering departments. They stated that it is not unusual for their OEM customers to continue evolving product requirements as the supplier works on the product, often contradicting previous ECNs and adding cost to the project. This behavior was said to vary from OEM to OEM but to be more common among the traditional Detroit Three automakers.

The availability of information during the RFQ response process

Re-use of existing data vs. the generation of new material

Interviewees were asked what percent of the information necessary to respond to an RFQ their firm generates from scratch each time, as opposed to reusing information already known from existing projects. There was no consensus on the amount of information coming from existing sources, with answers varying greatly from one interviewee to another and from project to project within the same firm. There was consensus, however, that the interviewees' firms use too little existing information.

Many interviewees stated that employees of their firm often generate new data when responding to an RFQ despite knowing that similar data exists because they don't know where to find it. This statement was echoed by many of the interviewees, including those who were satisfied with how their firm responds to RFQs and who believe they are very good at understanding RFQs and their impact on the firm. The cost and time savings that could be generated by greater use of existing data were often mentioned by the interviewees.

Several interviewees noted, in response to this question and others, that the "existing information" in their firm resides mostly not in computer databases but in their employees' heads. While the firm may benefit from this expertise during a given employee's tenure with the firm, such an approach makes it difficult to make information available to others, particularly at locations dispersed around the world. It also makes it difficult to establish "institutional memory," which would continue to benefit the firm despite employee turnover. The correct use of computer applications and databases can play a significant role in addressing this problem.

Late design changes caused by incomplete information

Interviewees were asked how often late design changes caused by incomplete information cause increased product development and manufacturing and assembly costs. Although two of the firms interviewed reported this to be a small problem, five indicated they have experienced significant difficulty in this area.

While incomplete information in the RFQ was indicated to often be the cause of late design changes, interviewees also indicated that many late design changes are caused by the OEM customer changing its specifications for a given parameter. Regardless of the cause, these late design changes were universally acknowledged as expensive and avoidable. One of the interviewees pointed out that, the later a change occurs, the less time the supplier has to understand its full implications. There may be insufficient time to run the full range of simulations and tests necessary to incorporate the full effects of the change into the design of surrounding components. This problem may be compounded by necessitating changes to be made to components sourced from lower

tiers, which interviewees indicated to be challenging when addressing other interview questions.

With suppliers shouldering an ever-larger share of warranty costs, these late design changes expose companies to increasing financial vulnerability over the entire lifespan of the products they design and manufacture. Avoiding the need for these changes by ensuring sufficient data throughout the product design process, or improving the ability to quickly understand their potential impact by, for example, running simulations, would have a positive impact on the bottom line of the supplier in question.

Changes in information flow to and from the customer

Interviewees were asked whether, over the last three years, they had observed that:

- Their customers are requiring faster response to RFQs than they had in the past.
- Their customers are requiring that RFQ responses contain more technical and engineering detail than they had in the past.
- Their customers are providing more details in their RFQs on which to base the response.

The majority of the interviewees indicated they have noticed either no change or little change in the amount of time customers give them to respond to an RFQ, the amount of information provided in their RFQ, and the amount of detail they require in the supplier's response. Several interviewees indicated the answer to each question varies by customer but has held relatively steady over the last three years.

The lack of change, or minimal change, reported by most interviewees is an indication the findings of CAR's previous research on automotive suppliers and the RFQ response process are likely to be applicable today. While the RFQ environment, in terms of time to respond, information given, and information required, appears to have stayed relatively stable over the last three years, the extreme pressure on automotive suppliers' profit margins has continued to increase. This mounting financial pressure has affected nearly every facet of automotive suppliers' business activities. It has certainly increased the importance of understanding each RFQ to which a supplier responds and understanding where each fraction of a percent of margin can be squeezed out.

Collaboration at dispersed corporate locations

Interviewees were asked what problems, if any, are caused by the difficulty of collaborating with employees at dispersed locations during the RFQ response process. As a follow-up question, they were also asked whether these problems are caused by challenges associated with organizations and people or processes and technology.

While responses to this question varied, most of the interviewees indicate collaboration with employees at global locations was a problem for their firm. Two of the responding firms indicated this is not a challenge at their firm. Both stated they have dealt with this problem through the deployment of computer applications and adjusting their management approach.

For those interviewees who indicated that collaboration with employees at dispersed locations was a problem, the largest challenge noted was working with employees overseas. Employees working in Asia, for example, have an opportunity to collaborate with co-workers in Europe in the morning and co-workers in North America in the evening. North American employees may have early morning conference calls with coworkers in Europe and late night calls with those in Asia. For a truly global company, such complex and demanding collaboration can be a significant problem.

Several interviewees also pointed out the RFQ they may be working on in their U.S.-based operations can be a low priority for a co-worker overseas. The distance and time zone difference can make it difficult to ensure a project that is a priority on one continent receives due emphasis at overseas locations. One interviewee pointed out that such a substantial portion of European workers vacation during the summer that it can be difficult to get assistance during that time.

Problems with collaboration at diverse locations were ascribed to both cultural and technological obstacles. The use of differing applications, which may not necessarily be able to communicate with each other, by employees at different locations can cost time and money. Likewise, cultural issues can cause delays. One interviewee mentioned that, while precise contracts dictate obligations to customers and suppliers in the United States, personal and professional relationships are considered more important in Asia and Europe. Combined with the myriad challenges faced in responding to an RFQ, collaboration between employees at dispersed locations can be a substantial challenge for automotive suppliers with global operations.

The effect of incomplete information on RFQ win percentage and profitability

Impact of incomplete information on RFQ win percentage and profitability

Interviewees were asked how much they believe incomplete information during the RFQ response process hurts their firm by reducing the RFQ win percentage. As a follow-up question, they were also asked how much they believe incomplete information during the RFQ response process hurts their firm by reducing the profitability of the newly acquired business.

The interviewees' responses to these two questions indicate winning new business and turning a profit are too important to get wrong. While a large portion of the interviewees indicated that, strictly speaking, win percentage and profit are at a satisfactory level at their firm, they achieve these satisfactory results by working around problems and, in some cases, taking advantage of them. When information is incomplete because it was omitted from the customer's RFQ, for example, the supplier can document assumptions that give some room to request price adjustments later. Incomplete information within the supplier itself, however, must either be overcome by employees spending more time and resources to track it down, or compensated for after the business is won in order to make the business profitable.

One interviewee stated the thoroughness required to create an RFQ response so detailed and comprehensive that all questions are completely answered takes time and can be expensive because of the effort and resources required. Taking time was described as a double-edged sword, because it allows for the RFQ response to be thorough but can also cost the supplier the contract if the process goes on for too long. OEMs were stated to be willing to allow suppliers additional time beyond the initial RFQ response deadline in product areas where the supplier is considered particularly capable. Such extensions, however, can come back to haunt the supplier if abused.

Missed business opportunities

Interviewees were asked how often their company misses out on business opportunities because they were unable to respond to an RFQ due to either insufficient time or information to prepare a response. As a follow-up question, they were asked what they estimate the revenue impact of these missed opportunities to be.

The majority of interviewees indicated, in most cases, they are able to submit their RFQ responses on time. They also agreed they are generally able to work around the problem of multiple, short-term deadlines well enough not to hurt their revenue in a substantial way. One interviewee stated that a supplier's ability to win business is proportional to the amount of time the firm is given to respond to a given RFQ. The majority of the interviewees indicated, while their firms rarely miss out on business due

to lack of time, they are forced to work longer hours or submit RFQs of lower quality in order to meet the OEMs' deadlines.

Several interviewees expressed frustration with how little time they were given to respond to large numbers of complex RFQs. They indicated their customers do not share the time constraints they demand of their suppliers. While only two weeks of time is typically given to respond to an RFQ, the OEM may then take months to make its decision. Interviewees frequently discussed the advantage of being the lead supplier on developing a component in the initial steps of vehicle design, long before the RFQ for that component is released. The expertise gained during these early stages is a substantial edge on other suppliers who will eventually compete for the business.

Potential benefit of more complete information

Interviewees were asked to identify where in the RFQ response process their firm would most benefit from more complete and timely information. Their responses most often focused on two areas: better information from the OEM and better information from lower tiers. One interviewee indicated that, while it may not be possible to receive more predictable pricing and performance from lower tier suppliers, it would be helpful if data were available that allowed them to estimate what the future cost changes may be.

Several interviewees tied their answer to this question to a previous question about the use of historical data. They indicated their firms would benefit if more complete information on previous project and best practices were available throughout their firms.

The use of computer applications during the RFQ response process

The use of software to manage the RFQ response process

Interviewees were asked to discuss whether and how their firms use computer applications to manage the RFQ response process. All of the interviewees indicated that their firms use applications developed internally and optimized for their firm. One of the interviewees mentioned his firm would soon be migrating to an off-the-shelf application that will be customized for his firm. All of the other firms interviewed use internally developed applications. Only one firm indicated dissatisfaction with its RFQ management software.

The universal use of internally developed software is indicative of the complexity of the RFQ response process. The fact that off-the-shelf applications are not currently used, and only one interviewee's firm plans to use one in the future, is a clear indication of how much the RFQ response process varies from company to company. It is important to note that in some cases, the interviewees used the word "applications" to mean a spreadsheet comprised of multiple sheets that have to be used in sequence. In those cases, the application requires the entry of data in standard form and produces output necessary to respond to an RFQ. Strictly speaking, the application does not manage the RFQ response process.

The use of software to provide information necessary for RFQ response

Interviewees were asked to discuss the software their firm uses to provide information necessary during the RFQ response process. Responses included a variety of engineering, manufacturing, design, purchasing, and PDM applications. The interviewees indicated design and engineering software is sometimes not used to its full potential because of incomplete information provided by OEMs in their RFQs. For example, if suppliers are not given the exact dimensions of a design, software is not helpful in simulating the design. It may, in such situations, help in accessing data on similar designs simulated for past projects. Migrating away from spreadsheet-based applications and moving to more modern, PLM or ERP-based applications has given several interviewees more confidence in the data they use to respond to RFQs.

Interviewees were asked to indicate the level of detail their firm is typically able to explore in forming their response to an RFQ. The breakout provided in the question is included below:

- Design:
 - Low detail - similar product
 - Medium detail - marked-up drawings
 - High detail - new 3D design

- Analysis:
 - Low – no testing or mockup
 - Medium – some mockup with some physical testing
 - High – Computer Aided Engineering (CAE) simulation

- Manufacturing:
 - Low – use standard manufacturing cycle times
 - Medium – use lean manufacturing / paper-based simulation
 - High – use simulated manufacturing process

The majority of the interviewees indicated, in most cases, their firm has the capability to perform at least the “medium” level of design, analysis, and manufacturing investigation. Their responses were frequently qualified with statements that their use of these resources is usually limited not by their own capability but by the factors of need, time available, and the availability of appropriate data from the customer.

Interviewees were also asked to respond to the same question as it pertains to the process of responding to Electronic Change Notices (ECNs). The majority of interviewees indicated, because engineering and simulation are likely to already be in progress at the time an ECN is received, they are more likely to use design, analysis, and manufacturing software when responding to ECNs than when responding to RFQs for new business. ECNs, by the very nature of the detail they demand in response, may make the use of this software necessary in order to provide an adequate response back to the customer.

The interviewees indicated the more complex the component they are quoting, the greater the use of design, analysis, and manufacturing software. For certain components of simple design, or those of high commonality with a large proportion of the supplier’s business, the interviewees indicated the need for these applications is lower. They also stated there is often little time to employ these solutions. This is true not only because OEMs expect suppliers to respond to RFQs in only two to three weeks but also because many suppliers are responding to several RFQs at a time, which hurts their ability to devote resources to them as generously as would optimally be the case.

In their responses to this question, as well as other points during the interview, several interviewees expressed frustration with the low level of detail most OEMs provide in their RFQs. These interviewees stated that OEMs sometimes provide only basic, or incomplete, information on the characteristics they would like the supplier to quote.

They sometimes ask a supplier to quote a component “similar” to one already on the market but with certain modifications.

The interviewees believe the OEMs hurt both themselves and suppliers by providing deficient information. With more complete information, suppliers would be able to respond to the OEMs’ RFQs with more detail and much higher probability that component dimensions, performance, and price expectations can be met. More complete data also forces suppliers to be open about the cost of the components they propose to sell. RFQs with less data leave much more room for suppliers to try to win the business with a low price that will later be raised due to the many modifications made necessary by the low level of data provided in the RFQ.

Interviewees were asked to indicate to what extent their firm uses Finite Element Analysis (FEA), manufacturing simulation, scenario “what if” analysis, and analysis of winning alternative RFQs during both the RFQ and ECN response processes.

As was the case with computer applications discussed above, interviewees were slightly more likely to use FEA applications during the ECN response process than when responding to new business RFQs. One interviewee indicated FEA is difficult to do during the RFQ response process because the customer often does not provide sufficiently detailed design requirements in the RFQ. Later in the project, when dimensions, and performance requirements have been more strictly defined, the interviewees considered these applications to be more useful.

Manufacturing simulation, scenario “what if” analysis, and analysis of winning alternative RFQs were considered by the interviewees to be slightly more useful when responding to new business RFQs than when responding to ECNs. Scenario “what if” analysis and analysis of winning alternative RFQs have the potential to use, and contribute to, historical data existing in the company. Many interviewees stressed the benefit efficient use of historical data can have in improving every facet of RFQ response, including timing, completeness, accuracy, and confidence in profit margin.

Interviewees indicated that, just as is the case with design, analysis, and manufacturing simulation software, they would make greater use of these applications if their customers provided the time and data necessary or if the tools could be used with limited data in the time available.

Conclusion

The RFQ response process is of critical importance to both automotive suppliers and the OEMs they serve. Because of its tremendous impact on the bottom line, as well as setting the terms which will bind the OEM and supplier in a relationship likely to last over half a decade, the RFQ response process must be addressed with the highest degree of attention and precision.

While the RFQ response process is often described as “broken,” the majority of interviewees indicated general satisfaction with how their firms approach this process. They were quick to point out, however, that many opportunities remain for both OEMs and suppliers to make changes in the RFQ response process to allow all automotive industry stakeholders to be more profitable and to use resources more efficiently.

Recommendations

The results from the interviews indicate automotive suppliers can initiate changes to make them better at responding to RFQs and ensuring that the new business they win has the greatest possible positive impact on their financial bottom line. Analysis of the interview results produces the following recommendations to improve the RFQ response process:

- **Make the best use of what the supplier already knows:** the data from previous projects, RFQs, and ECNs, stored in various spreadsheets, databases, binders, notebooks, and file folders scattered around the various locations of a typical automotive supplier is a potential treasure trove of information. Whether by employing software application solutions or changing business processes, increasing the visibility and access to historical data will reduce duplication, increase accuracy and confidence, and save precious time during the RFQ and ECN response process.
- **Use data to estimate the unknown:** Interviewees expressed frustration with the incomplete information coming from the customer above, and the lower tier suppliers below. Data from previous projects and RFQs, as well as data from components the supplier currently makes, can be a tool to address this problem if used correctly.
- **Use technology to maximize efficient use of time:** Interviewees expressed frustration at the lack of time during the RFQ response process. Working on several RFQs simultaneously, with limited time to respond, decreases the time the auto supplier can devote to each one. Likewise, higher levels of design, analysis, and manufacturing simulation take time to complete. Using applications that allow the supplier to

complete these simulations faster would allow it to perform a higher level of simulation for a larger percentage of the RFQs to which it responds.

- **Use assumptions as the first tool to manage incomplete information and uncertainty:** The lack of information is often managed by making clear assumptions about the proposed product so that it is clear to the customer what features, functions, materials, and processes will be addressed in designing and manufacturing the product. The respondents made it clear the clarification of assumptions was essential in managing generalities and lack of clear directions in the customer RFQ. They also noted effective management of assumptions helped them deal with internal manufacturing and design decisions needed to be addressed in their proposals. This is important because there are many ways to develop manufacturing. Rather, the experience of the engineers and production staff, as well as data on previous similar production cycles often provides sufficient information to craft an effective proposal as long as appropriate assumptions are specified to assure the proposal is cost-effective and modifications that increase cost cannot be dictated by the customer. Most of the companies had a standard RFQ response process that included a financial evaluation of the project based on a routine cost model. In fact, several of the subjects noted an internal a database of best practices would be the most helpful and desirable source of information to improve the RFQ response process.
- **Use modeling and analysis when it is available:** Modeling of design and manufacturing appears to be most helpful when the company has a lot of historical experience in product design and manufacturing complex components that offer variations in the product features and related costs. This is where more detailed analysis and simulation have a large payoff and where the necessary pilot data is available for analysis within the timeframe of the RFQ process. In the frequent instances where each RFQ response is started from scratch (as many of the companies described as common practice), there is limited history of modeling variations in the design and production of the product, and there is limited time to respond, it is particularly challenging to reap the full benefits of advanced modeling and simulation applications. Altering the supplier's business practices to take full advantage of these tools would result in significant benefits for the firm.

Improving the RFQ response process would benefit not just the supplier in question but all stakeholders in the supply chain from the OEM through the lower tiers. As many automotive suppliers find themselves struggling financially and coping with financial pressure greater than any they have ever faced, the substantial impact of the RFQ response process on suppliers' bottom line makes it perhaps the most valuable tool in dealing with this challenging environment.