

# Strategic Purchasing of Process Heating Equipment

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## Process Overview

When your company buys or operates industrial kilns, furnaces, or ovens, you may be wasting from tens to hundreds of thousands of dollars of potential profit. These losses often occur in the form of excessive operation and maintenance expense, higher than necessary capital investment, and missed opportunities due to equipment problems or limitations. The purpose of this white paper is to show you how to minimize or eliminate these unnecessary expenses.

Your success will be based on how effectively you gather, develop, analyze, and leverage information. This information can be created and evaluated using a powerful business process that is adaptable to most project requirements. The process will provide you with the tools you need to make the best possible technical and business decisions. The benefits of this business process include:

- Capital investment and operating expense are minimized
- Ensures project compliance with all critical business needs
- Realistic key indicators are established to aid in project management
- Expensive common oversights are avoided
- Negotiation leverage is maximized

The following overview outlines the five basic stages of project development.

### Stage One – Internal Strategy Development

The first stage establishes guidelines that will govern all project participants, and creates measures by which the success of the project will be determined. Ambiguity is a common management problem, which often results in negative effects long after an equipment installation or upgrade is completed. It pays to do things right from the beginning.

- Determine key project objectives and corresponding measures of success
- Create a project budget based on return on investment and timing factors
- Create a detailed project timeline and schedule change impact analysis
- Develop a strategy for equipment evaluation and selection
- Develop a supplier sourcing and qualification strategy

### Stage Two – Create Project Specifications

An internal project specification should be written that communicates to all team members the key business decisions and objectives on which the project is based. This helps keep the entire team on the same page, and highlights critical issues that should constantly be kept in focus. Next, a technical specification for the equipment is created. Some important elements of a good technical specification are:

- Key process data – an overview of the process
- Key production data – how the equipment will be operated
- Key business data – a limited amount is provided at this stage
- Critical parameters – specific performances that must be achieved
- Qualification method – how those performances will be measured
- Desirable capabilities – non-critical capabilities that would be beneficial
- Future considerations – issues that could impact equipment selection

### **Stage Three – Source and Qualify Suppliers**

There are many ways to source suppliers, including the use of trade directories, referrals, the Internet, etc. While sourcing for some projects is fairly simple, more complex projects often require niche expertise that can be difficult to find. Then, the qualifications of suppliers must be verified – how do you know they will deliver as promised? Lastly, the dialog you establish with suppliers should be carefully managed. Successful salespeople know how to manage customer relationships and information flow. You should likewise have a plan that helps draw out the best suppliers have to offer. The key elements of this stage are:

- Source potential suppliers having specific technical and business expertise
- First tier qualification to eliminate suppliers not meeting your criteria
- Process development and demonstration testing as needed
- Establish internal guidelines for supplier relationship management
- Establish a cost justification dialog with suppliers early in discussions

### **Stage Four – Evaluate and Compare Proposals**

It is common to receive equipment proposals that do not lend themselves to an “apples to apples” comparison. This is the reason why an equipment evaluation and selection strategy should be created in Stage 1. You can then evaluate bids for the purpose of making a technology decision, and subsequently gather proposals from suppliers specializing in the technology selected. A reasonable evaluation can then be made of the following data:

- Critical process, production, and business parameters
- Options, desirable capabilities, future considerations, and costs
- Specification variances, reasons, and costs
- Key terms and conditions
- Preliminary supplier qualification feedback

### **Stage Five – Negotiate Agreements**

The information gathered and compared up to this point will help make final supplier selection more objective. Decisions should be made on the basis of comprehensive justifiable value, rather than on subjective preferences. Negotiations can be conducted from a position of strength that is both fair and reasonable. You should have the following information at negotiation time:

- Internal strategy documentation
- Supplier proposals and your comparison matrix
- Detailed supplier qualification data
- Terms and conditions of sale
- Performance agreements

This process is focused on integrating all of your business needs with the technical requirements of your project. It provides a framework for assembling a project team and managing it effectively. The information you gather, develop, and analyze will provide you with the power to make superior decisions, minimize risk, and maximize negotiation leverage, potentially greening up your bottom line by tens to hundreds of thousands of dollars.

## **Stage One - Internal Strategy Development**

The first step is to assess and document your technical and business needs, establish parameters that will govern project participants, and create metrics that will be used to manage the project and measure its success. The following checklist can help you get your project off to a solid start.

1. Identify each of your most important project objectives, and determine what the corresponding measures of success are. For instance, you may need to increase firing capacity of a specific part from 250 to 1000 units per hour, while reducing your scrap rate from 14% to 7%. These are examples of clear and measurable objectives that should be written down and communicated to your project team.
2. Create a project budget based on stated assumptions and a financial justification. The amount of financial detail included will vary by company and project size, but these questions will steer you in the right direction.
  - How much additional capacity will this project create for the company?
  - Can we maintain a steady sales volume in this capacity range?
  - How much annual profit does this represent for the company after expenses?
  - How much current expense can be eliminated by completing the project?
  - How much additional profit and savings should we realize per year?
  - What is the desired capital investment payback period in years?
  - What is the resulting project budget amount? (additional profit and savings x payback period)
  - What payment options are available for the project, and will the cash flow work for the company?

You may have an idea of the approximate project cost, and see that it does not correspond with the budget developed. You can then change the project scope, revise your budget, or drop the project. In my experience, many project managers do not have a clear picture of the financial justification for projects they manage. This critical information can help them make better decisions and ensure the overall objectives are met.

3. Create a project timeline. Begin with the date the equipment must start producing high quality product in the required volumes. Then, you work backwards to establish intermediate milestones that will end with a required project start date. The following checklist contains many steps common to large engineered systems. Use it as a template in creating your master project schedule.
  - Equipment ready to start full-scale production
  - Successful completion of qualification runs
  - Successful approval testing of integrated systems
  - Start-up, debugging, and fine-tuning integrated systems
  - Physical installation of integrated systems
  - Successful approval testing of process heating equipment
  - Start-up, debugging, and fine-tuning of process heating equipment
  - Physical installation of process heating equipment
  - Equipment shipped from manufacturer
  - Final inspection at manufacturer's facility
  - Approval of engineering drawings before fabrication
  - Negotiations and placement of order
  - Final round of pre-order vendor discussions
  - Demonstration testing or computer modeling as applicable
  - Proposal evaluation and vendor qualification
  - Vendors respond with appropriate proposals
  - RFQ/RFP sent to potential vendors
  - Source and pre-qualify potential vendors
  - Prepare complete RFQ/RFP packages
  - Develop comprehensive project specifications
  - Get internal budget and schedule approvals necessary to proceed
  - Add some overall contingency time
  - Required project start date

Your answers to the following questions are also important to consider, and they may give you greater negotiation leverage as well.

- Why must the project be completed within the stated time frame?
  - What is the impact of accelerated or delayed project completion?
  - What is the financial value of accelerated or delayed project completion?
  - What factors may contribute to schedule changes?
  - What options do we have in the event of schedule changes?
4. Develop a strategy for selecting the right equipment for your project. If you send out an RFP, you may get proposals for several completely different technologies. How do you know which is best way to go? Here are some questions to help you determine the best technology for your needs.
- How well established are your process and production requirements?
  - Are you open to evaluation of different process heating methods?
  - What will it take to demonstrate to your satisfaction that a given technology is the best for your project?
  - How much testing and/or computer modeling time/budget is available?
  - How much risk is associated with each of your alternatives?
  - What values can be established for the risk associated with your alternatives?
  - How much of the work are you willing/able to do in-house?
  - What aspects of the equipment design are absolute and inflexible, and what aspects are the most flexible?
  - What aspects of the equipment concern you the most?
5. Develop a supplier sourcing and qualification strategy. Determine up front what your ideal supplier should have in terms of qualifications, support capabilities, and business characteristics. How will you find the right suppliers to compete for your business? Agree up front on the methods you will use to verify supplier information as the project progresses. Consider the following questions to help you get started.
- What supplier capabilities are essential for the success of this project?
  - What level of participation do we want from our supplier?
  - What supplier characteristics are the most important and valuable to our company?
  - What value can we establish for those characteristics?
  - How much technical support is needed or wanted from the supplier?
  - How capable are we of troubleshooting and maintaining this equipment?
  - What is the ideal relationship we would like to have with the supplier?
  - How much are we willing to invest in potential supplier qualification?

Industry-specific buyer's guides often provide a good starting point. The Thomas Register is helpful, and information from industry experts can also help you target the most qualified suppliers to compete for your business. Once you know what you are looking for in a supplier – beyond specification compliance – you can commence the qualification process on your very first supplier phone call.

Next, we'll take a look at a powerful formula for developing comprehensive project specifications that will help insure the total success of the project.

## **Stage Two – Create Project Specifications**

After you've developed an internal project strategy, it's time to start creating your specifications.

## Types of Specifications

There are two specifications you should create that will help you communicate your needs to the project team and potential suppliers, and then manage the project to a successful conclusion.

1. An external Technical Specification provides the details necessary by potential suppliers to properly bid on the project.
2. An internal Project Specification includes the external Technical Specification, with the addition of business and other information that is helpful for managers and team members, but will not be shared with potential suppliers.

Specifications may be brief or lengthy, depending on the nature of your project. The quality of specifications is not a function of documentation mass. Superior specifications concisely communicate clearly defined project requirements and measures of performance.

## Specification Content

There are three types of issues that should be addressed and balanced in a comprehensive project specification:

- Process issues that directly impact successful product manufacturing
- Production issues, which include capacity and operational considerations
- Business issues that include budget, schedule, project management, risk mitigation, etc.

A Technical Specification should contain all of your process and production requirements, with the addition of your schedule requirements. This document will be the basis for proposals generated by potential suppliers. All remaining business issues should be included in the Project Specification, which will be used internally to evaluate proposals and manage the project.

All key project issues should be established and documented with sufficient detail in the following areas:

- Critical parameters
- Window of acceptable performance
- Qualification methods
- Desirable but non-crucial capabilities
- Future considerations

Critical parameters are those that are essential to the success of the project. If your process, production, or business needs absolutely require specific performances, these must be clearly stated.

*Example: A part in the furnace must soak at 1350°C for 75 minutes.*

Then, describe the window (or range) of acceptable performance.

*Example: Temperature accuracy and uniformity at soak must be +/- 10°C.*

How will this capability be demonstrated? Describe the testing criteria.

*Example: Calibrated thermocouples at nine points on the surface of the part.*

What would you like the system to be capable of (if it can be justified) that is not critical to the success of the project, but would provide additional valuable benefits?

*Example: Temperature accuracy and uniformity at soak of +/- 3°C.*

Lastly, what future considerations may have an impact on how you specify the equipment at present?

*Example: May eventually interface with automated loading/unloading robot.*

By addressing your needs in this manner, you will be able to gather helpful information from potential suppliers that will enable you to make effective decisions. Your firm requirements will be clearly established, as will the manner in which compliance will be verified. Proposals will be easier to compare and evaluate. Optional improvements should be priced separately to aid in the justification of additional capital investment. And future considerations can also be properly addressed from an early stage without getting them entangled in critical requirements.

### **Specification Compliance Verification**

A compliance test description is often overlooked in a specification, and can become an area of difficulty if not addressed early on. In most cases, equipment suppliers do not guarantee the success of your process. What they should guarantee is that equipment supplied will meet specific performance criteria. If these criteria are met, then you must be confident that your project will be successful. Properly communicating this information provides a useful framework for a good working relationship.

Some aspects of a specification are easy to verify, such as physical size, number of zones, etc. Those that are more difficult are related to process control. If you don't have much experience in this area, then one of the best ways to learn which testing methodologies are most appropriate for your needs is to ask several equipment suppliers how they typically demonstrate compliance. As you weigh this input with your needs, you will develop a better understanding of testing methods that are both reasonable and effective.

### **Process Heating Equipment Issues**

A summary of typical process, production, and business issues follows to aid in your specification development. Adapt the list as needed to address your specific needs and issues.

#### *Process Issues*

- Starting physical and chemical properties of product
- Load dimensions, including product, supports, boats, etc.
- Detailed description of all process control parameters
- Process chemistry that must be compatible with the equipment
- Ending physical and chemical properties of product
- Complete description and quantity of emissions
- Identify all special considerations that we know affect process success

#### *Production Issues*

- Intended schedule for equipment operation
- Production volume requirements based on this schedule
- Other systems that will be integrated with this equipment
- Specific hardware and software requirements
- Standard equipment specification data
- Physical space and weight limitations that apply to the equipment

- Utility preferences and availability
- Identify all special considerations that we know affect production success

#### *Business Issues*

- Project schedule requirements
- Budget information including values established in the previous step
- Qualification testing issues
- Project team creation and division of responsibility
- Intermediate and final approvals
- Identify all special considerations that we know affect project success

### **How effective are your specifications?**

To gauge the effectiveness of your specifications, ask yourself the following questions:

- Does the specification properly address every key project objective and measure of success?
- Are all measures of success reasonable, and how will they be demonstrated?
- If all measures are successfully achieved, will the project be successful?

When you are satisfied that your Technical Specification and Project Specification are effective, you are ready to begin sourcing and qualifying potential suppliers.

## **Stage Three – Source and Qualify Suppliers**

To this point, you have established and documented the issues that will determine the success of your project. Before you start looking for qualified suppliers, prepare yourself with answers to the following questions:

- Are all of your needs clearly defined, or does your specification still lack critical details?
- Are you looking for best available technology, or a more conventional solution?
- What are the most important contributions we need from our equipment supplier for this project?
- Do you need budgetary information, or a detailed and firm proposal?

Your answers will aid in the supplier sourcing process. If your specification lacks critical detail, qualified suppliers can often help guide you in finding suitable answers. Some suppliers specialize in developing highly engineered custom solutions, while others provide standard systems from a catalog. There are many business strengths offered by suppliers, and no two provide the same combination of expertise, value, and compatibility with your business needs. And lastly, clarity with suppliers regarding the timing of your project will benefit all involved.

### **Supplier Sourcing**

Today, identifying potential suppliers is both easier and more difficult than ever before. Internet access to online buyers' guides and trade directories can help you quickly develop a list of potential suppliers. However, while guides and directories can help you find suppliers by WHAT they do, you must find out for yourself HOW WELL they can meet your specific needs. Also, the sheer volume of potential suppliers can be daunting. By my last count, there are more than 700 suppliers of process heating equipment in the United States alone. Some are easy to find, others are not. The most prominently found suppliers promoting the expertise you need might not be ideal in terms of meeting all of your unique business requirements. So what should you do?

1. Compile a list of supplier information sources. The list may include Ceramic Industry Data Book and Buyers' Guide, industry trade associations, the Thomas Register, web portals and search engines, industry consultants, etc.
2. Create a short list of the key business strengths you require on this project. The project specification you created earlier should be your guide. Your list should include key technical and performance parameters for the project (all bidders must comply with these requirements), as well as more subjective criteria relating to the way suppliers do business (your business compatibility preferences). This may include aspects related to quality, reliability, process specialization, engineering expertise, testing capabilities, local support, integrity, technical assistance, budget compliance, delivery schedule, etc.
3. Prepare a brief inquiry letter describing the nature of your project and several of your specific requirements. Your answers to the first four questions in this white paper can serve as a guide. The content of the inquiry letter can serve as a project overview and preliminary screening tool, whether you use it in a telephone conversation, fax, email message, etc.

Armed with this information and your project specification, you are ready to begin contacting potential suppliers. You will inevitably contact companies that are not able to help you. Ask them if they can direct you to other suppliers who may have the expertise you are looking for. Networking with suppliers and industry experts will often reveal resources you would not have discovered on your own.

What is the right number of suppliers to contact? It depends on the nature of the project. But there is one guideline you would do well to remember - few suppliers like to receive proposal requests that are broadcast to dozens of companies. Use your good judgment here, and you are more likely to get a better and more qualified response.

Ultimately you are looking for just one supplier – the one that will meet with all of your needs. When you have clearly identified all of your needs, you will be able to find that one supplier with significantly increased speed and effectiveness. Use your data to qualify prospective suppliers.

### **Supplier Qualification**

There are essentially three stages of the supplier qualification process:

1. Initial screening
2. Intermediate qualification
3. Formal verification

**Initial screening** is used to identify companies that can most likely meet with your technical and performance requirements. This should take place during your first conversation with prospective suppliers. Sample questions to use during this stage are:

- Do you have any questions about the inquiry I sent you?
- Can you tell me about several projects your company has done similar to mine?
- How does your company differ from your competitors on projects like this?
- How does your company approach projects like this?

Each of these questions (and more of your own) can provide insight into the understanding and capabilities of prospective suppliers. As they answer questions, you can quickly evaluate their response in light of your technical, performance, and business needs. You will generally want to find 3-5 companies that pass the initial screening.

**Intermediate qualification** occurs when you begin receiving proposals and quotations from suppliers. Do suppliers demonstrate an ability to meet with all your needs? You gather information that will be used for making further cuts, or for use in subsequent formal verification. Some general questions to ask suppliers in this stage of the process are:

- How many projects of this nature has your company done?
- Can you provide references we can speak with?
- How does your company ensure the success of projects like this?
- Who would work on my project at your company?
- What are the qualifications of your project team?
- How can you demonstrate your ability to achieve my critical project parameters?

Many other questions will be developed and asked during the period of intermediate qualification. You should ask questions that relate to the specific business strengths you identified as being desirable for this project. For example, if your delivery schedule is critical, you should ask about the supplier's track record for meeting schedules, including the systems they use to ensure the on-time completion of projects. You can request a detailed project schedule, talk to the supplier's project manager, speak with several references, etc.

In this stage, you will also want to get supplier background information, such as approximate revenues of the company, number of employees, facilities, ownership, etc. If you have a large project that is beyond the capacity (but not the appetite) of a supplier, find out early and save yourself a lot of time.

One final note here – take lots of notes on supplier statements related to the technical, performance, and business aspects of your project. You will want to refer to these often, especially when you get to the final supplier selection stage.

**Final verification** may include site visits, credit checks, demonstration testing, and many other forms of verification to ensure that the selected supplier will meet with your needs.

Remember that while you may develop a great relationship with a supplier, you must not simply trust that they will deliver everything as promised. It is your job to conduct an appropriate amount of due diligence in confirming their ability to provide what you require. It is in the best interest of all involved to ensure that your selected supplier is fully qualified, based on appropriate final verification, to meet all of your needs.

## Stage Four – Evaluate and Compare Proposals

Once you start receiving proposals for your project from potential suppliers, it's time to start sorting out the details. The proposals received will often be for differing approaches to your needs, and this can present a challenge when trying to make an "apples-to-apples" comparison. The following guidelines can help you evaluate the data in an objective and effective manner.

### Comparative Matrix

For all process, production, and business issue identified in your Technical Specification, create a matrix that compares the following data for each supplier:

- Critical parameters
- Desirable, but non-critical capabilities
- Future considerations

Critical parameters are those that will affect the overall success of your project. Do proposals adequately address each of your key needs? How do the approaches vary? Capture this information in your matrix. All proposals must at a minimum provide solutions to these requirements.

What other capabilities are available? The objective here is to identify value-added extras that may provide benefits not requested, accounting for technology and price differences. Some of these capabilities may be highly desirable. Others cannot be financially justified at present. By addressing them as non-essential, you can evaluate each on its own merits.

You should also think about the impact of changes in your business as you evaluate proposals. For example, do you believe additional capacity will be needed in a year or two? Should this project have provision for future expansion? Perhaps you are considering the eventual addition of integrated automation. How might that impact the design of this new system? Identify aspects of the design that could be slightly altered now to avoid significant future expense.

### **Oranges and Bananas**

Often, supplier proposals will contain variances from your Technical Specification. Sometimes these are simply oversights that need to be corrected. Other times, variances may be due to technical or other issues that would be well to evaluate. To aid you in this process, your matrix should contain the following information for specification variances:

- Description of each variance
- Reason for the variance
- Cost impact of the variance

This simple technique will help you sort out apparently disparate information and draw the focus back to what is most important to you and your business. You can also quickly sort out unqualified suppliers that may be wasting your time.

### **Commercial Issues**

In addition to Technical Specifications and price, there are many commercial issues that can impact your decision making process. Add the following information to your comparative matrix:

- Terms and conditions of sale
- Shipping schedule
- Installation, start-up, and commissioning
- Spare parts

You don't need to include all terms and conditions from all proposals, but have a member of your team review them and identify any issues that may need special attention later. Prices and payment terms should be included in your matrix, as should shipping schedules. If installation, start-up, and commissioning are included in the proposal, include the price separate from the equipment price. Ditto for spare parts. These steps will help you make a better price comparison.

### **Don't Settle for Skin Deep**

It's common for professional friendships to have developed between team members and suppliers, including a certain amount of trust. You must be careful that this trust does not prevent you from conducting an appropriate amount of due diligence to confirm key elements of a supplier's capabilities and experience.

When you have narrowed your supplier list down to perhaps 2-3 contenders, a more in-depth evaluation of vendor qualifications may be appropriate. This qualification could include any or all of the following:

- Visit the supplier factory
- Interview key supplier employees
- Visit a similar or identical installation of the supplier
- Check supplier references
- Conversations with industry experts having direct knowledge of supplier
- Conduct a financial and credit rating check on supplier

The nature and complexity of your project will help you determine how much and what type of verification is necessary. A summary of your findings should be included in your comparative matrix.

### **Supplier Intelligence**

Your team members may learn things about suppliers during the course of the evaluation process. This information may be positive, negative, or neutral, but should be included in the proposal evaluation documentation. It could be very important data during the final negotiations. Encourage your team to keep notes on supplier issues they become aware of.

For example, a salesperson may indicate a major order was just received that could impact their ability to meet your delivery schedule. Or perhaps a supplier made an off-handed comment about how slow their business was.

When this kind of data is incorporated in your comparative matrix, you will be able to address each of the issues with suppliers in a way that will be both fair and reasonable. Some unpleasant surprises are preventable if the right information gets to the right people on your team. Make a point of gathering and communicating it.

### **A Team Sport**

The creation of your comparative matrix can be managed by a single person, but your project team should all participate in filling in the details and making sure all the data is correct.

Conduct an internal review of your completed matrix. All team members must approve of specifications and variances within their area of responsibility. They should review each proposal to confirm full compliance with each of your key project objectives and measures of success. All specifications should be addressed in this manner. This process helps eliminate subjective decision-making, and can be used as a powerful tool in negotiating with suppliers.

Subsequent to this review, your potential supplier list can be reduced in size, and your final specification modified if needed for distribution to remaining suppliers for best and final proposals. These proposals should be reviewed in the same manner to confirm compliance.

Using these guidelines, you can create a comparative matrix that will enable you to objectively compare proposals from all aspects that can affect your ultimate success. It is based on using data previously developed by your team that keeps the process focused on the results you need.

## Stage Five – Negotiate Agreements

The information you have gathered and compared up to this point will help make your final supplier selection an objective process resulting in maximum value while meeting all of your needs. Your objective should not be to bludgeon suppliers into severe price reductions that can result in unspecified reductions of quality or technical support. Rather, the process will empower you to make decisions based on comprehensive value rather than on subjective preferences, which enables you to negotiate from a position of strength that is both fair and reasonable.

Negotiation tactics are not addressed here in detail, though several suggestions are offered. I assume you or a team member possesses the necessary negotiation skills. The main focus here is to ensure you have the right information at hand for effective decision-making and negotiations. With reasonable negotiation skills and the information described below, you should be able to save from tens to hundreds of thousands of dollars on your equipment investment, depending on the size of your project.

### Strategy Documentation

Early in the process you created an internal strategy document, which included project specifications. This document was a road map that your team should have referred to frequently throughout the process of evaluating suppliers, comparing proposals, and creating a comparative matrix. This is your most powerful tool for ensuring full compliance with all of your needs, and the resulting supplier matrix can give you tremendous clarity in the final evaluation and decision-making process.

### Creating Clarity

With your comparative matrix in hand, start by answering the following questions.

- Are all details in the matrix taken directly from supplier proposals, or were some blanks filled in by team members based on verbal information from suppliers? Make sure that suppliers provided all details in writing. Copies of supplier proposals and related correspondence should be included.
- Has all comparative information been provided in an easy to use format? There are many good ways to make a comparative matrix. Can you find and compare key information quickly and effectively?
- How many fully compliant suppliers have been identified and qualified? Hopefully there are at least two, and preferably three.
- Is there a clear supplier preference based on all data gathered? If there is, carefully guard that information. You certainly don't want a supplier to know they are the favorite, as it will weaken your negotiation position.
- What supplier limitations have been identified in the process? These issues will need to be addressed with individual suppliers. For example, will a supplier outsource some critical work on the project, is a supplier booked solid for the next 4 months, etc. If a red flag of concern was raised by a team member during the process, now is the time to get information from suppliers on how they plan to deal with a particular limitation. You need to gauge the viability and risk associated with their plans when making decisions.
- What extraordinary opportunities have been discovered? Perhaps by choosing a particular supplier, they can meet all of your needs AND provide you with significant additional benefit. This can weigh into your final decision.

- What proposal discrepancies or other concerns should we focus on with each supplier? When you start your final discussions with suppliers, they need to know what your greatest concerns with their proposals are. You must be satisfied that any discrepancies will not jeopardize the total success of your project.

### Financial Comparison

A good cost comparison is based on more than prices in proposals. In addition to baseline equipment prices and separate options pricing, the following should also be considered. Add this data to your supplier matrix only for the final contenders.

- *Internal value of extraordinary supplier capabilities* - For example, if a supplier has a track record of successfully providing process development assistance to clients, and this of major importance to you, that access to expertise may be worth an additional amount. You must determine what amount you are willing to pay, which is your internal value. The track record should also be verified – you want the real thing, not just a promise of it.
- *Internal value of accelerated or delayed schedule* - If you get the equipment installed and in production sooner than requested, how much would that be worth? Likewise, if the project is a month or more late, how costly will that be for your company? Include both values in your matrix.
- *Value that should be applied to any risks identified* - If your matrix indicates that a particular supplier is a strong candidate except for one or two areas of concern, determine a dollar amount that can help mitigate the risk. Full payment of this amount could be negotiated upon successful performance of specific requirements.
- *Cost of crating, insurance, freight, taxes, etc.* - In a close contest, these amounts could make the difference.
- *Cost of any extraordinary items related to choosing a particular supplier* - Will choosing one supplier require more or less expense for you either before or after the order is placed?

### Your Schedule

There are six distinct phases between the ship date and the date you put the equipment into production. Your supplier discussions should address each of these phases, and have reasonable time frames and resources allocated for each.

1. *Ship date* – the date the manufacturer will ship the equipment from their factory.
2. *Delivery date* – the date the equipment will arrive at your facility.
3. *Installation schedule* – the time frame for physically installing the equipment at your facility.
4. *Start-up schedule* – the time frame for applying power and other utilities to the equipment to confirm operational readiness.
5. *Commissioning schedule* – the time frame for fine tuning the equipment and testing its performance before turning it over to your production department.
6. *Production start date* – the date you expect to be able to start producing salable product from the equipment.

## Terms and Conditions

In your comparative matrix, a team member has added key discrepancies between your standard terms and conditions and those included in supplier proposals. In preparation for supplier negotiations, also determine the following:

- Your terms and conditions that are inflexible.
- Your terms and conditions that are negotiable.
- Determine some value for your terms and conditions that are negotiable.

## Performance Agreements

The details of equipment performance agreements are often neglected at the time of sale, which can lead to a great deal of frustration and expense for buyers and suppliers at testing time. As you zero your qualified supplier list down to two or three candidates, you should conduct detailed discussions with them about performance testing. The following questions will help you establish performance measures that are meaningful and reasonable.

- What are the key performances of the project?
- How will key performances be demonstrated and measured?
- What are the ramifications of delays in meeting key performances?
- What are the ramifications of failure to meet key performances?
- Exactly what testing will be performed as a condition of the project?
- Who will write and approve the testing procedures?
- What the responsibilities of buyer and supplier in regards to testing?
- What additional costs may be associated with this testing?
- What is the time frame for the testing described?
- Are the tests fair and reasonable?
- Will the tests demonstrate full compliance with all key project objectives?

To a large extent, the establishment of good performance agreements is a collaborative process between buyers and suppliers. The clarity that results from this process will benefit all involved, and help reduce your risk on the project.

## Making Your Final Decision

Armed with all this information, it should be relatively simple to identify the ideal supplier for your project. When you enter the negotiation stage in preparation to place an order, you can have frank and specific discussions with suppliers about prices, specifications, limitations, terms, and opportunities – all the details you need will be readily at hand. And when it comes down to making concessions, allow me to offer this single powerful negotiation principle:

*Never give something away without getting something in return.*

This is the process. It can be adapted to meet the needs of both simple and highly sophisticated projects. When done effectively, the results will be highly gratifying for team members, your business, and even for selected suppliers.

**If you have any additional questions about the process, I invite you to contact me directly.**

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*Steve Mortensen is the president of Strategic Business Solutions, and serves as a management consultant for the ceramic manufacturing industry. He has nearly 20 years experience in the industry, helping companies solve a variety of business problems related to increasing revenue and decreasing expense based on his expertise in sales, marketing, procurement, and management. He can be reached at (951) 765-7664, or [steve@professionalcatalyst.com](mailto:steve@professionalcatalyst.com).*