

How to Conduct A Technology Assessment

Last Updated: 16-August-2003

Joe Befumo,
joe@befumo.com
Shakti Development, Inc..

Abstract

Acquisition is becoming an increasingly popular way to grow your organization, but in a technology-intensive environment, this can be risky. If you accept the statistic that some 85% of software projects end in failure, the odds make it overwhelmingly likely that the slick software shop you're looking at has been responsible for at least one of these disasters. This problem is compounded by the fact that these companies are often quite adept at disguising their shoddy infrastructure behind a facade of pseudo-process. Nor is this issue limited to acquisitions. Senior managers, faced with I.T. departments that continually fail to deliver critical projects, are often at a loss to sort out conflicting excuses, alibis, and disclaimers. This paper describes a step-by-step approach to conducting a technology assessment, pointing out some common pitfalls and how to avoid them.

Overview

I recently watched in horror as an unsuspecting investor forked over \$10 Million for less than half of a company that had already gone through \$12 Million in investor capital without producing a single deliverable. It had never developed a project plan, and only expended the effort to write the business plan a few weeks earlier. They had no process, and their basic architecture had been condemned by several reputable consultancies (including a Big-6 firm) as inherently flawed and based on widely discredited concepts. Nevertheless, this company managed to pass the investor's "Due Diligence" technology investigation with flying colors. How could such a situation occur? Could it happen to you? The answer is a chilling "yes!" This paper describes the steps you can follow to avoid being misled.

Although similar horror stories abound, most situations aren't quite this extreme. In most cases, the output of the technology assessment will provide decision-support information on the real current and potential value of the company and its technology. In many cases, the "problem companies" may represent the best values, as long as you know what those problems are, and the cost to fix them. A detailed technology assessment can tell the

manager or investor what must be done to make the company or department successful, as well as providing some estimate of the cost and likelihood of success. Finally, a technology and process assessment provides a reality check for projected sales and revenue figures, based on the organization's *real* ability to deliver the goods.

One fundamental source of difficulty is that technology audits or assessments are frequently undertaken without a clear plan. Another problem is finding the right individuals to carry out the investigation. Often, a senior manager will ask a trusted technical expert to "go over and see if these people know what they're doing. . . ." Although technical expertise is certainly prerequisite, the results are often unrealistically skewed toward technological issues. We are convinced that the major source of software failures (which, by some counts, approaches 85%) are due not to technological issues, but rather, reflect a failure to apply basic business practices and principles to technological decisions. Thus, the ideal investigator should have extensive experience in business principles and process engineering, as well as being current in state-of-the art technologies. Such a combination is rare in many organizations, but is more common in consulting environments. Senior-level consultants are regularly called upon to address full-lifecycle issues, including business process reengineering, process infrastructure deployment, architectural design and even implementation. Although the cost of engaging this level of consultant may appear high, their services represent an easily justified value when compared to the risks involved and the amount of money that may be at stake.

This paper approaches the task of evaluating a company's technology, business practices, and process infrastructure. We will begin by discussing what we are trying to accomplish, and then look at some specific ways of uncovering the facts. It must be emphasized right from the start, however, that a technology assessment is not a "follow the checklist" undertaking. People who have been around software organizations for many years develop a sixth sense about what's going on just beneath the surface, and will often 'sniff' their way into problem areas as much by instinct as by design. Rather, we'll try to convey a feeling for the kinds of issues that should be considered as an aid to managing the evaluation process.

A key aspect that we repeatedly stress is the necessity for a clearly defined assessment plan. One of the first things we look at when evaluating a company's business process is evidence that they "plan their work and work their plan." The process of evaluating a company is itself a project (and usually, a critically important one), so it makes sense to apply the same criteria.

What is Due Diligence?

In a general sense, Due Diligence is a verification of representations and claims made by one party to another in a transaction. It is a process whereby an in-depth evaluation of some aspect of a company is performed, and the results compared with representations made by that company. Due diligence is particularly important for business transactions in technology-intensive markets, since there is a much higher risk of misrepresentation or

inappropriate application of emerging technologies. In addition, it is often difficult to find individuals capable of assessing both the technological issues and their business linkages.

Due Diligence is not a pass-or-fail process. Moreover, the due diligence process goes beyond merely discovering and verifying what facts are in existence, but must concern itself with understanding the implications of those facts within context of the overall business strategy. Due Diligence may be necessary in each of the following situations:

- Acquisitions
- Corporate debt collections
- Financing
- Financial fraud and theft
- Hiring
- Insurance underwritings
- Intellectual property
- Investing
- Lending
- Mergers
- Purchase or sale of a business
- Internal I.T. department performance inconsistencies or shortfalls

In the case of external transactions, Due Diligence should include background checks on the management team, independent verifications of statements made in the business plan and studies of the company's product and market.. Of particular importance in technology sectors is a detailed evaluation of the companies processes and application of technologies, with an eye toward their relation to the company's business strategies. Most people are already familiar with non-technical Due Diligence investigations. This paper, therefore, concentrates on the technological and process areas of Due Diligence assessments, which are often overlooked or ill-understood. We will focus primarily on the situation of assessing a potential acquisition, since this will normally entail a rigorous assessment, and therefore, covers most of the essential elements. Other situations (e.g. an internal review) may utilize all of these points, or an appropriate subset.

Start With A Plan

This may seem obvious, but it is often overlooked. Like any other project, there will inevitably be a variety of ideas and opinions about the purpose and scope of the evaluation and how it will be carried out. It is important to develop these ideas into a formal, well thought out project plan. Risks and success criteria must be identified, resources and participants allocated.

Assessing a company, department, or project is not unlike buying a house. *You* want to get an accurate picture of the whole property – the rotted sills, the pig farm next door, the new freeway ramp that will adjoin your backyard next spring. *They* want to make sure you see the fresh paint in the kitchen, and don't find out that it

contains lead pigment and will all have to be removed. Therefore, it is essential that you walk in with a clear idea of what you will be looking for, and what the results will mean. Thus, the technology and process assessment is analogous to engaging the services of a building inspector. Does finding undisclosed problems nix the deal? Not necessarily, however, they will at the very least become elements of negotiation. Whether you're buying a new building, a new company, or considering a renovation of your existing I.T. department, the more you know, the better.

The key here is that *you* are in control, and you maintain control by walking in the door with a plan. In the following sections we'll look at some elements of a typical inspection plan. Typically, some or all of the following components will be involved:

Identify Strategic and Tactical Goals

Quite often, companies approach the acquisition process without fully identifying their strategic goals. They know that they want to grow, and have decided that acquisition is the most efficient way to do so. They probably have some idea about the type of company they want to get involved with. For example, a software company may decide that they need to enter the networking arena, and want to do so by acquiring an established networking company. This is fine, as far as it goes, but not all companies in a given field are alike. A more detailed strategy can narrow down the field of investigation and help you find the best fit.

Establish Critical Requirements and Constraints

In order to facilitate identification of potential acquisitions, critical requirements must first be defined. These will typically include such items as:

- Customer base
- Size
- Location
- Financial stability
- Time in business
- Specific technological orientation
- Process maturity
- Employee stability

Of course, every situation is somewhat different. Certain issues will be more or less important, depending on your particular needs. Thus, it is important to classify those requirements that are mandatory, significant, desirable, secondary, and so forth. This will prevent you from wasting time on organizations that are inappropriate, and will establish a baseline criteria for analyzing the results of the investigation.

Produce and Distribute a Request for Information

Produce a Request for Information (RFI) document based on the criteria established, and distribute it to potential organizations. This should include the following information:

- Organizational and business setting
- Mandatory requirements and constraints
- Reason for the RFI
- Types and levels of data required in the response to the RFI

This ensures that you are starting with a standardized set of information from all organizations being considered, as well as informing them of the areas you consider important.

Conduct The Investigation

Based on the criteria established earlier and information provided by the organization being evaluated, you should have a pretty good idea what you're going to be looking for and at. Some candidates will be removed from consideration, and those that remain constitute your short list for on-site evaluation. At this juncture, then, you have:

- Clarified and organized your purpose and strategies for pursuing an acquisition
- Formulated a plan for recognizing organizations that will fit that strategy
- Identified potential prospects based on that plan and asked them to supply preliminary information
- Narrowed the list down based in the information they supplied

In a word, we have planned our work, and are now ready to work our plan. This will typically begin with a preliminary site visit.

Conduct a Preliminary Investigation

Your first visit is likely to be fairly informal. The organization will probably want to show you some PowerPoint presentations, run a demo or two, and conduct a site tour. This is all fine; just keep in mind that what you're really interested in is what lies beyond the facade. PowerPoint is not a development tool, and demos are very often hollow shells with little or no functionality. I usually consider whatever I'm seeing at this juncture to be an advertising campaign, and assign it the appropriate degree of significance. You may, if the situation allows, suggest that the demonstrator allow you to try the product yourself. Note their reaction. If they immediately move over and let you 'drive', you're probably looking at a real product. If, instead, you hear things like "prototype doesn't have robust error

handing," or "all of the features aren't in place yet," you can be pretty sure that what you're being shown is a long way from market.

The preliminary visit will usually shorten the list of prospects, which is its purpose. The next step is to schedule a detailed investigation of the remaining prospects.

Establish an Approach for the Detailed Investigation

If preliminary investigation justifies a more detailed assessment, the approach to be followed must be planned and agreed upon. This should include the selection of team members from your organization who will participate. The team should be multidisciplinary, and include both business and technical experts familiar with the areas under investigation. If staff expertise is lacking in a particular area (this may be one of the motivations for the acquisition), engage the services of experts in that field. Depending on the results of the preliminary visits, different approaches may be necessary for each organization. For example, if one company went out of their way to show you their process, elements of compliance, and the the results of their recent CMM assessment, you can probably devote more attention to other areas.

Conduct the Detailed Investigation

The specifics of the inspection plan will differ somewhat, as described above, but will always entail an in-depth investigation of key areas of the organization being assessed. For a full Due Diligence audit of an external company, expect to spend up to a week at a small single-site company with a technical staff of 50 or less, several weeks at larger companies with a localized development team, and even longer examining a larger company with geographically distributed development teams.

Obviously, the relationship between company size and inspection effort is non-linear. This is because a certain set of core elements, such as policies and procedures, business plans, and infrastructure standards are centrally located and will (or should) be present in all cases. As you work your way outward to the frontier sites, a random sampling is often sufficient to provide an overall picture of the company's operational integrity.

At a high level, the one thing to try to focus on is whether there exists a continuous, reliable, and demonstrable linkage between the company's business goals their final output, and everything they do along the way. Doesn't sound very *technical*, does it? Well, if an organization is approaching their projects thinking about technology instead of business, you've just identified a major flaw! The following sections identify some specific things every investigation should consider.

Business Plan & Vision

Is there a clearly-stated business objective against which all technology decisions are measured? Does everyone know what this objective is? Look for a demonstrable continuity between the business vision and everything the company does, bearing in mind that the actual significance of this linkage may vary, depending on your purposes, as described below. This is an area where you should bring your technical and financial auditors together. Financial assessments will, among other things, consider the company's market-share projections in terms of their long term financial picture. The technology assessment will provide further insight about their ability to turn these plans into reality.

Is it Available?

Every business should have vision statement and a business plan. The vision statement is a summary of who the company is, what they do, and what their goals are. The business plan is a detailed strategy of how they plan to turn vision into reality. The intent of the business plan is to capture market share. If an organization does not have a vision, has not formulated a plan, or is not attempting to capture market share, then it is in the process of going out of business. Once again, the impact of this shortcoming may be a detriment or an asset, depending on your purposes. For example, if you are buying a company for their location, hardware, or specific (concrete) technological assets, you might have no interest at all in their vision and plan (however, if you plan to keep the personnel, you will probably want them to start using *your* vision as the basis of future decisions.) On the other hand, if you're assessing you own I.T. organization, this may represent the core of all your problems.

Is it Complete?

A complete business plan is quite detailed, and typically includes an executive summary, detailed descriptions of products and services, proforma financial outlooks, staffing considerations, marketing plans, and so forth. You should be able to ask how the company is performing against plan, and get a clear, understandable response. Consider any evasion to be a danger sign.

Does Everyone Know What it is?

Although most business have a document somewhere with the words "Business Plan" on the cover, in most cases you'll be hard pressed to find someone who has actually seen it. In a well focused shop, this document should be required reading for every employee. We bandy about words like "empowerment," and "buy-in," but how can we expect employees to help keep the ship on course if they aren't told where it's headed and where it is now? At the very least, I would expect the senior decision makers and project managers to be intimately familiar with the company's business plan.

Is it Applied?

Ask this question and in nine cases out of ten you'll draw blank stares – "Use it?" This is a danger sign that indicates an organization that can easily get off on a tangent of building something that "seems right" but does not serve to move the company toward its goals. Most project failures result, directly or indirectly, from trying to build something other than what is needed. The one common thread that ties together those organizations that are consistently successful in the execution of technology-intensive projects is that they never lose sight of their business vision and strategic goals. Pick out some specific projects, technologies, or decisions and ask those in charge to explain how that effort fits into the business plan or furthers the company's strategic goals. If they are unable to provide a satisfactory answer, consider this a negative indicator.

Policies and Procedures

Does the company have a detailed Policies and Procedures manual? Is it easily accessible (e.g. online)? Is it understood by all employees? Policies and procedures describe *how* things are done in the organization. They are the primary source of consistency in quality of products built and services delivered. Without documented policies and procedures, an organization's performance depends on individual heroics, and is never reliable. Although this heroic talent may seem valuable, it will represent a persistent value only if it can be captured for the use of others, or if those individuals can be tempted to remain loyal to the organization through enhanced management efforts.

Are they Complete

ISO-9000 provides a good criteria for the completeness of a policies and procedures manual. The SEI/CMM standards provide another useful source of particulars. Various commercial methodologies include detailed policy and procedure manuals. Any of these can serve as a basis for comparison. Look for policies and procedures that are well focused on the organization's core business areas. Procedure manuals included in commercial methodologies, for example, usually address a wide variety of areas that may be of no use in certain environments. A procedure manual that is "too complete" may indicate a propensity toward throwing money at problems without really understanding the implications. (This will be addressed below, when we assess whether the policies and procedures are understood.) On the other hand, a consulting company probably *will* need policies and procedures that cover a wide range of scenarios (including some procedures for dealing with situations in which they are compelled to follow a client's policies and procedures).

Are they Accessible

Manuals locked away in a closet may as well not even exist. These days there is no excuse for not having some kind of electronic manual accessible to all employees.

Are they Understood

Ask a random sampling of employees about an area of the policies and procedures that applies to their jobs and see how they react. I wouldn't expect the manual to be memorized word for word, but if it is being used regularly, the majority of the employees should understand the intent of those areas that affect them.

Are they Being Followed Consistently

Dig into project records for evidence of compliance. Make sure *you* choose the projects!

The product manager of one company we know of always kept one textbook-perfect project folder carefully positioned in the center of a busy filing cabinet. When the situation arose, he would purport to choose a folder "at random," always zeroing in on this particular one (which did not even correspond to a project his company had ever been involved with.)

Infrastructure

Does the company have an adequate technical infrastructure? (Technical infrastructure includes things like source/versioning control, traceability tools, communication channels, CASE tools, and so forth).

Source Control

This is one of the first areas you should investigate. Source control is the most cost effective step a company can institute for improving their project control, and is the first rung on the ladder of process improvement. Examine the source control system, including the archives/histories and the current state. Look for areas in which a single contributor has an entire project checked out for extended periods of time. Look for multiple copies of the same project and other evidence that the tool and process are not understood or are misused. Many companies that ask about instituting a development process are focused on something "bigger and more exotic," but are not even using these simple, and most fundamental of process tools.

Communications

Communications infrastructure can take many forms. Well defined processes will establish what kind of communication channel should be applied to various classes of issues. (One methodology even defines when it is appropriate to leave a sticky-note on someone's screen). Some of the better process control environments provide elaborate communication tools that ensure flawless tracking of all critical project-related communications. What we'll look for here is *some* defined method of ensuring that critical project communications occur in a reliable, predictable, and traceable manner.

CASE Capabilities

These days there is no excuse for not using some kind of CASE tool. CASE (for Computer Assisted Software Engineering) entails any tool or combination of tools that automates the creation and control of project artifacts[1] across multiple lifecycle stages. Design tools such as Rational Rose, Select Enterprise, Paradigm Plus and System Architect are often referred to as Case tools, but in fact, they are *part* of a full-lifecycle CASE environment. As in other areas, look for evidence of consistent use and team understanding of these critical project tools.

[1] *Artifact*, in technical and process discussions, is used to refer to any of the concrete work products that are produced throughout the development lifecycle. These may include both external deliverables and intermediate output. Our primary interest is in project artifacts that are, or should be, tracked throughout the project.

Project Records and Metrics

Does the company maintain adequate project records, including plans, performance metrics, histories? Everyone *claims* to have a defined process in place. The best way to get to the truth of the matter is to examine some historical project records and metrics (and, as described above, make sure *you* pick the ones to review!) Where appropriate, look at some old projects, some new/current ones, and a few in-between. See if there is a pattern of improvement.

Select Sample Project(s) for Inspection

Once you've identified some likely candidate projects, pick one or more for detailed examination. We'll discuss details later, but basically, we're going to work our way through the lifecycle artifacts, from initial proposals, to requirements, statements of work, architectural designs, Q/A review documents, code, and maintenance metrics.

Project Management Artifacts

Does the company manage their projects in a mature manner? Can they *prove* it? Consult any detailed methodology for examples of project management artifacts. Some examples include.

Project Plans

Project plans are (or should be) living documents. Look for evidence that project plans are actively maintained and continuously reflect the state of the project. If a project plan looks too perfect (that is, if all of the tasks and dates remain fixed throughout the project, and the actuals are always updated precisely when a deliverable is due, something is wrong!)

Risk Control Documents

Risk analysis and control is a well established technique, and a crucial aspect to any successful project. Look for evidence that risks are identified, analyzed, assigned, and tracked in a formal manner. Make sure that risk analysis isn't something that is done once at the start of a project and never looked at again.

Deliverable Identification

All projects should be deliverable-driven. All deliverables must be defined in sufficient detail so that they can be easily verified. Deliverables should be broken down into small components, none of which should be greater in duration than two elapsed weeks. Deliverables may be in one of two states: complete, or not complete. Look for evidence of deliverables that are "95% done" for extended amounts of time. If a project plan is not broken down into tasks that result in concrete deliverables at 2-week intervals, the project is not being adequately managed.

Metrics

Investigate what metrics are being collected and how they are being used. Immature organizations can often be spotted by propensities to either gather no metrics at all, or else to collect every measurement in sight, without any real notion of what they mean or why they're being collected.

Project Technical Artifacts

Are they applying the right technology, in the right way? This is often the most difficult area to evaluate, so it may be advisable to engage a consultant with direct experience in the particular technologies involved. Sensitize yourself to pick up on inappropriate buzzwords, or applications of "hot" technologies that are not justified by the applications being built. For example, one company we know of was so insistent on building a "Web Application" that they applied web technology to a component that would spend less than 5% of its time connected to the web. In order to fill this "marketing checkbox," they were forced to run a

local web server on individual laptop computers. In addition, the limitations imposed by the browser front end precluded implementation of several core business requirements. Ultimately, they were forced to give up and rewrite the component as a standard client/server architecture. This cost them a year in their schedule, and over \$750,000.00 in wasted effort.

Q/A Documents – Evidence of Inspections

Mark Twain observed that "Everyone talks about the weather, but nobody does anything about it." Q/A falls into a similar category. I've heard the phrase "quality is built in, not tested out" more times than I care to consider, and most of the time, it's from someone that hasn't a clue what that means. When inspecting a company, look for evidence of Q/A activities from the earliest project stages. This means that every proposal should pass a compliance review before it's presented to a customer. Every requirements document, every Use-Case diagram, every Object Model should undergo some type of quality gate. Those who have never done this, or who have engaged in ineptly-organized quality initiatives, inevitably whine about the "bottlenecks" this incurs, but the truth is, when properly instituted, a rigorous Q/A program will finish the project faster -- every time -- period. (For more details on parallelizing the Q/A components in order to remove them from the critical path, see the paper "[Strategic Focus In Software Engineering](#)," by Gerald Rudolph, Ph.D.).

Requirements Artifacts

One of the biggest problems that afflicts software organizations is not that they build things wrong, but that they build the wrong things. The software industry has recognized its inability to get requirements right for the past twenty years, and still haven't gotten much better at it. Hence, although this is an important aspect of your inspection, I caution you not to expect too much. Basically, what you want to look for is a defined process for requirement gathering, expression, and feedback. Some mechanism for linking requirements to architectural and design elements is also critical. Finally, look for some explicit acknowledgement that this is a recursive, iterative process. That is, we all recognize that we will uncover new requirements in the process of designing the ones we already know. If this is not expressly dealt with in the organization's process, it will always be a source of confusion.

As to specific artifacts, Use Cases are currently the most widely accepted requirements artifacts. Other may include IDEF process flows, data flow diagrams, and various others. Look for a well defined process that describes the artifacts and their acceptance criteria, and then check to confirm that practice follows principle.

Architecture

Architecture defines the main technologies and their interrelationship when applied to the implementation of a particular set of requirements. It is beyond the scope of this paper to go into what constitutes a well-defined architecture, but you should certainly have someone on the evaluation team who can tell you whether what passes as "architecture" in the organization being assessed really is sufficiently rigorous to merit that term. The salient point here is that you should have at least one individual participating in the assessment who knows what an architecture is (and what it is not), and have that person review the architectures proposed by the organization under investigation.

Design Artifacts

Like architectures, design documents can take on many forms, but an experienced software engineer will be able to tell you whether or not the organization you're looking at adheres to good design practices. In essence, a design is the bridge between requirements and code. The form that this bridge takes is dictated by the architecture. Look for evidence that every requirement element is 'covered' by a design component. Design components should provide sufficient detail to ensure that code can be written without guesswork, and that all code elements will fit together without problems.

One client became quite defensive when I suggested that they should consider doing some design before construction. He angrily insisted that they *did* have a design, they simply hadn't gotten around to writing it down. This is actually an all too common source of confusion. Design is *not* synonymous with documentation. Design is analogous to plotting a course on a map, and then following it. What my client was describing is more like going for an pleasant stroll through the park, and later, sitting down and recording where you went. Design is a way of ensuring that you get to a predictable place, in a predictable time, at a predictable cost. Documentation is a way of figuring out how you got into the mess you're in. When evaluating an organization's design artifacts, be aware of the distinction.

Code Samples

The inspection of a project's design artifacts will indicate some areas (components) of critical importance. These should be singled out for a detailed code inspection. (In fact, these *should* have been identified as part of the design, and flagged for detailed Q/A attention). We won't go into the details of code inspection here – books have been devoted to the subject. Suffice it to say that at the very least, there should be evidence that the code has been inspected, and you should be able to confirm that the code adheres to the company's written coding standards.

Testing

Testing is another area where you can get a good indication of the organization's maturity. If "Q/A" consists of wandering through the product looking for something wrong, I would suggest that this organization fails *their* Q/A assessment. Look for testing that comes as the final activity in a continuum of Q/A involvement. Look, also, for comprehensive use of modern testing tools. Software today is far too complex for simple "poke around" testing. No organization can afford *not* to invest in one of the numerous excellent automated testing tools. If an organization fails to realize the importance of automated testing, consider it a strong indication that they do not fully understand modern software development.

Rework

Okay, everyone has a line item in their project plan for testing. Have they anticipated a corresponding activity for rework? If they have not, what does that tell you about those running the company? It tells *me* that they have never really participated in the full lifecycle of a project. In effect, they are saying "we're going to go through the motions of testing, but we fully believe that there will be absolutely no errors uncovered."

Deployment

Take a close look at how deployment is planned and handled. Here again, this is an area where the details can differ widely, so what you're going to look for is a well thought-out plan, and evidence of following it.

Maintenance & Support

Finally, take a look at their maintenance and support procedures and metrics. Projects that are rushed through the initial stages inevitably show a 'backloading' effect, that is, inordinate maintenance and support costs. These may be costs that *you* end up absorbing if you acquire this company.

Evaluate Results

Once you've completed your inspection, the results should be tabulated and evaluated against the criteria established in the first phase. If you expended the initial effort, this should largely be a mechanical process. Inevitably, there will be some fuzzy points, or areas that need clarification, but in the end, it should be a fairly straightforward process to determine whether this company falls within predetermined guidelines.

Use your evaluation of the inspection results to support a sound *business decision*. Remember, nobody's perfect, and even if you could find perfection, it would probably be too expensive to justify. Look for organizations whose problems can be most easily solved by your organizations strengths, and

similarly, organizations whose strengths will complement your weaknesses. For example, consider another analogy from the real estate domain:

Astute real estate investors usually look for "problem properties," that is, properties that are basically sound, but are undervalued for some particular reason that the potential investor is better equipped to remedy. This allows them to acquire the property at a bargain price, quickly increase its value, and realize a substantial profit. An example in the software arena might be that a company with a well established process and methodology infrastructure might be weak in object oriented expertise. Another company with a solid base of OO talent, but a record of project problems due to poor process and project management could represent a good "bargain property" for acquisition. I know of another company that has a well established client base, a solid technical staff with a proven record of delivering simple electronic commerce solutions on time and within budget. This company might represent a fine value for an organization looking to enter the arena of electronic commerce, but only if they recognized a few weaknesses that might not be immediately obvious: First, although skilled at delivering simple shipping-sites, this company lacks senior level architects capable of driving a transition into larger inter-enterprise value chain solutions. Second, the company is driven by gifted individuals, but does not have an established process through which the knowledge locked within these contributors can be considered a corporate asset. Finally, only a small portion of this company's staff would be comfortable consulting at a client's site. With a clear understanding of these limitations, an investor can realistically assess whether, or under what circumstances this company would be a good fit. An organization with an established process, and a few senior level architectural consultants might easily remedy the identified deficiencies, while leveraging the many assets.

Will following this approach ensure a perfect decision every time? Obviously not, however, by following a well thought out process, you will be in a far better position to make an intelligent business decision than those who follow no process at all.

Note On Remedies:

Federal and state securities laws have as their primary objective the protection of investors. All securities offering, even if exempt, are subject to federal anti-fraud provisions. This means that the principals are responsible for any false or misleading statement or omission, whether oral or written, which may be redressed through private or governmental legal action, including criminal sanctions. If you are an investor and suspect that you have been misled, you should contact the Office of the Attorney General.

Biographical Sketch

Joe Befumo is a Senior Managing Partner and Chief Technology Officer at Clarity Development, LLC. After working in software development since 1974, he became interested in process improvement issues in 1989, while at Digital Equipment Corporation's Advanced Semiconductor Development Group . As a methodologist and head of AT&T Solutions' Center for Estimating and Metrics he contributed to the development of software processes geared toward the large-scale distributed development projects. He has been Chief Technology Officer of Clarity Development since 1997.