Project Management for AV Professionals

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About the Author

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About InfoComm International

InfoComm International® is the international trade association representing the professional audiovisual and information communications industries. Established in 1939, InfoComm has more than 5,000 members, including manufacturers, systems integrators, dealers and distributors, independent consultants, programmers, rental and staging companies, end-users and multimedia professionals from more than 80 countries. InfoComm International is the leading resource for AV standards, market research and news. Its training, certification and education programs set a standard of excellence for AV professionals. InfoComm International is the founder of InfoComm, the largest annual conference and exhibition for AV buyers and sellers worldwide. InfoComm also produces trade shows in Asia, Europe, Latin America and the Middle East. Additional information is available at www.infocomm.org.

Foreword

Over the last decade, the audiovisual integration industry has seen monumental advances in technology and systems. With those advances come more difficult challenges when it comes to managing AV projects, which themselves have grown more complex and require greater coordination and collaboration among numerous entities.

Project management can no longer be an afterthought when it comes to pro AV. Nor should it be treated as a necessary evil to selling and implementing systems and solutions. It must become part of the culture of a successful AV integration company—and of the AV integration industry as a whole. Project management is much more than an additional role assigned to your company's best lead technician; it is a philosophy that needs to permeate the organization. Mature project management is the answer to the question, "How do we sell, manage and implement projects for our clients in a professional and predictable manner?"

I've seen incredible progress in the management and leadership of many organizations as they navigate all the change that's occurred in the pro-AV marketplace. The principles described throughout this e-book are foundational. That is, you apply them mostly by following them. No advanced degree is required, no magic pill available. What I promise — and what my experience has been with leaders and individuals at companies that followed this guidance — is that hard work, perseverance and a willingness to take personal accountability triumphs.

Mature project management requires changes to how an organization operates and how it measures success — from sales, engineering, procurement, and resource scheduling, to project management, production, installation, programming, testing, training, commissioning, and service. Each role and function must begin to see the value and importance of the other roles to creating successfully implemented projects. There is no inherent hierarchy or "specialness" of roles in a well-functioning company. Instead, there is a commitment to serving one another by adhering to standards and processes — taking the "right action" every time, instead of creating an exception.

This e-book is dedicated to the many AV professionals whom I have had the privilege to meet over the last seven years working with InfoComm International® as a senior instructor within the InfoComm University™. I've had the pleasure of working directly with more than 50 small and large audiovisual integration companies and technology management organizations across the globe. I've also learned an incredible amount through training more than 2,500 participants in organizational project management maturity principles, alongside the other committed instructors and volunteers who make InfoComm University such an impactful part of this industry.

Thank you for the opportunity to make a lasting difference. See you soon.

Brad Malone, 2013

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Chapter 1

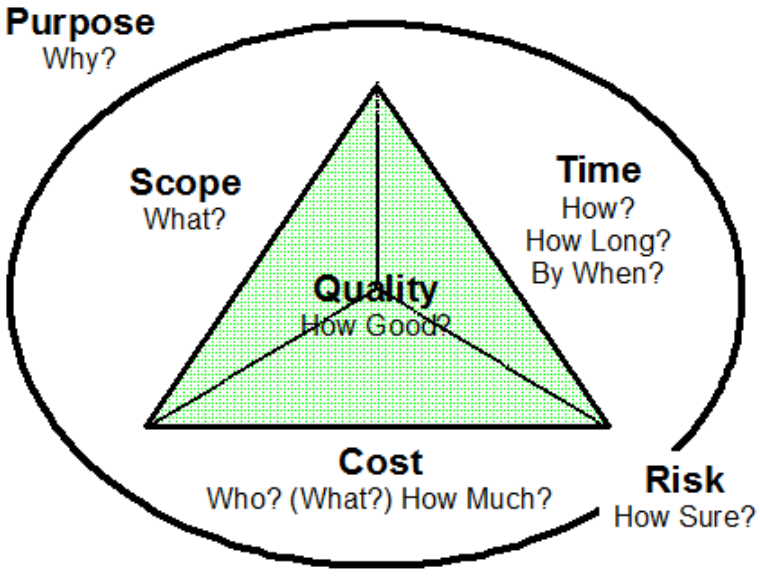
The Elements of a Project

The mature practice of project management has become one of the key differentiators for audiovisual companies that are capable of achieving long-term success. Mature project management practices lead to increased profit, client satisfaction, higher employee morale and overall quality improvement.

But many companies treat the subject of project management as a person, not as a thought process. They usually assign their best troubleshooter (or lead technician) to the role of project manager because that person, they believe, will be able to pull the project out of the fire once a problem or crisis occurs. This strategy relies on that individual's ability as a reactive problem-solver, but doesn't foster proactive planning and up-front communication. The professional project manager's most important role is to keep the project's interrelated elements in balance, maintaining its integrity as project changes and variances begin to occur.

To help illustrate these interrelationships, think of a project as a three-sided pyramid (below, viewed from above) with five major elements. These elements are initially generated by the sales person, as part of the proposal or bid process, and handed over to the project manager upon contract award. These elements must then be kept in balance through the skills of the project manager — in other words, the sides of the pyramid must always stay connected, which isn't the same as keeping them rigid and immovable. The project manager's role is also like that of a newspaper reporter — asking questions of key stakeholders to discover the answers that will make the project viable and successful and creating "common sense" among the numerous people who will interact during the project's implementation. The project manager must be aware that although he/she may think his/her personal opinion is important, it's not the most important opinion or answer — that belongs to the client.

Let's break down the five elements and consider the pertinent questions that project managers must ask. But before we do that, someone — be it the account or sales representative — needs to ask the client the most important question: "What is the purpose of this project?" The client's answer helps define the value that must be achieved, or the return on investment, from the client's own perspective. Having this answer clearly defined provides meaningful criteria with which to make sound decisions later in the project, when changes or variances begin to occur.



The first element is the *scope* of the deliverable that your company will be providing to the client, whether that deliverable is a videoconference room, a home theater, a boardroom, or an auditorium. And the question to be asked is, “What are we delivering?” But sometimes more importantly, you need to ask, “What are we *not* delivering?” You should be able to tie your deliverables back to the *purpose* of the project in a cohesive manner — each deliverable plays a part in achieving the desired value.

The second element is that of *time*, stemming from two questions. The first is, “How will this deliverable be designed, installed, commissioned, trained for, etc.?” This is a process- or activity-based question, and the project manager relies on the AV company’s functional managers and process owners (engineering, installation, programming, etc.) for those answers. In a larger project, the project manager must also understand the activities of other trades and the interdependencies with the AV company’s activities. The second question is, “How long will it take to deliver this project?” or “By when do you (the client) need this project completed?” These are duration-based conversations and are often determined or requested by the client.

“By when” projects will have a constrained end date, such as a school opening, board meeting, or a concert. Rental and staging companies will deal almost exclusively with fixed-date projects. “How long” projects have flexibility in the timeline — the client would like the room completed sometime in the next 6 to 10 weeks, for example. One of the worst things an AV company can start doing is turning flexible projects into fixed-date projects. This occurs when sales tells the client, “We can finish it in 6 weeks — no problem.”

The third element is the *cost* associated with the resources and materials needed to accomplish the project’s deliverables. This element also comprises three questions. The first is, “Who is needed to fulfill this project?” It determines the skill set and competence required to accomplish the activities needed to fulfill the project’s deliverables.

The next cost question is, “What materials are required (plasma panels, cabling, microphones, racks, control systems, etc.)?” This is followed by asking, “How much?” as it pertains both to the amount of hours needed from the project’s human resources, as well as the quantity of equipment, materials and parts required. In my experience with AV companies, the amount of human resource labor effort (including project management hours) required to fulfill a project is often underestimated, or it is collapsed into the duration (*time*) element. Example: “We’ve only got one day to do the project, so I bid 8 hours — although it’s a 100 miles away.” In this context, cost is very distinct from price — the client will be charged a price and the AV company will incur costs against that project. In the ideal world, price will always exceed costs (if profit is important).

The fourth element, *quality*, is the volume of the pyramid (the insides) and is dependent upon — and impacted by — the prior three elements: scope, time and cost. The question that sales, engineering, implementation, and the project manager need to ask here is, “How good?” as it relates to each of the three sides of the pyramid. How good (well) do the deliverables have to function? What are the performance specifications, their desired reliability, maintainability, availability, ease of use, etc? How good are the processes used to design, install, test, train,

and commission the products and services to be delivered? Are there standards, procedures or guidelines in place that must be followed, or does each individual do their assigned work his/her own way (the difference between person-based quality and process-based quality)? How good are the human resources to be used on the project? Have they been well trained and are they rewarded for performing in compliance with the established standards? How good are the parts and materials being used? Does each individual piece meet the desired quality specifications, or will the ultimate deliverable suffer because components and functions are of mix-match capabilities?

Finally, the fifth element is *risk*, and it makes up the foundation of the project — or its stability and predictability. When it comes to risk, project managers need to ask, "How sure are we about the conditions that could impact the outcome of this particular project?" The more similar a project is to others the company has executed, the more predictable the outcome. Therefore the project ought to be stable, the pyramid sitting on a firm foundation. The more unique a project is (different materials, different client, different project team resources), the less predictable the outcome and weaker the project's foundation.

In order to make a project more stable (less risky), the project manager will typically have to tweak one of the other elements, whether to increase cost, increase time, decrease quality, or decrease scope.

The project manager, if he/she is to keep the project in balance, must also have flexibility in at least one of the primary elements (scope, time or cost). This flexibility is determined by prioritizing the three elements through a series of questions:

- Who has authority over which element? The client may have dictated the scope and time, therefore the project manager needs to have authority over the cost element.
- Which primary element is most important to the client?
- Have these priorities been communicated? To whom? Is there agreement?
- Which element can vary (based on priority)?
- By how much can it vary (based on uncertainty — the more unique the project, the more flexibility required)?
- Which is constrained (typically scope, time and/or quality)? By whom?

In the AV market place, scope and time (duration) are often fixed, or constrained by the client. So is the ultimate price. The price may be fixed at the beginning of a project by the sales organization, but the project manager must have flexibility in the costs of the project, especially with regard to the amount of effort required by the project team resources.

The more unique the project, the wider the variance threshold required by the project manager. This does not mean they have the ability to authorize undisciplined changes to the scope of the project or its deliverables, but they must be allowed some measure of variance, based on the skill levels of the estimated resources vs. the skill levels of the actual resources assigned.

Chapter 2

Organization Roles and Hand-Offs

In my experience managing projects — and in working with companies that are also attempting to manage projects — a key determinant of success or failure is the handoff between an AV company's different roles and functions. In small companies, where each person is performing multiple functions, there are fewer handoffs, and less need for extensive and thorough communication and the building of "common sense" across a larger group of people.

Employees at a small company also have the chance to conduct many conversations with one another. They get a good understanding of what's being communicated. This luxury tends to get lost as a company grows, even as cross-functional communication becomes more of a necessity. Such handoffs — of information, responsibilities, client relationships, etc. — can actually be a curse if not handled well.

The chart below represents a project lifecycle. There are five to seven visible roles, and several critically important roles not shown (procurement, finance, coordinator/administrator, etc.). Each of these roles has specific informational needs in order to perform their functions effectively and efficiently:

1. **Sales** should understand the purpose behind the client's request, their measures of success, and a functional description of what the client would like to achieve. They need to provide this context to the sales or design engineer to make the most applicable design.

2. **Engineering and sales** must communicate throughout the design process, ultimately providing the client a solution that adds value, while also giving the project manager and technicians a design that is executable and a drawing that is complete, including up-to-date equipment and parts.

3. **Project management** must receive pertinent client information from sales and put it quickly to use, informing the client of receipt of the purchase order and the project's initiation, plus a rough milestone schedule and next steps. They also need to understand any complexities within the engineering design and have a good idea of how that design will fulfill the client's purpose.

4. The **technicians** — even more than the project manager — need to understand any complexities within the engineering design. They also need to know where they're going, who they need to talk to, and whether all of the equipment and materials are at the job site or not. They also need to know the condition of the job site in terms of readiness for installation.

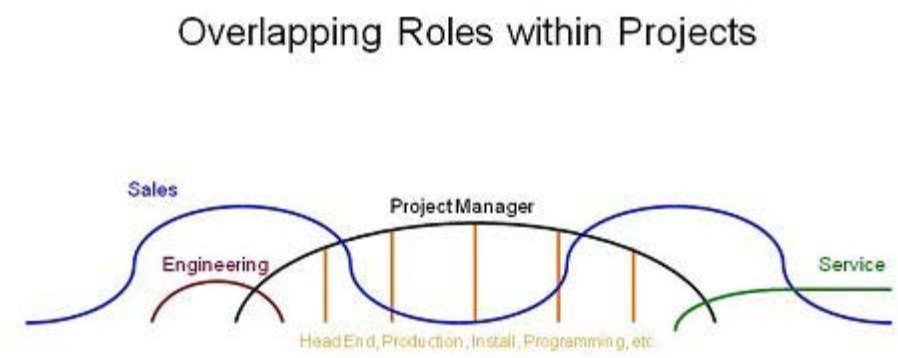
5. Depending on the organization, there may be several handoffs within the **installation** function (head-end, production, install, programming, training, commissioning, etc.). These

handoffs ultimately should be managed by the project manager or coordinator, again depending on the organization and size of the project.

6. The **project manager and sales** must collaborate and coordinate on any change requests that arise throughout the project lifecycle — the project manager handles cost, sales communicates price. There is often a conflict, or gap in communication, between sales and project management. This conflict is often viewed as a power struggle ("Who's in charge?"). It should be thought of in terms of who is playing a primary role versus a supporting role — neither more important than the other, but both incredibly valuable in maintaining long-term client relationships and organizational profitability.

7. When it comes to commissioning, both **service and sales** need to be brought up to speed on correct drawings and any outstanding items that could ultimately reflect poorly on the organization.

8. **Project managers and technicians** need to close the loop with sales and engineering to highlight assumptions that must be updated, any variance between project actuals and estimates, and whether future project estimates should be modified based on the knowledge gained in this project.



Does your organization see each of these handoffs as critical to the success of the project and the organization? Or does it view them as areas of finger-pointing and blame?

When information is shared between roles, is it based on what the receiver needs? Or is it based on what the sender thinks is the minimum he needs to provide because he needs to do more important things with his time?

When the early handoffs are dropped or fumbled, there is no remedy. Just chaotic, reactive firefighting, which makes for a costly and morale-sapping situation.

Chapter 3

Creating Project Managers the Right Way

Many organizations that are beginning to mature their business management practices go through a process of determining who to select as their project managers and how to nurture their competence and capabilities. As a certified Project Management Professional and practicing project manager for 25 years, and as someone who's taught more than 15,000 students in project management worldwide for the Project Management Institute, InfoComm, and my own organizational excellence consulting company, I have seen many of these selection cycles across many different business markets. I've see it at information technology and AV integration companies, construction companies (especially smaller firms), as well as at financial services organizations and many others attempting to improve how they manage projects by using their own internal resources to manage and staff those projects.

Typically, companies start by unconsciously growing their future project managers through a "trial-by-fire" approach to crisis management. They give intelligent, highly motivated technical or functional employees a "challenge" or "opportunity" to fix a problem in a very limited time and with very limited resources. This opportunity is viewed as an emergency, and the company (or manager) is depending on these individuals to "Give 110 percent", "Pull out all the stops", "Do whatever it takes", etc. to get the crisis contained. To paraphrase an oft-quoted phrase, "A crisis is the instantaneous end of a delusion."

The thing is, attempting to transform a company's star problem solver into a project manager can be challenging. Many of these problem solvers are what we call technical specialists and they have a general tendency to look within themselves and their own capabilities in order to arrive at the desired solution. In fact, let's list the traits of a typical technical specialist and an optimal project manager and discuss each.

Technical Specialists

Technical specialists — the ones putting out the company's fires while being groomed for a project management role:

Seek optimal solutions. There is a best answer to the problem and technical specialists usually make every effort to attain it. They often get demoralized when they're unable to realize the optimal end.

Strive for precision (exactness). Technical specialists look for exactness, and when they can't give an exact answer, they tend to feel as if their competence or knowledge is being judged. Their estimates tend to be presented as very exact and are often based on optimistic (perfect-world) conditions. Their confidence is directly related to the amount of certainty they have about the situation.

*Deal with **things***. Machines, speakers, equipment, wiring, racks, etc. If technical specialists can understand the inner workings of something like an AV system, they can fix it or make it work. Things also can't talk back or have an opinion that may cause interpersonal conflict (a condition to be avoided or minimized).

Focus on individual processes. Technical specialists feel there is a prescribed way of getting things done, in an often systematic and very linear process, and spend time creating their own way of doing things—which they rarely share. Following the developed steps will lead them to the optimal solution.

Practice reactionary problem solving. Putting out fires is a challenge — an opportunity to show one's expertise and knowledge. The bigger the crisis, the more indispensable the person. Technical specialists only escalate a problem when it has grown insurmountable.

Work with immutable laws. To technical specialists, there are certain laws of nature — physics, electrical, mechanical, etc. — that make sense and must be applied to a problem in order to solve it. They believe there is a "right way" to do things.

Specialize to improve. They get better at their job by becoming more and more knowledgeable about specific areas of interest. Being the expert in a field — the go-to person in a crisis — is the highest compliment.

Succeed individually. Technical specialists focus mainly on diving into a challenge or opportunity individually, removing themselves from their surroundings and focusing all their effort on the specific problem. Communicating often gets in the way of solving the crisis.

A technical specialist is answer-based.

In short, technical specialists see their value and worth measured by how well, quickly, and precisely they can answer a question. And if they ever had to ask a question themselves, it would only show others that they didn't know or couldn't determine the answer.

Project Managers

While technical specialists are critical to an AV integration firm's successful operation, they aren't always the best choice for project management roles. Mature project managers look outside themselves for resources, understand interdependencies and ask probing questions of others (client, design consultant, general contractor, users, technicians, manufacturers, etc,) to achieve the desired outcome. The people you want managing your AV projects:

Seek pragmatic solutions. They define what is probable and realistic, given the circumstances, assumptions and constraints, and communicate realism, not optimism.

Strive for accuracy (predictability). Project managers know that an accurate estimate always has a confidence range, or a probability factor. They know a precise estimate is typically exact

but completely inaccurate and they are comfortable with the unknowns and variances of projects. They remain confident when there is uncertainty.

Deal with people. Most projects impact a range of different people, all of whom have opinions, needs, wants and expectations — many of which are often in conflict. Project managers learn to address conflict early and understand that proactive conflict management is an essential part of a successful project. Early diagnosis and resolution reduce the probability of a dramatic crisis.

Focus on outcomes. They are able to envision the desired result and look at multiple ways to achieve it. They are more focused on quality deliverables than on following their own rigid processes.

Practice proactive planning. Project managers strive to minimize risk and "fires" through proactive planning. When problems do occur, they will notify others as the problems are worked on and escalate the issues they are unable to resolve early, with viable and well-constructed options.

Work with situational rules. They understand that the world is not perfect and are willing to adapt to the current situation. They'll make changes based on fluctuating conditions and communicate what *is* happening versus what was hoped for or expected.

Generalize to improve. They attempt to understand the bigger picture, the interrelationships between the various pieces, and the people involved and affected by a project. Project managers focus on the integration of different specialties and the hand-offs between them. They can picture the spider-web of interdependencies and orchestrate their connections. They will provide others with the opportunity to use their specialized knowledge effectively.

Succeed through others. Project managers rely on the expertise of others rather than trying to know all of the answers. They understand that projects are successful because of the combined efforts of many talented people working together.

A project manager is question-based.

In short, project managers understand the value of asking questions, especially those that may seem too simple to ask. They involve many different stakeholders and are willing *not* to know the answers in order to find the correct solution.

Both of these types of people — technical specialists and project managers — are incredibly important to the successful completion of a project and the continued satisfaction of a client. The challenge is in determining which of your resources is predisposed to growing as a technical specialist and which is more inclined to become a project manager.

Organizations have to separate project management from the technical specialist career path. Not all employees should or can play both roles. Such a practice often diminishes the strengths of our technical specialists and ultimately reduces their value, and their morale.

Chapter 4

Women in Project Management

Is the audio/video integration industry ready to fully acknowledge the value of women in the project management role and support their growth? I hope so, because whether the job is filled by women or men, it's time to shift the paradigm of project manager from a through-the-ranks, glorified technical lead (someone who heroically gets the system up and running) to a proactive, communications-centric facilitator (someone who manages the client's expectations, coordinates the multiple functions needed on the project, and maintains a credible and lasting client relationship).

Now, before explaining why AV project management is a growing field for women, I need to offer some disclaimers. I will be making gender generalizations based on my experience teaching and mentoring thousands of project managers — hundreds of them in AV integration companies. These generalizations are in no way meant as judgmental or sexist. In fact, the same qualities that make women good project managers can be seen in men. Although in my experience, such male project managers are currently in the minority.

So for starters, let's describe the traditional male project manager. He often came into the role from a technical position, promoted based on his ability to reactively solve problems through heroism and overtime. Often, he'd rather be wearing a tool belt and working on the system implementation than performing traditional project management tasks. That way he's always being productive and confident the job will be done right (according to him, anyway). These are admirable qualities.

However, the typical male project manager also:

- Does not like to address conflict. He would rather it not occur and will avoid tough conversations if and when possible, which typically creates greater conflict down the road.
- He'd rather talk to technical peers than clients (if he talks at all). Proactive communication is not necessarily his strong suit.
- He does not like to be bothered with status reports, change orders or final documentation.

Paperwork is not as important when there are integration problems to solve and fires to fight that only he can put out. In other words, the male project manager thinks most about the getting the system up and running, often to the exclusion of managing the client and their expectations. Does this description apply to every male project manager? No. But, in my experience, it applies to most of them.

Now (again, based on years of experience) let's describe the typical female project manager. She likely did not come into her position from a technical role (which is not to say she does not know technology), therefore her ego is not tied to her technical skills or tool-belt heroics. She tends to look at more systemic causes and solutions — because she's not in "technical" charge of the project, she's not tied to the way things have always been done.

Moreover, the typical female project manager:

- Usually relies on those project team members who are wearing tool belts to complete the system implementation, therefore she's much more proactive in making sure everything is in order before the work is started and in managing the project's risks. In other words, she's more interested in preventing a crisis than relishing the chance to save the day.
- She prefers to avoid unnecessary conflict and would rather communicate with and involve the client prior to a crisis in order to look for collaborative options.
- She's good about ensuring that the client has a track record of status reports, change orders and final documentation. She does not see paperwork as an *administrative* function but as a *communication management* function.

To be sure, this description doesn't fit every aspiring female project manager, but it fits a lot of them. And there's nothing here that couldn't also apply to some of the industry's best male project managers, but so far, it doesn't apply to enough of them.

So what can the AV integration industry as a whole — and companies individually — do to bring the best project management skills to bear and reduce the adrenaline-based, heroic culture of today's male-dominated project management function, regardless of who eventually lands the role? First is to understand that project management is primarily a coordination and communication function, based largely on preparedness. It shouldn't be viewed as an additional responsibility placed on an AV company's most heroic fire-fighters. And second, companies should realize that paperwork and communication are not just administrative functions to be done after the "real" work is complete.

Companies should get to know and respect the women currently serving in project management roles for their proactive communication, escalation and problem-solving skills. Then look for people — women or men — with similar skills. Create outreach programs or internal mechanisms to provide success-oriented growth opportunities for people who showcase planning, coordination and communication skills. And become part of the project management discussion. Pro AV is still heavily dominated by men, but that's slowly changing. In many cases, project management offers a good way for qualified women to find a role (and future roles) in a growing industry while exposing others to skills that will help all project managers tackle future challenges.

In the long run, this type of shift in the way companies approach project management will reduce the number of adrenaline-fueled projects that ultimately lead to exhausted team members. Does it work? Yes. Is it worth it? Yes. The benefit? Better-managed projects and higher client satisfaction.

Chapter 5

The Value of an Organization's Vision

How important to a company is a shared vision — one that resonates with every person in the organization and is felt by every client? Let's find out by looking at the typical progression and growth of an AV integration company. Many AV integration companies (and many companies in other industries, too) start small, with three to five people filling a multitude of roles and performing many tasks. These roles and responsibilities often overlap, so the founding members understand one another's jobs and probably share a common purpose, something like, "Do whatever it takes to make the client happy — and do some really cool work while we're at it." That is their purpose — their reason for existence. They don't have to write it down some place. It is simply a truth, which everyone in the organization knows and measures themselves against.

Fast forward — anywhere from five to 15 years. The company has grown to 50 (maybe even 100) people and three of the founding members have left. The two remaining founders are the president and vice president of sales and they are wondering why the other people in the company don't always (or hardly ever) use common sense or place importance on the same things they do. The challenge here, usually, is that the founding members of the company didn't communicate that "common sense" to their employees, nor did they explain the vision or mission of the company, the context for their vision, or the how they'd measure themselves going forward. They just assumed every new employee would automatically "get it" and act accordingly — just like they did when they formed the company. In fact, the new employees didn't act accordingly because they didn't know what "it" was, nor why they needed to get it.

So why and how does an organization create and sustain a viable vision and/or mission?

Let's deal with *why*. The first reason a company needs to communicate a vision or mission to its employees is that it probably already exists by default — whether by intention or omission. Often, the company already has a vision and/or a mission, but it's unstated and therefore different for every employee. Therefore all the employees are probably operating with great intentions ("great" being self-defined), but not coalescing as a group united by the same principles. Cliques have likely developed, leading to frustrations and animosities between people and groups who don't share the same viewpoints.

The second reason is that by creating and continually communicating a documented vision and/or mission gives employees a common foundation from which to make responsible choices and decisions. The decision-criteria boundaries are established. People know the right choices and why they should make them, not the convenient choices, or the popular ones, or the conflict-averse ones, or the "I didn't know" ones. They understand the choices that align with the image the company wants to create, both internally and with its clients and suppliers. The difference between a job and a profession is often commensurate with the purpose people

attach to their functions. With no shared vision, there's no shared purpose, and what's left is a group of individuals wearing the same logo — but definitely not a cohesive team.

The *how* can be accomplished a number of ways (executive management team meeting, employee focus group, representatives from all of the departments), but the primary outcome should be something that each employee can be proud of. The goal is to have all of the employees answer the questions, "Why are we here?" and "What do we provide?"

The desired result — a company vision or mission — is viable when it can be measured against the following criteria:

- Can the organization credibly sell the vision or mission to its clients and suppliers and regularly measure its performance against it?
- Does the organization use the vision or mission as a filter through which all decisions are made?
- Does it help us create a strategy or direction for our company (including what potential projects to bid on)?
- Does it continuously reward behavior that aligns with the vision or mission and correct behavior that does not?
- Does executive management walk the talk, or are they hypocrites?
- Does the vision or mission allow the company to differentiate itself, and does the organization keep objective data to prove it is in alignment?
- Does the vision or mission make people proud to work in the organization?

Many organizations spend a lot of time, money and energy on building processes, buying software, and training their people on the newest technology. But a majority of them forget to consciously create a framework and foundation for a healthy organizational culture. The vision and mission don't have to be world-changing; but they need to be meaningful to each individual. A well-crafted vision should make employees feel proud to be part of the larger whole and of their contribution in attaining something bigger than they could achieve themselves. It should also allow people to keep some perspective, keep from becoming petty, and forgive one another's mistakes.

Establishing a vision or mission is the first step to creating a vibrant and healthy company. The only way to fail is not to start.

Chapter 6

Establishing Shared Values and Ethics

We've all heard how different generations of people (baby boomers, Gen X, Gen Y) think, work and live differently. This sometimes causes frustration for those of one generation who must interact with those of another generation whom they deem not to be acting "correctly." It's the same type of challenge we occasionally face when working with people from different cultures — their actions, behaviors and motivations often don't match our own.

Yet what is the definition of acting "correctly" and who determined it? Why is it even important? It's important because people feel comfortable and perform more effectively with others who share a common belief system. What I've found in my consulting and teaching experience is that there is a lack of structured training and communication on the establishment of shared values and ethics. And it's that lack of a foundational understanding or cohesiveness that causes many of the organization's performance issues — impacting client relations, morale, quality work, etc. at most audiovisual integration companies (and organizations in general).

Values

In order to propose some strategies, let's start by defining *values* and ethics. A *value* (Oxford English Dictionary) is "that which is worthy of esteem for its own sake; that which has intrinsic worth." It's not something valuable as a means to reach some other worthy end. It is an end in itself.

We all value certain beliefs. Things like, "hard work will get you ahead" and "always tell the truth, no matter what." These often become unconscious beliefs during the socialization process of our formative years. But at a company, which is made up of multiple people from different cultures and beliefs, the question we need to ask is, "Are we creating and communicating those values that are truly important to us, and are we measuring and rewarding those who are operating in alignment with those values?" In other words, do we talk the talk, but each walk a very different walk? Here are two lists of words and values that could describe a successful AV company. Which do you espouse and which do you follow?

List 1:

- Openness/transparency
- Merit/education/talent
- Quality (right thing, done right)
- Collaboration/sharing
- Holding one another accountable
- Initiative/performance

List 2:

- Guarded/only a few need to know
- Who you know/where you're from
- Looking good enough to get by
- Competitiveness/withholding
- Rules apply only to certain people
- Seniority/longevity

Neither list is intrinsically good or bad. The key here is to be responsible for practicing what you preach and owning the results. What I find at a lot of companies is that values from the first list are preached, but it's the values from second list that are practiced. This leads to a slow death, especially when it comes to the morale or spirit of a company. Nothing destroys an employee's passion more than hypocrisy by people in leadership positions.

Ethics

Now let's move to *ethics*, which encompass a "code of morality; a system of moral principles governing the appropriate conduct for a person or group (Encarta World English Dictionary)." Based on the years of research I've conducted on values and ethics, I've found that this code of morality actually has three constructs that resonate with people — usually with varying levels of importance. The first is a purely moral construct: right vs. wrong. Theologian Hans Kung has examined what the world's great religions have in common and found five basic commands in all of them: Do not kill; do not lie; do not steal; do not practice immorality; respect parents and love children.

The second moral construct has to do with alignment. The word most often associated with this construct is *integrity*, defined as a consistency of actions to values and ethics. In other words, "Are your thoughts, words and actions in alignment? Do you walk the talk?"

Over the last 10 years, integrity has gotten mixed up with right/wrong morality, to the point where only purely moral people can have integrity. I happen to believe that many people who do not share my morals and values still exhibit great integrity: They will predictably do what they say, which is what they also believe. To me — I can trust them based on their predictability to walk their talk.

The third construct has to do with loyalty — having allegiance to a belief, person or entity (family, company, country, etc.). The loyalty ethic can be thought of as commitment to an idea or group, or mutual protection within a group.

The challenge in dealing with these three morality constructs, in so much as they define a company's ethics, is that they can sometimes be in conflict with one another. For example, I'm loyal to my best friend whom I've known all my life. But he just told the boss that a project is going fine, even though it's way behind and over budget. What do I do? Am I supposed to be loyal to my friend, my company or myself (my own morality)?

If you walked around your company and asked people these questions, what answers would you get? For that matter, which is the “correct” answer? The point here isn’t to tell you or your company which values and ethics you should follow, but to prompt you to begin the conversation within your organization. Ask yourselves:

- What do we stand for, in terms of both values and ethics?
- What behaviors should we practice and reward?
- Which actions should never be tolerated by anyone?
- Do we communicate and differentiate ourselves (with our clients, from our competitors) based on these values and ethics?
- Am I proud to work here, or do I just show up here?
- Is this a place that nourishes me, or a place where the hypocrisy drains me?

Most people want to work in a company where they feel trusted and they can trust others; a place where the values and ethics are known, shared and followed. They want to be where a sense of belonging and pride in their values and ethics permeate the culture — a tangible esprit de corps.

What are you doing to create that company?

Chapter 7

AV Sales: Building Relationships and Managing Expectations

Many of the AV integration companies I've worked with have employed a range of sales strategies and styles. But overall, their approaches come down to this: short-term sale (hunt and kill it) versus long-term relationship (nurture and grow it).

Both approaches could be effective in generating significant revenue (some of the companies I've worked with didn't track profit per job — but said they knew who their "best" salespeople were). I've noticed, though, that the short-term sales person seemed to have to work a lot harder repairing relationships, whereas the long-term sales person spent considerable effort building a relationship. So I'd like to describe some of the best salespeople I've seen from some of the best companies I've worked with.

They're Credible

The best salespeople I've met have a firm understanding of the vision, mission, values and ethics of their company. These underpinnings form the basis of their sales process and are used as differentiators, as well as a guarantee of quality. The message: "This is who we are; this is what we do; you can trust us and here's a list of other clients that have and continue to do so."

Some readers will scoff at this as just a bunch of fancy words, but the best companies have proven, through surveys and client discussions, the importance of aligning their business processes with their vision, mission, values and ethics. An integral part of any sales process is establishing credibility and integrity. Showing clients that you measure not only the quality and professionalism of your implementation and service (both the solution and your staff), but also your adherence to your vision, mission, values and ethics, gives them the confidence that you care and that you'll be there for the long haul.

They Communicate

Good salespeople care about and validate the purpose of the project with the client, which is much different than selling equipment to fill a room or win a contest. The best salespeople want to understand what the client is truly after — productivity, efficiency, functionality, lower maintenance costs, ease of use, flexibility — and they align their conversations and their proposals to meet those long-term needs. They also regularly contact clients of past projects to find out if their needs have been met.

Often, this process means talking to more than just the buyer. And sometimes the buyer doesn't like other people being invited into the conversation about requirements and value measurements. But, of course, the people who ultimately use and maintain the system do like this communication. Does it take extra time and initiative on the part of the salespeople? You bet. Is it worth it? Those who do it sure think so — especially when their repeat business and referrals grow.

Top salespeople also are aware of the billing and invoice cycle and make a call around commissioning time to remind the client that they'll be contacted a month after commissioning to verify that the purpose of the project is being achieved.

They Educate

The best salespeople I've met use a site-survey process for educating the client. Most clients don't understand the complexity of installing an audiovisual system, especially in an existing space or facility configuration, and especially where there is existing client-furnished equipment. Some clients neither care nor want to learn, and there are salespeople who've learned to give those clients to other AV integrators (one way of staying in business is to have others go out of business). But making your client aware of the challenges and constraints helps educate them so that they understand their role and the role of their subcontractors in the project — especially when changes happen during implementation.

Using a site survey also demonstrates a company's professionalism and it serves to mitigate unnecessary risks to both the client and your company — and people respect that. In situations where the good salesperson is unable to conduct a site survey, he/she sends the site survey form to the client to fill out, or they go through it together over the phone. Again, this process serves to educate the client about the complexity of systems implementation. Salespeople who don't have the time or energy to conduct site surveys often create unrealistic expectations ("happy talk") that cannot be met by the project's implementation teams — or worse create ill will when the project goes awry.

They're Detailed

Top salespeople employ a comprehensive scope-of-work document, not just a bill of materials with a price tag. They ensure that the client has read and understands the entire scope of work. Many projects suffer because the primary players (sales, client, project manager, client manager, etc.) never read (and sometimes never even see) the scope of work. (More on the scope of work in the next chapter).

They also facilitate kick-off meetings (both internal and external) to ensure that expectations are clarified, key stakeholders identified and introduced and ground rules for communicating everything from status reports and change orders to final sign-off and billing are established. An external, client-based kick-off meeting is also an opportunity to conduct a field-verification audit, especially if a site survey can't be conducted. These are often led by the AV company's project manager. If the successful salesperson is unable to attend in person, they are definitely available on the phone for any needed clarifications.

They're Team Players

The best salespeople support the project manager when issues arise and changes to the project must occur. They follow — in a timely manner — the change-order procedures outlined in the scope of work and communicated to the client. I've met many salespeople who've said, "I'm the client's advocate" or "I'm the voice of the client." To which I always ask, "Which logo is on your paycheck?"

I've also found that setting up a good cop-bad cop routine with the PM, although it may save the client money and make the salesperson look good, ultimately ruins the credibility of the salesperson with respect to their project managers and technicians. And it hurts the credibility of the company as a whole because it doesn't reflect well on the company's integrity (see "They're Credible").

They Follow Up

Finally, the best salespeople I've met send a survey to the key client stakeholders (and may also place several phone calls) to determine how well their company did in several key areas:

- Managing expectations throughout the project
- The professionalism of the installation team (project managers, technicians, etc.) and company support staff (accounts receivable, service, etc.)
- Making the installed system usable and functional — meeting the documented requirements
- The alignment of the company with its vision, mission, values and ethics

This survey process closes a loop that began at the initial sales meeting. It offers an opportunity to improve and grow the relationship, and provides valuable information that can be used for future sales opportunities. I'm often surprised at how many companies rarely or never ask their clients how a project went or what they thought of the company's professionalism. And some never use the information, even when it's given, to help them in subsequent sales.

Of course, even the best approaches to selling AV systems and service may not guarantee a successful sale or a satisfied client. But they do create the opportunity to build a respectful, professional relationship with a client base that will ultimately garner greater client satisfaction, more referrals and more follow-on business.

Chapter 8

What a Comprehensive Scope of Work Looks Like

I've heard many terms used to describe the contractual aspects of an audiovisual integration project: bill of materials (BOM), scope of work or statement of work (SOW), work order, proposal and contract, to name a few. But often, when I ask key project stakeholders (sales, clients, project managers, technicians, procurement, warehousing, service, etc.) where these documents are and whether I can look at them, I often get blank stares or embarrassed smiles. "Oh, you want to read the SOW? I don't know where it is," one person might say. Or they'll say, "I didn't get a copy," or "We don't have time to read them," or (worse yet), "Management doesn't let me read them."

When I can get my hands on a scope of work, I find that the document being circulated is usually one or two pages long, with a list of equipment and pricing (maybe) — no assumptions, no client responsibilities, no change-order procedures and often no sign-off or escalation procedures. It's as if the AV integration company didn't want to hold the client responsible for anything, including payment for the completed work.

If AV integration companies want to be more respected by clients in the marketplace, their contracts should be the starting point for creating credibility and professionalism.

The salespeople must create an expectation that a comprehensive scope of work will be adhered to. They should spend time with the client, covering change-control procedures, client responsibilities, escalation processes and sign-off and payment procedures.

The project manager should further ensure their counterpart has read and understands the pertinent parts of the contract. Personally, I always keep a copy of the contract or statement of work in my project notebook so I can refer to it, if necessary, during discussions with the client, general contractor or other interested party.

Some of the best AV integration companies I've worked with train everyone in their organization on the purpose and details of each section of the contract. This kind of education provides a holistic knowledge of how the company sustains itself and generates its revenues and profits. It also gives individuals a context for supporting one another during the project, from design to purchasing, shipment to staging, installation to programming, and change orders to commissioning.

Here is an outline of the major components of a comprehensive scope of work. All the sections below should be used for the three major types of AV jobs (hang and bang, design/build, and bid), employing varying degrees of complexity. At the end of the day, it is better to have documentation and not use it than not have it and need it.

Comprehensive Scope of Work

1. Executive Summary (one page that includes purpose, high-level functionality and deliverables)
2. General Information
    a. AV integration company statistics
    b. References
    c. Company biography (vision, mission, values and ethics)
        i. Company history
        ii. Key personnel
        iii. Key subcontractors (if applicable)
3. Proposed Solution
    a. Description of functionality
    b. Product listing
    c. Drawings (if applicable)
4. Assumptions
    a. State any conditions that are being relied on (owner-furnished equipment, facility readiness, electrical, etc.)
    b. State the assumptions that pricing is based on (results of site survey, etc.)
    c. Field verification audit and disclaimer (see “Terms and Conditions”)
5. Pricing Information (either fixed price or time and materials)
    a. Product listing (bill of materials, etc.)
    b. Labor (proposed hours, if required)
    c. Service and warranty (if applicable)
6. Milestones (with an attached schedule, if applicable)
    a. Purchase order receipt
    b. Material shipment
        i. Logistics
            1. Drop Ship
    c. Implementation activities (summary, by type and complexity of project)
        i. Rough-in
        ii. Programming
        iii. Acceptance test
        iv. Client training
    d. Client final acceptance
    e. Payment structure (initial, progress, and final)
7. Responsibilities (client, AV integrator, GC, etc.)
    a. Client
        i. Facilities
        ii. Digital signage (content)
        iii. Teleconference
        iv. Owner-furnished equipment
        v. Security, storage and site access
        vi. Training and testing
    b. AV Integration Company

        i. Progress meetings (attendance based upon integration schedule)
    c. Subcontractors (not affiliated with the AV company)
    d. Escalation and governance structure (i.e. who decides what)
        i. Structure for client (by role or name)
        ii. Structure for AV integration company (by role or name)
        iii. Structure for key subcontractors, if applicable (by role or name)
8. Project Management Procedures
    a. Kick-off meeting and field verification audit
    b. Status reviews (progress tracking), if applicable
    c. Change orders (field and contract)
    d. Interim approvals
9. Warranty Agreement, Service Levels
10. Maintenance Agreement (could be a separate document)
11. Terms and Conditions
    a. Standard hours/travel
    b. Performance bonds/payment Bonds
    c. Field verification disclaimer: In developing a comprehensive proposal for equipment and installation services _____ AV and engineering teams must make some assumptions regarding the physical construction of your facility, the availability of technical infrastructure and site conditions for installation. If any of the assumptions we have indicated in the site survey form are incorrect for your particular project or project site, please let your sales representative know as soon as possible. Changes to the proposal may have an effect on the price of equipment or services. To ensure that you have an accurate proposal based on your facility and specific to the conditions of your project, please review these assumptions carefully.
    d. Insurance
    e. Taxes
    f. Permits, fees and licenses
    g. Security clearances (if required)
    h. Safety or OSHA requirements
    i. Payment structure (this could be moved to section 6)
        i. Rules and timeframe for payments
        ii. Financing options
    j. Arbitration
    k. Confidentiality agreement
    l. Warranty statement
12. Definitions of Terms

Each of these sections serves a purpose and reflects on the AV integration company's professionalism in fulfilling its obligations. Taken as a whole, the scope of work will hold other parties (client, GC, other subcontractors) responsible for their actions in complying with the contract. The scope of work does not have to be filled with onerous legal-sounding jargon; in fact straight-forward language is better.

Chapter 9

Scope Statements: Establishing Boundaries and Responsibilities

A well-defined and communicated scope statement is one of the primary methods of managing a client's often-changing expectations of what they will ultimately receive from a project. This is developed during the proposal phase of the project — initiated as part of the sales cycle — and is included within the more comprehensive scope of work document.

There are really two types of scope statements, each serving a different purpose in clarifying the scope and expectations of a project and its deliverables. The first is a product or deliverable scope statement; the second is a project scope statement. The deliverable and project scope statements should be developed in conjunction with the site-survey process (which is a must) and verified during the subsequent field-verification audit process. Both of these are opportune times to visually communicate to clients what will and what not will be delivered by the AV integrator, as well as and who will and who will not be responsible for specified activities within the implementation effort.

In my experience, deliverable scope statements often look like a bill of materials, or a listing of numerous pieces of equipment (projectors, speakers, microphones, lectern, control panels, etc.) and supporting infrastructure (cabling, switchers, connectors, etc.). This list — although often inclusive of all of the equipment and parts to be delivered (minus some incidentals) — is usually the only section that the client reviews. As such, it leaves the impression and creates the expectation that all the equipment and ancillary materials will be included in order to make the project's system implementation successful.

Unfortunately, this initial impression often causes conflict later in the project, for instance, when the AV integrator is waiting on owner-furnished equipment (OFE) to arrive (or to be found or tested), or when another contractor must provide other pieces of equipment (security cameras, lecterns, etc.). The deliverable scope statement lists what the AV integrator will and will not deliver, because delineating what the AV integrator is not responsible for can be as important as listing what the integrator is responsible for. This listing helps alleviate any misunderstandings and ultimately establishes boundaries for each party's responsibilities.

In the same way, the project scope statement lists what activities the AV integrator will perform and what activities the AV integrator will not perform during the delivery and implementation process. As in the case of the deliverable statement, the "out of scope" column is often more important than the "in scope" column because it clearly marks the project's boundaries and helps head off the dreaded "scope creep." Integrators know scope creep when they hear it. It usually results when a client says something like, "I thought that was included" or "I assumed you were going to do that." In the ideal world, with clearly written scope statements, no client should ever utter such words.

Make Scope Statements Stand Out

Both scope statements—deliverable and projects statements—should be within of the overall scope of work. It helps to break them out as tables, with one column detailing what's considered in scope, and a second column listing what's out of scope.

For the deliverable scope statement, the in-scope column would include the bill of materials and any other products the integrator agrees to provide. The out-of-scope column might include electrical systems, HVAC-related products, owner-furnished equipment, cabling to and from owner-furnished equipment, structural materials, paints, finishes, etc. If you want to be as detailed as possible, add columns to the deliverable scope statement to clearly show who is responsible for what, including the AV integrator, the client, the general contractor, and others.

Approach the creation of the project scope statement the same way, with a pair of columns that spell out what activities are in scope and what activities are out of scope. The project scope statement is a list of the key activities which must occur for the implementation and commissioning of the AV system to be successful. Areas of contention typically have to do with owner-furnished subcontractors, therefore clearly delineating boundaries and responsibilities can eliminate finger-pointing later on (who is doing what to whom, for example, and what "complete" means to each subcontractor).

Other areas that often cause scope creep include: user training (how many classes and how many reschedules / make-ups); user testing and commissioning (how many people to include and how many test scenarios); site cleanup (especially the mess other contractors leave behind); and the transition to a client service department (when is done really done?).

The project scope statement can also be used as a responsibility listing, with additional columns used for different trades or contractors.

Using these visual aids during the sales process provides an opportunity to negotiate and show the client that the AV integrator has a comprehensive understanding of the deliverables and project activities and is intent on preventing future misunderstandings. Using the scope statements as part of the client kick-off meeting helps clearly delineate responsibilities before the actual implementation and integration work has started, dramatically reducing the probability of finger-pointing and misaligned expectations.

And the scope statements help reduce the chance of scope creep. The AV integrator's typical reaction to scope creep is, "We hadn't planned on doing that, but I guess we'll have to." There's nothing wrong with taking on extra work, but this decision is a business decision, not a project manager's decision. Scope creep has the potential to affect the company's performance and ultimate profitability — clearly a business decision. Clearly delineated scope statements allow more opportunity for justifiable change requests, which the AV integrator can charge for or not, depending on their strategy. And they enhance the AV integrator's ability, through their sales representatives and project managers, to continually clarify and align expectations and responsibilities.

Chapter 10

Creating Common Sense, Communicating Assumptions and Risks

Working on hundreds of projects and training thousands of project managers, I've often wondered why so few people around me have common sense. Many times I've discovered their lack of common sense three-quarters of the way through a project, which is a little late. I mean, they're intelligent, hard-working, and committed to delivering a quality product and/or service, but sometimes they just don't seem to think correctly.

First, let's define common sense in a way that comes off as self-centered but actually holds true. Common sense is when everybody around me agrees with my perception of reality, without my having to tell them. In other words, they have common sense based upon my sense of what should be common. In my younger days, I thought everyone shared this definition—or at least should. What I've found as I've gained more life experience is that I have to let go of my ego and create common sense (everyone understanding common terms, procedures, definitions of quality, etc.) instead of just hoping for it and being disappointed when it doesn't manifest.

There are four things that help define common sense as it pertains to an AV project and its key stakeholders (clients and their representatives, sales, project managers, implementation techs, service, etc.): assumptions, risks, constraints and issues. Many organizations collapse or confuse the four terms, and thus have a difficult time effectively managing required responses. Other organizations continue to expend little effort in their projects' initiation and planning phases identifying and communicating all of the above, leaving their project teams in a reactive, fire-fighting mode when issues arise in the execution phase. These organizations often have to accept deliverables that don't meet performance objectives in a project that's already late and over budget.

Still other organizations, however, are beginning to see the value of managing assumptions, risks, constraints and issues across similar projects. They're making efforts to invest time and personnel to identify them and proactively respond. In order to succeed, you should be one of those organizations. Here's how.

Assumptions

To make it through each and every day, we routinely make assumptions in order to plan our activities, such as figuring the amount of time needed to go somewhere (grocery shopping, work, etc.), determining how long it will take to complete a weekend "to-do" list, or estimating how much a vacation may cost. These assumptions are often based on our belief that past experiences will somehow shape future ones, especially if the future contains similarities to the past (such as our commute to work, which may have been the same for years). Although we

might not think we're making assumptions (some would say we're "using common sense"), we definitely are.

An assumption is a condition that a person believes is true now or will be true at some future point in time. It's often based on that person's experience and creates the context in which the person makes decisions.

Now let's put that person in the context of a project at work. Remember, a project is a temporary endeavor, undertaken to create a unique product, service or result, with the likelihood that changes will occur during the endeavor. In order to plan the project, each person must make assumptions, whether they're communicated or not.

You've probably heard the saying, "When you assume, you make an a** out of u and me." But that saying and its interpretation are among the major causes of poorly initiated and subsequently failed projects. A more powerful and proactive saying would be, "Undocumented and uncommunicated assumptions make an a** out of u and me."

Assumptions form the basis of the plan—a project can't start without them. They're so essential to projects that I often say, "Assumptions are the paper the plan will be written on." This is because projects are, by nature, forward-looking endeavors that blend similarity with uniqueness. The more similarity, the more we can use our past experiences to plan for the future in a predictable fashion. The more uniqueness, the more we have to make qualified guesses about what may occur.

Assumptions should be written down in a bulleted list somewhere prominent in the project's Scope of Work. They shouldn't be hidden in the terms and conditions or written into legalistic sounding paragraphs. Examples:

- Room will be ready for installation (all construction and finishing complete) by April 30, 2012
- All owner-furnished equipment (OFE) will have been tested and certified
- Site will have a secure storage room

These assumptions are written as statements of fact, not hope. The client, sales rep and project manager must read and agree on the assumptions. If they are not true, or if they become false in the future, then a change order is necessary.

Risks

Risks are specific events (that occur in a time and place) that can impact a project negatively (risk) or positively (opportunity). They live in the realm of project information between total uncertainty and total certainty. A total uncertainty—or *unknown* unknown—is a surprise event that exists in the realm of ignorance, and is something for which you cannot plan (see Issues). A total certainty—or *known* known—is not a risk, but is something for which you must plan.

Projects always move forward with partial information, or information that sits somewhere between general and specific uncertainty. Specific uncertainties are often referred to as known unknowns — that is, you know what you don't know (we know a piece of equipment will fail, but we do not know which on or when). These known unknowns provide you with powerful information that you must communicate to the project team and stakeholders. Many project managers think they must remember every problem they've solved in the past, but it's more important to share with others a project's known unknowns (risk events).

Risks can be identified from past projects by a range of stakeholders. They can be analyzed for timing, probability and impact (to scope, quality, schedule, cost or client satisfaction). Once identified, they can then be avoided, mitigated, transferred, or accepted via a contingency or fallback plan. The management of risks often occurs within risk mitigation activities and the project's contingency and management reserves.

Constraints

Constraints are conditions placed on the project by internal or external parties, and they limit the project team's options and flexibility. They can be viewed as a sub-category of assumptions and often impact the project in a negative fashion. Constraints placed on a project by the client should be listed in the scope of work because they will often increase the amount of risk to the AV company and should therefore increase the client's price. Examples:

- Room availability from 5:00 p.m. – 8:00 a.m. only
- Loading dock and freight elevator must be used to move equipment
- Contractors must receive new security pass weekly

All of these conditions expand the project scope, often making the project more difficult. Sales should ask the client if there are any project-specific or site-specific constraints before the project is estimated. The project manager should verify these constraints during the field verification audit and/or client project kick-off meeting.

Issues

Project issues are incidents that definitely cause the project to become out of alignment. The occurrence of a risk event does not necessarily make it an issue. Issues happen via surprise, mistake, or a change in assumptions or constraints. The realization of a risk event may cause the project to be revised through a contingency or fallback plan — the project manager shouldn't need permission to exercise such plans, but does need to communicate their implementation, the expenditure of contingency funds, and duration.

Issues are bigger than the project manager's authority to manage and usually require that a change request be initiated and moved through the documented project-change control process. Many project managers view project issues as fires they must try and put out. This normally exacerbates and prolongs the impending crisis, ultimately leading to a loss of credibility and professionalism in the eyes of the client.

Ideally, the employees of a mature AV integration company share with each other—and learn from — their project's assumptions, risks, constraints, issues, mistakes and surprises. When a company starts to create a common understanding among its key project participants (owner, sales, estimators, project managers, implementation techs, purchasing, warehousing and service), common sense begins to prevail. With this common sense, each new project team learns from the past and avoids repeating the errors and omissions of old projects—often at an incredible savings in cost and frustration.

Common sense is best created early, during project initiation, when the project's strategy and direction are determined. But it must be cultivated — not just hoped for or relied upon.

Chapter 11

Using a Work Breakdown Structure

In the 1950s, the U.S. Department of Defense came up with a common-sense project management concept that AV companies should use today. Back then, according to the *Journal of Defense Software Engineering*, the Navy began using something called the Program Evaluation and Review Technique (PERT) in support of the Polaris missile program. Though it was codified in later years and is currently used primarily as an estimating technique, PERT is considered the starting point for the *work breakdown structure* philosophy.

The work breakdown structure (WBS) is a deliverable-oriented grouping of project components that helps organize and define a project's total scope of work. Effectively, the WBS describes a project's product or service through a "what-goes-into-what" process. It also relates each of the deliverable work components to one another and to the total product or service as a whole.

This interrelationship between components facilitates the definition of the project's scope and begins to reveal potential complexities. As when AV companies detail a project's assumptions and risks, the WBS helps create "common sense" among stakeholders (client, sales, project managers, technicians, vendors, general contractors, etc.). And once developed, a WBS can be used as a template for similar projects, with the benefit of developing a common language and thought structure.

The Roots of the Project

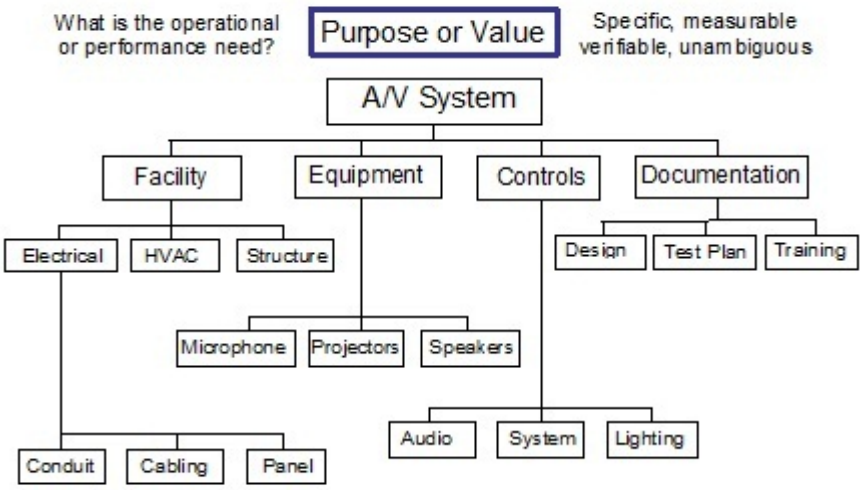
In the beginning, a WBS does not address the project's who's, when's, how's, or how many's. These are addressed later, as the project moves through the initiating (proposal) and planning processes. The WBS is a noun-based thought process, not a verb or activity-based schedule, although it will ultimately help the AV team formulate a schedule of activities and the associated roles and effort required to fulfill each deliverable.

As a project-management document, a well composed WBS is essential because it serves as a foundation for initiating and planning the project. It's best to think of the WBS as the roots of a tree, where the tree is your project. For a tree to bear fruit, its roots must be deep, wide and exhaustive. And just as roots become finer as they descend into soil, the WBS should define the project's deliverables and list supporting documentation in greater detail as it goes on to addresses the subcomponents of every deliverable.

Three to five levels of what is known as "decomposition" are usually sufficient to describe most AV projects through a work breakdown structure. The roots of the WBS may include product components, functions (for software deliverables) or process steps (for business process-engineering projects). Refer to the graphic below as we discuss the essential elements of an effective WBS. Level 2 comprises facility, equipment, controls and documentation. Level 3 is a

subset of each of those: Facility decomposes into electrical, HVAC, and structure. Level 4 is a subset of Level 3: Electrical decomposes into conduit, cabling, and panel.

The WBS serves many critical purposes, the most important of which is defining the work to be performed and breaking it into manageable components. Developing a work breakdown structure generates a number of other planning benefits, such as a greater ability to determine the types of resources needed; a better comprehension of their roles; and a more accurate understanding of the skill levels required to manage the pieces of the project.



Creating a detailed WBS also improves an sales/account manager's and/or project manager's ability to define, quantify, measure, and estimate the costs and effort required to deliver each component of the project. It is always easier and more accurate to perform these tasks at a lower level of decomposition. Doing so also enables you to better identify, document, and control changes.

A well-crafted WBS also helps a project manager define the performance-measurement baseline from which he or she can judge a project's status. When the status of the project is asked at its summary level ("How's project XYZ going?"), we often hear answers such as "Fine", "Great", and "Moving along". However, when the project's status is judged at the third or fourth level of the WBS — instead of at the summary level — the judgment will likely be far more accurate because the questions are more binary in nature. When asked at a finer level of the WBS root system, the question may be, "Is the podium installed?" While someone could answer, "Almost" or "We're getting there," the real answer is either "Yes" or "No."

Details of the Work Breakdown Structure

The purpose, as described at the top of the WBS, is the "why" of your project. Sales should enter it in operational terms, as viewed from the client's perspective. In the case of a product-oriented classroom installation, for instance, you might describe the purpose as: "A flexible, multipurpose, multimedia classroom that enables participants to engage interactively in an adult-learning environment. Equipment and furniture need to be durable and easy to maintain and reposition."

From there, sales and the client would define in greater detail each of the measurable parameters (flexible, durable, etc.). These should be listed within the executive summary or functional description section of the comprehensive scope of work. Without a purpose

statement, the big picture will be unclear and the project implementation (and service) team might lose sight of the client's ultimate purpose or value requirements.

As employees of an AV company, you'll learn that there is no perfect WBS. That said, you should strive to create one that is both exhaustive and exclusive. Exhaustive in that it contains all the components and details necessary to satisfy the client's operational objectives; exclusive in that an item is entered into the WBS exactly and only where it fits, and is not forcibly duplicated elsewhere. In our example of a product-oriented WBS, the cabling would not be entered under the each of the pieces of equipment, because cabling will be part of the facilities and will serve the entire room configuration.

It's important to build a WBS in a team setting because different project participants might use different words to define the same components, or the same words to define different components. For example, are cabling, conduit, electrical, wire, etc, synonymous, or do they describe different objects that perform different functions? To eliminate potential confusion, the AV team must facilitate communication and agreement instead of having several versions of the same work breakdown structure done by different departments or individuals, each with their own vocabulary.

A well-crafted WBS also helps identify how a change in one aspect ripples across the product and project. In the absence of a WBS, change notification is typically limited to those who deal with the particular piece or part of the project that's being changed. A WBS visually demonstrates the product and project-wide ramifications of making a change in one component and therefore gives the project's stakeholders a more global understanding of the interrelationships among all components.

Although changes are often made at the component level, based on their technological efficacy, they should be assessed and approved at the project level and in consideration of the project's purpose. Consider, for example, the classroom project. Just because a new type of cabling is less expensive and could possibly provide better performance, it does not necessarily mean that the new cabling is appropriate for the project, nor does it mean that it will save the project money or enhance the client's ability to achieve their purpose requirements. In fact, changing the cabling may actually require changes to multiple components or control panels.

Managing the WBS

Once a work breakdown structure has been developed, a numbering system can be created to identify and position each level and/or component. This numbering system can be used in conjunction with both the organization's project management tool — Microsoft Project, for example — and its cost accounting system. Tracking the costs and effort required at a lower level allows an AV company to validate its estimation process and manage risk — similar deliverables will have estimates with narrower ranges, more unique deliverables will have estimates with wider ranges. Using WBS templates and tracking appropriately can help close the loop among sales, estimation and implementation teams, allowing for the regular refinement of estimates and their assumptions.

During the implementation phase of a project, the project manager typically manages down to the third or fourth level of a project's WBS. These are usually the levels at which components are more standard across projects. (Most organizations deliver projects composed of standard components structured into somewhat unique configurations.) The project manager shouldn't micro-manage components below a level at which they're standard — the more similarity, the more the AV company should rely on standard processes. In our sample WBS, "projectors" represent a component at or below a standard level. If, by some chance, the projector for a given project is being configured in a unique fashion, or must interface with other equipment in a unique configuration, then the project manager should manage down to a lower level — in other words, manage the complexity and/or uniqueness.

At the end of the day, a deliverable-oriented work breakdown structure is a powerful planning, estimating, learning, communicating, status-reporting and change-controlling tool. Every project should have one. And the good thing is, once a company has built one, it has a template for future similar projects, which ultimately saves time and helps avoid potential mistakes and oversights.

Chapter 12

The Myth of the Perfect Estimate

Is it better for a project estimate to be precise or accurate? It's my experience, over hundreds of audiovisual integration projects and hundreds more in numerous industries, that most people believe a precise estimate is more accurate — and that most of the time, "precise" and "accurate" are considered synonymous.

So let's look at the science of estimation and dispel some myths and confusion. First, let's define some terms: *Precision* typically means a degree of reproducibility or exactness; whereas *accuracy* is a degree of probability or veracity. Most people think that a precise (exact) estimate must also be the most accurate (or predictable). But nothing is further from the truth, especially when it comes to AV (or other) projects. That's because projects are future-based and always have some level of uniqueness, whether that uniqueness be the client, equipment, parts, location, project team or other subcontractors. And it's this uniqueness — as well as the uncertain prospect of project risks — that does not allow for precision, no matter how much we desire it. The less certainty we have about a project, the more our estimate must include a measure of variance. Precision, therefore, is truly unattainable.

But if we're looking to create an accurate estimate, we need to analyze its three characteristics: assumptions, methodology and presentation.

Breaking Down Assumptions

In Chapter 10, I explained assumptions in detail. In a nutshell, assumptions are conditions that project stakeholders (client, sales, project manager, implementation team, etc.) believe are true now or will be true at some future point in time. These conditions form the basis of an estimate and often become driving factors in its determination.

How do assumptions factor into an estimate? Let's break down a typical commute to work. Recently, I was with a client and asked her how long it took her to get to work in the morning and how long she'd been driving that same route.

"Seven minutes for 10 years," she said.

"Every day?" I asked. She said, "Yes, everyday,"

"Really? No variance at all?" I asked.

"Well, anywhere between 5 and 9 minutes, with an average of 7 minutes," she said.

Then I asked her another question, assuming she drove the same route every day: “Do those 5 to 9 minutes cover every commute?” Her answer: "Same route every day, but only 95 percent of the time it takes 5 to 9 minutes; 5 percent of the time it can be as high as 15 minutes.”

So let’s take a closer look at this scenario. Each individual commute is a recurring operation, and going to work every day for a decade provides us knowledge and certainty about the drive’s characteristics — 10 years of driving the same route results in approximately 2,000 past data points, which can be used to predict the future with some level of certainty. She initially gave me an exact number, which in reality was a number she averaged, but potentially never hit exactly. Looking at variance, 95% of the time she was between 5 and 9 minutes, and she averaged 7 minutes, +/-40% (at 95% probability). Taking into account that sometimes it took her 15 minutes, you have a variance from -40% to +112% at 100% probability.

What’s amazing to me is that when we actually measure operations (things we’ve done the same way thousands of times) we find that they often have much more variance in them than our project estimates do, even though our projects always contain uniqueness and uncertainty.

What conditions impacted her drive? She identified three factors that impacted her commute before she ever left her house: day of the week, time of day, and weather. And there were three factors that could impact her drive along the way: two different school bus stops and one potentially busy intersection. Think of the three in-drive factors as project milestones. Risk events may also enter this scenario: traffic accidents, traffic light malfunctions, etc. These have the potential to impact her drive time based on their occurrence and the magnitude of their impact (a fender-bender vs. an injury requiring an ambulance)

In order to make a more precise (less variant) estimate, we would make assumptions based on those six determinant factors and an assessment of the probability and impact of the identified risks. We could say, for example, that she can drive to work in 6 to 7 minutes on a sunny Tuesday, when she leaves between 7:15 and 7:30 a.m., and doesn’t encounter school buses nor traffic at the intersection, nor any accidents. We’ve made six assumptions plus a risk assessment that help us narrow the estimate and make it more precise. Are these assumptions and assessment true? And what happens when they’re not? We’ll address these questions in a moment.

Methodologies for Estimating

For now, let’s look at another characteristic of estimates, namely methodology. There are three basic methodologies used for estimating, with some variants. The first is a parametric estimate, where we know two or three parameters of a project and we extrapolate a range from those parameters. These parameters can be anything from the number of classrooms to be installed (including projectors, Smart boards and controls), to square footage (if building a house), to a number of stories (if building a skyscraper). The range of a parametric estimate is typically -25% to +75%, but can be higher (software development projects can have an initial variance as wide as -50% to +400% at their inception). The key is to determine the most important and meaningful parameters and then collect data that correlates to those

parameters. This is the also the quickest form of estimation, but it can be risky if the parameters are not selected or measured correctly, or if the range is not respected and optimism takes over.

The second methodology is the analogy, or top-down, methodology. In this method the estimating team looks at previous, similar projects at the work breakdown structure (WBS) level 2 or 3 and estimates costs based upon the likelihood that the current project will correlate to those of the past. The key to this methodology is to understand the analogies, but you should also have an effort- and cost-tracking system that aligns with the WBS. Using of a common site-survey form will help develop meaningful analogies across projects. Many times, I've seen companies use the analogy methodology with no relevant historical data, in which case they're really just guessing. Or worse, they're making up numbers and believing them to be true — like driving to work but never keeping track of the actual travel time. The range of an analogy estimate is typically -10% to +25%, but often can be wider.

The third methodology is the bottom-up estimate, where *actual* data from a current project is used to extrapolate a forecast for the remaining work. It's often employed in conjunction with the analogy methodology. If we determined that 50 classrooms would take a day apiece (two techs, 16 labor hours, plus or minus two hours), and we found that the first four classrooms took 17 hours, we would use those numbers to move forward. Our range using the bottom-up methodology is typically -5 % to +10%. When it comes to forecasting within the bottom-up system, some companies, for example, will make a precise estimate of 16 hours per classroom. When the first four classrooms take 18 hours, they then forecast — often erroneously — that the rest of the classrooms will take less time, based on the learning curve, and that crews can speed up enough to make up for the overage of the first four classrooms.

I've found that established trends usually beat out wishful thinking. It's also worth noting that the commute-to-work scenario had a wider variant range than the typical analogy and bottom-up ranges. That just means that valid and numerous assumptions and relevant historical information are critical when using estimation methodologies in situations where the estimate needs to have smaller variation.

I've seen other methodologies for estimating jobs. There's the SWAG method (scientific or silly wild-a** guess, depending on who's going the guessing); the checkbook method (how much does the client have in their checkbook?); the approval authority method (how much can the client approve?) and the expectation method (how much did the client think it was going to cost?). These methods may help you win jobs, but they can also help bankrupt the AV company.

Presenting the Estimate

Now let's talk the about presenting the estimate. A valid estimate must be a conveyed as a range, or as a point with confidence factors. The drive to work estimate could be presented as between 5 and 9 minutes with a 95% probability, 7 minutes with a variance of +/- 40 percent (at 95% probability), or 7 minutes with a variance of –40% to +112% (at 100% probability). A single, precise number does make not a valid estimate.

Given the three components of an estimate, what do we do once a project starts? Let's look again at the commute example. We made three key assumptions for conditions that existed prior to the drive (time of departure, day of week, and weather), and three based on conditions during the drive (no school buses at two stops and smooth sailing through the intersection) in order to arrive at an estimate of 6 to 7 minutes. We would expect the commuter to update the conditions as she knew them, which would impact the forecasted estimate. Maybe she doesn't get out of her house until after 7:30 a.m., at which point she knows 6 minutes is no longer possible. Then maybe she encounters a school bus at the second stop, which puts her drive estimate at closer to 8 minutes. She makes it through the intersection as planned, there are no accidents, and arrives in 7 minutes 40 seconds.

Measuring the actual occurrence must be precise, in order to learn from it, but initial estimates must be in a range. I often see the opposite: The estimate is precise but tracking actuals is vague. Or the loop between the actuals and the people estimating is never closed.

I also often find that even though assumptions are written into a scope of work, they're rarely tracked or used to make changes to the estimate or forecast the result. In the driving example, three conditions could be verified at the beginning of the commute and three others could be turned into discreet milestones — places in the project where we have important knowledge with which to update our estimate.

We must always reward our people for telling the truth when it comes to actuals and variances, otherwise we'll never know whether our current estimates are valid. We'll also never learn how to estimate better, and we'll be blinded (or blind-sided) by over-confidence.

Valid estimation does not have to be onerous, but it does have to be thoughtful and follow some prescribed guidelines. What were the key factors, conditions, assumptions and potential risks that impact the estimate? What methodology will be used and can we substantiate its use? How can we present our estimate in a meaningful way to show that there will be the potential for variance? If it's a fixed-price bid, how much risk are we willing to take on, and where in our estimate range will we establish our price? And finally, how do we track actual occurrences in order to continually revise our assumptions and validate our estimating information?

Precise estimates will never be correct, but the more you know, the closer you can get to a valid, realistic, and therefore perfect estimate.

Chapter 13

The Project Kick-off Meeting: Setting a Stage for Success

After submitting a well-structured scope of work, whether in response to a request for proposal or via direct sales, an AV firm often gets good news: Your company's proposal has been accepted! (Follow the advice throughout these chapters to see your rate of acceptance grow.)

Now comes a disciplined transition and the clear communication of expectations and requirements. It's time to transition the project from sales to implementation and from implementation to on-site work, with all the responsibilities that requires. In other words, it's time for a couple of important project kick-off meetings.

These two kick-off meetings, while sometimes onerous, neglected or poorly executed, are essential to the ultimate success of a smooth-running integration project. Let's start with the first kick-off meeting, which covers the post-win transition to implementation mode.

Following a pre-determined checklist, this first kick-off meeting is an internal affair and should lead to a series of subsequent project transition meetings, often conducted on a regularly scheduled basis (typically weekly or bi-weekly), depending on the AV integration company's size, win rate and project cycle. The meetings can last 15 to 30 minutes per project, based upon each project's complexity and the AV company's familiarity with the client.

An internal kick-off meeting should take place before the start of every project's implementation. It can be formal or informal, depending on scope, and it should be driven by a project manager but include representatives from sales, engineering and procurement. You want to come away from the internal kick-off meeting with the following:

- Contact information (including key client and general contractor stakeholders)
- An understanding of relevant project documents (scope of work, RFP, prints, addenda)
- Delivery expectations (access, staging, security, etc.)
- Material lead times and handling requirements
- Engineering requirements
- Submittal requirements
- Resource requests
- Project timelines (proposed or constrained)
- A plan for coordination among different companies providing labor (electrical, IT, security, masonry, painting, etc.)
- A list of potentially significant risks and issues (owner-furnished equipment, etc.)

Straight-forward enough? Too obvious to bother with? Yes and no. In my experience, once an AV integrator's internal team becomes disciplined about internal transition meetings, a whole

lot of potential drama seems to evaporate. Salespeople who foster these kick-off meetings are usually mature team players and see the value of their integration team as part of the larger client relationship. On the other hand, salespeople who say they don't have enough time for internal kick-off meetings are usually trying to cover up potential pitfalls or unrealistic expectations that they've communicated to the client. Oftentimes, those people without time for a kick-off meeting will end up blaming the integration team for an unsuccessful" project implementation. ("I sold it right, you guys messed it up again.")

Meeting On-Site

The second kick-off meeting is preferably held at the client site, with all of the key parties in attendance, including the AV integration project manager, design engineer (if required), facilities manager (or client project manager), key subcontractors (especially if they're provided by the client), IT (if required), etc. For a large AV integration job, this meeting is essential and is designed to accomplish multiple objectives: clarify expectations and validate responsibilities; convey the project management process and important client sign-offs; and obtain a collective understanding of the job site from the installer's perspective.

If possible, part of the face-to-face kick-off meeting would include a field verification audit, which would validate the site conditions, especially if a pre-bid site survey was not conducted. The meeting should also cover the project administration process, including billing procedures, change-order processes, and training and commissioning. Too often, these important project elements are not conveyed to the client's representatives — neither during a kick-off meeting nor via the sales process. Therefore, the client is often surprised (or at least acts like they are) when change orders are raised during the installation phase of a project.

If you were to type up an agenda for this client kick-off meeting and field verification audit, it might look like this:

Initial Coordination (clarifying expectations)

Contact Introductions/Introduction to Associated Trades

Project Scope Review

- Scope of work and prints
- Schedule and key milestones
- Responsibilities/key hand-offs/coordination

Project Administration Process

- Billing
- Field change order/contract change order management
- Progress reporting
- Deliverables
- Training

- Commissioning/final sign-off preparation
- Transition to service (if purchased)

Field Verification Audit (site evaluation)

- Verify room dimensions and materials composition
- Verify access requirements
- Identify safety hazards
- Acquire details for final bill of materials
- Determine tool requirements
- Verify key deliverable dependencies

On smaller jobs (hang-and-bangs) or smaller out-of-town jobs, the client kick-off meeting can be conducted by phone, with the project manager leading the call and establishing their role and value in the job. The lead technician, upon arriving at the site, would conduct the field verification audit with the client representative.

These two kick-off meetings pay an incredible dividend to the AV integration company, despite the effort required to coordinate them. Companies that have made these meetings a general practice experience a boost in client satisfaction, retention, and referrals. They also enjoy an increase in valid change orders, a less chaotic commissioning and final sign-off process, and a subsequent growth in profits.

Chapter 14

Better Processes, Better (More Profitable) Projects

Project management is an exercise in maximizing effectiveness — doing the correct things correctly. Process management, on the other hand, through standardization, repeatability and continuous incremental improvement (sometimes monumental improvement), strives for efficiency — doing the correct things without waste.

There are a lot of programs out there that address process standardization and improvement in more words than I'll use — programs such as Lean, Six Sigma, Business Process Engineering, SIPOC (Supplier, Input, Process, Output, Customer), and so on. More study on any of these topics will certainly yield positive benefits, especially at an AV integration firm characterized by many similar activities and deliverables over multiple projects (including service and warranty calls). But for now, let's keep it simple.

I view *process* as simply *how we do things*. If you watch people and how they do something, you can measure their effectiveness (quality) and efficiency (speed and waste). You can look for areas to improve, steps that don't add value, delays or wait times that could be removed, and steps that create errors, which then have to be checked and/or fixed by someone else.

But all processes start simply; we perform hundreds of them every day, often without conscious thought. When I teach, I use simple everyday examples to help explain concepts, rather than diving right into the work environment. When you consider everyday processes, it can make concepts easier to understand without appearing judgmental (jump right into work processes and people sometimes feel judged or threatened, like someone wants to know exactly how the worker does what he/she does).

So with that in mind, I'd like to use a simple example of a process and I'm confident you'll be able to extrapolate to your job functions (conducting a meeting, hanging a screen, mounting a projector, programming a control system, stocking the warehouse or van, etc.).

Cup of Joe

One morning I made a pot of coffee. I have a drip-coffee maker, so I put the paper filter in the basket, measured coffee into the filter, added water to the reservoir, and put the pot underneath. Some people I know put the water in first, put the pot underneath, then the filter, then the coffee. Both involve a slightly different process but achieve the same result.

How do you make coffee at home? Some of you may have different coffee makers — a French press, a Keurig, maybe even a Bunn — and the type of machine makes a difference in the process. If it's a Bunn, for example, you have to put in the water last — and from a different

container — because a Bunn coffee maker operates differently than a typical drip coffee maker. Now, if you never had a Bunn coffee maker before and received one as a gift, did you know to put the water in last, with a separate container, with the pot already underneath, so that you didn't make a mess all over the kitchen counter? And if you didn't already know, did you find out in a good way or a bad way? Surely, there are people who figured it out the hard way; they used the coffee pot to put the water in first and it went all over the place. Here's then an opportunity for understanding a simple process and making improvements to it.

In a lot of companies, people learn things the hard way, and organizations that truly want to improve have to determine how costly it is to have a lot of their employees learn those lessons the hard way (in the case of the Bunn coffee maker, how wet is too wet for the counter and floor?). Companies need to look at processes from an organizational perspective, not just an individual perspective. If 10 people are going to make coffee and achieve a predictable result, they need to understand the machine and its supplies and determine the best way to make good coffee. They need to be proactive about understanding the process and its intended results — think about it; talk about it; measure, document and standardize it. Or the company can just say, "That coffee machine always pours coffee all over the place so we buy a lot of paper towels to clean up the mess." How many roles/functions in your company include spending time fixing something that shouldn't be a problem in the first place?

I'm not talking about turning people into unthinking robots; I'm talking about the need to consciously look at how people do things. A lot of organizations spend an incredible amount of time and money documenting perfect-world processes, yet they don't really look at how their people do things now — on a daily basis — and determine how they can make small, incremental improvements.

In order for a company to improve its processes, it must do a couple key things:

First, it must understand why a process is in place, its purpose — achieving value in alignment with the organization's goals and strategies. If an AV firm is doing something on a daily basis, or its doing it for a project, it needs to know why, what's the intent, and what's the value?

Second, the company must measure what it's actually doing, not what it thinks or wishes it were doing. What I find in a lot of organizations — and I've trained and consulted around the world — is that people don't like to be measured. If you ask someone, "How do you do that?" they'll say, "How do you want me to do it?" or "I'm doing it the way I was taught." They're afraid that by measuring them, the company is judging them. Still, organizations need to watch how employees perform processes and assure them they're not measuring the employee, just the process, of which the employee is only one component.

Organizations with mature leadership usually don't have the judgment factor permeating their culture. In such organizations, the attitude is, "I'll write down what I do, then we'll get together and improve on it." Improvement is based on the value the company needs to achieve, viewed from the client's perspective, not based on ego or a need to be right. Mature companies document and improve their processes incrementally — in a nonjudgmental fashion — attempting to remove waste, variation, or steps that don't add value. They don't throw

everything away and start over, blaming everyone who was ever involved in creating the process. That would be a recipe for disaster.

Ham for Dinner

Here's another example of a typical process of which the participants have little understanding but are caught continuously relearning old habits. It's a typical family holiday and two children watch their mother prepare a ham. Their mother gets the ham out of the refrigerator, puts it on a cutting board, cuts off both ends, and then puts the ham in a pan and into the oven.

"Why do you cut off both ends of the ham?" the children ask.

"That's just the way we cook our holiday ham," the mother replies.

"Why?"

"Let's ask Grandma, she taught me," the mother says. "She'll know why."

When their grandmother arrives, the children ask, "Grandma, how do you cook a holiday ham?" Their grandmother answers, "You cut off both ends, put it in a pan, and then put it in the oven."

"Why?"

"That's the way we cook holiday ham," their grandmother replies.

"Why?"

"Let's ask Great Grandma, she taught me" their grandmother replies, "She'll know why."

When their great grandmother arrives for the holiday dinner, everyone sits around the table to enjoy the ham. The children wait until she's taking a bite to ask, "Great Grandma, why do you cut both ends off the ham before you cook it?"

Great Grandma smiles and answers, "Well, children, because the pan is too small."

And so it is with many organizations: A process is put in place by one employee (often a founding member of the organization), followed by other employees and more employees after that, until the reasoning behind the process is lost and, often, any understanding of the value is also lost. Other non-value-adding processes spring up around these long-standing processes, compounding the amount of inefficiency and waste in the organization.

It's really incumbent upon a mature organization to periodically and objectively (which doesn't mean judgmentally or robotically) look at *how* people are doing what they are doing and align it with *why* they're doing what they're doing. Taking simple steps, I've seen organizations dramatically increase their efficiency, boost profits and reduce waste. Creating efficiencies

through process standardization and improvement also helps cut down occurrences of reactive drama or crisis modes and fosters greater commitment among all the organization's employees because they feel responsible for improving how things work. They understand the linkage between cause and effect.

Chapter 15

Resource Management: Getting What You Need from Workers

Here's a question all AV companies need to ask: How do we manage the people inside our organizations — those people working within our processes, supporting the projects and operations that are part of our well-defined strategy and visible portfolio of opportunities?

Such an important question invariably leads to others: How do we manage the utilization of our resources effectively? How do we set objectives that our people can meet? How do we motivate and incentivize people to meet those objectives? How do we set up clear and definable metrics?

Answer: three steps.

The first step in effectively managing resources is alignment — establishing and communicating to our people the organization's big picture (its vision and mission). This allows employees to better appreciate the importance of what they're working on and to understand the direct correlation between their job functions and the value that the company is generating (and hopefully measuring).

The second step is to create processes inside the organization through which people have meaningful work to do. "Meaningful" means that they can see how what they're doing positively contributes to the vision/mission and value of the company and they are being measured based on that contribution.

The third step is to give employees the opportunity to improve how they do the work they do through continuous process improvement. They also need an opportunity to improve themselves through heightened competence, cross-training, leadership and management opportunities, etc.

I find that most people are incredibly creative, yet a lot of us expend our creativity trying to work around the processes that are put in place for us, rather than systematically understanding, measuring and improving those processes. Leaders in a mature organization need to channel that creativity toward creating value, allowing their human resources to see the link between their actions and the company's value, and then rewarding people for creating and using processes that enhance their own and other's productivity and performance.

In many organizations, we've begun to treat people like machines. They are cogs in an often-undefined set of wheels and gears. What they work on has lost its purpose — it doesn't seem to have any value — and when that happens, their work turns into just a job. Their brain (and

motivation) checks out — their job is just a paycheck with no meaning. That's a sad commentary, but it stems from the lack of a holistic and communicated view of a company's strategic portfolio, beginning with the answers every individual should be seeking, "*Why* am I here and what value am I adding?"

Management Through Alignment

A mature organization effectively manages its resources through the alignment of a visible portfolio of operations and projects; linked with measured, value-added processes; combined with people who know why, how and where they make a difference. Leaders in a mature organization establish a priority system for its work that demonstrates the generation of value toward its strategy. Managers are responsible for the competence, allocation, assignment and utilization of resources that are working on the projects or within the operations (procurement, finance, accounting, administration, service, etc.). They have to align their resource allocation and their resource utilization based on the company's visible and communicated portfolio of work to be accomplished. They also have to be held accountable for managing work processes and creating better ways for people do work that adds value to projects and operations, which ultimately adds value to the company.

In projects, people are often the key resource (although some may still argue it's the equipment). Projects usually create something new, or they create something different than before. It takes a lot of mental horsepower and often physical labor to do a project well. Therefore the human resource is the most valuable resource on a project; and it should be treated as such.

Company leaders typically go awry in managing resources when they don't align the assignment of people to the purpose for which they're there. They also tend to overuse their key people. It goes something like this:

"You're really good at doing X, so we're also going to make you do Y, because you ought to be good at that, too. So you get to keep doing X while you also do Y, and oh-by-the-way, we just hired Joey — take care of him, too, and teach him how to do some of X in your spare time."

Now, of course, that employee has no spare time. This is very much a North American phenomenon: We take our best people and give them more roles, more problems to solve in a reactive fashion. I've noticed that many other cultures grow their people very differently. They don't assume that because one person is very good — technically or functionally — that he or she will be a good manager or someone who can take on new things and do them well.

We create too many roles for our people, with little or no prioritization, which creates a feeling of attention-deficit disorder, or of simply being overwhelmed. People can't focus on what they're doing now because they keep thinking about all the other tasks they should be doing. And because they're very good at what they do, other people constantly ask them to do more. Often, these are also the people who see opportunities for company-wide improvement, but when they bring up an option, they're told, "Great idea, why don't you make that happen?" So they stop making suggestions because it just creates more work for themselves.

This kind of resource problem can be traced back to a lack of portfolio management and/or systematic prioritization. It also reflects a breakdown in process management when there is no standard way of performing tasks or training others to perform those tasks. Without these types of controls, everything becomes important (which means nothing is) and everything must be done right now — by any means necessary (throw out the standardized process). That's no way to manage your most important resources.

Effort or Value?

I find that people are often measured by how busy they are, rather than how productive they are. I was recently working with a company and the president said, "I want people who put in lots of effort." I asked him to define that.

"I want them working from seven in the morning until ten at night," he said.

I asked him whether he would know if they accomplished anything valuable. "Well," he replied, "At least I'd know they were busy giving the effort."

Given that this company president was measuring and rewarding his employees on looking busy, I more fully understood why he had lots of busy-looking employees working lots of hours (with hourly employees billing overtime and salaried people ending up over-used and under-compensated). But they weren't creating much productive value and had actually introduced a lot of chaos and waste into their systems in order to maintain their "busy" status. When I asked the employees what they spent most of their time on, they replied, "Re-dos and tasks that make us look busy."

Here was a demoralized company. People felt that they weren't valued and didn't have a say in how to improve things. And the metrics and rewards system wasn't in alignment with the results the company needed or desired.

Sometimes, management confuses motion (activity) with progress. Here in the U.S., at least, some companies have made this mistake and created a nightmare. We often reward people based on what's easiest to measure — not always on what is most important to measure. Figuring out the latter is key to maximizing a company's most valuable resources.

Chapter 16

Distinguish Competence from Behavior to Maximize Performance

When managing people, competence and behavior are often indistinguishable — and that's a problem. Many managers automatically link the two together. As a result, when an employee isn't doing something correctly, managers fail to ask, "Is it because they're not trained well, or is it because they're choosing to behave that way?" The difference is important if a company is to get the most out of its employees.

Competence, as I see it, is the ability to function to standards established in a documented process; behavior is the manifestation of the motivation behind performing the process. (Important note: When I use the word "incompetent" herein, I'm not judging or disparaging, just describing a person's inability to perform a task properly or up to established standards.)

My wife and I have two sons, a seven-year-old and an eleven-year-old. I'm not going to ask my seven-year-old to wash the dishes by himself; it just wouldn't make sense. But if he did want to start washing dishes — and did so himself — and spilled or dropped some plates, he's not behaving poorly, he's just not competent enough yet to do the dishes.

Now, people will say, "Well you shouldn't expect him to be able to do the dishes all by himself, he just turned seven." I absolutely agree. However, we sometimes expect people in their twenties, thirties, forties or fifties (you know—adults) to do work they've never done before. And because of their age, we expect them to do the work correctly the first time. When they don't, you'll hear, "They're not doing it right; they need to be properly motivated" or "They're just not that good." Those are incorrect assertions. They need to be trained, mentored and allowed to learn the same way we allow our children to learn. And because they are older and have motor skills, coordination, and other learning experiences under their belts, they can often learn at a much quicker pace. But we shouldn't expect perfection right away or chalk up poor performance to poor behavior.

What also tends to happen is that companies tend to overwork their most competent people, giving them additional roles and responsibilities (often cleaning up after people who aren't fulfilling their own processes). As a result, responsibility for training new employees often falls to a company's least competent people — the ones who aren't extremely productive (but look busy enough). Because no one wants incompetent people on their projects or in their operations, these people end up training the newest employees in all their poor practices. In this way, some companies create a model of tolerating and rewarding mediocrity or incompetence.

Many people are also not competent to do the work they're asked to do. Again, that's not to confuse incompetence with stupidity, as many people do. They're not purposely doing

something poorly; it's just how they've been trained (or not trained) to perform the functions or tasks. They have not been told the job's purpose or value; there is no direct linkage to a measurable outcome; and they aren't allowed to ask questions, just to do what they're supposed to do.

Behavior Through Motivation

Basic behavior is either the willful alignment to established standards or the willful disobedience of those standards. Behavior manifests itself from the motivation behind how an employee does what he does once he's part of a process — it's his attitude and corresponding actions. Ignorance has to do with competence, not behavior. Entitlement, laziness and ambivalence manifest themselves as behavior. What managers should be on the lookout for in terms of competence should be based on an employee's ability to perform the process; the employee's behavior will be based on his willingness to adhere to that process.

Referring to Chapter 14 about process standardization and improvement, if I give you a Bunn Coffee Maker, I need to teach you to put in the filter, then the coffee, make sure the pot is underneath, and then pour in the water from a separate container. The crucial step is putting the pot underneath before pouring in the water. If you ignorantly put water into a Bunn machine the same way you do other drip coffee makers, and coffee starts coming out all over the counter, would you be behaving poorly or did you just not know the process?

In managing people, the challenge is determining which applies in situations like the Bunn coffee maker example. Unless I investigate more thoroughly to understand what occurred, I might think something about your behavior, like maybe you're always making messes, when it fact it had nothing to do with behavior — I just didn't explain that the Bunn operated differently. Now, if you purposely did not put the pot underneath in order to make a mess, or purposely smacked the pot hard into the machine — even though you knew better — and cracked it, that would be a behavior. This is where motivation structure must come in, in terms of providing incentives to behave in a way that is aligned with the values and the ethics of the company and discouraging behaviors that don't align through disincentives.

Aligning Behavior with Values and Ethics

In my experience, there are a couple good references for aligning behavior with values and ethics. There are many leadership and management books available that use new words or package concepts differently, but I find references that teach foundational knowledge without a lot of buzzwords or trendy gimmicks are the ones that work the best because they stand the test of time and produce the desired results. First is the Situational Leadership model, as defined by Ken Blanchard, a renowned author, speaker, business consultant and expert in leadership and management. The Situational Leadership model explains in a very straightforward manner how to train and develop people based on their developmental level, not based on whether a manager personally feels comfortable interacting with them. There are four primary leadership styles based on task behavior (directive) and relationship behavior (supportive):

- Telling: giving specific instructions and closely supervising (high directive, low supportive)
- Selling: explaining your decisions and providing clarification (high directive, high supportive)
- Participating: sharing ideas and facilitating the decision-making (low directive, high supportive)
- Delegating: turning over the decision-making and implementation (low directive, low supportive)

I would love to delegate dishwashing to my seven-year-old, but that would be irresponsible. In order for him to build confidence — both from a competence and relationship perspective — I would have to move through all four quadrants of the Situational Leadership model based on his growth and development needs, not based on my schedule or desires.

The second reference has to do with motivation and behavior. Aubrey Daniels, Ph.D., an authority on applying scientifically-proven laws of human behavior to the workplace, captures cause and effect in a straightforward manner in his book, *Bringing Out the Best in People*. Daniels specializes in creating effective performance-measurement systems. Every behavior needs to have consequences. These consequences can be used to increase a specific behavior, through positive reinforcement (getting something they want) or negative reinforcement (taking away something that they don't want). There also need to be consequences that decrease certain behaviors, through punishment (getting something they don't want) or a penalty (losing something they have and want).

In a nutshell, those four dynamics drive everybody's behavior. The challenge comes in the fact that those types of consequences don't necessarily drive other's behavior like they drive my behavior. What I find in many organizations is that leaders try to motivate their people based on the motivation structure that works for them (the leaders) instead of the motivation structure that resonates with their work force. They must understand from their employees' perspective which combination of those four models creates the correct motivation structure — and it may be very different from the combination that works for the leaders.

Carrots and Sticks

In the last 10 years, especially in the United States, we've taken away most of the consequences that decrease bad behavior in the workplace. I'm not saying that it's mandatory to reintroduce penalty and punishment into the mix, but the carrot-and-stick approach was around for a long time because it worked when applied appropriately. When you take away the stick, even if you never want to or have to use it, then you allow a number of people to get away with behaviors that are not in alignment with the behaviors the organization wants.

Managers in many organizations also condone poor behavior by not addressing it appropriately using the correct structure. The moment managers are silent about a specific non-aligned behavior, they've condoned it. They also often don't grow their people's competence in a supportive and productive manner that aligns with the desired processes.

This kind of deficit has a lot to do with an organization's culture and how its managers either take or abdicate responsibility for their role in determining strategy, portfolio, projects and processes. It also has to do with whether they give their people the opportunity to experiment when improving processes or make them afraid to make a mistake and shut down both creativity and forthrightness.

Leaders in mature companies need to make sure that everything aligns with the vision and mission of the organization, as well as the values and ethics of that organization. There is a predictable and understood model for growing, developing and rewarding competence, and a motivation structure that rewards positive behavior and reduces/eliminates negative behavior. Through a concerted, collaborative effort, many companies and organizations have enjoyed the fruits of this structured and transparent alignment.

Chapter 17

How to Keep a Project on Course

Often, when inquiring after the status of a project, people ask one or two questions: “How much is done?” and/or, “Are we on schedule and on budget?” To which the replies are invariably: “Almost done, don’t worry” and/or, “On time and on budget.”

The problem is, both questions implicitly promote incorrect behavior by project managers and team members — we’ve placed them in a position where we’re fostering them to lie about the status instead of tell the truth. And those typical answers, which are always anticipated (and often expected), leave the inquirer with very little knowledge and — too often — a false impression of what’s really going on. They can also leave those who answered the questions in a state of panic. “Now that I said we’re on schedule and on budget, what am I going to do to make it look that way?”

What are we really after when we ask people for a status report? We’re after more than just the status. What we really need to learn are the answers to three interrelated questions that measure a project’s performance:

- What’s the current status of the project in terms of scope, time, cost, quality and risk?
- What’s the progress against those key project parameters?
- What’s an educated forecast based on this status and progress?

Let’s define each of these terms to better understand what responses we’re looking for. *Status* tells us where we currently are in the implementation process; *progress* is a measure of where we are versus where we thought we’d be; and *forecast* is what we think the future holds based on our progress and any measurable variances, and should be based on existing trends versus miraculous intervention.

If we understand that performing a work activity in a standard and repeatable manner will always have some variation, then our measurement process must allow for variation. This concept was described in Chapter 12, “The Myth of the Perfect Estimate.” In that chapter, we used as an example a drive to work that should take between 5 and 9 minutes 95 percent of the time, depending on various factors. Here, we’ll use that same example to study status, progress, and forecast.

Let’s say that our target time for this commute is 7 minutes, but no more than 8 minutes. We determine our key assumptions, milestones and potential risks, and color code the possible outcomes based on measurable increments:

- Blue: Anywhere from 5 minutes to 5 minutes and 59 seconds
- Green: Anywhere from 6 minutes to 7 minutes and 30 seconds
- Yellow: Anywhere from 7 minutes and 31 seconds to 8 minutes

- Red: Anywhere from 8 minutes and 1 second to 9 minutes or more

Now we can begin measuring. Before the drive occurs, we can check against pre-drive assumptions that might factor into our status, such as the time of day, day of week, weather, and whether or not school is in session. For instance, if it's 7:30 a.m. on a rainy Tuesday and kids are heading to school, and if we're honest with ourselves, we are looking at a Yellow or Red commute, even before we leave the driveway.

But that's not normally how this works. We start by hoping things will get better. We don't want to disappoint anyone. So we start dissembling the truth (a.k.a. lying) and creating false expectations.

A Status Tale

Let's break down this scenario more, in hopes that you can extrapolate directly into your work environment. Let's make Joe our commuter. I'm his peer at work and we're meeting with the boss this morning. I'm a little obsessive/compulsive, so I've asked Joe to call me when he leaves his house and at his three key milestones.

Joe checks the time (a little before 8 a.m.) and weather (rainy) and knows in his heart the drive will take longer than the 7 minutes required to get him to our meeting on time. Still, he calls me to say, "Leaving now. Shouldn't be a problem. See you soon."

Joe reaches the first milestone — a school bus stop — and, sure enough, there's a bus stopped there. He's frustrated, weighing whether to break the law and go around the school bus, with its flashing red lights and stop sign, then speed through the school zone to make up time. He calls and says, "Progressing well. Looks good."

The bus turns and Joe accelerates, almost hitting a kid on a bike (don't they realize he's in a hurry?). He reaches the next milestone unscathed, but now he's 5 minutes into a commute he'd planned to do in 7 minutes and he has at least 4 minutes to go.

Joe calls. "I'm a little behind," he tells me, "but I'll catch up — still green."

Now he's speeding, zipping around traffic, endangering himself and others, causing one car to run off the road and up onto a curb — causing the potential risk event to occur to someone else. He gets to the last milestone before reaching the office — a busy intersection where (you guessed it) the light is red. From a status perspective, he's now in the Red Zone and I get this call:

"Brad, there's an accident and traffic's backed up. I won't make it there in 7 minutes. Probably not 8 minutes, either. But you can count on me at the 9-minute mark."

Our meeting starts in 90 seconds. I'm heading down the hallway to our boss's office. I call him 8 minutes and 45 seconds into a commute that was supposed to take 7 minutes. "You won't

believe what just happened," he says. "The car in front of me got a flat tire. I'm gonna be a little late. I'm really sorry."

I now must stand in front of the boss and weave my own tale of woe, making excuses for Joe, and tainting our credibility. He does finally show up. "There was a truck turned over in front of the building," he explains. "What a mess."

Ask the Right Questions

How many of you have heard something like this or been in Joe's shoes? What really happened here? Joe became fixated on creating a myth about achieving a time target because he thought the target was more important than the truth.

What he should have done was communicate proactively so that others could shift things around or help him achieve the intended result. After all, when did Joe know the timeline for the meeting was in jeopardy? Before he even left the house. Based on past experience, he knew 7 minutes was impossible, and even 9 minutes was risky.

What I find in many projects is that the team members are focused on conveying status, not progress, and that their forecast is usually hopeful — until the excuses come. Focusing on status amounts to Joe telling me how many minutes he's been driving. That's data, but it's not useful information. A crisis can be defined as the instantaneous end of a delusion, and the delusion is based on people's desire (sometimes they feel a threat) to paint a picture that matches their client's or manager's expectations.

So how should status, progress and forecast work? We want to stress to our project managers and team members that we want the truth early. A project color-coded Yellow or Red early in the implementation process can often be managed differently with little or no impact — or visibility — to the client by reallocating resources, changing interdependencies, reprioritizing other projects, etc. The reactive, chaos-driven nature of most AV companies does not come from being behind; it comes from not informing other people the moment you know the project is in trouble, which can sometimes be before it's even started (i.e., at the initial kick-off meeting).

In general, we need to be asking the following questions:

- Are we fulfilling all of the planned tasks?
- Are we measuring performance and variance against the scope, quality, schedule, and cost baselines? (Each of these can be color-coded Blue, Green, Yellow, Red.)
- Are there circumstances (assumptions, risks, issues, clients changing their minds) that have caused the project's parameters to change?

Specifically, we need to ask project team members the following question on a routine basis (hourly for hang and bangs, daily for other projects): Did you start on-schedule and how much effort is left?

Notice that we're asking for the effort remaining, not the amount of time already spent. When there is variance (either positive or negative) from the baseline plan (whether scope, quality, schedule, and/or cost), then we should ask:

- Were you actually working on the activity or were you pulled off on another task or project? This will highlight a prioritization/resource management problem
- Were all of the supplies and inputs available for you to start effectively? This highlights a process problem with regards to preparation and/or staging.
- Did we under- or over-estimate the amount of effort required? Are the original assumptions still valid? This can be used to address estimation assumptions and become lessons learned.
- Were you building to the prescribed quality standard? This reveals any problem with standards, training, competence, or behavior.
- Did any risk events or surprises occur during the activity? This will be used to better mitigate and manage risks, contingencies, and become lessons learned.
- Do you feel confident about completing the task? The answer could indicate a training need.

There will always be variance when it comes to the effort required to complete an activity. And most people have a pretty good idea of the effort remaining once they're about 20 percent into the activity. When we listen to team members' answers to the right status/progress questions and look for the root cause of any variance — and *not* judge the resulting color — managing projects actually becomes easier. And forecasts give us insight to take proactive preventive and/or corrective actions.

When we judge a team member's answers (and judge the color) and blame the individual for telling the truth early, then that's the last time we'll hear the information we really need and soon all we'll hear about the activity's status is, "It's all good." When seeking out the three key pieces of real status reports — status, progress, and forecast — the early truth must always be rewarded. Even when it's not pretty.

Chapter 18

Project Changes: Manage Them or Just Make Them?

Project changes are inevitable. Even the most well-defined, cookie-cutter project will experience changes — for a number of reasons. One reason is that no matter how cookie-cutter, all projects have something that makes them unique, and that uniqueness creates uncertainty. Predictions (plans) attempt to make uncertainty more certain, but just as no one can predict the future (not even Nostradamus nor The Farmer's Almanac), no project ever goes exactly according to plan. Anyone who says their project matched their plan must have written and published the plan after the project was finished — something I've seen several people do when their performance metrics measured them on how well the project matched the plan.

Another reason change is inevitable is that clients often change their minds or gain a different understanding, especially when moving from a drawing or design document to a three-dimensional room. And a third reason for project changes: technology. Technology moves fast, and a solution that was designed with many technology components may include pieces that don't integrate as seamlessly as promised or aren't even available any more.

Still, there's a myth that lingers in the minds of many owners and clients: A good project is one that doesn't change. Bah.

So if change is inevitable, regardless of what some owners and clients believe, the question you need to answer when managing change and measuring project success is, "Which is more important, managing the project and adjusting the plan, managing the plan and adjusting the project, or managing neither and saying, 'It's all good?'" Because "change," in the context of a project, is often regarded as a bad word and something we shouldn't discuss, the strategy many people take is to either hide the change or play mix-and-match with other pieces of the project so that, in the end, they hopefully make everything look good. This works sometimes, but other times it can be disastrous. Clearly, not the best approach, and one we should not be teaching to our new project managers.

Debunk the Myth

Let's deal with reality and debunk the myth. Say it together: "Projects will always experience changes and these changes must be managed in a disciplined and documented fashion."

Because a project is a future-based occurrence, the best we can do is plan ahead based on our experience with similar projects. Those similarities become conditions upon which we make our estimates, resource plans, schedules, and budgets and pricing.

When we come across uniqueness (as opposed to similarities), we must document and communicate our assumptions. (And it just so happens I've got several thoughts about assumptions here). That doesn't necessarily mean our assumptions are correct, although we must base our plan on the belief that they are. When a project's assumptions or conditions do not prove correct — which, again, is inevitable because projects change — the important thing is figuring out how to manage the change. And it has to be part of a communicated process.

First, the sales representative must include the project change-control process within the scope of work document and proactively discuss this process with the client as part of their sales and proposal activities.

Second, the project manager — or lead technician on a smaller installation — must communicate this change-control process to their counterpart at the start of the project during a structured kick-off meeting.

Third, the process needs at least two forms and associated steps: a Field Change Order form and a Contract Change Order form. The Field Change Order form must be readily available on the job site, easy to use, and provide a quick-and-rough estimate of the parts and labor needed to fulfill the change (seeing as the change may add labor and equipment to the project, subtract labor and equipment from the project, or some combination of the two). A project manager or lead technician must have the authority and responsibility to fill out the Field Change Order form and get it initialed by the client. Even if the change is something transparent to the client, if it's different from what was planned, a Field Change Order should still be filled out to help correlate between the final job costs and the documents of record (as-built drawings).

Field Change Orders will almost always change the cost of the project, which is distinct from the price. Remember: Cost is a project management function; price is a sales and business function.

A number of Field Change Orders (typically five to 10) may be combined into a single Contract Change Order. The Contract Change Order process is managed by a combination of the project manager, sales representative, and procurement specialist, depending on their specific roles and responsibilities in the AV integration company. A Contract Change Order details a total number of hours (plus or minus), changes to equipment and associated parts/materials, the labor to modify the drawings (this is often left out), and any travel related charges.

Based upon the AV integration company's management and sales conversations, a client may not be billed for all of the work required to fulfill the Field Change Orders. Again, this is a business management decision, but you should always list the Field Change Orders' impact on a project in its entirety. I've found that clients will understand and respect you more when you show them the effort and materials required to make the inevitable project changes, then show them that you will not be charging them for a portion of that effort (you may even decide to credit the client when a change causes a reduction in the total labor required for the project). I'm not saying give away the store, but it's amazing how a client's perception of value and professionalism changes when you share factual information.

Overall, this change-control process communicates to the client that the project was well managed, the project manager actually had a change-control process in place, and your company values the business relationship it has with the client.

Unfortunately, this is very different from what I normally see. Too often:

- The client requests a change, or the facility doesn't match the drawing, or other subcontractors don't complete their portion of the job.
- There is no easy-to-use change-control process for the project manager or lead technician to follow and document.
- Sales doesn't find any value (monetarily, for themselves) in processing small (or sometimes even large) changes.
- And the client (sometimes the general contractor) ends up learning that the AV integration company will make changes without any ramifications in price to the client.

This common scenario reduces profit potential, increases labor costs, and causes frustration across the installation and service departments because they feel that the extra labor required to fulfill the change was not valued. Because changes weren't tracked, the final drawings don't match reality, there's no closed loop to correlate the variance between actual and estimated labor, and future estimates continue to be off.

Successful change control is a conversation about organizational maturity. It starts at the top of the organization and permeates outward. It begins with the shared belief that we manage a project as it changes instead of falsely making a project match the plan. Mature organizations deal in reality and reward truth. Project management is about managing changes as they occur — not just making changes.

Chapter 19

Project Closure: When is Done Really Done?

Project closure, which as project managers know, simply means closing out a project at its conclusion, can happen many ways. Some of them are positive; many are negative. In my experience working with multiple AV integration companies, I've seen all types of scenarios play out. And I'm sad to say that in over half of them, the closure process was riddled with incomplete deliverables, missed hand-offs, payment delays (read: lost profits), and damaged client relationships.

If you've ever taken my project management classes, offered through InfoComm University, you know that this is the only industry where I've ever heard the phrase, "Did you want it 'done' or 'done done'?"

How does sloppy project closure keep happening? More importantly, how does an AV company prevent it in the first place? Put simply, it's all about process and disciplined application (no exceptions).

In a maturely managed organization, where each discipline sees itself as part of a larger, interconnected whole, project closure is a natural outcome of documented processes, disciplined execution, and diligent handoffs. Each group in the process sees its successor as a valued customer to be served, not a dumping ground. I've seen some best-practice AV integration organizations where the following is routine — not just a lucky occurrence:

- Sales staff composes a comprehensive Scope of Work, creates a professional relationship with the client, and sets achievable expectations.
- Engineering creates a well-documented design that is current, achievable, and in alignment with a validated site survey.
- Installation (including all the related functions — head-end, production, programming, etc.) performs its tasks according to documented standards, validating that the installation is correct and any modifications to the work have been documented.
- Project managers consistently align the client's expectations with the project's evolving changes and document all incremental milestones and signoffs (especially on larger projects).
- Client training is handled professionally, based on the most recent drawings and programming.
- Commissioning is thorough and provides a smooth transition and a firm foundation for the service team to help the client achieve their operational objectives.

We've discussed the importance of design and installation checklists, as well as adhering to standards, in previous chapters. That same kind of professional discipline must also hold true

when it comes to training and commissioning. These processes are crucial to successful project closure and repeat business.

Training needs to be a formal project milestone that gets client sign-off. The client should formally acknowledge:

- A list of everybody who attended the training
- The training syllabus (if possible)
- A list training obligations, if more training will be offered
- A method of follow-up, based on a communicated procedure, for those who were not present at the training

The client must also be aware of their responsibilities during the training process, including scheduling time with the correct attendees and the ramifications if users don't attend the training. This step is often overlooked, both during sales and implementation.

You should also have a milestone for "substantial completion," traditionally a contract term used in architecture and construction that helps ensure a smooth project closure process. Part of the final inspection process, substantial completion allows the AV integration company to begin final billing procedures, as well as take credit for a bulk of the effort already expended on the project. This process should include — at minimum — a final inspection that covers:

- A check list of items on the bill of materials, with function testing
- Acknowledgement of design changes or add-ins
- Equipment identification (via serial numbers)
- Review of workmanship/site cleanup
- Test and measurement data (if required)
- Programming test protocol
- Network testing
- Sign off by the client, which clearly states it is complete to bill

The result is a notice of substantial completion (a.k.a. the punch list). This list is generated via the final inspection and should be done with cooperation from the client. You need to start it early enough so that you have time to fix any issues that come up. But your main goal is to be able to start final billing, or at least partial billing.

Following the final inspection, there may be several items outstanding on the punch list. These items often represent less than 1 percent of the total effort expended on a project, but can amount to 10 percent of the project's billing, to say nothing about its worth in client satisfaction.

Most resource schedulers, technicians, and even some project managers are unaware of how much money and reputation are at risk at this stage of project closure. They often see only "a couple things" need cleaning up when they get some free time. Of course, there's rarely free time because other emergencies continually come up.

This attitude often results from a lack of knowledge by the installation department (and sometimes procurement and warehousing) about the financial perspectives of the project(s) and the company as a whole. This can set off a lot of finger-pointing within the company. Companies that complete their punch lists in a timely fashion do so because they consider them as important as that next, special project with a tight deadline, and they address their punch lists with the entire organization focused on their successful completion.

Companies that view and treat their service department as a customer of the installation department — with its own sign-off authority — close more projects successfully. When you've got this mindset, it creates a discipline around the entire commissioning and transition process and ensures all documents of record (also known as "as-builts") are correct. It also allows the service department to show a true profit or loss, without having to fix or clean-up implementation's mess, especially after the job charge number has been closed.

In short, successful project closure and transition to service follow some basic principles. Their foundation is in the sales and project-execution processes. They require proper documentation (with the appropriate signatures), otherwise the project will never be "done done," causing cost overruns and poor client relationships. At the end of the day, payment delays and excessive service calls are usually caused by inadequate documentation and a lack of incremental signoffs — a sure sign that client expectations and perceptions have not been well managed and that the client relationship will have to be repaired before it can be grown.

Companies that make completing their current job a greater priority than the starting the next job have a greater chance for success. One of the best ways to avoid crisis mode is to avoid crisis altogether.

Chapter 20

Lessons Learned: The Remedy for Repetitive Project Pain

When working on an AV project, how often do we hear the words, “Didn’t this happen last time?” or “Why do they keep setting us up for this?” Remember, the definition of insanity is doing the same thing over and over again expecting a different result.

You could say the same about many organizations’ lessons-learned process — or more aptly named, their “lessons-re-learned” process. This is because so many organizations incorrectly call the lessons-learned process a “post-mortem.” That word choice is inappropriate because it reflects a dissection mentality; a search for recrimination after the fact. It inherently poses the question, “Who caused this mess?” when what the AV company should be asking is, “How did this situation occur and what were its root causes?”

And have you ever noticed that most post-mortems take place for projects already labeled failures? And that they usually only involve the team that was on the project and maybe a couple executives — one of them from the finance department, wondering how the company could make such errors and still remain in business. The primary lesson learned using this approach is, “Hide bad news and when it hits the fan, find someone else to shoulder the blame. Or just cry, ‘It’s not my fault,’ and hope for the best.” Another lesson learned and shared by project managers through this type of approach is to avoid the documentation process at all cost. After all, no one can blame you if they can’t find proof (because it wasn’t written down).

Needless to say, this is not how a mature lessons-learned process should work. A mature lessons-learned process focuses on the future: How can your company replicate the best of what you’ve done? How can you avoid the mistakes and pitfalls that you encountered and learn from the risks and surprises? Remember, projects are filled with uncertainty, despite your best intentions and planning. Lessons learned need to be cross-functional and include people not directly involved in the project under review. Always keep in mind, one goal of the process is to help other people “learn the lessons” without having to painfully experience them firsthand on their own projects.

So what should a lessons-learned process focus on? There are several key areas, not in any particular order:

- **Assumptions testing and validation.** Were the initial assumptions you uncovered in the sales process valid? Did they change? What were the ramifications of those changes? Do you need to make changes to your documented assumptions in any current and/or future scopes of work? And where did those assumptions come from (not seeking blame; just understanding)?

- **The design process.** Did you have a valid set of blueprints or site survey documents? Did the design reflect the stated (and implied) requirements? Were the drawings kept up to date? If the design didn't match reality, how did you go about making the changes? And who on the client side knew about the progression of drawings and changes?

- **Estimation accuracy.** Were your estimates within a tolerable variance range (-10% / +25%)? What are the trends across your other projects? Where are you routinely over- or under-estimating? Where are the people producing the project estimates getting their numbers? Were you able to track actual hours at a meaningful level? Were the actual hours submitted truly actual or was someone trying to skew the information to match the original or "approved" estimate? Remember, when you punish people for showing variance from the original estimate, what you'll get back is data that looks good, but is in fact worthless — and lying on time cards is probably not one of your organization's stated values.

- **Portfolio and resource management.** How well did you manage the influx of new projects? Did you have adequate resources (which could include sub-contractors) to support the project? How did the project prioritization process work? Did you allow piracy among sales people and project managers to occur? When you finished, were you done but not "done done?"

- **Risks and surprises.** How many of your documented risks came to pass? Did your mitigation and contingency plans work? If not, what could you put in place for the future? Did any surprises come up? How were they escalated and/or handled? If there were any client-facing risks or surprises, did you educate the client about their responsibilities and re-align expectations?

- **Change management.** Did you follow the documented and communicated change management process (including using a field change order and a contract change order)? What is a smooth or onerous process? When assumptions proved invalid? What risks and surprises occurred? Did you educate the client about their responsibilities and re-align expectations via the change-order process?

- **Adherence to standards.** Did the various professionals on the project adhere to documented standards (sales, design, procurement, warehouse, installation, production, programming, finance, project management, service)? If so, what was the result, and do the standards need to be revised? If not, what was the result, and was it due to a lack of competence or discipline, or were some people just too swamped with work to follow the process correctly? How will you remedy the situation? And if some people made mistakes, was it due to a lack of education or was it a behavior issue?

Actual Lessons Learned

With these areas of analysis as a starting point, a mature lessons-learned process can pay huge dividends, especially for an AV integration company that works on a multitude of similar projects under tight deadlines. Of course, they have to act systematically on their lessons learned, addressing the root causes instead of searching for the easy looking answers.

I've also been fortunate to work with many AV integration companies who've shared with me some of their most important lessons learned. Here are a few:

"Always document communications."

This might sound simple, but it isn't as straightforward as it sounds, especially for a large project that may evolve over three-plus years and involve 25 different key contacts and many other stakeholders. No matter how basic or menial the conversation may seem, be sure to document it. If you have a phone call with a contractor, a client representative (such as a principal, teacher, a custodian), or your main contact, outline the details of the call and email it to your project contact list. This will eliminate a lot of confusion and demonstrate your willingness to do more than just handle specific tasks. Everyone involved gets a chance to review the details and you can avoid any "I thought that you said…" conversations.

"Create and confirm a clear line of communication."

Once you're assigned a project as project manager, you must create a clear line of communication. You must notify the primary contact of your role. Make it clear that all the preliminary work has been completed and your role as a project manager starts with the transfer of communication responsibilities. Explain that you are the person they need to be in touch with. The salesperson has taken them through the proposal and contract process; the project coordinator has scheduled the installation and ordered the equipment. Their project is now in the installation phase and you will handle everything from that point on. Explain that you work as a team, and as their project manager, you will coordinate communications on site and within your company. Politely tell them that the technicians on site are available for general questions, but questions about pricing, equipment changes, or contracts should come to you.

"Never assume anything."

Undocumented or uncommunicated assumptions are the surest paths to trouble. Be sure you've explained everything that affects the project in detail. Make a list of people who will be involved in the project, including client's participants and other contractors. Then take the list and itemize the tasks that each person represents. Once complete, contact everyone on your list and confirm that they understand their responsibilities and how they affect the timeline of the project.

When dealing with your primary contact, review the scope of the project, the equipment being used, and confirm you have the identical vision of the project. You must remember that the client isn't the professional here. It could very well be the first time they've been in charge of this type of project. Speak in non-technical terms that they can understand. Draw a picture if

necessary. Clients will make their own assumptions (you need to make sure they match yours). Remember they may have dealt with several contractors before meeting with you, discussing potential details and changes. All of this creates plenty of opportunity for poor assumptions. Don't make them yourself.

"Never implement new equipment without testing."

Even on smaller projects, verify that the specified equipment has been properly researched and that the system engineer fully understands it. Simple specifications may be overlooked when changing equipment in the middle of a project. This could affect assumptions that model changes wouldn't alter the system design. Try not to change a vendor/manufacturer once a project has been designed — it leaves too much room for error and could possibly increase the installation time.

"Keep up with your changes."

Even if the changes are internal and don't affect charges to the client, track everything. If you don't document changes, the time you save initially could come back to haunt you when service is required. And you must complete the change process in order to furnish the client with accurate as-built drawings. This will affect future additions, programming changes, and ultimately the company's bottom line.

A well-structured lessons-learned process should be viewed as a gift that keeps on giving; the lack of such as process a debilitating illness without remedies.

Chapter 21

Client Surveys: Closing the Loop, Maintaining the Relationship

When I talk about client surveys with my AV company clients, I often hear, “We don’t use them anymore because people don’t return them.” Or worse, “We get some back, but nobody reads them.” And that’s too bad.

A client survey, when used properly, serves multiple purposes in the client relationship, but it must be part of a larger whole. AV companies and account managers should address the process of using surveys during the sales and proposal phase of a project. They should explain that surveys are an integral part of their firm’s project implementation process, referencing them in documentation, highlighting survey milestones in the schedule, and even showing clients past results.

Informing a client that the president of your AV company personally (and randomly) selects two or three percent of clients to survey shows executive commitment. And using survey data in the sales and proposal phase of a project establishes credibility with prospective clients; credibility that (1) your organization cares about and tracks what clients think, and (2) that it uses that information to improve itself and maintain long-term client relationships.

You can present survey data to potential clients around the time you discuss your company’s vision, as well as your values and ethics. Doing so demonstrates alignment between what your company says it stands for and how past and current clients perceive you. Alignment among vision and strategy, consistent action, and a disciplined approach to improvement are compelling messages, especially when backed up by bountiful client data, spanning months or years.

In the end, the purpose of the client survey is to capture alignment or disparity between perceptions. It is not a tool to be gamed. I’ve sometimes heard people ask their clients, “Remember, you’ll be getting a survey at the end of the project. I sure would appreciate it if you gave us a good score.” How might that make a client feel? They’re probably wondering whether you really want their opinion or you’re just looking for data that makes you look and feel good.

Try this instead: “As part of our project-implementation process, you and other key stakeholders will be receiving a survey. We take your responses seriously and ask that you participate and tell the truth about your experience with us. Our goals are constant improvement and professional and lasting client relationships.”

How might the client feel after that conversation?

How to Approach Surveys

After submitting a proposal and during the kick-off meeting with the client, it's important to introduce all the key project stakeholders. It's also important to inform them of the value of their opinions, both during the project-implementation phase and post-commissioning. As the project enters the commissioning phase, the project manager and/or lead technician should be securing sign-offs of the final checklists (substantial completion and service transition) and informing the client's stakeholder's that they will soon be receiving the survey, which is part of the close-out package. When all this happens in a predictable fashion — and you share data with the client — your company's credibility grows.

Of course, being diligent about surveys can't be the only thing your AV company is disciplined and professional about. It is assumed here that your organization has committed itself to increasing the level of sales, project, installation, and management maturity across all of its processes. Adding a survey is the culmination of these processes, not a short-cut or a shiny ribbon on a terribly-wrapped broken present.

Here's an example of a client survey you might use. Ask key stakeholders to rate your company on a five-point scale, where 1 = poor, 2 = needs improvement, 3 = met expectations, 4 = exceeded expectations, and 5 = outstanding.

- How would you rate the initial sales process and the sales support you received?
- How clearly did the proposal explain the capabilities of the system that Company ABC was to provide?
- How would you rate the communications you had with the Company ABC project manager regarding scheduling, coordination, etc.?
- How would you rate the technical solution provided to meet your requirements?
- How would you rate the technical knowledge displayed by the Company ABC installation team?
- How would you rate the professionalism of the Company ABC project management and the installation team?
- How would you rate the timeliness and professionalism of Company ABC's handling of any problems that may have come up during the implementation of this project?
- How would you rate the training and system documentation provided for the system?
- How would you rate the clarity and professionalism of the procurement and accounting processes supporting this project?
- How would you rate your overall satisfaction with the final system?
- How was your overall experience with the Company ABC team during the life of this project?

You should also throw in a couple yes/no questions, such as "When similar requirements come up again, will you again select Company ABC as your solution provider?" and "Will you recommend Company ABC as a solution provider to others?"

Here's another, shorter example of a survey. Ask stakeholders to describe each attribute as "poor," "average," or "good."

- Effectiveness of the Company ABC sales staff
- Effectiveness of the Company ABC support staff
- Quality of Company ABC's products and services
- Value of Company ABC's products and services
- Company ABC's ability to meet commitments
- Company ABC's level of responsiveness
- Company ABC's billing accuracy
- Your intention to continue doing business with Company ABC
- Likelihood of recommending Company ABC's to others
- Overall satisfaction

An account manager can use the answers to these survey questions (particularly when they're positive) in a number of ways. First would be to acknowledge the client for their partnership in making the project a success. Second, to inquire about what other areas the client may need help in, based perhaps on unsatisfactory performance by another AV integrator. And third, to ask for references to other potential clients who could benefit from the professional experience provided by your AV integration company.

In the event that survey results come back negative, or not the level your company would hope for, an account manager (or senior management) can use that information as an opportunity to show commitment to improvement and agree on a plan of action with the affected client.

Ultimately, there is measurable value in using client surveys as one more tool in the client relationship management toolkit. And those organizations committed to improving themselves in the eyes of clients are the ones achieving that value.