

TOP TEN Reasons for Unsuccessful SCADA System Integrations.

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ABSTRACT

Mr. Corvigno is a Professional Engineer who has been involved in the integration of SCADA systems, for the Water & Wastewater market, since 1972. Currently he is the president of Aaron Associates of Conn. Inc., which is a premier SCADA Integration Company operating through out the Northeast. Through the years Aaron Associates has been responsible for the integration of more than 300 SCADA system projects. Aaron Associates has yearly SCADA system integration sales of more than \$3.0M dollars.

Aaron Associates has been integrating SCADA systems into the Water & Wastewater industry for 25 years. As SCADA system Integrators, we have earned our stripes and accordingly we feel the time has come to give something back to this community of SCADA contractors that we embody. During our tenure, Aaron Associates has been able to uncover a few interesting circumstances that continually seem to appear in successfully integrated SCADA projects. These are the same circumstances that almost never appear in unsuccessfully integrated SCADA projects.

Therefore, with posterity at stake; we are presenting a hopefully enlightening and modestly humorous look at (10) reasons that Integrators should clearly see as harbingers of “trouble ahead”.

We’ve tugged, and we’ve pulled, and we’ve twisted until we finally condensed these observations into our **(10) Top Reasons for Unsuccessful SCADA system integrations**. Now, whenever you find yourself knee-deep in the integration of a SCADA project and the wheels start falling off...all you’ll have to do to get back on the winning track, is to reflect on these (10) pearly observations of SCADA system integration, alter your course accordingly, and B-I-N-G-O. SCADA Integration Heaven.

INTRODUCTION

Ladies and gentlemen... I’d like to begin this morning by thanking you for attending this Water & Wastewater Instrumentation Symposium. It is truly your participation within the ISA that makes all the difference.

The topic we’ve chosen for today’s presentation is of course, “The TOP TEN Reasons for Unsuccessful SCADA system integrations.”

Reason #10

Lack of Commitment by the SCADA Integrator – or – “No way do I have time for all this crap”

Perseverance, dedication, hard work, continuing self-improvement.....who's got time for all of this? Estimating, purchasing, cash flow projections.....what else can they want from me? Who has time for this?

Well, that's quite an opening salvo. But certainly nothing we haven't all heard spoken at one time or another either by our co-workers or maybe even by ourselves. Our lives have grown terribly complex and it's become harder and harder to shut out the multitude of distractions that continually vie for our attention. So, to preserve we need to not only be aware of our complex lifestyles but we need to address how, as Integrators, we are going to best serve our employers so that every SCADA project we complete, we compete successfully?

In a single word, you're going to do it through your commitment. It will be your commitment that provides you with the intention and the knowledge that's required to make every one of your SCADA integration projects a success.

Commitment is that thing that develops outside the classroom and away from your scholastic pursuit of the sciences. Commitment is that thing that inspires and ignites ability as it elevates people, circumstances and situations up from the realm of un-impressiveness to heights reserved for engineering marvels. Beginning to sound a little crazy? You haven't heard anything yet!

Commitment as we're describing it here, mandates “No one is, nor should anyone be, more responsible for the success or failure of a SCADA project than the system Integrator. Not the Owner, not the Consulting Engineer, not the General Contractor, not Anyone”!!

It's very rare to come across an Integrator who has the commitment that's required to provide everyone involved in the project with an enjoyable experience. This is to say, a profitable experience as well as an experience that is intensely pleasurable and professionally gratifying to everyone involved. If this sounds somewhat far-fetched (and maybe even a little bit funny) it may be time to adjust your attitude and look at how your projects are turning out. Every aspect of a SCADA system's integration has to be the Integrators responsibility; it's this acceptance that in fact empowers you. How else can one person, one single solitary person, elevate the performance of an entire project team so that collectively they're successful and individually they're gratified?

Time to pay attention because here comes our first revelation: Commitment makes the difference. An Integrator looks better, he feels better and he integrates better when he's developed the commitment that is consistent with someone who takes personal responsibility for all of the project's SCADA integration efforts. Commitment says, “I've got some work to do on Saturday because it's important to the project and I want to get it done”. Lack of commitment reminds you how much you hate having to go into work on a Saturday.

It's usually fairly clear, right from the beginning of any SCADA project that; any issues of a technical or contractual nature are going to be the responsibility of the Integrator. When you've got the

proper commitment, it's also fairly clear that; anything-at-all that matters about anything-at-all with respect to the SCADA system, is also going to be Integrator's responsibility.

Ponder this thought. Every SCADA project you get involved in from this day forward turns out to be a project that is immensely successful and leaves everyone involved with a sense of wealth and pride.

So, how do you do it? With this demanding level of achievement and responsibility lofted onto the shoulders of the lowly system Integrator, how can you ever possibly hope to persevere and win the day? Set your sights on what you want to achieve, prepare adequately and allow nothing stand in your way. Commitment.

You know, many people tell me that all this talk about commitment is fine and yeah it's the right thing to do but how will you know when you're doing enough. The answer is very simple. The instant your commitment becomes less than it needs to be; contract specifications become ambiguous and confusing (clearly the work of misguided Consultants), requests made by the General Contractor will become outrageous demands, and the Owner, the Owner's expectations all become totally unrealistic. Lack of Commitment.

**Reason #9 The project was grossly underestimated right from the beginning – or –
“How could anybody possibly engineer this system and hope to make it work
for that price?”**

There's nothing worse than getting a shinny new SCADA project that is destined to be a loser right from the word GO! Lets face it, estimating is far from an exact science and whenever your established project budget is less than what in fact is required to do the job, you're in for a more difficult time.

As important as any technical issue that presents a challenge to your efforts at hand, so is the issue of getting your project costs in line. It should not be beyond the Integrator's ability to set an aggressively realistic goal intended to minimize any negative project cost exposures.

The best way to work a project back into financial shape is to above all remain service oriented. Find ways of giving, if you in fact have needs to receive.

Intuition and imagination should by no means be discounted when you're project is searching for additional revenues – but – some classically traditional areas you can focus on (at least initially) are material purchases, process enhancements, spare parts and the HMI software effort.

The old cliché that goes, “even though we're losing money on each individual item, we'll make it up on volume”, is not something that's going to help you in your endeavors here. What is going to help you is your ability to purchase all of the necessary project materials as economically as possible. This is not intended to mean you should purchase the bare minimum for the least possible cost. What this does suggest, is you should take the necessary time required to evaluate every purchase and make certain that you've selected the best possible materials in as cost-effective a manner as practical. Most often this is achieved through a network of suppliers that you'll rely on and continue to cultivate

throughout your professional career. A network of suppliers that consistently deliver quality cost-effective SCADA products. A network of suppliers willing to work with a good account and extend additional discounts or services in times that require it.

Once you've had a chance to work over, oops, we mean work with your suppliers it's time to turn your attention toward the Owner and any special process needs he may have. Opportunity to improve the bottom line can come from funded scope changes that improve process performance and generally make the Owners life easier. The best way to discover these potential changes is to spend time with the Owner's processes in an effort to uncover the issues and circumstances that present him with his biggest headaches. While you get to know these processes, keep hypothesizing and probing into different process control issues until you feel you've uncovered a sufficient amount of performance control amenities and then offer them up for sale to the Owner. Chances are, the savings he realized from your under priced bid might still be available to him as a means of funding the enhancements.

Opportunity for a financially win-win situation can also be found by trading spare parts for integration services. This exchange can be a viable way to bring relief to a project's stressed bottom line. Trading spare parts for integration services is not only practical for financial reasons but also because spare parts, per se, can be a waste of a SCADA project's funds. Ninety percent of all parts procured and stored as spares on an Owner's site, never get used as intended and eventually get scrapped and discarded.

Another cost improving opportunity available to the Integrator presents itself as a result of the way Engineering firms have been attempting to take responsibility for the SCADA system HMI software configuration effort. Even though there is ample fader for a compelling and vigorous debate over the merits of this industry trend and without meaning any disrespect to the Consulting Engineering profession; there is no debate that a good Integrator will do a superior job configuring and applying SCADA system software, than a good Consulting Engineer will do; for the fundamental reason that the Consulting Engineer will have been sheltered from attaining the level of intimacy required, with respect to the system's hardware components, that the Integrator is compelled to achieve as he goes about his integration efforts. This is to conjecture, that a SCADA system will not be as effective when it's prepared as separate hardware and software entities, as when it's prepared as the entire SCADA system with no means to separate the software from the hardware or the system from its' performance.

A good Integrator prepares, configures, tests, simulates and demonstrates his software for the specific purpose of integrating it with the hardware; then he re-prepares, re-configures, re-tests, re-simulates and re-demonstrates his software until he is convinced that every system hardware nuance has been complemented by it's corresponding software configuration. Now, the only way we know to effectively complement a hardware nuance is to anguish through the calibration and start-up of every system hardware component. If this is in fact the same perspective that a good Consulting Engineer can bring to the task at hand; we would stand corrected. Our point was intended to be that, as an Integrator, if you remain on guard there may be opportunity to recover some necessary project funds by supporting the overall software configuration effort with an infusion of your system hardware performance knowledge.

Nonetheless the bottom line is, the bottom line is your responsibility and the more you can do to improve it, the more you can do to increase your chances for a successful result. Ignore cost or show

irreverence towards it and your chances for an unsuccessful project will increase in a way that can only be detrimental.

Reason #8

**The SCADA system submittals were poorly prepared – or -
“ I don’t know what the hell they want, this spec is terrible”**

“Man oh man, I’d like to know what the heck the Engineer was smoking when he wrote this spec. It’s terrible, there’s nothing here but boilerplate. I’m going to have to second-guess at everything the specs are asking for.”

How many times do we have to hear these comments before it dawns on us that independent of how the specifications have been prepared; with the success of the project established as the Integrator’s responsibility, the submittal is your means to that end.

This seems like a no-brainer. Why wouldn’t every Integrator submit everything exactly as the project plans and specs call for it? Only for one of the most important reasons that exists between success and failure in the SCADA integration business. And that is; because the successful Integrator knows that the easiest way for any given SCADA integration to be a success, is for his submittal to be the best possible solution for the tasks at hand. It is the Integrators’ purpose and responsibility to use the submittal process to evolve the SCADA controls from what the specifications call for, into the system that the Integrator has determined will be the most effective for that given project.

A SCADA submittal should obviously reflect the intentions of the project plans and specifications. But a good SCADA submittal, the type of submittal that every successful Integrator depends on, this submittal will not only reflect the intent of the plans and specifications but it will concurrently place the Engineer and Owner on alert as well. A good submittal will make it vividly clear that the project’s SCADA system integration effort has been taken over and the buck now stops with you, the Integrator. A well-prepared submittal will be full of carefully thought out alternative proposals and methods, each intended to enhance some part of the SCADA system’s effectiveness, everywhere practical. The result should be alternative methods that open the door to cost effective choices, which in turn results in an overall better SCADA system.

Contrary to what some of you may be thinking at this point, a submittals preparation should first and foremost be for the benefit of the Integrator and not the Engineer. Obviously it has to stand the scrutiny of the Engineer’s approval process but more importantly it has to stand the scrutiny of the Integrators approval process.

Any Integrator that takes the time to prepare a SCADA submittal should feel 110% committed to its proposed methods of control and integration. We’re not talking here about good submittal practices such as precise detail, relevant data or clear easy to follow presentation – no – what we’re talking about is preparing the submittal so that it provides the Integrator with all of the detail and information necessary for him to do his job successfully.

The submittal process is where the successful Integrator takes advantage of the opportunity given to him, which is to provide the best possible SCADA solution for the project at hand.

Reason #7

**Submittals are returned APPROVED w/ no comments – or –
“Wow, I submitted everything perfectly. Hellooooo clear sailing”**

A sure way to be unsuccessful in the integration of a SCADA system would be to interpret an approved submittal that didn't have a single comment or notation on it, as a ringing endorsement of your engineering efforts. Unless you're physic, there is no way to be successful in the controls business without feedback. (Pun, intended) The submittal process is no different; a submittal only gets better with feedback. Submittals should never be engineered as static entities designed to stand solely on their volumous merits; submittals need to be interactive to be their most effective. Submittals have to be discussed; they have to be alternative and intended to solicit comment.

If the Integrator doesn't take time to meet with the Engineer to discuss his SCADA submittal he's guilty of doing everyone a disservice, as well as adding additional cost to the project and reducing the project's overall chances for success.

The usefulness of a submittal is directly proportional to how useful it is. (We love being able to arbitrarily make comments like this!) A submittal will be less effective and of less use, if the Integrator has not had an opportunity to review it with the Engineer. These submittal review sessions are the perfect forum to exchange ideas about the SCADA system at a time when every intention or interpretation is at its most supple and cost effective. Integrators need to take more advantage of the submittal process to insure that the most relevant aspects of the SCADA system have all been presented in a manner that affords proper review, discussion and resolution.

Once you've had an opportunity to discuss the submittal with the Engineer, you're left with the task of integrating his comments into what will become your final re-submittal document. It is this integration of the Engineers comments into the Integrators original submittal document where the transformation begins, the transformation of the submittal from simply useful to SUPER-SUBMITTAL, the single most comprehensive project document that defines the SCADA system and sets it squarely on the path towards successful integration.

You know, I think you caught me speeding just a little bit, we all know there's no such thing as a SUPER-SUBMITTAL. There's no such document that can be engineered to contain everything that would be required to insure the successful integration of a SCADA system. That's crazy! I mean isn't it? Isn't it too much to ask for???? Well, not if you're serious about what is that you want to accomplish. Not if you're serious about making certain that your SCADA projects are going to stand apart from others. When you get to this point, the SUPER-SUBMITTAL will be a must. You'll have to have it. You can't consistently complete SCADA projects successfully without it. The SUPER-SUBMITTAL.

Reason #6

**The SCADA system doesn't come together well - or -
“It was the electrical and mechanical contractors that screwed everything up”**

Every municipal project of any consequence will most likely go to the lowest bidder. This helps to insure that the Integrator will have no control over who is selected to handle the electrical and mechanical aspects of the SCADA systems integration. Therefore, if an Integrator does not feel the

compulsion to go out of his way and establish a rapport with the electrical and mechanical contractors, he's leaving the door open to a SCADA system installation that will be compromised, at best.

The contract plans and specifications are certainly a source of standards and usually provide some detail with respect to the installation of most SCADA system components. But they could never suffice in place of an Integrator who takes the time to address the proper and acceptable installation of each system component with the electrical and mechanical contractors. The best way to insure that the SCADA system components are installed to the Integrator's satisfaction is to prepare your submittal with the understanding that they won't be, and then spend your efforts preparing the submittal, accordingly. That is, to create a document specifically detailing every aspect of each instrument's electrical and mechanical installation as you've determined appropriate for the project. Then, to take the time necessary to present and review this information with the electrical and mechanical contractors.

Even though, the electrical and mechanical contractors are agents of the General Contractor, it's the successful Integrator who gains their respect and exemplifies himself into a position of authority when it comes to directing project SCADA installation efforts.

It is no longer acceptable for an Integrator to use the excuse that the electrical or mechanical contractor did a lousy job. Every contracting firm has a pool of what we can label good and bad talent. It's the Integrators responsibility to seek out whoever these individuals are and to insure that they follow his installation instructions properly.

Checking in on the electrical and mechanical installation, as it's taking place, will help to insure that you get what you want with a minimum of wasted effort. The Integrator that waits for all of the instruments to be installed and powered up before he sees fit to visit the site for the first time can be making a very expensive mistake. Especially, if everything you took your time to discuss and review with Mario never quite filtered down to Louie, who actually did the installation. His way!

Depending on the efforts of others places the SCADA system in a vulnerable position if everyone isn't working together. Therefore this seems like the appropriate time to speak a little bit about teamwork. Everyone pulling together and working together toward a common goal. Nowhere it is more important than in the combined efforts of the projects sub-contractors. Appealing to everyone's sense of teamwork can be an effective means of getting the results you need. Everyone benefits when you take the responsibility for the proper installation of the SCADA system components.

Reason #5 Ineffective or marginal calibration and start-up efforts – or –
“This is the 5th time I'm calibrating that damn flow meter”

Finally we get an opportunity to discuss a real SCADA system integration saboteur; the instrumentation calibration and system start-up effort.

Very seldom, does a project evolve conveniently into the calibration and start-up phase. Often instruments have to be calibrated in a piecemeal fashion and many times without the benefit of ever actually seeing them function in their particular application. This is to suggest that pumps may not be able to be started or valves may not be able to be opened and consequently the flow meter you spent your time statically calibrating, will never have had an opportunity to actually see flow. Without

actually witnessing the instrument in use, an Integrator should not try holding his breath when it comes time to demonstrate a flow type control loop.

A SCADA system that is predicated on instruments which have not been properly calibrated and exercised or that appear to exhibit operational inconsistencies, is of no use to anyone. The groundwork required to prevent the ineffective start-up of a SCADA system ripples through every activity the Integrator performs.

How reverent was he in his selection of system components during the submittal process? Did he take the time to closely examine and compare each instrument for its intended application? Is he confident his selection of instrumentation will achieve the intended results? Were the installation details well thought out and specific for the particular applications? Essentially, how well did the Integrator prepare for a successful instrumentation calibration and start-up of the SCADA system? The successful start-up of any SCADA system will be tremendously influenced by the amount of time that is spent in preparation of the pending instrumentation calibration and start-up effort.

Problems easily get out of hand during the start-up phase of a SCADA system's integration, and one of the best ways to prevent this from happening is to minimize their occurrence by preparing for them right from the very beginning.

Of course, any start-up effort will progress more smoothly if there is an instrumentation calibration and start-up plan that's in place. A plan that consists of Engineer approved procedures with checklists and signoffs that sufficiently document calibration details and performance specifics for each instrument. Every set of contract specifications will address the start-up plan and the methods intended for acceptance of the system. What they won't tell you about the instrumentation calibration and start-up plan is, that it better be on your mind early and in spite of what the specifications consider acceptable, it better be your best attempt.

Here are a few ideas that may help you during your next start-up and calibration endeavor:

1. Address start-up and calibration before you ever even consider purchasing an instrument. Make the issue of start-up and calibration as important as that of instrument cost and reliability.
2. Solicit the manufacturer's local sales or service representative to visit the project site and inspect each instrument's installation with you.
3. Know how and who to get in telephone contact with, from the manufacturer's in-house product support team. Contact them in advance of any scheduled start-up or calibration effort to make certain they're aware of who you are and what you're trying to do. Also make certain they'll be available to you while you're in the field, if in fact you do need their support.
4. Throw a digital camera into your tool bag and start to include more pictures as a means of explaining instrumentation issues during start-up time.
5. Having to re-visit an instrument five times is certainly going to hinder the success of most start-up efforts, but re-visiting a particular instrument on a different day, can often prove to be beneficial if your efforts have been resulting in frustration and confusion. Solutions sometimes incubate at deep levels and a fresh next day perspective could be all that is actually required.

6. Best attempts are usually made when the Integrator has sufficient time for all of the tasks at hand. Time constraints can make the simplest start-up problem overbearing so it's important that you have the time you need and that you use that time most effectively.
7. Most important. Prepare – prepare – prepare. Test – test – test.

Reason #4 Inability to ever get the SCADA system accepted – or –
“The commissioning team doesn’t know their amps from an ohm in the ground”

One thing for sure; you'll never be finished with a project until you get the SCADA system signed-off and accepted. Sometimes, not even then.

There can be a number of reasons why a SCADA system commissioning effort is unsuccessful. But primarily, they're unsuccessful because there are too many uncoordinated activities happening too quickly and the commissioning team has not been adequately prepared.

It always helps to keep things familiar when you're trying to impress someone. It benefits everyone when the Integrator composes a plan from documents that are already familiar to key individuals on the commissioning team. The contract P&ID drawings, the submitted loop drawings, the results of previous FAT demonstrations and any project specific issues should all be an integral part of the commissioning plan. Certainly it helps if the plan was reviewed with the commissioning team in advance of any testing and acceptable results were discussed. The Integrator should try and keep things familiar to everyone and he should move in steps that are fundamentally sound and reassuring to the commissioning team.

Now comes the real secret, the one that's been hidden away from view and learks behind the scenes of successful commissioning efforts; test and exercise the system extensively before you demonstrate it. Not just a wham, bam, thank you Sam, type of testing but a type of testing that is thorough and complete. A type of testing that bonds the Integrator to every aspect of a SCADA systems controls. A type of testing that burns the Integrators fingertips sufficiently enough to insure that the only conclusion the commissioning team can come up with is an acceptable one. (GOD, we love making these statements sound so profound!)

Invariably, a commissioning team will accept the SCADA system based not only on the performance of the commissioning effort but also on the confidence the Integrator exhibits during all aspects of the test. If an Integrator fumbles through a commissioning effort, he has no one but himself to hold accountable for a commissioning team that is hostile because demonstrations and results are less than acceptable. It is not so much the commissioning team's responsibility to accept a SCADA system, as it is the Integrator's responsibility to demonstrate a system that the commissioning team can accept.

If it takes more of your efforts and time to manipulate process circumstances for an accurate and effective commissioning of a SCADA system, then so be it. A successful Integrator needs to stay immersed in the knowledge that good results are the result of time spent testing the process. Nothing is as effective in the commissioning of a SCADA system as an Integrator who exhibits confidence in the wake of every potentially debilitating process situation. An Integrator the commissioning team can place their confidence in.

Reason #3

Plant operators are afraid to use the new SCADA system – or – “The operators are afraid to use the new SCADA system”

How many times have you heard this one? “The computer’s all screwed up. We didn’t even touch it and it like went crazy. Plus, we told the guy that we wanted a switch that would put everything back into manual when this happens”.

Actually, this has gotten to be a very old cliché because in truth, computer systems have emerged and gained the industry’s trust and acceptance as a viable way to control facility processes. What used to be the previously menacing problem of trying to get an operator to place his trust in the new computer system has already been greatly tempered for you. Essentially no one will object to a new SCADA system based solely on the fact that it’s a computer. Lets make sure we keep things this way.

The real issue at hand, the one that appears to rub an operator the wrong way is that no one may have taken sufficient time to educate the operator properly about the SCADA system. He feels alienated and acts accordingly. But is it your place to have to baby sit him just to make sure his feeling aren’t hurt? You already know what we’re going to say. You’re betting the success of the project on it!

An Integrator can never hope to be successful with out striving to improve on his ability to teach and inspire. In the business of SCADA system integration this translates into involving the operator early and earnestly. It’s a mistake to program a SCADA system without first having reviewed each of the process control loops with the plant operator. The Integrator needs to spend time identifying those things that present the operator with his biggest headaches and then specifically addressing them on behalf of the operator. The Integrator needs to remember to integrate the operator into the SCADA system and make him feel as important as he in fact will need to be. The Integrator should solicit the operator’s opinion on various instrumentation installation issues like location, accessibility and maintainability. The operator should also be involved during the calibration and set-up of the process transmitters and analyzers. Involvement is a key.

The operator needs to be made comfortable and confident with whatever interactions he’ll be required to perform to render the SCADA system effective.

Reason #2

Everybody bickers and work comes to a halt – or – “I’ll show those bastards they can’t treat me this way”

It is not uncommon for a Water Treatment Plant construction project to be comprised of a stubborn and demanding personality or two. There may even be more than one or two. Nonetheless, if these personalities are allowed to influence your integration efforts, your decisions concerning the SCADA system are being made on emotion and that’s not good.

If anticipated project payments, from the General Contractor to the Integrator, begin running slow and placing pressure on the Integrators cash flow and payables accounts; and if consequently the Integrator sees fit to hold up doing anymore work on the SCADA system until he gets paid, that’s not good.

If the Engineer makes an “It doesn’t matter what the spec says, you have to provide it anyway” type ruling against the SCADA system Integrator and the Integrator chooses to dig in and go to war over the issue, that’s not good.

All of these scenarios have sufficient leg to render a SCADA system integration unsuccessful. And not for nothing, they can all seem like very good reasons if they’re happening on one your projects. So how can you resolve issues like these that would sabotage a project and bring it crumbling to a screeching halt?

Never start a project without the knowledge that your best effort will always be made by completing the project and never by holding up the project. Under no circumstances should an Integrator ever hold up a project. It will only take whatever was a bad situation and make it worse. As unbearable as a situation may appear, it will be better served when the emotion gives way to reason and all of the necessary parties work together.

So, how do you move forward when personalities conflict, or project payments are late, or the Engineer becomes unreasonable? You find a way. You work through it and you move on. It might require a change in your attitude or your approach to project issues, but you find a way. Yours may even need to be an assessment of your own life style. How is your family life working out for you? Are your children well adjusted and providing you a source of comfort amid all of life’s turmoil? Is there time in your day to bring your spirit in balance with your purpose? You find a way. Sometimes it’s as simple as calming your emotions, resting your attention on a solution and allowing your natural ability to let you step forward and out of the chaos.

Inherently, SCADA project problems can begin for any reason. But, usually they become problems because they are overbearing issues and they need to be broken down to be resolved in a meaningful manner. Don’t be so rigid in your approach to any project impasse. Always, remain flexible. People will listen to explanations that have merit. If your position is supported with common sense and sound practices, it is immeasurably easier to proceed whenever you’re being challenged. It will be much easier to alienate your constituents, if your principles are sound and just plain make sense.

Reason #1 Lack of Commitment by the Integrator – or –
“Hey! This guy’s cheating us, that was Reason #10”

All of the reasons we’ve presented, for unsuccessful SCADA system integration efforts are legitimate issues and hopefully we’ve amused your interest in our presentation of them. But by no means can we examine these (10) reasons and think that we’ve done anything but scratch the surface. The game is still as they say; “a foot” and you’ll need to be aware of so much more. You’ll have to be capable of so much more. How are you planning to do it? What magical power are you going to tap into, that’s going to make you capable in every endeavor? Commitment, maybe?

Feeling good about your health? How’s your social life? Your golf game? My guess is they’re all a reflection of the commitment you give to them. Get your priorities in order and then get on about the business of successful SCADA integration and do so with a re-newed commitment. Do so with a commitment that sustains you through everything imaginable and everything unimaginable. “Relevant”

doesn't take a back set to "petty" when either of them are the reason for a SCADA system's integration to be unsuccessful.

Every project looks better architecturally, structurally, mechanically, electrically, and everywayly when the SCADA system provides the Owner with effective process control.

You're continually faced with choosing between good and bad or right and wrong. How do you do the good thing? How do you make the right choice? You do it by performing at your best, by preparing properly, by inspiring others to follow you and by committing yourself to nothing less than a successful endeavor. You go on a 6-month campaign and re-commit yourself to the values of successful integration. You know that nothing is as important as the entirety of the end product.

You've been afforded an opportunity, an opportunity that allows good people to do good things. This is really how success is achieved; good people commit themselves to make a difference, and they make the journey a pleasurable one for everybody. Does this sound like you and your projects?

The SCADA integration business is special. It's like no other part of the construction effort that goes on around it because nothing else has quite the impact that an effective SCADA system can have. Finally, we'd like to reveal the last quality that successful Integrators all seem to have in common, and it is this: they all have a passion and a love for their purpose that exemplifies itself in everything they do. Their commitment is not just to successful SCADA integration, their commitment is to success in life and they illustrate it in everything they do. In closing we entrust to you Good Life and Good Engineering. Thank you.