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Getting the Most from Your Software

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Learning Objectives

- Discover key CAD/BIM managers roles to fulfill
- Discover key training and testing procedures
- Discover key project management strategies
- Learn how to define key mission scopes to achieve goals

Description

You may have at times said to yourself, “We pay for modern software tools, hardware, implementation, and training, but I can’t help feeling that we aren’t getting all the productivity we should have.” In this session we’ll ponder why some companies succeed with new software while others flounder, and we’ll explore the key role the CAD/Building Information Modeling (BIM) manager can play in achieving the success that leads to high productivity. We’ll cover defining your CAD tools and finding technology accelerators, and we’ll also look at test piloting, training ladder methodologies, project management-based tool analysis, and the profound impact of mission management when implementing software. If you are responsible for CAD/BIM management, training, or project execution using CAD tools, you won’t want to miss this session.

Your AU Expert

Since 1991 Robert Green has provided CAD management consulting, programming, training, and technical writing services for clients throughout the United States, Canada, and Europe. A mechanical engineer by training, Robert has used many popular CAD tools in a variety of engineering environments since 1985. Robert has acquired his expertise in CAD management via real-world experience as the “alpha CAD user” everywhere he has worked. Over time he has come to enjoy the technological and training challenges associated with CAD management, and he now trains CAD managers via public speaking. Robert is well known for his insightful articles in Cadalyst magazine and for his book, Expert CAD Management: The Complete Guide (published by Sybex). When he’s not writing, Robert heads his own consulting practice, Robert Green Consulting, based in Atlanta, Georgia.

Foreword

There's an old French expression *"plus ça change, plus c'est la même chose"* that means (roughly) *"the more things change the more they don't change."*

This applies directly to what I've heard from senior management staffs about new CAD software ever since my first job as a CAD manager back in 1989. Here's what I hear every time:

- We've spent all this money on software but we aren't executing projects any better.
- It takes us way too long to get new software implemented.
- Many on our staff are dragging their feet on using new software technology.
- We just aren't getting the productivity we thought we would.

In 1989 these complaints were about AutoCAD and MicroStation while they are now about Revit, Solidworks or other software packages but the sentiment expresses is exactly the same.

If you read between the lines you can actually start to see that these complaints seem like they are focused at the CAD manager and the users. You can almost hear someone saying, "We've got the new software yet it isn't working like we expected and it can't possibly be the software's fault."

Tool Worship

The scenario of above illustrates a syndrome that many senior management staffs exhibit. I like to call it "tool worship" because the software (the tool) is placed on a pedestal and held blameless for its complexities while users and CAD manager are held accountable. Let me run through a few things I've heard over the years that indicate tool worship.

> *"We've got BIM now so all our designs will be fantastic."*
>
> *"Now that we've got a 3D printer we'll stop making design mistakes."*
>
> *"This software ware is supposed to be so easy to use we won't need training."*

My bet is you've heard similar statements right?

I've heard all of these more times than I care to remember. I don't know why anyone would think you could drop a new software tool into the middle of a company with no training, no learning curve time, no reworking of procedures with no upper management support and be successful - yet the tool worship mindset persists.

I've used the following example of basic tools doing big things and modern tools doing trivial things to break through tool worship with management teams on many occasions. Feel free to use this with your management teams.

Reality Check

When confronted with managerial complaints and tool worship mindsets I like to engage management directly while their frustration level is highest. My logic is that if you want to know why someone is upset about something it is best to ask them while they're still upset. I ask management staffs the following diagnostic questions:

- What did you think would happen in terms of software implementation?
- Did you really think no (or little) training would be required?
- How easy did you think the workflow transition would be?
- Did you assume that I, the CAD manager, would simply "handle" the implementation?
- Did you take into account how this software would impact employees? Customers? Project teams?

Using these questions to open a conversational dialog leads to the following conclusions:

- New software is harder to implement than you think.
- New software requires more time to win users over than you think.
- New software requires plenty of training.
- Customer and project management team's involvement is critical.
- CAD managers waging the new software battle need senior management backup.

Have you had these discussions in your company? With your senior management staffs? With users? With project managers? If not, you're probably frustrated and will never implement new software successfully.

My hope is by having this reality check meeting that you'll be able to jolt management out of their tool worship mindset and into a mode of working with you to do what it takes to make the new software really work.

Mission vs. Technology and Tools

Want to inspire greatness? Challenge your people with a technology mission and watch what they come up with!

Think you can't achieve greatness without the latest and greatest tools? Think again. Think that enduring quality can't be obtained without the latest computers? Again, think again.

Consider the following:

An Example: Failure

Lotus Riverside Complex
Shanghai
June 27, 2009

Modern tools, modern techniques, old fashioned failure!

Do great tools really guarantee great results?

An Example: Success

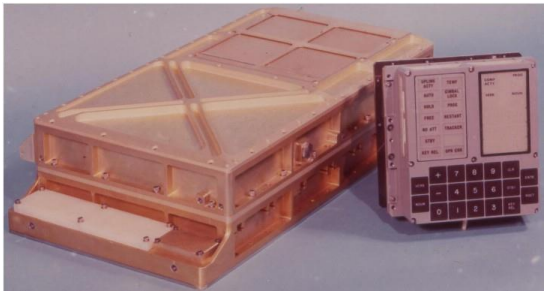
The Sphinx and Great Pyramid
Giza, Egypt c. 2540 BC

Primitive tools, unknown techniques, enduring quality!

Can great methods overcome poor tools?

Tools Follow Mission

Examples of technology innovation inspired by mission as contrasted with technology that doesn't inspire a mission. These examples illustrate that work teams often do their best precisely when they have to overcome challenges and cobble together technology solutions to achieve the mission:



Apollo Saturn V Guidance Computer

NASA, USA - 1967

Computer had 38K "Rope" ROM and 2K of RAM

Clock frequency of 0.0000002 GHz

Cost: $1,400,000 present value

Mission: To the moon and back

Apple iPhone 6

Apple Inc., USA - 2014

64 GB storage, 1 GB RAM, 1.38GHz dual core processor

Cost: $649

Mission: Check Facebook and post selfies

Technology Accelerators - Tools

How do you know which technology to pursue and which to bypass?

This question is vexingly hard to answer but answer it you must if your company hopes to maintain technological greatness. The simple answer to the question could be summed up like this:

Pursue the technology that can accelerate your business!

I like to apply the following constraints to any technology that I am considering for investment. You'll note that I've separated the list into "do" and "don't" categories to help you see the contrast:

Do adopt technologies that:

- Are robust enough to work under production pressure
- Cut man hours for known tasks
- Enforce standardization without user intervention
- Provide a work product that customers will pay for
- Support marketing efforts so the company gets more work
- Be aware, you may have to integrate to achieve the mission

Don't consider a technology

- Just because a vendor tells you to
- Because it is cool or the "it" application right now
- If you don't have the expertise to manage it
- If it would "undo" more than it "does" **It's only a tool!**
- Be aware that "off the shelf" is never "mission specific"

When considering new technology you must always look for the upside yet acknowledge the possible downside. And remember that if the technology isn't accelerating your ability to complete projects then there is no business purpose for adopting it.

Defining the Mission

What does all this mean for CAD/technology management?

Good question because we're not going to the moon. So how do you motivate people to achieve great things via a mission statement? First consider your language:

Don't say: We're going to learn Civil 3D

Do say: We're going to be the fastest, most cost effective, most client responsive Civil Engineering firm in our city/state which may mean we've got to leverage new tools like Civil 3D.

Don't say: We've got to go to BIM

Do say: To meet client demands and contract requirements we've got to figure out how to make BIM work for us.

Notice how the mission is to achieve a client goal or business objective NOT to learn a piece of software. Notice how the mission has challenging language using terms like "learn" or "leverage" or "figure out" so your staff understands that they must be actively involved in the process and that the process will NOT be an easy – just like last time – experience.

To summarize:

- Mission = Challenge
- Challenge drives tool selection
- Tools require learning
- Learning means constant change
- Constant change makes things incrementally better

Before Anything Else: The Pilot Project

It stands to reason that it is easier to implement a new piece of software with a few users than with many, right? I've always strived to prove how a new piece of software will actually work by crafting a well-defined pilot project that allows me to capture a great deal of information before rolling software out to the entire company.

What sort of information do I aim to capture? At minimum the following:

- How do my pilot team users like the software?
- Is the pilot team able to learn the software?
- How much training time does it take to learn the software?
- Can the pilot team deliver a final design with the software?
- Did the new software disrupt existing work processes?
- How long did all this take us?

When my management asks me - "Why have a pilot project? Shouldn't this new software just work?" – my response is always "Well, if there are problems wouldn't we rather find them on a small job with a few users just in case?"

There have been a few times where I've been bullied into implementing a new software tool to a broad audience without a pilot project and I've always lived to regret it!

What Did You Learn?

Armed with what you learned from the pilot project you can now provide a synopsis that might look something like this:

- Our pilot team has completed a 6 week project using <blank> software.
- We had to coordinate software installation with IT to install required server components.
- It took pilot team members 2 days of training to get started.
- We were able to deliver a completed project after working our way around several problems.
- The new <blank> software caused us to rework our 2D/PDF file output processes from existing project standards. We estimate that dealing with these problems caused most of the delays in our six week time frame.
- Ultimately the <blank> software will be useable given the right training and changes to our standards processes.

What becomes obvious to anyone reading the summary is as follows:

- The software didn't install itself.
- The software required training.
- The software was disruptive to existing processes.
- The project did not get done overnight.

If this doesn't negate the tool worship associated with <blank> software nothing else will. In my experience this is exactly how companies become aware of how expensive new software really is!

The Pilot Project Team

So what sort of CAD technology team will you need to accomplish the mission? Will team members need to have specific skills or should they be learners and innovators who can easily acquire specific skills? What are the attributes of a good team member?

To start our discussion let's talk about who you DO NOT want on your CAD team:

- Those who always defend the status quo
- Those who always rail against the status quo
- Those who refuse to learn new CAD skills
- Those who expect to be spoon fed training
- Those who refuse to modify their methods
- Those who freak out under deadline pressure

If they want to be on the CAD team yet they exhibit the characteristics above then you need to be honest and tell the person what your selection criteria so they have a chance to better themselves. Here's who you do want on your CAD team:

- Those who are committed to success
- Those who can learn and expand their skills
- Those who will self-learn due to curiosity
- Those who can adapt to new situations
- Those who thrive under stress or pressure

This team is ideally suited to being a core member of your CAD innovation team because they want to be there, they won't take too much of your time, they are independent learners and they actually want a challenge. No matter how your mission twists and turns and no matter what sort of tools and techniques you have to adopt to accomplish your mission these are the people who can help you!

Leadership Style

If you have the right people on your team your leadership style will have to adapt to manage the mindset these high level CAD professionals. CAD managers who make this leap tend to have these attributes/characteristics:

- They build a great CAD hardware/software ecosystems
- They inspires users to learn their tasks and tools thoroughly
- They know which CAD tools accelerate the design process
- They demands high quality work from all users via constant QC
- They are: Driven, calm, inquisitive, mentoring, conversational

Instilling Discipline

By discipline we mean making sure that great things continue to happen not an authoritarian concept of discipline. Remember that discipline is an entirely different thing when you are dealing with people who tend to discipline themselves – and those are the people you've strived to get on your team in the first place, right?

In this context discipline is really about the following:

- Keeping team members "on mission"
- Keeping team members focused on improvement
- Coordinating pilot projects and new tool/method adoption
- Making sure project milestones are met

If you plan for great, expect great, do pilot projects to achieve great and manage in a way that rewards great discipline starts to just happen. Your challenge is to function as the Level 5 Leader that maintains a sharp focus on great so no backsliding into good creeps into the organization.

Persistence

Big things can happen when you apply a consistent force over time. Greatness is the same way if you make the commitment to it.

So don't say: Wow that project went really well, now we can kick back.
Say this: Let's enjoy our success for the moment, but what is the next challenge?

Killing Tool Worship for Good

Using my pilot project and proving ground concepts you should be able to rid your senior management teams of tool worship and artificially rosy expectations for once and for all. Here's how.

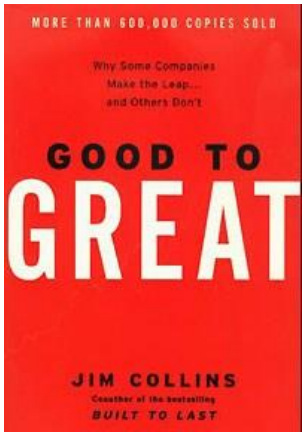
After your pilot project is concluded and you've documented your findings arrange a briefing session so you can report to your senior management. The key points to communicate are as follows:

- There is no Easy Button!
- This will require effort
- This will require training and standardization (which management must fund)
- This can work, but it won't just happen

As you have the conversation about new <blank> software and how it might be used in your organization stress the human factors (training, ramp up time, user hesitancy to change tools) rather than talking about software features. You're trying to make the point that the software tool will require effort to learn right – so keep the conversation on that topic as much as you can.

Recommended Reading

Good to Great: Why Some Companies Make the Leap... and Others Don't by Jim Collins



I can't recommend this book highly enough. Even though it isn't a technologist's book per se there is so much valuable insight into managing an organization that I've found it very compelling. During our session I will put a CAD technology spin on Mr. Collins' works in hopes that you find it as valuable as I have.

PowerPoints and Materials

You can download updated course handouts (with any additional notes or corrections) for all my presentations at my web site www.CAD-Manager.com on the **AU015** page immediately after AU concludes. You can find a wide range of information on customization, programming and CAD management elsewhere on my web site.

I will send you a PDF copy of the session PowerPoint presentation if you request it. Just send an email to me at rgreen@cad-manager.com and be sure to put the course title in the subject line of your message so I'll know which class you want.