

HOW TO ADOPT TECHNOLOGY IN CONSTRUCTION

1. Overview

- a. The world has changed. Technology is everywhere. The construction industry has started to move on the technology revolution, but it seems to have done so kicking and screaming. In this class we talk about the right and wrong ways to adopt technology in the construction industry and give you a step by step guide to proper implementation of any technology product.

2. Introduction and Welcome

a. Presenters

- i. Gordon Titus is a native of Northern Utah and Customer Success Manager at busybusy, a mobile time tracking app for construction based in St George, Utah. Gordon believes in identifying and thoroughly understanding challenges through the use of data. He believes that most often the best solutions are the simplest. He has worked with thousands of construction companies worldwide guiding them through the process of onboarding and implementing new technology. Having spent 15 years in the construction industry and 8 years in construction tech, Gordon understands the specific challenges that construction companies face when implementing new processes and technology.
- ii. Dustin Chapman- Third generation contractor. Grandpa was a superintendent that built churches, dad was a superintendent and Project Manager, I worked in the industry for a dozen years (eight with my father), starting out on a concrete crew ironically enough, before joining the construction tech world. When my father hired me at the GC I worked at he hired me at \$2 an hour less than everybody else in the company. My distinction between the three of us is that I'm the only one that is yet to literally lose a finger while working in the industry.

b. Why are we here

- i. To help you to better track jobsite activities to improve business and increase profitability

c. Today's Presentation: What to Expect

- i. Technology & Data in Today's Market
 - 1. We're going to talk about how technology is affecting day to day decisions on projects and influencing growth in our industry.
- ii. The Current State of Construction Technology Adoption
- iii. Best Practices for Evaluating, Adopting, and Supporting Technology Adoption
- iv. Creating a Culture of Innovation
- v. Question & Answer

d. What is the problem video

- i. Let's put our construction hats on for a minute and do what we do best, which is, problem solve. Construction folks are probably the best problem

solvers on planet Earth. Everyday we get to bridge gaps between the planned and the reality of what we find on jobsites.

- ii. In construction we tend to make the same decisions over and over again not necessarily knowing why were making those decisions
- iii. We go into businesses all the time and what we've discovered is that often times companies don't know what the problem is.
- iv. We don't know why we make the same decisions other than that it's just the way it's always been.
- v. In order to identify what the problem is, let's come at this from a slightly different angle- Let's talk baseball.
 - 1. Here's a clip from the 2011 movie Moneyball
 - 2. This is a PG-13 movie with a little bit of language, but we all know that PG-13 is what we find before we ever walk through the gates on a construction site.
- vi. https://www.youtube.com/watch?v=pWggy_rlmag
- vii. So Ladies and Gentlemen... What is the problem?
- viii. Billy Beene had limited resources and the A's had to make the most of those resources. How do we make the most of the resources we have?

e. Shovel/ Trackhoe

- i. Remember the shovel? We've moved on to powered excavators. That's technology advancement
 - 1. Could we still dig foundations with shovels? Yeah, sure, but would that be the best use of our resources?

f. Wheelbarrow/ Pump

- i. Which would you rather use to place a hundred yards of concrete? I don't know about you, but I'm exhausted just looking at that wheelbarrow.

3. Technology

a. In today's world, Data is King

- i. Data has changed the way we shop, the way we travel, and it's even changed our sports teams
- ii. We found an interesting study done by ESPN comparing all teams in professional sports and analyzing which ones are using data to their advantage and which ones aren't.
- iii. What's interesting is that there seems to be a common theme if you look at the teams that are near the top and the teams that are near the bottom
- iv. Sports (3 slides with team logos)
 - 1. Here are the teams the study says use data the most and here are the teams that the study says use data the least.
 - a. Do any of you see a flagrant trend among the teams in the top 5 and the bottom 5?
 - b. Top 5
 - i. Astros recently won their first World Series and built their franchise up in just a few years using data

- ii. The Spurs are considered the one of the best franchises in sports by many though they are located in one of the smaller markets in professional sports.
 - iii. The Curse of the Bambino was broken using DATA. The Red Sox have been on a tear for nearly 15 years literally using the data practices that Billy Beene pioneered with the A's. In fact at the end of the movie Moneyball they tried to hire him from the A's.
 - c. Bottom 5
 - i. What's interesting here is that a lot of these teams are big market teams. They have resources at their disposal, yet they don't win. Not only are they not winning, but often times they are the butt of jokes.
 - ii. Data is the equalizer here.
 - 1. In theory, there is no reason for the Spurs to be substantially better than the Knicks over the past 20 years, but here we are.
- v. Manufacturing Slide 70%
 - 1. Let's bring this back to Construction.
 - a. This graph on the screen is really interesting when you really dive into the data.
 - b. Many of you may not realize it but 1995 was a pivotal year for technology.
 - i. The release of Windows 95 was a revolution. In many ways it was the start of big data
 - 2. Manufacturing got into big data years ago
 - a. Boeing, Toyota, Lean Manufacturing. Their increases were all driven by data as you can plainly see on the graph.
 - b. What's interesting to me is that between 1995 and 2000 While manufacturing was at a nearly 20% increase in productivity, construction actually went down!
 - c. Even today 20 years later our increases in productivity are minimal.
 - d. Though we may not want to admit it, we may just be looking at the Spurs v. the Knicks here. Ouch!
 - e. Imagine what a 70% increase in productivity looks like in our industry. It's mind boggling to me.
 - i. Do you want to know how to change our economy in a magnificent way? Try increasing the productivity of every construction project by 70%. The results would be astounding.

vi. 30% Profit Growth Slide

1. This slide comes from our own customer data and shows what happens when companies have an understanding of their data and make good business decisions.
 - a. What we know is that companies can increase their year over year profit by 30% by increasing productivity through better data analysis
 - b. Think about that for a minute. What part of your current business model could you further develop that would allow you to realize a 30% gain in profit without adding substantially to your overhead?
 - c. How did you guys do last year? We are all in the industry together. How are you at the start of the year, going to maximize your profit? Because this is the year to do it.

b. Diffusion of innovation

i. Diffusion Slides - how the market adopts

1. How many by raise of hand have heard of the Diffusion of Innovation before today?
 - a. The Diffusion of Innovation by definition is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. What does this mean for our industry? I'll get there real quick.
 - b. The idea, and we see this over and over again in our world today, is that new ideas and technologies will expand slowly to start, but eventually it will gain speed.
 - c. It also explains how we as people operate in this spectrum. Many of you could think of what your tendency is along the diffusion of innovation path.
 - i. The innovators are the people that are waiting all night in line for the new iPhone.
 - ii. The early adopters are those that will wait for it to come out and go get it the next week.
 - iii. And the early majority are those that say this is pretty cool but wait for the price to drop.
 - iv. The Laggards are basically your grandma that who is still using her rotary dial phone.
2. So here is where we get to what it means to the construction industry. We are currently in the Early Majority phase of adoption and if we continue to follow the trend, it's here and it's not going away.

ii. JB Knowledge Report

iii. Phones

1. 90% of Construction Workers carry smart phones with them 24/7.

2. That's a 60% increase over 10 years.
 3. We have now reached critical mass in the industry and have reached our tipping point.
 - iv. Over the past 10-20 years we've seen lots of software come to the various sectors of the industry.
 - v. 10 years ago you didn't come to World of Concrete to see technology, NOW, there is an entire section dedicated to "technology in Construction"
 - vi. Activity Cost Tracking Apps collect Smart Jobsite Data
- c. Don't be afraid of technology/The Power of Technology
- i. The smart phone today will do for construction what the trackhoe did 120 years ago and what the concrete pump did 70 years ago. It will help you discover efficiencies to productivity, to scheduling and to estimating that will make your company more profitable.
 - ii. But keep in mind that implementation is a process. Discover your capabilities and even if it's uncomfortable, start planning how to bring these efficiencies into your business.
 - iii. Barrier to entry is very low.
 1. How much does a phone cost? Most cases minimal because most employees already have a phone.
 2. We have to stop looking at technology as a liability and think of it like any other tool on the jobsite. It's essential.
4. The Construction Technology Struggle
- a. Finding, vetting, and implementing technology for your company?
 - b. How strange is it that this is the case since the construction industry is full of processes but technology doesn't have a process yet. Let me ask, do you struggle when it comes time to qualify a new subcontractor or if you are a subcontractor you know that drill.
 - c. Workers are slow to adopt
 - i. The going opinion here is that guys aren't smart enough, we're here to tell you that's not true. It's more a function of habit, perception, and confidence than anything else.
 1. We often times joke that the guys that you think are the least tech savvy are the ones that know the Facebook app the very best.
 - a. They definitely know how to share details of their latest kill online (which often includes inappropriate jokes with it) pretty easily- so why not other apps They are problems solvers and they are always creating solutions with limited information and resources.
 - d. What many companies companies don't understand is that technology is changing at an accelerated rate and these days.

- e. No longer can we buy an ERP Solution and think that it's going to last us with ease for 20-30 years.
 - f. Your tech stack is basically your "collection" of softwares that operate your business.
 - i. Notice that we said software in the plural sense
 - 1. These products should be evaluated and reviewed for updates or changes every 1-2 years, similar to what you see cell phones updated.
 - a. The reason behind this is two fold
 - i. Technology is changing so rapidly that after 2 years a product could be completely different.
 - ii. Most tech companies- especially the mobile app-based companies, stop supporting older phones at 3-5 years.
 - 1. You may have seen this- if you pull out your iPhone 4 there's not many apps that will work on it at this point.
 - 2. Are we the same company today with the same technology needs?
 - a. We see companies that have grown from 5 employees to 80 employees during this last economic upturn.
 - i. The needs of a company with 5 employees to the needs of a company with 80 employees is VASTLY different.
 - 3. Are we getting the most out of the technology we already have?
- b. You've established processes around the work you do and you are going to have to establish process around how to find, assess and adopt technology.
 - i. Steps to Tech Adoption
 - 1. Find Technology Champions
 - a. First and foremost, the key to getting employees to accept technology is having internal support for it. Somebody has to spearhead the cause and they have to be excited about it, a Technology Champion.
 - b.
 - c. If you look at your organization, I can guarantee, that person is not hard to find. They're people that aren't afraid of reinventing the mousetrap. Many times this is not the person in charge of IT at the company. While IT employees are very important in the decision-making process they are oftentimes not the end user.
 - d.

- e. I've seen Technology Champions be young project engineers or old-school superintendents- the key is that they have the desire to push forward and learn.

2. Test The Product

- a. When I say this, I mean that it needs to go beyond pushing buttons in a product demo. Pick a group of your most "typical" users, supported by a Technology Champion, and ask them to test a product for a month or more, depending on the product.
- b. Give them two guidelines:
 - i. Find the best solution for everybody
 - ii. Give brutally honest feedback; positive and negative
- c. Letting them know that they're testing a product for a potential group-wide rollout will give them a sense of responsibility, for themselves and their peers, to do what's best for the company.
- d. At regular intervals in the trial follow up and ask your group for their honest feedback. Often times I've found that the negative feedback isn't so much a lack of functionality in the product, but rather knowing where that feature is within the product. Take the feedback and work with your representative from the product being tested and let them help.
- e. This process (Test—> Feedback—> Retest —> Decision) will enable you to make the smartest decision for everybody involved.

3. Top-Down Support

- a. Changing a habit is not easy. People have done things one way for years (decades even) and when you ask them to change their processes it's hard. Remember the change in construction from fax machines to email? Cell phones to smartphones? It took a while to be adopted even though the technology was available for years.
- b. One tactic that works is to have top down support. The more higher-ups in a company who encourage, support, and in some cases, demand that things change, the easier I've found the transition to be.
- c. On the flip side, if upper management doesn't, encourage, support, and demand the change, workers will be slower to adopt it. Increasing the chances of failure for the new technology.

- d. It's "easier" to do what you've been doing even if the old way is less efficient, takes more time, and ultimately costs money. Top-down support provides the needed motivation for employees to get out of their comfort zones.
- ii. Reasons for Failed Tech Adoption
 - 1. There are plenty of pitfalls to trip you up along the way but knowing what those pitfalls are will help you to plan for and avoid them. This is not an exhaustive list.
- iii. Smartphone Challenges
 - 1. Smartphones are another tool in your belt today. Needs to be used and valued as such. If guys don't have a smartphone there are ways to get around that. A lot of the reason for that is, not only do most people have a smartphone now but people's' skills and abilities have reached a critical mass.
- iv. Why Technology Matters
 - 1. Technology can give you the true story of what is happening in your company. A common practice that we see is people moving budgets around to make it look like they are on budget.