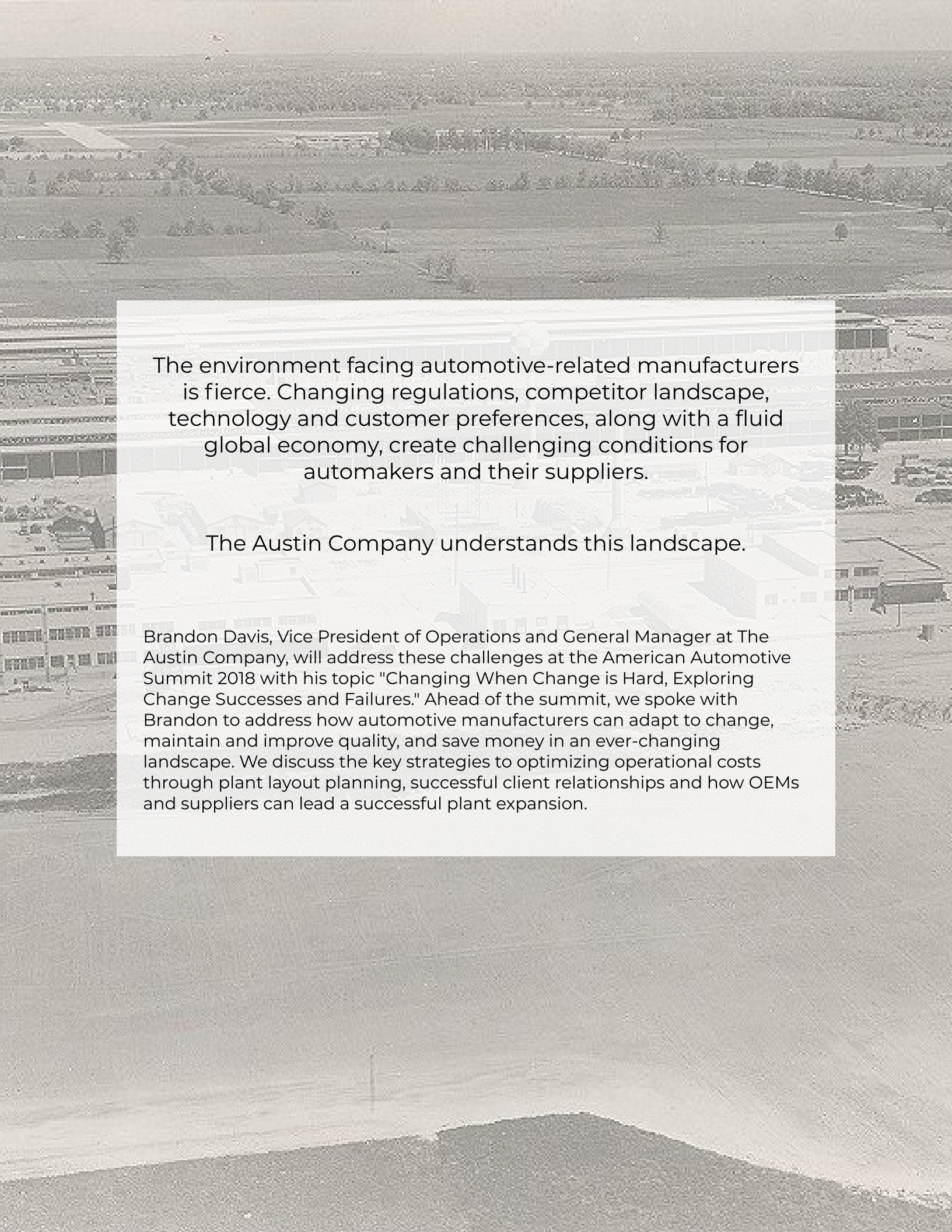
THE AUSTIN COMPANY

Q&A with The Austin Company



The environment facing automotive-related manufacturers is fierce. Changing regulations, competitor landscape, technology and customer preferences, along with a fluid global economy, create challenging conditions for automakers and their suppliers.

The Austin Company understands this landscape.

Brandon Davis, Vice President of Operations and General Manager at The Austin Company, will address these challenges at the American Automotive Summit 2018 with his topic "Changing When Change is Hard, Exploring Change Successes and Failures." Ahead of the summit, we spoke with Brandon to address how automotive manufacturers can adapt to change, maintain and improve quality, and save money in an ever-changing landscape. We discuss the key strategies to optimizing operational costs through plant layout planning, successful client relationships and how OEMs and suppliers can lead a successful plant expansion.

How can automotive manufacturing facilities decrease project capital costs through engineering and re-design concepts?

There are a few ways to look at reducing costs today, compared to how traditional automotive plants used to be designed and built. Throughout most of my career in the industry, we would build plants with what I would call 'oversized' structural steel. By doing this, we built in maximum flexibility for the plant, so equipment could easily move around and the plant could be easily adapted in the future, as much of the production processes were "hung loads" from the structure. As the industry has evolved, equipment has become lighter, many production processes can now be floor-mounted, and – in general – equipment has become more flexible and able to support different product types. In this setting, we are working hard in the production layout efforts to see what really needs supported from the structure and to design structures specifically for what is needed. That reduces cost of the facility construction and saves the use of our natural resources.

As it relates to flexibility for future production changes or modification, we have not seen significant issues that couldn't be addressed with the proper engineering. There are also, of course, sustainable approaches that drive decreased capital costs. We can collect gray water for reuse. We can capture process heat for reuse or cogen. When you're making things, automotive or otherwise, you have a lot of energy from parts, machines and the manufacturing process in general. You can use that heat or steam to generate power. We've done that just recently, where we have taken process heat and piped it to a different part of the facility, rather than having heating units. This all goes along with Lean Design and Construction practices, which we have adopted through following the lead of manufacturers like the automakers and their suppliers.

What are some key strategies to optimize operational costs through plant layout planning?

I worked on an automotive plant in Nevada where we harvested the rainwater. When the rain falls, rather than going into the gutters and splashing on the grade or into the sewerage system, we harvested it. You can put that harvested water in a tank underground and use it for irrigation and certain processes. Another way we have optimized operational costs, was through the concept of air modeling – identifying how the air moves around the

facility, locating where the hot and cool spots are, and optimizing the HVAC system in response. In San Luis Potosi, Mexico, for instance, I was involved with a project where we eliminated the heating and cooling systems altogether. The climate is so temperate in that location there are only a few periods of time a year where it swings one way or the other to the point of really needing those systems. For those periods of time, we worked out an airflow plan that allowed us to maintain reasonable temperatures without heating and cooling, simply using some basic air handlers, fans, vents and ducting of process heat. The first cost, capital cost savings, was millions and the operating cost benefits over a 20-year lifecycle were significant. Another re-think we recently completed on a project was related to chilled water systems. We backed off what was the "always do it this way" mindset and completely re-thought the approach. Through a re-design of the way we support the plant's cooling needs, we saved significant first cost, capital cost, expenditure. The back side of the re-design was a little more in on-going maintenance operating costs, but when we did a complete analysis based on a 20-year lifecycle, it resulted in a net $10M savings to the automaker.

How can automotive manufacturers reduce errors, improve quality and save money with a fully integrated BIM environment?

BIM (Building Information Modeling) allows the team to collaborate more and evaluate issues before construction begins. The truth is, BIM is a complicated topic. Most people take BIM to mean “3D modeling,” which is part of it, but just a part of it. When you start talking about BIM, it is important to try to understand it fully and recognise what aspects and levels of development and deliverables will benefit the way you operate. We have a person in our company specifically to help when our clients start down this path, so we can guide them along that journey. That being said, there are many benefits with the implementation of BIM on projects.

First, you can automate checks on the BIM design model, so if you run an automated clash detection, that process will pick up the issue and tell you. It gives you a report that says there's a problem. With that, you can catch issues early and solve them in the system. Previously, the only way to catch clashes was if someone was combing through different hard copy discipline drawings and caught the issue within the review of the different sets of drawings. In that setting, sometimes things would get missed and you would be dealing with the problem in the field, where fixing the issue is much more costly.

Second is as a visual aid. It is better to go into a review with non-technical people, such as production operations, business leaders and maintenance professionals, with a virtual model or virtual reality setting using a BIM model, than with drawings. On our projects, we prefer to meet with the operations and maintenance teams to walk through the model with them, prior to finalizing the design - especially with an existing plant. They catch a lot of stuff once they see it and say, "Oh, hold on. How am I going to get in there to service that valve and change that off the tank?" The 3D visual and virtual reality aspects of BIM help significantly for these types of reviews.

Third is laying in the process with various BIM tools. We can lay in air flows and model them to determine the best and most economical solutions. We can run process animations to see how things will flow and work through production. We can add pieces of production equipment or conveyors, set the throughput on the equipment, and model the entire production. We can see if there's a bottleneck before we’ve installed or purchased the equipment. We can run that graphically on the screen, as well as with a data output, which will show how the process is going to run the way it is laid out and if it is going to work.

What are the necessary steps to leading a successful plant expansion for OEMs and suppliers to achieve their target production date?

This is a big topic. At a high level, if you establish a clear scope and project charter, have good communications, select suppliers or contractors based on qualifications, and work in a collaborative partnering-type environment with your suppliers and contractors, you will have the best long-term project results.

As far as how projects develop generally? Typically, first, there is a demand for product. After an internal ROI analysis, manufacturers do what we normally call a “change environment form” – what is going to change in the overall process and operations? Then, there is an initial scope. This is usually done by the manufacturers, but they can also hire us for this effort. After that, there is a preliminary capital approval within the manufacturer’s organization, which covers operational changes, equipment costs and a rough project cost. Then, they get approval to engage a firm and that’s usually when they would engage a firm like The Austin Company. We begin with a preliminary design. We try to rapidly develop that with them and depending on the size of the project, that could involve a four to 10-week effort. Once engaged, we meet and the manufacturer explains what they’ve done around their process and responds to our questions. After that, we lay out the rest of the process. Once the organization ensures the estimate matches with what was originally approved, we recommend they approve us to go forward with developing the design. When the design is about 50% complete, we do an estimate recheck. Confirm the team is on track, that we're right on costs and have the right scope, and that we have properly prevented or managed scope creep. From there, we finalize design and begin construction.

We call this a stage-gate approach, and as far as making sure the project is successful, that is the right way to do it. It supports stages of investment, allowing the project to develop and confirm the cost and ROI before having to commit or set aside a large bucket of money. There are other ways to do it and variations on this approach, but in general, we believe a stage-gate approach, in whatever form it is done, is the best approach.

Aside from that, it's important for manufacturers to pre-qualify a short list of contractors they are going to partner with. As an owner or manufacturer, getting a sole partner you can trust and partner with results in the best long run project results. There are procurement rules, so if you can’t do that, then I would narrow down to three contractors you believe can execute the work, then bid it out to those three and select your partner.

How can automotive manufacturers drive rapid project delivery? What steps has the Austin Company taken to help their clients achieve this delivery, and what has the outcome been?

First, set up a partnering type of environment. No one wants to talk about it, but as an owner, your commercial and contracting arrangement with your contractor establishes the environment. Is it a lump sum or fixed price? Where the owner is shifting risk to the contractor? Is it a completely cost reimbursable scenario where, from the owner's perspective, you may feel the risk is all on you? Or is it some sort of shared risk/reward environment, like target pricing and shared savings models? In many ways, the contract and the kickoff – those initial several weeks of work, set up the environment for how you're going to be working. Establishing the right contracting model and the right partnering atmosphere, along with making sure you have clear communication channels, roles and responsibilities within the owner organization, is critical. Communication channels, roles, responsibilities, etc., should be done with the contractor, too, but a good contractor should provide that for you and for their team.

Next, for the owner organization, it should be clear who is the project leader, because many times that ambiguity can slow the project down – especially with large automotive OEMs. With large organizations, if you don't have a clear sense of who's responsible for what, things will bog down.

What steps have we taken? Austin has many long-term partnerships. That is our preferred model. For instance, our history with Ford Motor Company dates to 1921. In that partnering type setting, we talk openly, at the executive level, about ways we can improve, lessons learned and business topics. We focus on developing those long-term relationships. The backbone of those relationships is, of course, the delivery of results! Cost and schedule predictability is something we guarantee early in the project. It's something that differentiates us. We recognize the owner needs to make decisions and to move the project forward – and that every project nowadays is fast track. That's the environment the owner is in and we work to lock in cost and schedule early on and be partners throughout the process.

We also add value engineering ideas to the mix. Usually, the owner gives us preliminary design, or they have a basis of what they're thinking. We will have ideas that are different from what they're thinking “value engineering concepts.” Over the past two-to-three years, those concepts have saved a total value of about $20M on automotive projects executed by Austin. Austin’s engineering goal is to bring better ideas and value engineering to the table that results in project cost savings equal to or greater than our engineering fees. Since we design and build the plants, we can track the real impact of those engineering concepts. We achieved this goal last year, which means we essentially paid for ourselves regarding our engineering cost to the owner.

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Austin's team has more than 10-million square-feet of automotive-related design and construction experience over the past ten years alone.

We've been serving manufacturing since the late 1800s and the transportation industry since its early beginnings, supporting the rapid growth in automotive, aviation and railcar manufacturing.

In 1921, our founder Samuel Austin began a close working partnership with Henry Ford and Ford Motor Company. Since then, Austin teams have successfully delivered projects for nearly every major automaker and supplier operating in North America.

Austin's focus on manufacturing and industrial projects allows us to bring unique value as a business partner to this industry.

Find out more:

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