



The graphic features a red header with the 'RAILWAY AGE' logo in white. Below it is a dark navigation bar with categories: NEWS, FREIGHT, PASSENGER, MECHANICAL, M/W, C&S/IT, FINANCE, and REGULATORY. The main content area has a white background with the 'RAIL GROUP ON AIR' logo, which includes a red circular icon with a radio signal. To the right of the logo, it says 'A JOINT PODCAST BY RAILWAY AGE, RT&S and IRJ'. Below this are four portrait photos of the podcast hosts: Sonia Bot, Sheppard Narkier, David Sherr, and William C. Vantuono, each with their name printed underneath.

PODCAST: <https://www.railwayage.com/podcasts/notch-8-to-the-golden-run-right-decisions-right-time-right-authority-part-1-rail-group-on-air%ef%bf%bc/?RAchannel=home>

## Notch 8 to the Golden Run: Right Decisions, Right Time, Right Authority Part 1, From Sensors to the Boardroom

Sonia Bot, Sheppard Narkier, David Sherr, William C. Vantuono

### William C. Vantuono:

Welcome to this edition of Rail Group on Air, the podcast series brought to you by Railway Age, Railway Track & Structures and International Railway Journal. I'm William C Vantuono, Editor of Railway Age, and we have a new series for you. It's called, *Notch 8 to the Golden Run*, and we'll explain what that is.

We have Sonia Bot, who is the chief executive of the Bot Consulting Group Inc. Sonia is very familiar to us as a Railway Age contributing editor and is one of the more accomplished women in our industry. Sheppard Narkier, the Chief Enterprise Architect and founder of Candle Wall LLC, joins us. Sheppard is also familiar to us. He co-authored with Sonia the *Anticipating and Avoiding Unintended Consequences in Digitalization* in May 2021. And then we have David Sherr, who is the CEO of Evolved Supply Chain, which is headquartered in the San Francisco Bay area. David is making his debut in Railway Age.

So, this is a three-part series. Again, it's called, *Notch 8 to the Golden Run*. It's based on the book, a new book, *Dynamic Multi-Level Decisioning Architecture: Making the Right Decisions at the Right Time, with the Right Authority for Sustained Competitiveness and Relevance*.

In this series Sonia, Sheppard and David are inviting us all to step into a bigger story on how our industry evolves in the throes of digital disruption and other external forces. So, what's this bigger story all about? Well, it's really about the role that people play in decision-making at all levels of an organization. Sonia, Sheppard and David will reveal how decision-making needs to flow better upwards and downwards, tying the boardroom to the railroad yards, transloading facilities tracks, and the whole rail network and transportation ecosystem. The bigger story is about agency over your domain of control and how each stakeholder needs a better understanding of how to make the right decision at the right time with better and more focused knowledge. And enabling that allows people to apply their hard-earned wisdom to make better decisions with better and traceable outcomes.

Part 1 is *From Sensors to the Boardroom*. And with that, why don't you folks tell us something about yourselves? Sonia, let's start with you.

**Sonia Bot:**

Sure thing. So, I've played key roles in creating several strategic new businesses within corporations, as well as leading and guiding complex transformations worldwide. I have seen a lot, I've navigated through downsizing, right sizing, deregulation, SEC investigations, economic downturns, scale downs and scale ups, let alone work through one of the largest and very high profile global corporate bankruptcies in the world.

I love doing innovation and I have hands on experience in dealing with operational issues for all the key functional areas in a corporation, its customers, its suppliers, regulators, the whole ecosystem. I focus on issues that include the more difficult decision-making or issues where previous attempts by others have failed. And it's important to me that I enable organizations to deliver breakthrough results, along with providing them a foundation to continue to excel as the company continues to evolve and as the world continues to evolve.

So, one of the things that I love about the railroad industry is it's highly multidisciplinary nature. I just love complex systems and how they interrelate.

Now, on a lighter note, my favorite city in the world is Venice. And for me it's the ultimate embodiment of creativity and innovation. I'm involved in VeniSIA, that's Venice Sustainability Innovation Accelerator, and it's an international program that's been initiated by Ca' Foscari University of Venice. And it's a program that develops and tests new ideas for business and technology for achieving sustainable development goals, the SDGs. And on my end, I provide the North American perspective and innovations in the transportation ecosystem are definitely a part of it.

**William C. Vantuono:**

Thank you, Sonia. Sheppard, tell us about yourself. Welcome back, by the way.

**Sheppard Narkier:**

Thanks, Bill. And hello everyone, and thanks for listening. Sonia, you're interested in Venice. It is interesting and, and very relevant here because many consider it the launching point for innovation in, for modern western civilization back several hundred years ago.

So about me, I've been focusing on making technology the enabler business strategy. This is essential because technology and business landscapes have gone through multiple ways of disruptive changes

over the last 25 years. In that time, I've been CTO of a global consulting firm, chief technology architect of a global investment bank, a developer of real time market data and trading systems on Wall Street and chief scientist and co-founder of a startup that developed IP, which generated seven patents, including 27, which by the way, produced 27 x revenue when we actually sold it. All of those patents were related to advancing cloud infrastructure.

But most important to me and why I'm really glad about this podcast is that I grew up riding the New York City subway system as a kid in school, go to work every day, and New York City subway system is the biggest system on the planet, and the only one to run 24 by seven. The importance of a rail to a functioning society is fundamental value to me.

**William C. Vantuono:**

Okay, thanks. Sheppard. David, welcome to Railway Age Rail Group On Air. Tell us about yourself.

**David Sherr:**

Well, yes thank you for having us and having me in particular to introduce you to a Railway Age world.

Anyway, I've had a, a long and varied career in technology and business. I really appreciate what Sheppard just said about the importance of rail infrastructure while working on Wall Street. I commuted two hours each way for 10 years from Philadelphia to New York City, using Amtrak New Jersey transit path in the New York City subways. Before and after Wall Street, I did university teaching and consulting to Fortune 500 companies on systems and technology strategy. I spent five years as a CTO of a major financial services firm. I have done several stints as new industrial infrastructure entrepreneur, including my current venture in the Internet of Things and digital twins.

I am an innovator with expertise in predictive maintenance financial systems and systems architecture. I am named on seven patents. I own two outright. I've attained a PhD in computer and information sciences. I write and present at conferences and seminars.

I enjoy poetry and music and I fancy myself a want-to-be economist. Since I concerned myself many years with mechanisms of money, I further amuse myself and hopefully others. As an amateur photographer and filmmaker, I'm deeply interested in history and the ascent and descent of humans.

**William C. Vantuono:**

Well, you know, ladies and gentlemen listening to this podcast, I think these individual and collective depths of experience are, are really impressive. And the, the diversity here that you've described and, and, but really how you've come together.

**David Sherr:**

You know, it, Bill, that's what we're talking about. It's based on the wisdom we gain throughout our careers to date.

**Sheppard Narkier:**

Great point, David. Experience, my perspective, and I guess our perspective is the foundation of wisdom. It's interesting how our decisioning framework came about. The framework is our topic today.

Of course, we started with the convergence of two long standing silos, operational and information technology, OT, and IT, we realized that this convergence is the cornerstone of effective innovation in large complex firms.

We need this to meet the increasing impact of disruptive forces. The necessity to address this convergence led us to realize how visionary this change could be across a range of disciplines. From there, we connected a wide range of dots to unveil a much broader scale end to end systems. And that includes, you know, from the sensors on the ground in the field to the boardroom.

This approach provides a path ensuring integrity and traceability of each component in the framework. And we know that for us to be convincing to everybody, we had to be grounded. We had to make sure that our decisioning framework is actionable in each step. Here's the bottom line out of date, isolated data that lacks context, causes major analysis, paralysis. More on that later.

**Sonia Bot:**

That's right. And one of the things that I really like about this body of work is how we use wisdom for managing the exponentially increasing complexity gap that organizations are facing. And wisdom means seeing in the context of systems and root causes. So, with our approach, real time decision-making becomes possible from, you know, the sensors on the ground, sending the data, then information and knowledge through to the boardroom, while, accounting for the unpredictable external forces and the internal realities that organizations face.

Now we also realize that this approach enables senior executives to see something that is almost impossible to see without a sensor strategy. So, our approach allows the senior executives to have the ability to understand the effects that their decisions have on their organizations in a much shorter timeframe, rather than, the typical several quarters.

**William C. Vantuono:**

We make decisions all the time or else, really, we could not run our rail network. So, I'd like you to set the stage for why decision making in today's environment needs to be reexamined.

**Sonia Bot:**

Sure, Bill, I'll take that one. Organizations and industries they are subject to forces that require some form of response and require a change in how they operate. And I'm going to list you what these forces are because it's really important that we get an appreciation for them, right? Because, you know, this is reality. So, these types of forces include market, technological, economic, ideological, moral, ethical, legal, regulatory, political, governmental, psychological, sociological, weather, environmental and disasters, where they are either natural or non-natural. Yes, this list is long and it's also a really tricky one to manage. And we do need to appreciate this list because this is the reality that organizations that they are facing.

So, one of the things that we find is that most organizations are dynamic and they do respond to change. However, disruption to business models is rapidly increasing, especially for example, from new technologies. So, we do need to ask, do organizations respond effectively and fast enough? Are organizations using the right insights when making critical and strategic decisions regarding their investments into new capabilities? And the ability to confidently respond to this increasing wave of change requires reimagining how decisions are enabled. Now, one of the things I always say is, if a company only needs to learn to master one thing, then learn to master decision making.

**William C. Vantuono:**

Well, you know, I'm a journalist and I work with words. Decision is a noun as we all know, but there's a relatively new term, and it's called *decisioning*, which takes the noun decision and turns it into an action verb. So, David, tell us, what does the term *decisioning* mean?

**David Sherr:**

Decisioning is a term appearing more and more in business articles and blogs. According to recent academic publications, decision systems are making a real comeback because they can be made more practical and easier to use. And even as the data that these systems consume is increasing dramatically, most important are the operating processes of the system. We focus on the ecosystem for the decisioning process.

To put a finer point on it, we focus on the systematic discovery and on the definition and on the management of decisions that underly decision automation to help reveal new insights and more quickly and ease to making effective decisions. We use emerging technologies, AI in particular, machine learning and digital twins. However, Operational Technology / Information Technology convergence is the cornerstone of our approach. OT-IT convergence as we refer to it, enables making the right decision at the right time with the right level of authority and scope.

**William C. Vantuono:**

So, part one here is called, *From Sensors to the Boardroom*. Sonia, is this a new way of thinking in the age of IoT, the Internet of Things?

**Sonia Bot:**

Yes, it is. Bill. And executives must ask if their strategic and tactical objectives are being translated into the right actions through all the layers of management and operations with the right impact. The question here that's facing leadership is how to create a virtuous cycle of relevant decision making from the boardroom to the ground level and all the levels in between.

What's required is a timely and meaningful feedback loop in order to understand if the executive decisions are making a crucial difference quickly enough, plus those carrying out the of these decisions, they need to know that they have the right information to meet the objectives.

**David Sherr:**

That's right, Sonia. And I'd like to emphasize that real time insight changes every aspect of decision making from the boardroom to the ground floor. And every level in between. Real time or near real time input, such as from individual sensors, becomes part of the managerial understanding. And this managerial understanding will change approaches to operational tactics and overall strategy.

These improvements to sensory capability changes in organizations day-to-day operations. Within hours or even minutes. And in seconds, if robots operate autonomously.

Decisions are made with more confidence.

In turn, the increased ability to distribute accountable authority to all levels of the organization and across the supply chain partners means decisions are more aligned and relevant. Decision making is when and where it is needed. Just as important, this provides views into the organizations that are prepared to take full advantage of these new disruptive and transformative capabilities.

These capabilities include leveraging the exponentially increasing information and knowledge. This emphasis emphasizes the process that interconnects suppliers and partners and consumers and even disruptive competitors.

It transforms the ecosystem. Enterprise becomes enterprise that is becomes a holistic, easily communicating and smoothly operating system.

**Sonia Bot:**

Definitely, David! And I do want to emphasize that this opportunity is not free and it's not easy, especially for long established companies with an aging infrastructure and an aging operations portfolio that have technical debt. And beyond technical debt, there's also something called enterprise debt or enterprise drag. So, the real question is, do organizations respond fast enough and effectively enough in the right areas with the correct investments?

**Sheppard Narkier:**

That's a sobering point, Sonia. And you know, something that a lot of people have to think about. We've all heard and experienced the term analysis paralysis. The paralysis emerges from the fear that information and knowledge available to make informed decisions is lacking, contradictory, or stale. This creates uncertainty that ranges from the ground through every layer of management as it rolls up to the boardroom.

This is a complexity gap that stems from the belief that knowledge is insufficient. Most organizations have invested heavily in all manner of analytic and data gathering capabilities. Imagine the frustration they feel when they have those results and wonder why what they've spent doesn't add up yet.

Complexity is an inherent state of a large organization with many moving parts. The capabilities of the decision framework that Sonia and David just mentioned lay the foundation to reduce that paralysis, the increased use of sensor based technology and fine grained telemetry from interacting processes provides an opportunity to explore layers of insights that aid in decision making.

**William C. Vantuono:**

So, you know, I think what you folks have described thus far is the, maybe the 50,000 foot view or the control center's view the dispatchers panel. But let's drill down a bit. Let's get down to the track level. I'd like you to give us some examples of where this decisioning approach applies in the railroad industry. Sonia, I'd like you to start with

**Sonia Bot:**

Let's start with the area of precision transportation or PSR 2.0. We have companies that want to transport their physical goods. And the challenge today is that economic and business conditions are driving these companies to use more shipping modes and more complex routing scenarios. So, for example, and this is to transport their physical goods. So, examples of more shipping modes, you know, trucks for higher fleet, parcel rail, intermodal air, ocean, and more complex routing scenarios. This is across, you know, geographies and various regulations. So, these are the companies what they have to resort to because of their business conditions in order to transport their physical goods.

Meanwhile, the shippers and the carriers, they typically focus on their internal sphere and often are unaware of the impacts they have downstream or at their handoff points. So, for example, cargo ships handing off the railroads class one railroads handing off to smaller class twos and railroads handing off to trucks for the last mile.

So, what happens is that the end to end delivery goals become fragmented, and this fragmentation is an issue of complexity. This fragmentation increases the risk of not meeting obligations and not achieving the business goals. This fragmentation does highlight the importance of supply chain execution, convergence, and the ability to work together across functional domains such as merchandising, transportation, warehousing, and manufacturing.

**William C. Vantuono:**

Well, you know, there's a lot to it. You know, we've all heard the term silos in the rail industry. There's the mechanical silo and the communications and signals silo and the operations silo. And, you know, you've dealt, we've all dealt with this, I've written about it for 30 years. But if you look at the transportation ecosystem, trucking rail, marine air, you know, those are individual silos. And, I think what you're getting at here is you really have to break down the barriers between those silos and, and have everybody, regardless of what mode they are working in or managing to think in terms of an ecosystem and not think in terms of, well, you know, I'm a railroad and you know, I don't have to be concerned about what my truck partner's doing or what the class two is doing. It doesn't work anymore that way. And information seems to be the key to that. Sharing information,

**Sonia Bot:**

You're spot on. Bill. Let me just extend example a bit further into the context of supply chains and logistics. Let's keep in mind that materials, goods, products, factories, machines, warehouses, containers, vehicles, et cetera, they are all interconnected, and they do not work solo.

These days, supply chains are becoming unbundled and they're becoming customized and at the same time, the logistic structures, they're shifting to more specialized solutions that are customized to different customer segments, customized to different modes of transportation, and they're customized to different distribution networks.

And this industry is subject to very high visibility on the effects of significant and accelerating disruption due to a bunch of forces like the earlier list I mentioned, market, societal, environmental, et cetera, et cetera, just to name the few. And what's happening is that the supply chain and logistics industries, they're forging ahead in embracing the benefits that digital disruption brings in order to maximize value and to enable efficiency.

A key element of the solution is a real time decisioning framework that incorporates secure digital twins for mediating OT-IT convergence, while also leveraging the myriad of the new technologies like ai, machine learning, multi-cloud, Internet of Things, et cetera.

Closely coupled to this is what we call the Business Environment as a Service platform where providers and consumers participate in building and evolving and ecosystem over time and where they benefit by both providing and consuming the services.

On top of that, a unique value of our Business Environment as a Service platform is that once a set of forces, controlled chaos, you know, those, that list I gave you right? Uncontrolled chaos. Once this set of forces are discovered, the rest is the closed loose loop system. And more specifically, it's a control system with the feedback loop that is active. And this feedback loop presents the opportunity to control the chaos. Now, within this closed loop, organizations can assign their varying levels of authority to effectively execute what needs to be done to sustain their competitiveness.

And the good news here is that the staged investment in these new technologies can be strategically introduced so that subsequent phases can be paid for by savings obtained in the prior phases.

**William C. Vantuono:**

Trying to put myself in a customer's shoes, a shipper's shoes, I have expectations to be met. I have product that needs to be moved from point A to point B, and I want to have access to that information across the board and I shouldn't have to go to multiple platforms to find out what's going on. And I think essentially that's, that's what we're talking about here. It's transparency that makes for good service. That's what people expect these days. David, I'm sure you have an example.

**David Sherr:**

My example will take you into the railroad yards and transload facilities and we'll probably throw a bit of a curve ball when I talk about forklifts. Have you ever stopped and considered the impacts that seemingly run of the mill forklifts plays in operations?

Unpredictable failures and forklift fleets can cause substantial delays in accidents, remediation of and recovery from failures and accidents are a bottom-line cost. However, workflow interruption affects top-line revenues and incurs reputational loss. Top-line impacts are even greater and more significant than bottom-line costs for repair.

The good news is that the ways of operating become more expansive from unpredictable and widespread cascading effects of a forklift in trouble, as in present day operations to using internet of things sensor equipped forklifts as input to promote an entire analytics-driven decision culture. This is well beyond data and information extending all the way through to knowledge, wisdom, and the useful insights.

This solution requires a real time decisioning framework that incorporates secure twins for mediating the OT-IT convergence.

Even though I talked about forklifts here, you can apply the same principles to to equipment such as trucks or bulldozers or trains or tractors or rail engines. Each equipment category has its specific idiosyncrasies, but predictive analytics, safety and maintenance principles apply very universally. For example, we can use the same machine learning equation to predict mishaps using assets specific parameters for highways or railways or airport tarmacs.

**William C. Vantuono:**

Well, you know, we all know how vulnerable the supply chain is these days. How many times do we hear the word supply chain being used on even the general news? You turn on the news and everybody's talking supply chain, supply chain, supply chain, and it's very vulnerable, it's very fragile. So, I think what you're talking about here is using these AI tools using OT-IT convergence to keep it, keep tabs on what's going on. And you can put it within the greater context of what I said before that moving something from point A to to point B.

David, I understand that what you're saying here is you know, real stuff, you're talking hard assets here. Locomotives, highways forklifts. You own the patent and are deploying this in in your company, correct?

**David Sherr:**

That that's right. Right now, one of the areas that my venture is developing is in a Business Environment as a Service, which is a cloud-based system to support asset maintenance and safety for air cargo operations.

**William C. Vantuono:**

So, Sheppard, I'm sure that you have an example.

**Sheppard Narkier:**

Yes, I do, Bill. My example is about autonomous vehicles and all we need to do is remember our childhood with all those promising cartoons of the future, right? Everything that would fly, run you know, and you're sitting there reading the book while the thing goes, right? Well, it's not quite like that's, but railroads have a diversity of vehicles in their operation, clearly, obviously first locomotives in



the box cars, but also trucks for intermodal transport and all of the service vehicles operating on the track and the roads.

The way this thing has evolved is that the industry has divined about five stages for autonomous vehicles globally. All industries are really in the early stage two of automation vehicle maturity. Humans must be very diligent, especially in poor weather conditions. Autonomous vehicle manufacturers do have one top competitive priority. They want to achieve as close to level five autonomy as possible.

Now, this is a long, hard road and railroads need to work with what they can do safely. They may not be cutting edge in this case in some cases, right? Some of the challenges include the real time handling of a road weather and traffic conditions, as well as a state of a vehicle and supporting autonomous systems.

Let's, let's grasp the difficulty for a moment. The vehicle must understand and react to changing conditions in milliseconds. This requires a large deployment of sensors and cameras to capture and transmit data in nanoseconds. The processing capacity to interpret these diverse sets of data streams has to be very large and will be growing. Prediction and reaction algorithms must leverage the established wisdom of prior situations such as worker safety while fixing the rails so that the best judgements and tradeoffs are made quickly. But with time to correct, if possible, wisdom depends upon an embedded value system of priorities, this value system cannot be emphasized enough.

Decision making must include the discipline to test the potential for naive assumptions because naive assumptions are often made without the full base of knowledge and experience. And, and that would create situations where safety would be put in danger, right? And have negative impacts on the brand. The providers and everything else lives depend upon decision making. And as we know, not all corporations view that as a value. All of this must be placed in the context of how to invest in a strategy that creates the opportunity to continually state ahead of your competition.

**William C. Vantuono:**

You know Sheppard, I would think that for the rail industry it is a heavy lift, but if you take into account that railroads operate on private fixed guideways, so putting in automation and all the technology to enable that automation and to operate safely and protect the people out on the tracks, you know, roadway worker protection as it's called it's not easy, but I think it is achievable by the rail industry and, and as we know the industry is working on that, we definitely can say that railroads are traditionally a combination of industries and disciplines within themselves while working across complimentary industries and, and disciplines.

**Sonia Bot:**

That's right, Bill. Yes, that's right. And railroads do represent a classic example of vertical and horizontal integration. And vertical integration has long been the choice to boost the economies of scale.

**Sheppard Narkier:**

Yeah, that's a very interesting and important point, Sonia. The current state of disruption raises questions about how effective, heavy vertical integration will be going forward. When niche players are entering from adjacent markets to provide services and products that are highly specialized they also can pivot their offerings very quickly due to their smaller size. This is especially significant moment considers that the startup costs of innovation have dropped precipitously, allowing more adjacent style startups to enter the market. These number players can eat away at your competitive advantage slowly without getting noticed until it's too late.

**David Sherr:**

And we are entering an era of fluid systems where directed, well thought out, horizontal integration is a strategic advantage and focusing on the core business is what will win the day.

**William C. Vantuono:**

You know, Sonia, Sheppard and David, you know, what I see here is that you have something that's really compelling. I see that you are evolving the current thinking and strategies on digital business transformation from focusing on data and information where the thinking is today, to the promised land of applicable knowledge that our wisdom can use. Boy, that sounds almost religious.

**Sheppard Narkier:**

Yeah. <Laugh>. Oh yes, the gates Babylon. Exactly. So, right Bill. So, one of the primary roles of it traditionally has been the production of information from incredibly large diverse data sets. Sadly, by tradition, this information gets buried in spreadsheets or crammed into slide decks and PDF reports. We all know what that's like, right?

Occasionally some messaging massaging is done so that a bit of knowledge can be gleaned by the decision makers, but then there's a chance to apply some of that wisdom to it. The last final step is often so hard to accomplish.

So, a large gap exists between the use of information and the creation of knowledge that decision makers can apply to leverage that will leverage that wisdom form with the emergence of feasible machine learning, the use of rich graphing techniques and advanced visual rendering. The era of knowledge-centric decision making has been maturing over the last decade. This could help, but only it will help if the information and knowledge can be properly generated in time. And time is also a factor here.

The proliferation of sensor-based data has made the need for more timely and comprehensive knowledge creation, a strategic imperative because the ability to generate valuable insights is more accessible to a larger range of small, nimble players. Effective use of this technology is becoming a competitive advantage. The need to bridge that gap with greater speed is vital because if you don't do it, you will not be able to create the sustainable advantages and products to fend off unexpected competition.

**David Sherr:**

Yes, and if I may add to your point, Sheppard. Wisdom is earned through life experience. The largest impact wisdom provides is hard decision making amid pervasive ambiguity where information is not only incomplete, but possibly contradictory. Wisdom is knowing how to handle ambiguity, recognizing and managing the multiple possible outcomes from a set of operational events.

Sophisticated knowledge engineering can incorporate the arrow of time as it correlates to events to project probable future events. It is unlikely, however that such projections can include corporate values or reconcile conflicting projections. Knowledge alone will not be able to employ empathy to uncover the latent needs of the key stakeholders, employers, customers, clients, suppliers, and partners. Wisdom integrates the values and cultures of an organization, especially as it relates to its tolerance for change.

Culture also places a mirror against the ability to have multi-level and dynamic decision making. Because this requires changes to processes and skills while employing a safety net for people confidently to exercise their agency, wisdom must encompass these factors within any decision framework.

**Sonia Bot:**

That's right guys. And to emphasize the predominant thinking, the predominant strategies and the predominant implementation these days; they stop short at the information and knowledge levels where we really need to be including the level that integrates wisdom and insights in real time. And this is a gap that organizations need to close. And the first step is to account for this gap, particularly as organizations are modernizing their architectures and especially in this push for the digitalization of businesses and how businesses operate.

**William C. Vantuono:**

We have covered two areas here. Why do we care? And what is the urgency of this topic? In the next two parts of this series, we're going to delve more into the how and the reason is quite simple if you think about it. The how is a multi-year multidisciplinary journey.

**Sonia Bot:**

That's right, Bill. And we're really looking forward to the next parts of this series. We'll cover the journey. We'll start with OT and IT convergence, which is the overall goal, so that we can effectively build secure digital twins and multi-sided platforms, where providers and consumers of data and services can meet, and they add their unprecedented value. And we'll include how this must be reinforced with cyber security and a value based focus on system safety and reliability.

**William C. Vantuono:**

Based on those last few terms, their cybersecurity, system safety, reliability. These are terms that are endemic to the railroad industry. So, I'm really looking forward to continuing this series for you. What are your parting words for today?

**David Sherr:**

Well, I strongly encourage people to overcome the inertia in their organizations. This inertia is the bias to status quo. This is important because the next disruptor may not be obvious before it's too late and you are left behind irrelevant and unprofitable.

**Sheppard Narkier:**

It's no longer about finishing some large project and then you're done with all the changes you need to make. It's not about returning to that prior comfortable status quo either. You need to think about change being a continuous way of life, not just for new technology, but for changes and skills and processes that make everything possible.

I've used the following insight when advising executives over the last several decades: "The likelihood of failure is highest when embracing innovation. Yet the likelihood of embracing failure as the norm is highest when nothing ever changes."

Thoughtful directed evolution is the key strategic viewpoint. Moving forward baby steps can help. They can overcome the tendency to revolt against change. Small, understandable, traceable directed steps increase the likelihood of meeting expectation. They also lower the risk and cost from missteps. This tends to build confidence over time, making it easier to embrace future change.

**Sonia Bot:**

As I always say, we are in very interesting times in the railroad industry and with these interesting times, if a company only needs to learn to master one thing, then learn to master decision making,

**William C. Vantuono:**

I wanted to again mention the book, *Dynamic Multi-Level Decisioning Architecture: Making the Right Decisions, at the Right Time, with the Right Authority for Sustained Competitiveness and Relevance*, for a limited time. The electronic version is free to friends of the authors. A Railway Age audience is always a friend of our authors today. And I mean that sincerely. So, all you need to do is go to the website, <https://botgroupinc.com/featured-content> to download. And there are no forms to fill out. We keep it very simple following the KISS principle, right?

Sonia and Sheppard and David thanks so much for joining us on this Part 1 of *Notch Eight to the Golden Run*. I think a lot of you railroaders out there will recognize that term, and we look forward to Part 2. Thanks so much for joining us and have a safe day.

**ARTICLE:** <https://www.railwayage.com/cs/notch-8-to-the-golden-run-right-decisions-right-time-right-authority-part-1-from-sensors-to-the-boardroom/?RAchannel=news>



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