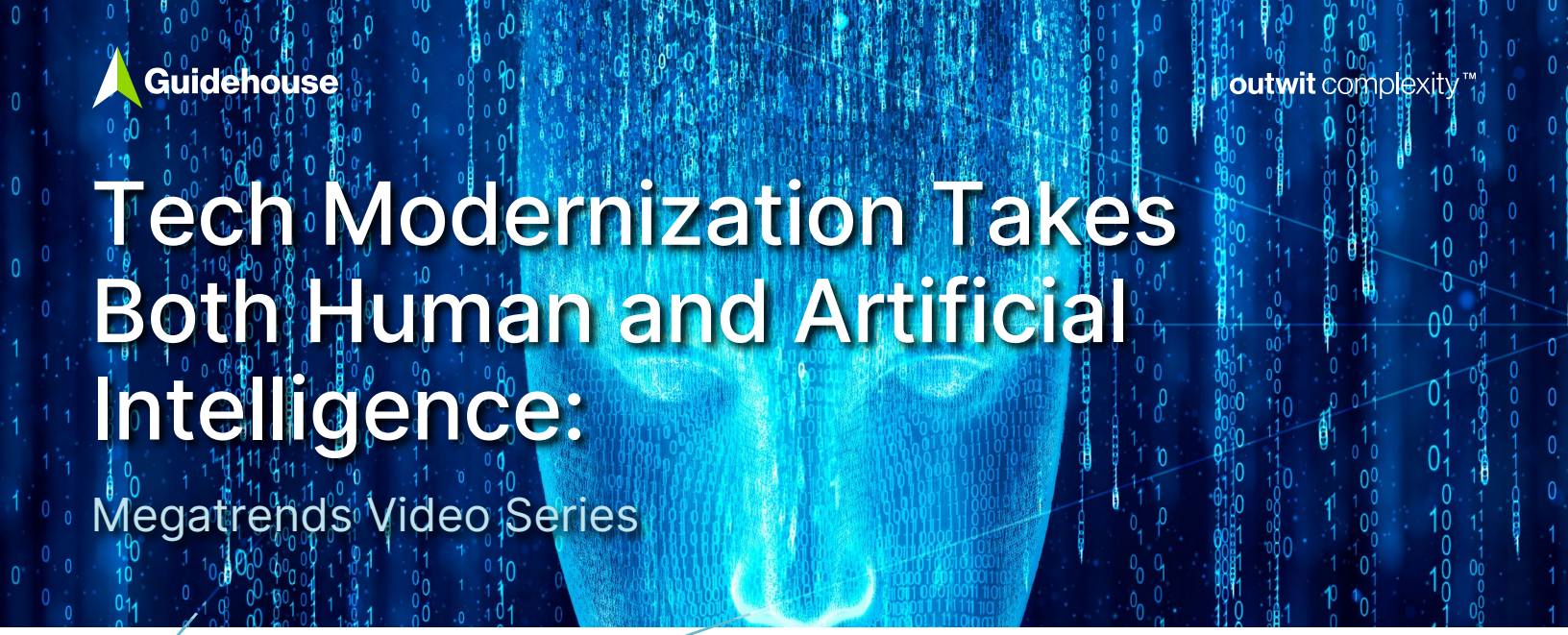

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Tech Modernization Takes Both Human and Artificial Intelligence:

Megatrends Video Series

Tom [0:09] Welcome, and thanks for joining us. My guest today are Irish each Roy and Brian Reynolds. They are both partners at guidehouse. And it's good to have you both with us today. Thank you. Our topic is technology modernization. And that is a big topic across the federal government across the commercial community that feeds the federal government. There's technology modernization funds, specifically appropriated by Congress, and the general sense that people need to somehow move past even what they put in during the II era, early electronic commerce electronic government era to where we stand now, and what a state of the art. So let's begin with maybe defining the term, what is technology modernization? Once you've gotten rid of your COBOL mainframes? Well, Tommy,

Brian Reynolds - Guidehouse [0:53] right. It's a broad topic. And it really focuses on the refactoring or replacement of legacy systems and technologies that are depreciated replacing them with new technology stacks that better serve the customer, and the agency's mission.

Arjeet Roy - Guidehouse [1:08] Yeah, and I think the extension of it is ultimately to provide better value for our clients investments. In today's world, agencies are involved in a lot of manual processes paperwork, which kind of adds to inherent inefficiencies in the process. And the ultimate goal of technology modernization is to help alleviate some of the concerns and shortfalls that lead from manual processes, right. So

Tom [1:33] there's really two sides to it. And one way you have depreciated equipment and networks and maybe older protocols. So you have to replace that anyway. But when you mentioned refactoring, that means you want to preserve some of the business logic that you had, even though you want to in a modern platform. But what are Zeitz added, I think is that you may want to add functions. And there's digital functionality that wasn't available, even for so if you're refactoring would be the beginning of it. But you need to add in some ways, fair to say, yeah,

Brian Reynolds - Guidehouse [2:05] it's not just about, you know, introducing technically feasible solutions or just automating processes. It's, it's really about providing an experience excellence. So understanding the customer's needs, understanding unmet needs, challenges, figuring out where we have resiliency, for example, challenges with the existing system and making those changes and those improvements necessary to not just replace what's there today, but to improve what's there today?

Tom [2:32] Yeah, and security and the business climate, those have all changed also. And so that's another mitigating factor in favor of adding functionality and changing functionality. Absolutely.

Arjeet Roy - Guidehouse [2:44] I mean, while doing this is a journey from our perspective, technology, modernization, where our clients and industries today, we see it as a maturity in terms of capabilities and functions that can be provided through this this mega trend that our clients can leverage ultimately, without compromising on cybersecurity on data on assets like futuristic AI generative technologies. Okay,

Tom [3:11] we'll get to that one later in the interview. But what I wanted to ask you about now is, I mean, in looking across your client base, you deal with companies that come to you, what are their pain points? What are the challenges? What's difficult about this, that you encounter, that they're coming to you for help with?

Brian Reynolds - Guidehouse [3:28] Well, I think the challenge is really come come from the multidisciplinary, you know, focus that's required to deliver systems today, you know, we certainly have had a, you know, an agile move movement here, and I think it's widely adopted now, but along with that has come a lot of capabilities and a lot of complexity. You know, along with those complexities comes challenges with workforce readiness. It comes, you know, we end up in a place where to deliver effectively, solutions, we not not only need to understand how to do software development, but how to do infrastructure development, how to automate the provisioning of infrastructure, how to build resilient solutions that have Dr. postures, you know, disaster recovery postures that are that are better than are necessary for today's mission. So there's a lot of challenges here. And those challenges come along with trends, right. So there's trends we see around low code, certainly around cloud but with those trends, there's the complication of delivery

Tom [4:25] or sheet

Arjeet Roy - Guidehouse [4:26] right and then just to see what we see today in the marketplace is a lot of effort goes into keeping the lights on existing older systems for our client base the the immense amount of money and efforts go into just making sure that things run and do not break. And in terms of their first equation, I think the value is stated in the value a lot of effort and value goes into existing systems existing processes, and hence our client base are not able to move value for value dollar for dollar they don't get the value to invest in technology modernization The aim would be kind of shift that paradigm to focus more towards technology modernization, and move away from running the railroad into more futuristic projects that can help them realize the value of their investment.

Tom [5:12] Yeah, so keeping the lights on kind of relates to the Dr. Disaster recovery. Lot of points in here, let's go through them a little bit. Let's start with Cloud. I mean, cloud, in the federal sector was a little bit behind cloud adoption in the private sector. But now pretty much everybody's cloud. The evidence of that is, look how many vendors are chasing after cloud business? You know, almost anyone that ever built a computer is now in the cloud business. And Cloud is a alternate hosting mechanism. But how was it also a modern design modernization effort?

Brian Reynolds - Guidehouse [5:47] Well, I mean, from my perspective, Cloud is the biggest single biggest enabler of what we're seeing today with technology modernization, or the or the promise of technology, modernization, it's providing the sort of elastic services, the scalability, the resiliency, we need, you know, beyond the services, and the, you know, the hyper providers are providing here, you know, what they're also delivering, I think, for the first time we're seeing in our industries is they're, they're delivering best practice, they're delivering lessons learned, they're delivering patterns. And so we have now at our disposal, the engineering excellence of some of the best minds, and they've not just their services, but how do we should how best to assemble those services. So I, I really do think for the first time through cloud, we're seeing excellence in infrastructure and an application development patterns, and not just products, not just services to be bought, but real discipline, real patterns and real intellect being brought to bear and shared with with entire industries and with the government. You

Tom [6:47] know, the question is, are they actually sharing it? Because sometimes they they are fiercely competitive with one another?

Brian Reynolds - Guidehouse [6:54] I think so. Yeah. I mean, my experience with the hyper providers is very balanced. And I think they, across the board are committed to excellence and continuous improvement and really have bought into some of those, those best management ideas. So it's not just about providing technology, it's really about providing, you know, a better customer experience. And and, you know, in a better cost point for those services.

Tom [7:16] Yeah. So that would seem to say then, that the idea of modernizing your data center, as some kind of a separate activity really need to morphin to make it emulate the cloud in all of those architectures and practices. Absolutely. I think,

Arjeet Roy - Guidehouse [7:31] at some level, maybe thought that cloud is just moving the data center from one place to another place. However, what to Brian's point, what is important is all the other services, the best practices, as well as what is important is a lot of stuff in it across the IT value chain can be very similar activities. And what the cloud has enabled is help businesses focus on the functionality that they want, and making some of the other activities in it more, I would say, easy to achieve. And focus, the focus has shifted more from you know, just making sure that I spin up a server or think of a system to move around somebody is there to take care of all those rudimentary stuff so that I can focus on building the applications building the solutions that I need for my business.

Brian Reynolds - Guidehouse [8:18] Yeah, I mean, I think cloud you know, to bring in an economic term newness or predictive productivity frontier, you know, the idea of what's the most value I can deliver with the resources that an organization has cloud, I think really is is a, an amplifier and accelerator of that, I think we're able to our organizations are able to through cloud, do so much more with the resources they have, and to maintain those resources to refresh and regenerate those resources and not be left with depreciated tech after just a couple of years. So, you know, they're shifting the focus from, you know, infrastructure, management to experience the experience of the user. And it's an I think that's really important. Sure.

Tom [8:57] And that I think, relates to the workflow force issue that you mentioned a moment ago, at one time, you know, your IT people, there's a time when they needed to know how to design systems that could swap blocks of code in and out of memory for virtual machines, because mainframe capacity was limited. The skills needed today, especially to use all of this cloud stuff seem so remote from that. So let me discuss the workforce issues as part of modernization? Well,

Brian Reynolds - Guidehouse [9:24] I mean, I think the cloud spark strategy, you know, several years ago pointed out really three, you know, perimeters for cloud adoption, you know, workforces the first, you know, trusted Internet connections was the third or second and then in security, postures of organizations were the third. So, you know, I, I do think the multidisciplinary nature of modern software development and cloud competencies is is an absolute factor in how productive organizations, both client and service providers, you know, are can be it's it is the limiter I think right now, and, you know, I think it will be for some period of time, that's why you see those sorts of resources in in such high demand.

Tom [10:03] Yeah, multidisciplinary means it's, it's, you almost need to have a philosophic or overarching approach, and not so much a technical approach. Purely.

Brian Reynolds - Guidehouse [10:15] Yeah, that's, that's true. I mean, in the composition of teams have changed drastically, right? I mean, it's, it's not just having folks who understand patterns for software development, but understanding the environments are deploying on how to take advantage of elastic resources, how to auto scale, how to make sure that the solution is resilient, and take advantage of those services that make it resilient. So it's, you know, it's, uh, you know, there's a level of smartness required to effectively deliver technology modernization that I that I think is unprecedented, honestly, and it's, I think, multidisciplinary in a lot of ways not just in technology, I mean, the way we approach software development now with CI CD, you know, continuous integration, continuous delivery, I mean, this is borrowing on the best practices of supply chain, or of, you know, factory concepts.

So, you know, you're seeing, you know, throughput accounting, which we use in, in, in Agile to make sure that we're delivering the best value with the least investment and with the least operating expense, these concepts, financial concepts, but now your engineers are cognizant of these things.

They're aware of them. They're not just working on and focusing on being technology engineers, but they're focusing on being, you know, purveyors of a new experience, a better experience and a more cost effective solution or experience. Yeah, it's

Tom [11:32] almost like switching musical instruments, you need to know what the capabilities and strategies and techniques of that new one are. And you can't bring what you had before to it really to be effective.

Arjeet Roy - Guidehouse [11:42] Yeah, absolutely. I think the workforce question is one of the biggest questions that we have to think about when it comes to taking advantage of some of these modern technologies like Cloud and from our perspective, I think it has to be two ways. One is internal focused where our agencies teams have to upskill themselves, to come abreast with some of these latest technologies. And second is to create, you know, the ecosystem of training and vendors, and participants who bring the best athletes strategy to people who can really actually deliver the work, and the paradigm of continuously learning and keeping ourselves abreast with some of these latest technology, because those are moving faster than anything that any of us could learn. All

Tom [12:23] right, we've got some more to cover. But first, we're gonna take a short break. My guest today are aerogenes Roy and Brian Reynolds. They are both partners at guidehouse. I'm Tom Teman, on the evolving complexity series, technology monetization, sponsored by guidehouse here on Federal News Network. Welcome back to the evolving complexity series technology modernization sponsored by guidehouse here on Federal News Network. My guest today are Irish heat, Roy and Brian Reynolds, both partners at guidehouse. And I'm Tom teman. And I want to ask you about artificial intelligence, because we've talked about so many of the big trends coming into it development and modernization. But the emergence of AI has really caught everybody. I think my surprise was how fast it's come on. And that was accelerated by not just the AI emergence, but the generative AI emergence. And it's not obvious how that can help in technology modernization, but it's starting to come into focus. So let me discuss that whole trend.

Brian Reynolds - Guidehouse [13:24] Sure. I mean, I'll take a Start Here. I mean, I think certainly, there's ample material evidence that shows generative AI is a creative to the software development process. So you know, developer productivity is or can be absolutely improved by the through the use of generative AI. And you know that that is especially the case when we're talking about jumpstarting or the draft writing of code or the refactoring of code. But there's, there's lots of uses for AI and lots of potential here for you. Yeah, AI, I would suggest a pedestrian use of it is just a generation of documentation around the code, inspecting a code base, and being able to productively generate code to help make that code more maintainable. Certainly, the examination of customer sentiment data, for example, and the identification of necessary features or operational changes is a is a perfect application of for AI. You know, I think it's commonplace today for us to use AI to examine observability infrastructure observability and application telemetry data, and make sure that we so that we can use the API to recommend improvements to our resource configurations or our service deployments. So these are these are three, three examples. A couple of others would be, you know, migration to the cloud, as we've talked about is a very important part of many organizations, efforts to remove technical debt and to modernize their estates, their IT estates, and so using AI to assess the code bases of legacy systems, assess their complexity, understand In dependencies and plan migrations is a good use. And of course, you know, the ability to regenerate code, a code base within a modern technology stack, you know, equivalent code in a modern technology stack is, is a is a practical use of AI, I would say, a guidehouse. We were looking past that. I mean, those are mechanical, I think, in some some degree. And we really are looking at how do we responsibly apply AI to change the Agile process? You know, if if I think I'm like many agile practitioners, and what we find is, you know why, while Agile is absolutely practical, and a useful way of approaching technology, modernization, it's also quite laborious, and demanding of some roles, for example, product owners, my experience is product owners often have another job, the ancillary responsibilities. And so you know, to the degree that we can alleviate the demands on a product owner by interrogating or inspecting a codebase, or existing documentation and generating the beginnings of our of our backlog, or to assess whether or not when we point stories and estimate how much work is involved. Whether that jives with sort of our historical experience delivering similar sorts of similar sorts of user stories is another use. So I think there's, you know, there's absolutely mechanical uses, but there are some process and cultural improvements we can make in the Agile process that come with come with AI. Yeah, that's really

Tom [16:28] a great list. And but there's a distinction I noticed in them. And this is my question. When you talk about documentation, for example, or, or documenting old code, which was my next question, you answered it already? Can this be applied retroactively to code that nobody understands anymore? That is turned into spaghetti over the decades? But that is generating language, English, in the sense of, of generating new code? It's generating code? So does the term large language model? Can the language be code as well as the English or whatever? You know, Chinese, whatever that language could be? Yeah,

Arjeet Roy - Guidehouse [17:10] yeah, it actually can be there are models today, there are tools today through AI, which are generating code, I think it comes down to the quality of the code, like Brian's point it as we look across the IT value chain, there will be activities, which are mechanical. And we think that the first users would be those low hanging fruits, when it comes to documentation or looking at a code base. The whole idea of generating code using code, which is AI, would be something that still needs a little bit of maturity, there are models out there that are generating good amount of code, it will come down to the complexity of the business processes, as well as to the points that were discussed in terms of the digital skills and the maturity of the organizations to use those AI tools responsibly.

Brian Reynolds - Guidehouse [17:55] Yeah, I mean, I mean, there's just in the last year, we've seen all the hyper providers deliver, you know, code development and solutions based on gender divide AI that are that are quite effective.

Tom [18:06] By effective. Yeah, so they're using it in the generation of their own

Brian Reynolds - Guidehouse [18:10] product. In other words, and they're offering it to providers who are looking to build solutions on top of their their services.

Tom [18:17] Yes. So this all points to this idea that you have postulated, and that is the industrializing of the technology, production chain, for modernization, because modernization exists in time, and nobody has enough money or time. So the less time you get that you spend, the less money you expend. And the closer and quicker you get to the value that our sheet mentioned earlier on. So discuss that idea of industrializing modernization, so that it's not so much of a craft process. It's so demanding, as you said, on people's time, which nobody has enough of

Brian Reynolds - Guidehouse [18:52] it. Well, I mean, I mean, I would say one of the things we do we guide houses, we really do look across industries, we do look at both the commercial and the government industries we serve, we take lessons learned from those experiences. And from that we are, you know, specifically aimed aiming at delivering standardized processes that are proven and that were right. So the best practices of commercial and government brought together in standardization. And by industrialization, we really are talking about a factory concept. You know, when when we go to a when we think about a factory, there are disciplines that have been long been in place, Six Sigma, for example, lean, that are aimed at reducing working process, reducing inventory, improving throughput, this is always done by removing process variability. Right. So we take the same concepts here. We are very dedicated to standardizing the way we go about technology modernization, removing the need for heroes on projects, improving the predictability of our delivery efforts, improving the reusability of the components that we that we deliver Automation, automating everything is sort of the focus for us. I mean, that's, you see that across industry with CI CD with infrastructures code, you know, this is, you know, this is a concept that's, that's been widely adopted today. So really, with by industrialization or the factory concept, we really are talking about standardization, creating the opportunity for reuse, creating the opportunity for, for automation, and importantly, measurement. So, you know, really measurement and knowing how well you're working, how productive you are, and making the necessary changes. Continuous improvement is a key part of that the same way as, you know, part of Six Sigma or lean or any of those sorts of concepts. I think, beyond sort of technical, you know, how do we improve the supply chain of software and technology modernization, the the shift in focus, you know, for our professionals is taking an economic view of what's built, making sure that what we deliver has the biggest or best value, that means we look at business value, we look at the risk, we can reduce, we look at the time criticality, we look at how much effort is required to deliver the solutions. We look at inspect and adapt metrics so that we understand how well does our agile process work? Do we have defects beyond what we expect?

Are we predictable in what we plan and deliver? Are we productive? Do we have good velocity? These are these are all concepts that are you know about managing with data. And that's at the heart of what we mean by sort of the modernization factory.

Tom [21:29] It's almost like software as the last domain not affected by the great Edward W. Demings. teachings is really what we're talking about here.

Brian Reynolds - Guidehouse [21:35] Absolutely. I mean, I mean, agile is absolutely based on lean, right? The whole idea of, of what we're trying to do with Agile is remove, you know, the wastes of Lean along the way. So it's, um, yeah, it's absolutely the Demings applicate application of Demings concepts average. Yeah,

Arjeet Roy - Guidehouse [21:50] and I think I think the single biggest thing on in the factory concept is the is the focus on quality, it is very difficult to come kind of the most difficult thing in software delivery is making sure that it is of the highest quality. And that is where, you know, the concept of moving away from processes to products came into being where the focus on software is to build a high quality product. The factory concept kind of kind of takes the quality concept into heart and all the items that Brian measure mentioned, kind of the ultimate focus is we want to focus on delivering or creating building software that has the best quality in the market that ultimately does not, you know, the quality does not depreciate with time that yeah, it's done correct, but then it's done Correct. Every time every opportunity is done right. The first time as well as all the other times that that our clients use the software.

Brian Reynolds - Guidehouse [22:39] And so the word is predictability. Right. That's what we're trying to produce here.

Tom [22:43] All right, great note to end the discussion on thank you both very much. I guess today have been average eats ROI and Brian Reynolds, both partners at guidehouse. I'm Tom Tim and you're listening to Federal News Network. For more on this discussion, please visit Federal News network.com and search guidehouse

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