



An exclusive collection of essays authored by Kris Oldland, designed to help service leaders understand the challenges our industry faces in a post-pandemic world...

Do we have to completely rethink field service as we know it?

Our industry has changed so fast in such a short period that it can feel like every aspect of how we work has been flipped upside down. Throughout the pandemic, there was consistent talk of adapting to a new normal as we came out the other end of generation-defining disruption.

In many respects, we are now there, and as predicted, much has changed, and it has changed for good. There is no returning to what went before. But what does this mean for us as service leaders within the field service sector? In an industry used to the constant shifting sands of ever-evolving work schedules, we have a habit of dealing with change in our stride. However, with so much changing around us, we need to stop and pause as we gather our thoughts on the most crucial aspects of field service operations.

That is what this white paper, published by Field Service News in partnership with ServiceNow, sets out to achieve. This paper intends to give you, as a service management professional, a catalyst for your own reflection.

As such, we won't be offering magic bullet answers- there aren't any. Instead, here you will find a collection of four short essays from Field Service News Editor-in-Chief, Kris Oldland, each based on an essential question about the future of field service.

Consider these questions a launchpad for your own journey of discussion as we collectively seek to redefine what field service is in this new normal we have been talking about for so long.

Of course, a significant part of service delivery and how we approach this new era will be aligned with working with next-generation technology providers who genuinely understand our industry. Our partner on this project, ServiceNow, is one such company, and we would like to thank them for supporting important initiatives like this that feed the discussion in our industry.

#1: What does the introduction of remote service mean in terms of our approach to service delivery?

We must accept that now that the glass wall that held back the widespread adoption of remote service delivery has been broken, remote service will become the dominant means of delivering service as a default approach.

This is, of course, a movement that has been a long, long time coming.

In 2015, speaking at Field Service Europe, I somewhat boldly told the audience in attendance that within the next decade, we would need to completely rethink how we approach maintenance and repair in our industry. My perspective at that point was based on three key criteria.

Firstly, we would face an ageing workforce crisis that would mean that we would no longer be able to approach service operations as we always had due to workforce shortages among field service technicians and engineers. *"The status quo,"* I stated, *"is broken, and we need to address this today to overcome the problems we will face tomorrow."*

Secondly, the technology I claimed was already emerging that would allow us to *"completely rethink our approach to service operations."* As I stated at the time, while comparisons are currently being made between the personal computing revolution and the more recent mobile and cloud revolutions, what is coming next is on an entirely different level. As the IoT and Augmented Reality technologies mature, we will see a very different set of models and approaches to service delivery.

"While computing, mobile and cloud all allowed us to work more efficiently within the same parameters we had always worked within, these new technologies will simply turn everything on its head. Our industry will shift, hugely to a proactive nature as a result of these technologies and that will mean huge changes in the very fundamentals of what service operations are."

The final point I made during this presentation was that the early indicators of the rise of servitization would only continue to gain more traction within the coming decade.

"Servitization," I claimed, *"will become increasingly prevalent, simply because it makes sense. It makes sense for the service provider who will see an increase in profit margins and it makes sense for their customers who will see risk moving from them to the service provider, which allows them in turn to focus greater efforts on their core business."*

Some 10 years on, I must humbly say that these statements seem remarkably prescient. However, the truth is that while we were indeed on the path towards that vision for the future of field service I outlined, until the pandemic, we were making slower progress than I, and many other leading analysts in our sector, had assumed.

Before the pandemic, a small number of organizations were pioneering a way forward in the vein I had outlined back in 2015. However, the majority of our industry was yet to follow in their footsteps, and even those who were taking these bold steps forward were often only doing so in small, localised trials.

However, we as an industry should be hugely grateful that such trials have been undertaken. Those organizations that had pushed the boundaries of service operations meant that when the pandemic arrived, both the technology and the processes that would allow our industry to adapt on the fly were already road tested and robust enough for rapid roll-out.

Now, as the dust of the pandemic settles, the most significant barrier in terms of remote service has been well and truly overcome. That barrier was the acceptance of remote service delivery from service customers.

Perhaps, understandably in the mission-critical world of field service operations, there was a heavy reluctance towards the seismic change from on-site, SLA-based service delivery to one where remote service becomes the default first layer of service to meet guarantees of uptime.

The argument has always been compelling. Remote service is, of course, better for the service provider in terms of overheads. Yet, the more important aspect of the equation was that it is better for the customer regarding the speed of service delivered.

Thanks to the sheer disruptive force of the global lockdowns, both parties widely understand this premise.

Following this shift in thinking in our industry, the need and desire for remote service will only ever increase as more and more assets will be designed with remote service in mind.

Indeed, a glass wall of acceptance of remote service has been truly smashed within the last two years, and there is no going back to that status quo that remained intact for so long.

However, the challenge we now collectively face as an industry is ensuring we do not throw out the baby with the bathwater. While on-site delivery may become less frequent, there will always be use cases where it is required.

Perhaps, more importantly, as we move to an increasingly digitalised mode of operations, the critical importance of being able to place a genuine subject

matter expert in front of our customers in a face-to-face environment is more crucial than ever.

Our engineers and technicians now offer a massive opportunity to engage with our customers genuinely. Ultimately, in an age of digital transformation, the value of on-site service operations is greater than ever before.

The proper discussion in our industry today, and the issue that all field service leaders should focus on today, isn't how do we replace on-site delivery with remote service delivery.

Instead, the more savvy organization is now grappling with how to align a service portfolio so on-site and remote can sit together. What does this mean in terms of technology, processes, and people?

These are the questions you must address as an organization as you move beyond the legacy of the pandemic and embrace a new world where our industry has remote service embedded as a fundamental part of our sector.

As the purpose of this series of essays is to prompt discussion and thinking across the industry, I shall leave you with a few questions for your own reflection at the end of each essay.

Further questions for consideration for you on this topic:

- How do you think your customers perceive the different value propositions of remote service delivery and on-site service delivery?
- What technological barriers are there for you to integrate remote service and on-site service into a holistic service portfolio?
- What are the process barriers that may prevent you from achieving this also?
- What would be the benefits for your organization to move to a remote-first default approach to service delivery?
- What would be the benefits for your customers if you were to do so? How would you outline these benefits to your customers?

#2: What skill set will a successful service engineer or technician need to have in this post-pandemic world?

The skill-sets of our engineers have been changing for some time, however, will the way we approach service in this post-pandemic era see even greater changes in the core attributes we are looking for in our engineers and technicians?

To address this question, we should first reflect on our response to the first question in this collection of essays – namely, we need to understand better how we establish a firm understanding of how our organizations will adapt to the sudden acceptance of remote service in our industry.

Indeed, when we stop to consider what the core skill-sets of our engineers in the future should be, a lot of this discussion will stem from how you set up the balance between remote service engineers and on-site service engineers.

As I touched on in the first essay in this collection, the technology for effectively delivering service remotely is much more mature than many might think. However, technology is only one of three key pillars of successful service operations, and we face far greater uncertainty within the other two pillars, namely process and people. How we approach developing robust strategies in each of these other pillars will shape what we are looking for from our future field service engineers and technicians.

In terms of remote engineers and on-site engineers, there are arguments for both roles being more senior, and a strong case can be argued in either direction. However, defining these roles and their interplay is a crucial first step in identifying the skill-sets you will need for remote and on-site service engineers.

For example, suppose an organization is moving towards an approach to service that is mainly remote-as-a-default. In that case, moving our most experienced technicians and engineers to a central location or potentially even from home may be more pertinent.

The thinking here is that without the need to travel to the customers' site, but instead providing their experience to their colleagues working on site, a third-party service technician or even the customer themselves, the experienced

engineer will have the ability to drive first-time fixes by being “dialed in” when the less experienced engineer on site is facing a challenging scenario that they do not have the deep knowledge base and experience to resolve on their own.

In such a scenario, we see many benefits and a clear understanding of what skills we may need from both our on-site and remote engineers.

From a knowledge perspective, those working in the field need to have a broad yet shallow knowledge set. They should be capable of working on and resolving the common issues on a wide range of assets. Those working as remote service engineers should have a deeper knowledge base, although potentially narrower – so they become true subject matter experts in their particular field.

An important benefit of adopting such an approach is that this allows for a path of progression for those engineers nearing retirement while also reducing the time it takes to get new engineers trained to a point where they become a productive part of the team.

However, other factors must be considered when exploring the skill sets required for on-site and remote roles in such a set-up.

From a soft-skills perspective, the remote service engineer must be a strong communicator and a patient tutor. This is important to consider as not all experienced engineers with the depth of knowledge will naturally have these skills, so further coaching, training and development in readiness for the role may be required. When we look to the field technician, good customer-facing skills are an absolute must.

Over the last decade, across a considerable number of studies both authored by ourselves via Field Service News Research and by other key industry analysts such as IDC, Gartner and Aberdeen, we have consistently seen the importance

of customer service as an indicator of a successful service operation. Nowadays, customer service is considered as necessary as technical metrics such as mean-time-to-repair, technician-utilisation and first-time-fix-rates.

However, an important point I have raised in several articles is that as we increasingly move towards a world of digital interactions, the physical in-person presence of an on-site engineer or technician becomes a hugely important customer touchpoint. Therefore, it is critical that our field service engineers and technicians have strong interpersonal skills.

There is a consistent train of thought amongst many service leaders that it is easier to train those with natural strengths in personal skills with technical knowledge than to train those with the requisite technical skills to become strong in the soft skills that are at the heart of excellent customer service. While, of course, there are those fantastic engineers that are natural people pleasers and have excellent technical knowledge, the reality is that the

In such an instance, this is where perhaps the optimal solution is to get the most experienced engineer in this area within your business on-site with the customer to resolve their issue as quickly and effectively as possible.

However, if an organization has transitioned to placing all of their most experienced engineers into remote support roles, how easy is it to mobilise the experienced engineer so they can return on-site to resolve this issue?

How easy will it be to cover the capacity they offer in the remote support team while they return to the field?

Will the engineer themselves be happy to return to the field, having transitioned to a remote support role?

Of course, none of these issues is insurmountable, and for many organizations, where the service and maintenance provided are less technical, and of lower value, then the situation may never arise.

For example, in the large home appliances industry, there is unlikely to be an issue as complex and causing a significant cost impact to the customer that might require such an intervention. However, in other sectors such as oil and gas, mining and aggregates, or aviation, such a situation is far more easily imagined.

One idea that I have been teasing out and trying to extrapolate in some of my work

in recent months has been the concept of having a senior engineer spending time on-site with a customer not just to provide service or maintenance on-site, but also to provide the customer with the benefit of having a genuine subject matter expert on hand.

Perhaps the engineer could offer an on-site audit of all of the customer's assets within his sphere of expertise?

This could provide the service organization with an opportunity to offer genuine value in their interaction with the customer while opening up the doors for cross-selling and up-selling in a non-confrontational way, genuinely playing to the field service engineers role of a trusted advisor.

Reflecting on the emerging structures of service operations, with the balance between a remote support team made up of more experienced engineers and a field service team with that broader yet shallower skill-set we discussed

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pragmatic approach of hiring for soft skills and training technical skills is perhaps the most optimal route forwards and also one that sits well with the introduction of remote service support.

Such an approach to balancing remote and field engineers certainly offers many potential benefits, not least addressing a growing recruitment challenge across our industry.

However, we shall explore another scenario that could see different criteria for those working in the field and those working in remote support.

Let us consider an instance where the service required to get an asset up and running quickly is more complex. Perhaps, an initial remote triage has failed to bring a resolution, and even with the support of a remote expert guiding them, the less experienced engineer on-site is unable to find the solution. The dreaded ‘no-fault-found’ scenario.

earlier in this essay, then perhaps this additional role of lead engineer offering a form of consultancy-led service approach could be embedded within the remote support team on something of a rotation basis.

The benefit of this is that it would also allow the capacity for having a senior engineer with deep layers of experience to be sent to a customer site in the more complex service scenarios, such as I outlined earlier.

Of course, there are multiple scenarios for each organization. As I've mentioned, the complexity of the assets being maintained in your sector will also impact how you approach the structure of service operations as we adopt

remote service more broadly.

The purpose of this essay, as it is with each of the essays in this series, is to prompt you, as a service leader reading this, to reflect on how the coming changes in our industry that we are seeing may impact service delivery in your organization, and how best you adapt to such changes to allow your service operations to flourish in the new normal of this post-pandemic world.

One thing is certain, however, that engineers are more customer-facing than ever, and this is true across both the remote and on-site service domains.

Further questions for consideration for you on this topic:

- A layer of technological knowledge, of course, remains important - but is a broader yet shallower skill set preferable or do deep-level, niche subject matter specialists suit your organization more, and why?
- Perhaps a blend of both types of technical knowledge will sit in your organization – in which case, what are the technologies and processes required for quick and immediate knowledge transfer when needed?
- How will the complexity of the service you provide shape the skill-sets you seek in your service technicians and engineers?
- What value does your organization place on the direct, face-to-face interactions that a field service visit provides?
- Is it easier for you to train technical skills or interpersonal skills and how is this reflected in your training, development and recruitment processes?

#3: In what ways is servitization most relevant? What kind of relationship do my customers now expect from me?

Having spent a decade building momentum towards servitization, did the pandemic make us realise this was a monumental mistake or is it the path that we now have to follow?

As I referenced in the first of the essays in this series, we've been moving towards servitization for a long time.

Indeed, last year, when giving a keynote presentation at the World Servitization Conference, I reflected on the fact that I had a front-row seat to the journey servitization has gone through.

That journey began as a small side discussion, usually held in the broom closet adjacent to the main stage at most field service-focused conferences, with just a handful of service leaders listening to the ideas of academics such as Howard Lightfoot, Tim Baines and Shaun West outlining the powerful impact of this forward-looking approach to service thinking.

Fast forward some 10 years or so, and I was standing on-stage giving the keynote presentation on the evolution of servitization during that period as a central theme of discussion to a room of well over 300 industry professionals and being broadcast online to many more at a conference dedicated to best-practices in servitization.

"The existence of this fantastic conference," I stated to the audience, "was a testament to the rapid growth in awareness of servitization as a concept and its impact on the manufacturing sector and beyond."

As anyone who will have followed my work, or indeed that of the many others in the servitization space for any time will be aware, servitization is by no means a new concept. The often discussed poster boy for the servitization movement, Rolls Royce, began its servitization journey with the introduction of power-by-the-hour way back in 1962.

Yet, within the last decade, we've really seen the topic of servitization completely break into the mainstream.

There were varying drivers for this shift towards advanced service strategies,

including some we may not naturally consider at first glance, such as a societal shift away from the concept of ownership towards an economy of outcome; or the increasing focus on corporate responsibility for environmental impact and the rise of the circular economy.

However, while the drivers for servitization were numerous and often a complex blend of differing external factors, the underlying factor for service organizations was that by introducing a servitized element into their service portfolio, they were taking on a greater share of the risk in terms of ensuring operational success in return for much deeper customer relationships and much longer and more profitable service contracts.

Ultimately, servitization can be boiled down to a risk/reward equation. While it may not be a suitable model for every customer within your client base, the reward side of the equation easily outweighed the additional risk for many.

Indeed, as I outlined during the keynote I referenced earlier in this essay, our own research had indicated across several separate studies that the number of field service organizations that had introduced at least some form of servitized offering within their portfolio was consistently increasing year on year.

"While I don't believe that a servitized offering is right for every customer," I stated, "I do think that within the near future, almost all service companies will at least have such an offering in place for those customers that are beginning to demand such solutions."

It was perhaps a bold statement, but it was backed up by empirical data across multiple studies and over a decade's worth of first-hand anecdotal evidence.

However, I also urged the audience not to shy away from addressing the elephant in the room, and it is one that you, as a service leader reading this essay, should also consider. None of us in the servitization space could have predicted the pandemic's once-in-a-generation disruptive influence.

The truth is that across the pandemic, many of the industries that suffered the most significant financial loss were industries that had largely embraced the outcome-based revenue model, which is often (incorrectly) used as a synonym for servitization.

Pay per print is a great model, for example, until we move to home-based working. Power-by-the-hour style contracts in aviation equally become obsolete when most planes are grounded.

Increasingly, I have been pushing against how we present the concept of servitization.

Invariably, the imagery used to illustrate servitized models indicates a path, journey, or series of iterations moving from the traditional break-fix approach to service through a series of stages to an ultimate endpoint of outcome-based service solutions.

In doing so, we can establish a broader range across our service portfolio, which can be more easily adapted to our customers' varying requirements and needs.

I recently had the pleasure of interviewing Christian Kundert, Services Growth Manager, Caterpillar, on stage at the Field Service Connect conference, where he outlined their approach to service contracts that are essentially comprised of 'do-it for me', 'do it with me' or 'help me do it myself'.

By developing a holistic understanding of the different needs of their customers, identifying the varying value propositions their customers may want to see from them, and leveraging technology and processes that can sit across these different needs, Caterpillar has established a model that I believe should be studied by any organization looking to develop a more advanced service portfolio.

Perhaps, most importantly, it is one that fully embraces Peter Drucker's concept of Outside-In thinking. It places the customers' needs at the heart of the design of the service portfolio.

One aspect of this discussion that has emerged since the pandemic first hit that I find particularly interesting is that as a result of the global lockdowns, the balance of the service provider and customer equation related to servitization has been inverted in some cases.

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We have seen some service providers walking back from their internal servitization projects to a degree as they pause to reevaluate their exposure to future risk that deep servitized contracts could pose. Simultaneously, on the other side of the equation, as we now face a global recession, service customers are far more open to the subscription-based payment terms of servitized contracts.

In answer to the second question of this essay title, 'What kind of relationship do my customers now expect from me?' I believe that the answer lies in authentic partnership-based relationships.

Partnership-based relationships are more open to sharing the burden of success. Partnership-based relationships are, by their definition, more robust and mature. Partnership-based relationships are at the very core of everything that makes servitization work.

However, transparency and trust are needed on both sides for partnership-based relationships to work.

Fortunately, as we enter into an era of data abundance, as we shall explore in the final essay of this series, the building blocks for the foundations of such trust-based relationships are already in place.

To conclude, as, with all of the essays in this series, I shall leave you with some further questions for reflection for you as a service leader within your own organization:

Further questions for consideration for you on this topic:

- How has your approach to servitization been impacted by an understanding of where the customer sees the value proposition of the solutions you provide?
- What strategies are you using to develop opportunities to co-create service offerings with key customers?
- Does your organization see servitization as a journey towards outcome-based services, or does the Caterpillar model as outlined above hold more significant potential?
- How many of your customers have you asked the question – what is it that you wish to see in our business relationship?

#4: How do we find the balance between drowning in data and operating in a data driven world?

As we move into a new era of field service operations, data is undeniably set to become the single most important tool of modern service operations.

My position on this particular line of thinking is very straightforward. Put simply; I am of the opinion that those who embrace data-driven field service operations will flourish in the new world.

As for those that don't? I believe that no matter how robust their processes are, no matter the strength of their brand and the loyalty of their customer base, without an effective data strategy, they will eventually be overtaken by more forward-looking competitors.

To put it as bluntly as I can, data will be at the heart of success in our industry – essentially, it already is. The journey our industry will take to being a data-led sector already began some time ago, and for those organizations who have yet to realise this, time is now starting to run out.

Yet, there remains a critical paradox that has ensnared so many field service organizations. This is because while they see the vital importance of data in the future of their service operations, in the face of the tsunami of new data being created each year, they cannot even begin to comprehend how to find meaningful and actionable insight from it.

If we look at the data created in zettabytes per year, there will be an estimated 97 Zb this year. This is compared to 6.5Zb, created only 10 years ago in 2012. Further, estimates suggest that the amount of data created in 2022 will almost double by just 2025 to 181 Zb. Source <https://www.statista.com/statistics/871513/worldwide-data-created/>

Current data growth is genuinely exponential and comes with a truly revolutionizing power to transform our industry. Yet, with so much data being generated, it is little wonder that many field service leaders find themselves frozen like deers in the headlights with no idea what to do with it all.

I suggest the starting point for this discussion should be to identify how data offers value.

The common phrase often dropped into conversations when this topic comes up is that data is the new oil. At times, both in my writing and when discussing this on stage at various conferences, I pushed back a little on this metaphor. My reason for doing so was that, in and of itself, data has no inherent value. It is just numbers on a screen – and increasingly so, an incomprehensible mass of numbers on a screen that can quickly overwhelm us.

However, the more I gave this position thought, the more I realised that actually, while it is casually thrown out as a smart soundbite, the analogy to oil and data holds the more closely we examine it.

The primary purpose of the statement is, of course, to highlight the value of data. We naturally think of oil as a valuable commodity, and those that put forward the metaphor are generally trying to alert us to how valuable data truly is. Equally, for the last 100 years, our global economy has been built around oil, and data certainly has the capacity to sit at the heart of the worldwide economy and play a central role in the industry in a similar manner.

However, for me, the lightbulb moment was when I stopped and reflected on my initial pushback that data in and of itself held no value. Like oil, raw data doesn't hold any value. It requires processing and refining. Data, in and of itself, offers us very little. However, when we can begin to interrogate that data effectively, we can draw insights, and we begin to see some value.

It is the next step where we can start to see a layer of value that aligns with the grandiose statements such as those I placed at the start of this essay. That next step is to turn those insights into actionable, data-driven strategies both on the micro and macro level within service operations and beyond.

So the question that sits at the heart of this digital transformation we as an industry are going through could be boiled down to the following challenges:

- With so much data being created, how do we define what data will potentially hold the greatest value for our business moving forward?

- How can we extract insights that can lead to actionable data-driven strategies from the vast amounts of raw data we now generate?
- How do we integrate these new data-driven actionable strategies into our processes while still managing the mission-critical nature of service operations with limited disruption?

I would put forward that when faced with what, on its surface, is a highly complex challenge, i.e. to find the aspects of data that can be refined into valuable, actionable insights while facing a deluge of data, then the approach must be reverse engineered.

Finding a needle in a haystack is challenging if you do not know what the needle is made of or looks like. However, when we change our task to searching for a metallic object amongst a large cluster of organic material, we can apply the right tools to achieve our job much more efficiently.

“I would put forward that when faced with what, on its surface, is a highly complex challenge, i.e. to find the aspects of data that can be refined into valuable, actionable insights while facing a deluge of data, then the approach must be reverse engineered.”

Similarly, if we are to work back from our end objective, we can identify the type of data we need.

Let us take a simple hypothetical example of a train operator who wants to minimise delayed trains. This is their top-line objective.

One of the most common failures that they face is automatic door failure. So better diagnosing this potential fault ahead of failure becomes a secondary objective within that top-line objective.

Across their fleet of trains, sensors on their automated door mechanisms identify how quickly a door opens and closes. The train operator can now

interrogate this specific data set across the fleet to see the standard parameters for door opening and closing timings.

If they were to map this data set against mechanism failure, they would be now able to predict how soon after falling out of the standard parameters the automated closing mechanism will fail.

This simple interrogation of two data sets allows them to generate a predicted mean time to failure on a common fault that is a barrier to their top-line objective.

Great. This now allows the train operator to have a clear window of opportunity to bring the train out of operations at a convenient time ahead of failure so that the door mechanism can be serviced before it fails. This allows them to shift their workflow to become more centered around predictive maintenance rather than the more disruptive break-fix, allowing them to nudge the needle in

the right direction for their top-line objective.

But let's expand a little further on this hypothetical example.

To keep the example simple, let us work on the principle that there are two common causes of failure – one electronic and one mechanical. We can explore the data further for each of these issues.

Let's say that when the failure is mechanical, the rate of delay in the door is observed throughout the whole transition of door opening (i.e. so the entire process is slightly slower). However, when the failure is electronic, the delay

in the door opening is front-loaded, so there is a momentary pause where nothing happens, and then after that pause, the door opens at its standard rate.

Now for the sake of the example, let us assume that the electronic fault is a straightforward fix, perhaps a firmware update that can be completed within 15 minutes. While the mechanical fix is a more complex undertaking that requires the door to be removed and bearings replaced. This job requires two engineers to physically remove the door and takes an average of an hour and a half.

By interrogating the data further, so they have an even more detailed understanding of the problem, the train operator can now make a further strategic decision. They know from the sensor data on the opening and closing

speed of the door that the automated closing of the door will fail within a set period.

By applying an additional degree of operational knowledge, they can now also identify with a reasonable probability that the fault is likely either electronic or mechanical. If it is the former, the maintenance can be completed within 15 minutes, and the maintenance could be undertaken while the train is in station at a terminus point as there is a 30-minute turn-around before the train needs to depart in the other direction.

Strategically, the train operator can make a decision based on the insight derived from the data, which significantly reduces the chances that the train will need to be removed from service to resolve this future fault. In turn, this reduces potential operational strain on the fleet, making it easier to achieve their top-line objective.

Now, this is, of course, a hugely simplified example. Still, it illustrates how working back systematically from the top-line objective to identify multiple secondary goals that allow for success in the top-line objective can give us a route towards identifying what data we need to search for in the vast data lakes we now own.

With this in mind, I believe that for effective data-driven service operations, we must have insight from both sides of the aisle- data team and engineers. We need input from our engineers in terms of understanding what the common things to look for are.

In our example above, I am sure most service leaders reading this essay could picture at least one of their engineers who would be able to look at the door closing slightly slower than normal, perhaps imperceptibly slower to our layman's eyes, and know not only that the door was beginning to fail, but also the likely cause of that failure (or of course a similar scenario with the assets within your install base).

That level of deep-tribal knowledge is, as we all know, hugely valuable.

However, suppose we can align that level of knowledge and combine it with our data teams, who can interrogate our data to find the identifiers and markers within the data that allow for the large-scale application of that level of knowledge in a processed predictive manner. In that case, that knowledge and our data become genuinely invaluable.

As with all the essays in this series, I shall leave you with a series of questions for your reflection on your own organization.

Further questions for consideration for you on this topic:

- What data is valuable to you in terms of service operations?
- How well does your CDO/CTO/CIO etc, understand the challenges and aims of the service operation within your business? How well do you understand your organization's approach to data management?
- Do you have the technology and systems in place to truly take advantage of digital transformation? If not, what technologies and systems does your organization need?
- Can you provide a simplified example like the one in this essay where one piece of data, if better understood and married with conventional operational data, could help you achieve a top-line business objective?

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