TECHNOLOGY & SERVICES INDUSTRY ASSOCIATION

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# The State of Field Services 2022

By Vele Galovski

#### **Executive Overview**

#### If your company has equipment on customer premise that you service, this "State of Field Services" paper is for you.

Every company is a technology company today. The ability to digitally capture any product performance attribute with sensors and send the data to low-cost storage in the cloud where it can be analyzed is truly disrupting the business and operating models of multiple industries. As a result, every equipment manufacturer is riding one of two digital transformation waves: one that is focused on the product and the other that is focused on the customer's processes.

In this "State of Field Services" paper, we will:

- Provide an overview of industry trends impacting equipment manufacturers.
- List the top business challenges faced by field services organizations.
- Discuss the three key concepts to embrace "digital acceleration":
  - 1. Overcoming "digital hesitation."
  - 2. Emerging trends in digital transformation.
  - 3. The Digital Acceleration Action Plan.
- List the top field services digital transformation capabilities.

This paper is designed to be used by TSIA members to maximize their leverage of TSIA research and resources by providing an overview of the capabilities in which field services organizations must invest during 2022 and beyond.

#### Industry Trends Impacting Equipment/Hardware Manufacturers

Today, every company is a tech company. The days of non-connected, "dumb" products are over. Just take a moment to think about the new digital capabilities that are now available to every manufacturer:

- **Sensors.** Sensors are becoming smaller, cheaper, and can now quantify nearly any physical phenomena or event with context. As a result, equipment manufacturers can now capture digital representations of product performance within an ecosystem.
- **Connectivity.** These sensors can be connected to the cloud or to each other, allowing devices to communicate with one another within a single operating environment, or to "home base" (the manufacturer) to report performance in real time.
- **Data Storage.** Multiple sensors across an entire install base will generate a tremendous amount of data that can now be stored in the cloud due to the advent of low-cost storage.

Every equipment manufacturer is riding a digital transformation (DT) wave that is disrupting the business and operating models of their industry. And when DT marches through an industry, the results can be devastating to companies that are complacent.

#### TSIA's North Star of Digital Transformation

DT has been a hot topic for a few years now. One of the reasons that the term has stayed popular is because it is so vague. The simplest definition of DT is:

#### The use of digital technology to solve traditional problems.

With that definition in hand, many organizations use sensors to simply "digitize" their product or processes with mixed or underwhelming results, leaving executives to wonder what the fuss is all about. So, while the above definition is true, it's not really that instructive.

The concepts of simplicity, automating the mundane, ease of transaction, scalable product experiences, and reduced time to value are table stakes for B2C today. To take full advantage of DT capabilities in B2B, we think there is a more useful definition—a sort of North Star of DT; one that can help a company's employees to approach the daunting task of unraveling complexity and engineering simplicity (*Figure 1*).

TSIA's North Star of Digital Transformation



Source: TSIA Research

Here are two industry examples of this North Star definition in action:

- Schneider Electric:<sup>1</sup> "With remotely monitored power distribution systems data, I can provide proactive, optimized performance and power reliability recommendations, and I no longer need to dispatch a service engineer to operate 'live' electrical equipment and assess the system."
  - Safety is a top priority at Schneider Electric. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers. In addition, the equipment is not available to the customer when it is being serviced, eliminating the need to dispatch on site AND providing real-time monitoring of performance results in safe, optimized, reliable energy. Win, win, win.

# Tesla: "With customer adoption and vehicle performance data, I can automatically suggest training, schedule service, and recommend upgrades, and no longer have to send out mailers and manually schedule appointments."

 The service department is often one of the most profitable departments in a car dealership. Unfortunately, very little is known about the customer once they leave the lot. Based on average usage estimates, dealerships spend a lot of money sending out mailers and discount coupons to solicit service appointments. By designing connectivity and customer journey telemetry into the car, timely, accurate recommendations can be made when you start your car. This new North Star definition of DT is necessary because we have a huge issue in the industry, which is a failure of imagination.<sup>2</sup> In both examples, the goal is complete elimination of activities with new DT capabilities—not making it easier or faster, but a complete elimination of the task. How big an issue? We can make an argument that B2B companies spend as much as 40% of company revenue in both cost of goods sold (COGS) and selling, general, and administrative (SG&A) expenses selling and supporting an overly complex product. Here are five examples of well-established departments within tech companies that have been created or have grown larger as a result of a failure of imagination.

- Land Sales. The product and services are not easily discovered, configurable, or purchased. They require a salesperson to translate and assist the customer with the purchase.
- **Customer Success.** Achieving full value realization requires a team to help the customer use the product they just purchased and to identify monetizable adoption and success plays.
- **Customer Support.** High product complexity and high failure rates require contacting a live support agent to get them back up and running, even for simple incidents, such as logging in or how-to questions.
- **Field Service.** The lack of telemetry from on-premise equipment requires the dispatch of a field service engineer and spare parts to resolve incidents.
- **Expand Sales.** Since customers are unaware of all the "value-added" features and upgrades recently added to the product, an account salesperson is required to recommend upgrades and secure the renewal.

To overcome this lack of imagination, equipment manufacturers must take a fresh look at the end-toend journey and work to eliminate activities that have been firmly established in all tech companies. This is how many born-in-the-cloud B2C companies operate, and it's how OEMs will need to operate in the future. With that in mind, let's look at the two waves of DT that we are seeing in the tech industry.

#### Wave One DT: Focus on the Product

The pursuit of recurring revenue and connecting products, combined with classic use of digital technologies like automating daily activities, constituted what we are calling Wave One of DT for most B2B tech and industrial companies. In the first wave of DT, technology providers start selling their technology as a service and they get their technology more connected so that they have better visibility into what the customer is doing with the technology.

Unfortunately, these initiatives are very focused on the product—product performance, preventive maintenance, asset management—and how to efficiently service the equipment. These companies feel that Wave One is the beginning and the end. They have spent many millions of dollars to migrate their business models, collect data, and they still have lots of work to do. They are amazed at how long it is taking. But the good news is that Wave One DT is now well understood.

#### Wave Two DT: Reaching beyond the Product

The second wave of DT is centered around reaching beyond the product and enabling suppliers to improve customer business outcomes. Many companies are migrating their product portfolio to some form of subscription or consumption-based, recurring-revenue model, i.e., customers pay for what they consume. New products have embedded diagnostics and the ability to be connected. Some have done a better job than others about going back and connecting to older on-premises products in the field. And they are beginning to pilot new service capabilities designed to accelerate customers through the land, adopt, expand, renew (LAER) life cycle to improve adoption, stimulate expansion, and optimize renewals.

#### Is Wave Two DT a Choice?

Wave Two DT is here, and it's going to move faster and leave more carnage in its wake than Wave One. It's about upending the way customers buy and consume your complex products and services. It's about being able to confidently assume the financial risk of your customers' use of your solution because you can track value and tie pricing to it. And perhaps one of the most important single concepts is about your company bringing your product features and your digital customer experience together into a single platform.

In our upcoming book, *Digital Hesitation*,<sup>3</sup> to be released at TSIA World Interact 2022, we review Wave One and Wave Two DT tactics in detail. We spend time examining why most Wave One DTs are underperforming. More importantly, we want to focus on what's coming next. As a preview, the fast-growing tech companies with very high valuations have more of the following four capabilities in place:

- 1. Low-friction land and product-led growth (PLG). This can be described as the ability for customers to start using the technology for free or with minimal up-front commitments; then, the product platform itself is designed to unlock more revenue throughout the life cycle. Freemium offers, in-use product offers, and automated renewals are all examples of PLG.
- 2. **Transform data into insights.** This capability involves gathering meaningful telemetry on how the customer is using the technology, how to apply analytics to that telemetry, and then play back business insights to the customers to help them climb the value ladder.
- 3. A fully digital customer experience (DCX). DCX is defined as the ability for customers to engage with a company across the entire LAER life cycle on some or all their solutions.
- 4. Clear links between product and service capabilities and customer business outcomes. This can be described as the ability to draw the connections and collect the data that clearly prove the industry-specific (or customer-specific) business impact of your offers.

At the core, all four of these capabilities rely on generating and capturing product telemetry. Armed with broader data sets and better analytics, high-growth, high-valuation companies can optimize adoption, increase customer value, and improve the entire customer life cycle, from pre-sales to renewal.

Ironically, these digital transformation capabilities are making it easier for non-traditional competitors to enter existing markets. Since these new entrants are not encumbered with a large install base and the need to move technology assets off their books, i.e., CapEx sales, they have the potential to significantly impact, or even replace, the need for the manufacturer altogether. The defining question is whether a traditional manufacturer can turn itself into a modern technology company faster than high-tech entrants can learn the product.

#### **Top Field Service Business Challenges and Strategic Imperatives**

The two waves of DT and the business realities of running a large, important business were reflected in the inquiries TSIA received throughout last year. TSIA maps each inquiry to a specific business challenge to identify the most frequent issues faced by field services organizations. *Figure 2* shows a summary of the top business challenges related to TSIA field services inquiries in 2021.



# 2021 Business Challenges

Figure 2: Top Field Services Inquiries in 2021

Source: TSIA Research.

Creating affinity groupings of these business challenges reveals three strategic imperatives (*Figure 3*) that are driving every field services organization with which we interact:

1. **Digital Transformation.** Aligning the company strategy and marshalling the necessary resources to digitally capture product performance attributes with sensors and aggregating the data in the cloud for future analysis as part of DT Wave One and Wave Two is the top strategic imperative as we head into 2022.

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- 2. **Service Delivery.** Being the low-cost provider never goes out of style, and efficiently using people and parts is always an important objective of field services organizations. However, unless the industry starts using telemetry in new ways, field services organizations can reach a point of diminishing returns. More on that later in the paper.
- 3. Service Revenue Growth. Field services organizations are turning their sights on differentiating field services offers and utilizing engineers to drive adoption and expansion while on site. Nearly every organization outsources some, or all, of its field services operations to third-party providers. Of those, 78% of organizations indicated that the primary reason for outsourcing was to expand geographic coverage, i.e., capture service revenue.

#### Figure 3: Business Challenge by Field Service Strategic Imperative



## 2021 Business Challenges by Strategic Imperative

Source: TSIA Research.

#### "Digital Hesitation"

Given that digital transformation is the top strategic imperative and the digital technologies are available to every company, why are traditional manufacturers having difficulty embracing them? The reasons for what we call digital hesitation in hardware companies are well documented. In the report "Your Mess for More,"<sup>4</sup> we identified the three main factors handicapping the digital transformation of legacy equipment manufacturers:

1. **The equipment is on site.** The traditional CapEx business model is based on a customer buying the technology as an asset, having it installed on-premise, and operating it on their own. After the initial sale and installation, OEMs had very little reason to connect or monitor performance since operations were firmly in the customer's responsibility zone.

- 2. **The equipment is not adequately connected.** While most new on-premise technology can "phone home," the most common frustration we hear from service organizations within legacy product companies is that the customer telemetry to which they have access is anemic. It is not rich and robust enough to enable value realization and improve business outcomes.
- 3. Equipment was sold by the channel. The channel has always been an incredible asset for companies selling on-premise equipment. The channel enabled scale. But now that asset is becoming a liability. When a product is sold through the channel, the manufacturer can lose critical visibility. Who specifically bought the product? Where is it installed? Who is using it? Are they still using it? This visibility is required to drive the value realization and business outcomes demanded by today's customers.

While these three factors clearly contribute to digital hesitation, they are not insurmountable. More importantly, they must be overcome.

#### **Embracing "Digital Acceleration"**

The key to overcoming digital hesitation and embracing digital acceleration is capturing meaningful telemetry from your install base. Here is a snapshot of how the industry is performing from our TSIA Benchmark:

- 48% of the install base has diagnostic capabilities embedded in the product.
- 32% of the install base has diagnostic capabilities embedded in the product AND is connected so the service organization can access the telemetry.
- Only 6% of the install base has self-healing capabilities in the product.

If you are an avid reader of our "State of Field Services" reports, you may have noticed that these numbers have not changed much through the years. In our attempts to encourage the industry to embrace digital acceleration, we have tried both "carrot and stick":

- Carrot: The data you collect from your products will be more valuable than the initial product or service that you sell, and
- Stick: Wave Two DT is here, and it's going to move faster and leave more carnage in its wake than Wave One.

In retrospect, both methods are too far in the future for field services organizations that are driven by current-year financial performance. Taking the long view is still important, but here is the great news: Increasing the install base under contract that is connected is good for today's business, too.

#### Importance of Telemetry

For the last three years, we have been collecting benchmark data on the install base that is under contract and the percent of install base that is connected and collecting meaningful telemetry. *Figure 4* 

shows a strong correlation<sup>5</sup> (p=0.006) between connected install base under contract and field service gross margin. So, if you are under margin pressure in your field services business (and who isn't), look no further for a solution than increasing the connectivity of your install base. Meaningful telemetry can reduce the total cost to serve AND generate high-margin service revenue. We can also make the case that capturing meaningful telemetry is the only way to significantly reduce your service delivery costs.



Figure 4: Telemetry Impact on Gross Margin

Source: TSIA Research.

#### **Incident Causals**

Before we get into the many benefits of connecting your install base as fast as possible, it is important to take a close look at why field services engineers go on site today. Field services organizations were created to help customers own, operate, and get outcomes with complex technology. Today, FSEs must go on site to resolve nearly half of all equipment issues. Please note that the field team doesn't create the incidents listed in *Figure 5*, but they are tasked with resolving them on site.

## **Collateral Damage In Your Incident Queue**



**Case Causals in Field Services** 

Source: TSIA Field Services Benchmark.

- **Break/Fix.** Any electro-mechanical device will break or need to be replaced at some point in the future. Unsurprisingly, these break/fix cases, excluding bugs and defects, represent 55% of all dispatches.
- **Preventive Maintenance.** Break/fix incidents are unplanned events that can be very expensive to resolve for both supplier and customer. To minimize the duration and impact of break/fix incidents, 20% of dispatches are pre-scheduled, preventive maintenance and cleaning.
- Install/Configuration. 13% of cases are a result of issues related to installing and configuring a new product or the result of post-sale upgrades or changes. Nearly every tech product today is part of a broader ecosystem, and any change within that ecosystem can lead to unintended consequences and more dispatches.
- **Bug/Defect.** Post-sale upgrades and changes typically get their start in the 6% of cases that require a retrofit, software change, or patch/hotfix.
- **How-To.** 4% of cases are related to using the functionality of the product. Typically, these answers are found in user guides or a knowledgebase and are handled primarily in assisted support channels.
- Non-Product Support. 2% of cases revolve around entitlement, licensing, sales, other products, marketing, etc. that should have been communicated earlier in the customer journey.
- **Product Limitations.** Approximately 1% of all cases are a result of the product not having the necessary functionality for a customer's application.

#### **Total Cost to Serve**

As you review the reasons field services engineers are dispatched to a customer location, what should jump out is that 75% of the incidents are either fixing a broken piece of equipment or trying to prevent that equipment from breaking sometime in the future. Earlier we mentioned that field service organizations are always focused on reducing their costs but could reach a point of diminishing returns. There are only so many digital tools available to automate and streamline the on-site dispatch process. If you have been at it for years, how much more can you really squeeze out of the process?

The big play here is to look at the total cost to serve, not just within individual service delivery channels, like field services, assisted support, or self-service. Let us be clear, every equipment manufacturer should pursue designing the most reliable product possible. However, electro-mechanical equipment breaks, and it must be fixed as fast and as efficiently as possible. So, if we want to optimize service delivery costs and serve customers in a timely manner, meaningful product telemetry is the only way to go.

*Figure 6* is a total-cost-to-serve framework for on-premise equipment, with an overlay of digital transformation initiatives.

Figure 6: On-Premise Equipment Total-Cost-to-Serve Framework



#### **On-Premise Equipment Total-Cost-to-Serve Framework**

Source: TSIA Research.

The high-level summary of this framework is that the more issues you can resolve at the top of the graphic, the lower the total cost to resolve. And the only way to make that shift a reality is through a series of DT initiatives. For instance, dispatching a field services engineer with a replacement part is the most expensive way to solve the problem. Compare that to resolving the problem through a "self-healing" repair that happens automatically out of the customer's view. Optimizing your total cost to serve requires investments in the product, including enabling, capturing, and analyzing equipment telemetry.

A great illustration of how this leads to improved margins and higher customer satisfaction comes from a recent multimember study<sup>6</sup> that we conducted. Predictive analytics generated from equipment telemetry resulted in a 75% reduction of average resolution time when compared to standard break/fix incident resolution!

#### Service Revenue Growth

Future OEM business models are going to become very dependent on what happens AFTER the initial installation. It's what we call land plus expand. We have written at length about this new motion,<sup>7</sup> so we won't spend a lot of time on it in this paper. However, it is worth pointing out that it requires an attitude that the day you sell the initial contract is the least amount of revenue you ever get from that customer.

That is why the second wave of DT extends beyond the product and helps suppliers improve customer business outcomes. In a recent webinar,<sup>8</sup> we presented how field services operations are expanding their charter to include adoption and expansion activities. In addition to knowing what is wrong with the product and how to fix it before they go on site with meaningful telemetry, the field service engineer knows who bought the product, where it is installed, who is using it, and how well they are using it. This visibility is required to drive the value realization and business outcomes demanded by today's customers.

Expanding the field services engineer's charter to include LAER activities has a positive impact on key service revenue metrics. Here are two takeaways from the webinar:

- Reviewing underutilized product features with the customer results in better adoption of valueadded features that contribute to an eight-point increase in contract renewal rates.
- When field services engineers proactively replicate industry best practices across the entire install base, the install base under contract can increase by over 15 percentage points.

#### **Digital Acceleration Action Plan**

As you can imagine, a digital acceleration action plan isn't a single project. It's an integrated network of projects across multiple departments. However, a prerequisite to even getting started is to have an

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established services business. If your company generates less than 10% of total revenue from services, there are a few things you need to do first:

- Establish a service culture within your organization.
- Distinguish warranty versus value-added, "for fee" services.
- Differentiate service offers with service level agreements (SLA) based on faster response and resolution times, product and application support beyond initial customer training, and extended hour coverage.

Once you take these initial steps, and services are generating over 10% of company revenue, you are ready to pursue Wave One and Wave Two DT initiatives. Here is a list of Foundational, Basic, and Advanced DT Initiatives that we introduced in *Figure 6*.

#### **Digital Transformation Initiatives**

- Foundational
  - Install base with product telemetry
  - o Knowledgebase
  - Customer replaceable unit (CRU)/field replaceable unit (FRU)
- Basic
  - DevOps loop with product development
  - Artificial intelligence (AI) chat bot
  - Skills-based routing
  - Digital customer experience
- Advanced
  - Predictive parts usage
  - Proactive support
  - Install base with self-healing
  - Automated support interventions
  - o Auto-notification to OEM of technical issues (modification requests)

#### **Top Field Services Digital Transformation Capabilities**

Incorporating these digital transformation initiatives into your digital acceleration plan will require equipment manufacturers to build some new muscles. At TSIA, we call these new muscles "service capabilities."

Earlier, we listed the business challenges faced by our members. *Table 1* lists the critical organizational capabilities that address those challenges and help you avoid digital hesitation and embrace digital acceleration.

Service Capability	Description
Embedded and Remote Diagnostics	We use technology for the analysis of customer environments to identify failing components or target preventive action.
Smart, Connected Products	We have the ability to utilize sensor technology to create a digital twin of the product while enabling machine-to-machine communication.
Preventive Maintenance	We have a process for performing scheduled maintenance to prevent unplanned downtime.
Enterprise Knowledge/Content Management	We maintain effective systems and processes for the creation, capture, organization, sharing, distribution, and retrieval of knowledge within the organization, including problem resolution data.
Service Enablement Analytics	We mine data from customer service interactions and product usage feeds to increase service quality and reduce the cost to service customers.
Self-Healing Product	Our product has the ability to automatically correct problems identified during self-diagnostics
Consumption Analytics	We analyze actual customer usage data to determine new service and product offerings.
Customer Success Science Methodology	We have proven methodologies to help our customers achieve specific business results by leveraging our technology offerings

Table 1: Critical Field Services Capabilities to Avoid Digital Hesitation

Source: TSIA Research.

These capabilities will not only help you deliver a superior customer experience and improved customer business outcomes, but they will also help improve your company's top and bottom line. Without these capabilities, you risk falling onto the pile of highly commoditized "products" that exhaust your customers and frustrate your CFO and investors. Put simply, the more of these capabilities you have, the brighter your future looks.

#### **How TSIA Can Help**

In the book *The Prince*, Niccolò Machiavelli revealed a fundamental truth about human nature: transforming your company, your organization, your team is difficult.<sup>9</sup> Applying this truth to a business environment, the introduction of a new order of things, is perilous to conduct and uncertain in its outcome because you must confront the people who have done well in the old system while only gaining lukewarm support from people who are likeminded and may succeed in the new order. Successfully winning over these two groups and transforming your business starts with an objective view of current performance, a clear understanding of the goal, and the key practices and capabilities necessary to close the gap.

#### Field Services Benchmarking

TSIA brings these elements together as part of our benchmarking process. We recognize that our members do not have infinite resources and we help focus their scarce resources by providing assessments of their business, frameworks for best-of-breed operations, and recommendations for actions and best practices.

In our Field Services Benchmark, we ask 129 questions covering the practices (people, processes, technologies, and organizational models) and performance metrics (financial and non-financial) to give you the insight you need to confidently make the best business decisions for your organization.

Through our analysis, we create aggregate scores of company performance along two axes, practices and metrics, to guide the transformation. This 2x2 field service maturity model, see in *Figure 7*, clearly identifies the next steps based on an objective view of performance and proven industry best practices. Simply stated, the more industry best practices that are implemented, the better the performance.

Figure 7: Field Service Maturity Model



# **TSIA FS Maturity Model**

Source: TSIA Research.

#### Call to Action: Distribute, Debate, Deliberate, Decide

The aim of TSIA is to help our members successfully navigate business model transformations. We do this by identifying industry trends that will dispute the long-term viability of the existing business model, i.e., to challenge the existing way of doing things. We also help bring the lukewarm supporters off the sidelines by inspiring confidence in the pursuit of a new way of doing things by focusing on the following:

- 1. **Educate.** Educating management teams on the capabilities required to optimize aspects of a technology business model.
- 2. **Assess.** Assessing the current performance of a technology business against industry peer groups; assessing the maturity of required capabilities.
- 3. **Prescribe.** Providing prioritized recommendations on initiatives to improve performance.
- Align. Leveraging facts and frameworks to align key stakeholders on critical business decisions.

In 2021, if your company was not exploring ways to embrace digital acceleration, you are at risk of falling behind. TSIA strongly encourages our members to **distribute this paper** among their executive team. **Debate the trends. Deliberate on the DCX capabilities.** Then, clearly **decide which capabilities** your company will improve this year.

#### Endnotes

<sup>&</sup>lt;sup>1</sup> Godemel, Frederic. September 1, 2021. "How to Achieve Customer Delight: My Top 5 Takeaways from TSIA Interact." Schneider Electric. <u>https://blog.se.com/services/2021/09/01/how-to-achieve-customer-delight-my-top-5-takeaways-from-tsia-interact/</u>. Accessed January 27, 2022.

<sup>&</sup>lt;sup>2</sup> Failure of imagination is the expectation that current and future opportunities and risks will resemble the past. The term is associated with major failures of strategy based on static, unimaginative, and reactive thinking. In some cases, an industry that faces competitive threats is unable to respond in a creative way. An industry that is destined to be replaced by a new technology may respond by tweaking the tools and techniques of its past. Source: Simplicable, John Spacey, September 23, 2016.

<sup>&</sup>lt;sup>3</sup> Wood, J.B., Thomas Lah, and the TSIA Executive Research Team. 2022. *Digital Hesitation: Why B2B Companies Are Falling Behind*. San Diego, CA: Point B, Inc.

<sup>&</sup>lt;sup>4</sup> Lah, Thomas. February 2021. "Your Mess for More: The Future of On-Premise Technology Providers." TSIA. https://www.tsia.com/resources/your-mess-for-more.

<sup>&</sup>lt;sup>5</sup> A p-value of 0.006 means that there is a less than 1 in 167 chance that this correlation is not true, i.e., you can take this relationship to the bank.

<sup>8</sup> "Using the LAER Framework for Field Services Workforce Management" Webinar. November 2, 2021. TSIA.

<sup>9</sup> "It ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new. This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men, who do not readily believe in new things until they have had a long experience of them." Niccolò Machiavelli, *The Prince*.

<sup>&</sup>lt;sup>6</sup> 2021 On-Premise Equipment IoT and Connectivity Survey. TSIA.

<sup>&</sup>lt;sup>7</sup> Wood, J.B., Todd Hewlin, and Thomas Lah. 2013. *B4B: How Technology and Big Data Are Reinventing the Customer-Supplier Relationship.* San Diego, CA: Point B, Inc.



TSIA is the world's leading research organization dedicated to helping technology companies achieve profitable growth and solve their top business challenges. Services, Sales, Product, and Channel organizations at technology companies large and small look to TSIA for world-class business frameworks, best practices based on real-world results, detailed performance benchmarking, and exceptional peer networking opportunities. TSIA's membership community consists of over 40,000 executives from 96 countries and represents 80% of the Fortune 100 technology companies.

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