

Script - Neurovascular Positioning Deck

Title Slide:

- Introduce yourself
- Welcome audience to presentation/meeting
- Introduce TE's Medical business as follows

“TE’s purpose is to create a safer, more sustainable, productive and connected future. Our medical business is largely focused on the “safer” part of our company’s purpose – how do we make the world safer for patients? We do this by being a partner of choice to our customers in building medical devices that save lives, such as those for neurovascular therapies.”

- Introduce TE's capability in neurovascular therapies

TE is a partner to leading companies who design, manufacture and market minimally invasive treatments for neurovascular treatments. Our business is built upon a legacy of innovation in access and delivery of catheter-based devices, an understanding of the key clinical challenges in neurovascular & stroke therapies today and a wide range of supports across the full spectrum of design, ramp and commercial manufacturing of these medical devices.

Slide 2 – Premier Partner

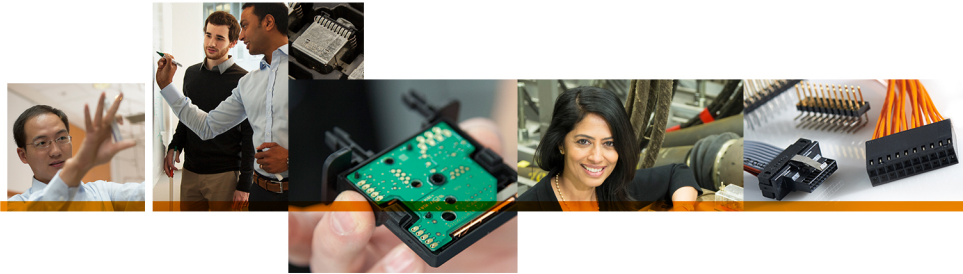
TE Connectivity, together with Creganna Medical are undisputed leaders in delivery and access solutions for neurovascular therapies.

Our solutions are intrinsic with the growth and clinical success of minimally invasive treatments of the brain – in fact, our first commercial work in this field began over 20 years ago, when we undertook a partnership to develop next generation metal based delivery systems for embolic coil delivery in the treatment of brain aneurysms. Since that time, we have manufactured over 1.3 million embolic coil delivery systems, accessing & treating some of the most complex vasculatures of the body.

Building from these first delivery systems, we are a trusted partner today to companies that have over 90% combined market coverage in the neurovascular market. We are proud of these enduring partnerships and have built considerable knowledge in the specialist access and delivery systems associated with these products. Our engineering and design expertise is deep - we support 25 commercial product lines for a range of therapeutic applications and all of these products are supported for high volume requirements.

In recent years, the neurovascular therapies market has undergone a period of intense innovation, particularly in the area of ischemic stroke treatments. TE Connectivity has become intrinsic to this innovation wave - we are currently supporting 21 development programs for advanced access and delivery solutions such as catheters, guidewires and delivery sheaths.

Our work & contributions to this therapy field have not gone unnoticed. In 2019, TE Connectivity was ranked 4th on FORTUNE's change the world list. The list recognizes companies that make positive social or environmental change. TE was selected for the way in which its technologies make the world a safer place, in this case, how our



technologies apply to the minimally invasive treatment of stroke. We are very proud of this listing which publicly recognizes how and why TE Connectivity is a premier partner in this therapy field.

Slide 3 – Expertise

Our expertise in neurovascular applications is broad and deep across access, closure, delivery and treatment devices.

Establishing vascular access and closure of the wound site are foundational steps in any successful interventional treatment. In the field of neurovascular therapies, associated guidewires, support catheters and sheaths operate at the most challenging boundaries of size and precision in interventional medicine.

Having established access, delivery of a device to treat the disease is the next step. Working in harmony with our access solutions we have considerable expertise in the development of delivery solutions for aneurysm treatments such as embolization or flow diversion, stroke treatments – both aspiration and stent retrievers and protection of the cerebral vasculature throughout the treatment.

Our partners continue to work with us to deliver next generation solutions for the development of advanced treatments such as drug delivery.

While we work mainly today on access and delivery protocols, we also see a future where visualization will play a role in effective diagnosis and treatment. Leveraging our core expertise in vascular visualization and imaging coupled with TE's wider expertise in sensors we are excited about the technologies of the future and how, in partnership with our customers, we will shape the neurovascular devices which will treat patients 10, 20 or even 50 years from now.

Combined, TE is the premier on-stop-shop for all technologies to support a neurovascular procedure – from diagnosis to treatment – both today and tomorrow.

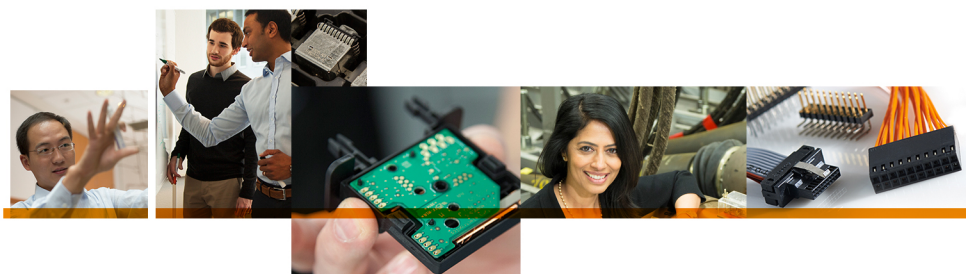
Slide 4 – Industry Themes

Given our breadth and depth of expertise in the interventional neuroradiology arena we see repeated industry themes defining the next stages of evolution in this market.

This market is one of high growth. Our customers are driving rapid and iterative innovation at immense speed. Improved awareness and access by patients is driving penetration. **Getting winning products to market faster is crucial.**

But me-too products are not enough to win. As the industry gathers more empirical data, such as in ischemic stroke treatments, we learn more about how to adjust and optimize our devices for superior clinical outcomes. The smallest **differentiation** of a device can bring big clinical impact and win share.

We are also seeing **devices sophisticating with each iteration**. There is an openness and appetite to understand how we can introduce new technologies into this field as we learn more about the challenging vasculature and diseases of the brain. Industry is beginning to challenge the boundaries of possible to move our devices beyond simple mechanical functionality.



Navigation of a tiny device into the brain is challenging. Anatomy can be highly tortuous and calcified in many patients. Yet, **time is critical** – physicians need to get to the target site as quickly as possible. Any technologies that can **improve navigation**, such as micro steering solutions, are gaining increased attention.

Interventional neuroradiologists want to push their tools to do more and access more. They want to be able to **get deeper into the brain** – getting beyond the M1 proximal segments and deep into the M2 distal segments. Disease in M2 segments can present with serious neurological deficits and cause significant morbidity and mortality for patients – it is the next frontier for the devices we deploy today.

Industry discussion around optimization for “first pass success” grows as it is increasingly acknowledged that multiple device passes can dislodge clots or change the fibrin nature of the clot making it more difficult to extract as one. How do we **optimize our devices to increase the hit rate for first pass treatments?**

An emerging industry theme we have seen to grow in popularity over the last 12-24 months is device companies taking the highly specialized catheter and delivery system for neurovascular therapies outside of the brain for **specialist endovascular treatments** such as arterial/venous occlusion or oncology therapies. We envisage this trend to continue to devices sophisticate.

It is not alone the industry that is evolving and innovating. Physicians are very hungry for innovation. **The clinical bar is rising.** Citi conducted a deep dive survey of leading US physicians in the field who, combined, treat an estimated 20% of the US patient population for ischemic stroke. Here is what they told researchers:

- The neurovascular devices market is on a similar trajectory and has the potential for transformation much like PCI treatment
- There is a latent need to be able to go ever deeper into the brain
- We, the industry, need to become even more innovative – we need to bring disparate technologies into the mix such as imaging, software etc.

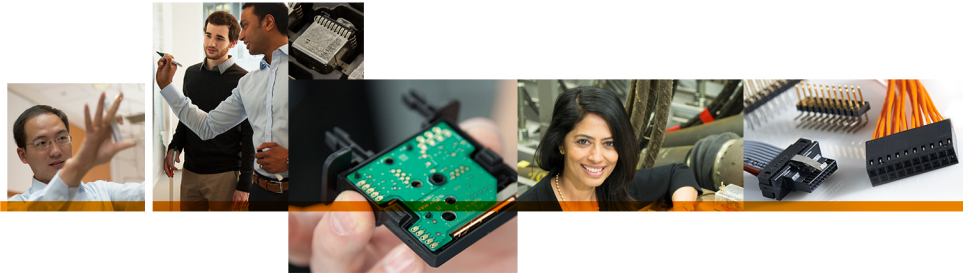
In conclusion, we can surmise that we are at the start of a journey in this therapy field – leveraging all players in the value chain to accelerate the journey and win competitively makes sense.

Slide 5 – Clinical needs to technical innovations

Building upon these industry themes, at TE Connectivity we are focused on interpreting and translating your clinical needs to functioning technical solutions.

So, what clinical challenges are we seeking to solve?

- In access, every mm counts. Can we get closer to the clot? Can we access an aneurysm coil sack at an acute angle for optimal delivery of embolic therapy?
- Time is life. Can we further optimize our devices so that they become more accurate and precise, thereby reducing the length of overall procedure time?
- Can we improve navigation in challenging anatomy so that we cause less to damage to blood vessels, get a therapy administered faster and drive cost savings in treatment?



- No two clots are the same. Clot science is advancing but first pass success rate is still only about 1 in every 3 clots. Perhaps we need to understand clots better or perhaps we still don't have the devices that can retrieve certain types of clots. What if we could better visualize or diagnose the clot type before we treat?

These and similar clinical challenges are where we are focusing our innovation. We are working on specific technical solutions to address these challenges, such as:

- Smaller lower profile devices that can access even further into the cerebral arterial network
- Steering solutions to navigate difficult anatomy or micro steering to provide fine precision and control in acute access angles
- Combining up to 6 transition zones in a single catheter to optimize for a solid proximal end with a flexible distal end
- Introducing variable transition while balancing kink, flexibility and ovality resistance, particularly where high negative pressures are applied in the inner lumen
- Optimizing tip designs with slight concave or convex features to reduce vessel trauma
- Adding micro balloon technologies to the distal catheter tip to position and anchor the delivery system
- Optimizing guidewire rail and core to provide strong device support and torque
- Enhancing visualization through innovations in RO markers and braid/coil metals
- Application of advanced coating to maximize lubricity for access
- Integration of smart and energized technologies into the catheter shaft or deployment handle such as pressure sensing devices and/or imaging technologies

Slide 6 – Needs triad

Over the last 20 years we have learned a lot about the needs of our customers in the neurovascular field.

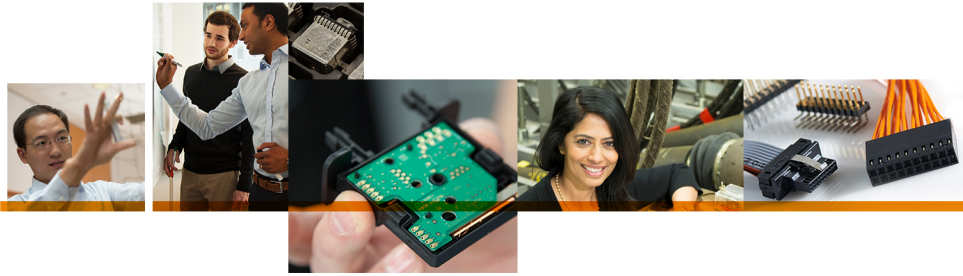
What is evident to TE, is the needs of our customers evolve over time, depending on a range of factors such as company size, stage of evolution, market/clinical strategy and device application.

As our customers move through the design and commercialization cycles needs evolve. Broadly speaking, there are 3 core stages to that cycle and an associated triad of needs for each stage.

Our operational strategy is built around serving the needs of our customers at each individual stage but also anticipating those needs as they evolve. **In short, we are thinking ahead for you.**

Take for example, early design. While a customer may just be thinking about getting to concept stage with 10 prototypes, we will be designing that solution mindful how we can efficiently translate the concept into a manufacturable solution for volumes in 10s of thousands.

For microcatheters used in neurovascular therapies this is a critical point. Repeatedly, we have seen customers come to us with the same problem. They have engaged an often smaller, less experienced partner to build some prototypes. Then they tried to scale and failed. The challenge is that “handcrafting” of microcatheters is feasible in low volume, however to get to a commercial supply the catheter must move beyond handcrafting. We don't handcraft. We start prototype builds of your product in a manner that they can become a manufacturable solution



downstream. We believe in building your product using a stable, reliable, predictable and repeatable manufacturing approach.

Each stage of the triad also serves specific needs at that particular point. For example, at design our clinical know-how accelerates the design process as will providing direct access to our engineers. We provide rapid response for animal studies, benchtop builds and early feasibility builds to support pivotal trials. We are particularly proud of our ability to rapidly iterate new designs, for example, swapping in/out new catheter transition solutions. Our breadth of technology allows us to bring speed, reaching into our own internal supply chain for new or alternative solutions.

Rapid prototyping and scaling ability is key for many customers, particularly in translation of an early design. We are agile and responsive at ramp. We understand that every minute makes a crucial difference in an end market with a rapidly evolving clinical landscape. Our skills in DFM (design for manufacture), proven quality process and support infrastructure move your solution through this critical phase in an efficient and timely manner as possible.

Finally, for commercial volume manufacturing of your solution, TE is a partner with scale, capacity and proven credentials. We bring efficiency, proven quality systems and the benefits of a vertically integrated supply chain to our customers.

Slide 7 – Core technologies, focal competencies

Let’s take a deeper look at our vertical integration and how our core technologies and focal competencies combine to make TE the partner of choice for neurovascular visualization, access and delivery.

For each of the core technologies listed we consider ourselves a leading engineering company. For example our advanced solutions for low profile and highly flexible metal shafts, our competency in complex braided catheter constructs and our specialist guidewire capability.

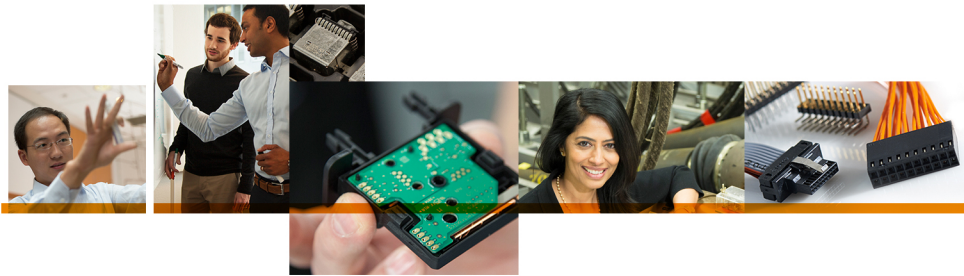
With deep materials and processing technology in our DNA, we uniquely combine individual technologies to take them from the simple to the complex – this is what we call our focal competencies.

For example, we combine our expertise in braided catheters and advanced balloon technologies to create specialist balloon catheters. We apply our advanced metallurgy in tubing and wires, with our steering technologies and laser processing to create hypotube and wire based delivery systems that are simultaneously strong, flexible and precise to optimize navigation and reach.

There is a distinctive advantage for our customers in this combination of vertical integration. When you engage with TE, we are not approaching your design challenge based on a single or limited set of relevant technologies. As we have all relevant technologies under one roof, we can approach your design from the basis of an optimal clinical solution.

Our customers tell us this is the reason that they chose us for their neurovascular programs – others simply don’t offer the technology reach.

Adding to our core technologies and focal competencies, we bring our TE service and support model which means that we focus on the service factors that are most critical to your success in this market.



- We will bring technology leadership and innovation to your products.
- We are your partner for the long term – we believe in full supply chain accountability by working with you from design to volume manufacture.
- Just like the patients your devices treat, we know that time is critical. We focus on fast turnaround and fast prototyping in the early design phase of your project.

Combining all of these factors, we are the premier partner for access and delivery solutions in advanced neurovascular therapies.

Slide 8 – Technology Montage

This slide visually brings together all of the individual component solutions and focal competencies of our previous slide – right through from access to delivery.

Note to presenter/sales team member:

If your customer has a specific opportunity for a specific solution now is a good time to speak to that requirement in more detail. This image will assist as a guide in that discussion.

If you are presenting to a customer where English or the language in which you delivered your presentation is not a first language to the listener please spend more time than usual on this slide. Images translate. Words and idioms often do not!

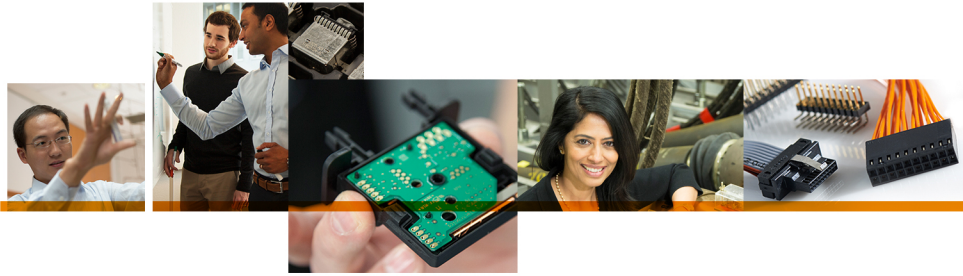
Slide 9 – Customer Profiles

We are proud to partner with leading companies throughout the world in the co-creation of breakthrough neurovascular therapies.

We work with a varied and diverse range of customers with different needs. We believe that they choose to work with us due to our knowledge, ability to understand their particular needs, trustworthiness and adaptability.

This is a small selection of types of customers in our portfolio. We have broadly categorized some of those customers based on their individual business models and strategies.

- For example, we work with a new market entrant who plans to challenge the existing status quo for ischemic stroke devices. With a novel aspiration device and technique, the customer sought a partner who was vastly experienced to design and develop a custom and differentiated delivery system.
- Throughout our medical business, we work with market leaders and the neurovascular field is no different. This market leader pioneered the first wave of stent retrieval devices and came to TE to support the manufacturing ramp for its inner pusher wire delivery system and outer microcatheter shaft. We continue to support this customer today for both volume manufacturing and next generation product needs.
- Some companies seek to disrupt the market status quo such as a customer who wanted to displace market share by extending a new product type into its existing device portfolio. Turning to TE, the company recognized our unique balloon technologies and how, with TE’s assistance, we could differentiate and sophisticate their device – a compliant balloon catheter.



- Companies worldwide are active in the Neurovascular space, but others have also recognized the potential to leverage the new swathe of devices for neurovascular therapies and apply similar clinical approaches in other applications. Such was the case of a customer, a regional player, who recognized the potential to adapt microcatheter technology for a highly specialized and attractive oncology market in localized embolization. Choosing TE, we brought our technical expertise to the design, development and ramp their unique catheter solution.

Slide 10 – Aspiration Catheter Case Study

Clinical challenge – this aspiration catheter is intended to restore blood flow in patients experiencing acute ischemic stroke due to a large vessel neurovascular occlusion. Designed for its use in the anterior and posterior neurovascular vessels, such as the Internal Carotid Artery (ICA), the M1 and M2 segments of the middle cerebral artery, the basilar, the posterior cerebral and the vertebral arteries.

Technical solution – the advanced aspiration/thrombectomy system is comprised of two coaxial catheters (outer delivery catheter and inner therapeutic catheter) made from variable stiffness sections . The therapeutic thrombectomy catheter is comprised of a high flex braid design with a specialist silicone coating to provide local flow restriction. The outer delivery catheter has a hydrophilic coating to reduce friction during use and a radiopaque marker on the distal end. Both catheters have a luer hub on the proximal end. When deployed, the thrombectomy catheter distal feature self-expands, conforms with the artery up to a diameter of 5mm, temporarily occluding blood flow to enable clot extraction without fragmentation.

- The outer delivery catheter is of a coiled shaft design 0.083” OD, 0.072” ID.
- The inner therapeutic/aspiration catheter is also of a braided design including a funnel-type component heat bonded to distal tip. A rounded atraumatic tip is essential for clot capture and retrieval. The dimensions of the inner therapeutic catheter are 0.06” OD, 0.048” ID. Low durometer polymers used for bonding.

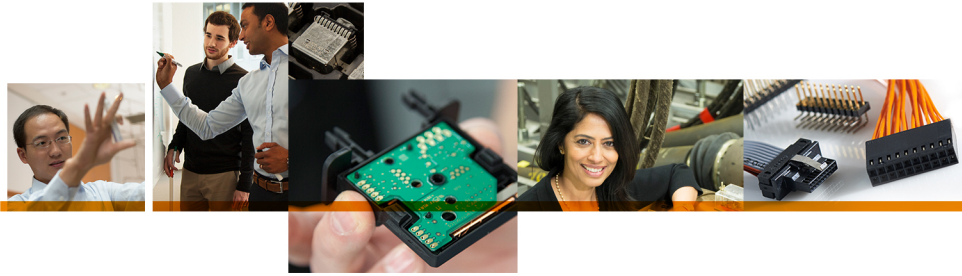
One of the greatest technical challenges encountered in this design is to manufacture catheters of this precision while holding extremely tight tolerances, which was achieved by our team. Today, we services the customer through full cleanroom assembly of the device.

The key take-aways from this case study are:

1. **Challenging product design** successful achieved by TE in partnership with the customer.
2. That design was then **translated** through regulatory phases and continues to be supported for **commercial volume**.
3. Owing to TE’s vertical integration and internal supply chain, we were an ideal partner for our customer. They simply wanted a company that would take **full accountability for their product**. That also included managing the interface with another specialist coatings company which we do on behalf of the customer.

Slide 11 – Guidewire case study

When this customer came to TE, it was working with another vendor who was seeking to adapt technologies for general vascular guidewires to create guidewires specific for neurovascular applications. In short, this approach was



not working as the guidewires were not optimized for application, had a high fall out in manufacturing and were prone to pig tailing in clinical use.

The customer approached TE’s design and metallurgy team to remedy this situation and address their guidewire portfolio.

Our material scientists set about work and ultimately developed a proprietary heat treatment and cold working process that optimized the straightness of these tiny guidewires, while in tandem, increasing rail support, torque and push.

In addition to solving the “materials” challenge, our guidewire experts also applied industry leading process knowledge to enable precision features, geometries and transitions for the customer’s guidewire portfolio.

To address the optimal coating of these guidewires, a range of hydrophilic and hydrophobic options were applied achieving some of the highest adhesion quality in the industry. Our guidewire customers have experienced zero recalls for delamination – a known industry issue with other partner solutions.

To this day, our customer continues their relationship with TE and is known for one of the most robust and clinically trusted guidewire portfolios in the industry.

The key take aways from this case study are:

- We are a **trusted leader** in guidewire and metal solutions
- Our **materials science** makes a difference to solving difficult design challenges
- We can **help our customers win** market share
- Our **partnerships are enduring**

Slide 12 – Stent Retriever System case study

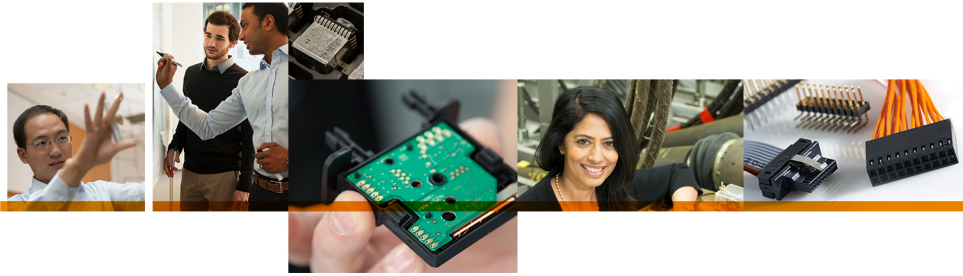
This customer is a pioneer in mechanical thrombectomy, bringing one of the industry’s earliest clot removal devices to market.

The customer originally approached TE with a build to print request, however, over the years our relationship has developed, and we now work with this customer for early stage design of next generation devices in this product portfolio. In total we have supported this customer’s product, at scale for more than 8 years.

Our design and manufacturing support extends to a series of microcatheters and stent delivery wires. The design of the product is extremely challenging due to the long length of the braided shaft and the process controls required to achieve a uniform finish along the full length without protrusion of the outer jacket at any point.

The product has been highly successful for this market leader and owing to the growing patient access for such therapies, in the last year, we doubled our volume manufacturing output. TE’s ability to rapidly ramp manufacture owed our proven design approach and access to our own internal supply chain to support the product.

The key take aways from this case study:



- We are trusted partners to market leading companies – our partnerships endure from the first prototype to volume demand
- Our vertical integration brings benefits in design phases and as volume demand increases. We don't handcraft microcatheters. We manufacture our solutions in a manner that they can be ramped to a stable, reliable, predictable and repeatable process.
- Foremost, this customer has acknowledged our strong engineering capability coupled with an unparalleled quality performance as the primary reasons that they continue to strengthen and grow our partnership

Slide 13 – Why TE Connectivity?

TE is the partner of choice for access, delivery and visualization solutions for minimally invasive neurovascular therapies both today and into the future.

We are doing three things within our business to maintain our reputation:

1. We constantly challenge what it takes to be a partner of choice for you. Technical breadth and depth makes for a partner of choice. The ability to work with you seamlessly from design to volume makes a partner of choice. Our experience in this market over the last 20 years makes TE a partner of choice.
2. We are investing in the core technologies and innovations that will drive the future of the neurovascular market. Every year, as a team, we review our core strategy pillars which are then endorsed within the wider TE organisation. Core pillars and associated markets attract the highest priority focus and greatest internal investment. For the medical team, our leadership in Neurovascular therapies is of the highest priority, backed by the overall TE corporate organisation. We are committed for the long term – we are investing both organically and inorganically to innovate for you.
3. Our investment extends beyond technical capability. We are also investing in wrap around teams that are specialists in neurovascular devices to support you. We have a dedicated Subject Matter Expert (SME) overseeing our technical roadmaps and innovation portfolio. A product manager works within our global team, directly recruited from industry, this person translates clinical challenges to technical solutions. We have application specialists in metals, polymer and braiding all working together to design and support your next project.

Combined, these 3 steps are how we are planning our future in neurovascular solutions.

It is how we will maintain our edge.

It is why you can entrust TE with your neurovascular portfolio.

It is how we will fulfil our vision to be your partner of choice in building medical devices that save lives.

Close – Q&A