



PANDEMIC DISRUPTION ACCELERATES DIGITAL ADOPTION FOR MEDICAL DEVICE COMPANIES

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A combination of lockdowns, travel bans, recession, The medical device industry stepped into 2020 in a bullish mood. Business 4.0[™] technologies, such as the large-scale unemployment and, the omnipresence of Internet of Things (IoT), wearable devices, additive the pandemic, have changed that outlook. printing, and robotics, have become mainstream, creating exciting opportunities for mass By placing the current crisis in context, understanding personalization in patient care. Ageing populations, as its impact, and considering varying scenarios, medical device companies can position themselves for future the United Nations reports, mean increased demand for healthcare and allied medical products and growth. Our paper considers the following: services.

Then, suddenly and without warning, medical devices were thrust center stage. As COVID-19 spread worldwide, our media feeds were flooded with stories about testing equipment, makeshift hospital beds and personal protective equipment (PPE). Ventilators (or the lack there of) became the lead story on our evening news. The healthcare industry was caught unawares and unprepared for its moment in the spotlight.



Medical devices go mainstream, unwittingly

- 1. Disruption accentuates existing trends
- 2. The whole value chain is impacted, but challenges conceal opportunities
- 3. Three potential horizons to consider
- 4. Drivers for new growth



Emerging trends gain new momentum

Digital technologies are disrupting every area of our lives. When existential forces affect lives, we find that digital often offers the answer to those new challenges.

A combination of disruptive forces (figure 1) are compelling medical device manufacturers to rethink their place in the healthcare ecosystem. The impact is being felt across the value chain. As well as challenging their traditional business models, these disruptions create new opportunities for them to emerge as digital



Figure 1: Digital-led disruption is changing the healthcare landscape



- health companies, working with and serving the needs of other constituents in new and exciting ways.
 - As these trends accelerate, medical device manufacturers need a 360-degree view of the market and the ability to sense and respond to opportunity and threat.





Impact across the value chain

Since the beginning of 2020, COVID-19-driven demand has been supercharged. Hospitals postponed most elective procedures, and as a result much of the traditional demand for medical devices evaporated. Every part of the value chain has been shaken.

R&D

- Ongoing and planned clinical trials delayed or aborted
- Plenty of new product development on hold
- Future research in jeopardy due to budget-driven cutbacks
- McKinsey says R&D labs operating at below 50 percent capacity
- Productivity down due to remote working restrictions
- Scientists and engineers struggle to collaborate while working from home
- Companies with deep pockets and diversified portfolios committed to R&D. Others will cut back to minimize cash outflows

- Lockdown, social distancing, and work from home caused an artificial reduction in production capacity
- Lack of mobility means supplies of raw materials delayed or halted
- Plant and other resources diverted to crisis response
- Demand has rocketed for diagnostic tests, PPE, ventilators and other critical supplies
- Manufacturers of these items must augment their existing capacity

Executives across all functions have to respond to the cumulative effect of multiple disruptions. Some responses are short-term and designed to safeguard and ensure business continuity. Others will likely be more profound long-term changes to business and operating models.



Manufacturing

Supply chain

- 21st century supply chains are global, complex, and interwoven
- Supply chains stressed by limited movement of freight and closed borders
- More than 60 countries have placed entry restrictions on Chinese materials, exacerbating supply chain distruption
- Equipment for non-urgent procedures warehoused
- Movement of samples, lab consumables and instrument parts needs restarting

S&M

- Demand for devices in non-COVID-19 areas of healthcare evaporated
- McKinsey reports number of elective surgeries reduced by 60-80 percent in the second quarter in the USA and Europe
- Diminishing healthcare spending on non-COVID-19 treatments, negatively impacting revenues
- Inability to travel has hit sales
- Emerging trend towards outpatient surgeries and ambulatory centers will establish rebound

Figure 2: COVID-19 has disrupted all value chain segments

Three potential horizons to consider

We see three potential horizons across which medical device companies can plan their response to the situation and look ahead.

2020 or until a vaccine is found

In this period, COVID-19 will continue to dominate and drive public policy and demand. Societies will be watchful of new spikes materializing as cities, states and regions reopen. New strains have emerged and we may see more of them. The near-term horizon remains volatile, uncertain, complex and ambiguous. Business continuity will be driven by requirements for social distancing and remote working, as companies seek to maintain operations.

We believe, medical device manufacturers will see cash flows compromised due to the cancellation or postponement of orders. devices can be repurposed. Fast tracking adoption of AI, Orthopedics product maker Zimmer Biomet has cut discretionary spending, reduced manufacturing output and focused on business supply chain, manufacturing, or even business models. continuity. Others will follow and prioritize liquidity as they strive to survive. Inventory management and lean manufacturing will help As well as innovating to meet immediate needs, establish resilience and a foundation from which to rebuild. Some CFOs companies should use this time to take stock of existing will put capital projects on hold, though historically low interest rates may digital transformation strategies and plan future digital tempt others to be bold and invest. Planning and forecasting, both for investments. This will include digital patient legacy products and future portfolios, are important tasks in this period. engagement as well as investments in cloud and IoT Still, opportunities exist for medical device companies to innovate. capabilities.



The example of US hospital bed maker Stryker is instructive. They worked in partnership with a number of Australian companies to build an emergency response bed that could be flat-packed and assembled quickly on site. The bed meets Australian Therapeutic Good Administration (TGA) standards, but with a lower specification than regular hospital beds. There are potentially many devices that can be reengineered in simplified form for rapid response. Some existing medical devices can be repurposed. Fast tracking adoption of Al, automation, and 3D printing may also spur innovation in supply chain, manufacturing, or even business models.



2021 post vaccine

The current focus on personal hygiene and safety will endure and medical device companies will continue to face public scrutiny. Even once a vaccine exists, some crisis-inspired changes will likely remain—think remote work, online shopping, localism and conscious consumerism. Open innovation models that allow companies to tap into large, location-independent pools of talent were already gaining momentum. These will become an important factor in business continuity. Bio pharma firms such as Novartis are deeply involved in these forms of collaboration and business model innovation. Cloud-based governance helps establish these new working models. Such models should be seen not merely as a response to the crisis but enablers of future transformation and growth.

Scenario planning can identify ways for companies to forge partnerships and new relationships. That might include portfolio rationalization and supply chain diversification to minimize risk. Strategic sourcing, supplier excellence, and spending optimization will gain traction. Some companies will redistribute manufacturing geographically so that products are made closer to their end markets. Medtech sales and marketing functions will need to speed up adoption of new digital tools and presence on social channels. Teams that have traditionally engaged customers in person will need to acquire new skills to operate remotely. Video demonstrations and other virtual means can be used to introduce new products. Patients will want to know more about the provenance and efficacy of products, and the ethos of the companies that produce them. A clear sense of purpose will become a valuable differentiator.

In this horizon, medical device companies should be reimagining themselves as digital health companies and solution providers. They must think and act collaboratively and overhaul their business models to accommodate a full-service play for outpatient facilities and ambulatory service centers. This is where new growth will emerge.

There will be important policy decisions, for example around preparedness and optimization of inventories that will create future business challenges and opportunities. Medical device companies should strive to make their voices heard, contribute to the discussion, and influence policymaking.







2022 onwards

The profound impact of the pandemic on lives and livelihoods will inevitably influence future policy and regulation. This will likely include changes to the design of healthcare facilities—required to have more isolation wards, perhaps—or greater willingness of providers to use online consultation. Social distancing norms may persist in some form and be accompanied by more visible use of PPE. Health screening and wellness initiatives will gain new significance.

In this horizon, device makers should establish data excellence that will power smart factories and underpin predictive capabilities. Finance and Accounting shared services and co-creation of products through E2E partnerships will become prevalent.

There will be massive pent-up demand as initiatives that were mothballed are brought back on track. Large number of surgeries in areas



including orthopedics, oncology and heart disease will need to be fast-tracked. Mental health will need renewed attention and there will be a need to gauge its long-term implications. Health systems will have to deal with higher numbers of individuals and groups needing specialist interventions. Meeting all this demand will require a disease management approach that will see multiple firms with complementary skills work together to provide a bundle of care.

By partnering with drug makers and service providers, medical device companies can transition and emerge as solution providers. Together with their ecosystem partners they can deliver combined value that is greater than the sum of its parts.

Drivers of new growth

'Never let a good crisis go to waste', said the British wartime leader Sir Winston Churchill. Across the medical device value chain, this crisis illuminates opportunities for innovation and growth.

R&D

Research organizations must explore the potential of digitization and decentralization of clinical trials. Patient recruitment is likely to be harder and restrictions on physical environments will inhibit researchers' options. Direct-to-patient trials with remote monitoring are already becoming the new norm. Growing comfort with telemedicine and remote care among patients, providers, and payers creates opportunities for innovation in device design. IT also has a central role to play in expediting the overall new product development process by enabling effective collaboration between engineers, scientists, HCPs and patients utilizing digital enablers including Augmented Reality, Virtual Reality, virtualized use of CAD/CAE applications and 3D printing. Remote interactions with trial subjects is increasingly being enabled through IoT, wearables and related digital health tracking apps and services. This will eventually help device makers further incorporate user centered inputs into product research and design. Many of them have already commenced exploring collaborations with non-traditional players to expeditiously acquire new data and technology capabilities, which in turn will help accelerate and transform the overall R&D and new product development process.

There will be an increase in the availability of open source specifications. In March 2020, Medtronic made public the design specifications for its Puritan Bennett 560 ventilator to accelerate global production. Carmaker Tesla is one of the companies manufacturing to those specifications.



Frugal innovation will uncover lower-cost products with limited functionality that can be deployed at scale. Price-sensitive developing economies will be particularly receptive. Safety and sanitation norms will influence the nature of innovation.

Manufacturing

Device manufacturers must be more agile. They need the ability to respond quickly to the rapidly changing market demand, such as the sudden need for IV pumps, catheters, ventilators and respirator disposables during a crisis. Automation and robotics also have a role to play. Additive printing and continuous manufacturing will feature in the new world of digital manufacturing where workflows are digitized, and human dependence is reduced. Productivity will increase. Those capabilities also minimize risks associated with future lockdowns, work from home initiatives and social distancing measures.

By participating in ecosystems, medical device companies will find shared production capacity and access to dispersed talent. This alternative to adding to their own capital-draining infrastructure gives them the flexibility to ramp up and respond to upticks in demand.

As in many industries, there will be a drive to lower the reliance on China as a manufacturing destination. This amplifies an existing trend. South East Asian countries such as Vietnam, Malaysia and Thailand have long pushed themselves as alternatives. 'Make in India' is a pitch to international manufacturers. We expect to see the volume on these initiatives turned up in a post-COVID-19 world.





Buyers will want better utility and, where achievable, reusability of devices. This is an area rich for innovation. Device makers should build in safety features and well-defined sterilization protocols to overcome perceptions in some markets that reusability connotes loss of safety. It need not.

Supply chain

Medical device companies will seek to de-risk their supply chains. They must be prepared for future crises and potential second waves of COVID-19 in 2020 and 2021. Future ready supply chains must consider inventory management and distribution models that ensure supplies are available close to key markets.

One effect of the pandemic will be a rising demand for in-home administration of medical interventions. Devices will need to be available in alternate locations through different delivery channels and in different volumes as safety concerns push people towards self-serve models. This has implications for collection of samples, testing and the way results are communicated. Digital will be the key enabler of accurate forecasting and greater visibility across the supply chain.



S&M

Medical device companies should acquire digital capabilities to build outcome-based marketing strategies. This is consistent with an expected rise in wellness and disease management as meaningful metrics within the general population. Data that offers proof of efficacy and supporting analytics will become an important tool for communicators and sales teams. They will have to engage physicians and patients in new ways. Digital touchpoints including mobile apps and chatbots will be commissioned and augmented into sales and marketing plans.

Remote work means representatives will have to participate virtually in conferences and other industry events. This requires a different set of skills in all phases of sales and marketing — whether awareness, conversion, support or retention. Professionals need the skills to operate in that environment — whether contributing as key opinion leaders, developing professional education tools or participating in and supporting professional associations. Field forces will need to be comfortable making video-based sales and conducting virtual training sessions.





Conclusion: Digital transformation is not just a tech issue

Thrust into the spotlight unexpectedly, the medical devices industry is now more visible than ever. Digital technology was already disrupting every part of the value chain—the burgeoning acceptance of telemedicine; automation and IoT in manufacturing; the need, driven by changing customer expectations, for greater transparency in supply chains. Whatever the next normal looks like, and however we get there, we can be certain that digital will take center stage.

Now is the moment for medical device companies to be purpose-driven and to embrace Business 4.0[™] and its transformative potential. Those that do, will be ready to create exponential value as they emerge with newfound resilience and adaptability.



Healthcare is being turned on its head in real time. Device manufacturers, the lifeblood of the industry, must reimagine and reinvent themselves as connected heath solutions providers.

In doing so, they should recognize that digital transformation is not just a technological challenge. People have been shaken and unnerved by recent events. They need help to see what the future looks like and how future crises can be avoided or managed with minimal disruption. Affordability, accessibility, and awareness will be key concerns for all stakeholders. The winners will be those companies that establish leadership and build trust.

About the Authors



Vikram Karakoti Vice President & Business Unit Head, Life Sciences

Vikram heads the North America arm of the TCS Life Sciences business unit. An out n out pharma guy, he followed through his Bachelor's degree in Pharmaceutical Sciences with an MBA in Operations. His initial experience was in R&D, product transfers and manufacturing at an Indian pharma major, followed by a mid-sized pharma firm where he led the supply side of business for India and China.

His first stint at TCS was a leadership role in its SAP Practice, managing the CoE across all applications and industry verticals. In 2007, he moved to the US to head TCS' SAP Practice, anchoring several global, complex multi-year transformation engagements.

Vikram is based in New Jersey, US.





Fali J. Seervai Head - Solutions and Strategy, Life Sciences Business Unit, North America, TCS

Fali has significant management and IT consulting experience. During his journey of assisting global and Indian companies in finding innovative and practical solutions to their complex business problems, Fali has advised clients in areas including, strategic planning, operationalization of strategy, and enhancing the business value of IT.

A business and technology consultant by profession and passion, Fali has been associated with the Life Sciences and Healthcare industry verticals for the past 10 years. Additionally, he has worked across several business verticals including retail, CPG, transportation/logistics, travel and hospitality, utilities, manufacturing, financial services and education.

Aside of work, his interests span travel, ancient history, the world of art, human psychology and cricket.





Contact

For more information on TCS' Life Sciences solutions and services, please visit https://www.tcs.com/life-sciences-healthcare

Email: lifesciences.connect@tcs.com

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