

► MedTech Operations

A Strategic View:
12+1 Things You Should Do
to Stay Ahead of the Competition

MedTech Operations

A Strategic View on MedTech Operations: 12+1 Things You Should Do to Stay Ahead of the Competition

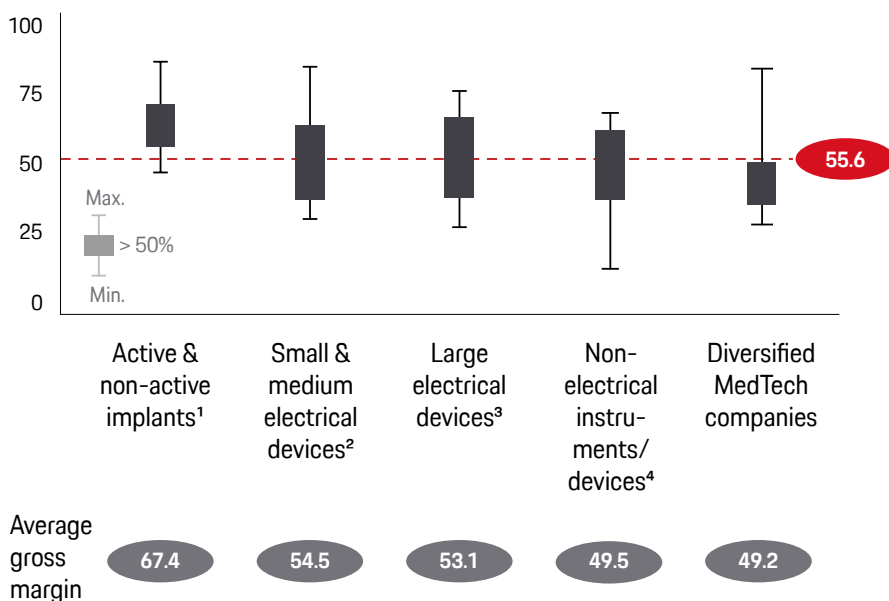
Successful Players of the Future Act Holistically: From Strategy to Transformation of Operations

We assume any MedTech business leader is aware of the transformative power of strategic challenges within the sector. Proactive managers are currently deliberating how they can shape the future of their firms, asking themselves: "What will distinguish leading MedTech companies from the rest in the digital century?" The public debate has centered around high-level strategic and technological considerations, which is tempting but dangerous – as it neglects the impact of operations. We believe that successful MedTech players act holistically: from choosing the right corporate strategy to transforming operations, which is where the value creation becomes really tangible. But, what's the status quo of MedTech operations – especially manufacturing operations? We've therefore analyzed both gross margin level and progress of the listed global Top 100 MedTech companies (figure 1). The result: Gross margin level is still po-

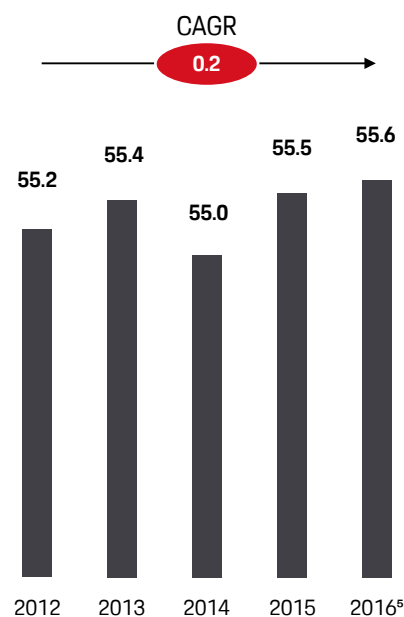
sitive – this applies in particular compared with other R&D-intensive industries. But progress here is lacking. Since 2012, the leading MedTech companies increased its gross margin incrementally by 0.2 percent (CAGR). To put this positively, one could say that it is a phase of stagnation. Considering adjustments for inflation and worldwide economic growth, etc. it would be more realistic to talk about a tremendous regress.

In view of the fact that MedTech companies are facing big strategic challenges, it will certainly not get any easier to increase operational performance. This article outlines how major strategic challenges are reshaping the requirements for MedTech operations (manufacturing scope: production, supply chain management, quality). Moreover, we illustrate 12+1 ideas for how managers can prepare their operations for disruption.

High level of gross margin ...



... but stagnation



¹ e.g. pacemaker, spine screws; ² e.g. dialysis machines, ultrasound; ³ e.g. MRI systems, C-arms; ⁴ e.g. wound care, reuse/single-use medical instruments;

⁵ incl. annual reports published in 2017

Source: Porsche Consulting Research, 2018

Figure 1: Gross margins of listed MedTech global Top 100 in terms of revenue

Disruptive Forces Driving the Future of MedTech Operations

Forecasts find that the value of the worldwide MedTech market will reach \$520 bn by 2022 with a CAGR of 5.1%*. This success is not set in stone for all companies of the MedTech sector. Omar Ishrak, CEO of Medtronic, sees healthcare being at a crossroads**. We share his opinion, perceiving strongly disruptive forces driven by market, technology and regulation. Here is our summary of the key strategic implications for MedTech operations structure deriving from current and future challenges.

* Evaluate, MedTech World Preview 2017, Outlook to 2022, 2016
** Medtronic, Integrated Performance Report, 2016

Globalization leads to necessity of more sophisticated production network management

Globalization in MedTech is today perhaps more relevant than ever before. As emerging countries experience rapid population growth and an increase in wealth, the demand for affordable healthcare increases tremendously around the globe. Providing billions of people access to tailored, quality healthcare solutions is a very attractive business perspective for MedTech players. Fresenius Medical Care, for example, leverages huge growth potential in providing exhaustive dialysis treatment for the Chinese population. However, seizing such growth opportunities requires the ability to manage an increasingly complex footprint. In order to balance synergy creation with local content requirements, firms need to continuously evaluate the appropriate degree of centralization vs. decentralization of their production network.

Global increase of healthcare costs requires highly productive operations

In addition to population growth, aging societies and spreading chronic diseases cause strongly rising healthcare expenditures, putting global health systems increasingly under pressure. Hospitals all around the world are facing challenging financial trends. Providers and payers have the target of optimizing health outcomes while reducing costs, for example by pushing value-based payment systems. Decreasing reimbursement payments lead to spending caps in healthcare organizations, meaning cost pressure is ultimately pushed down to MedTech firms. Price pressure might further intensify as emerging market competitors are gradually gaining importance, already dominating some rather narrow MedTech segments. These developments underline the importance of smart optimization approaches in order to accelerate productivity and reduce factory costs.

Operations must be scalable to successfully ride the M&A wave

Increasing margin pressure is one trigger for the currently witnessed consolidation wave through M&A. Powerful MedTech players such as Medtronic are actively driving consolidation, e.g. reflected in the \$50 billion acquisition of Covidien. The deal significantly expands the merged firms' global reach and product offering, enabling them to exploit cost synergies. Other typical deal rationales refer to portfolio streamlining, as pursued, for example, by Philips in recent years, but also to internationalize specific manufacturing expertise as in the case of Boston Scientific acquiring parts of Neovasc Inc. The relevance for operations? If MedTech companies want to successfully ride the M&A wave, they need to assure a high degree of structural scalability in operations, as this allows for smooth and successful integration – or carve-outs. Organizational scalability of operations is also needed to scale the expected financial synergies up quickly, otherwise it could be years before measurable success in the bottom line of operations is evident.

Patient-centered business models crying out for high-performing operations

Apart from the mentioned market-driven challenges, rapid technological progress and patients' increasing health awareness lead to higher patient-centricity and individualization. This triggers a fundamental transformation of MedTech business models, shifting from selling devices to offering entire value-based disease solutions, customized for individual patients. Take Roche Diagnostics as a real-world example: They have defined "Personalized Healthcare" as a key business priority illustrated by the recent acquisition of mySugr in order to complement their patient-centered diabetes care platform. Such new business models have various implications on operations, including reduced product lifecycles, a growing variety of products and diminishing batch sizes. All these factors require MedTech operations to handle increasing complexity and speed in an efficient and flexible way: High performance operations.



Digital MedTech transformation drives deep IT modernization and new ways of working in operations

Along with patient-centricity and individualization, digitalization of healthcare significantly alters the rules of the game and success factors, clearly stressing the “Tech” aspect of MedTech. Digital health use cases range from wearables over “digital pills” equipped with ingestion-tracking sensors (communicating with the wearable) to artificial intelligence applications, e.g. in diagnostic imaging devices. The new generation of smart devices requires fundamentally different production processes and skill profiles of engineers and operators. Additionally, greater collaboration between operation functions and advanced IT-support is mandatory, e.g. regarding end-to-end quality assurance and functional checks of stand-alone devices, but especially of comprehensive, connected product systems. Besides manufacturing smarter products, firms also use digital technologies in order to enable higher productivity and quality, which is strongly interlinked with our high performance operations argument.

Operations need to be more responsive and make their contribution to avoid falling behind tech giants

Intensified digital penetration of healthcare has attracted a new type of competitor to the MedTech arena. Tech giants such as Apple, Google and Microsoft leverage their information analytics competencies in order to gain momentum in data-driven healthcare applications. For example, the Chinese internet giant Alibaba invested in Wlycloud (telemedicine imaging services) and is taking a step further towards their goal of disrupting China’s medical industry. The main challenge for incumbents is to compete against much faster moving organizations, sometimes even with start-up flavor. In order to prepare for the innovation race, MedTech players need high decision-making speed and lean governance structures also in their operations. Considering the trend of some global pharmaceutical champions starting to encroach onto MedTech’s home turf, the importance of an agile organization will become even higher.

Operations should be able to handle both fulfilment of regulatory needs and simplification of processes

While trying to manage market- and technology-driven challenges, MedTech firms are confronted with strict regulation, adding even more complexity. For instance, the European Medical Device Reform (MDR) demands substantial documentation requirements and more rigorous clinical evaluations for a higher number of medical devices. Unique Device Identification (UDI) requires MedTech producers to be able to identify and track each single device throughout the lifecycle. Adherence to such strict governmental regulations requires a smooth and reliable approach to be incorporated into operations without paralyzing the organization.

Our Conclusion

In order to stay ahead, MedTech incumbents need to comprehensively transform on all three levels:

Strategy, technology and operations. We believe the future operations structure of MedTech companies needs to be flexible, dynamic, efficient, IT-driven, compliant with respect to regulation, and consistent in incorporating complex global production networks. This is nothing less than an organizational masterpiece.

However, this is also the crucial reason why future-proof operations lead to a competitive advantage for players in the MedTech industry.

12+1 Things You Should Do to Stay Ahead of the Competition

Based on both our deep MedTech expertise and exclusive insights into several leading industries, we provide a strategy-driven and MedTech-specific set of 12+1 steps to reshape your operations. This set of 12+1 steps helps MedTech business leaders to navigate their operations successfully through this time of great transformation – turn your operations into a shining company role model for change.

01 Design your global footprint of the future – realize it step by step and in line with windows of opportunity

First, you need a clear idea of the future design of your global production network. Try to always be one step ahead of your competitors, especially in terms of the development of new locations. Be aware of the impact of your footprint decisions – besides transforming the bottom line, you can also leverage production sites to enter new markets, e.g. regarding adherence to local content requirements. In order to reach your target picture, we recommend following a careful approach, as production relocations are often risky and expensive. Use given windows of opportunities, such as new product launches, post-merger integrations or product portfolio streamlining to stepwise implement your strategic footprint vision.

02 Drive decentralization – remain receptive for selected advantages of centralization

The second step is to choose the most suitable macrostructure for your operations network. Mastering the increasing technological complexity in MedTech requires flexibility and speed – attributes which are facilitated through stronger decentralization. Bearing this in mind, centralization should only be considered if there are end-to-end productivity synergies greater than 20 percent, major strategic advantages in terms of standardization and knowledge-sharing or binding regulatory needs. For example, due to diverse technological requirements of production sections, maintenance should be under decentralized control. Nevertheless, do not ignore synergies in maintenance – overall IT systems, special technology expertise (e.g. for robotics), framework to decide about core-/non-core activities, or spare parts management should remain centralized.

03 Install a smart operations matrix – keep it simple and transparent

Advanced matrix structures are key to depict increasing complexity in operations. Such organizational matrices should be built on two leading structural criteria: patient centricity (e.g. by disease solutions) and along the value creation chain. By applying these layers consistently to each operation function, you will safeguard efficiency and agility gains whilst maintaining

organizational simplicity due to clearly defined interfaces and points of contact. The approach also ensures holistic responsibilities with e.g. one quality engineer having end-to-end responsibility for an entire disease solutions' feature.

04 Strengthen cross-functional collaboration – use innovative nudge theory of Nobel Prize winner R. Thaler

Encourage cross-functional collaboration to overcome harmful silo mentality in your operations. This could be achieved by establishing a system of balanced powers in operations, implementing cross-functional tasks in decentral units, e.g. by sharing technology experts among several production sections within a site. Note that the necessity of cross-functional collaboration goes beyond operations functions. Also consider that embedding your experts into the product creation process contributes to cost-effective buildability of complex MedTech product systems. Foster a mindset shift in collaboration by using the 2017 Nobel Prize-winning nudge idea of Richard Thaler. This could serve as an accelerator for cross-functionality. Concepts ("nudges") can be as simple as stocking each recreation area with a different kind of snack, to get people moving and encourage informal knowledge exchange across departmental boundaries.

05 Streamline your staff leadership approach – retain your top talents

Evaluate whether it is possible to reduce hierarchy levels in your organization's structure. Within the operations matrices, employees will be engaged in multiple projects led by different managers. Leadership tasks executed through a direct superior can thereby be reduced to a minimum, which allows for larger spans of control without risking under-management. Elimination of one hierarchy level is certainly feasible, perhaps even more so in very hierarchical or large corporations. The benefits of hierarchy level reduction include personnel cost reduction, boosted speed of decision-making and stimulation of swarms' creativity. This is a nascent challenge: When taking out management levels you need to provide other career benefits to retain your top talents, e.g. crucial project leader roles.

06 Delegate digital competencies to operations – empower operations to be part of the “digital thread”

Institutionalize an IT function with defined powers in manufacturing operations. While corporate IT functions are more important than ever for digital transformation, global standardization and to harness synergies, shifting some IT power closer to the business is imperative to reflect the increasing digital penetration and connectivity of MedTech devices. One of the main tasks: The key to digital excellence is an end-to-end digital information flow along the entire product lifecycle. For sure, operations must be part of this “digital thread”. However, the anchoring of IT functions in operations with a clear agenda in itself is not enough. A real cultural shift is required – from reactive service provider to value-creating business partner with specific process knowledge. Innovative ideas will thereby be generated in co-production between production and IT operations experts instead of being pushed in a top-down approach. As the behavioral change can take years, start as soon as possible.

07 Accelerate industry 4.0 rollout – choose use cases with high business impact but which are feasible

Develop and implement a holistic approach of piloting, connecting and deploying digital use cases across your value network. While many firms in different industries have initiated a digital transformation process, most initiatives become sidelined in the pilot phase. To successfully manage the transition from pilot project to global rollout, make sure that you choose the right use cases (high business impact but feasible), provide sufficient project steering capacities and follow a clear deployment approach. Keeping this in mind will enable you to prevent common pitfalls and reap the benefits in form of increasing efficiency and flexibility within your operations.

08 Use machine learning to boost quality standards

Say goodbye to manual inspections and exploit technology to perform quality assurance. No longer allow error-prone traditional quality management approaches to limit the speed and reliability of your production. Instead, make use of advanced analytics – machine learning in particular – to optimize all relevant quality dimensions at the same time: The results are improved quality, reduced costs, fulfilled regulatory needs, and enhanced yield. The ultimate aim is real-time automated quality control along production lines, i.e. machines performing visual inspections and quality checks in near real time.

09 OpEx beyond Lean – implement next-generation Operational Excellence

Include and actively push digital excellence within your Operational Excellence function – solely focusing on physical assets is outdated. Use innovative methods to shift your Operational Excellence function to the next level. Equipping trainers with innovative methodological skills from the digital age, such as design thinking or SCRUM, can significantly improve the effectiveness of Operational Excellence programs. Applying such methods to your Operational Excellence team will foster creativity and innovativeness, thereby going beyond continuous improvement of existing processes. In addition, use your OpEx organization as an interface to external partners. Partnering can range from collaborating with start-ups to quickly developing and implementing new solutions, to cooperating with scientific institutions to absorb deep expert knowledge for specific optimizations (e.g. revolutionize quality control by deep learning).

10 Innovate production launch organizations – translate software approaches to leapfrog

Reorganize your project organization by using approaches of the digital age to handle varying product launches more effectively. We consider so-called “squads & swarms” of the software industry as a good role model. Spotify, for instance, has implemented “squads,” which are small, cross-functional, autonomous teams with end-to-end responsibility. This approach ensures an extremely agile organization facilitating minor and frequent software releases without complex rules and processes. Translated to the MedTech industry, such principles could be applied to handle the challenge of increasing frequency and complexity of productions launches. Do not overstretch your organization. Instead, choose a pilot project of medium complexity with sufficient lead time and carefully defined resource requirements.

11 Shift your focus from firefighting to frontloading – guarantee space for structured problem solving

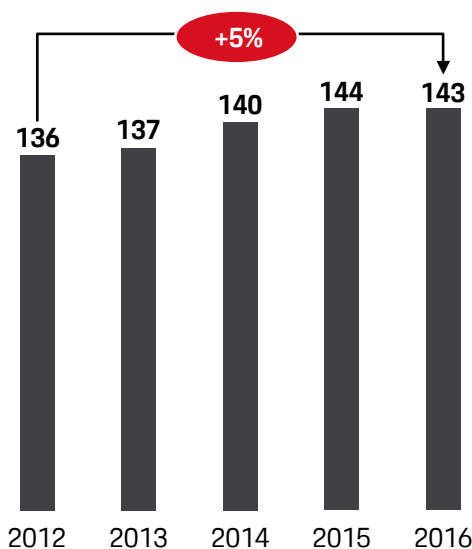
Start tackling the root causes of problems instead of focusing on daily troubleshooting. Guarantee space for crucial project work, e.g. by offering a central platform where employees can apply to collaborate in problem-solving teams. By leveraging the intrinsic motivation of your people, this approach especially facilitates the solving of complex problems. You do not necessarily need a “big bang” solution: Start with giving your employees a couple of hours per week off to working on these projects. The model also helps matching roles to people which facilitates employees’ satisfaction and performance.

12 Get your capacities under control while limiting inventories

If you want to sell, you have to be able to deliver. Therefore, take the challenge to synchronize global customer and patient orders with your production capacity and supplier inputs. However, companies often tend to plan and dispatch against unlimited capacities. Our solution is to level the different influence factors, which means the entire steering process should be pooled at one single source. The program planning branch takes care of the flow of information between sales and production. The demand and capacity management branch guides the interplay between production and purchasers in the procurement. Altogether the method will safeguard delivery capability while limiting inventories at a reasonable level (See figure 2 for progress in optimization of stock level of MedTech global 100).

Inventory

Days on hand, average per year



Source: Porsche Consulting Research, 2018

Figure 2: Inventory level of listed MedTech global Top 100

+1 Overcome typical boss-like attitudes in MedTech operations – and still be responsive

Because times are changing, leadership is changing. Stop acting like a traditional operations leader. That means for example openly sharing information and knowledge as well as encouraging suggestions and ideas from your team. Especially important for operations leaders: Cast away those typical boss attitudes, such as being the expert for everything. Instead, focus on strengthening the strategic focus of your operations leadership team. Daily business and expert tasks should be delegated, promoting quick problem solving and creativity within the workforce. Streamlining the meeting structure in operations to speed up decision making processes could be a first concrete step. Prudently rethink which meetings really require executive attendance (very often management attention determines non-value adding meeting preparation efforts).

Do you think our 12+1 steps are appropriate to tackle your most urgent issues? When considering to implementing these ideas, please keep in mind that companies differ in terms of their organizational change culture. Try to not overstrain your operations team by implementing too many changes at once: 12 steps could mean thinking about one of the steps every month for the next year. A comprehensive but sensitive approach will help you to withstand the current restive times and to claim a leading position within the MedTech industry.

Take the challenge and revolutionize your operations.

12

THINGS YOU SHOULD DO IN MEDTECH OPERATIONS



+1

Overcome typical boss-like attitudes in MedTech operations – and still be responsive

Authors



▶ **Dr. Roman Hipp**
Partner
MedTech & Healthcare
roman.hipp@porsche.de
+49 711 911-1 21 16



▶ **Dr. Till Giese**
Manager
MedTech
till.giese@porsche.de
+49 711 911-1 21 16

Further reading

Porsche Consulting regularly publishes reports and articles on major trends, innovations, and ways to keep companies competitive.



Porsche Consulting
Top Management Study
Healthcare of the Future



Porsche Consulting
Top Management Study
Improving Quality at Hospitals



Porsche Consulting
Representative Patient Survey
Patient Centricity in Hospitals



Porsche Consulting
Top Management Survey
Lean Hospital Management in Germany

Acknowledgements.

The authors would like to thank Eva Bellm (Manager Corporate Development) and Oliver Kienzler (Consultant Corporate Development) for their insights and support. Finally, the authors also thank Luisa Boger and Daniel Vogel for the publication and design of this report.

Porsche Consulting.

Headquartered in Stuttgart, Porsche Consulting GmbH is a subsidiary of the sports-car manufacturer Dr. Ing. h.c. F. Porsche AG. Founded in 1994 with a team of four, it currently employs more than 450 people. An internationally active company with four international subsidiaries of its own in Milan, São Paulo, Atlanta, and Shanghai, it is one of Germany's leading management consultancies. Porsche Consulting advises large corporations and medium-sized companies worldwide in the automotive, aviation and aerospace, industrial goods, and medical technology industries as well as financial services, consumer goods, retail, and construction sectors.

Strategic Vision. Smart Implementation.

As a leading consultancy for putting strategies into practice, we have a clear mission: We generate competitive advantage on the basis of measurable results. We think strategically and act pragmatically. We always focus on people - out of principle. This is because success comes from working together with our clients and their employees. We can only reach our aim if we trigger enthusiasm for necessary changes in everyone involved.

