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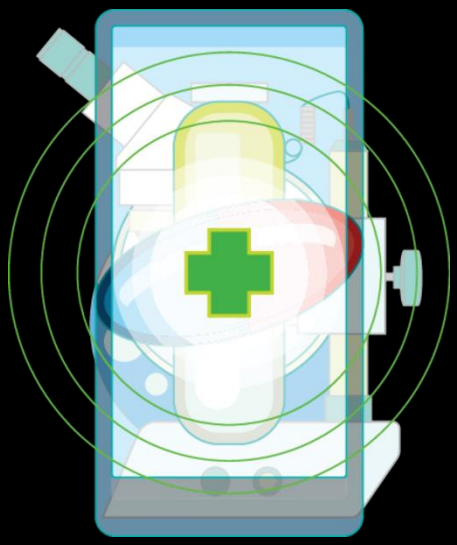


Data Modernization in MedTech

The key to unlock your data-driven ambitions

Within the MedTech industry, organizations are increasingly recognizing the paramount importance of data for streamlining operations, driving efficiencies, and enhancing decision-making, placing data at the top of their internal agenda. Data modernization has become a crucial step for MedTech companies seeking to stay at the forefront of their industry's evolution and succeed in a data-driven world.

In recent years, MedTech companies have faced increasing pressure as the volume of available data continues to grow, both internally and externally. Consequently, the ability to effectively leverage this data has become a critical success factor.

To adapt to this data-rich environment, companies are exploring diverse collaboration models and implementing comprehensive customer and product 360-degree views as well as investing in generating the insights they need to gain a competitive edge.

Additionally, the integration of new AI solutions such as LLM (Large Language Models), and automation technologies is driving MedTech companies to reevaluate their data management capabilities, processes, and solution architecture.

The need for agility and rapid go-to-market analytics solutions is pushing organizations to reexamine their data foundations. However, the current data landscape often falls short of meeting these demands due to outdated infrastructure and obsolete or inadequate data management processes.

Data management has undergone significant evolution in recent years, particularly with the rise of AI and cloud technologies. This transformation has completely revolutionized the way data is handled within the MedTech industry. Modernization in this context involves migrating to the cloud, enabling data sharing without physically moving the data itself, and embracing automation to streamline data management and engineering tasks, now facilitated through AI-powered solutions like ChatGPT or even MedTech solutions directly embedding AI models.

How should organizations translate their data modernization strategy? Where should they start? How can they justify the related costs?

Data-sharing: the true objective of data modernization

“For life sciences companies, data is the lifeblood of digital transformation. Both within and outside their walls, organizations are beginning to share data without privacy concerns using an application programming interface (API)-first approach. (..) The result? Organizations gain a secure foundation for interoperable data-sharing, both across the organization and as collaboration opportunities arise with partners, payers, patients, and providers.”

Deloitte Perspectives: Tech Trends 2022: A life sciences perspective

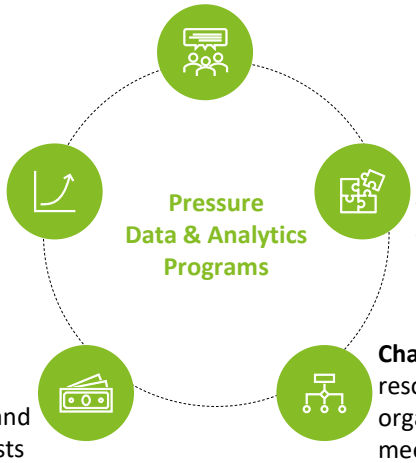
Why invest in modernizing your data landscape?

The MedTech industry is under pressure

MedTech organizations are currently under pressure due to internal and external factors:

Evolving Customer Needs & Safeguard Customer Satisfaction: Traditional MedTech customer expectations are changing rapidly, forcing organizations to move from being product-centric to being customer-centric. This requires to build robust capabilities and a true customer-360 view to provide teams with the insights the need to deliver the expected services customers expect today.

Data Explosion & New Entrants: With around 30% of the global data volume being generated by the life sciences & healthcare industry (and less than 2% being stored), MedTech companies need to now heavily invest in their data and analytics to provide new services and remain competitive.



Innovation & Scale: MedTech organizations are moving from shipping boxes to establishing solutions and long-term partnerships to improve outcomes. In addition, the shift from medical hardware to medical software requires the support of large data platforms. To allow for continuous innovation and scalability of developed solutions legacy digital infrastructures need to be modernized.

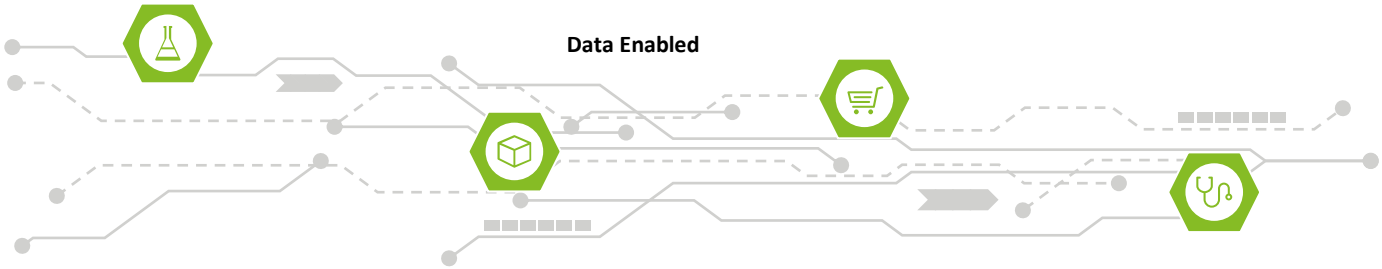
Increasing Costs & Resources Shortage: The rising energy and raw material prices (and shortage), combined with unstable inflation and increasing logistics and data management costs have had a major impact on operations. In addition, the industry faces strong competition for high-skilled resources such as (data) scientists and engineers, increasing labour costs.

Changing Internal Structure: Given cost and resources pressure, many MedTech organizations need to reorganize internally to meet the new reality and serve their customers. For example, by reviewing the role of data & analytics traditionally under IT as a function on its own or centralizing their delivery capabilities at region/global level.

In a response to those pressures and to better leverage the potential of their data, MedTech **organizations are launching a series of large data & analytics programs** in various areas of their business (e.g., pricing analytics for commercial, supply chain optimization, etc.) as well as tech-enabled transformations (e.g., data modernization & platforms, S/4HANA, Intelligent Automation, etc.).

Data & Analytics as key enablers across the value chain

A strong data strategy, the required data capabilities associated to that strategy, and a solid data foundation are a key enablers to the corporate and business strategy as well as to deliver value across the value chain:



R&D and Clinical Development	Manufacturing & Supply Chain	Launch & Commercial	Post Market Surveillance & Patient Support
Reuse data effectively to accelerate the research & development process. Analyse data acquired (e.g., from medical devices, Electronic Health Records, etc.) to identify trends, predict outcomes, and develop more effective products and services	Leverage (real-time) data and analytics to enhance supply chain efficiency, optimize inventory management, and improve products quality. It can help predict demand, ultimately reducing waste and improving overall sustainability	Combine data to identify market opportunities, optimize pricing strategies, and improve sales and marketing efforts. With the shift towards value-based care, data becomes key to demonstrate the value of devices and services	Gain insights into patient outcomes and devices efficacy to improve patient safety, reduce risk and support healthcare providers in making more informed decisions. Insights can also help maintain regulatory compliance

How to realize your Data Modernization journey?

A data modernization journey requires an end-to-end approach at the Strategic, Foundational and Operational levels simultaneously

While a lot of focus is put on data related efforts within programs (e.g., SAP transformations, business solutions implementations, etc.), we recommend to have a holistic approach in order to implement the data strategy across the organization

We defined three different layers MedTech organizations need to tackle in parallel (as part of a transformation journey)

Strategic Layer: Build a long-term data vision, supporting the business strategy, planning and new demand

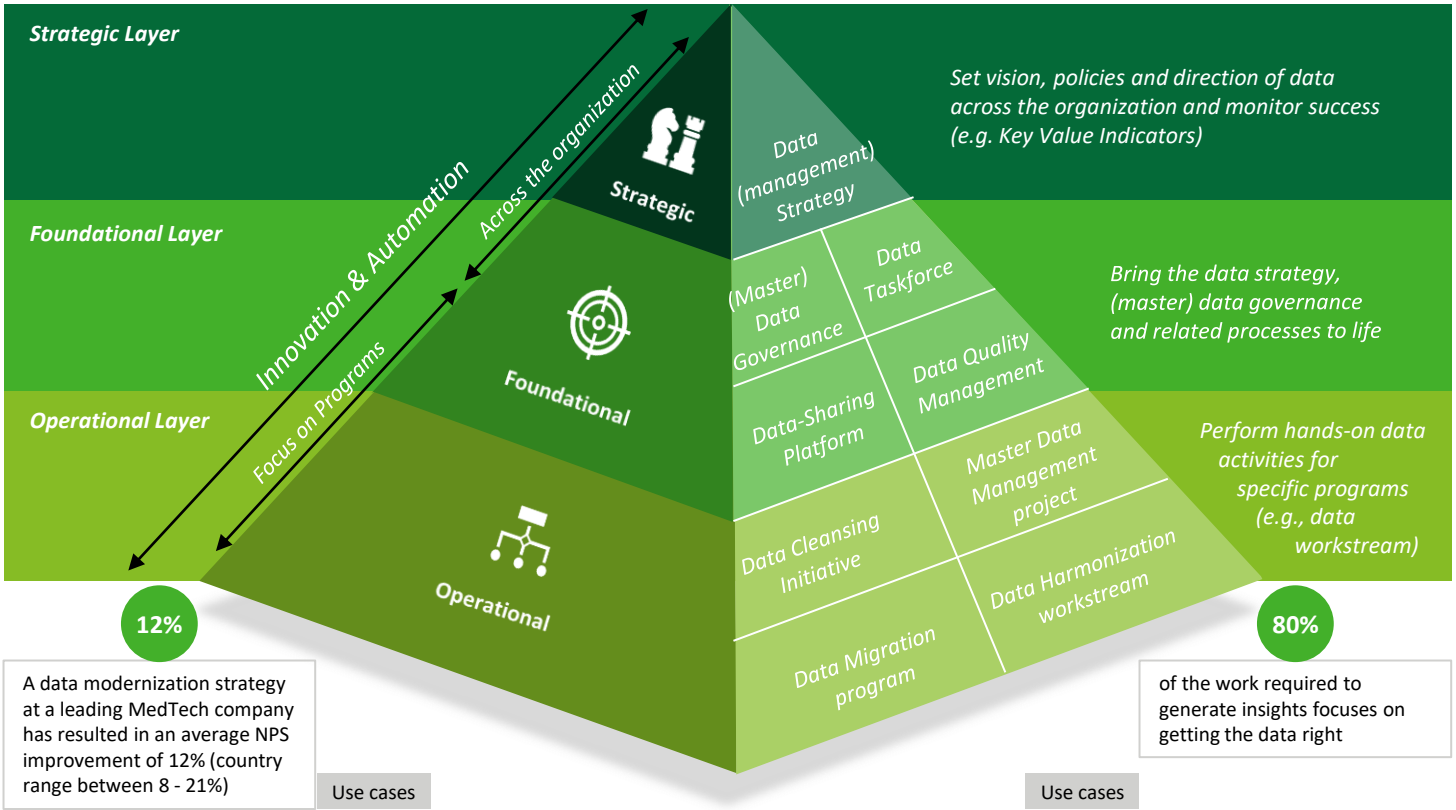
- Define and monitor a data strategy (value of data and insights, ambitions for the organization, business model, etc.)
- Align on use cases on which to apply data & analytics to ensure value creation through the use cases (and not just the cost of managing data)
- Define key priorities across people, process, data and technology dimensions which will drive the foundational layer
- Establish policies and direction for the organization

Foundational Layer: Create organization-wide capabilities, enabling the implementation of the strategy across the organization

- Identify critical data to enable the strategy and use cases
- Build/scale data-sharing platform(s) and other cross-business enabling solutions (e.g., business rules engine, MDM solution)
- Define (master) data governance roles, responsibilities, processes, etc.
- Translate data strategy into concrete actions through a Data Task Force
- Support programs/initiatives in enforcing policies and guidelines while enabling the data culture change
- Ensure alignment across domains, programs, initiatives, etc.

Operational Layer: Kick-start data programs and initiatives, enabling short-term wins and specific outcomes

- Focus on program/initiative-level challenges (e.g., data harmonization, data cleansing, monitoring data quality for a migration)
- Perform day-to-day tasks for program-related data issues
- Incorporate (master) data governance roles, processes, etc. in the program



What are some key success factors?

While it is clear for MedTech companies that data & analytics is key to realize their long-term strategic ambitions, most still struggle to unlock the potential of their data.

We have identified six critical success factors for MedTech organizations to achieve their data modernization journey

Demand Process & Value Tracking

- Align business, Data and IT on prioritized use cases and new demand as well as ensure priorities are based on business value and (data) strategy

Clear Data Strategy across the Organization

- Build a clear data vision and associated roadmap for data implementation/ execution strategy
- Define a strong governance model and well-defined quality standards within but also between programs (e.g., integration of SAP (master) data with other solutions)

Strong Data Culture & Skills

- Build a data culture and data capabilities (mindset, skills, etc.) and create awareness across data domains while enabling the utilization of leading data practices
- Have a strong sourcing strategy to acquire/outsource the right talent
- Embed data and insights in decisions. Reward people for identifying broken/bad quality data

Data Harmonization & Quality

- Harmonize data to improve overall quality and rationalization of the data landscape
- Align and harmonize processes to enable high quality data that allows apples vs. apples benchmarking (this calls for data owners and stewards)
- Manage data quality to steer and improve downstream business adoption

End-to-End View & Master Data Management

- Establish strong MDM capabilities and ownership to ensure master data is leveraged across the organization
- Use multidimensional view to enable efficient End-to-End usage of data
- Keep the overview as well as ensure consistency and synergies on various demands and data flows

No Parallel Initiatives & Overlap

- Avoid siloed projects, unaligned initiatives/investments and fire-fighting
- Ensure data initiatives at all levels are coherent/aligned with the overall data vision (e.g., data migration/integration workstreams within programs, data quality reporting or MDM project, data cleansing requests from downstream consumers, etc.)

A necessary step to generate value

Data is a cost, analytics is still a cost; value only comes from generated insights when used for specific use cases delivering business benefits
Data modernization is a necessary step for MedTech companies to harness the full potential of their data assets. It builds the foundation required to drive better decision-making, customer insights, operational efficiency, innovation, and competitiveness in an increasingly data-driven world. In particular, with the rise of LLM (GenAI) and advanced analytics use cases fuelled by data, sound data capabilities have become even more crucial to truly unlock the benefits of those technologies (and trust their outcomes).

"After years of investments in data and analytics, life science organizations have yet to hit their stride in delivering and demonstrating analytics value at scale"

Gartner, Predicts 2023: Digital Transformation of Healthcare Beckons New Era for Life Sciences

What does it take to transform?

Due to the competitive pressure, MedTech organizations are investing more and more in maturing their data capabilities, becoming conscious about the true benefits of sharing data across the business domains, such as:

- **Speed to Market**: Decentralized data operations and self-service infrastructure allow business to reduce time-to-market and cut down the IT backlog (e.g., to deliver new commercial insights or new customer/patient facing apps)
- **Agility & Autonomy**: Decentralization of ownership and data activities (pipelines & insight generation) allow business to be more agile and operate independently (i.e. IT is not a bottleneck for technical development)
- **Trust in Data**: Mutual collaboration between business units will increase the quality and trust in the data (e.g., improving customer interactions by leveraging trusted data on product orders and sales)
- **Transparency**: Clear view on which data is available within the organization and who is using what, to better leverage existing assets while clarifying ownership

However, to fully realize their data modernization journey, MedTech organizations need to transform internally.
We consider four core dimensions to achieve it:

Data as a Product, shared across the organization

- MedTech organizations need to manage data as any core product within their organization. This includes ensuring its quality and re-usability while avoiding data being shared in an unsupervised way

Impacts:

- Decentralized data products (e.g., raw or derived datasets, Analytics & Insights, AI models) owned by teams should be treated with the consumers' mindset (manage consumer expectations, demands, etc.)
- Teams are responsible for the quality of their data products
- Data products must be usable and valuable
- Increased trust and quality expectations in the data products by consumers

A shift in data & analytics ownership and data culture

- Business-led or other logical grouping of data products should be created to define a set of data domains. Those data domains ensure ownership of the data products cross systems

Impacts:

- Business data domains own their data pipelines and focus on critical data consumed for value creating use cases
- While data domains don't necessarily own source data, they own the result of transformed data products and the generated insights
- Data domains own cleansing, refinement, historization & aggregations of their data products
- Mindset and skillset shift within the business. Data ownership provides autonomy/flexibility but also comes with responsibilities

Sharing Data across the organization (and beyond)

Internal and external data-sharing enabled through technology

- Data-sharing & self-service platforms provide a technical environment managed by IT but available for data domains to seamlessly access a catalogue of data products as well as create and publish their own in a more efficient and cost-effective way

Impacts:

- Data domains (business) becomes responsible for managing their data capabilities leveraging the infrastructure and tools provided by IT
- IT acts as an enabling functions to support delivery (factory model) and address roadblocks
- Guidelines and rules (defined by a centralized platform team) ensure consistent usage of the platform across domains

Controlled decentralization through a federated data governance

MedTech organizations need to deal with siloed and disconnected data.

The shift towards a decentralized data ownership needs to be associated with a centralized layer (governance body), providing consistency and control across the data domains.

Impacts:

- A cross data domain governance team needs to be setup to support the polices, guidelines and principles definitions (including trustworthiness of the data and insights generated
- Data domains have to follow policies and standards defined by the federated governance team while having the direct accountability & ownership of their data products (business teams get 'freedom in a box')

The future of data-sharing through Data Marketplaces

Data marketplaces can consist of (1) internal marketplaces, enabling data democratization within an organization; and (2) external marketplaces, providing live access to ready-to-consume third party data products. Those data marketplaces are removing barriers to data access, generating high measurable benefits within organizations and supporting new business models (e.g., data monetization)

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If you would like to learn more about this topic and how our Deloitte team can help you, please contact us

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