INNOVATION RESEARCH INTERCHANGE

Accelerating Value Creation

RTI Innovation Advisors

Digital Transformation Case Study: Compendium

Table of Contents

"The most challenging aspects of [digital] transformation do not relate to technology at all, but people. When you introduce new ways of working or doing something, it is natural for business leaders to be skeptical until they understand how it will help them."

— Mike Adams, Vice President, Chief Information Officer Brunswick Corporation

Executive Summary

Digital transformation[1] has the power to disrupt traditional ways of working and unlock new capabilities and opportunities in practically any industry sector. To fully understand the potential of digital transformation, and to share lessons learned from the non-digital native companies (known as legacy companies) that are pursuing it, IRI and RTI Innovation Advisors (RTI) joined forces in 2019 to conduct a series of six digital transformation case studies.

Over the past 2 years, RTI interviewed leaders of digital transformation efforts at six IRI member companies and developed case studies to document their journey toward digital transformation. These case studies feature companies that represent a variety of legacy industries: Michelin (tire manufacturing), USG (building materials), DuPont and BASF (chemicals and advanced materials), Brunswick Corporation (personal watercraft), and Novozymes (industrial biotechnology). Each company shared their experiences with digital transformation thus far so that others could learn from their experiences. We are extremely grateful for their openness and participation. Each case study is available for IRI members through the IRI website.

The following questions are answered throughout the case studies series:

- What internal and external drivers were most influential in providing the impetus for major digital transformation efforts?
- How did each company initially organize a digital transformation team, and how has that structure evolved over time?
- How did each company develop and execute their digital strategy?
- What internal and external talents helped advance the digital strategy?
- How have digital transformation efforts expanded across the organization?
- What digital offerings were developed to solve business challenges?
- How do these organizations measure the impact of their digital efforts?
- What lessons learned do they have from these experiences, to share with others who are early on in their digital transformation journey?

We hope you find this compendium, and the deep dives into six digital transformation journeys, helpful for your organization's digital journey.

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[1] Among the myriad definitions of digital transformation, this succinct definition from Salesforce is useful: "the process of using digital technologies to create new — or modify existing — business processes, culture, and customer experiences to meet changing business and market requirements. This reimagining of business in the digital age is digital transformation."

Introduction and Purpose

Digital transformation has far-reaching implications and impacts and can be seen as a major disruption (good and bad) to non-digital native companies (also known as legacy companies). To fully understand the potential of digital transformation and to provide a platform to share lessons learned with IRI members, we embarked on an effort to document and share stories about the digital transformation journey. We selected six legacy companies that have embraced digital transformation as a central part of their business evolution.

This compendium summarizes key findings from the six companies' journeys. RTI developed two analytical frameworks to document each company's journey through the stages of organizational change and lenses of digital evolution; we continue the Four Stages and Six Lenses frameworks here to point out commonalities and unique aspects of digital transformation journeys.

Profiled Companies

The six profiled companies span a variety of industry sectors and corporate functions. Yet, each has in common several key characteristics, including a long and successful history based on physical products, significant investment in R&D as a driver for growth, complex manufacturing methods, and a large global footprint. A brief summary of each company follows, listed in order of publish date.

Michelin was incorporated in 1889 and has a long and successful history of manufacturing tires for vehicles as diverse as bicycles, agricultural equipment, automobiles, aircrafts, and the space shuttle. It is the second largest manufacturer of tires in the world, with operations in France, the United States, Brazil, and several countries in Europe and Southeast Asia.

USG was founded in 1902 when smaller gypsum companies merged to form the largest gypsum producer and processor in the industry. Today, USG is a leading manufacturer in the building products industry, producing wall, ceiling, flooring, sheathing, and roofing products. USG is perhaps best known for its Sheetrock® brand of gypsum wallboard panels. USG is a top-ranked seller of gypsum wallboard and ceiling panels in North America.

DuPont is a multi-industry specialty materials company with research centers, manufacturing sites, and offices spanning over 70 countries. DuPont has a long history of developing science-based products and applications. Éleuthère Irénée du Pont founded E.I. du Pont de Nemours & Company in 1802. Today, DuPont works with industry leaders in safety, health care, nutrition, electronics,

mobility, and construction, creating technology-based materials, ingredients, and solutions.

BASF was founded in 1865 to produce dyes and inorganic chemicals. Today, BASF is a world leader in the chemical industry, contributing to the success of customers in nearly all sectors and almost every country in the world. BASF's portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care, and Agricultural Solutions.

Brunswick Corporation has been developing, manufacturing, and marketing a wide variety of products since 1845. Brunswick's early years focused on sporting equipment: billiards tables, bowling balls and pins. In 2019, Brunswick transferred its entire fitness, recreation, and sporting equipment division into private hands, becoming a pure marine-focused company. Today, Brunswick is best known for its boating-lifestyle brands such as Mercury Marine, Sea Ray, Bayliner, Crestliner, Harris Boats, and Boston Whaler.

Novozymes was founded in 2000 as a spinout from pharmaceutical company Novo Nordisk; however, Novozymes' roots date back to the 1920s.Today, Novozymes is a global leader in biological solutions, producing a wide range of industrial enzymes and microorganisms. Novozymes operates in more than 30 countries and serves customers in over 40 industries. The company's business consists of two segments: Agriculture & Industrial Biosolutions (AIB) and Consumer Biosolutions.

Lessons Learned—Stages

Each case study followed a basic organizational transformation construct, examining four distinct stages:

- **Impetus**—Change drivers that led a company to contemplate and pursue digital transformation
- **Preparation**—The specific initial steps taken to set the stage for and embark on the digital transformation
- **Action**—The kinds of actions taken across the key aspects or "lenses" as the company's digital transformation progressed
- **Maintenance**—Lessons learned and continuing actions to sustain the transformation

Lessons learned are organized by stage.

The Impetus for Digital Transformation

A mix of internal and external drivers played a prominent role in catalyzing the six companies' digital transformation journeys.

Looking across the six companies profiled in this digital transformation case study series, the stimuli that led these companies to contemplate and pursue digital transformation can be organized into internal and external drivers. Four of the six companies were driven by both internal and external drivers.

One of the external drivers consistently mentioned was the emergence of digital technologies and infrastructure—either by a competitor or in an adjacent industry. Examples cited by companies include artificial intelligence, 5G, data analytics, Internet of Things, and connected supply chains. The emergence and application of these enabling technologies served as inspiration for these companies and, in some cases, underscored the need to jumpstart their digital journey to remain relevant and ahead of the competition.

> "Amazon changed the way we do business—like it or not. A contractor wants to use his phone to see products USG offers, place and track an order. He expects that experience now."
>
> —Dr. Srinivas Veeramasuneni, Chief Technology Officer USG

Internal drivers were less consistent across companies, depending largely on the intricacies within each company. Internal drivers most frequently cited include corporate-wide commitments to digital transformation, company restructuring, and the need to reduce silos and bring a coordinated effort to digital transformation via dedicated resources (time, money, and people).

Two companies—DuPont and Brunswick—had similar stories of company reorganization paving the way for digital transformation. Brunswick sold Life Fitness and transferred Brunswick's entire fitness, recreation, and sporting equipment division into private hands, becoming a marine-focused company. DuPont's journey was catalyzed by the merger and separation of DowDuPont. In both instances, a reorganization of company structure prompted leaders to consider how digital offerings would fit into the larger picture of their new organization.

Internal Drivers	External Drivers
• **Changing Structures**—companies undergoing organizational changes and restructuring leveraged digital transformation as a central pillar to their new operating structure. • **Corporate Vision**—inspired by the art of possible, companies began to make corporate-wide commitments to advance digital innovation to achieve a desired state, such as greater customer focus. • **Evolving Priorities**—companies wanted to shift IT from a cost center to a strategic partner.	• **Tech Evolutions—**companies wanted to leverage emerging technology-driven growth opportunities, including automotive electrification, AI, and 5G. • **Competition**—competitors were leveraging data to enhance operations and speed up new product development. • **Adaptation**—digital transformation efforts were happening in other industries and supply chains, forcing companies to adapt. • **Foresighting**—companies recognized the disruptive potential of digital transformation during long-range planning exercises.

The Preparation for Digital Transformation

To set the stage for their digital transformation journey, companies crafted a vision and business rationale for digital transformation.

To prepare for the digital journey, companies were consistent in articulating a vision and business rationale for the importance of digital transformation in the context of the wider organization. Although the visions varied across companies, each company sought to answer the question, "why digital transformation?" The crafting of this vision helped garner buy-in from key stakeholders and build the necessary teams to support the vision. These visions became the underpinning to the digital transformation strategies developed by each of the six companies.

The Actions of Digital Transformation

Four actions were consistently undertaken by companies as they set out on their digital transformation journey.

Companies took various actions in response to the internal and external drivers that inspired pursuit of digital transformation. Looking across the six case studies, several actions were consistently prioritized and undertaken as part of the digital transformation journey.

- **Secure buy-in and investment from leadership.** Before setting off on the digital transformation journey, leaders tasked with digital transformation needed to garner buy-in from executive leadership. Ensuring strong buy-in from executives helps resource efforts and helps drive cultural change.
- **Develop a digital transformation strategy**. All six companies profiled had an anchoring digital transformation strategy and strategy document. Although each strategy varied in scope and structure, the strategy served as the focal point for digital transformation efforts.
- **Form a small advisory group**. Early in the digital transformation journey, the profiled companies created a small advisory team comprising individuals from different units to collaborate and execute the digital transformation strategy.
- **Commit to upskilling**. Upskilling through training and educational programming, enabled companies to scale up digital skills and foster a digital culture.

These actions and others are elaborated upon in the Six Lenses Framework below.

Lessons Learned—Lenses

To evaluate each digital transformation, RTI developed a series of perspectives or “lenses” to explore different aspects of each case study company in a systematic and comprehensive fashion. In each case study and in this compendium, we apply these lenses to understand how a company’s digital transformation manifested itself and how the company has changed as a result.

Each case study is also outlined in the context of RTI's Six Lenses of digital transformation:

- **Strategy**—the corporate, product, and digital strategies and how they inform the business and how or if corporate vision and strategy have changed as an intentional part of the digital transformation
- **Structures** (organizational structures and hierarchies)—how structures, teams, and leadership have influenced the digital transformation work and how the purpose, design, governance, and activities of the organization and teams have evolved as part of the digital transformation
- **Resources** (people, time, funding, etc.)—how resources and their allocations are influenced by digital transformation initiatives and how these have changed digital investments, talent and expertise, and capabilities
- **Culture and Change Management**—how existing beliefs and norms influenced digital transformation and how culture, communication, collaboration, incentives, and training changed in the face of digital transformation
- **Technology and Data—**how information technology, digital systems, and data environments are shaped and evolved as a result of digital transformation. As part of the digital transformation, what changes to technology infrastructure, systems integrations, data management (access, quality, etc.), capabilities, and new applications have occurred?
- **Opportunities and Offerings**—how existing business opportunities and business models influence digital transformation and how in turn business opportunities are changed or are introduced as digital transformation evolves. Customer centricity is often a key aspect of new digital efforts and offerings and will be considered in detail.

As digital transformation explores or affects some or all of the aspects via these evaluative "lenses," we include the learning from those changes in our analysis.

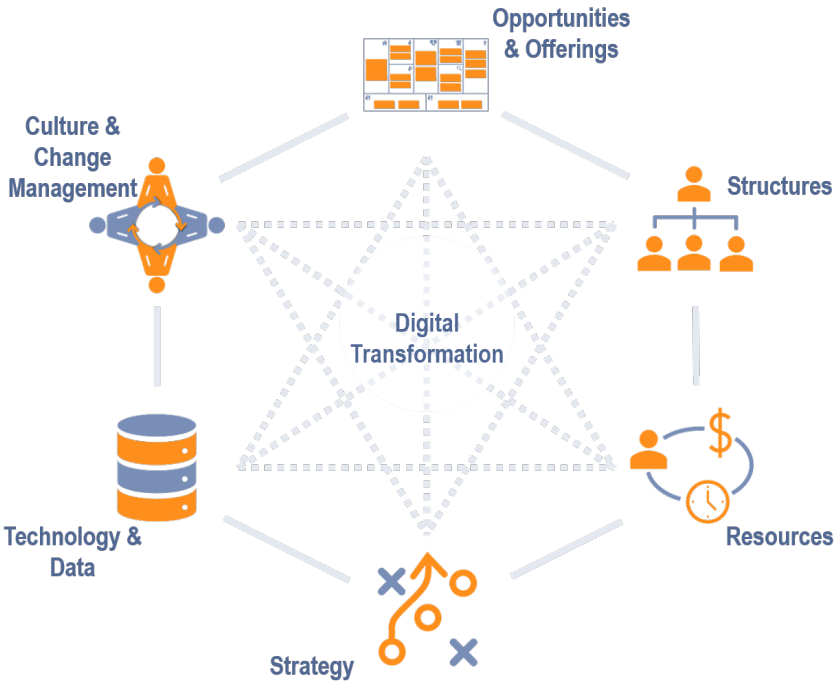


Figure 1—Six Lenses of Digital Transformation

Strategy Lens

One of the defining actions that all six companies made was the development of a strategy to underpin their digital transformation efforts. In this section, we highlight recurring themes from our six legacy companies related to the development of corporate, product, and digital strategies as an intentional part of the digital transformation journey. The following recurring themes resonated throughout the case studies:

- **Speed and agility**—Agility in the digital transformation strategy empowers organizations to adapt to recurring shifts in technology, business/customer needs, competitive offerings, and industry structure to make real-time adjustments to their strategy. Both DuPont and Michelin recognized the importance of a rapid and adaptable approach to digital transformation and developed short, sprint-like plans to deliver value quickly while not getting bogged down by potential market or customer changes. DuPont veered away from a multi-year strategy and instead executes its Spark Digital strategy in 1-year increments, focusing on a theme each year, allowing them to pivot annually. Michelin similarly emphasized agility and adaptability in its strategy. Michelin developed a rolling 3-year directional strategy with definitive 1-year plans tied to specific business units and with definable business objectives providing flexibility and delivering value to specific units quickly.

> "You have to find a customer pain point, create a value proposition, and show how digital can solve that customer problem. It's hard to show how a digital tool 'makes money,' so it's better to focus on how digital changes the customer experience. Changing the customer experience leads to greater customer loyalty, greater sales, and other benefits."
>
> — Sam Immordino, Director Construction Software & Services, North American Center of Excellence, USG

- **Power of simple frameworks**—USG, Novozymes, and DuPont digital transformation strategies feature simple graphical images to explain their digital transformation strategy, communicate it consistently and clearly to all stakeholders, and guide-specific actions.
- **Alignment with a specific business need**—Digital transformation leaders repeatedly cited that digital transformation efforts should align with and support broader business needs. For example, Michelin, USG, and Brunswick's digital transformation journey focused heavily on customer experience.

Structures Lens

Any successful digital transformation journey is underpinned by a strong leadership and supportive organizational structure. In crafting that supportive structure, companies profiled in this case study series relied on dedicated teams of individuals. Although small in size, these teams typically include key decision-makers, such as the Chief Information Officer, Chief Technology Officer, and business unit leads. The cross-disciplinary nature of these teams promoted collaboration and ensured buy-in from all the necessary stakeholders. Notably, five of the profiled companies chose to set up their digital transformation team outside of their corporate information technology (IT) team, whereas Brunswick embedded the digital transformation team within the IT department. Companies that set up the digital transformation team outside of the core IT team wanted distinct separation between the two groups because they have vastly different missions. IT is charged with managing and executing legacy data system projects and infrastructure, which focuses on execution and helping the organization perform. Digital transformation teams are exploring, innovating, and testing the latest and greatest digital technologies to help the organization transform.

> "When you implement this kind of program in a large corporation, there is natural resistance. It is critical to have the right alliances at the beginning."
>
> — Bernardo Tiburcio
> Global Digital Innovation Leader
> DuPont

New roles are needed as companies advance in their digital transformation journeys and as their strategies evolve. Many companies, for example, created a digital ambassador program. These ambassadors are digital enthusiasts who become the point of contact for their department/business area on topics related to digital transformation. This is a critical part of their culture change efforts. These ambassadors are also charged with incorporating tools and other digital advancements in their own workflows to help their groups and improve their projects. The formation of new roles underscores the operational model under which these digital initiatives operate.

Resources Lens

Resource investment in digital transformation efforts expand beyond technology and data. In this section, we highlight recurring themes from our six legacy companies related to how resources and their allocations are influenced by digital transformation initiatives and how these have changed digital investments, talent, expertise, and capabilities. Throughout the six case studies, there was consistent focus on the resource investment in people. Digital transformation is a team sport, requiring employees across several different business functions to learn new skills. Organizations cannot transform digitally until employees build and strengthen their digital competencies and skills. Across the six case studies, we saw three primary approaches for expanding digital skills:

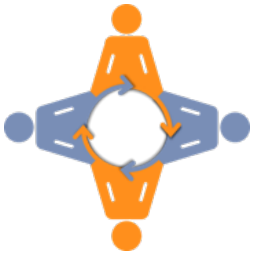
1. **Upskilling existing workforce through training and professional development**. Novozymes and Michelin focused on developing talent internally, rather than contracting externally. The Novozymes DARE team fostered digital and software automation skills through upskilling. They sought to create digital competencies that empower researchers to leverage and incorporate software automation tools into their daily activities.
2. **'Renting' digital skills from consultancies that focus on knowledge transfer.** DuPont and USG relied on external talent at the beginning of their journeys. USG, for example, leaned on external talent instead of hiring a large digital transformation team, to learn what types of core skills are needed in digital transformation so that later hiring could be more targeted. The decision to look externally for talent is driven in large part by the need for speed. Upskilling takes time and does not lend itself to scaling fast, but ultimately, it becomes necessary for true transformation to happen

> "95% of digital transformation has to be focused on the human side and 5% on the technology side"
>
> -Eric Chaniot
> Former Chief Digital Officer
> Michelin

3. **Partnering with a talent resourcing program to identify, recruit, and deploy digital talent.** DuPont partnered with EnTech's GradTech program after struggling to identify and attract the right talent. The EnTech program helped DuPont:
    - Identify necessary skills.

- Recruit capable young professionals who have careers aligned with identified skills.
- Train young professionals in coding, program languages, software, and other necessary skills unique to DuPont.
- Provide management and oversight.

Culture and Change Management Lens



The pace of change unleashed by digital transformation necessitates a willingness to learn. Implementing digital technology that connects data and systems is important, but the more important lesson from these digital transformation journeys is to enable and equip employees to understand the possibilities that the technology allows.

All six companies emphasized the importance of change management and cultural shifts in the acceptance and ultimate adoption of digital transformation as an underpinning to their larger company-wide missions. Change management efforts focused on putting people in the right places to embrace the technology, rather than putting the technology in place first and having employees adapt to it. Employees tend to embrace the technology and the larger digital transformation efforts when they understand the *why*. Therefore, it is important to bring employees along so that they can understand what digital transformation will enable, what the new types of outcomes and benefits they can achieve, what it means for their job, and how they need to work differently.

> "We could have chosen external consultants to drive our digital evolution journey, but they wouldn't know how biochemists think. We needed our people to drive this because they understand the intricacies of our organization."
>
> – Lone Dybdal Nilsson
> Vice President
> Agricultural & Industrial Biosolutions
> Novozymes

A few companies developed a digital ambassador program to excite and encourage the next wave of adopters. These programs, along with other digital training programs, foster a sense of belonging and purpose in the larger digital culture. They generate company-wide buy-in, promote enthusiasm, and upskill the next generation of adopters. Training and educational programing allow companies to scale up digital skills, contributing to the growth of the digital

knowledge base and the larger digital culture. Digital upskilling has three key benefits to an organization:

1. **Enhanced productivity**—Upskilling to bridge the digital divide is essential to future-proofing operations and the long-term sustainability of a company.
2. **Employee Retention**—Investing in upskilling through training and educational programming can help promote employee allegiance.
3. **Employee Engagement**—Upskilling engages employees and helps foster a sense of connection to the digital transformation journey. It helps people buy in to the digital transformation efforts.

Technology and Data Lens

Data, and the technology platforms through which data's value is extracted, represent the core element of digital transformation. Yet, through our Six Lenses Framework, we demonstrate that data and technology are core, but not the only, aspects of digital transformation that must be addressed. In this section, we highlight recurring themes from our six legacy companies related to how they tackled data and technology adoption during their digital transformation journeys. The following are recurring themes resonating throughout the case studies:

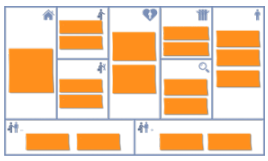
> "As the organization began thinking about business transformation, we knew IT needed to help the shift by providing modern platforms, data, and digital products."
>
> — Dani Brown,
> Former Vice President and
> Chief Information Officer
> Brunswick Corporation

- **Dealing with legacy data**—At some point, digital transformation efforts must wrangle with the issues associated with legacy data. Legacy data issues include establishing and harmonizing data standards, cleaning up legacy data formats and structures to ensure high-quality data are retained, and aligning legacy data with new and emerging data platforms. Some companies (e.g., Michelin, USG) intentionally designed their initial digital experiments to not be reliant on legacy data so that these issues would not complicate or hinder early wins. Eventually, all six companies dealt with legacy data, recognizing that they are a critical linkage between past and future digital transformation efforts. The work to drive commonality in data quality,

data standards, and structures is difficult and labor-intensive, yet it is necessary before true scaling of digital transformation efforts can proceed.

- **Breaking down data silos**—Many of the case-study companies found that data resided in many different formats and places and were highly siloed. Sharing of data across business units, functions, and other organizational structures was limited, hampering the overall impact the data could provide. Much of the companies' early efforts in dealing with legacy data, creating data standards, etc., were aimed at breaking down silos and making more data accessible to more of the organization, to allow data to be used in new and novel ways.
- **Data accessibility issues**—Increasing accessibility to more data, and more types of data, across an organization opens up new challenges. Companies must also address who has access to data and what the rights of various users should be. For example, who has read-only rights to data, and who has editorial rights? Who is responsible for the integrity and quality of certain data sets? How can these rights be easily monitored and managed? These are examples of decisions each company must make on their digital transformation journey.
- **Choosing technology platforms**—Deciding on technology platforms (e.g., data repositories, programming languages, app development tools) is a difficult challenge made more complicated by the fast pace at which new technologies are introduced. How does one future-proof digital efforts in the selection of technology platforms?

Opportunities and Offerings Lens



As inspiration for new digital offerings and opportunities, many of the digital leaders in the profiled companies looked externally at broader digital trends. They commented that these trends enable them to see opportunities and understand larger implications, such as new business models, new customer engagement experiences, and new ways of enabling internal teams to collaborate.

Most digital transformation leaders interviewed for the case studies emphasized that digital products scale across an organization more easily than digital capabilities do. Both are necessary parts of the digital transformation journey, and digital capabilities within an organization are a prerequisite for successful scale and adoption of digital products and offerings. Examples of digital products and offerings are shared in the following table.

The digital products and offerings created by the profiled companies can be grouped into five distinct categories, as shown in the table.

Category	Description	Digital Product Examples
Improved customer interfaces and user experiences	Creating a more customer-centric organization was the most frequently cited area of focus across the profiled companies. Digital offerings focus on improved interactions with customers, and greater collaboration among customer-facing parts of the company.	Michelin, Brunswick: guided selling websites create deeper engagement and learnings about customers Michelin, USG, Brunswick: new customer relationship management (CRM) platforms improve internal understanding of customers USG: virtual acoustics experience enables customers to experience acoustic and aesthetic benefits of USG products Novozymes: engage-ovation collaboration model shared customer and Novozymes data to speed up pilot projects
Operational efficiencies	This category relates to optimization of internal operations, predominantly manufacturing. Digital offerings focus on enhanced safety, efficiency gains, and employee engagement using digital technology within manufacturing operations.	USG: automation, advanced analytics, and expanded sensing capabilities on production lines inform better decision-making in production Brunswick: infrared technology and preventative analytics are used to analyze engine block casts and minimize downstream scrap issues
Supply chain optimization	Implementing new tools and access to data that provides greater visibility into the supply chain to improve throughput, increase speed to market. In some cases, visibility into the supply chain is extended to customers.	DuPont: Smart Demand Forecasting can more accurately predict customer demand, acquire raw material with longer lead times, and keep costs low
Enhanced R&D collaboration and speed	Digital offerings to enhance collaboration, efficiency, and speed in R&D are the main focus of BASF, Novozymes case studies.	BASF: molecular modeling, machine learning (ML), and image analysis are unlocking new discoveries faster Novozymes: Mission Control, an ML-enhanced data platform, allows researchers to interrogate any type of data that has been generated, increasing development speed and unlocking cross-market discoveries
Automation of time-consuming tasks	Wise application of automation enables human workers to focus their time and talents on higher-value activities	DuPont: Digital Automation deploys robotic process automation (RPA) and chatbots to reduce repetitive tasks

Continuing the Journey: The Maintenance of Digital Transformation

In this section, we highlight recurring themes from our six legacy companies related to how companies sustain their digital transformation efforts. Consistently, companies highlighted digital transformation as an exponential journey—one that is infinite and ever-evolving. To steer progress, several companies developed digital roadmaps. These roadmaps help set priorities and milestones and anchor the digital transformation journey in the larger ecosystem of the company. Roadmaps simultaneously promote accountability for past efforts and stimulate a future vision.

> "We haven't set an end point to the journey because we recognize this is a space where there is constant updates and acceleration. We want to figure out how to adopt capabilities over time and constantly develop new offerings. It is constant and ever evolving."
>
> – Richard Trethewey
> Vice President, Digitalization of R&D
> BASF

The intentional development of an agile strategy has helped companies sustain their digital transformation efforts. Leveraging a digital transformation strategy to drive intentional maturation and evaluation of capabilities and capacities can drive cadence and ensure sustainability. DuPont, for instance, is currently in its fourth iteration of Spark Digital, a digital acceleration program embedded in DuPont's digital transformation strategy. Each iteration of Spark Digital builds off another to drive forward learnings and create global scale.

Latest Developments

RTI reached out to the case study companies to learn what has transpired on their digital transformation journey since their case studies were published. The following are notable updates and developments.

USG:

At USG, the digital transformation strategy has not changed; however, energy and focus have shifted to the customer experience aspects of its strategy. Current efforts focus on reaching the customer and influencing choices at the point of product and brand decisions. Digital products to help the customer, or help sales teams help customers, are the primary focus.

The pandemic accelerated digital adoption and enabled work to continue. As daily work became dependent on digital tools, a focus and clarity on what can

be done with digital, which was an unintended consequence, might not have been realized otherwise.

> "Legacy companies have little institutional knowledge around digital products, and it takes a while to develop. This lack of experience can cause hesitation or create a higher bar to make decisions about digital products vs physical. So do your homework, don't be a rush to launch things."
>
> — Sam Immordino, Director, Construction Software & Services, North American Center of Excellence USG

USG's digital transformation team structure has evolved from the original approach of three groups (R&D, IT, marketing) working together to incubate digital transformation initiatives. With initiatives expanding, the team structure needed to change. USG consolidated the digital transformation efforts in their marketing organization, combining experts from R&D, IT, and marketing to create a Digital Center of Excellence. They still apply lean approaches and engage internal and external resources as needed. The new structure is more streamlined in terms of reporting, alignment, and messaging with various USG businesses.

USG developed and launched a digital transformation education program for staff. It also selected a team of digital ambassadors across the company who can speak on what USG is doing in digital. Awareness of digital efforts is promoted via company-wide town halls and via regular updates on company-wide communication platforms.

DuPont:

> "To achieve our desired level of ownership of digital products in our businesses, understanding culture is very important. We have to get business leaders to believe in digital and create demand from their businesses, versus pushing digital at them. Hearing success stories from their fellow business leaders helps create the most demand. Their firsthand experiences are much more convincing than our Digital Team telling those same stories."
>
> — Bernardo Tiburcio
> Global Digital Innovation Leader
> DuPont

DuPont's year-by-year digital transformation strategy approach is still in effect. Its focus in 2021 has been on increasing the path to value for digital products. The team is formalizing processes to advance digital products through three stages: value *enabled* (where the potential value of a digital product is defined and measurable), value *delivered* (where digital product implemented in a business), culminating in value *realized* (where KPI and business impacts of digital product are confirmed in financial statements). Looking ahead to 2022, the next evolution of DuPont's digital transformation strategy will focus on preparing business groups to take over maintenance and enhancement of core digital products inside the business.

DuPont's initial response to the pandemic was to scale back on digital transformation. However, the company soon realized that digital capabilities were more important than ever, leading to acceleration and scaling up of digital transformation efforts. One of DuPont's newer digital products, Remote Expert Assistance, uses mixed reality to allow experts to troubleshoot manufacturing or technical challenges remotely. This product has been used over 40 times during travel restrictions, generating numerous positive testimonials on the benefits of the technology.

DuPont continues to develop and launch core digital products that are applicable across multiple business groups. It currently has eight core products launched, with four more in development that are deploying ML algorithms.

DuPont's digital transformation team comprises a Digital Center of Excellence and a Delivery Factory. The team is expanding, and DuPont continues to strive for a 60/40 balance of internal/external digital expertise.

In addition to expanding its core digital transformation team, DuPont is focused on expanding the reach of digital transformation. Its efforts are framed around moving from *doing digital* to *being digital*. Highlights include expanding

DuPont's digital ambassador team from 20 to 70 people and launching a Spark Digital Academy with on-demand and live lectures on digital topics.

BASF:

BASF's R&D digital transformation journey is progressing as planned. Roadmaps remain the vehicle for supporting project management, tracking success, and communicating digital transformation efforts. The team is working on its 2022 iteration of the roadmap. The team remains focused on fostering relationships with external partners, including startups and universities.

The BASF R&D digital transformation team is focused on developing DevOps teams and their associated methodologies. Over the last year, they have hired more professional developers, including software developers, to the team.

> "It is important to remember that it's not just the computers or the technology that make it happen, but the people behind it."
>
> — Brian Standen
> Head of Digitalization in Materials and Chemicals R&D, North America
> BASF

At BASF, the pandemic has reinforced the need for digital transformation. The pandemic forced the entire company to work in a digital environment, which helped catalyze a new understanding and appreciation for digital capabilities. The digital work environment further helped blur the lines between location differences and fostered connection regardless of an employee's physical location.

Summary and Recommendations

Each case study in this series provides excellent insight from legacy companies that are progressing along their digital transformation journeys. Each set of leaders we spoke with through this effort provided insightful recommendations for other firms that are just starting their journey. We distilled the collective wisdom of these digital transformation leaders into a set of seven recommendations:

1. **Support from top leadership is critical.** Digital transformation, like most major organizational change, does not work from the bottom up. There must be a clear champion and clear agreement among executives that transformation is needed and important. Digital transformation leaders will need strong commitment from top executives to be successful. Those executives should provide the necessary governance,

resources, freedom to operate, and access to new talent that digital transformation teams require.

2. **Align digital transformation efforts to your organization's strategic business goals.** A digital transformation strategy should align with the corporate strategy. Each organization's business strategy is unique; therefore, its digital transformation strategy should be unique. To start, find the boomerangs (i.e., recurring business issues and unmet needs that the organization has been dealing with for decades). Those are the opportunities that digital solutions can help solve. Use boomerangs to choose an aligning business purpose (e.g., customer centricity) to drive digital transformation across the organization.
3. **Start small.** Digital transformations do not start with an organization-wide plan of change, but rather with a series of micro-revolutions. Efforts aimed at early wins from boomerangs will help the digital transformation team demonstrate measurable benefits, which can reinforce leadership support and set the stage for broader adoption.
4. **Start with a small, centralized team to develop and execute the digital transformation strategy and drive collaboration**. A centralized team reinforces that digital transformation efforts align with the overall corporate strategy. Designing a structure that puts digital transformation in the center enables consistency, integrates common digital tools, and promotes a cohesive digital transformation message.
5. **Collaboration is key.** A centralized team should be tasked to develop internal and external collaboration. New ideas are created when people with diverse backgrounds work together. Partnering with internal departments (e.g., IT, corporate security, corporate architecture, service delivery organizations, R&D, marketing) builds internal capabilities, quickens delivery, and drives value across the organization. Collaboration enables employees to see the bigger picture and consider the entire experience of both internal business units and external customers. Building collaboration with other groups in the organization to identify their challenges and opportunities places digital transformation at the forefront of their future endeavors and speaks to the importance of digital tools and resources as an asset to the organization.
6. **Recognize that digital transformation is a change management initiative.** Digital transformation is much more than a technology investment or data quality push. Successful digital transformation should be designed as a change management effort that aligns to the organizational culture. All levels of the organization must realize that

this effort is an investment in people as well as technology. Part of that alignment includes finding and enabling the right change agents for digital transformation efforts: agents who understand the business, are enthusiastic about digital transformation, and can serve as ambassadors as digital efforts expand.

7. **Embrace the external world**. External collaboration is essential to growing digital capabilities and advancing in the journey. Internal and external collaboration is critical to innovation and digital transformation success. However, the lessons learned from our profiled companies reinforce that companies should choose external partners carefully. Find partners that are willing to be in the trenches with you, and recognize the benefits of collaboration. Work with multiple partners so you do not become beholden to one. Most of the profiled companies found they prefer to partner with smaller, niche players that specialize rather than larger, one-stop-shop partners.

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