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Smart Data Transformation

Surfing the Big Data Wave

A joint study by Infosys Consulting and the Fraunhofer Institute for Applied Information Technology FIT

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Introduction

Enterprises can benefit significantly from the inherent wealth of internal and external data available in today's digital era. Intelligent use of the insights derived from the analysis of these data can deliver significant competitive advantages. Those insights can revolutionize the interaction with existing and potential customers, and allow them to design innovative business models.

There is no doubt that enterprises recognize the increasing importance of processing and analyzing large amounts of data and extending their analytics footprint within their organization. Are the companies prepared to address these new data demands? Are they successful in realizing the benefits of effective data analytics? How do companies prioritize their organization's smart data transformation? Infosys Consulting and the Project Group Business and Information Systems Engineering of Fraunhofer FIT carried out a global study among enterprises in different geographical regions and across

different industries and business functions in order to get a better understanding of the current state of smart data transformation. We use this term to describe the systematic process of gathering, aggregating, and carrying out targeted analysis, as well as transforming any amounts of data into business insights. The goal of this study was to gain an understanding of the perceived business benefits, challenges and success factors and to identify current needs to facilitate the effective implementation of smart data transformation.

The core part of the study is a survey which collected data from 60 decision makers across different industries in 17 countries. The survey results were also compared to research done in this area. They provide a rich picture of the current and future importance of smart data transformation, drivers and inhibitors of a successful implementation and the activities that companies carry out to address the challenges lying ahead.

Key findings

1 Currently respondents are realizing moderate business benefits from smart data transformation. But they see a high business benefit potential within the next two years.

2 Most believe that prerequisites for success are not adequately present. The largest gap is around knowledge and skills. Respondents expect major progress over five years.

3 Respondents understand need for Business and IT to join hands to create business value from smart data transformation initiatives.

4 Smart data transformation can create significant business value in the sales & marketing, production & supply chain, and finance areas.

5 Respondents perceive data availability as success-critical and recognize the significant gap compared to the current state. The ability to merge data from different sources as well as data analysis expertise are critical for success, but the survey participants recognize that these factors are not receiving required attention yet.

6 "Data privacy violation" is not considered as one of the top three risks in data-driven transformations. However, the study recommends to attach appropriate attention to data security, protection and privacy in smart data transformation initiatives.

7 As data volumes explode master data accuracy assumes even greater significance. Participants recognize that the greatest benefits are derived from having accurate financial master data but expect this to shift, in the near future, towards accuracy in customer master data.

8 Companies expect rapid benefits from smart data transformation. Given the significant gap between current state and desired state, companies need to prioritize based on value. In addition, the implementation approach should be different, as traditional implementation approaches can take too long to create value.

Companies recognize the potential of smart data transformation

Companies recognize the need to acquire the ability to process and analyze large and diverse amounts of data in order to generate additional insights and derive actions as well as tactical and strategic decisions. The study examines the current state as well as the potential provided by smart data transformation. Overall, the study results show that the current business benefits that can be derived from smart data transformation are evaluated as moderate. There is, however, a high potential in the near future [see figure 1].
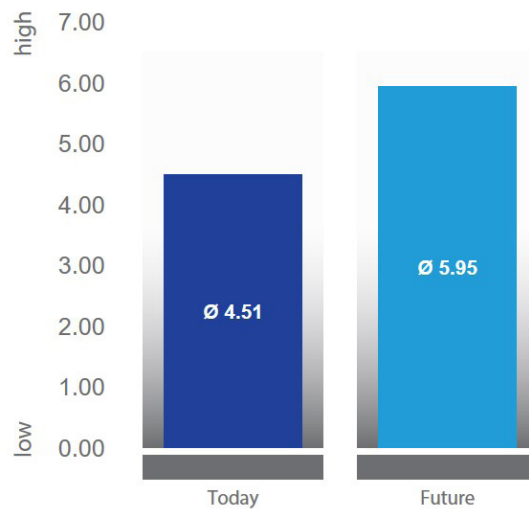
Figure 1: Current and expected business benefits of smart data transformation

Expected benefits in sales and marketing, production and finance related areas

The results of the study demonstrate that smart data transformation is expected to be particularly relevant in the sales and marketing, production and supply chain, and finance related areas [see figure 2, page 7].

Benefits in sales and marketing

Today, data are the foundation of consumer-centric marketing and sales. A company's ability to achieve growth rates above the market average depends on the depth of its consumer insights and its ability to translate those insights into effective action. The emergence of big data has fundamentally changed the way businesses compete and operate. It provides the possibility to derive deeper, more meaningful connections with customers by tailoring messages and offerings to their needs, thereby retaining them as long-term customers.

In general, smart data transformation can affect the whole marketing mix [1]. In the area of pricing, smart data transformation helps to price new products with more reliable buying predictions, supports the calculation of price elasticity and anticipates the acceptance of better-priced substitute products. Smart data transformation will also support organizations in defining the initial price of their products by assessing market conditions and customers' willingness to pay. In the area of product development, smart data transformation supports organizations in getting to know what customers really want, thus enabling them to design products closer to customers' requirements, leading to a new dimension of anticipated mass customization. Hence, development efforts generate better results and faster market introduction of the right products. Based on smart data transformation, organizations have the opportunity to analyze buying behavior faster and deeper and to draw their individual conclusions. In the area of promotion, smart data transformation enriches the customer journey by benefiting from improved customer segmentation. As such, target-group-specific customer experience can be better and more precisely realized. Overall, the benefits for sales and marketing purposes can be seen in a better understanding of customers

and markets and a broader knowledge of individual customer needs, founded on a stronger database [2].

Benefits in finance

The digitization of organizations' finance functions is well underway, and CFOs are increasingly being called on to leverage big data and enterprise analytics to not only deliver reports on results, but to provide the data and insight fueling predictive models and enabling faster and better decision making processes for the business. Furthermore, emerging technologies are allowing companies to use real-time data for this purpose whenever necessary.

Currently, the most common reasons for using big data for finance functions are to manage performance, detect fraud, comply with regulations and manage risk, as well as for governance and controlling purposes. Those areas can be usually addressed by using big data analytics for planning, reviews and alerts.

For instance, in the time horizon between short-term and long-term planning, there are ways to improve the accuracy of revenue and cost forecasts by using large sets of historical data, which enable organizations to better understand

the various factors influencing demand. This sort of advanced modelling using predictive analytics can be useful to improve the accuracy of corporate business planning and budgeting, which is at the core of financial planning and analysis.

Although predictive analytics is useful for forecasting, it may be even more valuable for reviews and alerts. Predictive analytics can provide a baseline for comparisons with actual values. This, in turn, enables organizations to get an earlier warning if results diverge significantly from what was expected, so executives and managers can react immediately rather than after days or even weeks. For instance, embedded analytics in an order-entry system could highlight late or smaller-than-usual orders. These might indicate a competitive threat or some other issue that would benefit from a timely interaction with the customer. This is just one of the ways that data captured by the financial systems can be used to improve the effectiveness of other business units, enabling the department to play a more strategic role in supporting the company.

Another use is in the accounts receivable department where predictive analytics can promote customer satisfaction. To illustrate this, a company doing a routine analysis of payment patterns can have a good

idea of when specific customers will pay. If a customer that routinely pays invoices between the 16th and 19th day of the month has not paid by the 23rd day, the analytics system generates an alert. A call to the customer or an automated email notes the delayed payment, asking if there was an error in the billing or some other point in dispute. Another use of big data in receivables is to automatically identify customers that are routinely tardy in paying.

Governance is another area where big data analytics is used, with companies using it for fraud detection and alerting. For instance, software packages can monitor a company's financial systems for evidence of suspicious activities such as payments to bogus vendors or top-level alterations to financial statements. Such systems are designed as high-level controls that reduce the need for manual internal and external audit work. This is like having an "auditor in a box" – a forensic system continuously identifying and listing all suspicious activities, transactions and conditions and weighting their significance. Such a system would permit more timely responses to the risk of material errors or fraud and

facilitate examinations by external auditors. In addition to being far more efficient than periodic manual efforts, the auditor-in-a-box concept is potentially more reliable because it examines everything rather than relying on random samples.

Smart data transformation can also greatly enable Finance shared service center organizations, reporting and payment factories and support implementation of end-to-end standardized and harmonized processes.

Benefits in supply chain and production

Today's supply chains and manufacturing operations are facing significant challenges resulting from changing business environments that result in decreasing lot sizes, increasing demand of individualized, customer-specific products, increasing demand of complex manufacturing equipment and, from legal side, an additional requirement of traceability, serialization and authentication of their products. Most of these aspects require highly integrated business processes and technology between product development, supply chain and manufacturing including

partners from their ecosystem as well as "intelligent products" that communicate with all involved parties at each level of the value chain. Smart data transformation could enable use cases where real-time process data from production lines is used to analyze the "health" of equipment and to proactively predict malfunctions and production downtimes before they occur and to initiate countermeasures for timely maintainance of production equipment and capturing relevant environmental data and characteristics with the product for downstream processes. This way, smart data transformation will support the change in organizations from "preventive maintenance" into "predictive maintenance" and therefore increase predictable available production capacity. Controlling production lines more efficiently in order to improve operational excellence is another use case for smart data transformation in the area of production. Smart data transformation using emerging technologies also provides a quantum-leap in processing speeds. Higher processing speed can be applied to the serialization of products, as it is needed in the pharmaceutical industry to avoid counterfeiting.

Figure 2: Current and expected business benefit for different business areas

Smart data transformation will drive innovative business models and increase productivity

Smart data transformation may be utilized for different purposes or functional areas as well as across different levels within an organization. Looking at the particular benefits that companies expect from smart data transformation, we see an increase from the current perception to the future potential across all areas investigated [see figure 3, page 8].

Today, organizations mostly use smart data transformation to increase their revenues and to strengthen customer loyalty. Both is achieved through advanced customer and market understanding. However, the focus largely is on traditional business. For the future, the study participants expect that the potential to create innovative business models will even increase due to an improved information base [see figure 4, page 8]. By making appropriate use of the data available, new customer needs can be explored and transformed into new and innovative business models, which will in turn contribute to the long-term profitability

and competitiveness of traditional economy organizations (e.g. Allianz, Boeing) as well as internet-based organizations (e.g. Google, Facebook) [3].

Increased productivity through better planning is another area of future potential for smart data transformation. This kind of productivity increase is related to and strongly depends on the availability of relevant sales and production related internal and external data. Analyzing these data will enable organizations to align demand and

supply more precisely, to react faster to changing market conditions or to even influence market conditions by driving demand-increasing activities in the market at the right time. This, in turn, enables organizations to optimize their asset utilization, to reduce their inventory and distribution costs and to provide

a higher level of service to their customers. Hence, organizations will be more productive and smart data transformation turn out as extremely valuable [4].

Faster reaction to changing market conditions was identified as another important area, indicated by the

large gap between the current benefit and future potential of this purpose. This is an area of increased competitive importance, not only in controlling cost, but also to increase market share.

Figure 3: Purposes of smart data transformation and its current and future potential

Figure 4: Purposes of smart data transformation and its field of action

Companies expect smart data transformation to unfold its potential in the near future

Although the assessment of current business benefits resulting from smart data transformation is still moderate, study participants expect those in the near future. Almost two thirds of the participants anticipate significant business benefits resulting from smart data transformation within the next two years [see figure 5]. Hence, there is not much time left for organizations to lay the necessary groundwork.
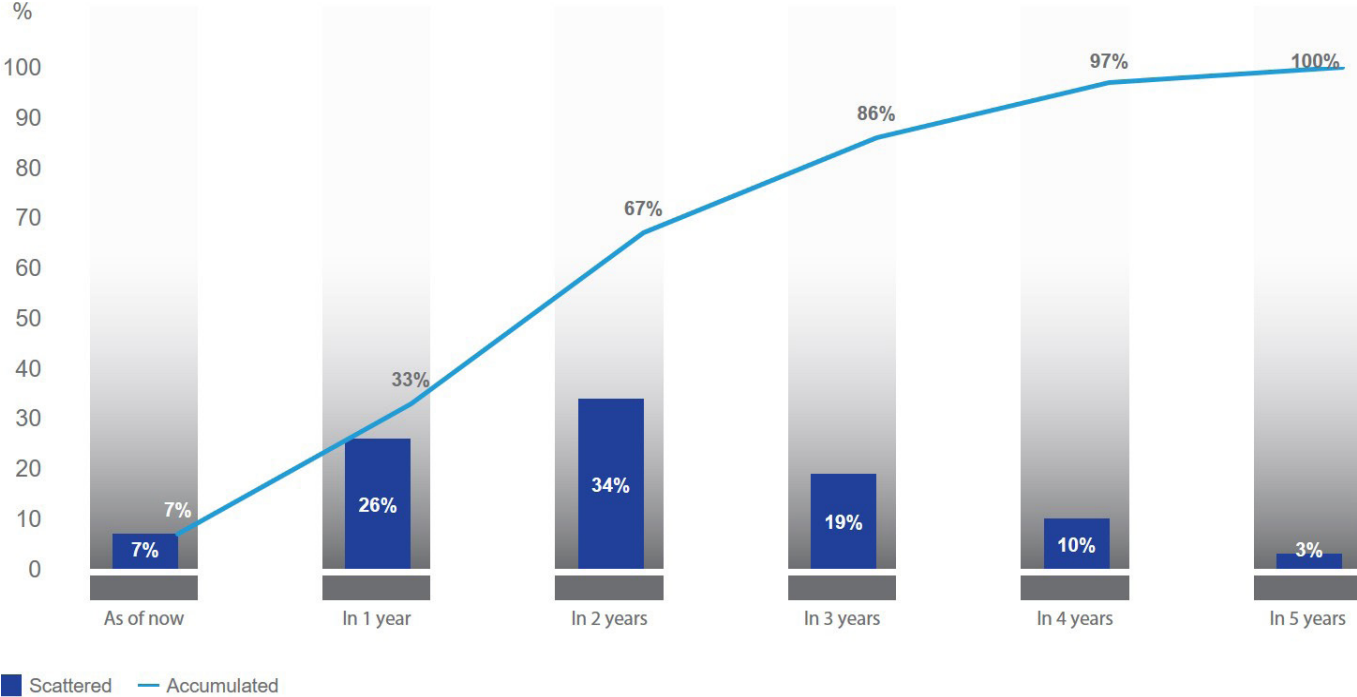

Figure 5: Expected timeframe for anticipated business benefit

Most companies are not yet ready for the benefits of smart data transformation

To gain value from smart data transformation, organizations have to manage some preconditions. Apart from the necessary organizational setup, successful smart data transformation requires relevant quality data, well-implemented systems and tools, analytical skills, and an understanding of processes and business concepts and the ways to turn data and insight into a competitive advantage. In order to generate business benefits, the obtained data and analytics have to be an integral part of the relevant processes. To realize those pre-conditions, strategic responsibilities and priorities need to be defined and budgets (investments) need to be allocated.

To gain a deeper understanding of the gap between the current and the required state, the participants were asked to evaluate their actual positioning and the challenges they are facing with regard to smart data transformation. Overall, results show that the survey participants assess the current situation of their organization regarding the prerequisite for successful smart data transformation at a medium level and that the overall gap to the required state is significant. The widest gap is identified in the knowledge and skills area, followed by budget and organizational setup. The smallest gap was identified in the area of IT infrastructure and applications, indicating that this area on average requires the least attention compared to the other areas [see figure 6].

The significant gap in the area of knowledge and skills indicates a lack of relevant skilled workforce in organizations. Considering the timeframe organizations expect smart data transformation to contribute to their overall business benefits, organizations need to urgently gain the required specialized knowledge and skills [see figure 7, page 11]. The gap in organizational setup shows that smart data transformation initiatives need to be true business transformation initiatives, with a holistic focus (covering process, data, organization, user skills and enabling technology setup). It must be recognized that the maximum impact of smart data transformation can be achieved when organizations consequently align their responsibilities and processes to the areas where smart data transformation can make an impact [5, 6].
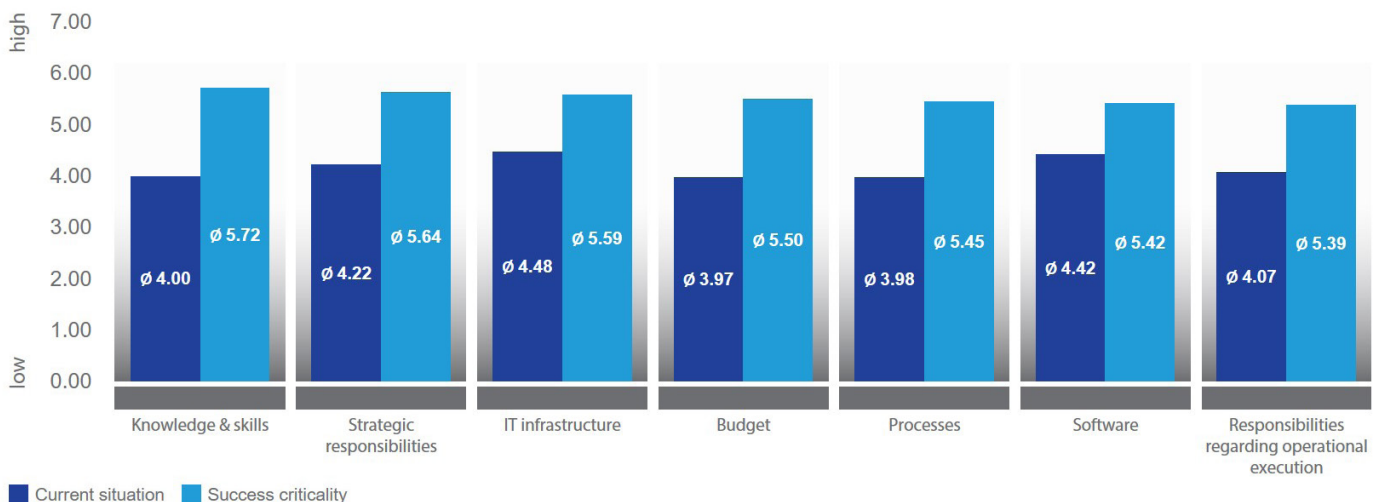
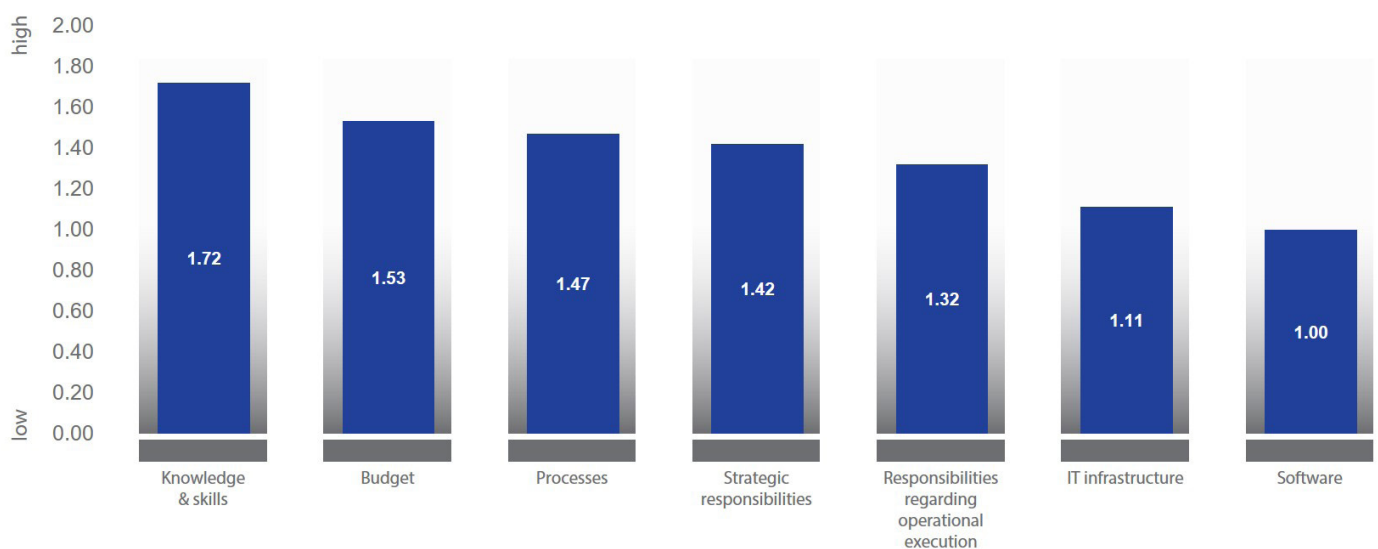Figure 6: Prerequisites for successful smart data transformation

Figure 7: Prerequisites for successful smart data transformation and its fields of action

Companies have to deal with various challenges in the context of smart data transformation

Having analyzed the gap between the current and the required state, we will now focus on the various challenges that organizations are facing with regard to smart data transformation. Not surprisingly, the results indicate that smart data transformation stands and falls with the availability of data [see figure 8, page 12]. The study also shows that organizations do not deal with these success criteria appropriately.

Moreover, the results of the study indicate that the ability to merge data from different sources as well as data analysis expertise are critical for success and are not dealt with adequately [see figure 9, page 12]. These two areas reveal that there is a lack of a sufficiently skilled workforce, with a deep understanding of the business and the ability to analyze the data. In other words, organizations need to expand their

analytical capabilities to benefit from their data-driven initiatives. This confirms Gartner's view that "advanced analytics is a top business priority, fueled by the need to make advanced analysis accessible to more users and broaden the insight into the business. […] While advanced analytics have existed for over 20 years, big data has accelerated interest in the market and its position in the business" [7]. To overcome this,

organizations have to develop their existing staff and identify the gaps that require specialized hiring [8]. Many organizations implement new job descriptions such as data scientist, operating at the interface between IT and business to satisfy the actual needs. With the rising demand for data scientists, however, the hunt for highly skilled and trained staff is more intensive than ever before. This leads to a big boom in this specific labor market and to increased competition for employees [8]. Only if they manage to address and manage these challenges appropriately, organizations will be able to achieve the expected business benefits.
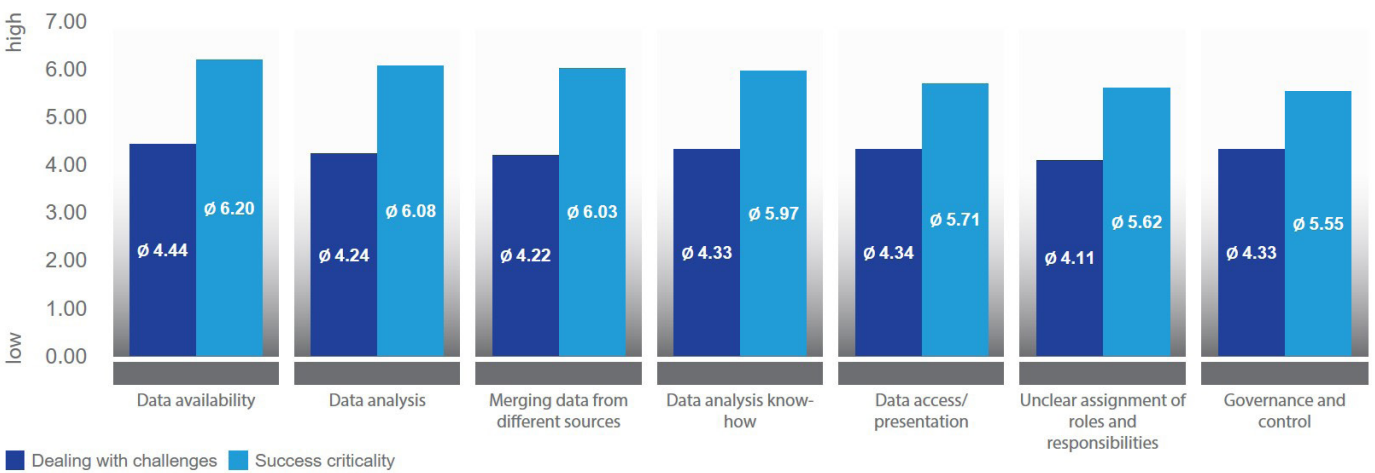

Figure 8: Smart data transformation challenges

Figure 9: Smart data transformation challenges and its fields of action

Companies have to deal with risks to ensure the success of smart data transformation

In line with the identified challenges, respondents perceive data availability as critical for success and recognize the significant gap with the current state [see figure 10, page 14]. The highly critical role that data availability plays for success does not come as a surprise because data are the foundation of all smart data transformation activities. However, instead of the quantity, the ability to link stored data to increasingly compelling analytics is crucial for gaining tangible business benefits. Moreover, the ability and skills of the organizations' personnel are essential for being competitive in the future and for maximizing the business benefits. Hence, data do not need to be big, but they need to be treated smartly [9].

In line with the gap in knowledge and skills, access to resources and personnel is identified as a further risk which is not sufficiently dealt with and therefore requires more attention.

The "Royal statistical society survey" indicates that there is a "data trust deficit" leading the public to have less trust in institutions to use their data appropriately compared to their general level of trust in that organization [10].

On the other hand, the responses to our survey demonstrate how organizations do not consider "data privacy violation" as one of the top three risks they face in data-driven transformations [see figure 11, page 14]. One of the reasons is that data privacy regulations are specific to different countries, industries and even companies. Another reason is likely linked to a combination of the two following items:

➡ The mindset of organizations is still focused on traditional transactional data where issues of privacy and protection are well known and addressed satisfactorily. This is different when a company's internal and external data are combined and external data include customer behavior and other privacy-sensitive data.

➡ More and more organizations recognize the risk of inappropriate data use and the increasing use of data as a tradable asset. Organizations become aware of those issues and closely stick to regulatory requirements in order to prevent negative publicity and a loss of reputation. Furthermore, customers appreciate if the storage and use of data is transparent and turn out to their advantage [11].

Although data privacy violation is not identified as a risk, data security, protection and privacy have to be focal points of smart data transformation projects.
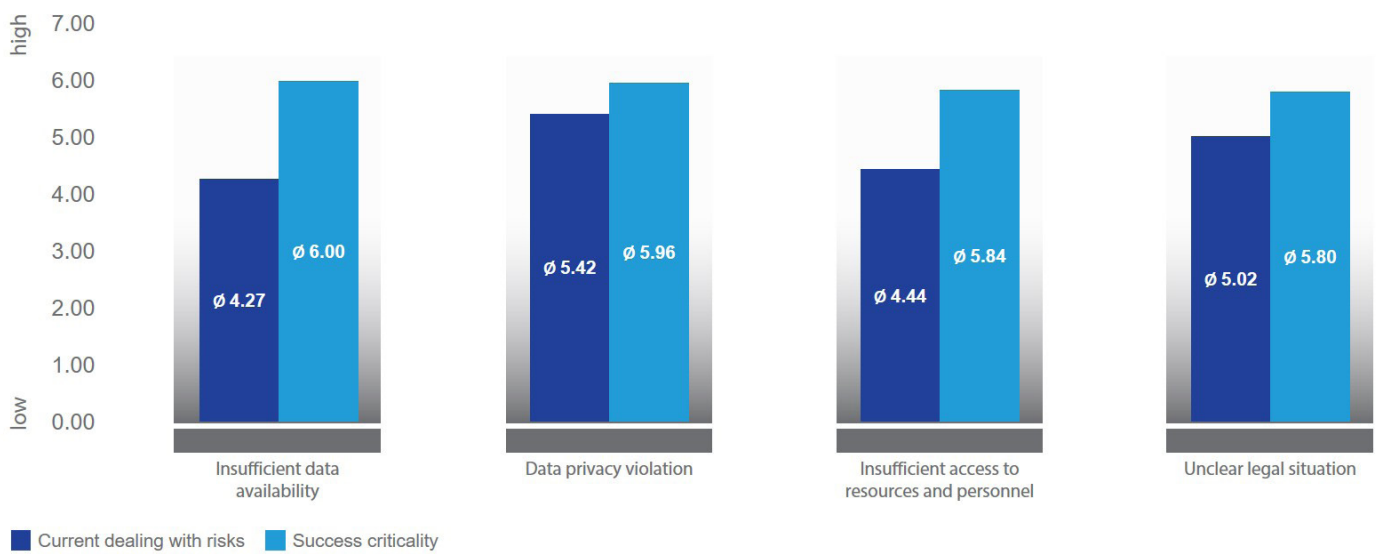
Figure 10: Risks associated with smart data transformation

Figure 11: Risks associated with smart data transformation and corresponding fields of action

Companies perceive themselves as not well positioned for smart data transformation

In general, the participants consider their organizations not well positioned regarding smart data transformation, although they expect a major change of their positioning within the next five years. Referring to the expected timeframe of business benefits derived from smart data transformation, it becomes evident that companies are currently struggling with the prompt implementation of transformational initiatives and risk to fall behind their competitors. Therefore, it is necessary to quickly adopt best practices and focus on smart data transformation. Today, 70% of the interviewed organizations have smart data initiatives running and another 12% of the organizations are currently only planning such initiatives. Consequently, more than 80% of the interviewed organizations integrate elements of smart data transformation into their current or planned project portfolio [see figure 12]. Therefore, it now becomes crucial for organizations to turn the current and planned initiatives into value-creating assets and to add the fifth key dimension (value) mentioned above to smart data transformation [12, 13].
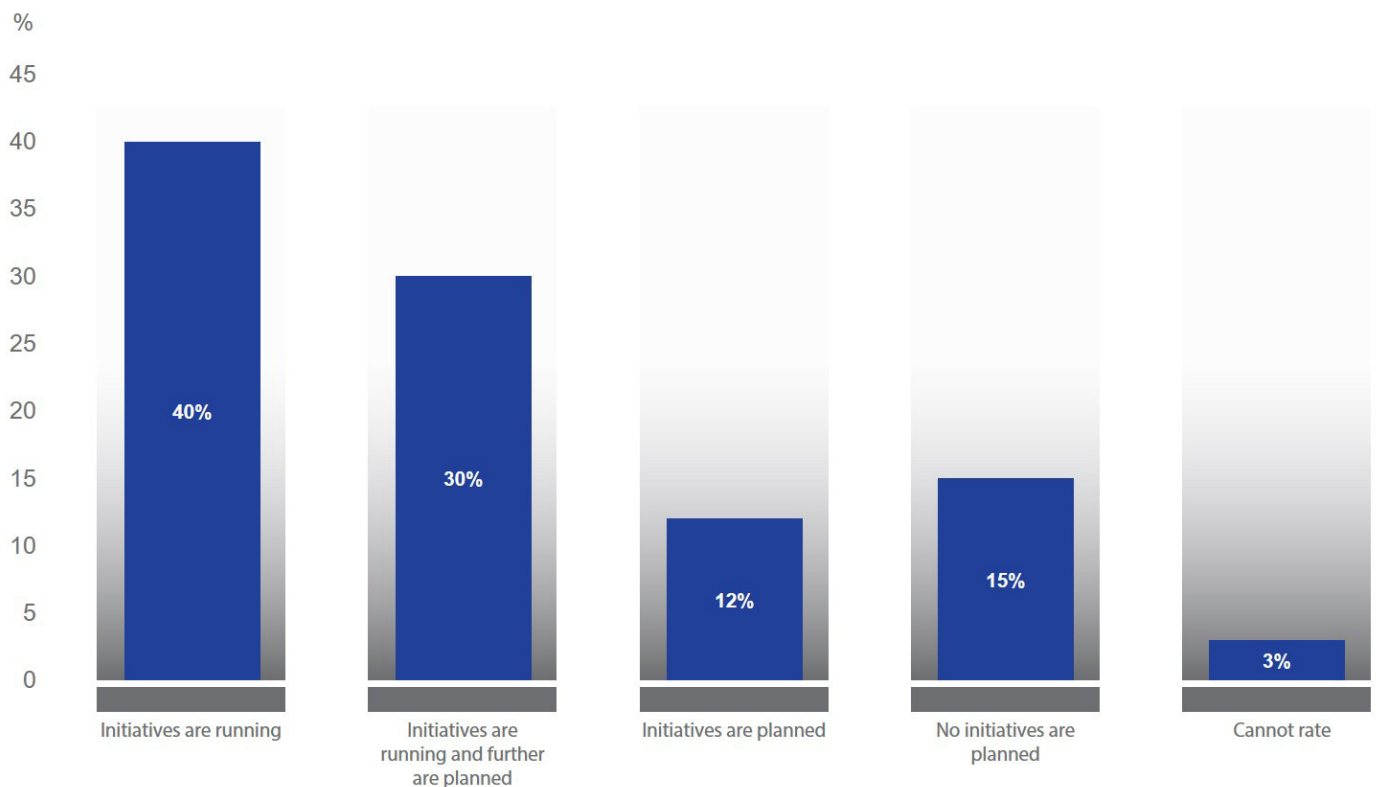
Figure 12: Level of implementation of smart data transformation initiatives

Companies see smart data transformation as a joint business and IT effort

As data-related projects impact the whole organization and influence business models and processes, collaboration between business and IT will help to align all relevant functions, to provide opportunities for incorporating business requirements, to enhance long-term business benefits and to derive additional value. This collaboration is viewed as a key success factor when implementing smart data transformation [14].

The study shows that the majority of participants (71%) view smart data transformation as jointly executed initiatives [see figure 13]. Although IT departments still are the major drivers in the implementation and steering of smart data transformation projects, business departments recognize the importance and possible benefits and are pushing smart data initiatives forward.

The study revealed that only 15% of participants found that business alone is the predominant driving force behind smart data transformation while only 14% stated that the IT department was the sole driver. This combined business and IT focus creates a good environment for a value-driven approach to smart data transformation.
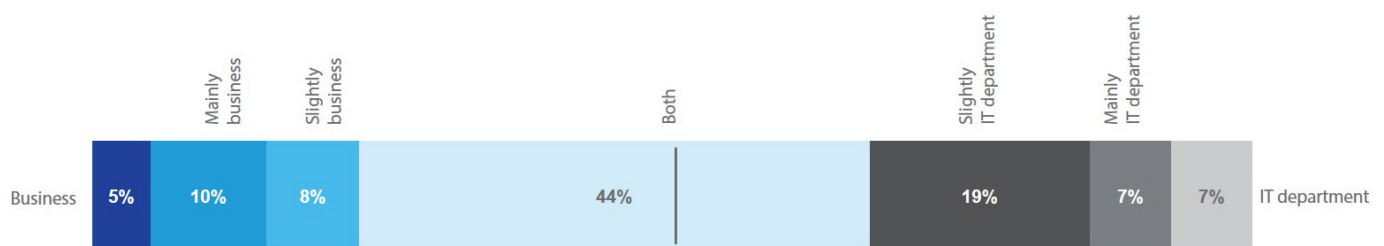

Business	Mainly business	Slightly business	Both		Slightly IT department	Mainly IT department		IT department
	5%	10%	8%	44%	19%	7%	7%	

Figure 13: Smart data transformation relevance for business and IT departments

Master data will increasingly contribute to business success

In accordance with the increasing business relevance of smart data transformation, the importance of master data is expected to grow. This perceived importance, however, differs between data objects. While survey participants nowadays attribute the greatest benefits to financial data, a shift

is expected in the future. In line with the findings regarding future benefits in the sales and marketing area, respondents rate the increasing importance of customer data as significant [see figure 14, page 17]. This is understandable given the trend towards location-based services and the need for

deeper tracking and analysis of buying and selection behavior [15]. Furthermore, respondents recognize an increased importance for all relevant master data objects, which underlines the relevance of quality master data as a prerequisite for generating the benefits of smart data transformation.

Figure 14: Current importance and future potential of master data

Companies do not only see one specific vendor solution

Multiple application vendors and service providers support organizations with technology solutions relevant for smart data transformation in the areas of data acquisition, data analysis, and decision making. When evaluating the solutions, organizations have to decide if they prefer providers of cloud-based services or rather obtain on-premise solutions. In addition, they must also evaluate

the different payment models offered by different vendors. A structured evaluation process is recommended to decide which technology solution best fits the specific company or project. While this study does not indicate a dominant software product, we recognize the increase dominance in this space of Apache Hadoop and Apache Spark through their ecosystems.

The size and activities of the community of consumers of smart data transformation technologies especially in universities is becoming increasingly important for providing opportunities for organizations to recruit people. Those have just completed their education but are nevertheless experts in the field.

Recommendations

The key findings of the survey stress the need for companies to put a stronger focus on smart data transformation activities in order to generate the value that it represents. The initiatives aimed at realizing the value should be viewed as true business transformation initiatives. The findings of this study can serve as a foundation for a transformation approach [see table 1].

Findings	Recommended approach
▪ Generate short-term results to gain early competitive advantages ▪ Support the company learning, procurement and business adoption process	▪ Benefit-focused adhering to the established 4 v's of smart data transformation (volume, velocity, variety, and veracity) ▪ Inclusion of "value" as the fifth key dimension [10, 11] ▪ Approach focused on early successes ▪ Use of results to increase awareness
▪ Proof(s) of concept should fit the overall direction to avoid redoing, isolated solutions and/or ill-conceived concepts	▪ Embed proof(s) of concept activities into an overall program approach ▪ Ensure that the activities preceding the proof of concept build the right foundation and that the steps following the proof of concept take advantage of the lessons learned ▪ Be clear about the decisions to make throughout the program ▪ Use a holistic decision making process including market, company and functional/process-specific components as well as integration into the business and IT environment ▪ Align the company's awareness process to the necessary decisions
▪ Several risks are identified	▪ Use data security, privacy and protection as focal points, not show-stoppers ▪ Address risks early in the program
▪ Focus areas including process, roles, organizational, business models, value realization, skills of IT and business are important	▪ Include all relevant focus areas in the approach and in the smart data transformation roadmap ▪ Be clear that smart data transformation is not a technology-only nor a business-only transformation ▪ Instead it is a combined IT and business transformation impacting the setup and the roles of the program, the individual initiatives and eventually the entire organization ▪ Ensure the program include the learning / business and IT adoption process. This requires specific elements in the approach, like demo and story-telling, show and tell, design thinking, but also the evolution of organization and roles

Findings	Recommended approach
▪ Top management sponsorship and directions are critical for the success of smart data transformation	▪ Involve the top management in the steering of the transformation. This requires early management awareness and sponsorship
▪ Proof of Concept should lead to meaningful results and provide insights for future smart data transformation initiatives	▪ The selection of the proof of concept scope is significant, as the early success is critical for the success of the overall initiative and an important step in the overall awareness process ▪ The proof of concept should provide the ability to create measurable value, have a certain complexity in order to prove the setup of smart data transformation, be selected in a business area that is eager to benefit from the results of smart data transformation, be defined as a priority, as well as have stable prerequisites including master data and efficient and effective processes and internal systems

Table 1: Recommendations derived from smart data transformation study

In other words, a smart data transformation approach has to be different from traditional waterfall approaches that have been used over the last 30 years for projects including the implementation of ERP solutions. Traditional approaches would not effectively follow a learning, buy-in and adoption process and their implementation would take too long. Furthermore, they will be too costly before bringing initial benefits. The approach should also be different from a pure proof of concept approach, which will typically focus on a single, isolated initiative and would therefore not take into account the big picture and would not have the appropriate visibility within the organization [see figure 15, page 20].

	Traditional approach	Proof of concept approach	Smart data transformation approach
▪ Steps	▪ Feasibility study ▪ Template ▪ Pilot ▪ Roll-out	▪ Define use case ▪ Proof of concept ▪ Evaluate and decide next steps	▪ Set foundation ▪ Proof of concept (incl. evaluate and adjust approach, roadmap) ▪ Establish infrastructure (organizational, technical, data) ▪ Manage initiatives
▪ Deployment	▪ Start big, pilot small	▪ Act small, before thinking big	▪ Start small, think big
▪ Approach fundamentals	▪ Waterfall, late results, late organizational deployment	▪ Limited attention. Proof of concept to proof investment, not approach and tools	▪ Agile, significant attention, learn and buy-in in each phase of project
▪ User acceptance	▪ At completeness of solution ▪ Managed business adoption	▪ Works technically ▪ Could envision to work organizationally ▪ Implementation to be initiated	▪ Early value, meaning works technically and organizationally ▪ Alignment of implementation, ▪ Learning and value creation

Figure 15: Smart data transformation approach

The recommended smart data transformation approach consists of four main phases [see figure 16]:

➡ Foundation-laying phase, which includes awareness, assessment, scope definition and prioritization of potential initiatives as well as the proof(s) of concept, high level roadmap of the overall transformation, governance definition and the establishment of a core team for the program. The awareness activities are critical for setting the directions. In this initial phase, the awareness is very focused on decision makers and the internal program team. The assessment activities ensure that the roadmap covers the transformation in a holistic way instead of just giving answers to isolated questions. During this phase, design thinking activities combined with demos of relevant case studies will support idea creation and support awareness activities.

➡ Proof of concept, which will create the early visible result. Being deployed within the organization, the proof of concept represents the first step of the transformation. Overlapping this phase with the necessary actions to establish the infrastructure will accelerate the deployment of the solutions.

➡ Establish the infrastructure comprising the technical and organizational infrastructure. The right balance needs to be found between agile, initiative related setups and strategic, company-wide setups.

➡ Smart data transformation initiatives, which lead to reaping the benefits. Continuous focus is required for roadmap and value management and building up awareness. The continuous improvement of the solutions needs the iteration of the evaluation of new use cases, designs and deployment actions, together with a review of the technical infrastructure.
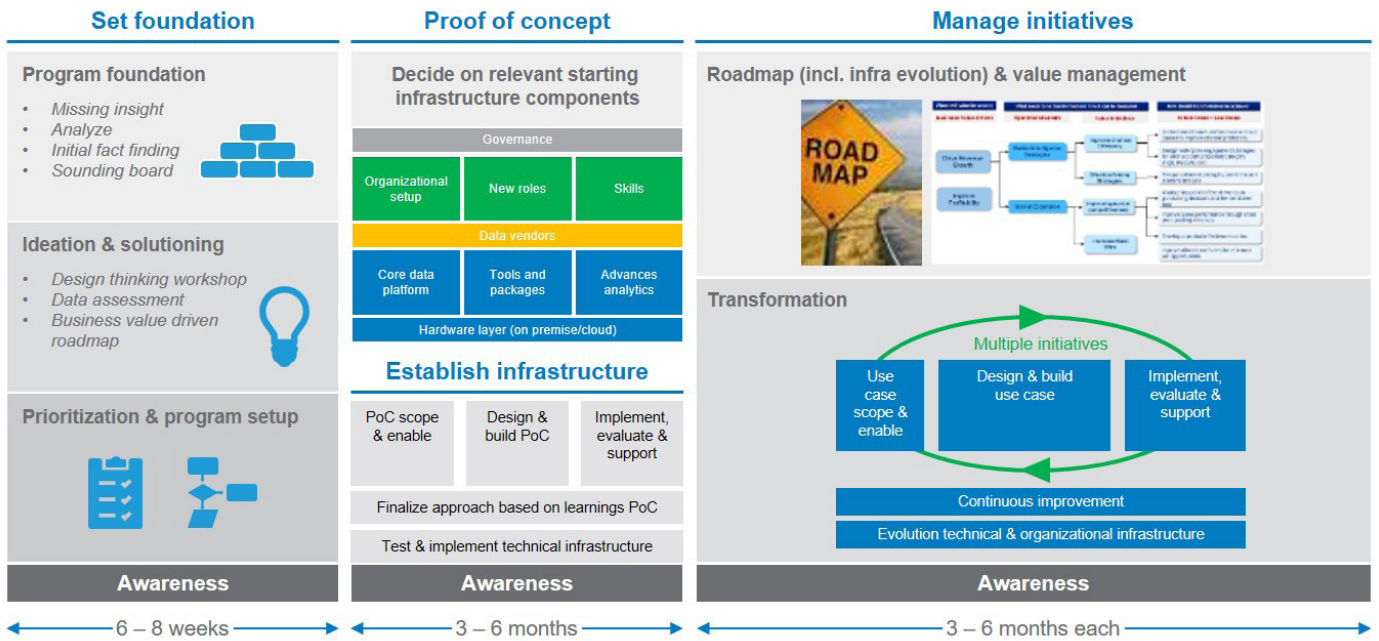
Figure 16: Smart data transformation approach

About the study

To sharpen our understanding of smart data transformation, we carried out a survey based study supplemented by research. We approached both B2C and B2B organizations in various industries including automotive, manufacturing, banking, chemical and resources, energy and environment, financial services, commerce, consumer goods, and life science. Overall, we collected over 60 responses from different organizations. The majority of the participants are employed in the area of IT and belong to the middle management or higher. The surveyed participants mainly serve in businesses with 1,000 to 50,000 employees. The headquarters of the surveyed organizations were mainly located in the United States of America, the United Kingdom, Brazil, Australia, and Canada, but also in Switzerland, Italy, Germany, the Netherlands, Sweden, and Serbia.

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About us

Infosys Consulting

Infosys Consulting is a global advisor to leading companies for strategy, process engineering and technology-enabled transformation programs. We partner with clients to design and implement customized solutions to address their complex business challenges, and to help them in a post-modern ERP world. By combining innovative and human centric approaches with the latest technological advances, we enable organizations to reimagine their future and create sustainable and lasting business value.

Infosys Consulting is the worldwide management and IT consultancy unit of the Infosys Group (NYSE: INFY), a global leader in consulting and technology services, with nearly 200,000 employees working around the globe.

To find out how we go beyond the expected to deliver the exceptional, visit us at www.infosys.com/consulting.

Project Group Business and Information Systems Engineering of Fraunhofer FIT

For about 30 years now Fraunhofer FIT has been conducting R&D on user-friendly smart solutions that blend seamlessly in business processes. Our clients benefit from more efficient processes and increased quality, internal connectivity and staff satisfaction. Fraunhofer FIT is your partner of choice for digitization, Industry 4.0 projects and IoT solutions. Our specific strength is a comprehensive system design process, from test and validation of concepts to the handover of well-implemented systems. FIT cooperates closely with Prof. Matthias Jarke's and Prof. Stefan Decker's Information Systems group at RWTH Aachen University. In addition to headquarters in Sankt Augustin and Aachen, Fraunhofer FIT has two branch offices: the project group Business and Information Systems Engineering (Prof. Buhl) at Augsburg University and Bayreuth University, and the Fraunhofer Application Center SYMILA (Prof. Mathis) in Hamm.

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