

Data x Supply Chain: new paradigms

WHITE PAPER | a partnership



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- > Strengthen the impact of the Supply Chain on their companies' **performance/competitiveness**
- > Promoting Supply Chain professions to **develop their attractiveness and recognition**

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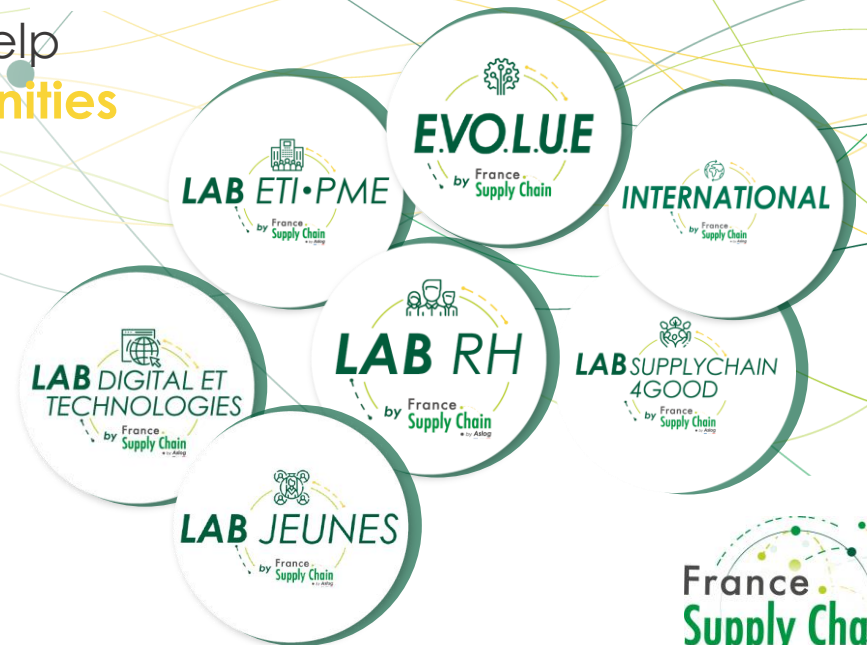
Member **companies** and **schools**

4900

Members

5

Labs and **+++**
Self-help
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Introduction by Nicolas Gallée, Site Leader

The data...

...is currently the talk of the town, as it is at the heart of the debates and concerns of the corporate ecosystem, from strategic marketing to after-sales service, not forgetting the supply chain.

But what data are we talking about, how do we manage and share it, and for what purposes?

The aim of this white paper is to provide insights and testimonials on essential data, its management, sharing, use and purpose, in the service of a more virtuous, sustainable and efficient Supply Chain, for the customer as well as for all the players involved in the upstream and downstream chains.

Indeed, the management and use of data within the supply chain is nothing new. It is undoubtedly one of the most productive and data-intensive functions within a company, and the key to steering, implementing and monitoring activities, not to mention improving efficiency.

Data is therefore a real driver for meeting customer commitments, improving the productivity and competitiveness of the company's businesses, and decarbonizing the company.

But data is growing exponentially. So how do you sort it out?

That's what you'll discover over the next few pages...so enjoy your reading!



NICOLAS GALLÉE
Founding Partner
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This publication was produced as part of the Lab  and is divided into 3 parts :

- **Part 1: Data x Supply Chain ... But what data are we talking about?**
- **Part 2: Actions that are already bearing fruit**
- **Part 3: The supply chain for the circular economy**

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Part 1

Data & Supply Chain ... but what data are we talking about?

In this **Part 1**, we will define the **scope** of the different types of **data to be managed by the Supply Chain** while detailing the level of **data management required as the volume of data increases**, as well as the problems encountered:

1. The different types of data managed.
2. Data management at the heart of organizational issues.
3. The benefits of data management for the supply chain.



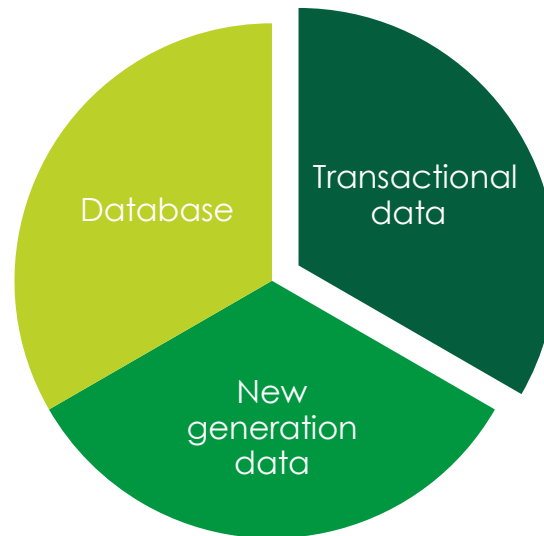
The different types of data to be managed by supply chains

The data processed by companies has always been varied and manifold. Today, a new generation of data is available. **Three categories of data are** emerging:

Master data are the most frequently mentioned data, as they are essential to any transaction.

- **Concerns:** Customer - Product - Supplier - Human Resources - Bank accounts - Production and storage capacities
- **Characteristics:** Stable data as a basis for other data

Ex: Customer A, living at address X, with customer account number Y



Operating data generated by operations

- **Concerns:** Orders - Inventory - Production - Distribution - Purchasing - Sales - Banking data - Accounting entries...
- **Characteristics:** Dynamic transactions and data that daily activities create, modify and enrich.

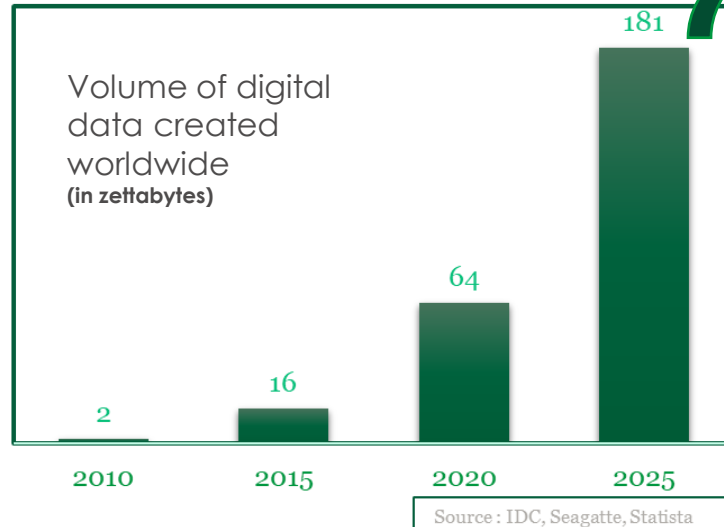
Ex: List of Customer A's orders with date, item details and amounts

New data that's only becoming accessible these days and that we need to manage from now on

- **Concerns:** Product traceability, geolocation, social networks...
- **Features:** Real-time, traceable, shared and secure data, Scope 3 data (upstream and downstream), data on societal and environmental impacts.

Ex: Origin of raw materials for Customer A's orders, lists of delivery stages and locations for his orders, and Customer A's opinion on the products received published on social networks.

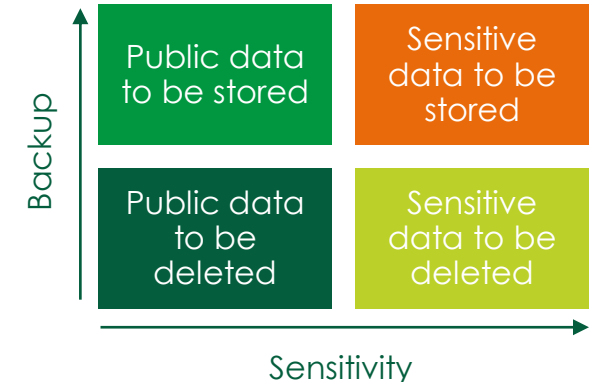
A challenge: the ever-growing volume of data



Data is constantly evolving, and its volume is increasing almost exponentially. Between 2010 and 2020, the volume of data grew from 2 zettabytes to 64 zettabytes. The projection for 2025 announced by IDC, Seagate and Statista in March 2021 is 181 zettabytes, representing **annual growth of 40% over five years**. This raises the question of sobriety in a "world 4.0": how can we avoid data redundancy? How can we promote openness while preserving security and confidentiality?

Worldwide **storage capacity** is set to reach 11.7 zettabytes by 2023, according to IDC. As this capacity is a far cry from the amount of information created each year, which in turn adds to the data already in existence, it is not only necessary to **know how to manage** such a large volume of data, but also to be **able to identify** precisely **which** high-value-added **data deserves to** be kept. Finally, the criterion of data **sensitivity** must also be addressed in order to take the necessary measures to **protect sensitive data**, whether it is to be retained or deleted. This last point enables us to **classify data into 4 categories**, from the simplest to manage - public data to be deleted - to the most complex - sensitive data to be stored.

Data classification matrix



*one zettabyte = one trillion bytes = 1,000,000,000,000 GB

Data management at the heart of organizational issues

There are many sources of concern about data in organizations

Data present and used, but in a basic way

The data constraints that generate the most concern among respondents are :

- **Traceability requirements** (15.4% of respondents)
- **European regulatory constraints** (12.8% of the panel)
- **Personal data constraints - RGPD** (10.3%)
- **Measuring carbon emissions, all scopes combined** (10.3%)
- **EGALIM 1 & 2 laws** (10.3%)

Data-related concerns and challenges*

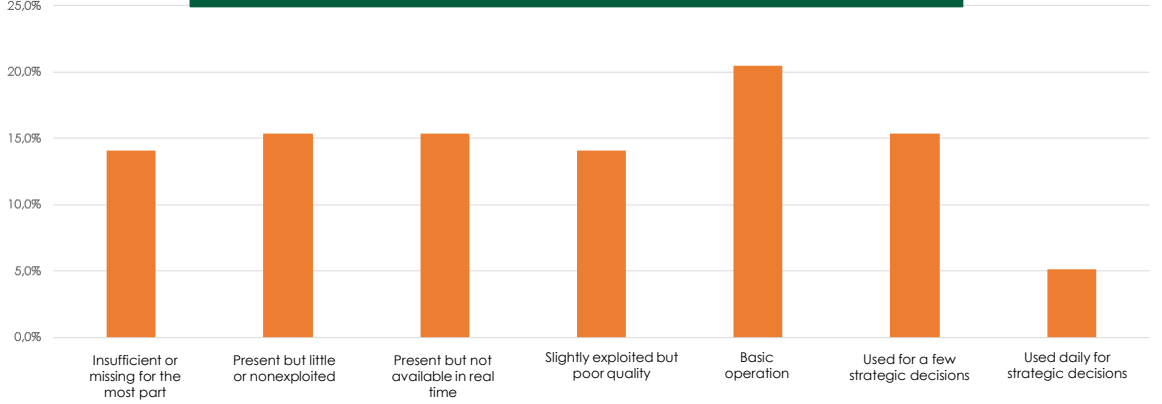


EGalim laws (2018 and 2021) for balanced trade relations in the agricultural and food sector and healthy, sustainable food accessible to all

This vision varies from one business sector to another:

- **54% of transport** and logistics operators acknowledge that data is present but not **little or no use is made of it**
- **57% of Industry players** consider that their data is **used in a basic way basic**
- **46% of Retail / FMCG respondents** use their data for **some strategic decisions**

Suggestions that best qualify supply chain data for respondents in terms of use*



*Source: Data x Supply Chain survey conducted by France Supply Chain between October 2022 and January 2023

Data management at the heart of organizational issues

Corporate data organization and data quality are the main problems encountered

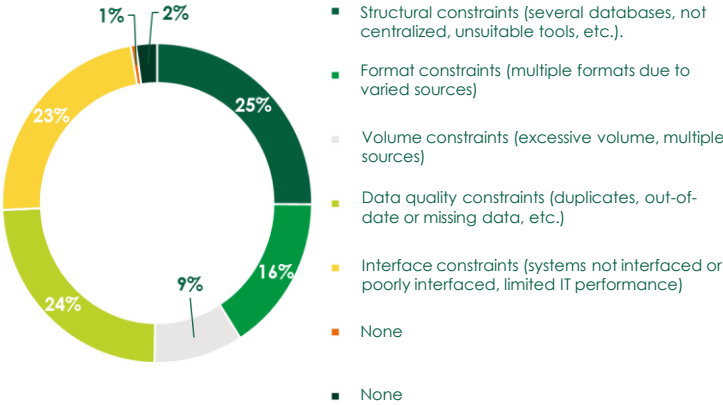
Structural constraints relating to **data siloing** top the list of pain points (25%). The problem can be amplified if the teams in charge of data management don't facilitate the sharing and circulation of data and information between different departments.

In second place, unsurprisingly, the **quality of the data** we handle is cited as a penalizing factor (24%).

IS interface constraints are also frequently cited (23%), and come in 3rd place.

However, these 3 reasons were all given in similar proportions.

The main problems encountered with supply chain data*

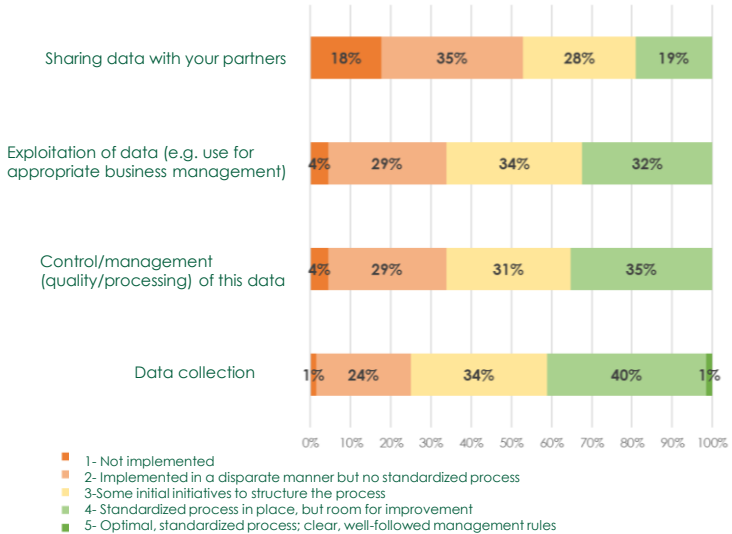


Data collection, management, use and sharing are not yet optimal

While at least **20% of respondents** claim to have implemented **standardized methodologies** to cover these processes, in almost all situations these methods can be improved and optimized.

Data sharing with supply chain partners (suppliers, transport service providers, customers, etc.) is not **standardized at all, or even non-existent** for more than half of respondents.

Company performance on various data-related processes*



*Source: Data x Supply Chain survey conducted by France Supply Chain between October 2022 and January 2023

Data management at the heart of organizational issues

Maintaining data quality, the most complex and time-consuming task for the panel surveyed

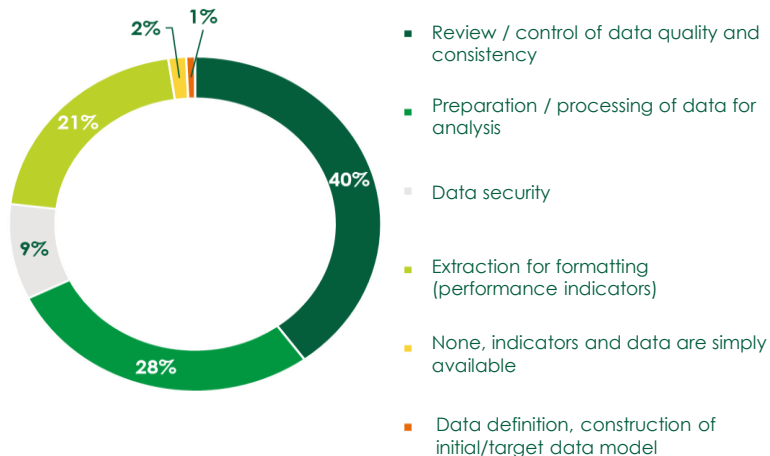
Whatever the industry, the most time-consuming & complex task associated with data management is **data review and quality control**.

3 sectors in particular mention it:

- **Industry: 82%** of sector respondents
- **Retail / FMCG: 71%** of sector respondents
- **Transport / logistics: 69%** of sector respondents

A little further on in the feedback reported, **extracting, formatting and preparing data for analysis** also take up a lot of time... **so many tasks required before the data can be used!**

The most complex and time-consuming tasks*

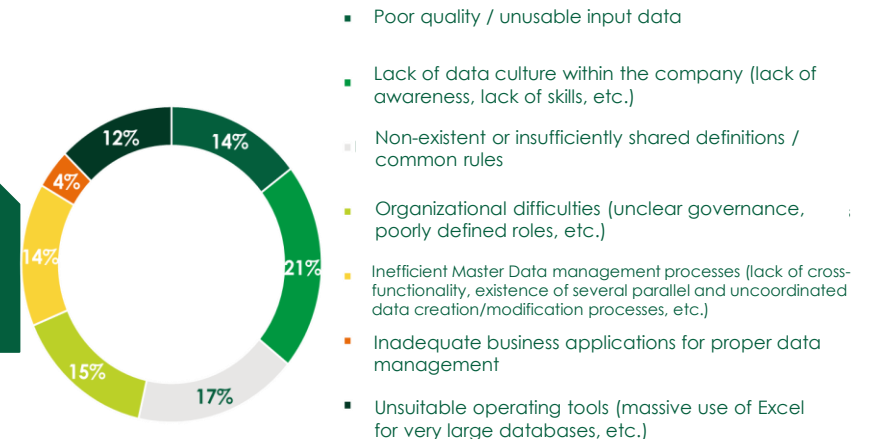


Lack of data culture, the main problem encountered by respondents, ahead of lack of governance

For respondents, the **main problems encountered** with the data are :

- Lack of data culture within the company (**21%**)
- Definition & common rules that are non-existent or insufficiently shared (**17%**), or even common standards
- Organizational difficulties (unclear governance, poorly-defined roles, etc.) (**15%**)

The main problems encountered with data in the supply chain*



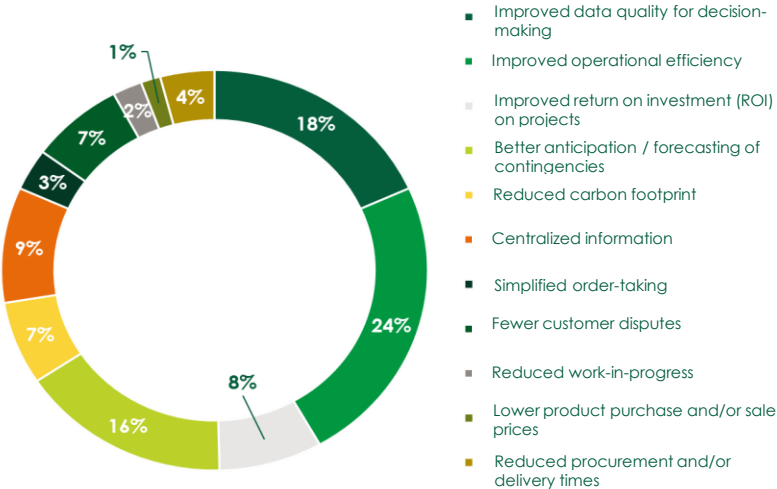
Data management at the heart of organizational issues

Respondents agree on the many benefits of good data management and exploitation

Improved operational efficiency and **the use of better quality data** for strategic decision-making are, for almost all respondents, the benefits to be expected from better Supply Chain data management.

We note that, depending on the sector, other benefits are also highlighted: for **Retail / FMCG**, the **ability to anticipate and foresee hazards** is central (cited by 93% of respondents).

The benefits of better supply chain data management*

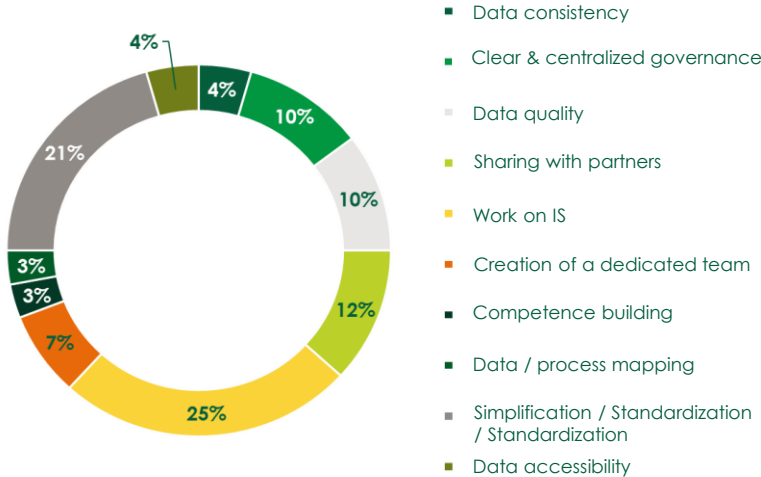


How can we improve data management?

We asked respondents what they would do to improve their data management if they had a magic wand, and **25% of them would act on their IS**, while over **20% would ask for standardization, standardization and simplification of their processes**.

Only 7% of respondents answered that they would like to have a **dedicated data management team**, whereas when asked, **43% of respondents had no dedicated data management organization** in their company.

Respondents' wishes for data in their supply chain*



*Source: Data x Supply Chain survey conducted by France Supply Chain between October 2022 and January 2023

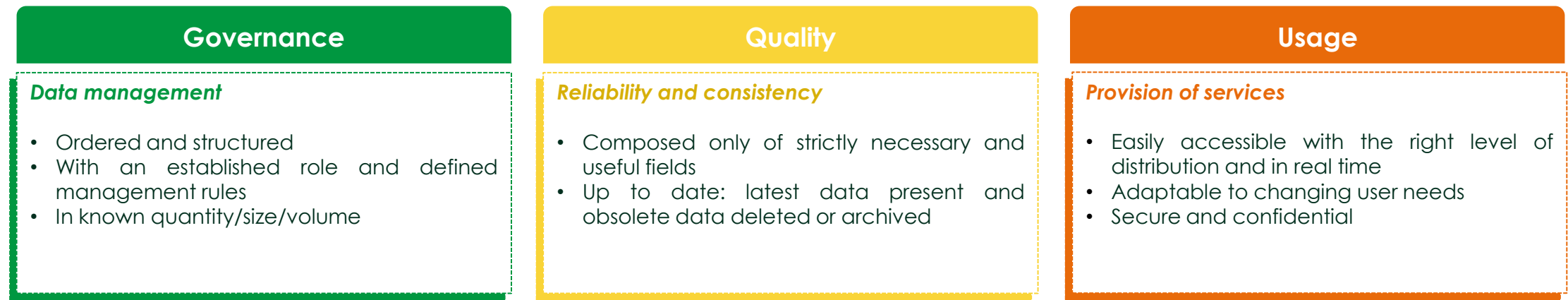
What are the benefits of "mastering" data?

Productivity and efficiency	Not only for analysts, but also for purchasing, management control and top management... This saves time, as well as natural, human and financial resources. Currently, only 18% of time spent on data is dedicated to analysis, the rest being spent on data preparation, protection, research and duplicate management, as shown in the 2019 IDC infographic "Data Governance".
Risk management	The representation of the organization and its activities is more faithful to reality, and decision-support indicators are reliable and up-to-date.
Compliance with legislation	We better meet requirements in terms of product traceability, certification and environmental impact control.
Business Opportunity	Quality data has a market value.
Customer relations	More relevant information is provided to customers to help them carry out their business; this data becomes available and accessible, and the information communicated is more reliable.
Competitive advantage	Strategic decisions are more likely to achieve expected objectives, and productivity is higher.
Culture Entrep. claire	Establishing a common discourse and vocabulary

All of these advantages enable us to improve **operational performance on a very large scale**, including within the supply chain. Before going any further (data monetization, for example), **good, well-mastered data** can already ensure quality service, and will therefore be a positive vector for image, and therefore sales potential.

How can we assess the level of control over our data?

Mastered data fulfills certain characteristics that can be grouped under three different pillars: **Governance**, **Quality** and **Usage**. Below, we describe how data management is based on these 3 pillars:



Meeting all these criteria is a complex task. How, then, is it possible to **assess data mastery objectively**?

Different methods exist, which will give weight to these characteristics, proportional to the importance they have in the company's business. For example, one possibility was presented in the 2019 Wavestone study entitled "Les Master Data_SC". This focuses on a governance pillar with a Kiviat diagram that defines four levels of maturity.

Another way of assessing a company's mastery of data is to study what it gets out of it, and in particular whether it uses it to make decisions. From a sectoral point of view, banks in particular have implemented the most data-driven decision-making processes. According to Capgemini Research Institut (2020), this is the case for 65% of banking companies, followed by insurance (55%), telecoms (54%) and healthcare (53%).

How can we assess the level of control over our data?

For each of these pillars, it is necessary to define levels of maturity that companies can reach on each of these axes:

	Governance	Quality	Usage
CHAOTIC	No dedicated organization. No standardized management methods or rules.	No shared definition of data. Data not integrated or reactive approach to data integration.	Siloed data.
BIRTH	Non-dedicated organization, data management rules focused on "cleansing".	Some definitions shared between departments. Proactive approach limited to integration: master data integration platform.	Basic data shared between departments.
IN DEVELOPMENT	Dedicated data management organization. Standardized management rules.	Enterprise-wide definitions. Proactive approach to integration: more advanced architecture and technologies.	Company-wide data sharing.
MATURE	Organization dedicated to data management. Standardized management rules including all dimensions of governance, embedded in the corporate culture.	Shared definitions across the company and its partners. Predictive approach to integration.	Data shared across the company and its partners: total transparency.

Client stories : Data & Supply Chain

Client story 1 : SprintProject

Data management challenges :

The main challenges are to **recover, consolidate and standardize** data. Having data that is structured, shared and standardized, according to the right repository, is one of the challenges facing Sprint Project.

Data issues:

- A strong systems legacy
- Proprietary languages and systems
- The defensive strategy to keep customers captive and limit the opening up of the market
- Non-optimized flows

The importance of data management :

For Sprint Project, data is an important parameter in decision-making, which is why **governance** must be accepted by all, data and rules must be agreed, data must be well collected and exploited at scale with automation and integrity. The issues of **confidentiality and DGPD** are equally **important**.

Assessment of the level of data mastery:

Difficulty in collecting and tracking quality data

Clear internal roles and responsibilities

Upstream data quality with its ecosystem of suppliers

Projects already underway :

For Réseau la Poste, the "**integration of all acquired companies' systems**" project was implemented. The problem encountered was the **non-harmonization & standardization of data**. Inter-company repositories are "brakes" on external growth, and when IS are networked, these issues are even more critical.

Client story 2: Luxury

Data management challenges :

Today's organizations are **complex**, with many interlocutors, which slows down change and makes it take longer. The main challenges we face are **standardizing** and **enhancing the value** of data, but also **collecting data** on all flows, to see which data is important and who is modifying it.

Data issues:

- Product use (repair, second life, stock management for obsolescence)
- Regulatory data (monitoring & regulatory watch)
- Difficulties with new trades
- Need to be more agile on customs and distribution issues

The importance of data management :

The explosion in **teams' sensitivity to data** has led to an increase in the number of projects, but the **lack of agility with ERP** versus the business' need for speed makes it impossible to be **Data Driven**. It is therefore necessary to **train teams** to master the skills needed to use data.

Projects already underway :

A **POC** with two cases was carried out using a market solution, with the aim of **finding out where the data comes from** and determining the impact of an upstream change on the downstream in terms of leadtime.

During the POC, a **Data training session** and a **PIM implementation study** were carried out, with the aim of unclogging the ERP and generating sales data directly in the PIM.

Other projects underway include **a datalake** and **a data platform**.

Client stories : Data & Supply Chain

Customer story 3: Food industry

Data management challenges :

The main challenges encountered are the **maturity of the planning forecasting process** and the need to optimize **inventory management & reduce leadtime**.

Data issues:

- Two separate IS to be consolidated following a merger of entities
- Delays in obtaining the information needed to produce the right reports
- Flow data: complicated, siloed organization
- Consolidation of sales by carrier and product brand

The importance of data management :

Within a BU, one **person is dedicated to Data Management**, but a cross-functional Data organization has yet to be set up, with **centralized IT resources**.

Assessment of the level of data mastery :

In terms of **Governance**, the Group has opted for each entity to have a person dedicated to the subject of data.

However, **access** and **data quality remain disparate**.

Projects already underway :

- Stock **analysis** with a **market solution**
- Setting up **reporting** with PowerBI
- **Improved forecasting with the** help of an external consultancy for the selection of market solutions
- Route optimization with a tool to offer different services to different stakeholders (e.g. breeders, distributors, etc.), reduce CO2 emissions and personalize customer relations.

Client story 4: Retail

Data management challenges :

The challenge faced by this player in the retail sector is the **multitude of software programs** that exchange data, but which don't have the **same language**, so there is sometimes a loss of data or data quality. They face other induced challenges: for example, the RAO [Réapprovisionnement Assisté par Ordinateur] **receives false data** from the stores, which has a direct impact on forecasts and replenishment.

Data issues:

- Particularly for transactional data and form management Quality of data measuring the performance of a product in a store
- Stock data quality and impact on replenishment

The importance of data management :

Today, we're planning to switch to a new upstream ERP system to replace the **sales management tool**, which is now reaching its limits. We're looking for **standardized tools that can be shared across the group**

to reduce costs and maintenance. In particular, the aim is to **avoid any loss of data quality**.

Assessment of the level of data mastery :

The aim is for reporting to be **clear and interpretable** by non-specialists. It is also important to establish **management rules** to ensure that decisions are valid and that all controls are carried out.

Projects already underway :

- A project to enable automatic **product coding**
- A **reporting** project
- **ERP changeover** project.

Client stories : Data & Supply Chain

Client story 5 : Luxury player

Data management challenges :

- Management of sales and stock data in a **context of permanent shortages due to** the explosion in sales.
- Data management for **product information traceability**, particularly with regard to customs, serial numbers and multi-sourcing.
- Complexity of writing the technical product description.
- Complexity of managing references produced with or without packaging.

Problem data :

Certain complexities stand out in particular when it comes to **article reference data** (made in, technical description, nomenclature, impact on stock) and transactional data relating to **transit information**.

The importance of data management :

While maturity on this subject varies considerably from one business to another, what is lacking to date is **centralization and the implementation of a department responsible for the entire organization**. There are as yet no plans to

implement a global MDM tool, but data management remains no less important to management.

Assessment of the level of data mastery :

Data management involves users in particular (Business + IT). The main challenge at present is to **develop** the level of **information** and the **appropriate management of data**. In particular, **security is becoming an increasingly important issue**.

Projects already underway :

Projects have been undertaken to improve inventory visibility, on the one hand, and to upgrade the "location" data repository, on the other. At the same time, the product repository is being updated in anticipation of the ERP transformation.

Client story 6: Food industry

Data management challenges :

Three challenges stand out:

- **Data harmonization** and KPI creation on a **global** scale.
- **Data control and traceability across the** entire value chain, including between different players.
- **Projecting** data management as it will be in the **future**, with a focus on supply.

Certain constraints are part of these challenges, notably with regard to the **obsolescence** and **plurality of** information systems in certain plants.

Problem data :

The source of **reference data lacks standardization and reliability**.

Transactional data from different countries needs to be centralized and reconciled for analysis.

The importance of data management :

Data management is a priority for COMEX. The Group has set itself an ambitious target for data, and **aims to deploy even more resources** in this area in

the long term.

Projects already underway :

- Several projects aimed at improving data management have been developed, including a **data platform** to harmonize and catalog data.
- Demand forecasting project with **machine learning** integration,
- Project to optimize logistics flows and the use of raw materials
- Standardization of **KPIs** and harmonization around a single, shared definition

Client stories : Data & Supply Chain

Client story 7 : EPALIA

Data management challenges :

EPALIA is at a turning point in its BI system. The old system had given rise to difficulties (data models with multiple field types, unclear meanings, etc.), and the group now finds itself in a phase of major reflection, notably around **data standardization**, in order to produce and make available reliable and complete data models. Their new tool enables them to **reset practices** and **initiate data governance**, while integrating certain constraints.

Problem data :

Most efforts are concentrated on transactional data specific to the core production activity (sorting, production, stock, sales order), and also on finance, which makes extensive use of this data. The indicators implemented are therefore mainly financial; to date, little visibility has been deployed for other data that do not correspond to euros. The product repository is well developed. The only difficulty lies in the particularity of re-used products and the use of a generic code that does not allow us to distinguish a new product from a re-used one.

More generally, **data stacking and stacking at the information system (ERP) level feed a complex system** and give rise to difficulties concerning the reliability and quality of the data generated.

The importance of data management :

EPALIA is increasingly interested in managing its data. In particular, new projects are emerging to cover all departments, which until now have been using data in a decentralized way, independently of other entities. The aim is to **centralize data governance** by **standardizing KPI definitions** for each business line. This priority is now part of the company's CODIR, and can be seen in particular on the Supply Chain side, with a strong desire to improve sales forecasting.

Assessment of the level of data mastery :

Supply chain data is essentially generated by the ERP system. The supply chain can access this data independently. However, this data is mainly used for reporting purposes, with a heavy reliance on extracted lists rather than KPIs. There is also a lot of **time wasted** on the IT side entering corrections to planning and stock levels, reflecting a lesser mastery of the data in the tools dedicated to the supply chain.

Projects already underway :

Two major projects have been undertaken to improve data management. The first is IS-oriented, with the aim of **increasing processing capacity** (including a switch from Myreport BI under SQL to DigDash). The second project, called DATA GALAXY, although still at the reflection stage, focuses on making **information available** (by involving the business units in the process), with a **definition of data that is shared, useful and validated for and by all**.

Part 2

Actions that are already bearing fruit

After defining the scope of data in Part 1, this Part 2 will detail the **major actions that have** been taken to control data, as well as the **tools made available** to achieve this:

1. Major actions to control your data
2. The various solutions available to improve data management
3. Solutions to accessibility problems



Mastering your data: the tools companies can use to do so

Today's world offers companies increasingly **complex** data to process and analyze, with ever-increasing **volumes of data being produced** and sources multiplying.

Mastering this data can be an essential lever for companies, guaranteeing them **greater productivity, better risk management, compliance with various legislation, commercial opportunities, better customer relations, competitive advantages, etc.**

However, a number of obstacles stand in the way of maximizing the benefits of this wealth of data:



Lack of uniformity in the data used



Poor quality of available data



Lack of access to relevant data



Lack of collaboration with partners

MDM, RPA, Data Warehouse, Lake or Lakehouse and Data Catalog are just some of the alternatives available to improve data management and control.

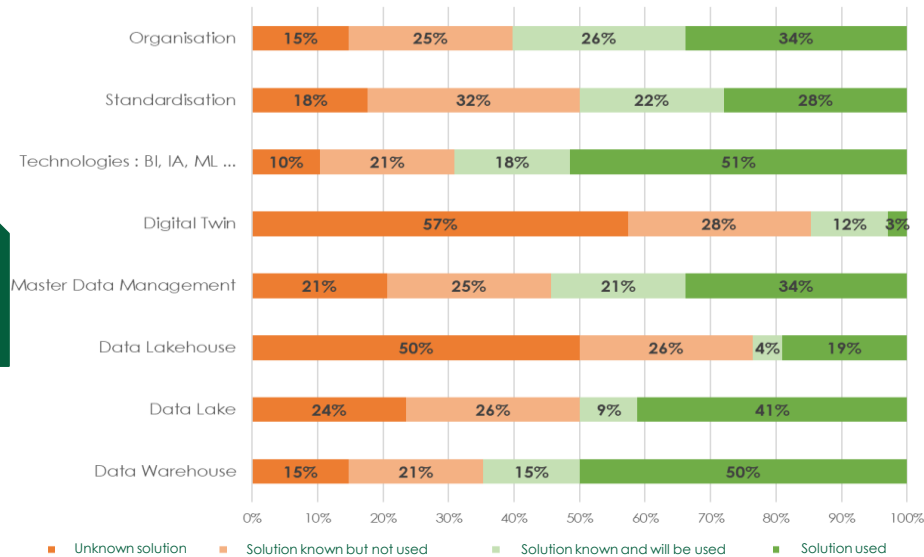
The various solutions available for managing supply chain data

Various solutions already exist on the market today

Among the relevant solutions in the quest for better data management, some mentioned **Blockchain** and **Data Science**.

Respondents emphasized process governance - "*We need interoperability and more comprehensive governance*" - as well as **data security and inter-company collaboration**.

Level of implementation of processes or tools*

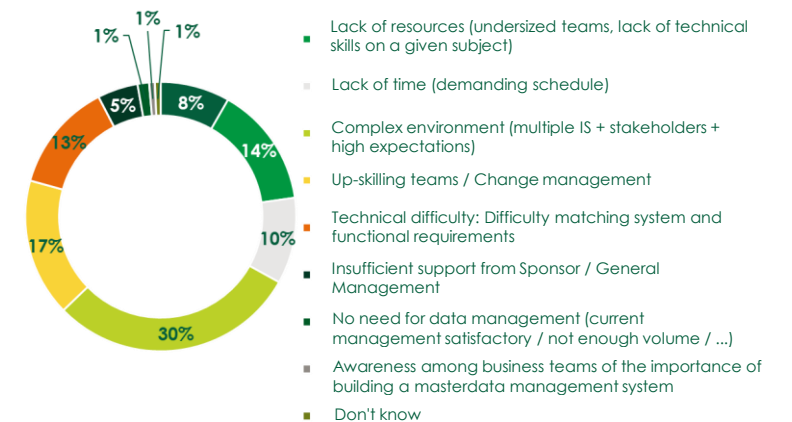


Main challenges when implementing a new data management solution

When setting up a new data management solution, it's important to **frame the project in terms of the** ability to mobilize experts, both from a business and technical point of view, given the complexity to be addressed (IS, value chain, etc.).

As with any project, you also need to find the **best way to get sponsors on board, as well as the future teams** who will be using the solutions, right from the **design phase** (change management!).

Difficulties encountered when implementing data management solutions or tools*



*Source: Data x Supply Chain survey conducted by France Supply Chain between October 2022 and January 2023

Solving the problem of data consistency and quality: Master Data Management

Master Data Management (MDM) is a **solution** designed to ensure the **accuracy, uniformity** and **uniqueness of** data. What's more, an MDM also enables you to keep **track of who is** responsible for the data.^(J)

Possible uses for MDM^(K)

- 1 **Collaborative** - data management by several BUs
- 2 **Transactional** - MDM involvement in all business operations
- 3 **Analytics** - MDM provides data for analytical applications

The benefits of MDM^(J)

- 1  Prepare **data sharing** with partners and customers
- 2  Improve reporting **accuracy with quality** data
- 3  Gain a **global view of** your business thanks to **multiple data sources**

We can also add **PIM (Product Information Management)**, a solution that centralizes product data for better sharing with partners.

Several possible architectures (J)

• Registry architecture

Downstream systems can only read master data. Useful for eliminating duplicates and providing a consistent data access path.

• Hybrid architecture

Downstream systems can write and read master data, so data consistency is not guaranteed due to synchronization delays. The shorter these delays are, the more the system tends towards perfect consistency.

• Transactional architecture

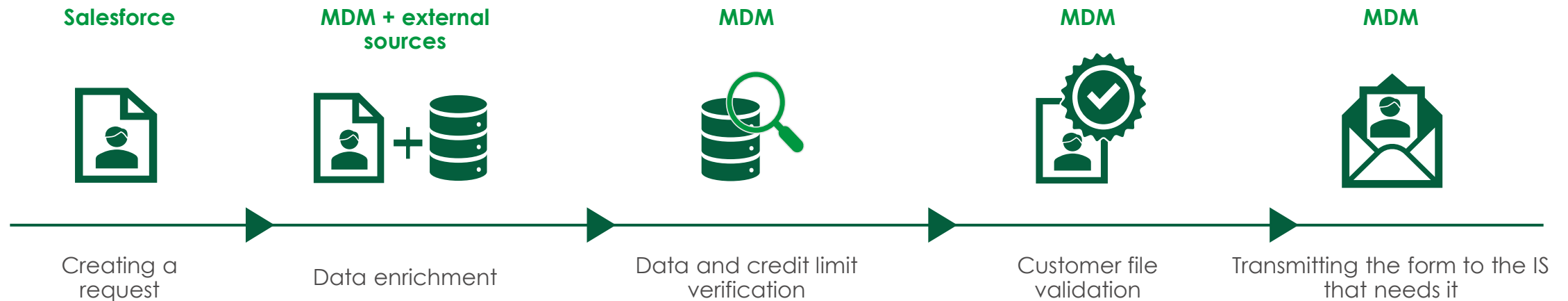
The difference with hybrid architecture is that master data read/write necessarily passes through the MDM system, guaranteeing perfect consistency.

Solving the problem of data consistency and quality: Master Data Management

Use case: using MDM to manage customer and contact repositories

In order to make the most of your data and get the most out of it from a business point of view (gathering information to help decision-making, among other things), it's essential to have **uniform, accurate** data. Wavestone is convinced that MDM is the best practice to adopt. That's why, during one assignment, the firm proposed a scenario to a manufacturer in which MDM is used to manage customer and contact repositories.

This solution provides excellent coverage of business needs, while using **standard MDM functionalities** (workflow, quality analysis, etc.).



Solving the problem of data consistency and quality: RPA

To ensure better quality and uniformity of company data, one solution is to **free ourselves from the errors that can be made by humans**.

RPA, or **Robotic Process Automation**, can be a very useful technology for this. RPA **increases data quality** by avoiding human error during data entry, making data more reliable and compliant. This technology also enables **productivity gains** by automating low value-added tasks.

Robotic Process Automation

"Process automation technology using robots to carry out structured, routine and repetitive tasks in a more or less autonomous way(L)".

The RPA allows you to :

1

Reproduce human actions

- Copy/Paste
- Fill in forms
- Data consolidation
- Export or import
- Moving documents and data

2

Automate rule-based tasks

- Executing a procedure
- Making calculations
- Retrieve information through screen scraping, screen captures (AI)
- Performing checks

3

Automate tasks between applications

- Access and read databases
- Access ERP systems without APIs
- Connecting to and querying APIs
- Manage queues

There are several solutions to the problem of data accessibility: DATA WAREHOUSE

Analytical relational database.

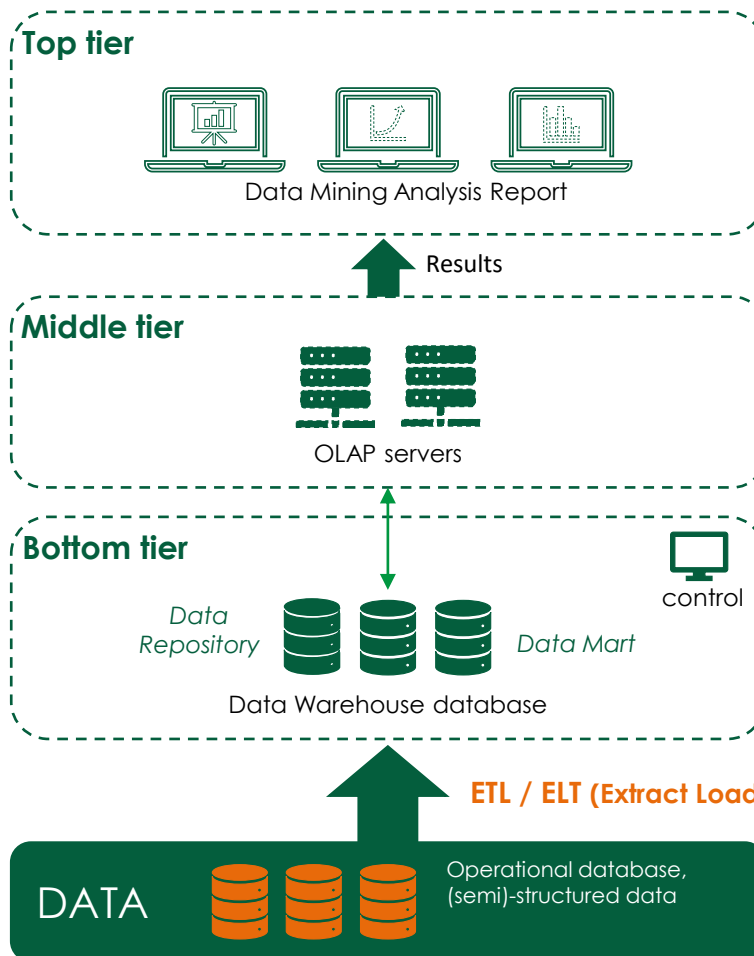
Data is collected and aggregated from **one or more sources** and can be analyzed to provide business information^(A).

The Data Warehouse is a **federated repository**, better suited to structured data.

Advantages and disadvantages

- ➕ Easy data access and query generation
- ➖ Not a cost-effective method for storing and analyzing raw or streaming data

The most common **three-tier architecture** is . (B)



User interface consisting of analysis tools and APIs used to extract data

Analytical server (OLAP) providing end-users with an abstract view of the database

Database used by Data Warehouse servers

There are several solutions to the problem of data accessibility:

DATA WAREHOUSE

Monoprix moves to a Cloud(C) data warehouse

Monoprix is a retail chain with 590 stores in France. With more than 8 million customers a day, not counting online purchases, the amount of data the company needs to process is considerable.

Their old system, consisting of an on-premise data warehouse and a cloud data lake, was unable to meet the IT department's expectations in terms of data management (very long processing times, analytical tools outside the IT department's scope, etc.). The company therefore took advantage of the deadline for replacing the on-premise data warehouse to consider other options.

In March 2019, Monoprix is launching its **MAD project** to **move their Data Warehouse to the cloud** (1^{re} French company to make this transition) with the aim of giving back control to the business, providing a more efficient service, lowering operating costs and creating a single data platform for the whole company.

This project has enabled Monoprix to:

- **Reduce data processing costs by 30%.**
- **Reduce query times:** queries that used to take hours now take minutes
- **Facilitate data sharing** with service providers: update customer files twice a month instead of twice a year

Resolving the problem of data accessibility for better several solutions : DATA LAKE

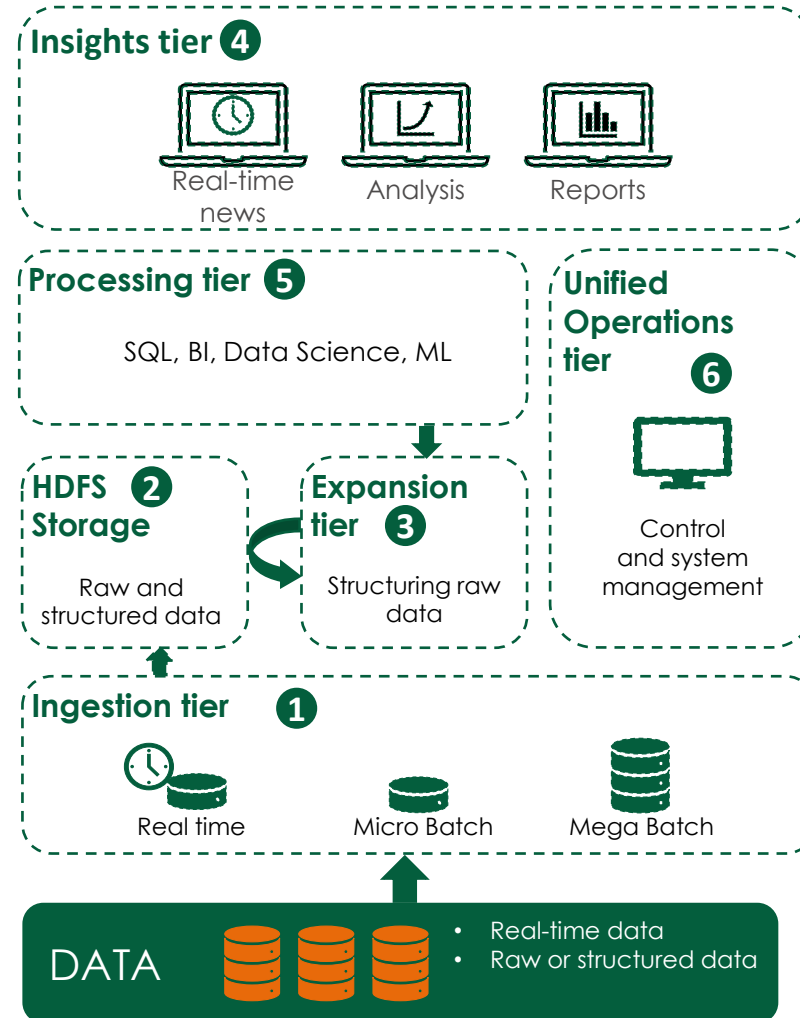
Unstructured database for storing **unprocessed, unorganized data**. Data of all types and from all authorized sources^(E).

Data lakes enable massive quantities of data to be stored in their original format. When a query is issued, a subset of the data is extracted and analyzed to answer it.

Advantages and disadvantages

- Supports all data types
- Optimum for processing complex or real-time data
- Cost-effective for all types of data
- Queries can be lengthy
- Requires complex architecture
- Data quality and reliability take a long time to obtain

Example of architecture^(D)



1 - Integration of raw data (real time or batch) from multiple sources

2 - *Hadoop Distributed File System*, storage area for all data

3 - Converting raw data into structured data

4 - User interface for queries and results display

5 - Executing queries on structured data in the dilatation tier

6 - System management (workflow, efficiency, etc.)

There are several solutions to the problem of data accessibility :

DATA LAKE

Michelin and its Data Lake Cloud(F)

In 2019, Michelin deployed its **Corporate Data Lake**. This solution, a combination of **storage space in** Microsoft's **Azure cloud** and **the Databricks processing system**, has already supported more than a hundred data projects since its deployment.

Michelin's Corporate Data Lake enables a number of uses, such as :

- **Machine Learning** to **improve business practices**
- **AI**s fed by market data to **manage replenishments** to avoid stock-outs, or to **control production line speeds**.
- **Machine Learning** algorithms to **optimize job matching** in human resources departments.

Lower storage costs and more data: the risks of DATA SWAMP

The evolution of data storage

- In the 1980s, data warehouses were introduced to store structured, organized data.
- Some thirty years later, data lakes make it possible to store all types of data.
- With the cost of digital data storage steadily falling, companies are tending to store everything in their Data Lakes, transforming them into **Data Swamps**, storage spaces invaded **by Dark Data**, "unstructured data that is neither used nor analyzed, but simply stored as it is generated by the company and its ecosystem" (Philip Carnelley, assistant vice-president of software and analytics at research firm IDC Europe).

This abundance of stored and unused data, in addition to not helping decision-making, presents several risks for companies^(M) :

Environmental risk



Stored on air-conditioning-intensive servers, this data has a negative impact on the company's carbon footprint.

Risk cyber security



If this data, which is not studied or analyzed, is hacked, companies will not necessarily see it.

Risk legislative



Dark Data can be used to prove that the owner is in breach of legislation - a risk of "non-compliance".

To mitigate these risks, several initiatives aim to analyze data, either at the time of storage to qualify all data, or once it has been identified as Dark Data to better designate it.

This first option is in line with the DATA LAKEHOUSE concept, a hybrid solution between Warehouse and Lake

Solving the problem of data accessibility to better exploit several solutions : DATA LAKEHOUSE

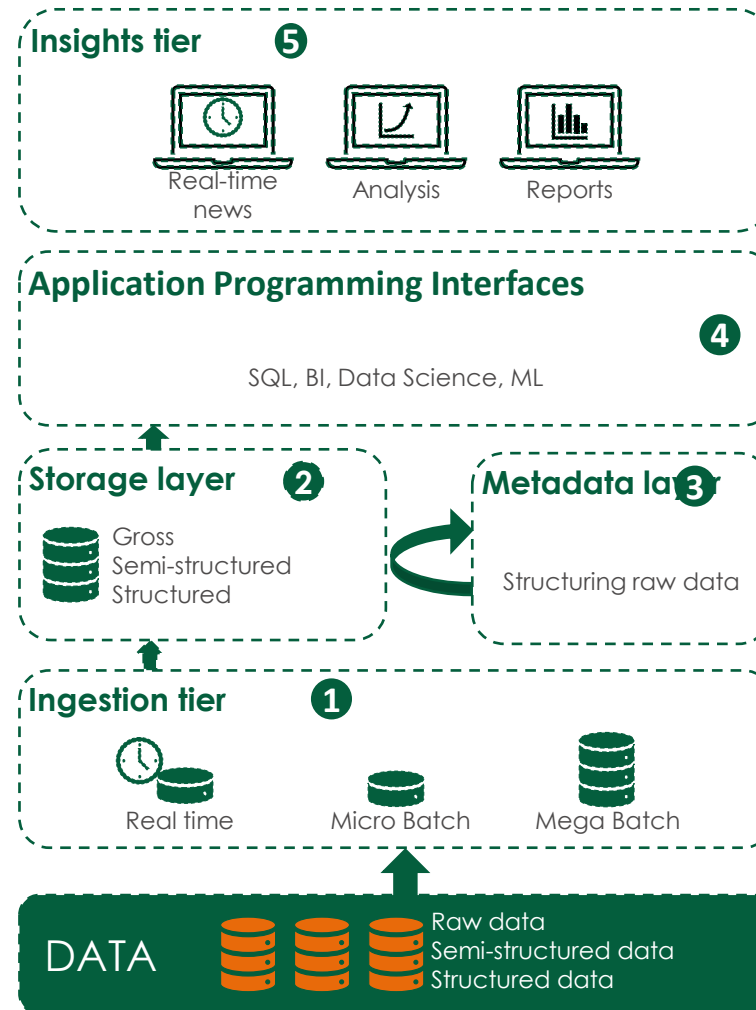
A solution that combines the **data structuring** method of a data warehouse with the **management rules** of a data lake, making it a more cost-effective data storage space^(G).

Data Lakehouses are useful for data scientists, enabling them to use BI and Machine Learning on data.

Advantages and disadvantages

- ⊕ A single storage platform: Simplicity of maintenance
- ⊕ Multi-technology support
- ⊕ Reduced data duplication
- ⊕ Low storage costs
- ⊖ A relatively recent and not yet mature solution
- ⊖ Time-consuming to set up
- ⊖ No tools currently available to use the solution to its full potential

Example of architecture⁽¹⁾



1 - Integration of data (real time or batch) from multiple sources into the data lake storage layer

2 - Storage of all data in open format (Data Lake)

3 - Unified metadata catalog for all data in the Data Lake. Possibility for users to implement management rules.

4 - Executing user requests

5 - User interface (tools and applications) for queries and display of results

There are several solutions to the problem of data accessibility :

DATA LAKEHOUSE

Engie x Databricks: optimizing maintenance solutions and energy with the Lakehouse(H)

Smart O&M is Engie's digital software platform, designed to help the group's Business Units in their quest for operational excellence. The platform **collects IoT data** to **automate installation monitoring, anomaly detection** and the **launch of maintenance operations**, thanks to dashboards and reports.

However, Smart O&M was facing a number of problems: **too long a time-to-market** for building dashboards and reports, **fragmented sources and therefore** source-specific **ETLs**, and **fixed implementation costs** for each deployment in a new region.

By implementing Databricks' Lakehouse, Smart O&M has succeeded in :

- **Reduce time-to-market by 10 weeks**, from 16 weeks from dashboard request to completion, to just 6 after Data Lakehouse implementation,
- **Optimize run costs by 27%** by reducing the number of specific ETLs,
- **Eliminate fixed overheads** when deploying in a new region.

DATA LAKEHOUSE* market players



**Non-exhaustive list*

Other inspiring practices

Blockchain for cargo traceability

In 2019, as part of work around the government's National Port Strategy, a pilot was carried out to challenge the contributions of a Blockchain-based solution on improving pre/post intermodal routing performance. The Blockchain solution used **KeeX Stories** enabled :

- **End-to-end digitization of processes** between key supply chain players
- **Reduce the number of documents** exchanged (e-mail and paper) **by 40%**.
- **Increase stakeholders' visibility of shared processes by 89%** thanks to transactions carried out on the blockchain network.

Blockchain for access to food data

Product knowledge has become a fundamental consumer expectation. Against this backdrop, Cofigeo called on Crystalchain's expertise and Blockchain traceability platform to enhance the transparency of its products.

This project enabled :

- **Blockchain registration of traceability information** with the cooperative
- A unique QR code to display the manufacturing **process, proof of product origin** and **information about the soil and its specific characteristics**.

The data catalog

This solution makes it possible to identify where data is located in the application landscape, who uses it, who modifies it, and where it is stored. Data owners can also be identified, as well as data governance in general.

Key functionalities: access to data sources, descriptions and definitions, data quality via rule execution, information traceability, text search, metadata referencing and analysis, etc.

The data catalog provides an **exhaustive mapping of the data model**. It also serves a security purpose, and can be used for impact analyses in the event of migrations, IS modifications or decommissioning. It also facilitates the circulation of data, since we know who uses it when, who enriches it, and so on.

Part 3

The supply chain at the service of the circular economy

After defining the scope of data in Part 1 and the major actions taken to master data in Part 2, this **Part 3** highlights **the need for change to** achieve a rethought Supply Chain at the service of a **circular economy, thanks to an indispensable catalyst: data.**

1. Why rethink the classic supply chain model?
2. How can we make this model converge towards a circular supply chain?
3. Why share data in the supply chain?



Why rethink the classic supply chain model?

Context & critical factors of the current model... from customer king to supplier king

Background :

- The supply chain has always been at the heart of business performance, as it accounts for a very large proportion of company costs.
- As we move towards an economy where pressure on resources will be much greater, and where interdependence with suppliers will increase, the strategic stakes for the supply chain will be even higher.
- We are even entering a period of "inversion", in the sense that the balance of power between suppliers and customers is being reversed. Some major manufacturers now claim to be working more closely with their suppliers, in long-term partnerships, in order to become their preferred, privileged customer.
- Some major players even invest in their suppliers to "reserve" and secure part of their supply.
- We're going to have to redefine our relationships with suppliers and even our own competitors, because ultimately, a company's performance will depend on the performance of all the players in its value chain, in terms of costs, quality and social and environmental impact.

“

The supply chain accounts for between 60% and 80% of a company's costs)

Yann de Feraudy - President of France Supply Chain

”

Critical factors :

The connection and more detailed knowledge of all its upstream activities - a key element of scope 3 - is a strategic point for a company to control its performance, its exposure to geopolitical risks or shortages, and its economic dependence.

Reducing our environmental impact, respecting our "Net Zero" trajectory, highlighting our reduction in greenhouse gas emissions are all elements that need to be structured and shared through reliable, objectivizable and verifiable data. We need to succeed in doing this, at scale, by including all the complexity of networks and an immeasurable quantity of data: without a common, universal, open and interoperable language... this seems impossible with the current data model.

How can we make this model converge towards a circular supply chain?

The inevitable emergence of a new model

Challenges and issues of the Supply Chain

At a time when the world is set to face its greatest **economic, social and societal challenge** in the decade ahead, the impact of human activity, and in particular economic activity, on climate change is now irrefutable: "**3 years** to take **drastic** decisions to keep to our trajectory and our **commitments** made in the 2015 Paris agreements" is the cry of the IPCC in 2022 when it reassesses its scenarios for **global warming** linked to CO2 emissions in particular. With **geopolitical** balances in a state of flux, and a profound **paradigm** shift that will change everything in the supply chain... from **abundance to scarcity**. **Shortages of raw materials**, energy, resources in the broadest sense (m², containers and, above all, teams and talent) will lead us to rethink the entirety of the models on which we've been operating for decades. The very notion of growth (as defined by GDP) is now being called into question in favor of the need for sobriety. A whole debate...ahead of us.

"The linear supply chain is a 2D supply chain, from the extraction of materials to their destruction. The circular supply chain is a 4D supply chain, made up of 3D feedback loops, to which is added the temporal dimension of resource use in the face of future scarcity. The quality and immediate availability of a phenomenal quantity of information are becoming central."

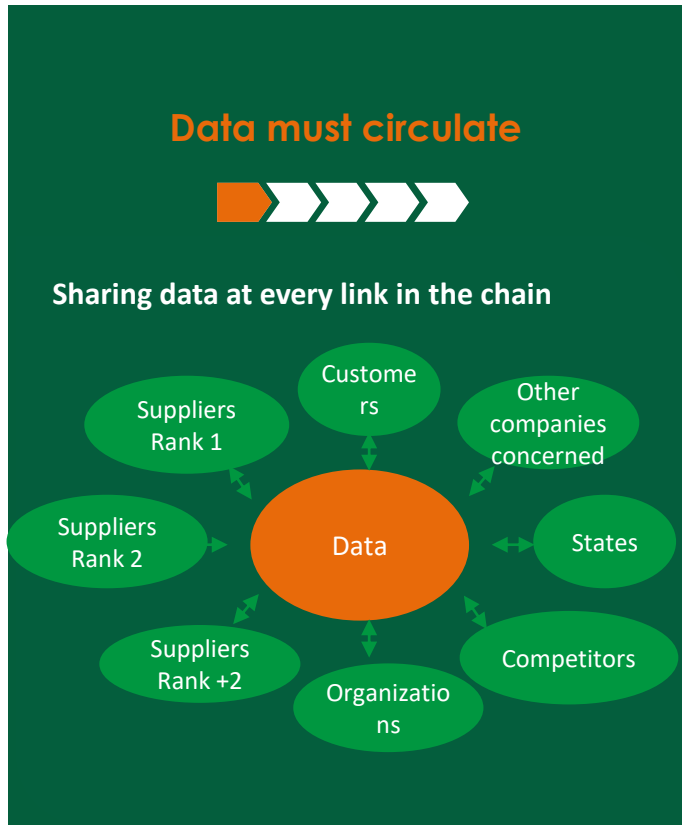
François-Michel Lambert,
former Chairman of the
French National Logistics
Commission, founder of
INEC, co-author of "La
Supply Chain circulaire
pivot de la
réindustrialisation verte" -
April 2023



How can we rethink the way we operate the supply chain to make it circular and more sustainable?

How can we make this model converge towards a circular supply chain ?

How to rethink the classic supply chain model (1/5)



- Sharing resources, reusing, reusing and recycling materials and reintegrating them into industrial production processes are all collective challenges that we will need to address if we are to continue to grow our organizations and economies. "Producing more with less" will become the equation to solve for many players. It's also a question of sovereignty. And it has to be said that we are not well prepared to face up to this. We therefore collectively have quite a challenge ahead of us, as the proportion of the global economy that is circular is still small.
- To better manage raw materials resources, for example, where we know residual stocks, volatility and geopolitical tensions, we need to build data models, common vocabularies (syntaxes), identification rules and data exchange protocols... all in a standardized, universal and cross-sectoral language. Because all this data will have to "circulate" between players, through different information systems, in complete interoperability and without friction. "There won't be a circular economy if we don't get the data flowing", declared François DEPNEY, ex-CEO of GS1 France, at the Université d'ÉTÉ GS1 France in August 2019.
- Data will be at the heart of this profound change, acting as a catalyst and even as a sine qua non for new business models. We will have to create, share and analyze data from all the players in our ecosystems, in order to be able to plan, reduce uncertainties, build scenarios and estimate their feasibility, impact, costs and risks. We're entering a Supply Chain with a lot of probabilities!

How can we make this model converge towards a circular supply chain ?

Rethinking the classic supply chain model (2/5)

Sharing "digital twins"...



- From a linear world to a reticular world. We have built up very well-structured, well-oiled, "linear" chains, which, thanks to the abundance of resources and the availability of "materials", enable us to work in a very "tight" logic, with particularly high efficiency and profitability.
- To move to this networked, more decentralized and digitized logic, which is in fact more complex, data will be the catalyst, creating the link between players and products. The data that will have to be built up according to common, universal norms/standards should contribute to the construction of "Digital Product Passports" as envisaged by the European ESPR (Ecodesign for Sustainable Product Regulation) regulation, the first targeted sectors of which are textiles, batteries and electronics.
- The aim of these "digital doubles" is to accurately identify products sold in Europe, by component, manufacturer and country of origin. All of this, in line with the product's life cycle. The data produced will be needed to objectively assess all the externalities linked to production and consumption, such as the product's "carbon footprint".
- The data produced, which will be at the heart of the supply chain, will enable economic players to make more informed choices in their purchasing processes, and to better organize the reuse of raw materials and the recycling of materials into other products or channels.

How can we make this model converge towards a circular supply chain ?

Rethinking the classic supply chain model (3/5)

...and lifecycle thinking
throughout the supply chain



- The context of scarcity calls for the circulation of reusable materials. At a local level, materials will have to be reused X times (rather than sourced from faraway lands). However, the supply chain of material reuse requires a lot of data, and new data.
- These approaches should encourage the deployment of more or less new concepts such as eco-design and integrated supply chain, or the art of integrating the notion of materials reclamation right from the design stage of products and their packaging, or integrating logistical and maintenance constraints throughout the product life cycle.
- The reuse of materials in short circuits will also be facilitated by the sharing of information relating to said materials, and therefore by the ability to define, store and share this information. The notion of Ecodesign is fundamental here, as it encourages players to think about sustainability, sobriety and the "several lives / several uses" dimension right from the product genesis stage.
- This encourages us to think of products and their supply chains in terms of an economy of functionality, rather than an economy of object ownership. From product to service, from ownership to sharing of goods... this is also a key to our transformation. But for this to happen, we need to create the supply chains, networks and links that will make it possible. It's up to us to invent these new models. Here again, without shared data and collaboration between players, we won't succeed.

How can we make this model converge towards a circular supply chain ?

How to rethink the classic supply chain model (4/5)

The alliance network



- To succeed on the scale of international ecosystems, data will have to be built according to universal rules, so that it can circulate from one company to another, from one sector to another, from one information system to another... Because to circulate materials and components, **data** will have to **circulate everywhere, in quality, quantity and sobriety**.
- Moreover, the cost of the material is not limited to a few euros, but includes Carbon + Biodiversity + Purchasing costs, i.e. taking into account all associated externalities.
- Given the complexity and scope of the supply chain, it can be difficult to bring all the technologies and talents required in-house. If mastering data is a complex process from start to finish, having the necessary skills is no simpler.
- The establishment of **alliances** at every level of the supply chain (e.g. logistics partners, control tower partners, traceability partners, partners to gain intelligence in the planning of tier 1 to N supplies, etc.) could be the key to overcoming the internal shortage of highly sought-after technologies and talents.
- This network of well-chosen alliances and partners will form the first building blocks of the circular supply chain, and will already be a modest - albeit insufficient - response to the scarcity of resources and talent for the function in the region.

How can we make this model converge towards a circular supply chain ?

How to rethink the classic supply chain model (5/5)

Share...
between necessity and fear?



- In the wake of technological and ecological change, and fierce market competition, supply chains will have to adapt to enable services to be provided from one company to another. This will be achieved through a combination of the quest for sovereignty on the one hand, consideration of the environmental impact of global supply chains on the other, and finally the evolution of our business models - and therefore our ways of thinking - tending towards the pooling of goods and resources, rather than ownership at all costs.
- For example: on average, a drill is used by a private individual for just a few dozen minutes over its entire life cycle, while a car is immobilized for more than 90% of the time. **The sharing economy, which was not very widespread even twenty years ago, is accelerating exponentially, promoting short, local circuits.**
- These short circuits are made possible by the deployment of marketplaces, which facilitate the matching of supply and demand, structured both by geographical area and by type of need.
- As a result, the combination of price and service commitment is likely to cease to be the main and almost unique lever, but the consideration of externalities, the ability and need to "offset" environmental impacts (along the lines of the carbon tax), using existing resources and materials as much as possible, should become increasingly important in the years to come.
- This will mean, on the one hand, taking into account additional hypotheses in decision-making criteria, and therefore new data, notably linked to externalities, and new exchanges with hitherto unknown players/partners to pool resources or reuse materials and goods.

This immediacy of exchange is still utopian, given existing technologies and tools. Regulations will have to accelerate the process, coupled with the determination of influential economic players.

Why share data in the supply chain ?

Illustration 1: Companies' motivations for sharing data

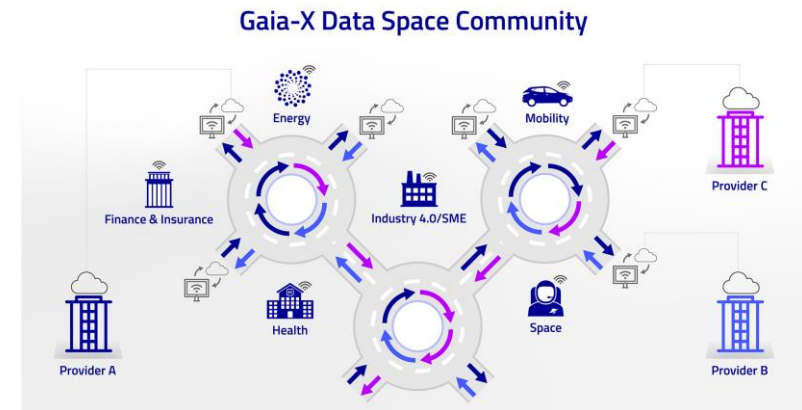
Gaia-X, a Franco-German initiative, aims to bring together major industrial players, SMEs and Cloud service providers in Europe, in order to liberate data in Europe and avoid being completely subservient to major American Cloud service providers such as Amazon Web Service (AWS), Microsoft or Google. This initiative was launched in the **first half of 2022**, and should enable Europe to accelerate its transition to the cloud.

The **Gaia-X (2022)** web page states that the players taking part in this project are developing "a data infrastructure based on the values of openness, transparency and trust. In this way, what emerges is not a cloud, but a **networked system that links together numerous cloud service providers.**" A federation system: technical requirements and services needed to operate the Gaia-X federated ecosystem. The highest standards of security and privacy must be guaranteed.

Gaia-X's organizational structure is based on **three pillars: the Gaia-X Association**, the **Gaia-X National Hubs** and the **Gaia-X Community**, each composed of working groups. The basic elements governing this infrastructure are (Gaia-X, 2022):

1. **Data spaces:** the concept of integrating data without central storage. Data remains at its source, and is shared only when needed. The same rules apply to all participants.

2. **Standards:** Gaia-X is developing a standards architecture, describing and aligning existing standards and codes of conduct while enforcing data use policies.
3. **Services:** Gaia-X will help increase the availability of digital services. It will create new opportunities for value and business innovation by providing common schemes and rules for collaboration within and between domains.



In this project, too, **collaboration between Supply Chain players** (and political decision-makers) is emphasized **and encouraged**. Indeed, in the constantly changing world in which companies operate, sharing data is becoming essential.

Why share data in the Supply Chain ?

The limits of data sharing in the Supply Chain (1/2)

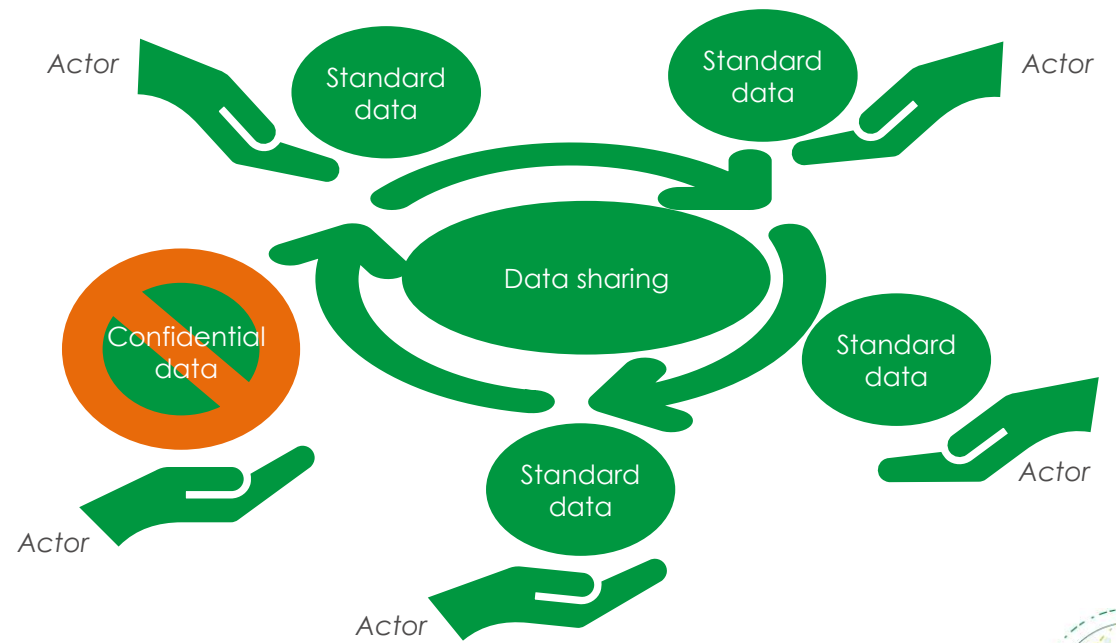
But let's not be fooled when we talk about transparency and information sharing throughout the supply chain, from the N-3 supplier to the point of distribution or point of sale.

Structuring data according to international standards does not mean revealing all the confidentiality required to conduct business. Clearly, the opening up and sharing of data in the supply chain must be done in a very controlled way.

Everyone will never share everything, or will do so in a confidential and secure way. No one will reveal his or her entire data heritage, but :

- On the one hand, to **better define the** company's intellectual property, which differentiates it from its competitors and partners.
- On the other, to **be able to understand each other and therefore speak the same language.**

Supply chain pooling



Why share data in the Supply Chain ?

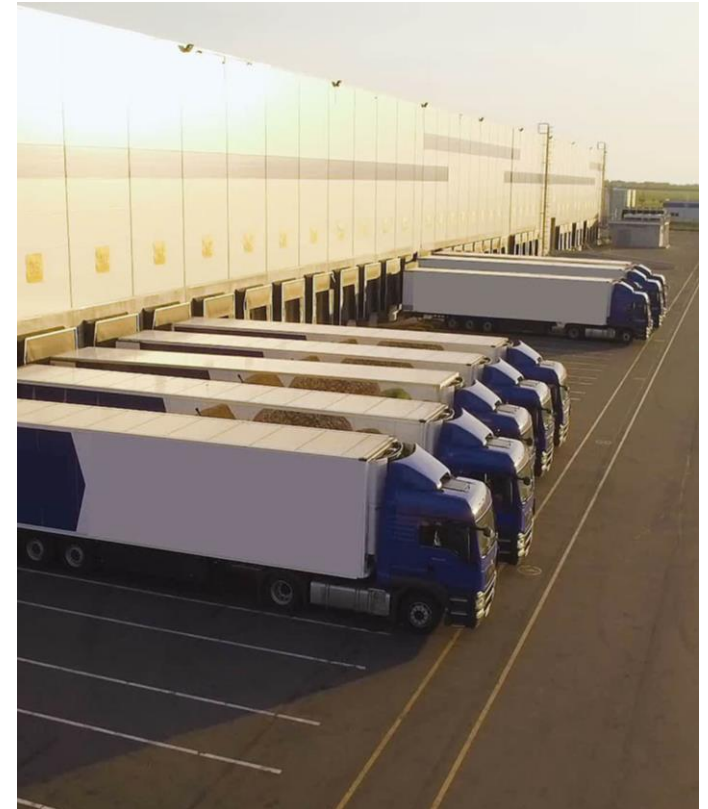
The limits of data sharing in the Supply Chain (2/2)

Data exchange as part of a shared supply chain

Data, if it circulates **without redundancy, unequivocally** and clearly, will become the catalyst for the visibility and flexibility so much sought-after, as already indicated.

The network logic described above implies the need to speak a **common language**, sometimes across sectors (item coding, product nomenclature in the case of material reuse, for example), and to exchange information in real or near-real time (available production, transport or storage capacities, for example).

For example, a production site for office supplies could inform a neighboring production site for electronic components of its residual storage capacity on a nearby platform, or of its trucks ready to leave the next day half-full for a common delivery zone... This would accelerate the **pooling of our Supply Chains as part of a** responsible sharing approach in these times of scarcity.



Why share data in the supply chain?

Illustration 2 (Luxury House use case) : The limits of data sharing in the supply chain

Company :

Let's take the case of a company for which sharing data with some of its Supply Chain partners, as well as access to these partners' data, would be a major asset.

When we talk about partners here, we're thinking, for example, of the **wholesalers** with whom the company works and the manufacturers to whom the production of parts can be subcontracted.

Background:

As for wholesale, which will account for **the majority of the** company's **sales volumes in 2021 and around 60% of its sales**, only **a third of wholesalers report sales and inventory data to the Enterprise**.

However, the **introduction of Permanent and Fast-Track product lifecycles** represents an opportunity for the company to boost sales of these products across all distribution channels, including wholesale.

Indeed, **the aim of Fast-Track** is to take a gamble on new products and **order them in larger quantities** than is usually done, in order to **give products the chance to sell more**; it's on channels where there is a lot of volume that you should bet.

However, the lack of clarity and visibility on inventories and wholesale sales prevents us from taking this gamble and benefiting as much as possible from this "Fast-Track" effect.

Let's take the example of the two Fast-Track SKUs purchased by wholesalers whose data is accessible, for a spring-summer collection. Of the **46 SKUs purchased, 40 were sold after 6 months, giving a Sell-Through of 87%**. This is a very high Sell-Through level, especially for a luxury house, and **such Sell-Through is synonymous with stock-outs: while some stores sold less than 50% of the SKUs received**, others sold more than they had initially purchased, meaning that there were inter-store transfers and sometimes stock-outs.

This phenomenon can be observed on the scale of **two references for the third of wholesalers giving access to their data**, so the phenomenon is a fortiori more significant.

Conclusion:

Sharing wholesalers' sales and stock data would have enabled **out-of-stock products to be replenished**, thus boosting sales and reducing the cost of ad-hoc inter-store transfers.

Another benefit of improved data sharing across the Supply Chain for the Enterprise concerns production. Currently, there are four production cycles per year, corresponding to the four buying sessions. **Knowing manufacturers' production capacities** and being able to make pre-bookings outside these four cycles **would enable the company to be more reactive**, particularly for Permanent products, which are no longer ordered during buying sessions but replenished according to a target stock. By producing these **products on a more regular basis, we reduce storage costs** resulting from production and delivery lead times.

In brief

- The supply chain manipulates reference data and transactional data, for which the challenges of reliability, quality and precision to facilitate their use have increased. Regulatory requirements and decarbonization objectives are even leading to the emergence of other types of data that need to be controlled (e.g. CO2 emissions).
- While technological solutions do exist to improve supply chain data management, as we have already mentioned, this is no longer enough. To serve a circular economy, the supply chain must also be circular. This will only be possible if data is shared throughout the value chain... a real paradigm shift, for which data is the primary catalyst.

Sources

Warehouse	A	<u>What is a Data Warehouse Snowflake Data Warehousing Glossary</u>
Warehouse	B	<u>Data Warehouse Architecture: Traditional vs. Cloud Panoply</u>
Warehouse	C	<u>https://www.youtube.com/watch?v=81LjNvPsGbE</u>
Lake	D	<u>https://www.guru99.com/data-lake-architecture.html</u>
Lake	E	<u>What is a Data Lake? Snowflake Guides Snowflake</u>
Lake	F	<u>https://www.journaldunet.com/web-tech/cloud/1505561-michelin-propulse-120-projets-sur-son-data-lake-en-deux-ans/</u>
Lakehouse	G	<u>What is a Data Lakehouse? Snowflake Guides Snowflake</u>
Lakehouse	H	<u>https://www.youtube.com/watch?v=Y86msqACLSE</u>
Lakehouse	I	<u>https://www.altexsoft.com/blog/data-lakehouse/</u>
MDM	J	<u>https://www.element61.be/en/resource/master-data-management-mdm-architecture-technology</u>
MDM	K	<u>MDM Reference Architecture (onepointltd.com)</u>
RPP	L	<u>RPA in 10 min Robotic Process Automation - YouTube</u>
Swamp	M	<u>https://www.lesechos.fr/idees-debats/sciences-prospective/dark-data-une-mine-explosive-pour-les-entreprises-1302451</u>
Inspired practices	N	<u>GAIA-X - Home (data-infrastructure.eu)</u>

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