DATA INTELLIGENCE

How Artificial Intelligence Can Help Your Company Make Smart Decisions
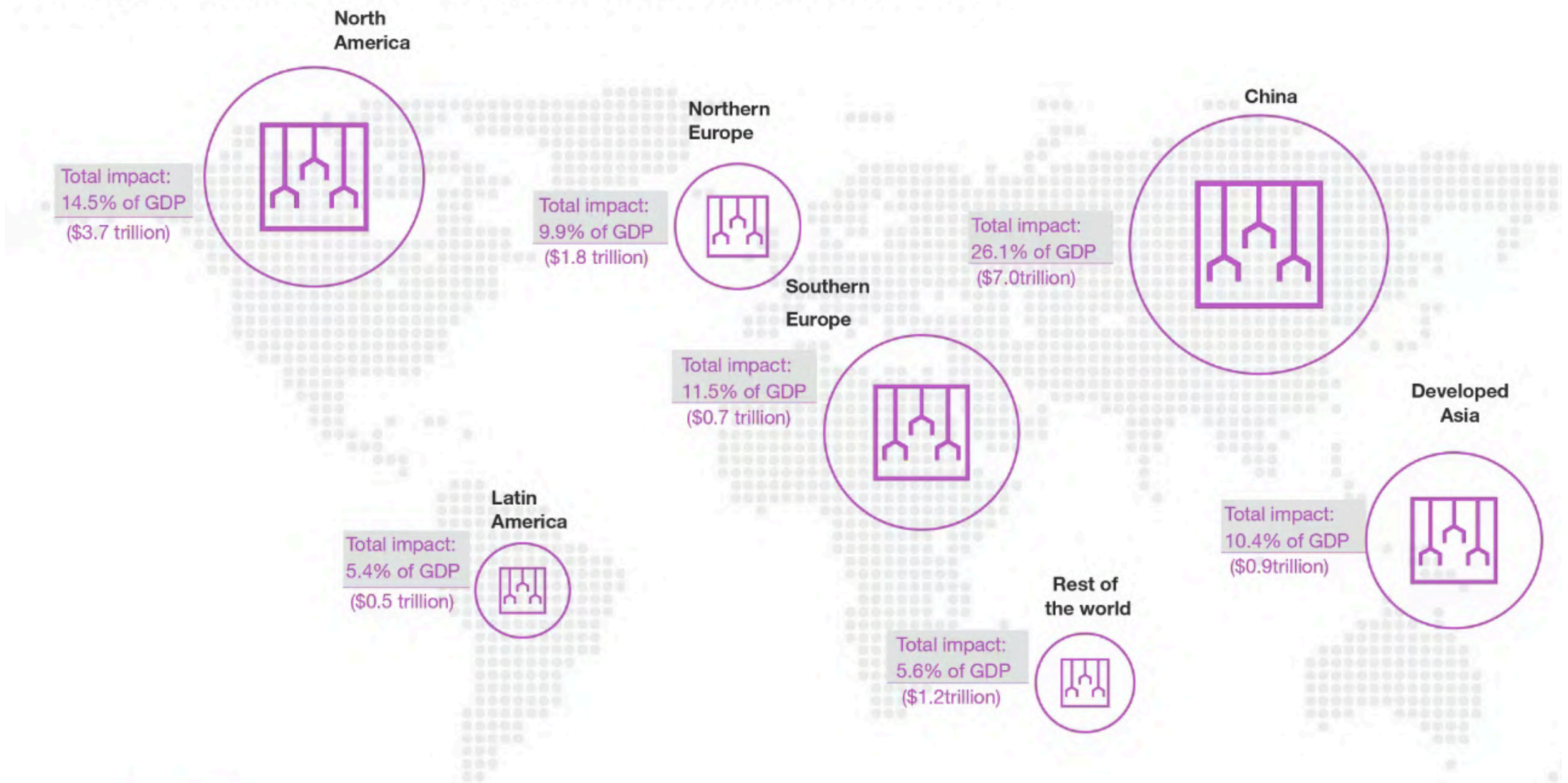
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Summary

1. Artificial Intelligence:
an Engine for Economic Growth today and tomorrow

AI is helping to optimize processes, personalize products and services, predict customer behavior, support strategic decisions, reduce costs, and create new market opportunities.

Overall, all world economies will benefit from this new technology with an impact on GDP of at least 5%.

China's GDP is expected to increase by 26% by 2030, thanks to the country's leadership in research and development in the sector. In Europe, the impact will be smaller but still significant, with an estimated increase of around 12%[1], thanks to the advanced digital infrastructure and the quality of the education system.

Sizing the prize – Which regions gain the most from AI?

North America
Total impact:
14.5% of GDP
($3.7 trillion)

Northern Europe
Total impact:
9.9% of GDP
($1.8 trillion)

China
Total impact:
26.1% of GDP
($7.0 trillion)

Southern Europe
Total impact:
11.5% of GDP
($0.7 trillion)

Developed Asia
Total impact:
10.4% of GDP
($0.9 trillion)

Latin America
Total impact:
5.4% of GDP
($0.5 trillion)

Rest of the world
Total impact:
5.6% of GDP
($1.2 trillion)

2. The New Frontier of Decision Making

Artificial Intelligence (AI) is rapidly transforming the world we live and work in. Its impact is evident in various sectors, from economics to healthcare, from manufacturing to finance. From our analysis of Eurostat[2] data, we highlight how many European companies were already using AI in various activities in 2021. The area of greatest use appears to be that of decision-making, with 15% of large companies adopting AI technologies for activities of this kind.

As the graph shows, even medium and small-sized companies mainly adopt this technology for Decision-Making assistance. In the European panorama, therefore, companies' confidence in applying this technology in decision-making processes is evident. Today, integration with AI technologies is increasingly accessible and will represent a challenge for European organizations to maximize their potential to gain a competitive advantage over emerging countries.

Enterprises using AI by type of AI technology and size class, EU, 2021
(% of enterprises)

Legend: All enterprises, Small enterprises, Medium enterprises, Large enterprises

Categories: AI technologies automating different workflows or assisting in decision making; Machine learning (e.g. deep learning) for data analysis; AI technologies performing analysis of written language (text mining); AI technologies identifying objects or persons based on images (image recognition, image processing); AI technologies converting spoken language into machine-readable format (speech recognition); AI technologies enabling physical movement of machines via autonomous decisions based on observation of surroundings; AI technologies generating written or spoken language (natural language generation)

3. What is Data Intelligence?

" *The ability of an artificial intelligence engine that, starting from company data collected in various forms (textual documents, IoT, analytics, accounting documents, etc.), returns a series of outputs capable of generating (directly or indirectly) a potentially vast profile of advantages for the company itself under various functional and operational aspects such as the optimization of internal processes, the ability to make strategic decisions, the ability to predict trends, facilitate the achievement of internal objectives and KPIs and much more.* "

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4. AI in Decision Making
The 3 phases of the process[3]

1. Data collection and interpretation

AI can be fed by a heterogeneous set of input data: sounds, languages, texts, and images up to IoT sensors that can collect environmental or product variables. This ability to collect and interpret information in very different forms can provide a complete and detailed picture of the context.

2. Processing of information

By developing advanced models and algorithms to process large volumes of data and identifying relationships between variables of different natures, AI can capture nuances and correlations that would otherwise be impossible to identify. Through machine learning, it is also able to continuously improve the results produced.
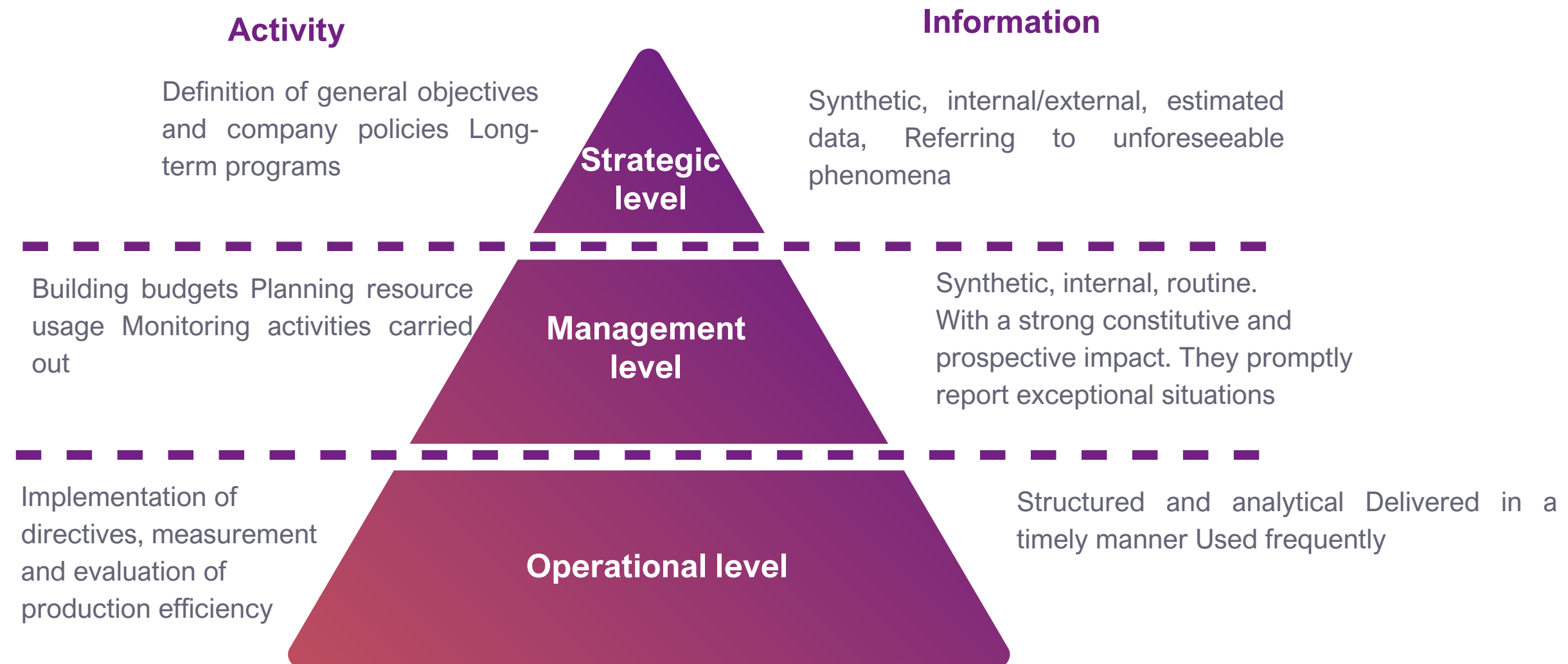
3. Generating Results

By conveying the knowledge it has developed in a clear and accessible way, AI enables communication methods based on business preferences and needs, ensuring effective information transmission. This is done through various means, such as voice messages, texts, summary graphs, and reports.

5. AI as an Ally The 3 levels: Operational, Decisional and Strategic

To implement a Data Intelligence system, it is essential to understand the specific needs, requirements, and business problems to be solved. This requires a thorough understanding of the company's needs and its organizational and decision-making structure.

To help us better understand the decision-making system, we use Anthony's decision pyramid[4]. It is a business control model that divides organizational activities into three levels: strategic, management, and operational. Each level has different objectives and information

Activity

Information

Definition of general objectives and company policies Long-term programs

Strategic level

Synthetic, internal/external, estimated data, Referring to unforeseeable phenomena

Building budgets Planning resource usage Monitoring activities carried out

Management level

Synthetic, internal, routine. With a strong constitutive and prospective impact. They promptly report exceptional situations

Implementation of directives, measurement and evaluation of production efficiency

Operational level

Structured and analytical Delivered in a timely manner Used frequently

6. The Impact of Data Intelligence on Operational Decisions

The operational level is concerned with managing day-to-day activities and operational processes, executive staff rarely require summary data.

The operational nature of the activities requires detailed and accurate data, provided promptly, sometimes even in real-time.

Several studies (such as "Boosting Human Decision-making with AI-Generated Decision Aids"[5]) have demonstrated how the use of AI has improved human decision-making performance on operational tasks.

AI Applications to Support Operational Decisions

Predictive maintenance systems

These systems use machine learning techniques and IoT tools to analyze historical and real-time data to predict failures or malfunctions in operational equipment. This allows operations personnel to plan preventive maintenance, for example.

Robotic Process Automation (RPA)

RPA uses software robots to automate repetitive, manual tasks, such as data entry or form filling. This can free up operations staff to focus on more strategic, value-added activities.

Virtual Assistants

AI-powered virtual assistants can automate repetitive and procedural tasks, freeing up operations staff to focus on more complex tasks or provide support and guidance during operational phases.

7. The Impact of Data Intelligence on Management Activities

Functional management bases its activity on structured decisions, which derive from strategic objectives set above, which translate into operational objectives and criteria. The middle manager who works at this level must follow formal procedures, and has the responsibility of putting strategies into practice but also the need to control operations and results obtained, acting if necessary with decisive actions.

AI applications to support management activities

Advanced data analysis systems
Analytics tools can help middle managers better understand the company's past, current, and future performance, identifying hidden trends and inefficiencies, and taking timely action.

Decision support systems
Using advanced machine learning algorithms, AI systems can analyze complex data and suggest optimal actions based on strategic objectives and operational constraints.

Resource Optimization Systems
AI-based solutions help optimize company resources such as people, equipment, and materials through optimal scheduling, inventory management, and production planning.

Supply and demand forecasting systems
Using predictive models, you can accurately forecast customer demand and market supply, allowing you to more effectively plan production, distribution and inventory management.

8. The impact of Data Intelligence on corporate strategy

Strategic decisions involve unstructured activities that define the company's business goals, mission, and vision. These choices focus on long-term planning and are influenced by external variables such as market uncertainties. Executives need tools for accurate and timely information.

AI applications to support strategic activities

Advanced predictive analytics

AI-based predictive analytics techniques help understand market trends, identify opportunities and threats, and predict the effects of long-term strategic decisions.

Simulations and modeling

Simulation tools allow you to test alternative scenarios and evaluate the impact of strategic decisions on key variables such as profitability, market share, and company growth.

Sentiment and opinion analysis

With AI-powered sentiment analysis, executives can monitor the opinions and emotions of customers, employees, and stakeholders to adjust business strategies.

Automated information search

Quickly collect and analyze a wide range of information from internal and external sources, enabling them to make more informed and timely decisions.

9. Case study

AI for Operational Decision Making in the Transport Sector,
Optimization of routes and travel experience

THE PROBLEM

Optimizing vehicle routes and schedules in the transportation sector is a fundamental challenge to minimize costs and environmental impact. At the same time, improving the travel experience is essential to ensure passenger satisfaction by taking into account different factors such as crowding, air quality, seat availability, punctuality, noise levels, and driving style.

THE SOLUTION

To address this challenge, Neodata has provided an innovative solution that involves the collection and analysis of different types of data to measure passenger presence on board, city traffic, and other factors that influence the perception of travel quality. With the help of AI, the data is analyzed, service criticalities are identified and improvements are proposed in real time.

9. Case study

HOW DOES THE SOLUTION WORK?

1. **Collect traffic and passenger data from a variety of sources, including people counters, ticketing systems, passenger applications, and additional sensors such as beacons and IoT devices.**

2. **Real-time analysis from an artificial intelligence system, which determines a qualitative assessment of the travel experience.**

3. **Through a dashboard, the AI system offers statistics and suggested actions to improve the efficiency and quality of the trip. For example, a temporary increase in routes could be suggested based on particular conditions.**

For more details contact us

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About Neodata

Neodata, with over twenty years of international success in the Big Data and Ad-tech sector, today places data-driven Artificial Intelligence at the center of its mission.

Our company stands for excellence and innovation, pursuing cutting-edge projects with a multidisciplinary team composed of data scientists, programmers, data analysts, business consultants, and marketing experts.

Our experience translates into tailor-made solutions for medium and large companies, aimed at transforming data into strategic decisions and concrete actions. Through advanced analytics and intelligent data processing, Neodata is committed to improving key business metrics such as sustainability, efficiency, and profitability for its partners.

With Neodata, data becomes the engine of a complete business transformation, a solid, technological, and competent guide towards a more intelligent and sustainable future.

Bring your data to life.
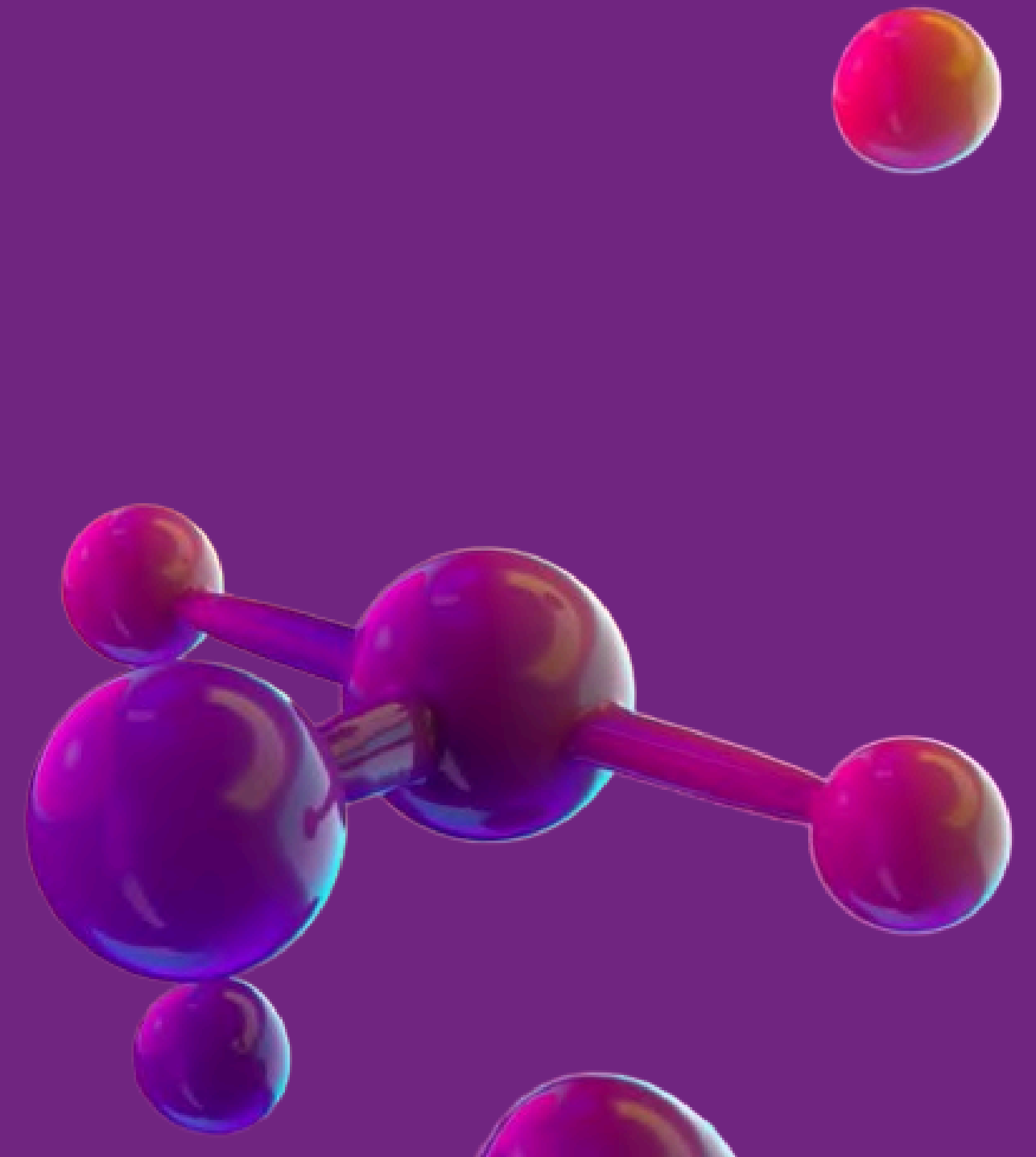
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