



Glossary

For Innovation and Data Governance



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A

// Algorithm

An algorithm is a sequence of steps or defined rules that a system follows to solve a problem or carry out a specific task. In the context of data processing, algorithms are used to analyze, classify, and transform data into useful information, such as predictions or recommendations, which is also known as AI.

Algorithms can be simple or complex, and their accuracy depends on the quantity and, above all, the quality of the data they process. They are essential for algorithmic modeling that allows the operation of automated and intelligent systems, but human oversight is necessary to correct possible biases or errors that may have been made in said algorithm.

At Libelium, we believe that algorithms should not be unsupervised “black boxes” since many of the decisions we let them make affect us as citizens directly or indirectly.

// Algorithmic modeling

Algorithmic modelling is the process of designing and tuning algorithms so that they can perform accurate analysis and predictions based on large amounts of data. This modelling is critical in artificial intelligence and machine learning applications, where algorithms are trained on historical data sets to improve their ability to make predictions or identify patterns.

It is widely used in industries such as finance, healthcare, and urban planning, where predictive analytics can create a competitive advantage or improve decision-making.

// Artificial Intelligence (AI)

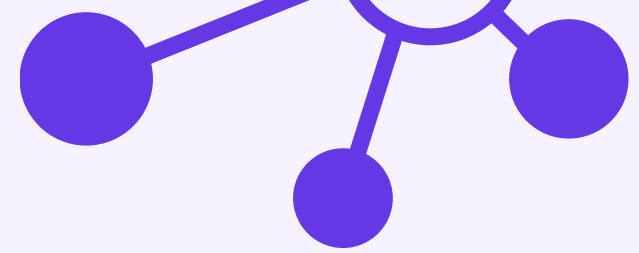
Artificial intelligence is a field of computer science that seeks to develop systems capable of performing tasks that normally require human intelligence, such as pattern recognition, decision making, outcome prediction, or learning from data. AI relies on algorithms that analyze large amounts of information to identify trends, make predictions, and automatically improve processes.

AI is revolutionizing multiple industries, from healthcare to urban management and industrial automation.

// API (Application Programming Interface)

An API is a set of rules and protocols that allow different applications to communicate with each other. APIs facilitate system integration by providing a standard interface for applications to share data and functions.

This is essential to ensure interoperability between different platforms and to allow developers to create custom solutions that fit the specific needs of an organization or project. To make systems and solutions scalable, it is recommended that data sharing platforms such as iris360 offer their APIs openly, which facilitates integration with other systems and the customization of solutions according to the different use cases] of each client.



B

// Blockchain

Blockchain is a technology that allows data to be stored and transmitted in a decentralised and secure manner through a network of computers. It consists of blocks of information chained together, which guarantees the data's immutability and prevents it from being modified without the consensus of all network participants.

This technology is known for its use in cryptocurrencies such as Bitcoin, but it also has applications in many industries, from the supply chain to the protection of intellectual property and the validation of smart contracts.

Blockchain offers transparency, security, and traceability, making it a powerful tool for improving trust and efficiency in digital transactions.

C

// Compliance

Regulatory compliance, or compliance, refers to the need for organizations to follow the laws, regulations, and standards applicable to their industry, especially in sensitive areas such as data protection, environmental sustainability, and product quality. For many companies, complying with regulations such as the General Data Protection Regulation (GDPR) or European Union environmental directives is essential to avoid penalties and strengthen their reputation. Compliance is a key component of modern business governance, ensuring ethical and responsible operation within the current legal framework.

iris360 solves compliance with European Union regulations through an approach focused on sustainability, data protection, and compliance with environmental and quality directives. This is achieved through several key strategies:

- **Compliance with European Air Quality and Environment Directives:** *iris360* is aligned with European directives to improve air quality, complying with data quality criteria, air quality indicators, and limits for different pollutants. This ensures that companies can monitor and control the air quality and the environment.
- **Data Protection and Privacy:** *iris360* ensures that data processing and storage comply with the General Data Protection Regulation (GDPR) regulations. This ensures privacy, security and full control over user data, complying with the strict EU legal requirements on information protection.
- **Regulatory-Based Action Plans:** *iris360* enables the creation of audited action plans based on predictive analytics that conform to EU urban and environmental regulations. This enables organizations to make informed urban development and business decisions, minimizing their environmental impact and ensuring regulatory compliance.
- **Data Transparency and Traceability:** Reports generated by *iris360* are traceable and accurate, allowing companies to provide reliable documentation to regulatory authorities and thereby demonstrate their alignment with European policies and regulations.

With these solutions, *iris360* enables organizations to operate within a sustainability, security and compliance framework that helps them not only avoid sanctions, but also position themselves as leaders in environmental and social responsibility within the framework of the European Union.

// Connectors

Data connectors are tools that allow different data sources to be integrated, whether IoT devices, external databases or other systems.

Their objective is to ensure that data can be collected and used in a coherent and fluid manner within a technological platform or solution. Connectors are essential to ensure the interoperability and consistency of information, facilitating its analysis and subsequent use in decision-making.

D

// Data Governance

Data governance is the set of policies, processes and controls that ensure proper, secure and compliant data management within an organisation. Its objective is to ensure that data is handled efficiently and ethically, complying with regulations such as the GDPR (General Data Protection Regulation), which provides the privacy and protection of personal data. Data governance includes data quality, availability, security and traceability, ensuring that organisations can audit their handling and use.

A key component of data governance is digital sovereignty, which allows organisations and countries to maintain control over their data, ensuring that it is not stored or processed under unwanted foreign jurisdictions. This is especially important in compliance, as data governance helps companies operate within national and international regulatory frameworks, avoiding sanctions and ensuring trust in information handling.

Technologies such as blockchain can be integrated into data governance to provide more robust traceability. They offer immutable records of transactions and modifications to data throughout its lifecycle. In this way, organisations can ensure more precise and transparent data control, guaranteeing its integrity and regulatory compliance.

// Datacracy

Datacracy is a concept that refers to data-driven decision-making, where the efficient and transparent use of information becomes the basis of government, business management and everyday life. In a datacracy environment, reliable and verifiable data guides every step of the decision-making process, promoting transparency, efficiency and accountability. Datacracy encourages the intelligent use of technology to improve data governance, sustainability, and social well-being at multiple levels.

"Datacracy is what will empower society to build a better quality democracy," said Alicia Asin, Libelium's CEO and well-known datacracy evangelist.

// Data Space

A data space is a digital environment where data is shared in a controlled and secure manner between different entities, such as companies, governments, or organizations. These spaces allow collaboration and efficient data use, always respecting the applicable security and privacy policies.

In Europe, the creation of data spaces is one of the key initiatives to promote innovation and digital sovereignty. It ensures that data is used ethically and responsibly while encouraging its exchange and economic exploitation.

Data spaces need common standards for both hardware and software infrastructure. Gaia-X, for example, is a Spanish initiative to propose a software interoperability standard for European data spaces.

Examples of data spaces would be those dedicated to agriculture, the environment, mobility or health.

// Data traceability

Data traceability refers to the ability to trace data in a way that is consistent with the data.

Trace the origin, movement and transformations of data throughout its entire life cycle. This concept is key to ensuring transparency, security and accountability in information management.

The incorporation of technologies such as blockchain reinforces traceability. It allows each transaction or modification of data to be recorded in an immutable and distributed manner, ensuring that they cannot be altered without consensus. This makes blockchain especially valuable in sectors where data authenticity and integrity are essential, as it provides an inviolable audit trail that can be verified by all parties involved.

Traceability is particularly critical in regulated industries, such as healthcare, supply chain, and finance, where regulatory compliance and transparency are essential to ensuring data integrity and trust.

// Digital sovereignty

Digital sovereignty is the concept that refers to the control that a country, organization, or individual exercises over its data, infrastructure, and digital technologies, ensuring that these are not subject to the influence or control of unwanted external actors, such as foreign governments or extensive technology corporations. It implies that decisions on how data is stored, managed, and used are made autonomously and in compliance with local laws and regulations.

In the context of the European Union, digital sovereignty seeks to ensure that data generated by European citizens, companies and institutions is managed within a framework regulated by the EU's laws, such as the GDPR, avoiding dependence on non-European technology providers that may be subject to regulations from other countries.

This also extends to digital infrastructure, such as data centres and cloud platforms, which must comply with European cybersecurity and privacy standards.

// DOME

DOME is a marketplace that seeks to support infrastructure and cloud-to-edge services in Europe, complying with the Gaia-X specifications. Libelium contributes its AI services to this project, forming part of a consortium of 39 European organizations from 14 countries. The objective is to create a cybersecurity infrastructure aligned with the European Wallet and the European blockchain network (EBSI), allowing a single market for digital data.

E

// European Wallet

The European Wallet is an initiative driven by the European Union to create a digital wallet that allows European citizens to access and manage their digital IDs, credentials and public services in a secure and efficient manner. This wallet will provide a unified solution to store and use digital documents, such as driving licenses, personal IDs, or health insurance cards, facilitating secure transactions both online and offline. The European Wallet is part of the EU's digitalisation strategy to improve the accessibility and interoperability of digital services while ensuring privacy and control of personal data.

F

// Fiware

Fiware is an open source platform designed for the development of digital solutions and services in areas such as the Internet of Things, smart cities and industry 4.0. Fiware provides a set of tools and standards that facilitate the integration and use of data in urban, industrial and commercial management applications. Fiware is widely used by governments and companies seeking to create innovative and scalable solutions in an open and interoperable environment.

G

// Gaia-X

Gaia-X is a next-generation proposal for the creation of a data infrastructure for Europe to ensure data governance as well as a secure and federated system that meets the highest standards of sovereignty.

Gaia-X promotes data interoperability and portability, allowing companies and governments to share information in a controlled and secure manner within the framework of European regulations.

The project also encourages the creation of a digital ecosystem that allows companies that join this hub to collaborate in the data economy without losing control over their sensitive data.

Gaia-X offers data and computing resource-sharing services. A participant can choose where to search, consume or offer their resources. In turn, the different sharing ecosystems that are thus formed can become interconnected.

// GDPR (General Data Protection Regulation)

The GDPR is the European Union regulation that establishes the standards for the protection of citizens' personal data. Its main provisions include the right to access and rectify personal data, the obligation to obtain explicit consent for data processing, and the responsibility to ensure the security of information. Organizations that operate within the EU or that manage data of European citizens must comply with the GDPR to avoid significant sanctions.

K

// KPIs (Key Performance Indicators)

KPIs (Key Performance Indicators) are specific metrics that organizations use to assess the success or performance of a particular project, process, or initiative. These indicators provide a clear view of progress toward strategic goals, allowing strategies and tactics to be adjusted as needed.

In the context of businesses and cities, KPIs play a crucial role not only in measuring economic performance but also in monitoring sustainability goals, such as carbon emission reduction, energy efficiency, or natural resource management. These indicators allow organizations to assess their contribution to sustainable development and adjust their strategies accordingly.

In a datacracy, where decisions are based on reliable and accessible data, data traceability of KPIs is essential to making informed decisions and measuring the impact of policies and actions in real time, as well as complying with compliance and avoiding greenwashing.

M

// Marketplace

A marketplace is a digital platform where users can access different solutions, services or products from third parties.

Europe is structuring this marketplace of solutions around data through the DOME project, where Libelium collaborates to create a secure and reliable digital market.

These solutions range from algorithms to pre-trained algorithmic models that can be easily integrated into existing platforms, such as Iris360. AI marketplaces allow companies to quickly access advanced technologies without the need to develop them internally, accelerating the implementation of innovative solutions in areas such as automation, data analysis or customer service.



// On premise or SaaS

On-premise development and SaaS (Software as a Service) represent two different approaches to implementing technological solutions. On-premise development implies that the software and infrastructure are deployed locally on the company's own servers, which offers greater control over the data and customized security. However, this usually requires a significant initial investment in hardware, maintenance, and specialized personnel.

On the other hand, the **SaaS** model allows companies to access the software through the cloud, eliminating the need for internal infrastructure and reducing maintenance costs. SaaS's biggest advantage is its scalability and accessibility from anywhere, but it can raise concerns about data privacy and service provider lock-in.

iris360 addresses these limitations through a hybrid deployment, combining the best of both worlds. It offers a flexible platform that allows businesses to opt for either a cloud-based SaaS model or an on-premise deployment based on their specific needs. This ensures operational flexibility and security locally for organizations that require it while allowing scalability and ease of management in the cloud for those looking to reduce costs and simplify maintenance. This hybrid approach allows businesses to choose the option that best fits their technical, security, and regulatory requirements without sacrificing control or efficiency.



// Scalability

Scalability refers to the ability of a system to handle an increase in workload or data size without losing efficiency or performance. A scalable system can adapt to the growth of operations without the need for significant restructuring, making it a flexible and durable solution as an organisation or project expands. Scalability is a crucial aspect of technological solutions that must evolve along with the needs of the company or the market.

A scalable infrastructure, therefore, must allow for growth without sacrificing security, compliance or data governance.



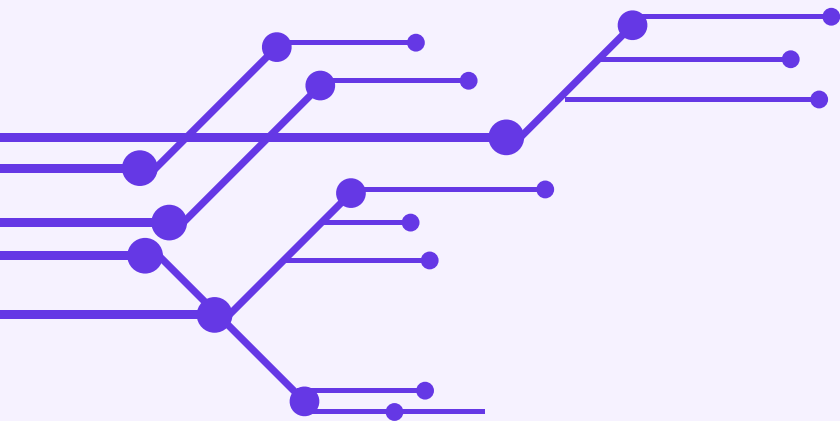
// UNE-ISO 37120

UNE-ISO 37120 is an international standard that establishes a series of indicators to measure the quality of life in cities, with a particular focus on the sustainability and efficiency of urban services. The regulation provides local governments with a reference framework to evaluate and improve key areas such as transport, energy, water and waste management. By implementing this regulation, cities can objectively compare themselves globally and improve their urban planning and development.

Libelium's data and device management platform, iris360, is compatible with this standard, ensuring its ability to integrate into the digital ecosystem of smart cities.

// UNE 178104

The UNE 178104 standard is a Spanish standard that establishes the requirements to ensure interoperability between different technological platforms used in smart cities. Its objective is to ensure that a city's digital solutions and services can work together efficiently, regardless of their origin or provider, facilitating urban management and improving citizens' quality of life. This standard promotes an open and collaborative approach to the development of urban technological infrastructures.





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