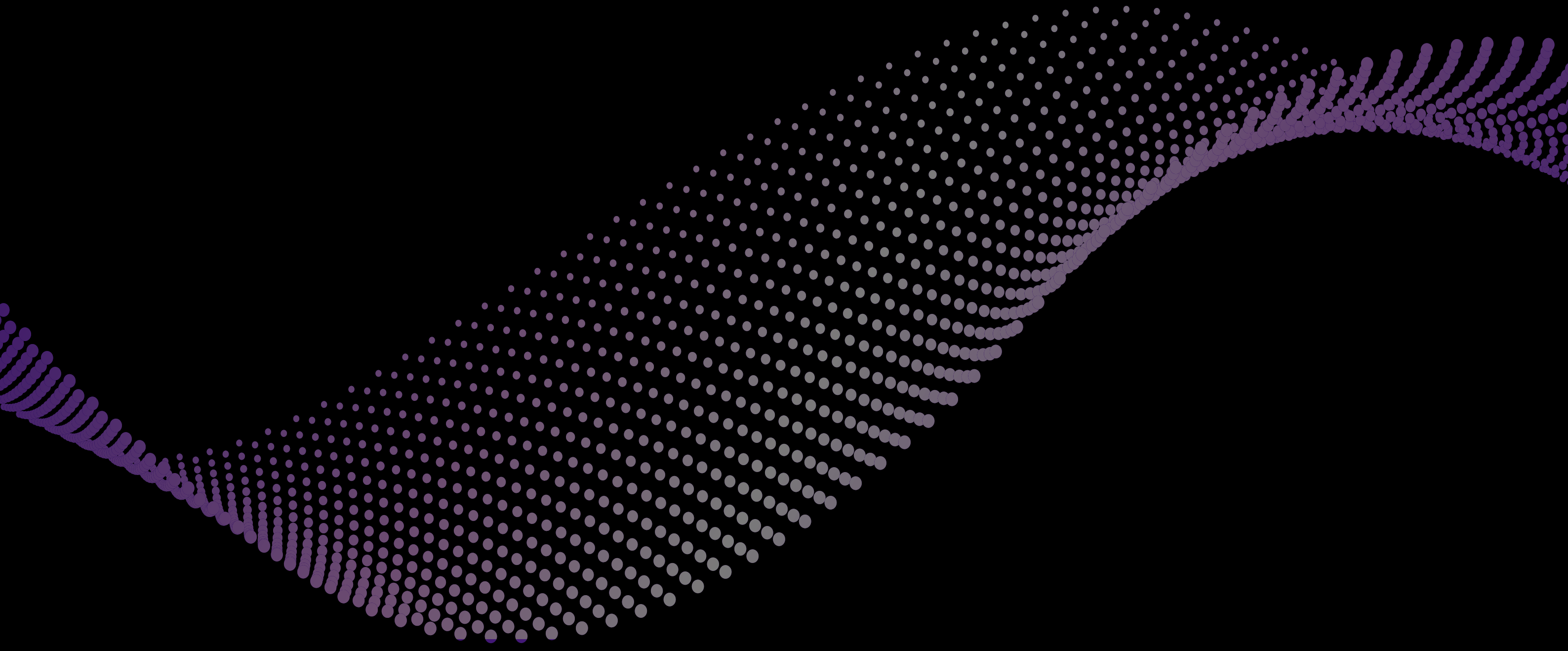
Understanding and Implications

EU's NIS2 Cybersecurity Directive



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Introduction

In an increasingly interconnected and digital world, protecting critical infrastructure and essential services against cyber threats has become a paramount concern for governments, businesses, and individuals. **Recognizing the urgent need to enhance cybersecurity capabilities across the European Union (EU), the European Commission has introduced the NIS2 Cybersecurity Directive.**

The NIS2 Directive, the Network and Information Systems Directive, represents a comprehensive and forward-thinking framework designed to strengthen the EU's resilience against cyber incidents. Building upon the success and lessons learned from the original NIS Directive adopted in 2016, NIS2 seeks to address emerging cybersecurity challenges, adapt to evolving technologies, and foster greater collaboration between public and private entities.

The main objective of the NIS2 Cybersecurity Directive is to establish a harmonized and robust cybersecurity governance across EU member states, ensuring the protection of critical infrastructure sectors and digital service providers. It aims to promote a high level of cybersecurity readiness and incident response capabilities, thus safeguarding the availability, integrity, and confidentiality of vital networks and systems.

In short, NIS2 Directive tightens security requirements in the EU by:

- Extending its scope to more sectors and entities
- Introducing the concept of “management bodies” (corporate accountability)
- Streamlining and standardizing of reporting requirements
- Introduction of control and monitoring measures
- Harmonization and strengthening of sanctions in all member states

The NIS-2 Directive was published in the Official Journal L333 of the European Union on 27.12.2022 and came into force on 16.01.2023. **The implementation of the NIS-2 Directive into national law must take place by March 2025.**

In this Whitepaper, we will discuss the importance of the NIS2 Directive.
Who is affected by the new directive and what are the unique challenges?

NIS2 Directive: https://eur-lex.europa.eu/eli/dir/2022/2555/oj

Is my company affected by NIS2?

The NIS2 Directive distinguishes between essential and important entities. The main difference between the two is that **"important entities"** are subject to lower fines and reactive supervision by the authorities, as opposed to proactive supervision, which is reserved for **"essential entities".**

There will no longer be different minimum thresholds in the EU, but instead, applicability be determined according to "uniform criteria".
Medium and large companies are to be covered by regulation:

Medium

50-250 employees,
10-50 million euros in sales
< 43 million euros in balance sheet.

Large

> 250 employees
> 50 million euros in sales
> 43 million euros in balance sheet.

This significantly expands the number of entities that need to comply with NIS2 in the EU, including Germany.

NIS2 clarifies and strengthens the fines provided for in the law for non-compliance:

- Cybersecurity risk-management measures (Article 21)
- Reporting obligations (Article 23)

Article 34(4) of the NIS2 Directive provides for fines in the event of non-compliance with these obligations. These **fines vary depending on whether the entity is essential or important:**

- For **essential entities**, administrative fines of a maximum of at least EUR 10 000 000 or of a maximum of at least 2 % of the total worldwide annual turnover
- For **important entities**, administrative fines of a maximum of at least EUR 7 000 000 or of a maximum of at least 1.4 % of the total worldwide annual turnover

The NIS2 directive introduces the notion of top management responsibility for security - more specifically, "management bodies." **The goal is to make executives and the board of directors accountable for safety.** The prospect of sanctions is most effective when individuals are identified as responsible. This means that cybersecurity is no longer the sole responsibility of IT, but a matter for the CEO and the board of directors, as we say in Germany, "Chefsache".

Important note:

The authorities will not tell you if this guideline applies. Your company or institution must evaluate itself against the criteria, including sector elements and size considerations. If an organization with a significant market share in a particular sector is "important" it may even be considered an essential entity based on its size.

NIS2 extends the scope of the **NIS Directive to additional sectors and types of public and private entities.** Therefore, it is essential to know if you are affected. First, determine if your company is an essential or an important entity.

Check whether NIS2 applies to your company

You are considered an Essential Entity if both of the following criteria apply:

1. Your company meets these criteria:

- **> 250** employees
- **> 50** million euros in sales
- **> 43** million euros in balance sheet.

Non of these apply? » Look at Important Entities.

2. Your company operates in one of these sectors:

- Energy
- Transport
- Banking
- Financial market infrastructure
- Health
- Drinking Water
- Waste Water
- Digital infrastructure
- ICT service management
- Public administration
- Space

1. Your company meets these criteria

50-250 employees,
10-50 million euros in sales
< 43 million euros in balance sheet.

Non of these apply? » Look at Essentials Entities.

2. Your company operates in one of these sectors:

- Waste management
- Production, processing and distribution of food
- Postal and courier services
- Manufacture, production and distrib. of chemicals
- Manufacturing
- Digital providers
- Research

Don't operate in any of the sectors above? → NIS2 does not apply to you

Detailed List on page 11-12

NIS2 for suppliers to important and essential entities

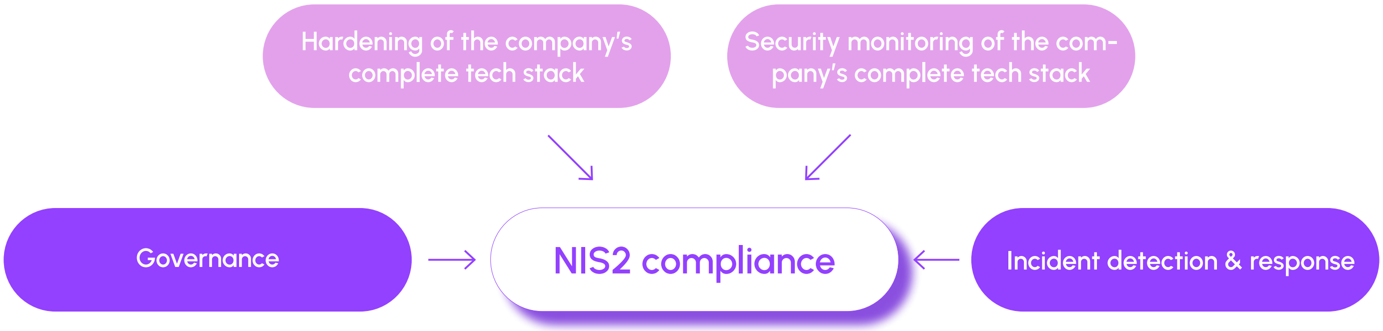
The consequences that the introduction of NIS2 can have for companies that only operate as suppliers, i.e., are not directly subject to regulation, can be seen particularly clearly in the financial sector. Banks and insurance companies have always had stringent rules, and the "banking supervisory requirements for information technology" (BAIT) provisions are an integral part of their risk management. For third-party service providers, this can mean that a client must assess their cybersecurity and include the result in the annual financial statements prepared by auditing firms. This means that **IT service providers and other suppliers must expect to be subjected to supplier audits to examine the robustness of their information security.** De facto, this will mean that the **supply chain will have to meet the exact requirements** that apply to regulated clients.

What is the NIS2 Directive?

Affected companies and organizations **must take appropriate action** in areas such as cyber risk management, supply chain security, business continuity management, penetration testing, and incident response, and reporting to the agency and remediation.

NIS2 is an excellent opportunity for Chief Information Security Officers (CISOs) to reinforce their position within the company. Under the directive, **senior management is responsible for managing cybersecurity risks, and violations are punishable by severe penalties.** The CISO is not just an advisor but a guide and leader in decisions. With NIS2, the CISO becomes an executive educator and champion of cybersecurity policies and best practices.

As a CISO, the action plan for NIS2 compliance should focus on 4 main areas:



Hardening of the company's complete tech stack

Security monitoring of the company's complete tech stack

Governance

NIS2 compliance

Incident detection & response

The NIS2 directive clearly states that essential & important entries must:

"Take appropriate and proportionate technical, operational and organizational **measures to manage the risks posed to the security of network and information systems** which those entities use for their operations or for the provision of their services, and to prevent or minimize the impact of incidents on recipients of their services and on other services."
NIS2 Article 21

Under the legislation (Article 21), essential and important entities must take at least the following 10 actions:

1. Policies on risk analysis and information system security
2. Incident handling
3. Business continuity, such as backup management and disaster recovery, and crisis management
4. Supply chain security, including security-related aspects concerning the relationships between each entity and its direct suppliers or service providers
5. Security in network and information systems acquisition, development and maintenance, including vulnerability handling and disclosure
6. Policies and procedures (testing and auditing) to assess the effectiveness of cybersecurity risk-management measures
7. Basic cyber hygiene practices and cybersecurity training
8. Policies and procedures regarding the use of cryptography and, where appropriate, encryption
9. Human resources security, access control policies and asset management
10. The use of multi-factor authentication or continuous authentication solutions, secured voice, video and text communications and secured emergency communication systems within the entity, where appropriate

NIS2 vs ISO 27001:2022

Complying with the NIS2 directive **can be a complex process that takes several years.** To make things easier, Mondoo has developed an **assessment tool** that **maps NIS2 requirements to ISO/IEC 27002:2022 standards.** While the exact requirements for NIS2 are still unknown, these standards offer a good starting point to gauge how far along a company or organization is with their cybersecurity measures.

ISO 27001 provides a framework of best practices for information security policies, procedures, and controls to **minimize the risk** of information security breaches. ISO 27002 focuses on **implementing controls and guidelines**. When aligning NIS2 measures with the ISO 27001:2022 standard, most of the relevant controls come from Annex A, which provides the best control perspective.

Annex A of ISO/IEC 27001:2022 is a section of the standard that lists a set of security controls that organizations can use to demonstrate compliance with ISO/IEC 27001 6.1.3 (Information Security Risk Treatment) and its associated "Statement of Applicability." The Statement of Applicability (SoA) is a mandatory document that lists the Annex A controls that an organization should implement to meet the standard's requirements. Anyone pursuing ISO 27001 certification must complete this step.

NIS2 vs. ISO27001

NIS2 (Legislation article)	ISO27001:2022
Article 21.2 a) policies on risk analysis and information system security	5.2 Policy 6.1.2 Information security risk assessment 6.1.3 Information security risk treatment 8.2 Information security risk assessment 8.3 Information security risk treatment A.5.1 Policies for information security A.5.12 Classification of information A.5.2 Information security roles and responsibilities A.5.7 Threat intelligence A.5.37 Documented operating procedures
Article 21.2 b) incident handling	A.5.24 Information security incident management planning & preparation A.5.25 Assessment and decision on information security events A.5.26 Response to information security incidents A.5.27 Learning from information security incidents A.5.28 Collection of evidence A.6.8 Information security event reporting A.8.15 Logging A.8.16 Monitoring activities
Article 21.2 c) business continuity, such as backup management and disaster recovery, and crisis management	A.5.29 Information security during disruption A.5.30 ICT readiness for business continuity A.5.37 Documented operating procedures A.8.13 Information backup A.8.14 Redundancy of information processing facilities A.8.15 Logging A.8.16 Monitoring activities
Article 21.2 d) supply chain security, including security-related aspects concerning the relationships between each entity and its direct suppliers or service providers	A.5.19 Information security in supplier relationships A.5.20 Addressing information security within supplier agreements A.5.21 Managing information security in the ICT supply chain A.5.22 Monitoring, review and change management of supplier services A.5.23 Information security for use of cloud services
Article 21.2 e) security in network and information systems acquisition, development and maintenance, including vulnerability handling and disclosure	A.5.37 Documented operating procedures A.8.8 Management of technical vulnerabilities A.8.9 Configuration management A.8.19 Installation of software on operational systems A.8.20 Network security A.8.21 Security of network services
Article 21.2 f) policies and procedures to assess the effectiveness of cybersecurity risk-management measures	9.1 Monitoring, measurement, analysis and evaluation 9.2 Internal audit 9.3 Management review A.5.35 Independent review of information security A.5.36 Compliance with policies, rules & standards for information security
Article 21.2 g) basic cyber hygiene practices and cybersecurity training	7.2 Competence 7.3 Awareness 7.4 Communication A.5.10 Acceptable use of information and other associated assets A.5.15 Access control A.5.16 Identity management A.6.3 Information security awareness, education and training

NIS2 (Legislation article)	ISO27001:2022
Article 21.2 h) policies and procedures regarding the use of cryptography and, where appropriate, encryption	A.8.17 Clock synchronization A.8.24 Use of cryptography
Article 21.2 i) human resources security, access control policies and asset management	A.5.2 Information security roles and responsibilities A.5.3 Segregation of duties A.5.9 Inventory of information and other associated assets A.5.10 Acceptable use of information and other associated assets A.5.11 Return of assets A.5.15 Access control A.5.16 Identity management A.5.17 Authentication information A.5.18 Access rights A.6.1 Screening A.6.2 Terms and conditions of employment A.6.3 Information security awareness, education and training A.6.4 Disciplinary process A.6.5 Responsibilities after termination or change of employment A.6.6 Confidentiality or non-disclosure agreements A.6.7 Remote working A.7.7 Clear desk and clear screen A.7.9 Security of assets off-premises A.7.10 Storage media A.7.14 Secure disposal or re-use of equipment A.8.1 User endpoint devices A.8.2 Privileged access rights A.8.3 Information access restriction A.8.4 Access to source code A.8.5 Secure authentication
Article 21.2 j) the use of multi-factor authentication or continuous authentication solutions, secured voice, video and text communications and secured emergency communication systems within the entity, where appropriate.	A.5.14 Information transfer A.5.16 Identity management A.5.17 Authentication information A.8.5 Secure authentication
Article 21.3 Member States shall ensure that, when considering which measures referred to in paragraph 2, point (d), of this Article are appropriate, entities take into account the vulnerabilities specific to each direct supplier and service provider and the overall quality of products and cybersecurity practices of their suppliers and service providers, including their secure development procedures. Member States shall also ensure that, when considering which measures referred to in that point are appropriate, entities are required to take into account the results of the coordinated security risk assessments of critical supply chains carried out in accordance with Article 22(1).	A.8.25 Secure development life cycle A.8.26 Application security requirements A.8.27 Secure system architecture and engineering principles A.8.28 Secure coding A.8.29 Security testing in development and acceptance A.8.30 Outsourced development A.8.31 Separation of development, test and production environments A.8.32 Change management A.8.33 Test information
Article 23 Reporting obligations	A.5.14 Information transfer A.6.8 Information security event reporting
Article 24 Use of European cybersecurity certification schemes	A.5.20 Addressing information security within supplier agreements

NIS2 - Additions to ISO 2001

The ISO 27001 Annex A controls that are not included in the mapping to the NIS2 guideline include:

- A.5.4 Management responsibilities
- A.5.5 Contact with authorities
- A.5.6 Contact with special interest groups
- A.5.8 Information security in project management
- A.5.12 Classification of information
- A.5.13 Labelling of information
- A.5.31 Legal, statutory, regulatory and contractual requirements
- A.5.32 Intellectual property rights
- A.5.33 Protection of records
- A.5.34 Privacy and protection of personally identifiable information (PII)
- A.7.1 Physical security perimeters
- A.7.2 Physical entry
- A.7.3 Securing offices, rooms and facilities
- A.7.4 Physical security monitoring
- A.7.5 Protecting against physical and environmental threats
- A.7.6 Working in secure areas
- A.7.8 Equipment siting and protection
- A.7.11 Supporting utilities
- A.7.12 Cabling security
- A.7.13 Equipment maintenance
- A.8.6 Capacity management
- A.8.7 Protection against malware
- A.8.10 Information deletion
- A.8.11 Data masking
- A.8.12 Data leakage prevention
- A.8.17 Clock synchronization
- A.8.18 Use of privileged utility programs
- A.8.22 Segregation of networks
- A.8.23 Web filtering
- A.8.34 Protection of information systems during audit testing

To summarize, if a company follows **ISO27001**, it is in a **pretty good starting position for NIS2.** There is only one part that needs to be added to comply with NIS2: incident handling and reporting.

Streamlining reporting on incidents

“NIS2” refers to the **Network and Information Systems Regulations 2018**, which imposes **stricter incident response obligations and shorter timeframes.** To prepare for this, the first step should be to create or review your Incident Response Plan. This plan should outline your procedures and policies for responding to incidents, helping streamline the process when faced with a response obligation.

The first NIS directive no longer uses the “number of users impacted” threshold. Instead, the NIS2 directive is **based on two distinct concepts for incident response obligations:**

incidents

Meaning any event compromising the availability, authenticity, integrity or confidentiality of stored, transmitted or processed data or of the services offered by, or accessible via, network and information systems” according to Article 6(6).

cyber threats

Meaning “any potential circumstance, event or action that could damage, disrupt or otherwise adversely impact network and information systems, the users of such systems and other persons”, according to Article 2(8) of the Cybersecurity Act, itself referred to in Article 6(10) of NIS2.

Article 23 provides that an incident shall be considered significant if:

1. It has caused or is capable of causing severe operational disruption of the services or financial loss for the entity concerned;
2. It has affected or is capable of affecting other natural or legal persons by causing considerable material or non-material damage.

In the event of a cyber threat or significant incident, essential and important entities shall notify, without undue delay:

- The competent authorities or the national Computer Security Incident Response Team (CSIRT), while also making sure to report any information enabling to determine any cross-border impact of the incident;
- Where appropriate, the recipients of their services if the incident is likely to affect the provision of that service adversely;
- Where appropriate, those recipients of the threat itself. In a significant cyber threat, measures or remedies that can be taken in response should also be notified.

Reporting to CSIRT

When responding to competent authorities or the Computer Security Incident Response Team (CSIRT), organizations have an obligation to report certain information. This includes any relevant details that are deemed important for the authorities to know.

1. **An initial notification within 24 hours** after becoming aware of the incident, indicating whether it is suspected of being caused by unlawful or malicious acts or could have a cross-border impact;

2. **Within 72 hours** of becoming aware of the significant incident, an incident notification, which, where applicable, shall update the previous information and indicate an initial assessment of the significant incident, including its severity and impact, as well as, where available, the indicators of compromise;

3. Upon the request of a competent authority or a CSIRT, an intermediate report on relevant status updates;

4. A final report not later than **one month** after the submission of the first report, including at least the following:

    - A detailed description of the incident, its severity and impact;
    - The type of threat or root cause that likely triggered the incident;
    - Applied and ongoing mitigation measures.
    - Where applicable, the cross-border impact of the incident;

5. If the incident is still ongoing at the time of the final report's submission, entities should provide a progress report at that time and a final report within one month of handling the incident.

Each Member State has its own **Computer Security Incident Response Team** (CSIRT) to which **incidents can be reported.** Additionally, some countries have designated **"competent authorities".** In the context of the current NIS Directive, the **ANSSI in France**, the **CCB in Belgium**, and the **BSI in Germany** are designated as competent authorities.

Sectors classified as **Essential Sectors** in the scope of NIS2

detailed in Annex I of the NIS2

Sector	Subsector	Type of entity
Energy	Electricity	Energy supply, Distribution System Operators, Transmission System Operators, Electricity Producers, Electricity Market Operators, and selected participants
	District heat/cooling	Operators for district heating or district cooling
	Oil	Operators of transmission pipelines, Operators of oil production, refining and treatment facilities, storage, and transmission, selected Central oil stock holding entities
	Gas	Suppliers, Distribution system operators, Transmission system operators, Storage system operators, LNG system operators, Natural gas undertakings
Transport	Air	Air carriers, Airport managing bodies, Air Traffic Control Services Providers (ATC)
	Rail	Infrastructure managers, Railway undertakings
	Water	Inland, sea and coastal passenger and freight water transport companies, Managing bodies of ports, Operators of vessel traffic services
	Road	Road authorities, Delegated traffic management control regulations, Operators of Intelligent Transport Systems
Banking		Credit institutions
Financial market infrastructures		Operators of trading venues, Central counterparties (CCPs)
Health	Pharma, Manufacturing, Laboratories, Services	Healthcare providers, Entities manufacturing medical devices considered as critical during a public health emergency, EU reference laboratories, Entities carrying out research and development activities of medicinal products, Entities manufacturing basic pharmaceutical products and pharmaceutical preparations
Drinking water		Suppliers and distributors of water intended for human consumption, excluding those with the majority of other general activity
Waste water		Undertakings collecting, disposing, or treating urban, domestic, and industrial wastewater when the essential part of the business.
Space	Infrastructure, Services	Operators of ground-based infrastructure, owned, managed, and operated by Member States or by private parties, that support the provision of space-based services.
B2B ICT Services		Managed Services Providers (MSP), Managed Security Services Providers (MSSP
Digital Infrastructure		Internet Exchange Point providers, DNS service providers, TLD name registries, Cloud computing service providers, Datacenter service providers, Content delivery network providers, Trust service providers, providers of public electronic communications networks, Providers of publicly available electronic communications services
Public administration		Public administration entities of central governments and regional level as defined by a Member State in accordance with national law

Sectors classified as **Important Sectors** in the scope of NIS2

detailed in Annex II of the NIS2

Sector	Subsector	Type of entity
Postal & courier services		Postal service providers, including providers of courier services
Waste management		Undertakings carrying out waste management but excluding for whom waste management is not their principal economic activity
Food production, processing, distribution		Entities engaged in wholesale distribution, industrial production and processing of any food and drink. Not a food business (e.g. feed, live animals unless for human consumption, plants prior to harvesting)
Manufacture, production and distribution of chemicals		Undertakings carrying out the manufacture, production and distribution of substances and articles
Production, processing and distribution of food		Food businesses, which are engaged in wholesale distribution and industrial production and processing
Manufacturing	Manufacture of Medical Devices and in vitro diagnostic medical devices	Entities manufacturing medical devices
	Manufacture of computer, electronic and optical products	Entities that manufacture computers, electronic and optical products, electronic components and boards, loaded electronic boards, computers and peripheral equipment, communication equipment, consumer electronics, instruments and appliances for measuring, testing and navigation; watches and clocks, irradiation, electromedical and electrotherapeutic equipment, optical instruments and photographic equipment, magnetic and optical media
	Manufacture of electrical equipment	Entities that manufacture electrical equipment, electric motors, generators, transformers and electricity distribution and control apparatus, batteries and accumulators, wiring and wiring devices, fiber optic cables, other electronic and electric wires and cables, wiring devices, electric lighting equipment, domestic appliances, non-electric domestic appliances, other electrical equipment
	Manufacture of machinery and equipment n.e.c.	Entities that manufacture general-purpose machinery, engines and turbines (except aircraft), vehicle and cycle engines, fluid power equipment, other pumps and compressors, taps and valves, bearings, gears, gearing and driving elements, other general-purpose machinery, ovens, furnaces and furnace burners, lifting and handling equipment, office machinery and equipment (except computers and peripheral equipment), power-driven hand tools, non-domestic cooling and ventilation equipment, other general-purpose machinery n.e.c, agricultural and forestry machinery, metal forming machinery and machine tools, other special-purpose machinery, machinery for metallurgy, machinery for mining, quarrying and construction, machinery for food, beverage and tobacco processing, machinery for textile, apparel and leather production, machinery for paper and paperboard production, plastic and rubber machinery, other special-purpose machinery n.e.c.
	Manufacture of motor vehicles, trailers and semi-trailers	Entities that manufacture motor vehicles, trailers and semi-trailers, bodies (coachwork) for motor vehicles, parts and accessories for motor vehicles, electrical and electronic equipment for motor vehicles, other parts and accessories for motor vehicles
	Manufacture of other transport equipment	Entities that manufacture transport equipment, ships and boats, ships and floating structures, pleasure and sporting boats, railway locomotives and rolling stock, air and spacecraft and related machinery, military fighting vehicles, transport equipment n.e.c., motorcycles, bicycles and invalid carriages, other transport equipment n.e.c.
Digital providers		Providers of online marketplaces, Providers of online search engines, Providers of social networking services platforms
Research		Research organizations

Summary

The NIS2 Cybersecurity Directive **updates and broadens EU cybersecurity regulations**, aiming to enhance resilience against cyber threats. It extends accountability to top management and imposes **significant fines for non-compliance**. Additionally, **it affects suppliers**, requiring evaluations of third-party cybersecurity. Stricter incident response requirements mandate swift reporting to national CSIRTs or competent authorities, **emphasizing a proactive approach to cybersecurity.**

Organizations should **conduct a thorough assessment** of their cybersecurity practices and determine their classification under the directive. This self-assessment will help identify areas for improvement and ensure compliance with regulatory requirements.

To navigate the complexities of compliance standards, like **NIS2 or ISO/IEC 27002:2022**, organizations can leverage tools like **Mondoo**. Mondoo provides **comprehensive vulnerability management** and **compliance monitoring**, helping organizations identify and remediate security gaps in their infrastructure.

By integrating Mondoo into their security processes, organizations can **ensure future adherence to NIS2 requirements**, take proactive steps to strengthen their cybersecurity and contribute to a safer digital environment for all.