

EU SUPPLY CHAIN VISIBILITY

THE WHITE ALBUM

30 NOVEMBER 2023

NON-PAPER - SKETCH FOR A POSSIBLE EU COMMUNICATION AND LEGAL PROPOSAL FOR ENHANCING SUPPLY CHAIN VISIBILITY

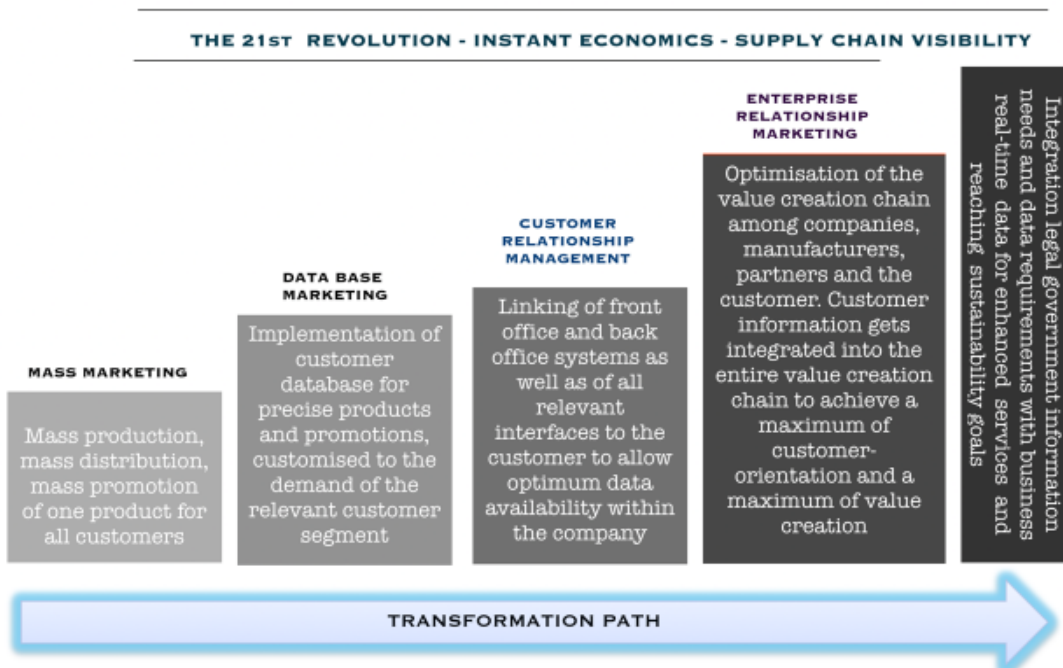
Preface

This document should be perceived as a non-paper – a white album – to serve as source of inspiration. It contains a draft text for a possible proposal for an EU Legal Act and accompanying Communication on enhancing supply chain visibility is presented. The document is based on the major insights, achievements and experiences gained by the EU CEF FEDeRATED project. The FEDeRATED project was established in 2019 with the goal to assist the European Commission in developing a Digital Single Market for freight transport and logistics, executed within the framework of supporting the (future) work of the EU DTLF.

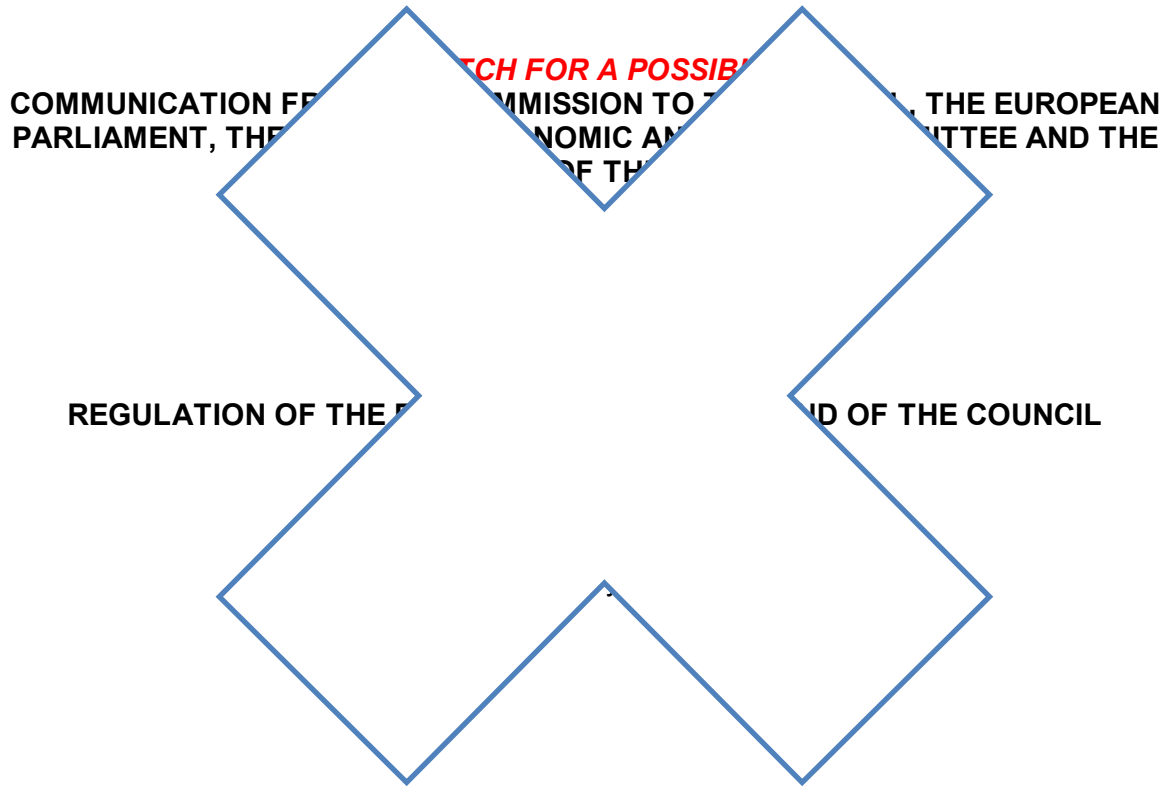
This document could be perceived as an action-based statement. It reflects a state-of-the-art knowledge on how seamless multimodal freight transport can be achieved based on the requirement of complying with the European Interoperability Framework (EIF). The text has been written by the FEDeRATED project coordinator. The goal is to experiment on how the outcomes of the FEDeRATED project could be perceived and transposed into an EU rule-based framework approach. Preferably, this approach captures the many EU initiatives to enhance supply chain visibility in a harmonizing and decentralized EU approach aimed at realizing a systematic approach. Unity in diversity.

Proposals for an EC legal text and supporting policy documents are a prerogative of the European Commission. **This document does neither represent the opinion nor commit any FEDeRATED partner organisation.**

CUSTOMER AND GOVERNMENT INTEGRATION INTO THE SUPPLY CHAIN



Brussels,
XXX



SKETCH FOR A POSSIBLE

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

on enhancing supply chain visibility

1. The need for transport visibility

- 1.1.** Real-time data exchange has become a vital worldwide issue enabling transport, cargo and container visibility. It concerns the European Union whose role as trading partner relies on effective, secure and green transport by all modes and at all levels.
- 1.2.** The use of real-time data to improve European transport and cargo visibility has already seen considerable recent improvements: in maritime and port domain, as well, as business standards, international and EU legislation has been developed established enabling M2M data exchange, in aviation the IATA One Record standard is developed enabling paper to be replaced by data, in road, rail and inland waterways transport data is slowly replacing paper as major information source. In combined transport electronic bill of lading data are allowed. In 2019, the EMSWe Regulation¹ was approved enabling a more cohesive and harmonized transport and cargo tracking approach for and between EU Member States, thereby also pursuing collaboration between transport and Customs authorities. In 2020, the eFTI regulation was approved by EP and EU Member States. The eFTI Regulation² will enable companies the opportunity to electronically – paperless – comply with a great many B2A legal compliance procedures for various transport activities. Overall, these initiatives do not add up to an overarching EU framework enabling companies and public authorities to fully benefit from the opportunities real-time data provide to supply chain operators and public authorities towards establishing supply chain visibility. In addition, new legal initiatives and sustainability goals show the increasing importance for operators connected to the supply chain, to create full data transparency.
- 1.3.** A common EU reference methodology ensuring the data generated within the supply chain operations can be exchanged according to the European Interoperability Framework is lacking. This often leads to a significant discrepancy in data availability and access between the various stakeholders connected to the supply chain. As a result, the current state of play in digitized business transactions, and related compliance procedures, lacks the opportunity for providing visibility.
- 1.4.** The Commission already identified in 2014 the need for developing an EU Digital Single Market to enable its citizens and companies to fully benefit the opportunities digital technology offers³. With regards to freight transport and logistics this policy goal has been translated in several initiatives⁴, like the EU DTLF, which led to the eFTI legislation, and the federated network of platforms approach aimed at open, safe

¹ Regulation (EU) 2019/1239 establishing a European maritime single window environment.

² Regulation (EC) N° 2929.1056 on electronic Freight Transport Information

³ EU Commission Juncker, 10 pillars

⁴ Communication from the Commission to the European Parliament, the European Council, the European Economic And Social Committee and the Committee of the Regions; Sustainable and Smart Mobility Strategy – putting European transport on track for the future; COM(2020) 789 final

and secure sharing of real-time data. A subsequent focus being on enhanced visibility in freight transport operations also enabling supply chain optimization, assisting forecasting product demand, optimizing asset and infrastructure use, resilience, and legal compliance and eGovernment. There are currently no rules in place for the supply chain in its entirety which is defined as comprising all the operations and processes beginning at the manufacturing site and ending at the cargo's point of destination.

- 1.5.** To develop a proactive EU data policy, an EU regulatory framework is under development acts, which also coincides with an EU Data Space policy development and multiple digital technology-based initiatives, both from EU Member States and business. Data at source as well as data sovereignty, trust, and reliability are important parameters towards developing an operational concept, i.e., the development towards an EU Mobility Data Space in connection to the EC strategy on smart and sustainable transport⁵. Despite these policy developments, also in connection to various studies and practical experience and lessons learnt established in many EU projects, it must be recognized that most supply chain operators and public authorities are reluctant to fully engage in digitization. A poor level of digital readiness in many segments of transport has been identified. To combat this lack of competence, a digital strengthening within all forms of transport systems, including the enhancement of the legal framework and the improvement of preventive mechanisms, is called for.
- 1.6.** *In consultations⁶, interested bodies and Member States emphasized the need for enhanced visibility through data sharing and a lack a solid, overarching framework providing a long-term perspective towards digitization. They also stressed the need to balance visibility requirements and commercial data protection to ensure that economic growth and stability were not undermined in the process. They equally stressed the need to cover all modes of the transport chain to avoid discrimination between modes, as well as the desirability to rely as much as possible on already existing concepts.*

2. Key questions and the Commission's answers

Visibility rules for specific areas or for the supply chain in its entirety?

- 2.1.** It is tempting to concentrate efforts on improving supply chain visibility levels in a limited number of well-identified key areas. Within the Customs domain, many years of experience have geared up the volume of seamless digital reporting. Considerable progress has been achieved recently enhancing maritime reporting to ports and public authorities. Many EU legal acts relating to ESG topics (environmental, society and governance), require monitoring progress and compliance,⁷ also in connection to

⁵ Communication from the Commission to the European Parliament, the European Council, the European Economic And Social Committee and the Committee of the Regions; Sustainable and Smart Mobility Strategy – putting European transport on track for the future; COM(2020) 789 final

⁶ Further information on the consultations in the various FEDeRATED Consultation Panel reports, experiences gained in the FEDeRATED LivingLabs . ww and national studies executed in Finland and the Netherlands. www.federatednetworks.eu

⁷ Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (OJ L 322, 16.12.2022, p. 15–80)

specific transport modes⁸. The current proposal for transport emission monitoring⁹ will be set in place, requiring data to be exchanged between stakeholders and product owners¹⁰. Most logistics centers and logistics operators have invested in data exchange technologies and applying service level agreements with platform providers. Access control rules, through the focus on data sovereignty, are being implemented and many operators have introduced identity, authentication and authorization eFTI procedures for employees and third parties. There is growing awareness that digitization could substantially enhance operational brainpower as well as provide new business opportunities.

- 2.2. All these developments are welcomed. But they are limited in scope, and do not result in a systematic interoperability approach.
- 2.3. The supply chain is characterized by an unlimited amount of operations, beginning at the manufacturing site, ending at the cargo's point of delivery and including the processes accompanying them. These operations are interdependent, as are the operators which carry them out. All individual elements shall be combined to ensure high levels of visibility for the supply chain in its entirety.
- 2.4. In view of the above, it is considered more appropriate to develop a Community visibility framework for the supply chain instead of opting for a patchwork approach. This choice does not exclude the fixing of detailed Community-wide baseline standards or even detailed rules for certain areas. As will be developed later, the framework concept should contain such baseline standards for all the individual parts of the supply chain as well as specific technical rules where warranted. In all cases, however, the framework should allow for regular, simple updates.
- 2.5. The key advantage of visibility rules lies in the introduction of real-time data sharing management systems into the supply chain through the operators involved in this market. A framework would offer guidance to the operators, which often make considerable investments into upgrading their visibility, including situational awareness.
- 2.6. *A Community measure should consist of a framework for supply chain visibility. It should not limit itself to addressing specific areas but include these areas in an appropriate way to allow for regular updates.*

What level of visibility intensity for the supply chain?

- 2.7. Various transport modes used in the many supply chains, have put data-based rules and measures in place with detailed and legally binding specifications and verifications. A similar approach for all parts of the supply chain would no doubt enhance visibility of the supply chain in its entirety.

⁸ The development of an environmental label for aviation is based on Action 35 of the SSMS. The label may consist of different elements, including a flight emissions assessment. The label under ReFuel EU Aviation will only aim at the flight emissions; other labels focusing on aircraft or airlines might be developed separately at a later stage

⁹ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the accounting of greenhouse gas emissions of transport services - COM (2023) 441/2 2023/0266

¹⁰ Commission Recommendation (EU) 2021/2279 of 15 December 2021 on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations; (OJ L 471, 30.12.2021, p. 1–396)

- 2.8.** However, a comparison of current data-based rules for various transport modes with the supply chain in its entirety reveals fundamental differences. The various transport markets are characterized by a specific number of operators which, above all, often operate in geographically confined areas. They are used to the existence of their specific data arrangements and are not used to collaborate and share data within a multimodal transport perspective.
- 2.9.** The supply chain in its entirety has quite different dimensions, than the sum of the various transport modes together. More than half a million companies are involved in relevant transport and transport auxiliary services alone, ranging from major multinationals to minute service companies which reside in a wide variety of cultures and business settings. They cover the entire Community territory. Most have at present no sophisticated data-based management processes and strategy in place and, generally, the need to meet certain visibility levels are only starting to develop.¹¹
- 2.10.** Highly prescriptive new data sharing visibility measures for all operators would lead to a breakdown of the supply chain. Yet an increasing number of companies are establishing their own data management standards not only to protect their own operations and brand but also as a tool for selection of their supply chain partners and supporting the many standards.
- 2.11.** In view of the above, it is therefore in practice impossible to establish for the supply chain, in one single all-embracing operation, one data visibility standard. Instead, it is more realistic to establish a framework of 'baseline standards' which can gradually evolve in line with technological progress to ensure satisfactory data visibility levels in an operational environment.
- 2.12.** *A Community measure must strike a balance between highly prescriptive total visibility and the need to ensure a free flow of trade whilst allowing for a gradual tightening and harmonization of baseline data sharing standards or interoperability requirements.*

Visibility rules for all?

- 2.13.** It is acknowledged that most current initiatives and deliberations concentrate on technology-based applications for data-driven transport operations; both at local, national and international - as well as at certain companies' levels. This is understandable given the multitude of various actors involved in logistic operations having different objectives and stakeholder interests.
- 2.14.** However, the need to exchange real-time data to realize supply chain visibility requires participation of all stakeholders. The reliability of data¹² being used for the transactions within the chain is as strong as the weakest link. In fact, this applies to all cargo transport types and operators which, in one way or another, are at risk of failing to provide or obtain readable data to process their operations and collaborate as a mature actor in a data-driven supply chain.
- 2.15.** *A Community measure should cover all freight transport operations and a low threshold to participate.*

¹¹ See study Digital readiness study 2021 - [Digital readiness NL market survey 2021 \(federatedplatforms.eu\)](https://www.federatedplatforms.eu)

¹² Reliability is one of the assets, as well as sovereignty, correct, timely data. This is further explained in the EU Data Strategy

Who should be responsible for visibility?

- 2.16.** Responsibility in this context means which operator – data user or data holder – should bear responsibility for the visibility of its part of the supply chain. This point is relevant because the supply chain consists of a considerable number of operators.
- 2.17.** The supply chain normally begins at the manufacturing site where the goods are prepared for shipment. They may be packed into containers or otherwise packed. They may be collected from the manufacturing site to be transported by one single mode to their final destination. They may be taken to warehouses, storage areas or (inland) terminals; they may change transport modes in these places. The operation may involve freight forwarders and agents or brokers. Often public authorities may be involved executing their compliance tasks. Each section of the supply chain is accompanied by information processes.
- 2.18.** Analysis of the supply chain identifies two groups of stakeholders, each of which has its own visibility-relevant characteristics:
- Business stakeholders, consisting of companies involved in the: Preparation of goods for shipment and shipment from the production site; transport of goods; forwarding of goods; warehousing, storage and (inland) terminal operations.
 - Public authority stakeholders, consisting of international, national, and regional/local authorities tasked to develop relevant policies, measures and legislation to pursue policy goals as well to enforce legal obligations.
- 2.19.** It is tempting to impose responsibility for visibility of the complete supply chain on one operator. This would be simple. But it would not reflect the reality of the market. It may well be that specialized manufacturers, due to their size and type of operation, carry out, or at least fully control, the transport operations. Their responsibility for visibility of the entire supply chain may well be established.
- 2.20.** However, in normal commercial circumstances, a manufacturer of goods does not carry out the complete transport operation neither can one public authority be obliged to share data with all other public authorities involved. Specialized companies do that: railway companies are but one example. Indeed, manufacturers often do not know, nor do they even need to know, which operator transports their goods and by what means of transport. The same considerations apply to other operators in the supply chain. They may control more than one stage of the chain, even in less frequent cases the entire chain, except its first stage on the manufacturing site. Their responsibility may thus cover more than one stage.
- 2.21.** These market realities can only lead to one practical conclusion: each operator for each component part of the supply chain assumes responsibility for providing reliable and readable data of his own – but only his own – actions. The aggregate of individual visibility measures then provides for the visibility standard of the complete chain.
- 2.22.** *Every operator in the supply chain is responsible for providing realtime data for its own actions. It cannot renounce this responsibility and be made responsible for other operators' activities. The aggregate of individual measures to manage visibility provides for the visibility standard of the complete supply chain.*

Self-regulation by industry or state intervention?

- 2.23.** Visibility and the management of real-time data is a responsibility of any individual. The performance of any supply chain actor depends on the data to be exchanged. Individual business cases, digital readiness, uneven level playing field between

operators cause unsatisfactory levels of transport and cargo traceability throughout the supply chain. Therefore, leaving supply chain visibility to self-regulation by industry would be irresponsible for any state. In addition, the execution of public authorities is very much dependent of the quality and seamlessness of data to be exchanged in the supply chain.

- 2.24.** Both industry and the state hold responsibility for visibility within the supply chain. This means that the visibility objectives can only be achieved through common efforts by all parties involved.
- 2.25.** The sheer size of the market, the number of operators and the departure from a low level of IT maturity and visibility measures observed by most operators require a novel approach.
- 2.26.** *For the execution of their public tasks, the state is dependent on supply chain visibility. Supply chain management is industry's responsibility. A cooperative state/industry approach is necessary.*

How can existing EU concepts be used to increase visibility in the supply chain?

- 2.27.** The Community Customs rules¹³ work with the concept of 'Authorised Economic Operator'. Where an economic operator complies with certain reliability criteria, the status of 'Authorised Economic Operator' can be granted to allow the operator to benefit from facilitations with regard to customs controls and/or from simplification provided by customs rules.
- 2.28.** In the Community's eFTI regulation¹⁴ an economic operator that acts as an eFTI platform, complying with certain data-relevant criteria relieved from paper based reporting obligations, thus dealing with less administrative burdens.
- 2.29.** Both concepts are based on the underlying principle that operators which voluntarily comply with certain requirements, and which have been vetted by the authorities should benefit from certain facilitations. Inspections regularly take place. The concept which is applied is 'EU Supply Chain Visibility node', if appropriately modified, also lends itself to the field of supply chain visibility - '*EU SCV (Supply Chain Visibility) node*'
- 2.30.** Specific standards should be set for operators involved in the supply chain for complying with the minimum set of capabilities of a EU SCV node to share data in a trusted and federative manner. The four capabilities required within the various business operations are:
- Semantics – enabling operators to communicate in a common language based on linked data
 - Service Registry – enabling operators discoverability.
 - Identification, Authentication, and Authorisation – providing operators security.
 - Index – enabling operators to present their business process data in a readable format.

¹³ Council Regulation (EEC) 2913/92 of 12 October 1992 establishing the Community Customs Code and Communication (EC) N° 425/2003, July 2003

¹⁴ Regulation (EC) N° 2929.1056 on electronic Freight Transport Information

Operators should implement these specific Community standards under a system set up by each Member State, thereby supervised by an EU governing body for change management issues. The implementation of the standards will be verified by assessors appointed for this purpose by each Member State. The status of 'EU SCV node' would be awarded to operators found to be in compliance with the technical specifications of the four standards. There cannot be trust without verification.

- 2.31. As it is impossible for a very substantial number of operators in the supply chain to implement the specific standards and for Member States to ensure that implementation is adequately verified, the first steps of the implementation will be on a voluntary basis. No operator will be obliged to join the 'EU SCV node' scheme.
- 2.32. There should, however, be tangible practical advantages for those operators opting to make the financial investments inevitably linked to implementation.
 - 2.32.1. The EU SCV node can demonstrate to its clients and supply chain partners its ability to hold or use reliable data in a secure way enabling controlled access and non-predefined query to its data at source, thereby provide supply chain collaboration through a set of agreements.
 - 2.32.2. Data holders and data users that engage within this EU supply chain visibility scheme can be confident that data entering their IT systems from a chain of 'EU SVC nodes' comply with the supply chain visibility capability standards and has been adequately secured throughout the chain.
 - 2.32.3. Customs Authorities in charge of controls at external borders, and EU Member States eFTI Authorities may recognize the visibility status of a 'EU SCV node' under their own Custom/eFTI schemes and vice versa, provided the conditions remain compatible.
- 2.33. To make the concept work, when doing business on its territory, a Member State will have to recognize the status of an operator as a 'EU SCV node' awarded by another Member State.
- 2.34. *The 'EU SCV node' concept for supply chain visibility: a voluntary first step with positive practical advantages.*

A Community framework is necessary.

- 2.35. Supply chain operators may operate anywhere in Europe, and hundreds of thousands do. Operators acknowledge the importance of enhancing visibility standards and are willing to make their contributions. Costly as these contributions no doubt in many cases can be, operators rightly expect that they know in advance whether their investments are warranted and that requirements in the various Member States are as uniform and predictable as possible. The market makes a strong case for a Community framework open for regular and speedy adoption to developments.
- 2.36. Member States authorities wish to be assured that the same minimum standards apply in all Member States and that they are effectively implemented. After all, with the common market for supply chain operators a reality, every national authority will be confronted with operators having been granted 'EU SCV node' status in another Member State expecting to be allowed to avail themselves of facilitations granted to national operators. National authorities must rely on uniform implementation of rules across Europe. Thereto, an EU harmonizing and overarching framework to govern the standards, including change management, will be established Trust is enhanced through a Community monitoring system.

- 2.37.** Although a high percentage of transport operations will always be restricted to the geographic confines of the European Union, a substantial portion also involve other European countries or countries outside of Europe. Developments are already under way in third countries aimed at increasing supply chain visibility. Although the external dimension will necessarily involve custom authorities of both trade partners, national systems will inevitably come under scrutiny. A uniform European system, implemented as soon as possible, is likely to have a considerable bearing on developments in third countries; and certainly more so, than a disorganized patchwork of national rules without an overarching system of monitoring.

The global aspects of supply chain visibility deem a Community framework necessary.

- 2.38.** *There are many reasons militating for Community rules on supply chain visibility. Indeed, there appears to be no reason why there should not be a Community framework.*

..... and the future ?

- 2.39.** There is general agreement that, in view of size and complexity of the markets, achieving high levels of supply chain visibility can only be a long-term objective.

- 2.40.** The first step is voluntary although a 'EU SCV node' will enjoy certain facilitations provided it complies with a series of specific decentralized data sharing relevant requirements. This framework encourages the supply chain operators to introduce visibility management systems into their operations, but equally puts the industry on notice.

- 2.41.** Future steps will depend on how the market accepts the Community framework and on future visibility developments.

In the best-case scenario – wide acceptance by relevant operators –, refinement of the standards, including updating to take account of technological developments, may prove the most appropriate course of subsequent action.

In the worst-case scenario – wide non-acceptance by relevant operators -, it may become necessary to introduce stringent obligations on all operators.

In either case, developments may show that certain elements, in particular those which a majority of operators apply but where a minority believe to draw competitive advantages by not applying them, may require specific legislation so as to impose minimum standards.

- 2.42.** *Supply chain visibility will be an evolutionary process. Future Community measures will be influenced by the level at which operators avail themselves of the newly-introduced 'EU SCV node' scheme.*

3. Conclusion

The [Commission considers that a first step to improve the visibility of the supply chain in its entirety is needed. In view of size and complexities in the market, a voluntary, but controlled framework, comparable to, but further developed from, existing schemes for the implementation of the electronic Freight Transport Initiative (eFTI), European Maritime Single Window environment (EMSWe) and Union Customs Code and in coherence with the developments of the EC data policy – not in the least the European Mobility Data Space - is the most appropriate course of action.

The framework has to be set in place and can be further developed over time in accordance with the assessed non-visibility risks and the level of acceptance by the commercial operators. It encourages supply chain operators to introduce new and improve existing visibility management tools in accordance with specific minimum requirements and a migration path.

The voluntary element is underpinned by practical advantages in the emergence of new business models through data sharing practices in a trusted environment, visibility controls, including those carried out by customs.

The proposal does not rule out stringent measures if it is shown that the market does not accept the proposed approach.

On a legislative level, a proposal for a regulation is enclosed.

SKETCH FOR A POSSIBLE EXPLANATORY MEMORANDUM

1) CONTEXT OF THE PROPOSAL

- **Grounds for and objectives of the proposal**

In various legal acts – electronic Freight Transport Initiative (eFTI), European Maritime Single Window environment (EMSWe) and Union Customs Code - the EU Council and Parliament identified data driven logistics and freight transport as a key area. The EC also identified this in its Green Deal, Data policy, Circular Economy, and the Smart and Sustainable Transport Strategy initiatives. It therefore called for the strengthening of all forms of transport systems, including the enhancement of the legal framework and the improvement of mechanisms to promote paperless transport and decentralize real-time data sharing for supply chain optimization.

- **General context**

European transport visibility has already seen considerable recent improvements: the simplification of port formality reporting (EMSWe), the use of data for administrative procedures in intermodal transport operations, and data-based compliance procedures in surface transport (eFTI) have been given a European framework; Customs, maritime and port terminal visibility are strengthened. Various initiatives to promote the use of data in all transport modes are ongoing.

There are currently no visibility rules in place for the supply chain in its entirety which is defined as comprising all the operations and processes beginning at the manufacturing site and ending at the cargo's point of destination.

- **Existing provisions in the area of the proposal**

There are no existing provisions in the area of the proposal.

- **Consistency with other policies and objectives of the Union**

The proposal links up with existing transport legislation aimed at digitization. It furthermore ensures that the internal transport market is not jeopardized by varying national supply chain visibility measures in that it establishes a common framework and an obligation by Member States to recognize an 'EU SCV node' status granted by an individual Member State, on the basis of a common European standard and underpinned by Commission inspections. The proposal is furthermore compatible with the visibility measures at the external borders with are being put into place by DG TAXUD and national customs authorities. Although there are currently no multilateral supply chain visibility rules for international trade, this proposal is compatible with work currently carried out in international organisations, such as the World Customs Union (WCO), IMO and UN ECEFACT. The proposal forms part of the Commission's programme towards an EU Transport and Digital Single Market

2) CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

- **Consultation of interested parties**

Consultation methods, main sectors targeted and general profile of respondents.

Between 2019-2023, 5 Member States, transport industry associations and other associations with a particular interest in transport and digitization, e.g., trade associations, were consulted on a basis of stakeholder engagement in the FEDeRATED project. Respondents represent a cross-section of industries both directly and indirectly concerned by transport visibility.

Summary of responses and how they have been taken into account.

The key conclusions of the consultation process can be summarised as follows:

- 1) supply chain visibility has become a serious issue which needs addressing.
- 2) possible EU visibility measures should focus on real-time data exchange mechanism rather than on technical specifications and data sets only;
- 3) digital readiness assessment is important and should be further studied.
- 4) no guarantee for absolute visibility is likely to be achieved in the medium term.
- 5) the measures must reflect the realities of the market.
- 6) any measure should be EU wide to avoid distortion between markets and, as far as feasible, apply to all modes.
- 7) a harmonizing and decentralized EU approach for effective and similar control between various organisations and traders is appreciated, aimed at realizing a systematic approach.

These key conclusions, which are in line with the Commission Sustainable and Smart transport and Data policy approaches to make optimal use of the opportunities data provide for EU businesses, form the bedrock of the Commission's proposal.

Various studies have been conducted in EU Member States The results are available – to mention a few - on (click on) [Caas Stakeholder Engagement \(federatedplatforms.eu\)](https://federatedplatforms.eu) and [Digital readiness NL market survey 2021 \(federatedplatforms.eu\)](https://federatedplatforms.eu)

An open EU consultation still needs to be conducted.

- **Collection and use of expertise**

There was no need for external expertise at this preparatory stage.

- **Impact assessment**

The proposal does not contain any obligatory measures for supply chain operators. The proposed system of 'EU SCV node' is voluntary; its users can expect to benefit from facilitations in data-based compliance procedures and simplification of customs controls as well as portraying by themselves as operators with high visibility standards to those supply chain partners which require such standards. Other operators which believe that their activities do not require high visibility standards may decide not to avail themselves of the new system.

It was considered whether a more intensive approach should be chosen, in particular, one which would have brought the supply chain visibility level to the visibility levels developed within propriety data platforms. However, the size of the supply chain with more than one million operators, large and small, as well as the variety of their operations, including local ones, many of which are unlikely to be targeted, make a comparable system impracticable. Instead, the proposed approach allows for operators to move ahead at a speed chosen by them whilst showing to the market as a whole that digital competence and the capacity to seamlessly exchange real-time data in a transparent manner will over time and under market pressure become an essential tool at operator level.

Experience in other transport areas indicates that compliance with certain data-based rules in fact increases the effectiveness and competitiveness of operators. Similar results can be expected over time of the application of the 'EU SVC node' approach which would support the Commission's data and transport policy.

The proposal contains a Commission obligation to inspect its implementation to ensure a harmonised Community wide implementation.

3) LEGAL ELEMENTS OF THE PROPOSAL

- **Summary of the proposed action**

The Commission proposes that the European Parliament and the Council should adopt as soon as possible this regulation on enhancing supply chain visibility. The proposal complements other transport data procedure (visibility) measures already in place.

The measures required for enhancing supply chain visibility would follow these principles:

- supply chain visibility can only be achieved through awareness, digital competence, stakeholder engagement and IT management.
- supply chain visibility complements a wide range of policy initiatives already in place in the fields of sustainability, transportation, Customs and transparency, i.e. Digital Product Passport and social corporate responsibility accounting within the framework of the EU Green Deal policy;
- a voluntary framework contains minimum conditions which operators in four identified categories of supply chain operations must comply with in order to be awarded the status of 'EU SCV node';
- a 'EU SCV node' will benefit from facilitations in relation to eFTI, EMSWe, simplification and enhanced digitization of customs controls, legal ESG measuring mechanisms and will enjoy enhanced standing with its commercial partners;
- Member States shall designate a competent visibility authority for granting the 'EU SCV node' status. They may appoint recognized certification organisations for this purpose provided these fulfil certain specified conditions.
- Member States shall appoint a national focal point for supply chain visibility to provide the necessary communication both to other Member States and to the Commission;
- award by a Member State's authorities of an 'EU SCV node' status shall be recognised by other Member States' authorities.
- a procedure for the adaptation of the provisions to technical change is laid down.

- **Legal basis**

Article 4,2g and title VI (articles 90-100) of the Treaty.

- **Subsidiarity principle**

The subsidiarity principle applies insofar as the proposal does not fall under the exclusive competence of the Community.

The objectives of the proposal cannot be sufficiently achieved by the Member States for the following reasons.

The European Union has made seamless multimodal freight transport operations one of its key facilitators to implement its policies. Transport and cargo visibility is no exception. The Council identified digital transport as an area requiring special measures/attention:

"The Council calls for the application of digital by default to enable strengthening of all forms of transport systems, including the enhancement of an overarching EU legal framework and the improvement of interoperability".¹⁵

The completion of the common transport market coupled with the Treaty's four freedoms requires a common European approach to supply chain visibility. Operators, industry and society as a whole would not accept a multitude of different national supply chain visibility systems. Such approach would risk recreating internal borders.

Isolated initiatives taken by one or more Member States and resulting necessarily in diverse visibility levels within Member States would inevitably be interpreted by Europe's third Countries trading partners as unwillingness to structurally address visibility issues or would be used to play off one Member State against another.

Community action will better achieve the objectives of the proposal for the following reasons.

Common Community action will avoid these unwelcome consequences. The proposal creates a European-wide framework with identical minimum requirements for operators of all Member States. Once certified as fulfilling these requirements, the operators will benefit from such certification in all Member States: the common transport market remains fully intact.

Maintaining a satisfactory visibility level of the transport market has desirable repercussions on the common markets for manufactured goods and related services. Indeed, as lack of information can seriously harm the economy, any measures leading to a retrograde step from the common market would be seen as jeopardizing the objective of an EU common digital market. The proposal maintains the free flow of trade whilst immediately increasing visibility levels and data management by those operators willing to do so and increases awareness and competences for all operators of the supply chain.

The proposal, which strikes a balance between the optimal, but unrealistic model of highly prescriptive total visibility and the need to ensure a free flow of trade whilst allowing for a gradual tightening of baseline standards, covers a vast market: at least half a million transport related operators plus an effectively unlimited number of manufacturers and dealers. Specific national visibility rules for a market of, e.g., 100.000 operators which operate both domestically and elsewhere in the Community where, in another Member State of maybe equally 100.000 operators, different visibility rules apply would impose an unacceptable burden on operators and run counter to the objectives of the Lisbon agenda.

Only a common Community approach will maintain a common visibility approach for the supply chain and avoid re-nationalising supply chain visibility.

¹⁵ Transport Council, Declaration on Digital Transport Strategy, 5 December 2017

This proposal is limited to what is necessary for a Community-wide framework: an identical approach, voluntary in nature but clearly pointing to the necessity of increasing visibility management by all supply chain operators; common minimum standards for the groups of operators working in the supply chain; mutual recognition of 'EU SCV node' status thus allowing all 'EU SCV nodes' to benefit from facilitations and simplification implemented at national level and avoiding the risk of discrimination; a system that complements existing Community customs rules; harmonised application through Commission inspections which assure Member States of a Community wide satisfactory application of the rules.

The proposal therefore complies with the subsidiarity principle.

- **Proportionality principle**

The proposal complies with the proportionality principle for the following reasons.

The proposal does not go further than what is possible and necessary. It avoids highly prescriptive measures on a large scale whose implementation and control by Member States would have been extremely difficult, if not impossible. But it invites operators to invest in supply chain visibility knowing that their investment is in line with Europe-wide uniform requirements and offers the volunteers facilitations for visibility related controls.

Whilst Member States, through the Council, have acknowledged the necessity to improve supply chain visibility, the proposal in fact offers what is widely believed to be the best short-term realistic approach.

Its costs are small: In addition to the already ongoing Community investments in the eFTI implementation and delegation acts, the Community would only have to bear the Commission's study and governance costs. Member States would have to set up a system of awarding 'EU SCV node' status for which they could rely on already existing practices in data-based logistics. They may use the practical assistance of recognised certification organisations. They may wish to decide to make the award procedure cost neutral. Regional and local authorities are not involved unless a Member State decides otherwise. Operators wishing to invest in visibility measures will now know that their investments are in line with Community-wide requirements. On previous experience with visibility measures in other fields, it is not excluded that these investments will be recouped through use of facilitations, internal productivity and efficiency gains and brand protection.

- **Choice of instruments**

Proposed instruments: Regulation.

Other means would not be adequate for the following reasons.

It was considered whether the Commission initiative should be proposed in the form of a Regulation or a Directive. The choice of Regulation is fully in line with current EU data-based transport initiatives: eFTI and EMSWe. It is furthermore in line with the ESG (ecology, societal and governance) legislative initiatives and the Custom legislation which it may complement where the supply chains meet the requirements of these legal acts.

Taken in isolation, the proposal is very simple; there is no need for general objectives and principles which could be filled out by Member States. The key elements can be implemented immediately to remedy an unsatisfactory visibility situation and, if based on a Regulation, without national implementing legislation.

A Regulation was therefore the most appropriate choice.

4) BUDGETARY IMPLICATION

Budgetary implications for the Community are minimal: a Commission overall governance structure could be fulfilled with 3 people.

5) ADDITIONAL INFORMATION

- **European Economic Area**

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.

SKETCH FOR A POSSIBLE

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on enhancing supply chain visibility

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 91 and Article 100(2) thereof,

Having ..

Having ..

Having ...

Having...

Acting in accordance with the ordinary legislative procedure

Whereas:

- (1) Supply chain visibility is among the greatest challenges to the development of an EU sustainability and smart transport agenda requiring data transparency to comply with legislation in a systematic approach.
- (2) The supply chain should be protected against lack of information incidents. Such protection would benefit transport users, the economy and the society as a whole.
- (3) The European Transport Council called for “Member States, stakeholders and EU bodies to make more transport-related nonpersonal data and, where appropriate, anonymised data, including real-time data, openly available and re-useable in a non-discriminatory manner to all service providers and users in order to enable efficient traffic management, new digital services and business models;”¹⁶.
- (4) European Transport visibility has already seen improvements in Customs, intermodal transport, and maritime transport. Further improvements can soon be expected with the adoption of delegated and implementing acts of the eFTI and EMSWe.
- (5) Supply chain visibility levels for the combined operations remain unsatisfactory without Community rules in place.
- (6) It is necessary to improve the visibility level of the European supply chain. This should be achieved by adopting appropriate measures without prejudice to the rules of the Member States in the fields of national visibility, data management and measures which might be taken on the basis of Title VI of the Treaty on the European Union.
- (7) Any measure must take account of the supply chain markets which are characterised by a vast number of operators and operating models.

¹⁶ EU Declaration on Digital Transport of 5 December 2017 [pdf \(europa.eu\)](#)

- (8) Any measure should ensure a free flow of trade whilst allowing for a tightening of baseline visibility standards.
- (9) Member States should introduce a system under which they award the status of “EU SVC node” to operators participating in the supply chain provided these operators fulfil certain minimum visibility standards.
- (10) Supply chain operators fall into one of the following groups: preparation and shipment of goods from production site; transport of goods; forwarding of goods; warehousing; storage and inland terminal operations.
- (11) The minimum visibility standards should be specified for each of the groups of supply chain operators.
- (12) A “EU SCV node” may avail itself of facilitations granted in the areas of visibility control as well as simplifications provided by customs. It would furthermore be able to demonstrate to the market its ability to keep the supply chain free from security breaches.
- (13) Member States shall ensure that awarded “EU SCV node” be known to other Member States’ authorities and the Commission and discoverable between each other.
- (14) The “EU SCV Node” status shall be recognised throughout the European Union but can be withdrawn by the Member States which awarded it in case the operator is found to be in serious breach of the conditions under which it was awarded. The status shall be limited in time but renewable. A provision for suspension of the “EU SCV Node” status allows operators to remedy breaches of the conditions under which the status was awarded.
- (15) Member States may appoint recognized certification or data-authority organisations for the purpose of assessing whether an applicant “EU SCV Node” fulfils the required conditions.
- (16) Member States shall appoint a competent authority for supply chain visibility issues.
- (17) Member States should ensure that a focal point takes up the role of contact point between the Commission and the Member States.
- (18) Member States should monitor the implementation among supply chain operators. The effectiveness of the implementation monitoring should be the subject of validation by the Commission executed through a Committee Procedure, assisted by the EU Digital Logistics Transport Forum (DTLF) in consultation with the EU Mobility Data Space initiative.
- (19) The measures needed to implement this Regulation should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission¹⁷. A procedure should be defined for the adaptation of this Regulation to take account of developments in international instruments and, in the light of experience, to adapt or complement the detailed provisions of the Annexes to this Regulation, without changing the scope of this Regulation.
- (20) The objectives of the proposed action, namely the introduction of a common approach to supply chain visibility, a common system of “EU SCV Nodes” and the necessity to ensure recognition of a nationally awarded “EU SCV Node” status throughout the entire common transport market, can by reason of the European scale of this Regulation, be

¹⁷ OJ L 184, 17.07.1999, p.23

better achieved at Community level. Therefore, the Community may adopt measures in accordance with the principle of subsidiarity set out in Article 5 of the Treaty. In accordance with the principle of proportionality set out in that Article, this regulation is limited to the basic joint standards required to achieve the objectives of supply chain visibility and does not go beyond what is necessary for that purpose.

HAVE ADOPTED THIS REGULATION:

Article 1

Subject-matter

1. The main objective of this Regulation is to introduce and implement Community measures aimed at enhancing visibility of the supply chain in the face of the urge for more transparency to achieve sustainability goals and supply chain optimization.
2. The measures referred to in paragraph 1 shall consist of:
 - a) the setting up of a system by Member States which enables them to award the status of “EU Supply Chain Visibility node” to (EU SVC Node) operators participating in the supply chain;
 - b) the setting of minimum visibility standards which operators have to fulfil before they can be awarded the status of “EU SCV node”;
 - c) the setting up of appropriate compliance monitoring mechanisms.

Article 2

Scope

1. This Regulation addresses supply chain visibility.
2. For the purpose of this Regulation, supply chain means the entirety of the processes and operators involved in the preparation for transport and the transport of goods from the production site to the point of delivery.
3. The measures laid down in this Regulation shall apply to any operator established in the Community and involved in one of the following activities:
 - a) preparation of goods for shipment and their shipment from the production site;
 - b) transport of goods;
 - c) forwarding of goods;
 - d) warehousing, storage or (inland) terminal operations;
 - e) legal compliance enforcement and inspection.
4. In their respective fields of operation, measures taken in compliance with the following rules shall take precedence over the measures laid down under this Regulation:
 - a) Community rules on EMSWe ¹⁸

¹⁸ Regulation (EU) 2019/1239 of the European Parliament and of the Council of 20 June 2019 establishing a European Maritime Single Window environment and repealing Directive 2010/65/EU OJ L 198, 25.7.2019, p. 64–87

- b) Community rules on eFTI rules¹⁹
- c) Community and international rules on the transport of dangerous goods²⁰ and nuclear material.²¹
- d) Community customs rules²²
- e) Community rules on Data Governance²³
- f) Community Rules on Data Protection
- g) Upcoming Community Rules on the Circular Economy²⁴
- h) Upcoming Community rules on the Data Act²⁵

Article 3

Competent Authority

Member States shall designate a competent authority for supply chain visibility to coordinate, implement and monitor the application of supply chain visibility measures laid down in this Regulation.

Article 4

'EU Visibility node'

1. Member States shall establish a regime to award a "EU SCV node" status to operators involved in the supply chain.
2. An operator may make an application to be awarded the 'EU SCV node' status provided it offers services in one or more parts of the supply chain, i.e.: the preparation of goods for shipment and their shipment from the production site; the transport of goods; the forwarding of goods; warehousing, storage or inland terminal operations.
3. By the awarded 'EU SCV node' status, an operator demonstrates to its clients, its supply chain partners and to the authorities responsible for supply chain visibility, its ability to make the data under its part of the supply chain available for use by any other EU SCV node based on the opportunity for complying to a possible protocol.

¹⁹ Regulation (EU). No 2020/1056 of the European Parliament and of the Council of 15 July 2020 on electronic freight transport information OJ L 249, 31.7.2

²⁰ Council Directive 94/55/EC of 21 November 1994, as amended, on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road - OJ No L 319, 12.12.1994, p. 7.

Council Directive 96/49/EC of 23 July 1996 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by rail - OJ No L 235, 17.9.1996, p. 25

Council Directive 1999/36/EC of 29 April 1999 on transportable pressure equipment - OJ No L 138, 1.6.1999, p. 20

²¹ EC Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources and The "shipments" Directive or (Proposal of) "Directive du Conseil relative à la surveillance et au contrôle des transferts des déchets radioactifs et de combustible irradié COM(2004)716", and the International Convention on Physical Protection

²² Council Regulation (EEC) 2913/92 of 12 October 1992 establishing the Community Customs Code

²³ Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act OJ L 152, 3.6.2022, p 1-22

²⁴ In 2023, the Commission revised the [circular economy monitoring framework](#), previously adopted in 2018.

²⁵ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on harmonised rules on fair access to and use of data (Data Act) COM/2022/68 final

4. The 'EU SCV node' status awarded in one Member State shall be recognised by the authorities in all Member States.

Article 5

Award of status

1. An operator shall be awarded the 'EU SCV node' status if it shows that
 - a) it has established, implemented, maintained and documented an IT management system;
 - b) it ensures the availability of resources to countervail possible risks to that part of the supply chain for which it bears responsibility.
 - c) its IT Management system ensures continuous improvements;
 - d) it meets the specific requirements as provided in the annexes.
2. The 'EU SCV node' status shall be awarded for periods of 3 years.

Article 6

Withdrawal or suspension of status

1. Member States shall introduce rules which allow for the withdrawal of 'EU SCV node' status where the operator is found to be in serious or repeated breach of the conditions under which the status was awarded.
2. The 'EU SCV node' status can also be withdrawn due to implementation and conformity checks carried out according to article 9.
3. Where the 'EU SCV node' status is withdrawn, the operator can only re-apply after 2 years.
4. The 'EU SCV node' status can also be suspended when there are other breaches of the conditions under which the status was awarded.
5. The suspension will be withdrawn within a period of 60 days when the competent authority is satisfied that the breaches have been remedied.

Article 7

Award procedures

1. The competent authority shall be responsible for awarding the "EU SCV node" status. Member States shall establish a register of all "EU SCV node". The register shall be accessible to the Member States' competent authorities and the focal points as well as the Commission.
2. Each "EU SCV node" shall be given an identification number beginning with the Member State's country code.
3. Member States may appoint recognised certification or data authority organisations for the purpose referred to in paragraph 1. The organisations shall fulfil the conditions set out in Annex 5.

Article 8

Focal point for supply chain visibility

1. Member States shall appoint a focal point for supply chain visibility.
2. The focal point's function is to serve as contact point for the Commission and other Member States and to facilitate, follow and inform on the application of supply chain visibility measures.

Article 9

Implementation and conformity checking

1. Member States shall set up a system ensuring adequate and regular supervision of the recognised visibility organisations and the procedures leading to the award of 'EU SCV node' status.
2. Six months after the date referred to in Article 12, the Commission, in co-operation with the focal points referred to in Article 8 and the organisations referred to in Article 10, shall start a EU SCV Node change management Board, to update the requirements set in the Annexes 1 – 4 and monitor the application by Member States of this Regulation and the progress achieved towards companies participation. The progress to be identified shall take account of the data supplied by the focal points, including monitoring reports.

Article 10

Adaptations

The provisions of the Annexes may be amended or supplemented by detailed technical requirements in accordance with the procedure referred to in Article 9, without changing the scope of this Regulation.

Article 11

Committee procedure

1. The Commission shall be assisted by the EU Digital Transport and Logistics Forum (DTLF) in consultation with the EU Data Spaces policy initiatives.

Article 12

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, [...]

For the European Parliament
The President
[...]

For the Council
The President
[...]

ANNEX 1

Semantics

(enabling operators to communicate in a common language based on linked data)

For an operator to be awarded the status of 'EU SCV node', its IT management system must be provided for the opportunity to relate to:

- Semantic model – structuring semantics of data that can be shared.
- Interaction patterns addressing process aspects – sequencing of interactions for a given business activity (e.g. transport) or compliance to regulations.
- Data carriers/standards/syntax – the actual structuring (syntax) by a technology (e.g. message structures and APIs) for sharing data.

Semantics itself must be machine-readable with open standards. Those are the semantic web standards like Ontology Web Language (OWL), Resource Description Framework (RDF), and SHaPE Constraint Language (SHACL).

More in specific about the various functionalities:

Semantic model
Specification of the data that can be shared by all stakeholders. The specification can be based on different models that may take various forms, e.g. an ontology, a class diagram, or a hierarchical structure (similar to XML structures)
Interaction pattern
The structured sequence of interactions. There are different options: <ul style="list-style-type: none">• There is only a single interaction (e.g. a data representation of a business document)• Sequencing is represented by sequence diagrams for the use case (chain)• Sequence diagrams for any two stakeholders• Support of (part of the) normal operation, for instance booking, ordering, and/or visibility Interaction patterns can also be specific to a particular business activity like transport of containers by rail.
Model alignment – or mapping
A model can be aligned or mapped to the FEDerATED semantic model. Alignment is achieved via a representation of a business case as ontology, most probably as a manual exercise. Mapping can be supported by technical components like a mapping tool and a semantic adapter.
Access policy specification
In case of a data pull an access policy is required. . As such they are specified by the individual interactions taking the relevant parts of the semantic model that is applied. In case of data push, no specific access policy is required. The syntax and technology (messaging, (open/webhook) APIs (Application Programming Interfaces) with JSON(-LD)

(Java Script Object Notation – Linked Data), semantic web protocols (SPARQL (Standard Protocol and RDF Query Language), RDF (Resource Description Framework))) used for sharing data.

Interorganizational profile

The capability to specify and publish the organizational profile of a user. An organizational profile must refer to the applicable interactions, which could be formulated by APIs or standards applied for data carriers.

The capabilities must be accessible for rapid on-boarding and upscaling of a use case to new users.

Data sharing syntax

The syntax applied for sharing data. The options are: XML, EDI(fact), JSON(-LD), RDF, or a proprietary format.

Data sharing technology

Identification of the technology to share data messaging, (open/webhook) APIs, etc. In case APIs are applied, the toolset to publish an organizational profile will be probably an environment like Swagger.

Data carrier/standard

Use of an (open/de facto) standard for sharing data. This can be any standard (GS1, UN CEFACT, other) and/or a specific implementation guide of a standard (e.g. UN CEFACT eCMR, DCSA eB/L, etc.).

Data transformation

A technical component that transforms data between an external syntax/data carrier to another, where the latter is mostly an internal format. The semantic adapter is a specific implementation where RDF is used as external format and needs to be integrated with existing standards, technology, or databases. This can be via so-called RDF plugins, RML (Rule Markup Language) tools, etc.

Data mapping tools

A technical component to configure data transformation. Data transformation can be supported by mapping tools. Examples are those provided by integration brokers/enterprise service busses; others are so-called RML mappers. LLM (Large Language Models) can also be considered, although they are still in an experimental phase.

Graphical user interface (GUI)

A technical component for presentation of data presentation to a human. A (temporary) GUI might be provided in case full integration with existing IT systems is not yet feasible. The GUI will include data validation functionality.

ANNEX 2

Service Registry

(enabling operators discoverability)

For an operator to be awarded the status of 'EU SCV node', its IT management system must be able to access or provide for a Service Registry. A Service Registry enables any organization:

- to specify its data requirements and
- to define and publish its business services for discoverability.

The following functionalities are identified:

Modelling toolset

The technical component(s) applied for designing semantics and interaction patterns. These can be any type of modelling tool. Special attention needs to be given to capabilities for import/export of models by open standards.

Toolset to construct and publish an organisational profile

The technical component(s) for a user to configure and publish its organizational profile. These tools should refer to capabilities like import/export of models and must support open standards.

An openAPI environment like Swagger can be an example of publishing openAPIs with their endpoints.

ANNEX 3

Identification, Authentication and Authorisation (IAA) (providing operators visibility)

For an operator to be awarded the status of 'EU SCV node', its IT management system must be capable to provide for trust while accessing to (links to) data through IAA mechanisms. The data is business data (e.g., order data), a design, or an organization profile.

IAA relates to authorisation of users, i.e. employees of a participant, and architectural components (Service Registry and Index) that provide (access to) data. Safe and secure data transfer is addressed separately by connectivity protocols for the Index between the collaborating partners (B2A, A2B, B2B);

The following functionalities are identified:

Identification and authentication

Unique identification and authentication of users (organisations). Use of open standards like OAUTH2.1, Verifiable Credentials (VCs) and Decentralised Identities (DIDs), JWT (JSON Web Tokens), or others.

Authorisation

The right to access data and use functionality. This relates to access policies (see before) and is supported by index functionality like event storage and - distribution. In case an event storage and - distribution are not implemented by a technical component, authorisation must be defined separately.

Distributed versus centralised

A single Identification and Authentication mechanism for a use case or utilizing IAM (Identity and Access Management) systems of users via an Identity Broker

There are different approaches that can be followed. VCs/DIDs are distributed; FENIX proposes limited centralized governance (issuing identities); iSHARE has an Identity Broker for identifying satellites (IAM registries of for instance a platform); a Corda based implementation has a central component for issuing identities.

ANNEX 4

Index

(enabling operators to present their business process data in a readable format)

For an operator to be awarded the status of 'EU SCV node', its IT management system must be able to facilitate a data pull by sharing events with links to data. At any moment, a data user can decide to access this data. In case data access is immediately after receiving an event, the protocol acts as a data push (messaging, data duplication). Links may not be present in events, e.g. visibility events mostly are for a means of transport or cargo and do not have links to additional data.

An index of an organization contains all events (with links to data) send as data holder with other organizations and received as data user from data holders.

The functionality consists of the following components:

Event storage
A users' view of events that are received from or send to other users. Event storage is required in case events have links to additional (upstream) data. It supports data provenance and authorization. Event storage can be part of a log and audit trail for non-repudiation.
Data validation
The capability to validate incoming or outgoing data against the agreed semantics. Validation of data sets against agreed standards can be implemented by for instance SHACL, XML, or JSON(-LD) structures applied at business level internal.
Event distribution
Rules for sharing events with another user. Event distribution can be implemented in different ways, for instance based on a legal obligation (mandatory) or a commercial relation (dynamic configuration). A user may apply publish/subscribe, where the subscription is configured by the one that publishes the events.
Event logic
Validation of agreed interaction sequencing. Validation is only applicable in case multiple interactions and their sequencing is defined
Authorization
The right to access data and use functionality This is about data provenance: links to data are passed between stakeholders and need to be accessible downstream. Delegation might be a mechanism for avoiding query federation, but it is considered to be static.
Query federation
Access to data by a data user via an intermediary acting as data holder to the data user. This is about data provenance: links to data are passed between stakeholders and need to

be accessible downstream. Delegation might be a mechanism for avoiding query federation, but it is considered to be static.

Connectivity

The technical capability for reliable, safe, and secure data sharing using a System Security Protocol. Current list of connectivity protocols: FENIX connector protocol, IDSA connector protocol, EDS (Eclipse Data Space) connector of GAIA-X, a large variety of blockchain protocols (e.g. Corda, Hyperledger Fabric, and Baseline protocol), and AS4 implemented by CEF eDelivery. Although the connectivity protocol is the external agreed one, it can differ from protocols that are internally supported by a user.

Connectivity component

The technical component (and its vendor or open source/freeware) implementation. The same connectivity agreement can be implemented by different technical components that are not necessarily interoperable (e.g. an IDSA connector is not interoperable with the EDS (Eclipse Data Space) connector implementing the same protocol). Also, different components implementing the same protocol in the same way are not necessarily interoperable.

Non-repudiation

The immutable proof that data is shared. An implementation is by a log and an audit trail. It contains all data that is shared according to the presentation protocol (events, messages, queries, etc.).

Although there may not be a specific connectivity protocol, there may still be a log and audit trail.

Internal connectivity

The connectivity between various stakeholders should be supported by an individual user. In case an external agreed protocol is implemented, this might not be supported by existing systems and solutions. For instance, APIs using https may have to be mapped to the eDelivery or IDS protocol.

System security

The safe and secure sharing of data with PKI certificates, utilizing standard protocols (e.g. https, TLS).

ANNEX 5

Conditions to be fulfilled by a recognised visibility organisation

A recognised visibility organisation should be able to demonstrate:

- Expertise in relevant aspects of supply chain visibility;
- An appropriate knowledge of supply chain operations, including knowledge of operational requirements;
- An appropriate knowledge of other data relevant operations potentially affecting supply chain visibility;
- The capability to assess the likely supply chain visibility risks;
- The ability to maintain and improve the supply chain visibility expertise of its personnel;
- The ability to monitor the continuing trustworthiness of its personnel;
- The ability to maintain appropriate measures to avoid unauthorised disclosure of, or access to, security-sensitive material;
- The knowledge of relevant national and international legislation and data visibility requirements;
- The knowledge of current visibility threats and patterns;
- The knowledge of techniques used to circumvent visibility measures;
- The knowledge of visibility and surveillance equipment and systems and their operational limitations.

**SKETCH FOR A POSSIBLE
LEGISLATIVE FINANCIAL STATEMENT**

Policy area(s): Inland, air and maritime transport policy, and data strategy Activit(y/ies): Implementation of supply chain visibility measures and the governance and monitoring thereof
TITLE OF ACTION: REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON ENHANCING SUPPLY CHAIN VISIBILITY

1-4

5. DESCRIPTION AND GROUNDS

5.1 Need for Community intervention²⁶

5.1.1 Objectives pursued

The European Union has in recent years made considerable progress to enhance visibility to countervail supply chain vulnerability due to lack of information. European data-based legislation is in place for various transport modes and Customs. Legislation on eFTI and EMSWe has recently passed the legislative process and is undergoing the phase of implementing and delegating acts.

There is no European legislation covering the supply chain outside the areas referred to above. In its December 5, 2017, the European Council called for “to make real-time data, openly available and re-useable in a non-discriminatory manner to all service providers and users in order to enable efficient traffic management, new digital services and business mode.”

This proposal is in reply to the identified needs and the Council’s request.

5.1.2 Measures taken in connection with ex ante evaluation

Between 2015-2023 a consultation process took place within EU DTLF and the FEDeRATED project, from 2019 onwards. Within this process, the focus of possible EU measures to enhance supply chain visibility was developed and was verified with a number of Member States and stakeholders.

The consultation process and the impact assessment indicate that EU measures should take account of the following:

1. Supply chain visibility is about listing current barriers for collaboration and seamless transport operations. Visibility risks relate to cargo, transport modes and infrastructure. Total visibility can never be guaranteed by public authorities.

²⁶ For further information, see separate explanatory note.

2. Many companies are increasingly implementing their own visibility standards. Their supply chain partners have to adjust to these procedures. The transport service providers and other suppliers who work for a number of clients may face being subjected to multiple assessments, which is unnecessary, disruptive and costly.
3. The challenge is to reach the highest possible level of visibility for the supply chain without jeopardizing trade whilst keeping administrative requirements to a minimum.
4. Public authorities and industry need to co-operate to enhance supply chain visibility. The guiding principle is that operators that voluntarily comply with certain requirements and which have been vetted by the authorities should benefit from certain facilitations and simplifications.
5. A uniform supply chain framework approach will reduce visibility related competition within EU boundaries. Certification of companies might be an option.
6. Commission inspection of the national systems is conditional for maintaining and safeguarding a level playing field of freight transport operations in the EU. Inspections should be regular and neutral.

5.1.3 Measures taken following ex post evaluation

The Commission intends to commission a study to evaluate the impact and the effectiveness of the measures adopted. Such a study should be conducted in 2026, and then every three years.

5.2 Actions envisaged and budget intervention arrangements.

The Regulation requires each Member State to set up a system of awarding 'EU SCV Node' status to supply chain operators, which fulfil the minimum conditions set out in the annexes to the Regulation. Member States should set up national supply chain focal point.

Member States may appoint a specialised so-called 'recognized visibility organisation' to perform the above-mentioned task.

As the overall Community scheme must be consistent to ensure its reliability at EU level, the Commission is called on to carry out inspections to verify the various aspects of the national procedures to award and maintain the 'EU SCV Node' status.

6. FINANCIAL IMPACT

6.1 Total financial impact on Part B (over the entire programming period)

6.1.1 Financial intervention

The Commission intends to commission a study to evaluate the impact and the effectiveness of the measures adopted. Such a study should be conducted in 20??, and then every three years. Such regular evaluation is necessary to enable the Commission to propose, via the committee procedure, any adjustments to the proposed system which might prove necessary. The unit cost of each study is estimated at €??

7. IMPACT ON STAFF AND ADMINISTRATIVE EXPENDITURE

7.1 Impact on human resources

This Regulation requires compliance monitoring through the EU Digital Transport and Logistics Forum, possibly in connection to the EU Mobility Data Spaces initiative - between EC and with the EU Member States. A connection to private companies will be developed.

7.2 Overall financial impact of human resources

7.3 Other administrative expenditure deriving from the action

8. FOLLOW-UP AND EVALUATION

8.1 Follow-up arrangements

Follow-up arrangements will be adopted involving monitoring and consultation procedures in the Member States and periodic impact studies.

8.2 Arrangements and schedule for the planned evaluation

The Commission intends to launch a study to evaluate the impact and the effectiveness of the measures adopted. Such a study should be conducted in year N+2, and then every three years.

9. ANTI-FRAUD MEASURES

SKECTH FOR A POSSIBLE IMPACT ASSESSMENT FORM

THE IMPACT OF THE PROPOSAL ON BUSINESS WITH SPECIAL REFERENCE TO SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

TITLE OF PROPOSAL

Regulation of the European Parliament and of the Council on enhancing supply chain visibility.

DOCUMENT REFERENCE NUMBER

COM (20??)XXXX

THE PROPOSAL

1. Taking account of the principle of subsidiarity, why is Community legislation necessary in this area and what are its main aims?

Community legislation has already been developed for Customs, EMSWe, eFTI, digital passport and numerous ESG proposals (Green Deal, i.e., Circularity and corporate social responsibility) are upcoming. This Regulation will close the visibility gap. Measures covered by this proposal must be applied consistently throughout the Community in order not to offset the EU wide consistency of the measures it intends to complement.

This proposal is in line with the Digital Transport Declaration of the Council of Transport Ministers on 5 December 2017, which called “to make .. real-time data, openly available and re-useable in a non-discriminatory manner to all service providers and users in order to enable efficient traffic management, new digital services and business mode.”

2. Who will be affected by the proposal?

– Which business sectors?

This is a voluntary scheme offering practical advantages to participants. With this provision, the entire supply chain of goods transport is affected, including shippers and manufactures, which package goods for transport, agents, forwarders, terminal and port operators and transport companies.

– What sizes of company (share of small and medium-sized businesses)?

All sizes of company active in the supply chain.

– Are there particular geographical areas of the Community where these businesses are found?

No, all twenty-seven Member States are concerned.

3. What will business have to do to comply with the proposal?

It is a voluntary system. When businesses want to participate, they have to introduce the data sharing capabilities and, where appropriate, acquire the necessary equipment within their operational business procedures. This is according to the EU

minimum requirements set in Article 5 and further elaborated in the Annexes 1 – 4 in the Regulation.

4. What economic effects is the proposal likely to have:

– on employment?

Jobs may be created to perform supply chain related visibility tasks. There will be increased opportunities for specialised IT firms.

– on investment and the creation of new businesses?

Companies opting to take part in this schema and the supply chain may have to acquire the appropriate equipment and human skills and introduce tailor-made visibility procedures. Specialised data service provider firms and third-party certification companies may expand. New services, based on data available, are very likely to emerge.

– on the competitiveness of businesses?

Participants in the scheme could distinguish themselves as attractive business partners in the chain because their high visibility levels. It is generally held that higher visibility levels increase overall efficiency.

5. Does the proposal contain measures to take account of the specific situation of small and medium-sized enterprises (reduced or different requirements, etc.)?

Not directly, but in view of the voluntary approach companies will assess whether they want to comply with the requirements. It is foreseen that the scheme convinces SMEs to set the necessary steps towards data-based logistics and business processes.

CONSULTATION

6. List the organisations which have been consulted about the proposal and outline their main views.

– The Commission has consulted all Member States and all interested industry representatives during its numerous DTLF meetings.

– Various Member States and European organisations representing the supply chain participated in the consultation process of the DTLF CEF FENIX and FEDeRATED processes.

– The consultation clearly indicated a need for EU supply chain visibility measures. This should include transport, freight flows and digital infrastructural issues, to complement existing EU and national legislation and business practices. It was generally felt that the challenge for the EC is to reach the highest possible level of visibility for the supply chain without jeopardizing current business practices, rather create an innovative setting, whilst keeping administrative requirements to a minimum.

– The necessity for a Community approach is widely acknowledged, provided that the measures sufficiently take into account the various structures and diversity of the supply chain.