Proceedings of 7th Transport Research Arena TRA 2018, April 16-19, 2018, Vienna, Austria

The SELIS approach to delivering a 'Platform for Pan-European Logistics Applications'

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Abstract

The sustainability of the logistics sector is challenged by its energy consumption, pressures on GHG emissions, globalisation, increased competition and consumer behaviour changes. In order to address these challenges, logistics actors have started to implement environmentally friendly collaborative strategies addressing supply chain integration, multimodal transport, consolidation of deliveries and reverse logistics. The implementation of such strategies frequently asserts the need for proactive and reactive coordination based on information sharing between collaborating actors, to optimally match supply and demand for logistics resources. However, adoption of advanced collaborative ICT solutions by the logistics sector is hindered by the number of transport management solutions, which yields a fragmented story, where actors have to contend with multiple tools, relationships, and fragmented views of their logistics business which are difficult, or impossible, to unify into one perspective. Further challenges relate to long established practices, multifaceted regulatory requirements and lack of trust. Also, until now, developments have been driven by the business interests of different stakeholders' groups, including shippers, freight forwarders, ports and terminals, different mode carriers, and multiple alliances. This creates overlapping or incompatible technology solutions, with a limited potential to contribute to a Pan-European sustainable logistics landscape.

This paper explores several factors that influence the behaviour of transport and logistics companies in Europe and proposes an innovative "shared intelligence" approach, technology platform and collaborative solution for Pan-European logistics collaboration that is sensitive to supply chain sustainability challenges, yet supportive of existing tooling, systems and augmenting established logistics practices.

Keywords: supply chain collaboration; supply chain integration, multimodal transport, collaborative logistics models, supply chain communities, supply chain intelligence.

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Nomenclature

CLM	Collaborative Logistics Model
EGLS	European Green Logistics Strategies
IoT	Internet of Things
KG	Knowledge Graph
LC	Logistics Community
LL	Living Lab
PI	Physical Internet
SC	Supply Chain
SCN	SELIS Community Node (Shared Collaboration Node)
T&L	Transport and Logistics

1. Introduction

Transport and Logistics (T&L) is a major component of modern production and distribution systems and a key contributor to macroeconomic development, accounting for approximately 10% of Gross National Product (GNP) in developed countries, and even more in less-developed countries (Savy, 2016). Similar to many other industries, the T&L sector is experiencing substantial change (Christopher, 2016). This is part-owed to factors such as globalization, smart specialization, population growth, business competition, and consumer behaviour changes, which are driving demand for products from all over the world (Leinbach et al., 2007 and Clausen et al., 2016). Likewise, customer expectations are moving towards seeing goods delivered faster, with increased flexibility, and at either low or seemingly zero delivery charge. Alongside this, the growth of e-commerce has incited digitalisation in the T&L sector where, over the past decade, technological advances have been exploited and integrated across the T&L value chain as a whole (Tipping and Kauschke, 2016). This, in turn, has driven an increasingly competitive landscape where a growing number of Supply Chain (SC) actors are establishing T&L operations of their own (Manners-Bell, 2016), often differentiating them according to their unique customer segments, with the end goal of achieving more efficient and fine-grained control over their SC performance (as well as better economic, operational and environmental performance).

In parallel with these economic factors, the authors acknowledge that the Physical Internet (PI) concept is starting to gain momentum as the strategic solution for transforming how physical objects are packaged, transported, distributed and delivered (Simmer et al., 2017), and a need to consider (and plan for) this forward trajectory in new T&L research. Significantly, the PI concept entails more open, efficient and sustainable T&L business models with the potential to address T&L inefficiencies experienced today, such as empty journeys, idle times, loading and unloading delays (Montreuil, 2012 and Vetter et al., 2014), thus amplifying the need for progress in SC collaboration across the T&L sector. The PI also anticipates a fundamental redefinition of SC configurations, their associated business models and value-creation patterns through logistical chains that are predicted to become more flexible, dynamic and reconfigurable in real time. Incentivising the PI are new and relevant Internet of Things (IoT) platforms that are starting to emerge, and numerous reports, such as those from DHL and Cisco (Macaulay et al., 2015), predict that IoT will become an integral technology to revolutionise business processes and seamless/autonomic SC collaboration across the entire T&L value chain. Clearly, advances in IoT also represent compelling game-changer opportunities for T&L, suggesting that the combination of PI and IoT represents a formidable, and inevitable, landscape of opportunity to realise collaborative actionable intelligence through insights and predictive analytics derived from information streams and IoT objects. Likewise, in pursuit of optimising logistics operations, improving costs and service quality, and mitigating environmental concerns (Montreuil, 2011), the such concepts anticipate new and innovative technologies to dynamically and flexibly match demand to available logistics resources in collaborative ways, as well as to influence logistics across all segments of the value chain. In line with this brief, the ALICE PI 2050 Roadmap provides a comprehensive approach towards realising the PI, envisioning a sustainable and horizontally integrated European T&L ecosystem that emphasises interconnection, effectiveness and speed, supported by key enabling technologies (Sahoo et al., 2016).

Thus, the evolving T&L landscape sets the scene for creating innovative collaborative and network-inspired functions and services that take into account network status and service level agreements (SLAs) for optimising cargo flows against throughput, cost and environmental factors. These represent key imperatives in the success of logistics-oriented collaborative networks, associated business models, and innovative ways to promote and incite seamless collaborative routing and network-inspired optimisation functions. A key enabler and baseline proposed

for this evolution is a Shared European Logistics Information Intelligent Space (SELIS), that unifies business, technology and capacity across the broader EU T&L sector in support of green, efficient and profitable T&L.

2. SELIS Background and Overview

The Shared European Logistics Information Intelligent Space (SELIS) project has received funding from the EU's Horizon 2020 program and is aimed at delivering a collaborative 'platform for pan-European logistics applications' by embracing a wide spectrum of logistics perspectives, and creating a unifying operational and strategic business innovation agenda for collaborative pan European Green Logistics. The project, currently at the beginning of year two of its three-year implementation plan, has established a strong consortium of logistics stakeholders and ICT providers that are collectively drawing on IP and knowledge from over 40 projects, with the collective end goal of creating a Common Communication and Navigation platform for pan-European logistics applications. These projects include the CORE pipelines (Hesketh, 2015) and e-Freight (2009), iCargo (2015), eMAR (2015), interoperability frameworks and Access Points. Their main focus has been in support for data sharing between business processes and applications introducing 'intelligent connectors', increasing integration automation. In the same space we also see a number of commercial integration technologies and tools (such as Microsoft BizTalk, IBM API Connect, and others).

SELIS builds on integration technologies **with a central focus on SC collaboration** beyond the conceptual and modelling level which has been also addressed by the aforementioned projects. Likewise, the CO3 project (2014) highlights best practices with regards to shipper collaborations (e.g. loads bundling) and special initiatives, such as the Efficient Consumer Response in the UK (ECR) aiming at accelerating SC collaboration. Account is also taken of recent developments of cloud collaboration platforms for logistics service providers such as the Logistics Mall of the Fraunhofer Institute for Material Flow and Logistics (Daniluk et al., 2014) and the Netzwerk Logistik Leipzig-Halle e.V. under the European project LOGICAL (Arnold et al., 2012). Consequently, SELIS embraces a wide spectrum of logistics perspectives, and aims at creating a collaborative and unifying operational and strategic business innovation agenda for pan European Green Logistics, across three key dimensions, namely:

- **European Green Logistics Strategies (EGLS)** and associated **Collaborative Logistics Models (CLMs)** KPIs and 'info sharing' requirements to enable logistics shift from simply controlling goods flows to the integrated management, coordination and control of information, material, financial and energy flows. CLMs form the basis for actionable dynamic models underlying the SELIS decisions support applications enabling Strategic/Operational Optimisation across different Communities of T&L Actors.

- **ICT Innovation in Collaborative Logistics** is based on open source products that are compatible with state of the art commercial and research cloud and big data management middleware platforms and infrastructures to provide a 'lightweight ICT structure' embodying privacy preserving principles to enable information sharing for collaborative sustainable logistics at desired strategic and operational levels. The overarching SELIS objective is to provide a digital platform constituting an 'out of the box' technology, enabling stakeholders in the logistics sector to create and maintain innovative collaborative environments via sharing resources (i.e. services, APIs, and data). Scalable intelligent SCN Delivery technology enables logistics communities to build and deploy their own collaborative applications and services, respective to their business needs and business relationships, with a high level of automation.

- **T&L industry verticals** through industry representative Living Labs aim to demonstrate optimisation of individual company and overall supply chain performance.

Strategically, SELIS aims to be a network of logistic communities' espousing shared secure information intelligent spaces termed SELIS Community Nodes (SCNs), that have configurability, and privacy protecting principles as a central goal, and to enable Strategic and Operational Optimisation across different Communities of T&L Actors.

SCNs are deployed by individual logistics communities to power the next generation of collaborative, responsive and agile green transportation chains. SCNs link with their participants' existing systems through a secure infrastructure that provides shared information and tools for data acquisition, intelligent processing and collaborative exploitation, according to partner 'cooperation agreements'. Connected SCN nodes provide a distributed common communication and navigation platform for Pan European logistics applications, where each node governs what information the platform actors wish to publish and what information participating partners

wish to subscribe to, in turn fulfilling key pre-requisites for SC collaboration.
The SELIS platform sets the goal of enabling accelerated digitisation and transformation of the logistics sector by making shared logistics information intelligent spaces as a service readily available to each and every logistics community in Europe.

3. The SELIS Community Node (SCN) concept

As described in Figure 1, SELIS Community Nodes represent a Shared Secure Information Intelligent Space where supply chain communities share data that can be analysed intelligently in a secure and governed manner that, in turn, enables the implementation of Innovative T&L Collaboration and ultimately Optimisation of individual companies and overall supply chain performance Individual SELIS nodes can be deployed anywhere in Europe, by any logistics community. A SCN coordinator (logistics actor or neutral body) can use the SCN configuration tools to set up a SCN for a SCN community participants in a Software as a Service (SaaS) context.

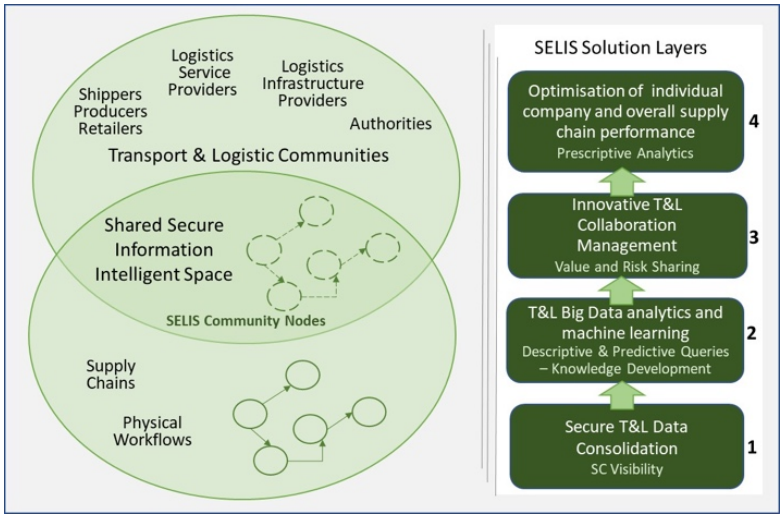

Fig. 1 The SCN concept

The SELIS federated system-of-systems approach (Fig. 2) connects SCNs in a global architecture providing effective access to supply chain collaboration related information and services from anywhere within that system. A European common logistics information space will be gradually established with Open Linked Information on demand and supply status. Federated SCNs create collaboration environments for specific sectors and ultimately enable pan-European collaboration across SC actors collaborating within and across countries through such a distributed federation of SCN nodes that move data and intelligence between them.

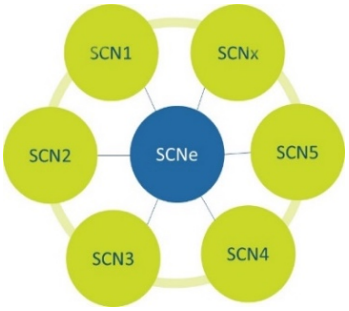

Fig. 2 SELIS federated SCNs

The unification of SCNs in a pan-European distributed deployment of SCN nodes remains the strategic goal of SELIS's three-year project plan. It is anticipated that this distributed architecture may very well be needed from a scalability, performance, response time perspective (e.g. faster response times are only guaranteed if actors are communicating with a locally deployed SCN). However, the way federated SCNs will operate needs further research on the needs and constraints of such a distributed pan-European SCN network.

When the Physical Internet is realised, international shippers and retailers will see cargo shipped from source to destination in a self optimising network of networks comprising large hubs, shared warehouses, shared transportation vehicles/vessels, etc. completely oblivious to them and transparent to them. In this strategic framing, it is intended that SELIS will facilitate the kind of collaboration in net-neutrality ways, where SELIS becomes an integral part of the Physical Internet network infrastructure.

4. SELIS Solution Layers

Secure T&L Data Consolidation

- Intelligent connectivity to information sources used in a SELIS Node, allows easy interfacing with participants' information sources, APIs, Tools, Dashboards, IoT, other nodes, according to a CLM and associated collaboration agreement, incorporating fully configurable security services;

- Information flow directs the physical workflow: the diffusion of information across the industry enables business actors to better plan and manage their operations. Thus, information flow provides the capability of shaping the physical workflow in an attempt to achieve economies of scales via collaboration and coordination within the context of supply chain.
- Smart end-to-end SC Visibility capabilities allow SCN participants to leverage information and insights within supply chain processes and forecasts produced by extended information sources to drive value and mitigate risk. Smart end-to-end SC Visibility implies ability to connect and fuse data from the extended upstream and downstream network and importantly to ingest data for specific CLMs and ensure accessibility according to data sharing rules
- Each SCN maintains a situational picture of the supply chain or logistics network based on CLM semantics, all data are automatically translated into a common information model based on UN-CEFACT standards

T&L Big Data Analytics and Machine Learning

- A knowledge graph representing all entities and relationships associated with the collaboration model and or supply chain is produced automatically.
- Capabilities / frameworks of big data analytics are shared through the collaborative IT/IS infrastructure and used to discover new insights that enable data enrichment captured in the knowledge graph.
- SELIS incorporate, adapt and configure existing innovative state of the art Big-Data Machine Learning Frameworks to produce a range of Descriptive & Predictive Queries utilized in the Living Labs.
- SCN participant data mostly remain in their location during processing, even during the execution of a distributed query workflow i.e., a query that requires data to be collected and correlated/joined from different data sources. This approach has a dual purpose: firstly, it respects any data privacy or ownership issues -where data is not allowed to be transferred outside specific “borders”- and secondly, it improves performance of respective workflow services since costly data movements can be avoided.
- Generation of machine learning algorithms for user specified requirements/ hackathon service.

Innovative T&L Collaboration Management

- A library of key Collaborative Logistics Models (CLMs), with the end goal of matching demand of goods and available T&L resources, in support of imperatives such as synchromodality, stock optimisation as well as smart, green and integrated transport supply chains;
- A build-in Collaboration Engine enabling SCN participants to swiftly deploy key Collaborative Logistics Models (CLMs), facilitating the matching demand of goods and available T&L Resources. The SELIS Collaboration Engine enables the “platform” to process event based queries, generated automatically, and to invoke the necessary system components, including big data predictive analytics, and computational functions required for running CLMs;
- The SELIS collaboration protocol enables business actors to determine critical parameters for their engagement on business operations within the leans of the SELIS shared information intelligent space such the rules of business partnerships, required resources, offered resources, supply chains, groups of business actors, evaluation of business actors, etc.
- The SELIS subnetwork definition language protocol enables business agents to translate the parameters of the SELIS collaboration protocol to networks within the Internet for establishing multiple shared information intelligent spaces.
- The SELIS collaboration protocol and the SELIS subnetwork definition language protocol (together with the warehouses) expand the managerial capabilities of business actors to define the level of risk exposure, the intensity of knowledge interchange and the amount of value creation.

Optimisation of individual company and overall supply chain performance

- Big Data analytics and machine learning enables the development and tuning of optimisation algorithms, which in turn become part of CLM support applications.
- A model-driven approach is adopted recognizing the large number of well-established logistics applications and, hence, the need for an approach that both leverages and extends these technologies as well as interfacing these technologies in ways that can facilitate the end-goal of fueling collaboration across logistic chains in the interests of continuous optimisation.
- The SCN applications are grounded on the basis of CLM software models with auto-descriptive open interfaces and well-defined non-functional properties (such as computational latency). The SCN native application are:
    - Retailer driven collaborative stock optimisation

- Synchromodality biased capacity optimisation of T&L Resources
- Logistics Pooling for Unban distribution
- e- Compliance
- Supply Chain Financials Optimisation.

Value proposition for the four SELIS solution layers

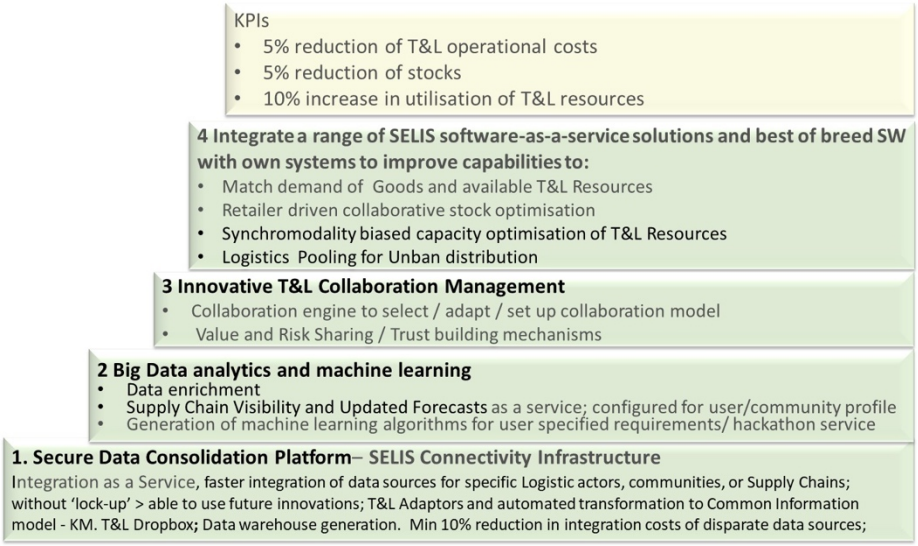

Fig. 3 SELIS Value proposition

The SELIS value proposition is realised through three key steps, utilising the four SELIS solution layers (Fig. 3), as follows:

Step 1

- For independent actors to collaborate they need to speak a common digital language in a secure and neutral place.
- SELIS will enable a common data model through a set of adaptors, aligning back end systems/EDIs.
- SELIS will provide connectivity services to allow secure seamless transfer, storage of data to the cloud.

Step 2

- Privacy preserving ways to openly share data with a restricted set of partners/collaborators.
- SELIS will provide access control management to enable T&L actors to selectively configure the nature, type and granularity of data that is shared between and across collaborating partners, as well as how data shared and for what specific purposes and durations

Step 3

- Broad range of applications & application types in support of achieving business KPIs.
- Connected applications to create new internal, business partners and customer facing capabilities.
- SELIS will securely store and analyse data with appropriate algorithms to help deliver business KPIs.
- Data management, access control and retention policies will be owned and managed by the client.

5. SCN Development Model Driven Methodology

The SELIS Model driven approach provides an automated way of building **reusable component repositories** for logistics collaboration in different contexts. Similar model-driven approaches have been applied with considerable success in several domains, such as e-banking, e-commerce, telecommunications and, likewise, in transport with products, such as Siemens' RailCom. Significantly, this approach also takes cognizance of the Physical Internet (Ballot et al., 2014), open global logistics system founded on physical, digital, and operational interconnectivity, through encapsulation, interfaces and protocols intended to significantly enhance current logistic models.

SELIS has identified several market segments with high optimization potential, ranging from maritime logistics until the urban last mile deliveries. SELIS will support such optimisation within these segments based on innovative collaboration based strategies EGLS and different logistics stakeholder groups:

LC1 Transport and Logistics Authorities: establish a unified national and trans-border information exchange environment between private and public stakeholder groups, based on DG TAXUD alignment of regulatory requirements to the World Customs Organization Data Model as foreseen in the new Union Customs Code (2017).

LC2: Shippers and Retailer centred communities who were traditionally contracting 3PLs, are increasingly taking control of supply chains (SC) by engaging in horizontal collaborations to form transportation and warehousing synergies and leading challenging collaborative spaces for stock optimization, synchromodality and urban logistics

LC3: Freight Forwarders centred communities target improved insights into their customer's needs and behaviour to instigate horizontal collaborations with other logistics service providers, allowing better service quality, increased asset utilisation and economies of scale

LC4: Port-centred communities facilitating services coordination inside and also outside a port, enabling door-to-door logistics.

LC5: Shipping communities target improved Estimated times of Arrivals and Departures (ETA-ETD), letting both ships to be fuel-efficient and ports to perform just-in-time agility. Big Data Intelligence will support strategic decision-making.

LC6: Rail, truck and terminal network communities seek collaboration based on a shared information model that integrates short hauliers-logistics platforms with regional rail network and national rail network

LC7: Hinterland Hub communities targeting synchromodality through free flow of information between SELIS Nodes installed in inland hubs', constantly feeding flexible and dynamic routing strategies and operations support

LC8: Urban Logistics communities seek collaboration as well as the vehicle to infrastructure architecture, road telematics and real-time sensor data consolidation and management, to improve the last mile delivery visibility and environmental performance.

The following SELIS Map (Fig. 4), shows the way the various development streams are integrated to support the SELIS Model-driven approach.

	SELIS Living Labs									
	LL1 DHL Multi-option service provision utilising customer specific SELIS Nodes	LL2 Port of Rotterdam centred synchromodal logistics	LL3 SME driven Sustainable Logistics urban platform Brussels (SUMY) and Venice (Zanardo), Athens (Sharmed)	LL4 North Germany Hinterland Hub based Synchronous Logistics	LL5 SELIS Node for rail, truck and terminal collaboration	LL6 DFDS integrated shipping and logistics network	LL7 Customs interactions through SELIS	LL8 Shipper driven continuous investment in green logistics		
Generic SELIS Applications	LL1	LL2	LL3	LL4	LL5	LL6	LL7	LL8		**European "green logistics strategies" (EGLS)**
Retailer driven collaborative stock optimisation								•	EGL 2,5,6	EGLS 1: Collaborative planning and synchromodality
Synchromodality biased capacity optimisation of T&L Resources	•	•		•	•	•			EGL 1,2,3,5,6,7	EGLS 2: Collaboration Risk and Value Sharing
Logistics Pooling for Unban distribution			•						EGL 1,2,3,5,6	EGLS 3: Supply Chain Visibility and CAPA
e- Compliance							•		EGL 7	EGLS 4: Supply Chain Financing
Supply Chain Financials Optimisation								•	EGL 4,2,3,5	EGLS 5: KPIs and Environmental Performance Management
Logistics Communities	LC3	LC4,3,5	LC3,8,2	LC3,4,5	LC6	LC5	LC1	LC2		EGLS 6: Logistics Optimisation
LC1 Transport and Logistics Authorities										EGLS 7: e-Compliance for Customs & applicable regulations
LC2: Shippers and Retailer centered communities										
LC3: Freight Forwarders centered communities										
LC4: Port-centered communities										
LC5: Shipping communities										
LC6: Rail, truck and terminal network communities										
LC7: Hinterland Hub communities										
LC8: Urban Logistics communities										

Fig. 4 SELIS LL & EGLS Matrix

A typical modern system employed by logistics actors to manage supply chains/ logistics operations is shown in Fig. 5. Normally an ERP provides the core functionality including Business Intelligence (BI), Accounts, and Customer System. Depending on the actor's activities a number of software applications are employed such as Supply Chain/ Transport/ Terminal/ Warehusing Management System. These systems are further linked to further applications facilitatimng monitoring of transpot and logistics assets, or cargo. Another set of applications are used to manage interactions with various business partners, clients and subcontractors. Recently integration tools are used to link these application to unified Decision Support Systems. What is mising is a capability that enables an enterprise to establish smart colaboration spaces with different communities in a unified way. The SCN addresses this gap, enabling logistics stakeholders to establish innovative Collaborative Logistics Models with different communities as shown in Fig. 6 and to realise the associated economic and responsibility benefits.

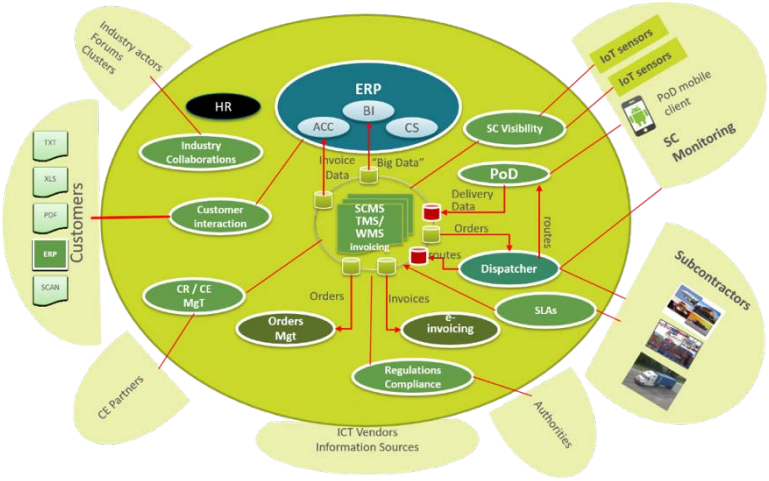

Fig. 5 Typical logistics IT Systems (AS-IS operations)

A SCN creates a smart shared interface between the systems of a logistics stakeholder and those of different communities with whom they interact including IoT systems that facilitate monitoring of logistics assets and cargo.

In Fig. 6, four main collaboration communities are identified, namely the customers, the authorities, the subcontractors and SC monitoring devices and systems. Additional communities such as the Circular Economy (CE) and SC Industry Forums/Clusters are included to illustrate the flexibility to cover the full range of collaborations. For each community a separate SCN will be created, with an API, the applicable CLM and associated application, and access to the SCN technology stack. Federated SCNs, in this context, provide a unified company SCN.

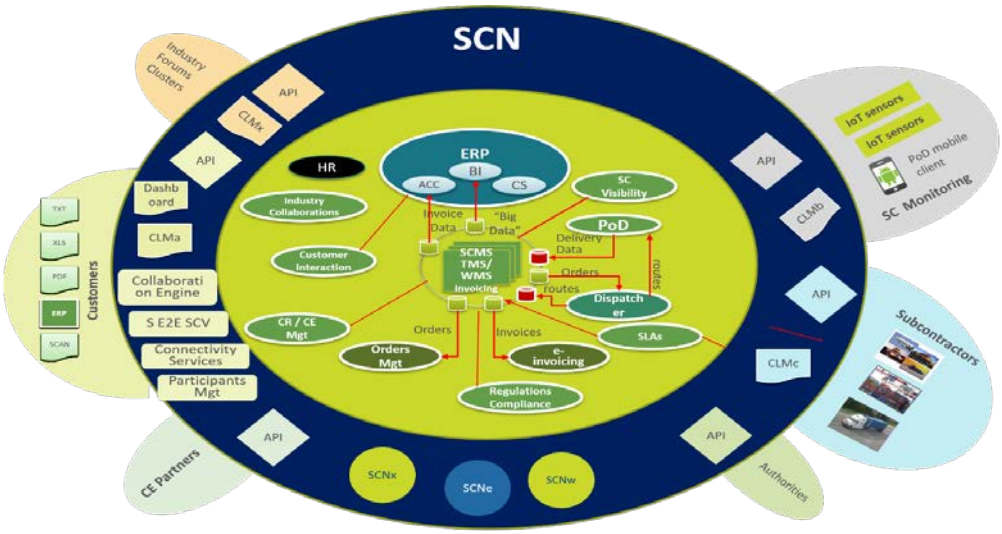

Fig. 6 SCN in operation (SELIS-empowered operations)

6. SELIS Adoption Strategy

The main objective of the SELIS adoption strategy is to promote the EU-wide adoption of SELIS community nodes by enhancing the community newcomers and SELIS network members' capabilities through a capacity building approach. Capacity Building is focused on three pillars: infrastructure, human capital, and organizational development, as follows:

- **Infrastructure:** provide easily deployable information packages and open source based development plans in order to facilitate the adoption and guarantee sustainability and is addressed through Connectivity and Big Data Infrastructure Deployment packages and SELIS Community Node and an SME enablement "package" comprising the technical and training materials to quickly onboard SMEs.
- **Human capital:** SELIS aims to develop skills and competencies required for using SELIS Nodes through e-training program on deploying, building and exploiting SELIS Solutions.
- **Organizational:** SELIS pivots towards the secure buy-in of SC collaborative solutions by demonstrating a clear value proposition, collecting performance metrics from the usage of SELIS infrastructure in order to review, analyse and improve the deployment of SELIS nodes and Logistics improvement feedback system with an associated environmental performance observatory.

SELIS's adoption strategy centres around differentiating T&L organizations with regards to their relationship to SELIS solutions in the following three categories: a) consumers of SELIS solutions, who purchase different solutions from the providers, b) providers who own and operate the solutions, and c) enablers, who are organizations that will sell products and services that facilitate the delivery, adoption and use of cloud computing.

SELIS's adoption strategy further differentiate between the Target Audiences with regards to their role in the organisation, recognising that top level management, operational stakeholders and IT departments will tend to have very different interests in SELIS. This lead to the definition of the following Target Audiences for SELIS solutions:

- SELIS end-users - Top Level Management (Large or SME CEO, CIO, CTO, IT management of Enterprises): these are the decision-makers on the adoption of SELIS; they are all interested in the business value of SELIS and the advantages of the technological offering.
- SELIS end-users – Mid-level management: they are the users of the SELIS solution, interested in the business value and the use of the solution and the pathway towards the implementation.
- SELIS end-users - IT and Analytics Departments: these are the members of Analytics Team, IT departments, IT Managers, Data Scientists, Business Analysts of Enterprise.
- SELIS Solutions Providers, Integrators and Technology Consultants: these are organizations providing Business-Technology solutions based on SELIS and finding the best ways to integrate the SELIS solutions to result collaborating supply chains.
- Business Consultants: organizations using and expanding the SELIS business models, business analysts, making cost-benefit analysis and gap analysis for the implementation of SELIS applications.
- Ports, Administrations and Authorities (including Customs): they are using SELIS to extend their reach and acceptance of their facilities in Port Community Systems and Single Windows; they can enforce the use of SELIS on a large number of organizations and as such are important enablers.

7. Conclusions

This paper explores several factors that influence the behaviour of transport and logistics companies in Europe and proposes a "shared intelligence" approach, introducing the following innovations, contributing to a sustainable logistics Pan-European landscape:

- SELIS aligns the T&L sector to a standards-based common data model for seamless end-to-end SC collaboration building on 10 years developments in this field by UN-CEFACT, e-Freight/Common Framework (ISO/IEC 19845, CF)., GS1 etc.
- SELIS creates a common language/lingua franca, from which T&L actors can speak a common language, and negotiate their co-dependent needs without the need to transform their data. This allows TL& actors to maintain their existing ICT and EDI systems, with SELIS facilitating as the "translator" between systems that are incompatible today.
- SELIS represents a neutral and trusted "third party" – this is important for trust-based collaboration and eliminates the potential for perceptions/misperceptions from SC actors that one party is more important than

the other, or one party imposes an agenda on the other, enabling SELIS as a vehicle for transparent and open collaboration.

- SELIS recognises that data in the T&L context is proprietary, contains commercially sensitive information, history, patterns - in the SELIS methodology the data tier is owned/managed exclusively by the client.
- SELIS is a unique solution in the market as it aligns business problems/solutions to formal business models. SELIS business models for Logistics auto-configures the required and minimal subset of the data model and auto-deploys the associated componentry, platform and infrastructure responsive to the specific business needs based on business models for e.g. Retailer driven stock optimisation, Synchromodality, Logistics Pooling for Urban distribution.

Acknowledgements

SELIS project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No 690588 (Start date: 01.09.2016- End date: 31.08.2019).

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