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2 **United Nations Centre for Trade Facilitation and Electronic Business**
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14 **Recommendation and Guidelines on Single Window**
15 **Interoperability**

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18 *Supporting Cross Border Interoperability of Trade Regulatory Single Window*
19 *Systems*

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42 **The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT)**
43 ***Simple, Transparent and Effective Processes for Global Commerce***
44

45 UN/CEFACT's mission is to improve the ability of business, trade and administrative organizations,
46 from developed, developing and transitional economies, to exchange products and relevant services
47 effectively. Its principal focus is on facilitating national and international transactions, through the
48 simplification and harmonisation of processes, procedures and information flows, and so contribute
49 to the growth of global commerce.
50

51 Participation in UN/CEFACT is open to United Nations Member States, Intergovernmental
52 Organizations and Non-Governmental Organizations recognised by the United Nations Economic and
53 Social Council (ECOSOC). Through this participation of government and business representatives
54 from around the world, UN/CEFACT has developed a range of trade facilitation and e-business
55 standards, recommendations and tools that are approved within a broad intergovernmental process
56 and implemented globally.
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PART ONE

UN/CEFACT RECOMMENDATION No. 36

SINGLE WINDOW INTEROPERABILITY

Supporting Cross Border Interoperability of Trade Regulatory Single Window Systems

The Recommendation was developed by the International Trade Procedures Working Group of the UN/CEFACT International Trade Procedures Programme Development Area (ITP-PDA).

It was formally approved by the UN/CEFACT heads of delegation in **XXX 2015**, after an extensive review process by various industry, governmental and international organizations.

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146 **1. Introduction**

147 Theoretical and practical evidence and operational experience demonstrates the introduction of a
148 trade regulatory Single Window facility could significantly improve the performance of the
149 international supply chain. Enhancing and simplifying the exchange of information between the
150 trading community (and trade services providers) and government has brought significant benefits
151 in the administration of international trade and in many cases contributed to the growth of global
152 commerce and assisted economic development with wealth and employment creation.

153

154 UN/CEFACT Recommendation 33 – Establishing a Single Window, and its Guidelines, offer guidance
155 and advice on the establishment of a facility enabling trade related information and/or documents
156 be submitted at a single entry point only once electronically. The process of introducing a Single
157 Window is complex and raises issues that must be tackled to realise the optimum benefits. In
158 response to requests from end users (both existing and potential), stakeholders and other interested
159 parties UN/CEFACT developed and published two additional Recommendations.

160

161 The first was Recommendation 34 - Data Simplification and Standardisation for International Trade
162 that recommends a simple, easy-to-use and cost effective 4 stage process to achieve the creation of
163 a national simplified and standardised dataset. The second was Recommendation 35 – Establishing a
164 Legal Framework for an International Trade Single Window provides advice and guidance in the form
165 a Checklist of the common legal issues encountered when introducing a Single Window facility. Both
166 Recommendations are applicable to each of the different models of Single Windows described in
167 Recommendation 33.

168

169 Single Windows implementers, operators and end-users have realised that enabling a single point of
170 data submission at the national level only partially meets the requirements of the entire
171 international supply and value chain. Despite the successful implementation of paperless (or
172 significantly less paper) trading with Single Window facility at the national level, many physical
173 documents, both business and trade are generated to fulfil the requirements of trading partners,
174 counterparts and authorities across the international border. These requirements decrease the
175 effectiveness and efficiency of Single Window facilities.

176

177 To maximise the benefits of the national Single Window facility, coverage should be extended to
178 include cross border electronic data exchange of document based information. Increasingly many
179 governments supported by their business community, are demanding interoperability between
180 Single Windows facilities, whether bilaterally or at the regional level. At the initiation of any
181 interoperability initiative most emphasis is usually placed on the technical requirements needed to
182 transmit the data timely, accurately and perhaps most importantly in a secure manner. However,
183 interoperability is a process considerably more multifaceted.

184

185 Government, the trading community and other interested parties need a model of operation to
186 ensure coordination among the different authorities and agencies with their respective cultures,
187 objectives and agendas. Equally the system must acknowledge the views and opinions of other
188 stakeholders to ensure it meets their business needs. This final point is important for software
189 developers and vendors that may produce the interface applications for interconnectivity and
190 interoperability.

191

192 This addition to the UN/CEFACT suite of Single Window products, Recommendation 36 – Single
193 Window Interoperability provides guidance on the mechanism and systems required for the
194 interconnectivity and interoperability of two or more national (or regional) Single Windows. The

195 individual recommendations address the fundamentals needed for the exchange of information
196 beyond the domain of the national Single Window.
197

198 **2. Scope**

199 The scope of the Recommendation covers the interoperability between two or more electronic
200 Single Window facilities in different countries or economies.

201
202 Consistent with the definition provided in UN/CEFACT Recommendation 33, the Single Windows
203 discussed in this Recommendation are those that facilitate import, export and transit-related
204 regulatory functions. The term “interoperability” in the context of this recommendation is defined
205 as: the ability of two or more systems or components to exchange and use information across
206 borders without additional effort on the part of the trader.¹

207
208 Although the majority of national Single Window facilities are related in some way to international
209 trade, there is distinction between the information and documents used within a country, and data
210 exchanged between the trading partner countries or economies. The Recommendation concentrates
211 on the information flows exchanged across the border and the interoperability and reusability in
212 another Single Window facility.
213

214 **3. Objectives of this Recommendation**

215 The purpose of this Recommendation is to provide details of the preparations needed and the
216 models for information sharing before implementing bilateral and regional Single Windows, and to
217 give examples of best practice.

218
219 The objective of the Recommendation is to highlight the issues, and offer options for the
220 establishment of Single Windows interoperability whether the national facility is operated by the
221 public or private sector. The aim of interoperability should be to exchange accurate complete data
222 (datasets) speedily, seamlessly and securely to the greatest benefit for operators and users. The
223 exchange of information could be bilateral, multilateral (sub-regional, regional) or international
224 through either a central hub, or a grid of inter-connected facilities, or a network of networks such as
225 Value Added Networks.

226
227 The Recommendation does not aim to define the technical specifications or standards for Single
228 Windows interoperability. The models described in the Guidelines are for reference purposes and
229 planners, designers and implementers should build an interoperability module best suited to
230 identified government requirements and the commercial and trading needs of the business
231 community.

232
233 The target audience is predominately government, but the individual recommendations, the
234 guidelines and the identification of good practice are equally valid within the business community.
235

236 **4. Use of International Standards and other Guidance**

237 UN CEFACT recommends that planners, designers, implementers and operators of Single Windows
238 should use standards and technical specifications already developed by standards bodies at the
239 national, regional and international levels. Government should encourage and fully support this
240 approach.

¹ Adapted from the definition of “interoperability” provided by the Institute of Electrical and Electronics Engineers (IEEE) Standards Glossary available on: <http://www.ieee.org>

241
242 The development of bespoke solutions for operational or interoperability modules could result in
243 the failure of the national single window to connect and operate with comparable facilities in other
244 trading partner countries and economies.

245
246 In the Guidelines to this Recommendation, a number of possible models are presented and
247 explained in detail including a dedicated interconnection between national Single Window facilities,
248 or a network of NSWs interconnected, or individual NSWs connected to a central secure hub. The
249 Annexes of the Guidelines provide specific advice to support implementation of the recommended
250 actions above, including determining SWI business needs, technical semantics² and the governance,
251 managerial and legal conditions needed to be in place in order to support SWI.

252
253 A repository of case studies for Single Window and other trade regulatory systems interoperability
254 will be developed, published and maintained. The case studies will provide more substance to issues
255 discussed in the guidelines and identify where good practice has been employed.

256

257 **5. Recommendation**

258 Interoperability is made possible through the use of standards but also through a framework that
259 involves certain governance, policy, and technical structures. Single Window planners, designers
260 and implementers whether public or private sector, or in partnership should:

261

262 **a.** identify and analyse the primary drivers and needs for Single Window Interoperability either
263 current or in the future, including perspectives from public and private sector stakeholders in trade
264 to determine the type of Single Window interoperability that will be necessary.

265

266 **b.** research and examine the type of business processes and information to be exchanged between
267 the Single Window facilities, the existing semantic frameworks for this, and possible areas for
268 improvement.

269

270 **c.** consider the most appropriate model(s) for governance of the interoperability activity, at the
271 various stages of planning, implementation and ongoing operation in a way that is both financially
272 and administratively sustainable.

273

274 **d.** research all regional and bilateral trading agreements and arrangements to ensure specific
275 protocols or legally binding obligations are considered when developing a national Single Window
276 facility.

277

² In the context of trade facilitation and the use of ICT in order to exchange data electronically between trading partners, semantics refers to the meaning of the information exchanged.

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PART TWO

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GUIDELINES ON SINGLE WINDOW INTEROPERABILITY

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Supporting Cross Border Interoperability of Trade Regulatory Single Window Systems

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Issued as a complement to UN/CEFACT Recommendation No. 36 on Single Window Interoperability

315 **1. Introduction**

316 These Guidelines are complementary to UN/CEFACT Recommendation Number 36 on Single
317 Window Interoperability. The Guidelines are written for all entities, either public or private, wishing
318 to establish a Single Window system within national boundaries but interested to connect this
319 system across borders to one or several other opposite Single Window system(s). The purpose of
320 this interconnection is to enable interoperability across border electronic trading.
321

322 **2. Generalities and Scope**

323 Single Window Interoperability refers to the exchange of specified foreign trade related information
324 in a structured format between two or more Single Window systems in different economies. This
325 exchanged information shall be reused and processed for the purposes of international trade related
326 (and) administrative services with minimum effort and modification. This Recommendation refers
327 to Single Windows that are regulatory in nature, and interoperability that is cross border. These
328 points are discussed in further detail below.

329 **2.1. Single Windows facilitate regulatory functions**

330 The UN/CEFACT Recommendation 33 definition of Single Window stipulates: *“A Single Window is a*
331 *facility that allows parties involved in trade and transport to lodge standardized information and*
332 *documents with a single entry point to fulfil all import, export, and transit-related regulatory*
333 *requirements.”* Therefore, other systems that offer single views to traders, such as Port Community
334 Systems, but that do not deal with regulatory requirements are not included in this Regulation. That
335 being said, there may be lessons to be learned from exploring models applied within these other
336 systems that could be applicable in the context of regulatory Single Windows and these will be
337 touched on within these Guidelines.
338

339 It is important to recognise that there are very few case studies of National Single Windows in the
340 world today that allow trade and transport parties to fulfil all regulatory functions. Rather, it is
341 more common to see Single Windows that emphasise one aspect or area of trade regulation over
342 another. A couple examples of these are:
343

344 **The Customs-centric SW (CSW) model:** the CSW is focused on customs formalities. It involves
345 stakeholders dealing with cross border movements of goods. In most countries, the customs
346 declaration has been completely dematerialized: EDI flows transmit directly the data from private
347 databases (importers and exporters databases or cargo community systems) toward customs
348 clearance systems. Nevertheless, there are often up to 40 documents (certificates, licenses,
349 authorizations, notifications or any other documents issued by many competent authorities) which
350 must be joined in hard copy to the customs declarations in order to be checked by customs. The
351 results are reflected in the customs treatment of the consignments. Border control measures aim at
352 protecting citizens and consumers from unfair and illegal trade as well as ensuring their security and
353 safety. Nevertheless, legitimate trade should not be unnecessarily hindered at the border. Balance
354 between controls and trade facilitation must be observed. Automating the checks of customs
355 declarations' supporting documents by using IT systems and mechanisms like web services will
356 simplify the task of customs and accelerate the handling of the consignments for traders.
357

358 While many countries are successfully integrating other government agencies in their CSW, it should
359 be noted that in most cases, CSW differs in practice from the conventional definition of a SW such as
360 that used by UNECE in its recommendation N°33 of July 2005 in that many regulatory functions still
361 happen outside of the single entry point of the Single Window.
362

363 **The Transport-centric SW (TSW) model:** a transport-centric SW concerns movements of goods (and
364 persons) and their means of transport. In many cases, it is also linked to port community or
365 authority systems, in the maritime, land, or air sectors. These systems provide an important view
366 for traders tracking the progress of their goods and port service providers but also, in most cases,
367 also provide a consolidation point for information that is necessary for regulatory purposes for
368 example necessary commercial documents (bills of lading, etc), information required for managing
369 inspections, triggers for involvement of other government agencies, etc.

370 **2.2. Interoperability is Cross-Border**

371 As mentioned in the above section, in practice, it is more common to see several systems
372 performing various regulatory processes sometimes behind a single trader view, other times not. It
373 is due to this fact that the phenomenon of multiple “Single Windows” within one national boundary
374 may exist. The aim may be for these systems to converge behind one single trader view, in line with
375 the definition provided by Recommendation 33. However, the purpose of this Recommendation
376 and its Guidelines is not to explore how these national systems may interoperate, but rather how
377 Single Window systems within one country may interoperate with those of another. Thus, the scope
378 of these Guidelines is focused on cross-border interoperability although, similar to the above
379 exclusion of non-regulatory Single Windows, lessons for cross-border interoperability may be drawn
380 from more general interoperability frameworks.

381
382 The overall focus of this Recommendation is on cross-border interoperability of Single Window
383 systems. It leaves interoperability issues between two or more Single Windows in the same
384 economy and jurisdiction to be resolved by national laws and solutions.

385
386 Cross-border interoperability means that a Single Window system in country A will achieve
387 interconnectivity with a Single Window in country B. Thus, data messages can be exchanged
388 between two or more national Single Windows and effectively used by the authorities and agencies
389 in each country’s Single Window environment. Moreover, this may include a transaction model that
390 permits company X to send electronic data communications or electronic records replicating given
391 trade documents in the same format to Single Windows in countries A and B by using the Single
392 Window in country A as a platform, as a repository for authentication, or other channelling or
393 support functions. Such transactions may be identified as Business-to-Government (B2G)
394 interoperability.

395 **2.3. Interoperability in practice**

396 Interoperability can be either between two countries, on a regional basis, or international. While
397 there is a variety of different models for interoperability that may be considered but these can be
398 divided for the large part into two options:

399
400 **Centralized Server Model:** for example, States A, B and C all adhere to a Single Window ABC, the
401 server for which is located in country A. Each country participates in server maintenance and costs.
402 Most importantly, Single Window ABC will recognize and process electronic records received
403 through the joint Single Window. Data exchanges in this arrangement could include B2G and G2G
404 transactions.

405
406 **Gateway Model:** another type of regional Single Window environment is one where the central
407 server manages a communications hub for each of the participating countries. The central server
408 does not retain or archive any trade or regulatory data. Only the transmitting and receiving national

409 Single Windows retain such data.³

410

411 In addition to the differences in design models, SWI can also be shaped by their geographic and
412 sector coverage.

413

414 **Interoperability between national regulatory SW (bilateral interoperability):** two countries that
415 mutually agree on interoperability on partial or complete interoperability of their national single
416 windows. Some examples include:

- 417 • South Korea & the Philippines
- 418 • The United State of America & Canada
- 419 • Omar & Malaysia

420

421 **Interoperability of multiple single windows within a same region (regional interoperability):**
422 multiple countries within a same region agree multilaterally to either create a regional single
423 window with which each national single window will interoperate or to fully align all of their national
424 single windows to achieve full regional interoperability. Some examples include:

- 425 • ASEAN Single Window (ASW - government agreement, all types of information)
- 426 • African Association for electronic commerce (AAEC)

427

428 **Interoperability of multiple single windows across different regions (inter-regional
429 interoperability):** multiple countries in different regions agree multilaterally to either create an
430 inter-regional single window with which each national (or regional) single window will interoperate
431 or to fully align all of their national (or regional) single windows to achieve full inter-regional
432 interoperability. Some examples include:

- 433 • APEC (Asia Pacific Economic Cooperation)
- 434 • SELA (Sistema Económico Latino americano)

435

436 **Sectorial interoperability:** it is reminded that the scope of a single window as defined within UNECE
437 Recommendation 33 is a facility that allows parties involved in trade and transport to lodge
438 standardized information and documents with a single entry point to fulfil all import, export, and
439 transit-related regulatory requirements; however, for practical reasons, governments may prefer to
440 concentrate only on a specific sector when discussing interoperability with partner countries. Some
441 examples could include:

- 442 • Air-sector interoperability between countries eventually using a defined data model and
443 messages such as those defined by WCO and IATA
- 444 • Customs-only interoperability between countries using the data models and messages
445 defined in the World Customs Organization's Data Model
- 446 • Maritime-sector interoperability between countries (as can be reflected in the European
447 Union's e-Maritime Single Window project, or the MIELE project between Korean & Italy)

448

449

450 3. Relation to other Recommendations

451 It is assumed that this Recommendation will be read and put in practice in conjunction with the
452 three earlier UNCEFACT Recommendations 33, 34 and 35.

453

454 By emphasising the use of international standards and other transferable and translatable
455 structures, these recommendations already set the stage for Single Window Interoperability (SWI).
456 This is illustrated in the following direct extracts from the existing text:

³ See, e.g., Association of South East Asian Nations (ASEAN) Single Window at <http://asw.asean.org/about-asw>.

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- **Recommendation 33:** “The use of standards and available tools will help ensure that the systems developed to implement the Single Window are more likely to be compatible with similar developments in other countries, and they could also help in the exchange of information between such Single Window facilities over time. In addition, the use of existing tools and best practices should help reduce the overall cost of implementation, as the project will be drawing on work already completed by other international standards organizations”.
- **Recommendation 34:** “When undertaking the simplification and standardization exercise, Government should have a clear objective for the way in which the National Data Set will be used, whether to meet purely domestic trade needs or for incorporation into a national Single Window facility or utilization in any regional trade agreements, bilateral arrangements or other trade protocols”.
- **Recommendation 35:** “Creating legally enabling conditions for an International Trade Single Window constitutes, therefore, one of the main challenges for countries and economies establishing such a national facility and/or seeking to exchange information with other Single Windows. For many governments, the list of legal issues will provide the basis for discovering other issues related not only to B2G and G2B transactions but also to the broader B2B environment nationally and internationally”.

Recommendation 35 also contains many indications related to the compliance of a national legal framework with international regulations or obligations.

There are many other resources available to practitioners, some of which are mentioned elsewhere in these guidelines. UNECE has also published a paper in 2013 on the subject entitled “Trends for collaboration in international trade: Building a common Single Window Environment”⁴ that is a useful reference paper for this effort.

4. Pre-Requisites for Establishing Single Window Interoperability

For an effective and sustainable implementation of single window interoperability projects, there are several important factors that need to be taken into considerations as described below:

4.1. Political will / identify driving force

Strong political will among decision makers and leading authorities is crucial when establishing first National Single Window solution and even more so when establishing Single Window Interoperability between two or more economies. Often political will can be reached through the clearly articulated needs of business community and practical examples of successful implementations and business cases. The Governments’ decision on SWI implementation should be formalized and materialized through signing of bilateral or multilateral/regional Agreements. Such formality is important to gain trust and confidence of the participating parties for successful SWI implementation.

The commitment and understanding of available benefits by decision makers will make easier to identify the leading agency and driving force for Single Window interoperability. Natural choice for

⁴ UNECE, *Trends for collaboration in international trade: Building a common Single Window Environment*, ECE/TRADE/411 (2013), available at, <http://www.unece.org/index.php?id=33946>.

502 this role is the ministry and/or agency responsible for National Single Window operation.

503

504 The general acceptance of idea and operation will also help in finding the necessary resources for
505 preparation and implementation of SWI activities; however, also challenges should be brought up to
506 decision maker's awareness in an objective manner, not to build the vision of just a plug-in
507 interoperability especially in multilateral interoperability cases.

508 **4.2. Defined vision/scope for SWI**

509 An important pre-requisite for starting the SWI planning and establishment is a common
510 understanding of the aims and goals of SWI operation. Through the common understanding it is
511 possible to create and define a clear vision for the development and scope for SWI.

512

513 Defined scope of SWI activity is also important to focus the available resources towards the common
514 goal, among all parties and economies participating the co-operation. This also enables common
515 definition of semantics and terms under discussion and decision.

516 **4.3. Desire and willingness on necessary levels to reach SWI**

517 Not only the political will among decision makers and high officers guarantee the successful
518 establishment and implementation of Single Window Interoperability. The positive curve and
519 approach for the action has to be enhanced to all necessary levels of operation.

520

521 After the planning and contractual phase between the participating economies has been finalised
522 the practical work for SWI establishment is still to be done. Full commitment of the technical and
523 business process level of implementing parties is of key importance. The effort and cost for reaching
524 this commitment is often very small compared to the barriers and inertia to overcome in case it is
525 neglected.

526 **4.4. Government/Agency sponsorship confirmed and Operational leadership identified and** 527 **recognized (by stakeholders)**

528 The support by government is important when establishing the SWI activity. The sponsorship is
529 desirable to be in the form of acceptance and support for the activity (political will) as well as in the
530 form of resources both financial and skills based. Therefore, the government sponsorship for Single
531 Window Interoperability should be secured and confirmed with all appropriate authorities.

532

533 Clear roles and responsibilities related to SWI should also be set for government stakeholders and
534 agencies, in order to prevent any task to fall in the "grey area" between the interfaces and, hence,
535 blocking the development and implementation of SWI activities. On the other hand, the roles and
536 responsibilities should be clearly set to maintain the management team support to the
537 implementation of SWI and avoid confusion and misunderstandings along the process.

538

539 The SWI management team must also ensure and verify that all stakeholders understand the need
540 and aim for the SWI activity. A specific task and skill required for the management team is the ability
541 to engage all stakeholders in the project and keep them on board throughout the whole
542 establishment and implementation process.

543 **4.5. Sustainable transaction volume**

544 There is no need to consider the establishment of SWI in case the trade transaction volumes
545 between the respective economies are not sufficient to benefit from automated operations and

546 information distribution and sharing.

547

548 An easy way to find out this factor is check whether the Trade statistics support the establishment of
549 SWI. However, in case the trade statistics do not support the establishment of SWI operation it is
550 good to have a look also to Trade volume prognoses if there are clear indications of increasing
551 foreign trade activity that are supporting the establishment of SWI, especially between respective
552 economies.

553

554 If the key factor of the decision is based on anticipation, there should be some foreseeable concrete
555 events or actions that influence to trade volumes can be estimated and calculated reliably. This kind
556 of event could be e.g. establishment of Free Trade Agreements.

557 **4.6. Streamlined business processes**

558 Streamlined SWI business process is essential to reduce double reporting of trade information,
559 increase productivity and facilitate growth. Faster and more effective processes help the authorities
560 to respond rapidly to traders and improve collaboration between all parties for better decision
561 making.

562

563 The streamline SWI processes should:

- 564 • Reduce time to complete the trade regulatory procedures
- 565 • Reduce complexity of import/export process
- 566 • Reduce bureaucracy and inefficiencies between Authorities
- 567 • Increase adaptability

568 **4.7. Consistent business processes**

569 Consistent and equivalent trade and administration procedures and processes in economies
570 establishing single window interoperability will greatly help in practical implementation of operation
571 and negotiations on technical and other practical solutions to be implemented. In practice, this will
572 be realised in terms of faster roll-out of the system and thus, cost savings for governments and
573 business.

574

575 Some examples of the areas where consistent business processes may help SWI are introduced
576 below.

577

578 Use of similar/corresponding standard trade documents and data sets in respective economies and
579 by their responsible agencies is an important facilitating factor. In case the existing trade documents
580 and datasets are different, there is a need for harmonization activity e.g. following the UN/ECE
581 Recommendation 34 (Data Simplification and Standardization for International Trade).

582

583 Utilization of standard electronic documents and/or messages between trade and NSW and NSW's
584 in respective countries will also be a very beneficial and facilitative issue. Furthermore standard
585 based message implementation practices for messages will be a valuable asset for interoperability
586 between National Single Window systems.

587

588 The Single Window Interoperability will also greatly benefit of implementation of corresponding
589 product classification and customs tariff headings in participating countries.

590 **4.8. Existence of National Single Window services**

591 Basic set of NSW services - sufficient number of companies using the NSW services with sustainable

592 volume of trade do provide solid ground for enhancing the operation to SWI actions. The existing
593 trade and usage of NSW also clearly shows where to find the possible partners for SWI
594 enhancement.

595

596 A clear understanding of business needs for SWI, gained through NSW operation, is an important
597 pre-requisite for understanding of the business aims and goals of SWI operation. Through this
598 understanding, it is possible to define and develop business needs based vision and services for the
599 SWI.

600

601 Experienced NSW organization and its experts are the key resources in enhancing the national
602 operation to international and implement SWI services. The experts know thoroughly the NSW
603 system, data contents, interfaces and functionality. They will also be in very important position
604 when evaluating and identifying possible bottlenecks as well as developing the interoperability by
605 harmonising the existing information, processes and practices for interoperability.

606

607 **5. Limitations / Constraints and Challenges**

608 There are challenges and constraints foreseeable for business needs of SWI initiatives/projects such
609 as:

610

611 • **Evolving business processes.** The business process is constantly changing to needs the
612 business needs of varies stakeholders. In addition to that, the control measures by the
613 Authorities are evolving to better facilitate the legitimate business transactions. The SWI
614 projects need to be robust and flexible to cater for the evolving business needs.

615

616 • **Legal requirement.** Due to the national regulations, some governments are obligated to
617 limit the sensitive business data exchange to protect the interests of the business
618 community and its government. As such the level of details to be exchanged within SWI
619 stakeholders are limited to such obligations. Appropriate regulations and laws for
620 information collection and sharing between participating countries and different
621 authorities need to be enacted for the effectiveness and efficiency of SWI implementation.

622

623 • **Disparity in the level of National Single Window implementation.** NSW as an important
624 component in the SWI project implementation, the parties involved in the SWI project shall
625 ensure the respective NSW would meet the business needs of the SWI stakeholders.

626

627 • **Funding/Costs.** The source of funding for the SWI implementation and operation vary
628 according to the organizational/regional culture and nature of SWI implementation. The
629 required funding's magnitude and profile over time should be defined in a business case.
630 Following are some examples of the funding strategy to be considered:

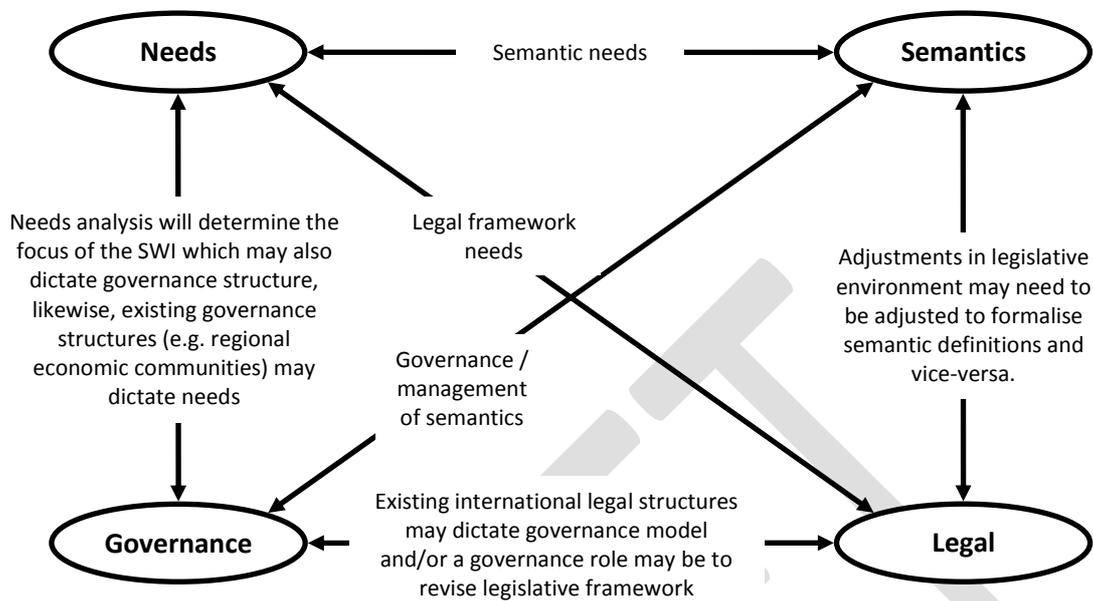
631

- 632 ○ Direct funding form the participating Economies
- 633 ○ Private Finance Initiative (PFI) by the beneficiary of the SWI stakeholders
- 634 ○ Funding by donor organization
- 635 ○ Fee based on SWI services where a viable business model to be deployed for the SWI
636 users to reimburse the development and ongoing operational of SWI
- 637 ○ Mixture of above mentioned sources

638 **6. Structure of the Guideline Annexes**

639 In order to facilitate the use of these guidelines, considerations have been organized among three
640 topic areas included as: Business Need, Semantic Requirements, and Legal, Managerial, and

641 Administrative Aspects. These areas align with interoperability frameworks already in use (e.g. the
 642 EU Interoperability Framework) and allow for guidance to be sought in accordance with areas of
 643 specific interest to user groups. While all interrelate: “Why” and “How”
 644 **Figure 1: Examples of Linkages between SWI Concept Areas**



645

646
647
648
649

GUIDELINES FOR DETERMINING BUSINESS NEEDS OF SINGLE WINDOW INTEROPERABILITY

650 1. Introduction

651 The aim of these specific guidelines is to present examples of the multiple Business Needs for Single
652 Window Interoperability (SWI) and propose mechanisms and tools for identifying them. The term
653 “Business Needs” in this context is considered to cover both traders’ and governments’ needs and
654 requirements for Single Window Interoperability. Consideration is also given to some basic
655 requirements that need to be fulfilled in order to justify the implementation of SWI project.

656
657 The primary driver of the Single Window Interoperability is to facilitate traders to conduct foreign
658 trade while government agencies take care of their tasks. Trade-related information exchange is
659 originated to the need of seller and buyer to communicate between each other as well as with
660 service providers during the trade transaction in order to facilitate the fulfilment of the transaction
661 process. The same information can also be utilized between governments and agencies in different
662 countries and economies for their needs and requirements to exchange trade related information
663 between country of export and import and possibly also countries of transit.

664
665 In addition, working towards the Single Window interoperability (including regional single window
666 implementation) for cross-border information exchange, is based on trust between both traders and
667 authorities for their readiness and willingness to provide and share respective trade related
668 information for relevant and authorised parties.

669
670 Like business, the government agencies also aim to fulfil their responsibilities in most effective
671 means and ways, while meeting their legal and operational requirements. In addition to that, they
672 should accomplish their task with minimum bureaucracy and cost of compliance for traders as well
673 as maximum transparency and predictability of the official procedures.

675 2. Why Interoperability?

676 In general, the business needs for cross-border trade information exchange in the context of
677 National Single Windows cover the following:

678
679 **Government-to-Government (G2G):** facilitation of legitimate trade and fight against fraud require
680 simple, rapid and standards trade/customs procedures and processes. Examples of the following
681 G2G information exchange would expedite the risk analysis and process simplification for the
682 Authorities:

- 683 • License, Permit, Certificate and others
- 684 • Customs declaration information
- 685 • Applications and decisions related to cross-border trade transactions

686
687 **Business-to-Government (B2G):** in the interests of business while fulfilling the levels of control
688 between customs territories, the exchange of information between business and cross-border
689 Government Authorities is essential. Examples of B2G documents maybe exchanged as follows:

- 690 • Advance Cargo information
- 691 • Conveyance information

692
693 As the Single Window systems covered in this Recommendation and Guidelines are aimed for
694 facilitating regulatory trade information provision, the B2B data exchange for SWI projects are

695 subject to negotiation/consensus between respective government and traders and are outside the
696 scope of this discussion.

697

698 In addition to the general reasons mentioned above, there can also be multiple specific needs for
699 interoperability based on the agreements between the economies who are exchanging foreign trade
700 related information. These should clearly be outlined in the agreements or protocols in order to
701 ensure clarity on the intended usage of the information. Some of the reasons which may be outlined
702 include:

703

704 • **For trade facilitation.** Supporting traders with their declarative obligations in other
705 countries with which they are not necessarily connected would allow the economic
706 operators to comply with these countries' obligations and to compete in the international
707 market. One such example of this is listed above concerning advanced electronic security
708 declarations. However this could be extended to other procedures up to full import related
709 submissions. The European Union in its UCC is planning a possible centralized clearance
710 which would allow a trader in one Member State to make declarations in multiple Member
711 States through the single window platform of their own country. The Member States then
712 exchange the required data for the full import declaration (or the requested economic
713 procedure such as transit, inward processing or warehousing). This is definitely a step
714 towards trade facilitation and would help economic operators compete in multiple
715 countries.

716

717 • **For risk analysis purposes.** Receiving information related to the export declaration of the
718 merchandise which will arrive would allow the government agencies of the importing
719 country to assess any security, safety, fiscal or other risks. This aspect is outlined within the
720 WCO "SAFE Framework of Standards" in the first pillar on Government to Government
721 communication. It is also further developed in the WCO project on "Globally Networked
722 Customs" in which the importing country will receive the export declaration related
723 information from the exporting country in order to perform a comparative risk analysis.

724

725 • **For advanced security declarations.** Building on this principle of risk analysis, many
726 countries have put in place an advance arrival security declaration system. This again is
727 outlined in the WCO "SAFE Framework of Standards" in the first pillar. Now that these
728 systems have been functioning for a few years, one of the major concerns is with the data
729 quality. The information which is being received is not reliable enough to perform a proper
730 risk analysis. Trying to get the information at the source, in the exporting country, would
731 allow to improve the data quality. However, it would be difficult to oblige a foreign
732 exporter to directly file information in to the importing country's computer system. Single
733 Window interoperability could assist with this through bilateral agreements between
734 countries where the exporting country's platform would capture all of the necessary data
735 elements; then the exporter would request that these data elements be sent to the
736 importing country (through their own national single window platform), then the exporting
737 country's single window platform would transfer the information to the importing
738 country's single window.

739

740 • **For preparation of border volumes.** At the very least, exchanging information about
741 volumes which are departing and which will arrive in a country on an approximate date
742 would allow the importing country to try to adapt their infrastructures accordingly in order
743 to accommodate the expected trade volumes.

744

745 • **For combatting illicit activity.** When identifying illicit merchandise or suspected illicit

746 merchandise at export, the exporting country could forewarn the importing country in
747 order to ensure that the merchandise is properly inspected upon arrival. This could also be
748 extended to suspicions of fiscal evasion through the trading transactions and allowing
749 countries to plan the proper inspection relative to such transactions.
750

751 **3. The Benefits of Single Window Interoperability**

752 Linked to the above reasons for SWI, an understanding of the potential benefits is also important.
753 Single Window facilities have a proven track record of delivering substantial benefits to both
754 government and the business community. Specific example can be found in both Recommendation
755 33 with its Guidelines and the Repository of Single Window Case Studies. Generally the benefits
756 accrue at the national level, improving and enhancing trading performance of a country up to the
757 completion of the export process and the goods are ready for international transportation.
758

759 Government and business should not allow improvements generated by a Single Window facility to
760 cease at the national border. Benefits realised nationally could be extended to the international
761 movement of goods. Countries currently operating a national Single Window and those planning the
762 introduction of a similar facility should actively and positively consider the development of an
763 interoperability module as an integral part of the facility. The obvious advantage would be the ability
764 to communicate trade-related information easily and quickly, and more cost effectively for both
765 government and the trading community.
766

767 Other benefits flow from an interoperability module for a national Single Window and could include:

- 768 • The transfer of master files between business partners, services providers and the
769 authorities avoiding the repeated need to submit or transmit the constant basic (header)
770 information of the relationships between trading partners
 - 771 • Developing and progressing the concept of the 'data pipeline' where information would
772 travel from origin to destination and could be accessed by appropriately authorised private
773 and public sector parties to the specific trade transaction
 - 774 • Increase transparency and trade compliance with more timely and accurate trade related
775 data delivered earlier in the international trade process for individual trade transactions
 - 776 • Support coordinated border management and application of risk management in
777 combatting fraud and illegal trade
 - 778 • re-use of export data to populate transit declarations and import entry requirements
779 reducing delays at the national and international borders
 - 780 • opportunities to review and modernise the legal framework and create or amend existing
781 legislation covering the duties and obligations of parties involved in the international trade
782 transaction
 - 783 • improved and enhanced trade agreements with interoperability as an integral part of the
784 protocols conferring preferential or non-preferential treatment.
 - 785 • Harmonized trade data that reduce data redundancy and improve the consistency and
786 accuracy of data for the Authorities at both exporting and importing Economies.
 - 787 • Streamlined SWI business process that reduce costs and administrative burden
 - 788 • Support regional integration and trade
 - 789 • Foster economic growth
- 790

791 **4. General Business / Sustainability Analysis**

792 The Business needs and sustainability analysis are important to implement in order to understand
793 the real needs of business community and government to implement SWI, identify the gaps and
794 required development activities to reach the sustainable SWI activity as well as identify the expected

795 impact / benefits to be achieved by implementation.

796

797 The aim of Single Window as well as Single Window Interoperability is to facilitate trade by making
798 the regulatory requirements and their fulfilment as easy and smooth as possible for businesses and
799 at the same time meet the requirements and procedures set by authorities.

800

801 The task for Business needs and sustainability analysis is to find out:

802 • the need for facilitation within the SWI context (goal for SWI activity)

803 • what is already done (present/as-is situation)

804 • where to facilitate (identify the process gaps)

805 • how to facilitate (identify the procedures and best practices)

806 • when to facilitate (what should be done first)

807

808 The business needs analyses should not be stopped when the implementation of SWI is done, but to
809 continue with user and stakeholder feedback collection and evaluation of experiences when the
810 operation is up and running.

811

812 With sustainability there is three sides; economical, environmental and social sustainability. The
813 economical sustainability is easiest to measure and necessary or even self-evident requirement for
814 all business activities. Environmental sustainability has become more and more important part of
815 the business operations including the efficient usage of energy and other resources and minimum
816 influence to the physical environment. The social sustainability aims on good business relations and
817 mutual benefit to all stakeholders.

818

819 Below are the steps to carry out analysis in order to find out the necessary information and tasks to
820 start development of Single Window Interoperability.

821

822 a. **Identify key stakeholders** – identifying parties who will be affected by the SWI
823 implementation.

824

825 b. **Capture Stakeholder's interests and requirements** – conduct study on each identified
826 stakeholder's business needs and requirement for SWI. The gathering of information could
827 be achieved through conducting workshops and/or working groups.

828

829 c. **Categorize business needs and requirement** – the business needs and requirement could
830 be categorised into the following groups:

831 ○ Strategic

832 ○ Business

833 ○ Operational

834 ○ Technical

835

836 d. **Finalize the business needs and requirement for the SWI project** – once gathered and
837 categorised all the business needs and requirement, determine which requirements are
838 achievable and how it can be implemented by:

839 ○ prioritizing the needs/requirements

840 ○ analysing the impact

841 ○ resolving conflicting issues

842 ○ analysing feasibility

843

844 e. **Sign-off** – the stakeholders or their representatives shall sign-off the business needs
845 analysis report/agreement to ensure that the SWI meets their business needs and

846 therefore committed to support the implementation of SWI project.
847

848 **5. Analytical considerations**

849 In conducting the needs analysis, the following analytical considerations may be made:

850 **5.1. Trade volume between economies involved**

851 **Trade (customs and transport) import and export statistics** are the traditional tool and means to
852 analyse foreign trade volumes on the country and trade sector level. The statistics are not a reactive
853 tool and always behind the latest changes of trade volumes, but on a longer run trade statistics
854 provide reliable information on foreign trade trends and developments. The trade statistics however
855 does not provide direct information on the frequency and number of individual trade transactions
856 and, hence, not so specific information for sustainability of Single Window Interoperability. Trade
857 statistics can be used for analyses of general trade volumes between countries, sectorial division of
858 traded goods and modes of transport utilised in export and import by product category. The trade
859 statistics might be available in different contents and combinations in different countries. UN
860 Statistics Division is standardising the collection and publication of trade statistics. Internationally
861 trade statistics are collected into The United Nations Commodity Trade Statistics Database (UN
862 Comtrade).

863

864 **Prognoses and surveys** on Trade and economic situation and development can be used for
865 evaluating the future development of trade volumes in general and between specific countries and
866 trade sectors. Combined with the study on trade statistics a reasonably good estimation on the
867 trade volumes and their present trend foreseeable development can be created to support the
868 decision making and planning of SWI activities.

869

870 **Free Trade Agreements** and other preferential arrangements do normally boost the trade between
871 economies. In addition to the main benefits of FTA, the influence of free trade agreement to the
872 business activity might be one of the triggers to implement SWI arrangement. Combined together
873 FTA and SWI may create a powerful tool for predictable, stabile and harmonised trade procedures
874 between participating economies.

875 **5.2. Strength of political will**

876 **The level of commitment** among political decision makers and leading authorities is of major
877 importance when establishing Single Window Interoperability between two or more NSW's. The
878 level of commitment to the SW operation and development can be studied by interviews and
879 discussions with appropriate political decision makers and lead authorities like customs and trade
880 ministry officers etc.

881

882 Often political will can be reached through the needs of business community and examples of
883 successful implementations and business cases. It is important that all relevant stakeholders will be
884 interviewed and briefed about the benefits and possibilities of SWI. However, also challenges should
885 be brought up to their knowledge in an objective manner not to build the vision of just a plug-in
886 interoperability especially in multilateral interoperability cases.

887

888 **Awareness level on SWI benefits** among decision makers and leading authorities as well as business
889 stakeholders is key issue. The awareness can be raised with tools like **seminars, interviews and**
890 **discussions**. Also a questionnaire is a practical method to raise awareness on the topic at the same
891 time as the present level of awareness is studied. a questionnaire also provides basic information on
892 the general attitude toward SWI. The attitudes and impressions may be checked with discussions

893 and interviews e.g. while conducting studies for reviews and analysis.

894 **5.3. Level of “Local” interoperability (national agencies to the NSW)**

895 Business process analysis and modelling should be implemented among organizations related to
896 NSW and their interoperability with international SWI in order to find out possible bottlenecks and
897 development areas.

- 898 • Analysis and modelling (or reviewing) of AS-IS situation of business processes and data
- 899 flows between (business and NSW and) NSW and government agencies and administration
- 900 • Analysis of SWI requirements and needs for processes and information flows

901 **5.4. Internal review of national readiness for SWI**

902 Study and interview among business and stakeholders should be conducted to review the readiness
903 for SWI activity. This is especially important to be conducted among NSW operational staff.

904

905 Motivation of stakeholders and NSW operational staff

- 906 • ICT readiness – software, hardware and data communication
- 907 • Scheduling

908 **5.5. Stakeholder needs**

909 Study and interview review and analyse stakeholder business and other possible needs for SWI. The
910 reviewed areas could be, but not limited to the following:

- 911 • Stakeholder analysis and evaluation of business needs
- 912 • Mutual user recognition mechanism - Trader identification - Trusted Trader–schema.
913 Mutual recognition is needed for SWI and SW’s are encouraged to create a mechanism for
914 that. (Should the guidelines go even further and propose or specify mechanism(s) that
915 should be used? In this case there is need for some technical and legal specifications/
916 definitions).
- 917 • Trade transaction identification
- 918 • A mechanism for trade transaction identification is needed to track and trace trade
919 documents and connect the documentation to the goods (items)
- 920 • Use of appropriate classification system for product identification
- 921 • HS codes or other agreed product identification scheme

922

923 More stakeholder analysis are described in the below section.

924 **5.6. Bilateral Trading Agreements Research**

- 925 • Need to research all regional and bilateral trading agreements and arrangements to ensure
926 specific protocols or legally binding obligations are considered when developing a national
927 Single Window facility.
- 928 • Such research may reveal examples where a trading agreement may need amendment or
929 revision.

930

931 **5.7. Cross Border and Transit Trade Information**

932 We suggest the collection of cross border and transit trade related information requirements that
933 should be considered in the design of any interconnectivity and interoperability module for the
934 national Single Window.

935 **5.8. Sustainability National SW & international interoperability**

- 936 • The participating Authorities shall conduct Cost/benefit analysis and evaluation to assess
937 the feasibility and benefits of SWI implementation in the long term.
- 938 • The participating Authorities shall also consider appropriate operational and business
939 model for the implementation of SWI. The SWI operational and business model will be
940 discussed in detailed in the Governance Discussion Paper.

941 **5.9. Environmental sustainability evaluation / analysis**

942 Environmental sustainability analysis should also be a part of the analysis for SWI. It is anticipated
943 that SWI will have the similar effects to environment as most of the electronic business
944 developments. At least the use of paper and energy for producing, transporting the documents will
945 be reduced. The analysing methods that could be implemented here are e.g. Supply Chain
946 Environmental Sustainability Scorecard and Environmental footprint analysis.

947

948 **6. Analysis of parties and stakeholders' business needs**

949 It is crucial to analyse the roles and benefits of each parties involved in the SWI implementation. The
950 scope and objective of the SWI project could be defined by analysing the existing trade relationship
951 and capacity between the participating countries and its readiness/preparedness for SWI. Below
952 outlines the business needs of each stakeholder in relation to the cross-border trade facilitation
953 business processes:

954

955 **Governments (top/deciding level)** – Governments play a key role in establishing Single Window
956 Interoperability. Government decisions pave the way for trade agreements and conventions
957 resulting increase of trade volumes. The government decision or acceptance is required when
958 starting to establish and implement information exchange between National Single Window systems
959 between two countries or economies. Governments can also create a feasible environment for
960 implementation of trade facilitation measures, allowing its benefits like Single Window
961 interoperability to be utilised.

962

963 **Lead Agency (implementation level)** – Single Window lead agency take the responsibility of
964 coordinating and implementing the SWI activity. Lead agency will also take the action to negotiate
965 on harmonization of practices and interfaces as well as necessary information, like data sets
966 (documents), codes etc. The lead agency may take care of the implementation action itself or
967 nominate a **Single Window Service Provider** to take care at least of the technical implementation of
968 Single Window interoperability.

969

970 **Traders/Declarants (information source level)** – Without traders and the requirement to provide
971 information on the traded goods along the supply chain for fiscal and other purposes the SWI
972 activity will not be needed. The SWI activity is established to facilitate the traders' burden to provide
973 information to administration.

974

975 **Other interested parties involved in the business process:**

- 976
- 977 • **Participating Government Agencies** could be involved in Business to Government (BtoG),
978 Government to Government (GtoG) relations. The BtoG is an interaction between a trader
979 and administration. Different possibilities to enter the information exist: direct trader
980 interface; EDI, web forms, etc. GTG relationships can have two facets: The 'external' case
981 of GtoG is when there is an interaction between two international administrations. The
982 'internal' case of GtoG is when there occurs data exchange internally in a country between

- 983 its local agency and related national governmental agencies.
984
- 985 • **Chambers and others associations** are interested in developing ICT infrastructure for
986 facilitating global trade. Chambers of commerce deliver international certificates. For
987 example certificate of origin may be needed to comply with Letters of Credit, foreign
988 Customs requirements or a buyer's request. Electronic signature is needed for SWI.
989
- 990 • **IT Service Providers** can facilitate the process of SWI. They can offer IT services and
991 participate in developing, implementing or updating digital infrastructure or services for
992 private traders or administration. Interoperability will permit to optimize the supply chain
993 management (tracking goods, knowledge in real time, anticipating event...). This market if
994 it is generalized at an international level will permit scale economy and lower software
995 prices. This can foster innovation.
996
- 997 • **Financial institutions** facilitate the flow of money between a supplier and a buyer. There
998 are different types of payment to secure international sales transactions as Letter of Credit
999 or Documentary Collection. Even if banks use SWIFT messages for issuing international
1000 trade payment, lots of papers (such as packing lists, insurance certificate, certificate of
1001 origin, commercial invoice, transport document, EUR1...) are still sent in paper between
1002 the import and export banks. Single windows interoperability could be an opportunity to
1003 dematerialize the payment process in parallel of SWIFT platform.
1004
- 1005 • **Port Operators** are obliged to report formalities concerning ships arriving in and departing
1006 out their countries. Two kinds of information systems are concerned for maritime
1007 transport: shipping and goods.
- 1008 ○ *Shipping*: Vessel can be linked with port community system which manage port of
1009 call, dangerous goods and etc. Standardised form for regulatory reporting are
1010 defined by the International Maritime Organisation (IMO) convention on Facilitation
1011 of International Maritime Traffic (FAL). The different FAL paper forms are currently:
1012 general declaration, cargo declaration, ship's stores declaration, crew's effects
1013 declaration, crew & passenger lists, dangerous goods, declaration of health. In
1014 Europe, the Directive 2010/65/UE ⁵ aim at simplifying and harmonising the
1015 administrative procedures applied to maritime transport by establishing a standard
1016 electronic transmission of information and by rationalising reporting formalities no
1017 later than 1 June 1 2015. In this maritime single windows project, each port sends
1018 data to a national system (in France named Traffic 2000) which transfer information
1019 to agencies (health ministry, cross border police...) and to European database
1020 (SafeSeaNet).
- 1021 ○ *Goods*: Freight data can be integrated in a cargo community system which supports,
1022 in particular, e-customs process.
1023
- 1024 • **Ship owners** are interested in sending the information only once in the national single
1025 windows (for example some information of the FAL (shipping) are similar to the goods
1026 clearance). This One stop shop interface requires port operators to agree on data format.
1027 For example customs good classification is HS code whereas dangerous goods are classified
1028 with united nation systems. Furthermore statistics for maritime transportation of goods in
1029 France is based on another system named NST. Simplifying, rationalizing, standardizing
1030 different nomenclatures, agreeing on standards are key issues to prepare SWI. Ship owners
1031 require similar port single windows systems at an international level. For example Directive

⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0065&from=FR>

1032 2010/65/UE will be implemented with 28 different project teams. Coordination is needed
1033 (in Europe ANNA⁶ has this role). It means developing similar IT languages, standards and
1034 procedures.

1035

- 1036 • **Air cargo community** composed of different stakeholders: airlines, airport authority,
1037 ground handling agents, freight forwarders that currently exchanging air cargoes
1038 information via existing air cargo community system. The Government Agencies and
1039 logistics actors would benefit from the data exchange between existing air cargo
1040 network/system to SWI that maximizing the data reusability and accuracy readily available
1041 in the existing systems.

1042

1043 7. Conclusions

1044 It is crucial to perform business needs analysis prior to development of regional or Single Window
1045 interoperability projects as it will help the parties involved to understand the business goals and
1046 what has in place to support the implementation of SWI.

1047

DRAFT

⁶ <http://www.annamsw.eu/>

SEMANTIC GUIDELINES FOR SINGLE WINDOW INTEROPERABILITY

1. Introduction and Definitions

These guidelines refer to the semantic aspects of Single Window Interoperability (SWI): how can semantic interoperability be achieved?

For the basis of this Guidance, the following definitions are offered:

- **Semantics** is the study of meaning. In the context of trade facilitation and the use of ICT in order to exchange data electronically between trading partners, semantics refers to the meaning of the information exchanged – which must be identical. Semantic work confronts different ways of naming and describing things unambiguously. In an electronic data exchange, the result is the establishment of national harmonized or standardized data sets. Using these data sets the trading partners assign the same meaning to the information exchanged.
- **Semantic Interoperability** implies that the precise meaning of data exchanged electronically is preserved and well understood in an unambiguous manner, independent of the way in which it is physically represented or transmitted. Separating the model from the technology allows for alignment of business processes while still supporting variations in both business practices and information technology. This is fundamental to the concept of technology neutrality. Particular implementations, however, do require models to be expressed into technology-specific syntaxes and this can be achieved by using UN/CEFACT's technical specifications, such as UN/EDIFACT (ISO 9735) and UN/CEFACT's Naming and Design Rules for the Extensible Markup Language (XML).
- **SW Semantic Interoperability** is verified when two or more SWs perform mutually agreed business processes using predetermined electronic messages containing data whose meaning is identically interpreted by independent parties because they refer to a mutually agreed standardized data set. These messages can be as simple as sending a document and receiving an acknowledgement but may encompass more complete conversations (choreography of transactions).
- **Business processes** is the detailed description of the way participants intend to play their respective roles, establish business relations and share responsibilities to interact efficiently with the support of their respective information systems. Each business transaction is realized by an exchange of business documents (also called messages). The sequence in which these documents are used, compose a particular instance of a scenario and are presented as use cases. Business processes can often be visualized with a flowchart as a sequence of activities with associated decision points or with a process matrix as a sequence of activities with relevance rules based on data within the process.

2. Basic principles and levels of semantic interoperability

Interoperability is achieved at different layers: data-set creation methodology, data sets, business processes and messaging.

1095 **2.1. Data set creation methodology**

1096 UN/CEFACT Core Component Technical Specification (CCTS) 2.01 – a methodology for developing a
1097 common set of semantic building blocks that represent the general types of business data in use
1098 today and for the creation of new business vocabularies and restructuring of existing business
1099 vocabularies.

1100 **2.2. Data-set level**

1101 At a data level, interoperability of two or more countries' data sets is set out within the UNECE
1102 Recommendation 34. The ultimate goal is to define one standard set of data and messages to meet
1103 all governmental information requirements related to import, export, and transit procedures. One of
1104 the objectives of data simplification is to eliminate redundancies and duplication in the submission
1105 of international trade and transport data to government authorities.

1106
1107 In the context of SWI, this data-level interoperability may address all import, export and transit
1108 procedures between the participating countries. Or it may only address a mutually agreed subset of
1109 these procedures. It could alternatively even be enlarged to include other sectors.

1110
1111 The alignment of two or more standardized data sets has important consequences in terms of safe
1112 supply chains and trade facilitation for enterprises but do not necessarily mean that business
1113 processes and their corresponding electronic exchange of information are identical and do not
1114 necessarily lead to cross border exchanges.

1115
1116 It is preferable to base data harmonization on recognized international standards. This should allow
1117 inclusion of other participants at a later time, or interoperability with other systems not included
1118 within the scope of the SWI project. Depending on the standard organization's participation, such
1119 international standards will likely have been the result of key stakeholders in a number of domains
1120 and in a number of economies. This is the case of data standards and processes developed within
1121 UN/CEFACT, building on several decades of collaboration between countries and between the
1122 private and public sectors. Some of the results from this include:

- 1123
- 1124 • UNTDED – a joint UNECE and ISO standard with over a thousand data elements. It is
1125 referenced within ISO under the International Standard ISO 7372. The Maintenance Agency
1126 is composed of inter-governmental and non-governmental bodies.
 - 1127
 - 1128 • UN/CEFACT Core Component Library (CCL) - a library of business semantics in a data model
1129 which is harmonized audited and published by UN/CEFACT. The CCL uses Core component
1130 Technical Specifications (CCTS) to ensure consistency and interoperability. The library has
1131 contributions from many organizations including government and business and deals with
1132 cross border trade for messages for Buy – Ship – Pay business processes.

1133 **2.3. Business process level**

1134 When two national SW systems want to exchange information, they need to have agreements
1135 concerning their common business processes. The modelling of these processes should be based on
1136 approved modelling techniques such as such as the UN/CEFACT Modelling Methodology, which is
1137 based on the Unified Modelling Language (UML).

1138
1139 As outlined in Recommendation 34, when analysing the harmonization of the data sets, it will be
1140 necessary to consider the implications of each data element's use within the context of the related
1141 process. Insofar as possible, the related processes should be aligned.

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The alignment and harmonization process may result in an overwhelming mass of information. For this reason, the SWs which are seeking interoperability may wish to start by concentrating on certain aspects or domains which will be the initial subject of interoperability, then eventually roll out to other aspects or domains.

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1149

- UN/CEFACT Business Requirement Specification (BRS) – The BRS is the mechanism for documenting user requirements and guiding the standards development process.

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- Unified Modelling Language (UML) is a modelling language for design systems developed by the Object Management Group (OMG). It can include class diagrams, sequence diagrams, etc.

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- UN/CEFACT Modelling Methodology (UMM) is a UML modelling approach to design the business services that each business partner must provide in order to collaborate. It provides the business justification for the service to be implemented in a service-oriented architecture

1157

2.4. Message level (syntax)

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Business processes are executed by the exchange of messages. The content of these messages needs to be agreed by both parties: sender and receiver. They are assembled using the above mentioned standardized data sets.

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Interoperability at the level of XML Schemas implies the harmonisation of naming rules and technical standards (of data models); class diagrams, class level, attribute level should be extended with xml schemas.

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- This XML Naming and Design Rules (NDR) specification is based on the World Wide Web consortium suite of XML specifications and the UN/CEFACT Core Components Technical Specification (CCTS). This specification defines XML Schema and Schema documents which are published and form the basis of UN/CEFACT standards publications. It has been developed to provide consistent and computer generated XML expressions of libraries created using CCTS specification. Therefore it takes a specific semantic data model and transforms it into its syntactic equivalent.

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3. Issues and challenges

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3.1. Achieving interoperability on a global level

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One of the main challenges today is a lack of interest for interoperability outside of limited domain uses. There are however a number of international organizations which are working towards standards which contribute to interoperability on a global level.

ISO-IEC-ITU-UNECE Memorandum of Understanding

These four international standards organizations (International Organization for Standards – ISO, International Electronic Commission – IEC, International Telecommunication Union – ITU, and the United Nations Economic Commission for Europe – UNECE) have concluded an agreement which aims to coordinate the members' efforts on standardization and avoid duplication of work.

1180

1181 One recent joint project has been a proof-of concept whose main goal is to develop semantic
1182 interoperability across consumers, industry and governments by reference to the following
1183 requirements :

- 1184 • Clear definition of concepts
- 1185 • Governance and operation of the vocabulary, in a web-enabled syntax neutral
1186 environment
- 1187 • The processes for discovering concepts and reusing them to foster interoperability
- 1188 • The process for defining and agreeing extensions to the vocabulary
- 1189 • Support for multiple representations
- 1190 • Support for multiple languages
- 1191 • Implementation support tools, including mapping between native data in applications and
1192 the vocabulary
- 1193 • Use of tools such as Simple Knowledge Organization System (SKOS) and Resource
1194 Development Framework (RDF)
- 1195 • Deployment of the vocabulary – Publicly Available Free of Charge

1196 **3.2. Conformance versus compliance versus consistent to international standards**

1197 When the implementation of a given solution is defined solely with the terms and within the scope
1198 of a given standard, then it can be considered *compliant*. When the implementation of a given
1199 solution uses all of a given standard and builds upon that, it can be considered *conformant*. However
1200 the extensions which were added may not be interoperable with other solutions since not included
1201 within the referenced standard.

1202

1203 When the implementation of a given solution uses only parts of a given standard and builds
1204 extensions upon that, it can be considered consistent. Again, the extensions which were added may
1205 not be interoperable with other solutions since not included within the referenced standard. What's
1206 more, as not the entire referenced standard is used, there is a chance that another party which used
1207 the same standard might not be able to align since parts will be missing from the "consistent"
1208 solution.

1209 **3.3. Actors needing to comply with multiple single windows**

1210 In an international supply chain, it is possible that a single actor will need to comply with multiple
1211 single windows. This may be obvious for actors with operations in multiple countries, each with their
1212 own national single window. However, there can be cases within a national environment with
1213 multiple single windows each handling regulatory procedures.

1214 **3.4. Different levels of experience**

1215 Single window implementers may have varying levels of experience making negotiations of
1216 interoperability a challenge. Some long standing implementers may have a very mature system and
1217 rich experience background which a country that has just begun its implementation will not have.
1218 Such an imbalance may make alignment a challenge as lesser experienced implementers may have
1219 requests which are based more on preconceptions rather than on actual experience and application
1220 of the principles set out in UNECE Recommendations 33, 34 and 35.

1221 **3.5. The importance of context**

1222 The impact of sectorial and official contexts on SWI will be important and absolutely necessary.
1223 However due to the existence of harmonized data models and standard libraries, it will be possible

1224 to establish semantic interoperability between SW systems in a relative sense without prejudicing
1225 the remaining differences between different contexts.
1226

An Example of Context in CCTS:

From CCTS 2.01 we have selected the following example which illustrates the notion of context and shows that electronic exchanges are not completely standardized precisely because they need to be adapted to the context in which they are used but are nevertheless calibrated by the reference to generic concepts:

- An invoicing Business Process uses a piece of information such as Invoice. VAT_ Tax. Amount.* Invoice. VAT_ Tax. Amount is a Basic Business Information Entity that is based on the Basic Core Component of Invoice. Tax. Amount.
- The invoicing Business Process is using Invoice. Tax. Amount in a specific Business Context where the Business Process Context = Purchasing, and the Geopolitical Context = EU.
- Therefore the application of Context adds a specialized definition, but in all other respects the Basic Business Information Entity is the same as the associated Core Component of Invoice. Tax. Amount, i.e. it has the same structure and Data type.

* In accordance with rule [B17], VAT would be defined as Value Added Tax in the definition for the Basic Business Information Entity of Invoice. VAT_ Tax. Amount.

In CCTS 2.01 we find 395 occurrences of the string context.

1227
1228 The existence of different contexts in which developments occur results in the adaptation of a
1229 particular system to the different national or regional SW systems with which it communicates.
1230 Participation in multiple SWI initiatives has been implemented by TradeXchange of Singapore which
1231 is a partner in SWI systems of PAA, ASW and participates in APEC regular SW interconnection
1232 workshops. TradeXchange adapts to all these environments but influences them.
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GOVERNANCE OF SINGLE WINDOW INTEROPERABILITY

1. Introduction to Governance of Single Window Interoperability

1240 Single Windows for external trade by their nature involve a large number of stakeholders: from the
1241 public regulatory agencies to private actors within the supply chain that will interact within the
1242 Single Window environment. Add a cross border dimension and the number of stakeholders
1243 increases exponentially. Governing these systems within such a broad operating context and
1244 involving varied interest groups becomes a challenge for planners and implementers.

2. Definition of Governance

1246 The term “governance” in itself is a broad term and is often used to denote power, e.g. who sets the
1247 agenda (mission, plan, structure) within a given context. Various state-centric definitions of
1248 governance exist. For example, the World Bank suggests that governance is “the process – by which
1249 authority is conferred on rulers, by which they make the rules, and by which those rules are
1250 enforced and modified.”⁷ The UNDP proposes that it involves “the exercise of economic, political
1251 and administrative authority [...]. It comprises the mechanisms, processes and institutions through
1252 which citizens and groups articulate their interests, exercise their legal rights, meet their obligations
1253 and mediate their differences”.⁸

1254
1255 In business, “governance” can be described as: “The combination of processes and structures
1256 implemented by the board to inform, direct, manage, and monitor the activities of the organization
1257 toward the achievement of its objectives.”⁹ This offers a much wider application of the term, which
1258 we can adapt to understand that governance involves processes, decision-making, definition of
1259 actions, distribution of powers and accountability as well as performance management. From this
1260 interpretation of governance, various questions arise:

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1262
- What processes are used for making decisions?
 - What actions are necessary?
 - To whom are powers granted and how?
 - How is performance verified or measured?
- 1263
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1267 These questions are all applicable in the context of planning and implementing interoperable Single
1268 Windows for trade across borders. This paper will seek to explore these questions and identify
1269 possible models that can be used to govern SWI.

1270

3. Review of Guidance on Single Window Governance to Date

1272 The concept of Single Windows for trade is not a new one and various guidance has been developed
1273 over the ten years since the release of UN/CEFACT Recommendation No. 33 to support policy-
1274 makers and implementers of National Single Windows. A few of the key sources are detailed below:
1275 The UN/CEFACT Recommendation No.33 Guidelines on Establishing a Single Window provides no
1276 specific advice with regards to Single Window governance, although ideas on governance may be

⁷ The World Bank, “Arriving at a Common Understanding of Governance”:
<http://go.worldbank.org/G2CHLXX00Q0>

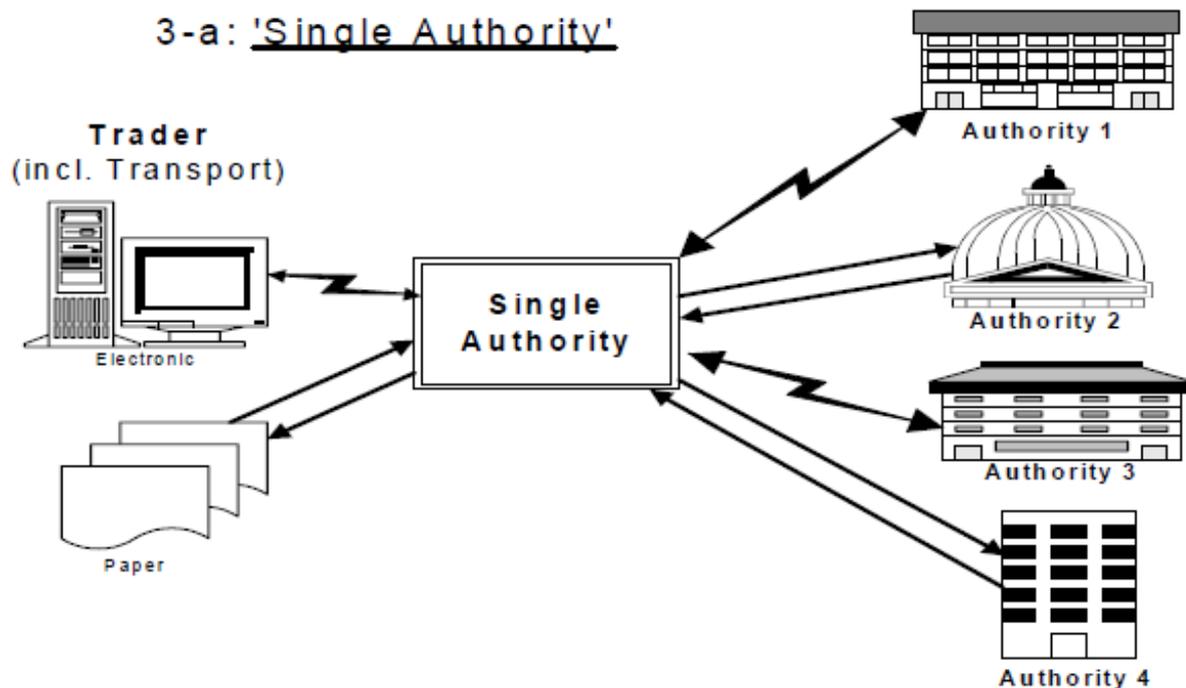
⁸ United Nations Development Programme, “Governance for Sustainable Human Development”,
UNDP Policy Document, New York, 1997.

⁹ Institute of Internal Auditors (IIA) “International Standards for the Professional Practice of Internal Auditing:
Glossary”, <https://na.theiia.org/standards-guidance/mandatory-guidance/Pages/Standards-Glossary.aspx>

1277 extrapolated from the Single Authority basic model for Single Window in which one agency is given
1278 authority to execute selected tasks on behalf of other agencies. The Swedish Single Window is given
1279 as an example in this case as Swedish Customs performs tasks for the National Tax Administration,
1280 Statistics Sweden, Swedish Board of Agriculture, and National Board of Trade.

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1283

Figure 2: UN/CEFACT Recommendation 33's Single Authority Basic Single Window Model



1284 The Single Authority model, by its nature, implies some form of governance structure has been
1285 applied in order to provide the framework for one authority to act on the others' behalves. The
1286 alternative, automated models for Single Window provided in the Recommendation Guidelines do
1287 not necessarily carry the same implications for governance.

1288
1289 Beyond the Single Authority model, Recommendation 33 and its Guidelines provide a little more
1290 insight to governance options, introducing the idea of a Lead Agency for a Single Window but
1291 acknowledging that this will vary from country to country depending on legal, political and
1292 organisational issues and may be public, private or some combination of the two (e.g. the public-
1293 private partnership in Mauritius). It also touches upon the varying role a Lead Agency might have in
1294 the Single Window, either simply as a coordinator (e.g. Netherlands), or a stronger operator but
1295 does not go into further details.

1296
1297 Notably, the Recommendation 33 guidelines identify several characteristics for the Lead Agency
1298 stating that it must have the necessary:

1299

- 1300 • Vision
- 1301 • Authority (legal)
- 1302 • Political backing
- 1303 • Financial and human resources
- 1304 • Interfaces to other key organisations

1305

1306 Finally, it points out that Customs can be the agency best suited to lead a Single Window
1307 development and implementation, as was played out in the majority of the Single Window case
1308 studies reviewed for the Recommendation.

1309

1310

1311 The World Customs Organisation (WCO) took forward the idea of Customs having a lead role in the
1312 establishment of National Single Windows and provided further guidance in the form of the WCO
1313 Compendium on How to Build a Single Window Environment. This Compendium focuses on “a
1314 philosophy of governance” behind Single Window which contributes to the transformation of
1315 government structures in such a way that they better serve citizens’ needs. The Compendium draws
1316 a link between Single Window and other concepts such as Coordinated Border Management (also
1317 known as Integrated Border Management) and inter-agency cooperation but does not provide more
1318 detail as to the governance structures that might be put into place to manage such cooperation
1319 beyond the assignment of [Customs as] a Lead Agency.

1320

1321 UN/ESCAP’s Single Window Implementation Guide broke basic principles of governance into
1322 component parts including stakeholder collaboration, business and governance models enforcement
1323 including finance, implementation and operation governance among its 10 key components of its
1324 Single Window Implementation Framework (SWIF).¹⁰ This Guide provides a useful view of how cost
1325 benefit analysis may be conducted to determine the most appropriate National Single Window
1326 model for implementation. Although not explicitly stated, this analytical work may also be applied
1327 to distinguish the best governance model for a given implementation.

1328

1329 Moving beyond guidance and recommendations specifically aimed at the development of National
1330 Single Windows, the recent UNECE paper “Trends for collaboration in international trade: Building a
1331 common Single Window Environment” offers some more detailed advice for governance of SWI
1332 introducing the concept of centralisation versus federalisation (or network) in terms of organisation
1333 and governance of interoperability.

1334

1335 Other sources of information and related concepts that may be useful to acknowledge in the
1336 discussion on governance and SWI include:

1337

- 1338 • UN/CEFACT Recommendation 4 on National Trade Facilitation Bodies
- 1339 • WCO guidance on Coordinated Border Management and Globally Networked Customs
- 1340 • European Interoperability Framework and guidelines on Integrated Border Management
- 1341 • Public-Private Partnerships
- 1342 • Regional Integration

1343

1344 In addition to the above, Case Studies directly applicable to the SWI discussion include:

1345

- 1346 • ASEAN
- 1347 • Korea (incl. Korea-China-Japan Maritime Platform)
- 1348 • EU (UNECE paper, EU Interoperability Framework & TRACES system, Maritime SW, ICS &
1349 NCTS, TIR)
- 1350 • African Alliance on eCommerce

1351

1352 **4. Governance Models**

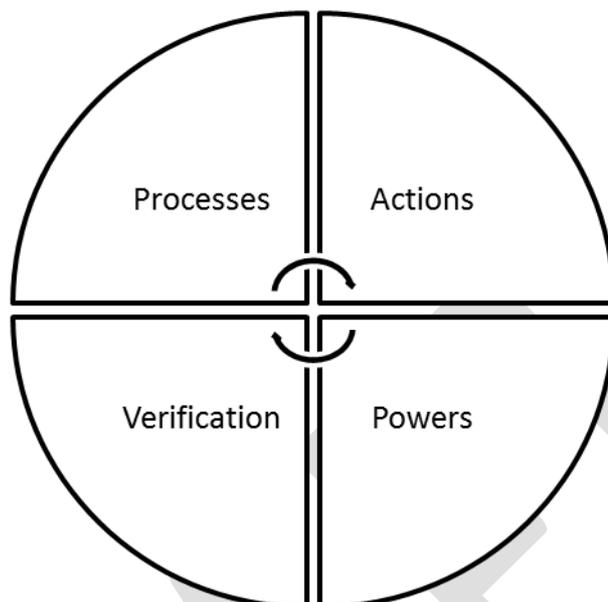
1353 As shown, the guidance to date with respect to governance models for National Single Window
1354 implementation is fairly broad-based with little specific and direct relation to SWI. This discussion
1355 paper aims to extract lessons learned from conventional models and apply them in a new
1356 framework for SWI. In order to do this, it is necessary to revert back the original questions of

¹⁰ The SWIF is based on “The Open Group Enterprise Architecture Framework”, TOGAF, which includes implementation governance as a key phase.

1357 governance, namely: (a) what processes are used for making decisions?; (b) what actions are
1358 necessary?; (c) to whom are powers granted and how?; and (d) how is performance verified or
1359 measured?

1360

1361 **Figure 3: four questions of governance**



1362

1363 In order to apply these governance questions more usefully to SWI, it is helpful to look at SWI in
1364 three distinct phases of design, development and operation as each may require different forms of
1365 governance. But first, it is especially important to understand the overall global context in which
1366 SWI is taking place as this, too, will have an effect on forms of governance that may be required.

1367 **4.1. Context of SWI Governance Models**

1368 The primary driver of SWI would be the globalization of trade and related supply chains. The
1369 increased flow of goods across borders and improved levels of communications create greater
1370 pressures on economies to be competitive and facilitate trade. Furthermore, there are increasing
1371 incentives for greater cross-border cooperation and enhancement of regional integration initiatives
1372 in order to reap benefits from economies of scale and access to markets.

1373

1374 Within the above framework, there are three key activities happening on a global level that will have
1375 an impact on the governance of Interoperable Single Windows.

1376

1377 **First, the globalisation / convergence of trade facilitation initiatives.** Perhaps most clearly
1378 illustrated in the World Trade Organisation's (WTO) Trade Facilitation Agreement (TFA).¹¹ This
1379 Agreement identified Single Window and [Cross] Border Agency Cooperation as important tools for
1380 international trade facilitation (Articles 10.4 and 8.2 respectively). The TFA also contained several
1381 provisions for governance of these trade facilitation initiatives through the establishment of a
1382 Committee on Trade Facilitation as well as National Trade Facilitation Committees (Article 13).¹²
1383 These trade facilitation bodies may be considered viable governance models for interoperable Single

¹¹ At time of writing, while the TFA had failed to gain the formal approvals required to come into force, most of the countries party to the agreement in December 2013 continue to pursue their commitments under it (indeed, some 48 WTO Members have already made Category A commitments).

¹² see also UN/CEFACT Recommendation 4

1384 Windows.

1385

1386 **Second, the development and use of international trade standards.** Also contained within the WTO
1387 TFA (Article 10.3), the use of international standards for import, transit, and export formalities is not
1388 only an important trade facilitation tool but also central to the function of interoperability. Several
1389 key international standards for Single Windows are identified in Recommendation No. 33,
1390 implementations that have followed such guidelines stand a greater chance of being interoperable.
1391 Other standards for interoperability are being considered in the parallel discussion paper on
1392 technical semantics for SWI. Ongoing developments of international trade standards that are of
1393 particular importance to the Interoperability (and governance) of Single Windows are:

1394

- 1395 • Trader Identification
- 1396 • Unique Consignment Reference (UCR) / transaction identification
- 1397 • Product identification

1398

1399 **Third, overlaying regional integration structures.** Single Window, in its original form, was a tool to
1400 enhance a country's national trade facilitation position. Interoperable, cross-border and regional
1401 Single Windows can now be seen in their broader context as tools to not only improve national
1402 competitiveness but also to promote regional economic growth. There are many drivers for regional
1403 integration (security, social and economic) and regional integration initiatives have been increasing
1404 across all continents over the past decade. Regional Economic Communities (RECs) take many
1405 different forms and often overlap but their shape will certainly also have a significant impact on the
1406 governance of SWI within the region.

1407

1408 The Association for Southeast Asian Nations (ASEAN) offers a strong case study for the impact of a
1409 Regional Economic Community on the formation of a Regional Single Window system. Through such
1410 a case study we may see how the governance structures of the larger REC may impact the
1411 governance of a Regional Single Window. Similarly reflections may be drawn in highly integrated
1412 environments such as the EU as well as deep bilateral relationships such as between the US and
1413 Canada. The highly integrated systems of these latter examples attest to that fact.

1414

1415 Globalisation, international standards, and regional integration structures not only impact the
1416 governance models for SWI but also the business drivers, or needs, as well as the technical and legal
1417 framework in which Single Windows work. For this reason, it is expected that these issues will also
1418 be discussed in the other papers alongside this one.

1419

1420 **5. Governance Models for the Initial Design Stage of SWI**

1421 During the early stages of Single Window design, it is most likely that existing governance structures
1422 will be utilised to initiate the SWI activities. In particular, the processes for decision-making and
1423 power structures already in place may be utilised to govern commencing activities and functions
1424 gearing towards SWI.

1425

1426 In a cross-border setting, these existing governance structures will be in the form of bilateral or
1427 multilateral agreements and will be closely linked with the level of [regional] integration between
1428 the parties as set by these agreements. These may be deeply evolved state-level treaties defining
1429 detailed decision-making processes and conferring powers at a supranational level (such as
1430 governed by the European Parliament and related legal institutions). They may be detailed inter-
1431 governmental agreements such as between the US and Canada; or more general cross-border
1432 agreements such as the Greater Mekong Subregion Cross-Border Transport Facilitation Agreement
1433 (CBTFA); or institutional-level Memoranda of Understanding (MoU) such as those that might be

1434 agreed by Customs authorities across a border. Each level of agreement will come with different
1435 legal implications for SWI, to be considered in the parallel discussion paper on legal issues.
1436

Centralised versus Network Governance Models

The existing cross-border governance structures and legal environment may differ, but in order for SWI to take shape, a set of characteristics are required that are much the same for a lead organisation to take forward in any Single Window development, they are: vision, authority, political will, financial and human resources, and access to key stakeholders.¹³ This may be achieved through a strong centralised model where an authority with supranational powers exists, but given global experience, in a cross-border context, it is more likely that a decentralised, network governance model would be more applicable. A network governance model would be more likely to have the ability to reach the wider number and more diverse set of actors across increasingly complex international supply chains.

Characteristics of a Network Governance Model:

- Involve a large number of interdependent actors who interact in order to produce common purpose.
- Based on negotiation
- Compliance is ensured through trust and political obligation which, over time, becomes sustained by self-constituted rules and norms.¹⁴

Benefits of Network Governance:

- Greater access to stakeholders (a network of networks).
- Improvements based on knowledge sharing
- More effective, collective problem-solving.

Looking beyond the State-level, a governance model for SWI could be developed from a network of customs agencies (e.g. the WCO's Globally Networked Customs), or perhaps in future, a network of National Trade Facilitation Committees (as foreseen by the WTO FTA).

1437
1438 Regardless of whether or not it takes on a centralised or decentralised shape, the starting point for
1439 any governance model is identification of a common need. For the initial stages of SWI design, any
1440 governance structure will be focused on the following activities to articulate the common need or
1441 "vision" [in accordance with international best practice]:

- 1442
- Defining technical structures (see technical discussion paper in this series)
 - Defining legal framework (see legal discussion paper in this series)
 - Identifying operational requirements (see business needs paper in this series)
 - Cost-benefit analysis of all of the above

1447
1448 In tandem with this, the governance model at the initial design stage will also be focused on:

- 1449
- Assigning powers and accountability (that relate to the decision-making process needed to achieve the above actions)
 - Setting benchmarks (linked to the above)
 - Refining decision-making processes for interoperable Single Windows
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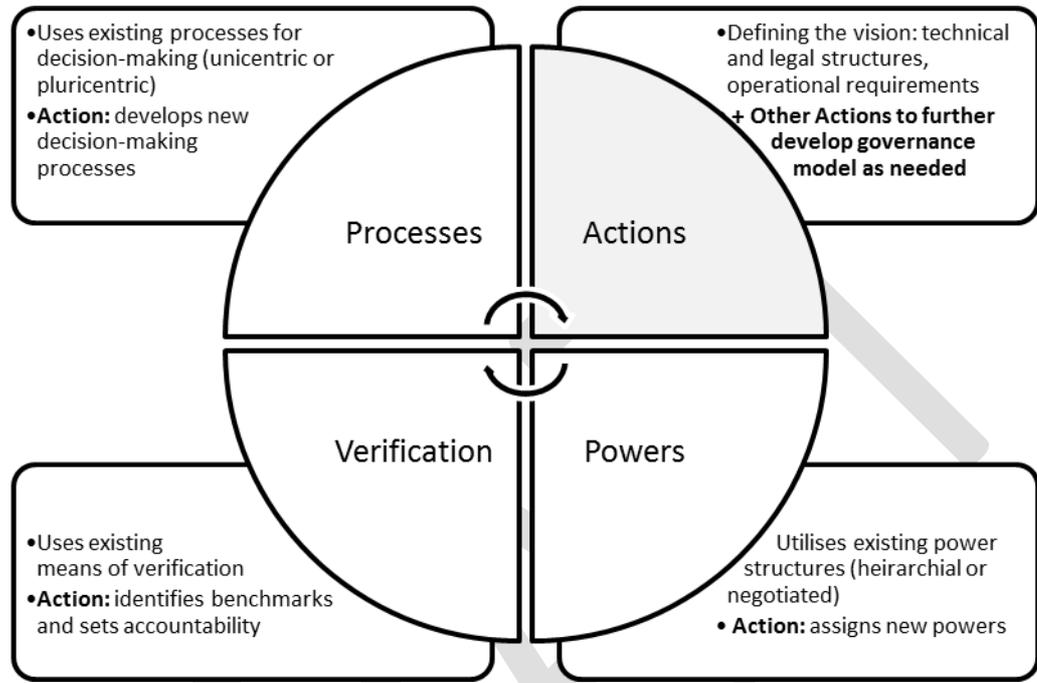
¹³ It is possible that National Trade Facilitation Committees foreseen by the WTO TFA would be a natural place to start.

¹⁴ Nielsen, K. & Pedersen, O. K. 1988. 'The Negotiated Economy: Ideal and History', *Scandinavian Political Studies*, 11(2): 79–101.

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These powers may be assigned to groups (e.g. technical working groups), either inside or outside the organisation or network through contracts or other legal mechanisms to be discussed separately. At this stage, the focus would be on identifying and assigning powers, processes and means of verification as actions - the specific powers and decision-making processes needed to do this would be derived from the existing governance structures.

Figure 4: focus of governance during the initial stages of designing SWI



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1464

6. Governance Models for the Development of SWI

Once the technical shape, legal frameworks, and operational requirements have been defined during the design stage, the governance structure will need to be adjusted in order to take on more specific actions or functions related to the development of interoperable Single Windows. These actions may include and are not limited to:

- Procurement of resources (financial and human, internal and external)
- Development of software
- Installation of infrastructure
- Business process re-engineering; and pilot testing.

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These activities form part of any Single Window development, regardless of whether or not they are going to interoperate across borders. They may therefore be governed by national (or organisational) structures.

There are, however, several activities that may be needed specifically for the development of interoperable Single Windows that will require cross-border governance, namely:

- Cross-border process harmonisation / alignment
- Development of new standards to be used within the Single Window system (as needed, if International standards do not apply or need adapting – e.g. common tariff nomenclature, trader identification, etc).
- Pooled human and financial resources for the development of core services and common

1485

- 1486 utilities (software or infrastructure e.g. centralised software / gateways / information
1487 management, etc).
- 1488 • Public-private consultations, including to help prioritise data to be exchanged between
1489 multiple countries/single windows

1490
1491 The existing governance systems in place for the design phase may not be sufficient (in terms of
1492 power or decision making process) therefore, adjustments to governance structure may be
1493 implemented (in accordance with the original designs / visions), as needed, and/or new governance
1494 institutions may need to be created.
1495

Project Governance Models to Manage Development

An important point to note is that the development stage of SWI has a defined end, that is: when the Single Windows are interoperable in line with the agreed common vision. Therefore, it may be helpful for the development phase of SWI to be considered as a “project”.¹⁵ Project governance models are always temporary and offer a very specific advantage in situations where existing organisational structures are not sufficient to manage the activities required to achieve the project’s outcome.

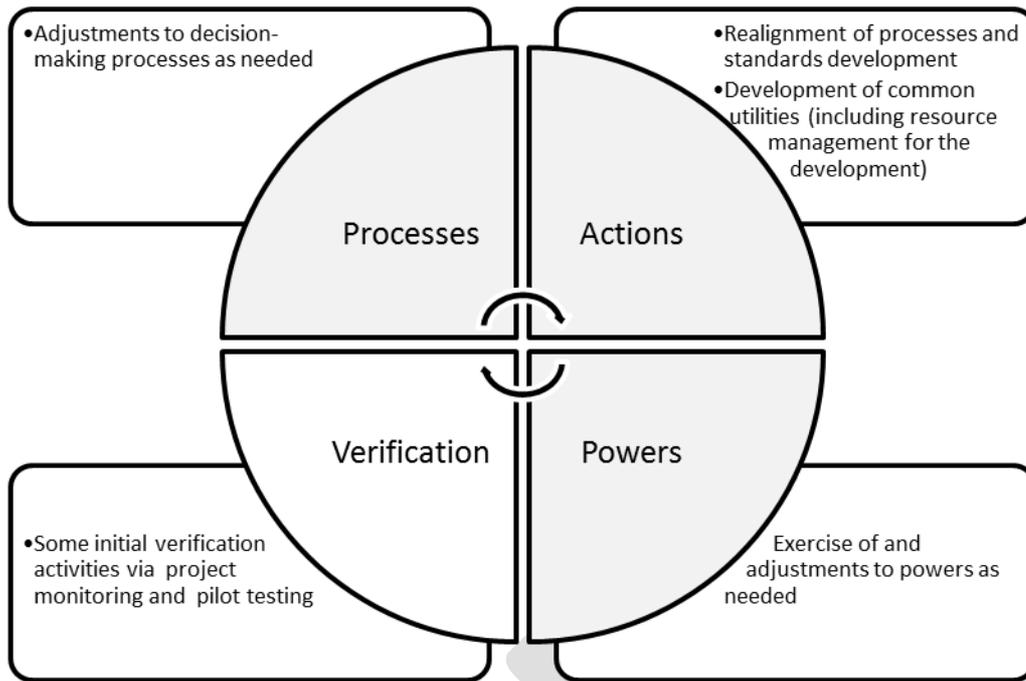
Best practice in Project Management envisages a hierarchical structure to manage the execution of the project tasks under the control of a Project Director and/or Manager, but the governance structure above that is more inclusive in the form of a Project Board (or Steering Committee). The wider network governance structure outlined as a possibility in the initial design of SWI may be suitably transitioned into the Project Steering Committee or Board.

One of the challenges posed by installing a project governance structure for the development of SWI is the fact that it requires temporary and specific resource allocation. This challenge is often overcome by outsourcing as is seen in most cases where the development of Single Windows is outsourced to private sector entities.

1496
1497 Whether or not project governance or other models of governance are used during the
1498 development of interoperable Single Windows, it is clear that the demands on governance functions
1499 are more significant and more specific during the development phase than in the design phase. With
1500 proper awareness of this fact, appropriate plans are made during the design phase to make the
1501 necessary adjustments to the governance framework.

1502
1503 **Figure 5: focus of governance during the development of SWI**
1504

¹⁵ The Project Management Institute defines a Project as “A temporary endeavour undertaken to create a unique product, service, or result.” *A Guide to the Project Management Body of Knowledge*, Fourth Ed. (Glossary).



1505
1506

1507 7. Governance Models for Operation of Interoperable SW

1508 Once two Single Windows are interoperable with each other, the focus of the form of governance
1509 should shift to sustainability. If a project governance structure or something temporary was put into
1510 place during the development, then it should be replaced or evolved into something that will last
1511 indefinitely. Key functions will include:

1512

- 1513 • Sustainability
- 1514 • Continued access to resources
- 1515 • Core services management

1516

1517 The options for ongoing operational management of the interoperable Single Windows will depend
1518 once again on the existing level of cross-border integration as either a centralised or networked
1519 governance model could be applied in the ongoing operation of interoperable Single Windows. In
1520 addition to the consideration of the cross-border governance context, the form of governance that
1521 was used during the development stage may also be considered as a factor in determining the final
1522 model of governance chosen for SWI.

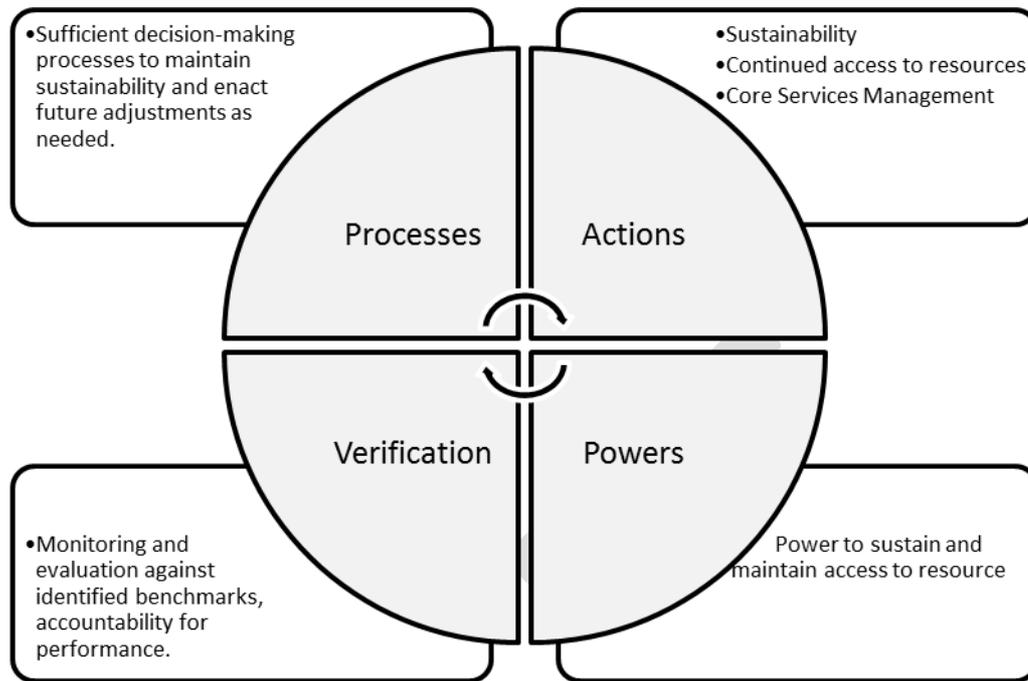
1523 If, during the development phase, (a) a strong centralised governance structure was created, either
1524 temporarily as part of a project governance approach, or otherwise; and (b) this structure was found
1525 to be self-sustaining either by design or adaptation, then it would be possible for a networked
1526 governance approach to be used during the design phase and a centralised governance form
1527 employed during the operational stage.

1528

1529 Public-private-partnerships are models that are frequently employed between public and private
1530 sectors to engage a strong project management approach in the development of a system and
1531 sustain it through to SWI operation; however these come with a number of challenges and
1532 considerations for all parties involved. Even if strong central control provides for good immediate
1533 access to resources and core services management, this may be hindered in the long run due to the
1534 fact that multiple stakeholders need to continue to be involved in order to ensure key data is kept
1535 up-to-date and overall sustainability is achieved. A hybrid network governance approach may be
1536 necessary.

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Figure 6: focus of governance during SWI operation



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1542 8. Conclusions

1543 The governance framework for SWI is complex, driven by a wider context involving globalisation of
1544 trade, internationalisation of standards, and regional integration. Each governance approach to SWI
1545 will need to be adapted to suit the specific environment in which the parties will operate cross-
1546 border. That being said, there is merit in exploring the idea that certain forms of governance may be
1547 more useful at some stages over another. For instance, network governance models may be
1548 particularly applicable during the design of SWI, whereas project governance models might be more
1549 appropriate for the development. Further case studies may help shed light on these aspects.
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LEGAL ASPECTS OF SINGLE WINDOW INTEROPERABILITY

1555 **1. Introduction and Background**

1556 The Single Window Interoperability (SWI) project focuses on the mechanisms required for the
1557 interconnectivity of two or more Single Window facilities located in different countries. This Section
1558 of the Recommendation concentrates on the legal environment required for the effective
1559 implementation of Single Window Interoperability. It aims at answering the questions of what
1560 administrative and legal conditions need to be in place in order to support and facilitate
1561 interconnectivity and interoperability of Single Window systems across borders. While
1562 Recommendation No. 33 looked at both electronic and paper-based processes, the current project
1563 looks only at electronic exchange of information.

1564
1565 Parties involved need to have a model of working through proposed legislation that coordinates the
1566 different agencies, departments and their respective agendas and cultures and take into account the
1567 opinions of other stakeholders, such as trade itself to ensure it meets their business requirements.
1568 The model for SWI is addressed to governments, international organisations, and private sector
1569 stakeholders including legislators, regulators, facilitators and operators of Single Window systems.
1570

1571 **2. Regulatory Issues**

1572 The legal environment issues addressed in this Guidance focus primarily on regulatory issues
1573 generally in the context of governments exercising trade controls. For example, company X is
1574 submitting a customs declaration including particular documents such as the certificate of origin,
1575 veterinary or phytosanitary certificates, and applications for import licences and permits. The variety
1576 of legal issues related to this type of exchange are considered here in terms of the overall legal
1577 framework necessary for Single Window Interoperability.

1578
1579 This approach does not address contracting issues (B2B transactions) nor contracting issues that may
1580 be related to the establishment and operation of the Single Window facility. Generally, companies
1581 can enter into contractual relationships through trade platforms or otherwise by electronic means.¹⁶
1582 It is, however, not common to conclude contracts through Single Window systems. Using Single
1583 Windows is part of performance of a trade contract by the parties to such trade contracts, as well as
1584 contract performance by their agents, e.g., freight forwarders.
1585

1586 **3. Scope of Legal Environment Component of the Recommendation**

1587 **3.1. Government to Government Interoperability**

1588 The legal environment issues in this Recommendation focus on issues relating to the government-to-
1589 government (G2G) interoperability of national single window frameworks, including issues that arise
1590 in connection with the implementation and operation of such interoperable systems. It will not
1591 address business-to-government (B2G) interoperability requirements unless these are closely
1592 connected to government-to government interoperability. It will also not address issues involving
1593 business-to-business (B2B) relationships between the various parties involved in international trade

¹⁶ As noted above, this Recommendation focuses on the use of electronic Single Window Systems rather than paper models. Therefore, it assumes that an electronic transactions legal framework has been established for B2B, B2G, etc. transactions in each of the participating countries. See, Recommendation 35 (2010).

1594 transactions, or relationships between such businesses and governments, such as filing
1595 requirements.

1596 **3.2. Relationship with Recommendation No. 35**

1597 UN/CEFACT issued *Recommendation No. 35 – Establishing a Legal Framework for International*
1598 *Trade Single Window*¹⁷ to provide general guidance on the legal framework issues related to
1599 developing, implementing and operating Single Window facilities. *Recommendation No. 35* suggests
1600 the importance of considering international trade transaction legal issues. Its Annex II provides
1601 criteria to consider and these criteria should be observed whenever establishing a Single Window
1602 system. This Recommendation on Single Window Interoperability builds on the foundation provided
1603 in *Recommendation No. 35* and adds to its provisions only where necessary. Reference may be
1604 made to other legal instruments relevant to the setting up and running Single Window facilities.
1605 *Recommendation 35* also notes the importance of adopting international standards when
1606 establishing the legal environment for a Single Window.¹⁸

1607 **4. Legal Issues Involved in Cross-Border Single Window Interoperability**

1608 **4.1. General Introduction**

1609 The following list of issues and principles are largely based on *Recommendation No. 35*. They are
1610 intended primarily to highlight those questions that may arise in a cross-border interoperability
1611 context. Recommendation No. 35 should be referenced when reviewing the following material. It
1612 should be noted that due to the extremely robust range of legal issues that might need to be
1613 addressed in varying Single Window circumstances and different legal regimes, the list is not
1614 exhaustive.

1615
1616 Single Window Interoperability for regulatory purposes means that the authorities of different
1617 countries cooperate by [electronically] exchanging data to meet regulatory aims. The data may have
1618 a different structure, content and legal status in different countries. Even regulatory data based on
1619 the same legal source such as an international convention or EU directive may end up being
1620 different when implemented. Only full harmonisation of law could eradicate such problems.

1621 **4.2. The main principles of Single Window Interoperability**

1622 International law of cooperation between states in the field of electronic exchange of regulatory
1623 data is not very developed. Few treaties exist and these may be sectorial or territorial only. We may
1624 therefore look for principles that could be crystallized into customary international law or, possibly
1625 later on, into treaty provisions of a more general application.

1626
1627 For example, in the Eurasian Economic Union, there are a number of key principles applicable to the
1628 information exchanges between Single Window systems and these set an example of issues that
1629 should be addressed and defined in any agreement between two or more National Single Window
1630 operations participating in such exchanges. The electronic exchange of information and data
1631 messages, and the further use of this information in each participating State, should be based on at
1632 least the following principles:

1633

¹⁷ Recommendation 35 is available at <http://tfig.unece.org/contents/recommendation-35.htm>. (December 2010.)

¹⁸ See, Recommendation 35, Annex III – Toolkit (listing a variety of international organizations providing guidance on legal and other issues relevant to Single Window development

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- **Mutual interest and benefit of the parties (participating in the exchange of information):** this principle means that the parties agree on the provision of information on a parity basis. The scope and conditions of the information provided should meet the interests of the parties. Information exchange should enhance the development of cooperation between the parties.
 - **Accessibility and availability of data:** the requests for information should be processed and replied to the requesting party to the extent specified in the agreement between the States parties.
 - **Accuracy and completeness of information:** information provided to the requesting party must be accurate and contain a complete list of information as defined in their agreement.
 - **Timely submission of required information:** parties should adhere to deadlines for providing the information fixed in an agreement. Delays in reporting should be avoided.
 - **The information exchanged should be used only for limited specified purposes:** taking into account the needs of confidentiality and without prejudice to the State that has provided such information.

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Harmonization is needed as regards the limitations to share information between governmental agencies of different states which may have different laws on data sharing. Data sharing should be only in the interests of the data provider, normally a legal person submitting data in a B2G relationship. The use of the information is allowed only for the purposes for which it was sent by the data provider. The receiving Single Window would ordinarily not be permitted to share this information, without the express permission of the party submitting it, with third parties except, of course, with other government agencies that are participating in the Single Window and are involved in a decision-making process related to the transaction (e.g., issuing permits, clearance of goods, etc.)

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In some countries, the exchange of trade and/or customs information with another Single Window may require the permission of the trader submitting such information. In this situation, it may be important to incorporate provisions to permit this in an end-user agreement for traders who submit trade data to the Single Window. In the absence of a permission, the transfer is would normally not be possible. Only a compelling reason of public interest could make an exception, e.g. if the transfer is necessary to save life or property values.

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- **Exchange of information is based on international standards and recommendations:** for the purposes of information exchange and interoperability of information systems, the parties should use existing international standards and recommendations as incorporated into their agreement(s) for the exchange of data.
 - **Exchange of information is conducted on a non-profit basis:** the information exchange should ideally be organized to take place on a free of fees or charges basis, especially in the G2G context. Where fees are charged, they should be cost-based and non-profit. However, this should not prevent the parties from concluding in an agreement to exchange trade data to adopt a fee schedule. This is also without prejudice to the financing model of the

1683 Single Window and the public services in general.

1684 **4.3. The legal basis for establishing cross-border interoperability**

1685 This matter is most closely connected with and based on public international law. Countries A and B
1686 may become legally obliged to create interoperability. Treaties and conventions create legal
1687 obligations on States. At the same time, and as noted in *Recommendation No. 35*, the national law
1688 that enables a country's Single Window should authorize the cross-border exchange of trade data
1689 and information.

1690
1691 In the absence of a binding treaty or convention, states may nevertheless undertake to cooperate
1692 with other states by assent on the basis of reciprocity and mutual recognition. This may include
1693 mutual recognition of Single Window systems. This may require considerable effort unless the
1694 administrative and technical systems are already quite similar. However, it is likely that some type of
1695 bi-lateral or multilateral agreement may be needed between the two or more States involved in
1696 establishing cross-border interoperability.

1697
1698 Legal obligations are most effectively created to cut administrative red tape and to harmonise
1699 administrative requirements such as the number and nature of administrative documents needed to
1700 fulfil the regulatory procedures conducted through the Single Windows. It is also possible to create
1701 technical interoperability requirements through legislation, but it is usually preferable to maintain
1702 technology neutrality in national legislation. It is suggested that technical (in the pure sense of the
1703 word) interoperability be established and maintained through negotiations.

1704 **4.4. Appropriate organisational structure**

1705 Establishing the organisational structure for the National Single Window (i.e., its legal structure and
1706 governance) is normally a matter of domestic law. National law determines to what extent
1707 contractual approaches are possible and whether self-assessment by End-Users of their obligations
1708 *vis-à-vis* the authorities and the Single Window systems is possible. And provided that the cross-
1709 border exchange of data is authorized in national law, the organizational issue should not affect
1710 Single Window Interoperability.

1711 **4.5. Identification, Authentication and Authorisation Procedure**

1712 The legal issues emanating from the identification, authentication and authorisation procedures are
1713 critical and complex in the context of SWI and consistent application of these procedures is vital. In
1714 any state across the world, the authorities involved and other potential users of a Single Window
1715 facility should take into consideration the UN/CEFACT Recommendation No. 14 in assessing the
1716 needs and levels of authentication.

1717
1718 Recommendation 14 states that, as far as possible, the requirement of a signature (manuscript or its
1719 electronic functional equivalent) should be eliminated unless it is essential in the context of the
1720 transaction.¹⁹ Depending on the scope and objectives of the SWI, consideration should eventually
1721 be given to the authentication methods, which are 'as reliable as appropriate' for a particular
1722 transaction within a country.

1723
1724 For example, if the aim of SWI is just to share and disseminate information about the trader or the

¹⁹ UN/CEFACT, *Recommendation No. 14: Authentication of Trade Documents*, UN Doc ECE/TRADE/C/CEFACT/2014/6/Add.1 (April 2014). Available at <http://www.unece.org/tradewelcome/areas-of-work/un-centre-for-trade-facilitation-and-e-business-uncefact/outputs/cefactrecommendationsrec-index/list-of-trade-facilitation-recommendations-n-11-to-15.html> (accessed 12 September 2014).

1725 trade transaction volume to formulate border management strategy, a low-level of authentication
1726 may adequate. Similarly, if a trader or its agent is an Authorised Economic Operator (AEO) or has
1727 signed a separate contract with the Customs Agency (or the Single Window facility) [by putting in
1728 place necessary financial guarantees], then only a low-level authentication may be needed for filing
1729 individual customs declarations.

1730
1731 However, States that participate in the exchange of information between their Single Window
1732 systems need to undertake a risk assessment to determine if the selected authentication method in
1733 each state is reliable enough to ensure safe and secure information exchange between the trader
1734 and the local Single Window (B2G). Thus, there can be an understanding that the information being
1735 conveyed to another national SW will take into account the nature of the information and the risks
1736 involved. Should the assessment lead to a positive result, the cooperating states should mutually
1737 recognize each other's authentication methods for exchanges of data emanating from the trader in
1738 his country of origin.

1739
1740 A similar assessment may be required to ascertain whether the authentication methods used by the
1741 government authorities are robust enough to ensure safe and secure information transmission
1742 between the Single Windows of cooperating States (G2G). While forming a cross-border
1743 authentication policy for SWI, the cooperating states should either agree on a common
1744 authentication standard in information exchanges between them or mutually recognize the
1745 standards of other cooperating states.

1746
1747 The creation of a legal framework that provides equal legal status and acceptability to modern
1748 authentication methods is crucial for SWI. Cooperating states should, where appropriate, take into
1749 account and adopt international legal standards/instruments and guidelines which serve as a
1750 benchmark when creating a legal framework to ensure its compatibility with the global legal
1751 infrastructure for the seamless exchange of electronic information.²⁰ The series of legal texts
1752 developed by the United Nations Commission on International Trade Law (UNCITRAL) provide tools
1753 for reaching a uniform legal framework also for the legal recognition of authentication methods.²¹
1754 Cooperating states should also take into consideration the emerging best practices such as the legal
1755 architecture of the Association of Southeast Asian Nations (ASEAN) and recent work at the UN
1756 Economic and Social Commission for Asia and the Pacific (UNESCAP) to make a Single Window
1757 facility legally interoperable.²²

²⁰ Hemali Shah and Ashish Srivastava, 'Authentication and Recognition Issues in Cross-Border Single Window' (2013) 47:6 *Journal of World Trade*, 1252. Available at <http://www.kluwerlawonline.com/abstract.php?area=Journals&id=TRAD2013041> (accessed 12 September 2014).

²¹ These include UNCITRAL Model Law on Electronic Commerce 1996, UNCITRAL Model Law on Electronic Signature 2001 and the UN Convention on the Use of Electronic Communication in International Contracts 2005. Available at http://www.uncitral.org/uncitral/uncitral_texts/electronic_commerce.html (accessed 12 September 2014). See also, the UNCITRAL Guidance document, Promoting Confidence in Electronic Commerce: Legal Issues on International Use of Electronic Authentication And Signature Methods. Available at <http://www.uncitral.org/uncitral/en/publications/publications.html> (accessed 12 September 2014)

²² It should be noted that the ASEAN Member States have completed drafting a *Protocol on the Legal Framework to Implement the ASEAN Single Window* to ensure that "...their local laws are synchronised for both Single Window at the national level and ASEAN Single Window". This draft Protocol is expected to be signed in 2015. Consideration may also be given by the cooperating States to the Framework Arrangement/Agreement on Facilitation of Cross-border Paperless Trade for the Asia Pacific Region of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Available at <http://www.unescap.org/events/ad-hoc-intergovernmental-meeting-regional-arrangement-facilitation-cross-border-paperless> (accessed 12 September 2014). Work on this international text is continuing through an Interim Intergovernmental Steering Group approved by the Commission at its Plenary Session in August 2014. See also, UNESCAP, *Electronic Single Window Legal Issues: A Capacity Building Guide*, pp. 20-32 (2012), available at http://www.unescap.org/sites/default/files/0%20-%20Full%20Report_4.pdf (accessed 10 October 2014).

1758 **4.6. Ownership of data**

1759 Many legal systems cannot classify the issue of ownership of data as a legal right comparable with
1760 ownership of physical or tangible property, or intangible property such as intellectual property
1761 rights, business methodology, goodwill and brands. Yet, many contractual approaches to the
1762 submission of data to Single Window systems recognize that the End-User may, to a certain extent,
1763 dispose of the use of the data that the End-User submits to the system. Such a provision would
1764 affect the rights of Single Window systems to exchange information with each other.

1765
1766 Reference may be made to the principle 5 as spelled out in item 4.2, *supra*. The application of the
1767 principle would lead to the limited use of the data submitted even without a contractual provision.
1768 The application of the principle would make contractual clauses less necessary and would apply in
1769 situations, in which the submission of information by the End-User to the Single Window is not
1770 regulated contractually.

1771
1772 The need to regulate the use of information in the exchange of data between the authorities of
1773 different states is especially motivated by the fact that states may exercise jurisdiction in situations
1774 with an international dimension differently, sometimes resorting to extraterritorial jurisdiction.

1775 **4.7. Right to obtain data from the Single Window**

1776 This may constitute a legal issue affecting Single Window systems, and cross-border dimension may
1777 add complexity to it. . States have very different policies as to the access to public documents and
1778 transparency. Customs information, however, is generally treated with confidentiality but other
1779 types of information is necessarily not. The different treatment of information could cause problems
1780 in the transfer of information. These are often constitutional issues and are seldom subject to legal
1781 harmonisation. Constitutional rights are normally enjoyed by the citizens, or local residents, only and
1782 not by foreigners.

1783 **4.8. Privacy and protection of commercial information**

1784 Data protection and privacy laws are generally national although some international regimes such as
1785 that adopted under the auspices of the Council of Europe exist. There exist methods to transmit
1786 personal data to other countries with sufficient level of legal protection. If such legislation does not
1787 exist, a contractual solution to the same effect may used. In the Customs arena, too, most Customs
1788 laws include confidentiality provisions to protect information submitted for trade transactions and
1789 some include criminal penalties for unlawful release of such data.

1790
1791 For example, the European Commission has produced model contracts to transfer data to countries
1792 which do not have legislation with protection equivalent with the EU.²³ If the EU recognized the
1793 standards of the country where the data is to be transferred, such as the United States, no contract
1794 is needed.

1795
1796 Most states have legislation on the protection of commercial secrets generally and additionally to
1797 meet treaty requirements under the WTO Agreement on Trade-Related Aspects of Intellectual
1798 Property Rights (TRIPS). Protection of commercial secrets, trade data, etc., are often the subject of
1799 legislative and regulatory measures in many countries.

²³ See the model clauses at http://ec.europa.eu/justice/data-protection/document/international-transfers/transfer/index_en.htm.

1800 **4.9. Accuracy and integrity of data**

1801 The accuracy and completeness of data is an issue that relates mainly to the competence and
1802 integrity of the party submitting information. If the information is submitted by a public authority,
1803 there exists at least a presumption of its accuracy. For public bodies issuing documents, the Single
1804 Window providing the information may be presumed to have provided accurate and complete
1805 information, unless fraud or falsification is demonstrated or obvious. For individuals, the
1806 administrative and criminal laws of the receiving country's Single Window (whose regulatory
1807 procedures are seized) may prevail. This may lead to questions of personal jurisdiction that may be
1808 complicated for national laws and constitutional protections for citizens. At least for non-criminal
1809 issues, such issues may be addressed in agreements related to SWI.

1810
1811 The technical integrity of data may also be subject to information security solutions that may be
1812 applied in the SWI environment. Usually, a party administering an information system has legal
1813 obligations to maintain information security. Information security standards should be addressed in
1814 the SWI agreements between the parties. Data hosting may be an issue addressed in this context.
1815 Some states regulate the hosting of their administrative data when outsourced.

1816 **4.10. Liability issues**

1817 In the context of this SWI Recommendation, liability usually refers to civil liability as distinct from
1818 criminal liability. The party incurring liability may be held liable for his or her acts or omissions in the
1819 context of operation or use of the SW. The liability may be based on statutory requirement, on a
1820 provision in a contract such as a User Agreement or may be tortious. Liability may be strict so that it
1821 does not presuppose negligence, or it may be based on negligence. A general requirement is
1822 causality between an act and the harmful consequence. Governments entering SWI agreements will
1823 need to address these issues particularly since they may have implications for the contractual
1824 relationships between private sector trading partners utilizing the Single Windows in each country.

1825
1826 Liability is one of the complicated issues in a cross-border context since in order to determine
1827 liability of any party, one needs to take into account in which jurisdiction the liability is to be
1828 determined, i.e. jurisdiction issues. Moreover, a court (or an arbitral tribunal where arbitration is
1829 possible) needs to determine what substantive rules will be applied to determine who may be held
1830 liable and in what situations liability arises.

1831
1832 Ordinarily, the SW operator will not be liable for the data content submitted by the private sector
1833 user of the Single Window. Where private sector operators of Single Windows (usually under
1834 contract with a government) are involved, there is a tendency of SW operators to include
1835 exculpatory clauses in End-User Agreements *vis-à-vis* the parties. SW operators could also agree on
1836 liability issues on a transnational basis e.g. by exculpating themselves from errors contained in the
1837 data submitted by the End-User which they transmit to another Single Window, or by agreeing on
1838 liability standards to be applied in the B2B cooperation.

1839
1840 See also jurisdiction and dispute resolution in items 4.10 and 4.15 respectively, *infra*.

1841 **4.11. Jurisdiction**

1842 Jurisdiction may be divided for the purposes of operating Single Window systems into 1)
1843 administrative, 2) civil and 3) criminal jurisdiction. The territorial scope of jurisdiction is a relevant
1844 issue also in this context since each state or a supranational organisation such as the EU may define
1845 its own jurisdiction. Sometimes, jurisdiction may be extended to situations where there are only
1846 limited connecting factors to the country or organization exercising jurisdiction. In the extreme,

1847 states may exercise extraterritorial jurisdiction.

1848

1849 States usually regard the right to have administrative and criminal jurisdiction relating to compliance
1850 with their administrative procedures indispensable. As both the administrative and criminal law and
1851 jurisdiction are national, states exercise jurisdiction in the presence of the company or person in the
1852 jurisdiction. This is a requirement for the establishment of jurisdiction and also makes enforcement
1853 possible. Often, therefore, states prescribe the need to appoint a local agent (such as a tax agent) to
1854 connect with the Single Window or the authorities of the country otherwise. This way there is a
1855 party within its jurisdiction to bear the liability. The financial obligations may be enhanced by
1856 requirements of putting up a security.

1857

1858 The exercise of jurisdiction in civil matters may be based on conventions and treaties but each
1859 country defines in its domestic law how the jurisdiction of the state courts is established. Civil
1860 jurisdiction is relevant especially when the relationship between the Single Window systems, or
1861 between an End-User and the Single Window, is based on contract, or when non-contractual (tort)
1862 liability is involved. Extraterritoriality may be particularly relevant when coupled with particularly
1863 excessive civil liability regimes.

1864

1865 While this Recommendation does not explore the detailed implications of criminal law issues,
1866 governments should consider these issues in establishing SWI. For example, if Company X from
1867 country B were to violate the criminal laws of country A by submitting false information or forged
1868 records or data to the authorities of country A, how will this be addressed? The breach of regulatory
1869 provisions e.g. by submitting false information may lead to criminal actions which in turn require
1870 jurisdiction. Therefore, states normally refuse to deal with parties they do not recognize and which
1871 do not have presence in their jurisdiction.

1872

1873 In criminal law, the application of domestic law is always connected with jurisdiction. In fact, the
1874 international aspects of criminal laws are presented as jurisdictional issues. If Country A exercises
1875 criminal jurisdiction on individual Y, a national and resident of country B, this usually presupposes
1876 the presence of Y within the jurisdiction of A either by being caught there or after having been
1877 extradited to Country A by Country B.

1878

1879 In dealing with the possible criminal liability of corporate entities, additional problems may arise.
1880 Further, difficulties in this area may arise, for example, if the cooperating SWI Countries A and B
1881 have very different approaches to the application of criminal laws in cross-border situations on
1882 dispute resolution.

1883

1884 See further item 4.15 on dispute resolution, *infra*.

1885 **4.12. Data Retention, Archiving, and Audit Trails**

1886 Each State in developing the national law (often through operating regulations) for its Single
1887 Window will define data retention and archiving, as well as audit trail, requirements. The use of
1888 archived information may be needed to fulfil a transaction between two Single Window systems.
1889 Different approaches to access to information and transparency in different countries may pose
1890 problems in respect of archived data. Thus, countries should carefully examine these requirements
1891 domestically and those of countries with which it may enter SWI agreements. Those SWI
1892 agreements may address the requirements expected for each participating country's SW in these
1893 areas.

1894 **4.13. Intellectual property and database ownership**

1895 It is submitted that these issues are merely organisational and should not have cross-border
1896 dimensions. International conventions on intellectual property create much harmony, due to which
1897 fewer problems should arise. The WTO TRIPS Agreement includes provisions on the protection of
1898 business secrets as well as enforcement of intellectual property rights under Part III.

1899 **4.14. Competition law**

1900 Competition law issues are mainly national law issues, or are applied in uniform markets such as the
1901 EU. Competition law nevertheless has a grip on some harmonisation measures between companies.
1902 It is submitted that competition laws would not pose any obstacle to Single Window Interoperability,
1903 unless the structure of the system is used to restrict competition. In any event, governments should
1904 carefully review their obligations under the WTO agreements applicable to competition issues.

1905 **4.15. Dispute Resolution**

1906 As has been noted in item 4.11 above, there are basically three types of disputes that could arise in
1907 the context of Single Window Interoperability: 1) administrative, 2) civil, and 3) criminal.

1908 Since Single Windows are a trade facilitation tool for governments, the substantive issues at stake
1909 are, it is submitted, predominantly administrative.

1910
1911 Single Windows are mainly seen as a channel of information, and administrative procedures and
1912 litigations are not affected by the means of communication. However, there may be instances where
1913 disputes between national Single Windows arise, for example, where one Single Window does not
1914 meet performance criteria (such as timeliness) and damages result for traders.

1915
1916 Given the costs of litigation, as well as other factors, it may be beneficial to include express dispute
1917 resolution mechanisms such as arbitration clauses in the SWI agreement.

1918