

**SUMMARY OF BUSINESS PROCESSES/ARCHITECTURE ANALYSIS AND
RECOMMENDATIONS TO THE FSB LEI IMPLEMENTATION GROUP and ROC**

Enterprise Architecture of the Global LEI System

PART A (ITERATION 1)

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EXECUTIVE SUMMARY

The LEI System initiative was envisioned to be a joint effort between the public and private sector. From July 2012 to January 2013 the regulators were organized in the FSB LEI Implementation Group and the private sector in the Private Sector Preparatory Group (PSPG). The working groups were divided in three workstreams: 1) Legal and Governance, 2) Operations and 3) Reference Data. This report is the result of the work of the PSPG Operations Workstream.

The work of the PSPG Operations Workstream took place in two iterations. The first iteration, from August to October 2012, was structured in four workgroups and was focused on the development of high-level processes descriptions and use-cases. The second iteration, from October 2012 to January 2013, was open to include all business and technological elements that will be necessary for the future operation of the LEI System. In particular, it was proposed to develop a whole enterprise architecture including business architecture, data architecture, applications architecture and technology architecture. All architecture definitions are at the conceptual level. In other words, the analysis does not imply any particular software development nor describe any particular solution.

The information generated by this group will be very useful for many participants in the system such as the plenary and executive committee of the ROC, the board of directors of the foundation managing the COU, the managerial team of the COU, the entities managing the LOU in different jurisdictions, the regulators, the financial institutions and all participants of the financial sector. The usefulness is twofold. It allows each participant to learn about the operation of the whole system, and it helps each participant to understand its own role and responsibilities.

The definitions follow the set of principles and recommendations endorsed in June 2012 by the G20 in Los Cabos. This analysis tries to depict the way a federated model could work and has a high emphasis on data acquisition, protection and quality control. The descriptions are at a high and conceptual level and could be implemented in the COU and LOU of any country with no dependency on any particular hardware or software. All that is required is the establishment and

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observance of a common set of processes and interfaces between the participating organizations of the federated LEI system. The hardware and software implementations of each organization's functional platforms could be independent.

This description is not meant to be finished. It is a work in progress that can be augmented with the feedback of all participants in the system. Moreover, the high-level descriptions of this document will have to be mapped to a low level specification to be implemented in any particular country or jurisdiction. For instance, the description of the business architecture will have to be associated with the low level software services that could implement the functionality. The data architecture will have to be mapped to physical model to be implemented in a database. Likewise, the network description has to be mapped to hardware, software and telecommunications technology.

For ease of handling, the work is organized in three documents. Document A has an executive orientation; document B contains the elaboration of the four domains of the enterprise architecture, and document C provides documentation of several special cases. Document A provides a high-level description of the core process that might be needed to start operations. It also has a list of recommendations made by participants of the PSPG. It is devised to illustrate ROC members with the functionality needed to operate and to communicate the basic functions to the general public.

Document B has a more detailed low-level specification. It is intended to be a tool for the Committee of Evaluation and Standards to define a first version of standards that the COU and the LOUs will need to implement. It includes the four domains of enterprise architecture: business, data, applications and technology. The business architecture contains the definition of the core and supporting processes. It is organized in three levels. Each level has its own set of macro-processes. The first level has five macro-processes, it starts with the most important, how to assign and manage a LEI, then it describes the process for publishing information, how to store and retrieve information, how to migrate a LEI from one LOU to another and how to enrich the reference data. The second level describes functional processes. It deals with issues of governance,

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standards and norms, management of infrastructure, management of service providers, audit and quality control. The third level deals with service processes such as accreditation of registrants and management of payments.

The Data architecture contains the description of the conceptual data model. It describes what data should be stored and managed the system of federated LOUs in order to perform everyday operations. The description in this section concentrates on the organization of the data suggested in the ISO 17442 standard, the operational data to support the processes and the place where reference data could be stored. It does not deal with the organization of hierarchies on reference data. Moreover, it is not dealing with a physical organization or database model, as these issues will depend on the technology implementation.

The Applications architecture outlines the basic applications and services that will need to be developed. A detailed worked is need to create a set of specifications useful for outsourcing or building a system.

The Technology Architecture is focused on the network architecture. It contains the description of how a federated system can be organized. At the conceptual level, it describes what would be the basic functions of the COU and how it can interact with the LOUs. Likewise, it describes the interaction among LOUs and how these LOUs will have to deal with registrars and final users. It is relevant to highlight that there is no description of hardware, software or telecommunication technologies, as these issues will be dealt with in the implementation stage.

Finally Document C has a documentation of seven special cases. The first contains business requirements that deal with special cases such as derivatives risk exposure, CDOs, capital buffers, liquidity coverage ratios and risk reduction. The second includes operational reports and metrics. The third deal with different process and recommendations to manage reference data. The fourth and fifth deal with situations of LEI transfers. The sixth explains the way LEIs should be assigned to funds. As a final point the last section describes an audit framework.

OBJECTIVE AND STATUS OF THIS DOCUMENT:

This paper seeks to provide a comprehensive framework for the analysis of the Architecture and Business Processes that need to be implemented in order to set-up a global LEI System, and aims at substantiating on solid ground the recommendations of the PSPG Operations Group to the IG on those important matters. It does not cover other key operational areas, such as the structure of the LEI number, the data quality, or the contents of the reference data.

In this context, the word "System" refers to the concatenated value-chain linking together the ROC, the COU and the LOU's to the end-users. Consequently, all the concepts used here (such as "key business capabilities" to be developed) apply to the system, not to any individual structure. Though it will obviously be the responsibility of the managers of these future structures to define their own procedures and resources, this work, if endorsed by the IG and subsequently the ROC, will provide general guidance to the participants in the system, as to what is expected of whom, and as to how operationally link to each other (upstream, downstream and sideways).

The work builds on previous documents prepared for the Basel PSPG meeting of October 2012 by a number of participants in the WG 4, but since the merge of the various Operations Group in one, the request for authorship has been extended to all the members of the new Operations Group. It reflects as much as possible a consensus view of the contributors, though serious divergences, if any, will be highlighted in order to facilitate the arbitration of the IG. In terms of internal procedure, it represents the iteration two of the interaction framework set-up between the PSPG and the IG.

METHODOLOGY AND STRUCTURE OF THIS DOCUMENT

This document is organized in two parts: A, and B, each divided in Chapters.

A. Part A "**High-level overview of the Processes and Architecture**" is basically structured as a matrix for the analysis of the Processes against five criteria:

- Use cases
- Stakeholders and RACI (high-level roles and responsibilities) for those use cases
- Main stakes and Risks involved in the use cases
- Key Business capabilities required to deliver on the use cases
- Critical success factors/related recommendations.

The whole Part A is divided into five Chapters for ease of reading:

1. Global overview of the LEI Processes (Five Macro Business Processes, Four Macro Functional Processes, Three Macro Support Processes)
2. Analysis of the five Macro Business Processes against the criteria
3. Analysis of the Four Macro-Functional Processes, ditto
4. Analysis of the Three Macro Support Processes, ditto
5. Synopsis of the recommendations

B. Part B "**Analysis of sub-Processes**" drills down more analytically into the processes laid out in Part A.

It is structured in Chapters, one per sub-process. Within each chapter, we discuss:

- A rationale driving the analysis.
- A synopsis of Use Cases versus Sub-processes: each use-case may point to one or several sub-processes in order to deliver the service or deliverable needed.
- An analysis of each sub process in terms of "Actor"/"Action"/"Result"

The final Chapter is a summary of the recommendations.

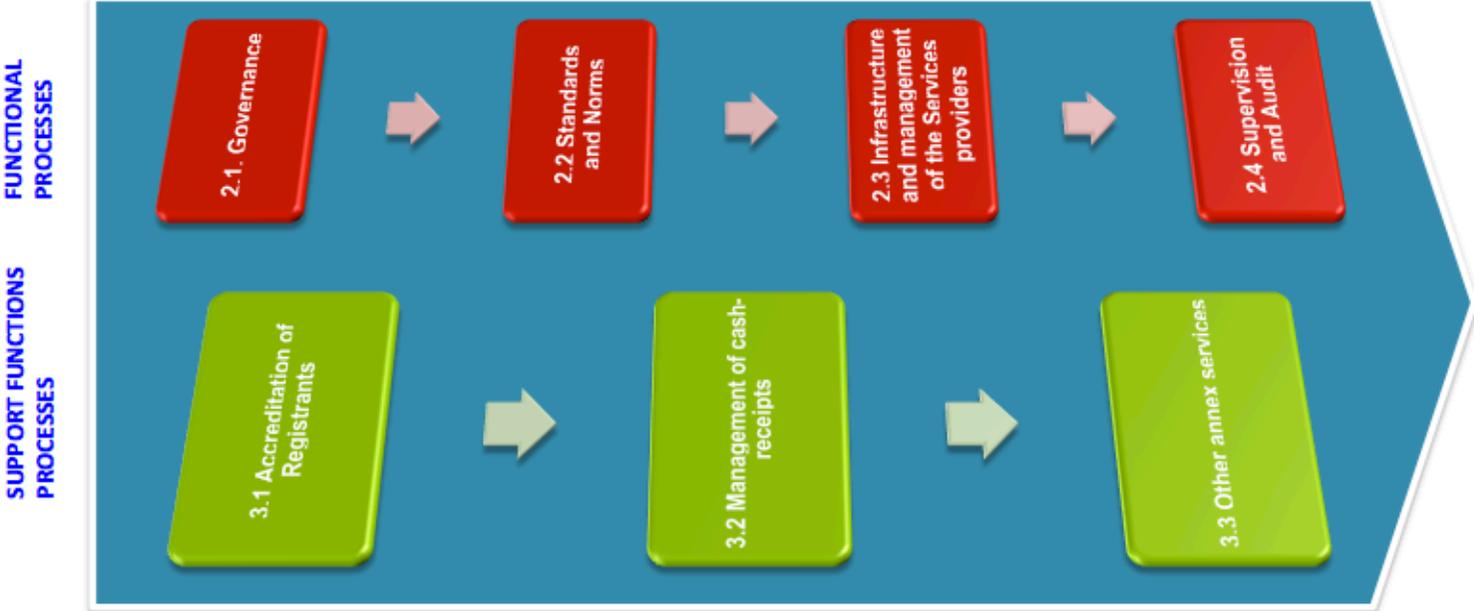
PART A: HIGH-LEVEL OVERVIEW OF THE PROCESSES AND ARCHITECTURE

1. GLOBAL OVERVIEW OF THE LEI PROCESSES.

MACRO BUSINESS PROCESSES



MACRO FUNCTIONAL & SUPPORT PROCESSES



2. ANALYSIS OF THE FIVE MACRO-BUSINESS PROCESSES AGAINST THE CRITERIA

Macro-Business Process 1(MBP1): Assign and manage the LEI



Analysis

USE CASES	Stakeholders and RACI	Main stakes <i>and</i> Risks	Key Business Capabilities	Critical Success Factors/Recommendations
<ul style="list-style-type: none"> Initial registration Validation Modification/Update Cancellation Termination Confirmation Maintenance of Records Maintenance of record history Challenging Resolution of errors and frauds 	<p><u>End-users:</u></p> <ul style="list-style-type: none"> LE authorized 3rd parties Regulators G. Public <p><u>Providers:</u></p> <ul style="list-style-type: none"> The COU/LOU system <p><u>Stakeholders:</u></p> <ul style="list-style-type: none"> LE (A) 	<p><u>Stakes:</u></p> <ul style="list-style-type: none"> Allow any LE in the world to Register Ensure uniqueness of the LEI Validate the master data Maintain the information current <p><u>Risks:</u></p> <ul style="list-style-type: none"> Allow ghost 	<ul style="list-style-type: none"> Cover all the jurisdictions Generate unique LEI keys within a federated system Develop a robust validation capability Detect illegitimate applications or non-existent LE's Allow for flexibility (direct Registration for an LE, mandated 3rd parties, etc) Maintain the information current (allow for modifications, detect stale data) Provide for differences in languages and character sets Provide an efficient interface to the users, either individual Legal Entities requesting one LEI, or Head-offices requesting Bulk Registration and 	<ul style="list-style-type: none"> Clearly define and publicize worldwide what entities need to register and in what cases. Define a means to detect non-compliers. Provide a "friendly" reminder to the negligent LE's before escalating. Provide simple and understandable directions for use, and easy access (user-friendly interfaces) to the registering system to any concerned LE.

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Accountable for the timeliness and correctness of its own registration and that of its related subsidiaries

ROC (A):
Defines the policy and objectives of the whole process

COU (A/R/C):
Defines the operational strategy (A); implements the Policy (R); Is consulted by the ROC (C)

LOU (R):
implements the operational strategy and the policies

End -users: (I)

- entities to register*
- *Assign the same LEI to different entities*
 - *Assign more than one LEI to the same entity*
 - *Validate incorrect data*
 - *Let the data become stale*

- uploading
- if needed, provide safe alternative methods of access besides the Internet (fax, paper)
 - Publish Provide an easy access to whistle-blowers

- Implement a process which does not tamper with the business needs (especially in a busy transactional environment, such as capital markets).
- Clearly define the responsibilities in the validation and maintenance process and widely publicize them.
- By all means, strongly involve the the LE's in that process.
- Demand a sound validation and maintenance process (quality of sources, type of validation demanded, time-lag admitted after the corporate events), but realistically in accordance with the business environment in the concerned jurisdiction.
- Clearly define the Federated vs Central trade-offs
- Scalable collision avoidance
- Open the data to public scrutiny and challenge and encourage the

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Are informed

whistleblowers.

- Symmetry in cross-border requirements.
- Ensure portability from LOU to LOU is an inbuilt capability from the start and that it is easy to implement.

Macro-Business Process 2(MBP2): Publish the LEI



Analysis

USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Business Capabilities	Critical Success Factors/Recommendations
<ul style="list-style-type: none"> Publicize the LEI's Give legal strength to the records 	<p><u>End-users:</u></p> <ul style="list-style-type: none"> Regulators FI's Market infrastructures GP <p>Governance (A)</p> <p>Functional expert support (C)</p> <p>LEI operational Communication (R)</p>	<p><u>Stakes:</u></p> <p>As soon as it is issued, the LEI must be readily available, to any person, at any stage of the processing (pre-trade, post-trade, reporting), in any place in the world.</p> <p>What is at stake is its ability to be used as the ultimate reference key within an organization. It must be not only "fit-to-use", but also "ready-to-use"</p>	<p>Any interested party must be able for free or for a vey small fee to link a LE to a LEI (and reverse).</p> <ul style="list-style-type: none"> Provide an internet access to the general public Delta files 	<ul style="list-style-type: none"> Assessment Control before publication Readiness

Macro-Business Process 3(MBP3): Store and retrieve the LEI



Analysis

USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Business Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Data archiving and safekeeping strategy Direct and reverse searches of individual LE/LEI's Retrieve hierarchies, affiliates, parents, starting from any LEI or from any LE Bulk download of information and feed into systems Define several profiles of users and different (and fee-based) value-services, such as researchers, database 	<ul style="list-style-type: none"> Governance (A) IT support functions (R) Control and audit functions (C) LOU, COU, ROC (I) 	<ul style="list-style-type: none"> Obtain one single, researchable database Fragmentation of the DB between the LOU's Be able to respond in a very short span of time to mass demand from multiple regulators Maintain a history of all the modifications 	<ul style="list-style-type: none"> Data storage LOU to LOU sharing capabilities COU aggregating capabilities Provide seamless access to all the database for mass queries, under multiple criteria Develop efficient tools to feed the info into other systems without human interference 	<ul style="list-style-type: none"> Clear definition of the requirements, controls, audit sessions Anticipate the need of technical resources Reactivity in the problem identification and solutions. Distinct 1st and 2nd level between production and control.

vendors, etc.

- Develop a tool to track the history of any LEI

Macro-Business Process 4(MBP4): Migrate from a LOU to another



Analysis

USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Business Capabilities	Critical Success Factors
<ul style="list-style-type: none"> • Request from a LE to migrate from LOU A to LOU B • Individual migration (for one Legal Entity) • Bulk migration (for one Legal Entity) 	<ul style="list-style-type: none"> • ROC (A) • The COU (A/R) for publishing and enforcing the norms needed to ensure full and easy portability of an LEI from one LOU to another LOU • The LOU (R) 	<ul style="list-style-type: none"> • Ensure sound competition among LOU's • <i>Users are locked in one LOU</i> • <i>Loss of history</i> 	<ul style="list-style-type: none"> • Receiving and sending - end harmonized procedures • Mandatory timeframe • Escalation procedure • Bulk migration capabilities • Reasonable cost 	<ul style="list-style-type: none"> • Clear, fair and simple rules • Information of LE's

Macro-Business Process 5(MBP5): Enrich the Reference data

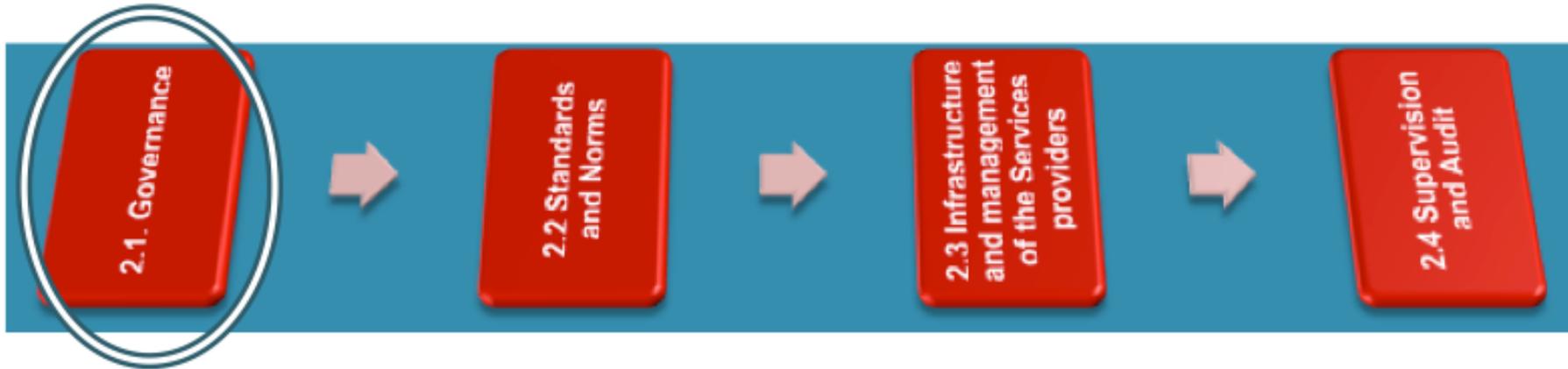


Analysis

USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Business Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Add new fields Have the LE's complete the new fields, and check the new contents 	<ul style="list-style-type: none"> ROC (A) COU (A/R) LOU (R) LE (A) 	<ul style="list-style-type: none"> Progress towards the ultimate objective of the LEI system (regulatory and risk control needs) Maintain alignment with all the jurisdictions <i>The LE's are not motivated, and the new fields are not completed</i> 	<ul style="list-style-type: none"> Parallel development in all the LOU's Bulk modifications (ie, in case of a merger, all the affiliates change their parent Cy) 	<ul style="list-style-type: none"> Integrity and control Tracking of modifications, creations or cancelling of data Clear identification of sources, validations, up date Dashboard for RACI involved structures

3. ANALYSIS OF THE FOUR MACRO-FUNCTIONAL PROCESSES AGAINST THE CRITERIA

Macro-Functional Process 1(MFP1): Governance

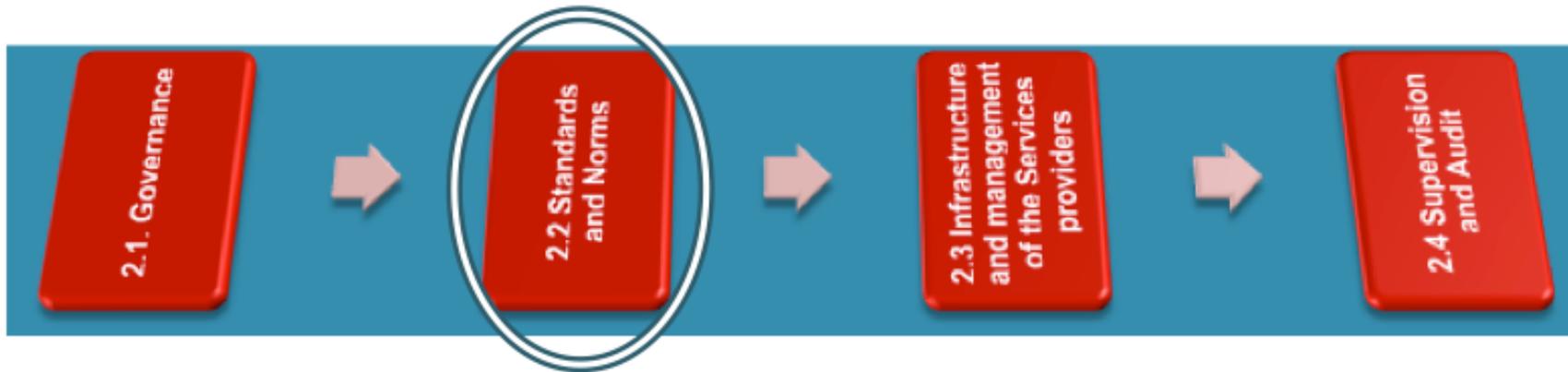


USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Functional Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Licensing and de-licensing of LOU's Policies and general evolution of the system Rules of the game (pricing, confidentiality, fairness, etc.) Rules of competition among LOU's Management of the 	ROC(A/R) COU(A/R) LOU(I) ROC stands up and charters the COU The COU certifies the LOU's and issues ID to authorize them	<ul style="list-style-type: none"> All LOU's must adhere to clear, fair, known and harmonized standards <i>Sub-standard LOU's are authorized to operate</i> Any LOU is eligible as soon as it passes the tests <i>Eligible LOU's are</i> 	<ul style="list-style-type: none"> ROC develops a clear and comprehensive Policy charter and delegates implementation to COU COU develops a Charter to manage LOU's applications, registrations and deregistrations COU develops the 	<ul style="list-style-type: none"> The COU has effective means to enforce the SLA's and the ROC's policies The COU has effective means to assess the reality of the business capabilities of the LOU's The COU is a LOU of last

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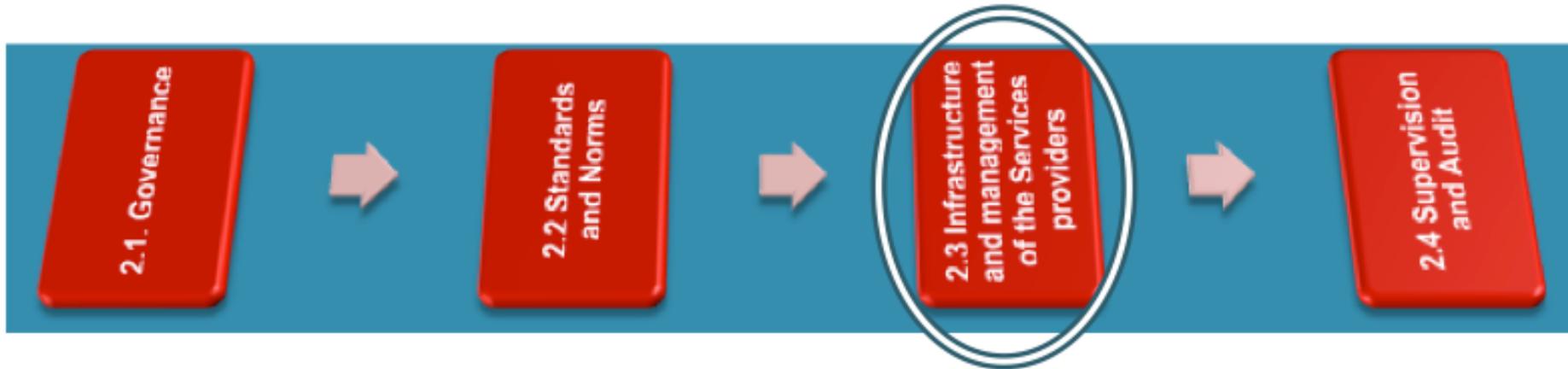
USE CASES	Stakeholders and RACI	Main stakes <i>and Risks</i>	Key Functional Capabilities	Critical Success Factors
<p>LOU's population (Membership payments, invoices, etc.)</p> <ul style="list-style-type: none"> Reporting obligations of the LOU's 		<p><i>barred to enter the market on unfair grounds</i></p>	<p>tools needed to manage the LOU's Registry, manage profiles, handle bills, etc</p> <ul style="list-style-type: none"> COU develops a framework for the SLA's COU develops the tools needed to track at close range the business capabilities and performance of the LOU's (dashboard, data integrity, adherence to standards, etc.) 	<p>resort in case of failure, or some other backup procedures exists (such as mass switching from a failing LOU to other LOU's)</p>

Macro-Functional Process 2(MFP2): Standards and norms



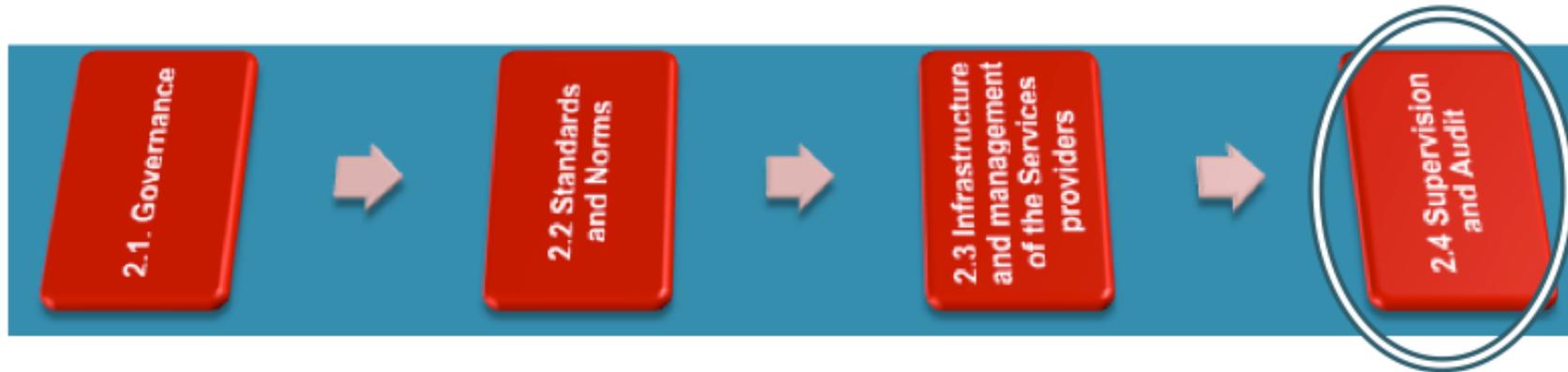
USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Functional Capabilities	Critical Success Factors
<ul style="list-style-type: none"> • Maintenance and evolution of the detailed specifications of the LEI • Definition of Quality standards • rRsk management standards • Contingency Plans • Definition of language standards 	<ul style="list-style-type: none"> • COU defines, publishes and maintains Global Standards, within the Policies of the ROC (A) • LOU apply this rules (R) 	<ul style="list-style-type: none"> • The standards and norms are uniform in all the system • Any change in the standards is immediately applied in all the LOU's simultaneously • <i>Divergence in norms over time</i> 	<ul style="list-style-type: none"> • Manage the LEI spectrum across the LOU's • Define the SLA's and the attached CTQ 	<ul style="list-style-type: none"> • The COU has the capability to enforce the rules • A uniform book of rules, procedures, quality standards, compliance objectives, etc... is adhered to by all the LOU's before being authorized to operate

Macro-Functional Process 3(MFP3): Infrastructures and management of providers



USE CASES	Stakeholders and RACI	Main stakes <i>and Risks</i>	Key Functional Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Choice of the Central solution, databases, providers 	<ul style="list-style-type: none"> COU (A/R) ROC (A) LOU (I) 	<ul style="list-style-type: none"> Robust central framework Open standards <i>Exposure to single-actor lock-in</i> 	<ul style="list-style-type: none"> Capability to integrate any number of LOU's without loss of capability/quality/safety/ 	<ul style="list-style-type: none"> Efficiency of the technical solution Design to cost (investment, production, maintenance...) Capability to evaluate and be adopted by actors in the world Integrity in the choice

Macro-functional Process 4(MFP4): Supervision and auditing



USE CASES	Stakeholders and RACI	Main stakes <i>and Risks</i>	Key technicall Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Maintenance of Market integrity and abuse curbing Auditing of the LOU's 	<ul style="list-style-type: none"> ROC (A) COU (R) LOU's (I) <p>The COU is the executive arm of the ROC to ensure respect of policies, market integrity and soundness of the system over time.</p> <p>It must be empowered to act as needed, including taking legal action against malpractice, fraud, etc.</p>	<ul style="list-style-type: none"> Maintain a sound system over time Ensure protection against systemic risks Provide all reporting and explain the protection's measures adopted 	<ul style="list-style-type: none"> Define a supervision charter Deploy adequate supervision tools, both automated and human 	<ul style="list-style-type: none"> Ensure capability to act across the jurisdictions Ensure capability to process the claims, and provide for effective escalation

4. ANALYSIS OF THE THREE SUPPORT FUNCTIONS AND OTHER SERVICES AGAINST THE CRITERIA

Macro-support function 1(MSF1): Accreditation of registrants



USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Technical Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Validate the mandate to register, legal representations, etc Manage the database, in and out procedures, etc. 	<ul style="list-style-type: none"> COU (A) LOU's (A/R) The COU should define a general Policy across the LOU's, though the application should adapt to local conditions 	<ul style="list-style-type: none"> The Registrants must be properly identified, or illegitimate Registries may occur 	<ul style="list-style-type: none"> Safely authenticate and authorize Registrants, and maintain the Registries and their history over time 	<ul style="list-style-type: none"> Develop a methodology to ensure legitimacy of Registrants without overly heavy procedures

Macro-support function 2(MSF2): Management of Cash receipts



USE CASES	Stakeholders and RACI	Main stakes and Risks	Key Technical Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Initial fee Maintenance fee Customized services 	<ul style="list-style-type: none"> COU/LOU (A/R) <p>The cash-receipt system is not a shared resource, but probably a proprietary resource in each LOU. However some common features might be demanded by the COU (such as availability of several payment channels)</p>	<ul style="list-style-type: none"> The cash-receipt system must be sound, within the generally accepted norms for distant cash-payments 	<ul style="list-style-type: none"> Safe cash-in capabilities 	<ul style="list-style-type: none"> Accept a variety of payment methods, not only Credit cards

Macro-support function 3(MSF3): Other annex services



USE CASES	Stakeholders and RACI	Main stakes and Risks	Key technical Capabilities	Critical Success Factors
<ul style="list-style-type: none"> Other services (communication and information, statistics, etc.) 	<ul style="list-style-type: none"> ROC (A) : defines the policies and minimum standards LOU/COU (R): implementation 	<p>The System must be able to provide critical statistics, ie :</p> <ul style="list-style-type: none"> Volume and complexity of data being registered % of coverage in multiple dimensions (ie, by jurisdiction, type of LE, ...) Typology of LE's being covered Quality and completeness of data. as detected by validation framework, preventive/detective controls Channel of entry 	<ul style="list-style-type: none"> Data collection and reporting across all LOU's 	<ul style="list-style-type: none"> Interactions with governance, experts, operational Respect of principles of quality, control and validation before the publishing of any information

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	<p>environment, such as capital markets)</p> <ul style="list-style-type: none"> Enforce clear simple and easy rules for migrating from one LOU to another 				
Ensuring the quality of the reference data	<ul style="list-style-type: none"> By all means, strongly involve the LEs in that process. Demand a sound validation and maintenance process (quality of sources, type of validation demanded, time-lag admitted after the corporate events), but realistically in accordance with the business environment in the concerned jurisdiction. Open the data to public scrutiny and challenge and encourage the whistleblowers. 	MBP1	<ul style="list-style-type: none"> 		<ul style="list-style-type: none">
"Owner" of LEI data	<ul style="list-style-type: none"> Timeliness to complete setup of 	tbd	<ul style="list-style-type: none"> Initial setups taking a long time 	tbd	<ul style="list-style-type: none"> Every LE implements Governance to place ownership of LE data with one group, and with one

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	<ul style="list-style-type: none"> all LEI attributes Timeliness of updates to attribute values Timeliness for applying updates due to Corporate Actions 		<ul style="list-style-type: none"> Lagging of updates causes “stale” data to exist 		responsible person
Transfers (excluding Initial Conversions from pre-LEI sources)	<ul style="list-style-type: none"> Incomplete LEI setup Status (“Pending”) cannot be Transferred 		<ul style="list-style-type: none"> Transfer requests may be constrained and not allowed in certain situations 		<ul style="list-style-type: none"> Incomplete LEI setup Status (“Pending”) cannot be Transferred
Data Exchanges/ Communications / Messages	<ul style="list-style-type: none"> All public attributes should be supported in messages and File Transfers (internal usage). Non “Core” attributes can be defined as “Optional”. 		<ul style="list-style-type: none"> Messages and data extracts should contain “Public” LEI reference data LEI’s becoming invalid must be “Deactivated” or “Annulled” at some point Changes to LEI data must be distributed 		<ul style="list-style-type: none"> All public attributes should be supported in messages and File Transfers (internal usage). Non “Core” attributes can be defined as “Optional”.
Publishing of LEI’s	<ul style="list-style-type: none"> Other than the specific LE or LOU, “Pending” LEI’s will not be visible or Published 		<ul style="list-style-type: none"> Un-validated LEI’s must not be distributed unless specific guidelines are included 		<ul style="list-style-type: none"> Publishing of LEI’s only after reaching Status of “Verified by LOU”, or greater
Bulk or multi-LEI Transfers: Data Validations	<ul style="list-style-type: none"> LEI’s must be validated by the LOU using the complete LEI “file” (or COU system equivalent) before 		<ul style="list-style-type: none"> Data Quality must be as high as possible 		<ul style="list-style-type: none"> LEI’s must be validated by the LOU using the complete LEI “file” (or COU system equivalent) before LEI’s can be Verified & Published. See the Transfers section for more details

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	LEI's can be Verified & Published. See the Transfers section for more details				
Security Permission / Authorization	<ul style="list-style-type: none"> Data cannot be allowed to be altered by unauthorized parties or personnel 		<ul style="list-style-type: none"> Data cannot be allowed to be altered by unauthorized parties or personnel 		<ul style="list-style-type: none"> Data cannot be allowed to be altered by unauthorized parties or personnel
Security Permission / Authorization	<ul style="list-style-type: none"> Security Permission / Authorization is required by controlling local jurisdictional data privacy needs and requirements 		<ul style="list-style-type: none"> Data Privacy Rules (according to each jurisdiction) must be identified and supported 		<ul style="list-style-type: none"> Security Permission / Authorization is required by controlling local jurisdictional data privacy needs and requirements
Multi-Language support	<ul style="list-style-type: none"> LEI's must be validated by the LOU using the complete LEI "file" (or COU system equivalent) before LEI's can be Verified & Published 		<ul style="list-style-type: none"> Multi-lingual support must be developed to meet local country needs and requirements 		<ul style="list-style-type: none"> LEI's must be validated by the LOU using the complete LEI "file" (or COU system equivalent) before LEI's can be Verified & Published Roll-out of languages can be multi-phased
Publishing of LEI's	<ul style="list-style-type: none"> There must be a security "layer" to control / limit data attributes being published to the general Public 		<ul style="list-style-type: none"> Required data must be published and available Private data must be secured (details of specific requirements need to be established) 		<ul style="list-style-type: none"> There must be a security "layer" to control / limit data attributes being published to the general Public
Audit and Full History	<ul style="list-style-type: none"> Must be able to "re- 		<ul style="list-style-type: none"> Ability to track old values 		<ul style="list-style-type: none"> Include attributes such as: Date Created, Date

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	<p>build” “as of” data values sets at any historical point in time</p> <ul style="list-style-type: none"> All History of all data changes are retained 		<p>is critical</p> <ul style="list-style-type: none"> Must be able to re-create “Point-in-Time” views of all data 		<p>Updated, Create and Update Login ID's</p> <ul style="list-style-type: none"> Must be able to “re-build” “as of” data values sets at any historical point in time All History of all data changes are retained
Bulk Loads and Bulk Updates	<ul style="list-style-type: none"> Include support for Bulk Loads and Bulk Updates 		<ul style="list-style-type: none"> Fundamental feature 		<ul style="list-style-type: none"> Include support for Bulk Loads and Bulk Updates
Contacts	<ul style="list-style-type: none"> Need support for Contacts relating to LE's and for LOU's 		<ul style="list-style-type: none"> Must be able to know who to contact for resolving issues and Open Items 		<ul style="list-style-type: none"> Need support for Contacts relating to LE's and for LOU's Fields include: Name, Address, Phone #, Email Address, Department or Group Name
Effective and expiration dates support	<ul style="list-style-type: none"> Where tables exist with “relationships” (such as the LOU to LEI), include use of Effective and Expiration dates 		<ul style="list-style-type: none"> Must know when changes to relationships occurred Legal liability needs 		<ul style="list-style-type: none"> Where tables exist with “relationships” (such as the LOU to LEI), include use of Effective and Expiration dates
“Fuzzy” Matching Rules & Logic	<ul style="list-style-type: none"> Need support for “fuzzy” Matching Rules & Logic for de-duplication verifications on Text strings 		<ul style="list-style-type: none"> Need support for “fuzzy” Matching Rules & Logic for de-duplication verifications on Text strings 		<ul style="list-style-type: none"> Need support for “fuzzy” Matching Rules & Logic for de-duplication verifications on Text strings, such as Entity Name, Entity address such as Entity Name, Entity address Consider cross-language support (at some future time) <p>Generate list of “fuzzy” matching Text strings to identify potential duplicate existing Entities. Include situations like: “NY” to “New York” “US” to “United States” “Deutschland” to “Germany”</p>

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					<p>“Sverige” to “Sweden”</p> <p>Acronyms “Bo*” and “BO*” to “Bank of*”</p> <ul style="list-style-type: none">• Examples: “BONY” to “Bank of New York” and “Bank of NY”• Acronyms “Ci*” and “CI*” to “*Cayman Islands*”
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PSPG Members Suggestions

B. Monahan

- 1 - LEI allocation and maintenance should be a self-registered activity and the entity being responsible to the local regulator for incorrect details. Though the LOU needs to basic checks on the validity of the initial content and that the registrant is entitled to request an LEI for the entity being registered.
- 2 - A federated architecture needs to be relatively simple to ensure global participation, though participation rules need to be clearly defined to ensure a high level standard in terms of the LEI content (i.e. content quality, availability, cooperation, security, etc). Simply, letting the system evolve rather than expect completeness from the outset will encourage participation.
- 3 - Relationship information should be included from the beginning, even if not achieving the desired levels of detail.
- 4 - Regulators need to act in harmony to promote/market the benefits and global scope of the LEI.
- 5 - Flexibility is key. This is the beginning of a journey, not the end. So the delivered system (business and technical) needs to be flexible from the onset.

A. Handy

1- Never lose sight of the big picture. As the system grows and develops and needs change, there should always be a ways for the ROC to have a view of the entire system and any modifications to the initial structure should be taken in the context of not only their effect on the immediate nodes, but also secondary effects throughout the system.

2- Related to the above and in agreement with Blair's last point, flexibility is key and the system should be able to change in terms of structure or content so that it is always relevant.

3- The ROC should not underestimate the value of the information they posses. Banks will have the opportunity to perform analytics and utilize LEIs as they see fit, but the ROC is in a position to perform analytics of its own as well as perspective on the dynamic nature of global financial markets. Ongoing research in a steady state of the LEI system would lead to valuable insights that continue to reduce widespread systematic risk

4- The relationship situation is so complex and we've seen that in the active discussions as well as in response to questions about the treatment of branches and entities that may not be independent entities in some situations but are in others, ringfencing by jurisdiction, etc. The ROC should spend a large amount of phase 2 understanding what it means for entities to be related and perhaps begin to standardize and document the definitions of various relationships cross border. This gets into a lot of legal conversations, but as we've seen through this exercise legal/governance and operations are very tightly intertwined. Even if the relationships remain complex, creating a standard understanding of what each relationship means is a huge first step.

N. Beekarry

Fundamental components for effectiveness of the system:

1. Clear and simple rules on how the federated system will be organized and function: basic functions of the COU and how it interacts with LOUs and interaction among LOUs.
2. Interaction between local registrars and LOUs will be a critical for the system to work.
3. Minimum relationship information at inception is vital.
4. Clear processes for management of LEI information and audit and control.
5. The role of the regulators / relationship with LEs in ensuring the proper functioning of the system.

R. Doyle

Key priorities for would be:

LEIs cannot be changed once issued unless retired due to a corporate action. Preventing duplicate LEIs from being issued in the first instance will ensure support of the key principle of persistence; thus creating **operational procedures for persisting LEIs** is paramount.

There needs to be a **centralized data source** for LEIs issued by all LOUs to facilitate data quality (ease of ability to check for duplicates) and use of the data by end-users. End-users cannot hook up to multiple LOUs to get the current population of LEIs.

Robust data **validation capabilities** by LOUs and the COU both at initial registration and on an ongoing basis need to be in place to ensure data quality. The system cannot rely solely on the registrant for quality information. The fact is, the registrant does not always submit accurate information, nor do they maintain their information timely (or at all).

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Flexible architecture to accommodate future changes

M. Edwards

I have only three important points from the credit union/small bank perspective but these are what will really matter to small institutions:

(1) We need an easy on-boarding process for banking institutions, including credit unions, which at most involves the LOU checking with the bank's supervisory authority to confirm the institution's identity; i.e. institutions with banking licenses should not be required to hire an accounting or law firm to verify its identity even if other types of institutions have to do so (including possibly some bank subsidiaries which are not banks, such as SPVs); the identity verification of banking institutions has already been performed by the supervisory agency which granted the banking license.

(2) It is important to have low cost pricing of LEI number issuance for SMEs; \$100-\$200 -- like for the CICI -- is okay but if the LOU's fees would be higher than a nominal amount, there should be lower or no fees for SMEs.

(3) The regulations/rules should be written so that vendors of back offices products (such as the core banking system vendor) are required to update their software products to incorporate LEI without additional costs or only at a low cost. Credit unions and many banks typically have vendor contracts which specify that new regulatory requirements will be incorporated into the software product without additional costs, but the vendors often argue that whatever new regulatory requirement they are being required to respond to is not covered by that clause. The LEI system will cause a lot of problems for small financial institutions if vendors are allowed to charge a lot for incorporating LEI into these back-office systems, and since many institutions use platforms which are unique to a particular vendor, the institution usually cannot drop the original vendor without transitioning to a new platform at great expense. The LEI should not be an avenue for vendors to charge a lot of money to update their systems to incorporate LEI.

M. Davies

1. Ongoing accuracy-this needs to be a trusted solution, without that it will not get off the ground or quickly become redundant.
2. Persistence-identity of the company behind each LEI must not change without a validated corporate action.
3. Standards and consistency- of process, fields, distribution, timeliness, corporate action handling, definition of a legal entity, duplicate handling etc etc
4. Uniqueness-duplication will prevent rapid response to an industry event, credit crisis etc. This is essential for market stability in times of crisis.
5. Politics-don't let national interests get in the way of an effective global solution or we all lose.